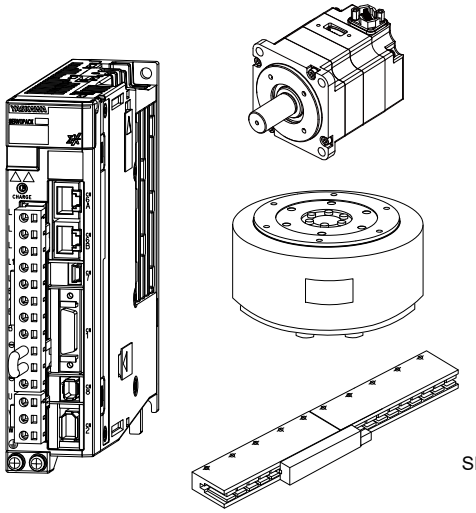
YASKAWA

Σ-X-Series AC Servo Drive

Σ-XS SERVOPACK with MECHATROLINK-4/III Communications References FT Specification for Press and Injection Molding Application

Product Manual

Model: SGDXS-□□□□40□□□□□40□



MANUAL NO. SIEP C710812 22A

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Preface and General Precautions

i.1 About this Manual

This manual describes the Σ-X-series AC servo drive Σ-XS SERVOPACK with MECHATROLINK-4/III communications references for press and injection molding application.

Read and understand this manual to ensure correct usage of the Σ-X-series AC servo drives.

Keep this manual in a safe place so that it can be referred to whenever necessary.

i.2 Outline of Manual

The contents of the chapters of this manual are described in the following table.

Read this manual together with the manual shown in the following table when using the Σ-X-series SERVOPACK with the press and injection molding application.

Item		This Manual	Σ-XS SERVOPACK with MECHATROLINK-4/III Communications References Product Manuals (Manual No.: SIEP C710812 01)
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	Interpreting Model Numbers	1.2	–
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	Alarm Displays	4.1	–
	Warning Displays	4.2	–
	Monitoring Communications Data during Alarms or Warnings	–	13.4
	Troubleshooting Based on the Operation and Conditions of the Servomotor	4.3	–
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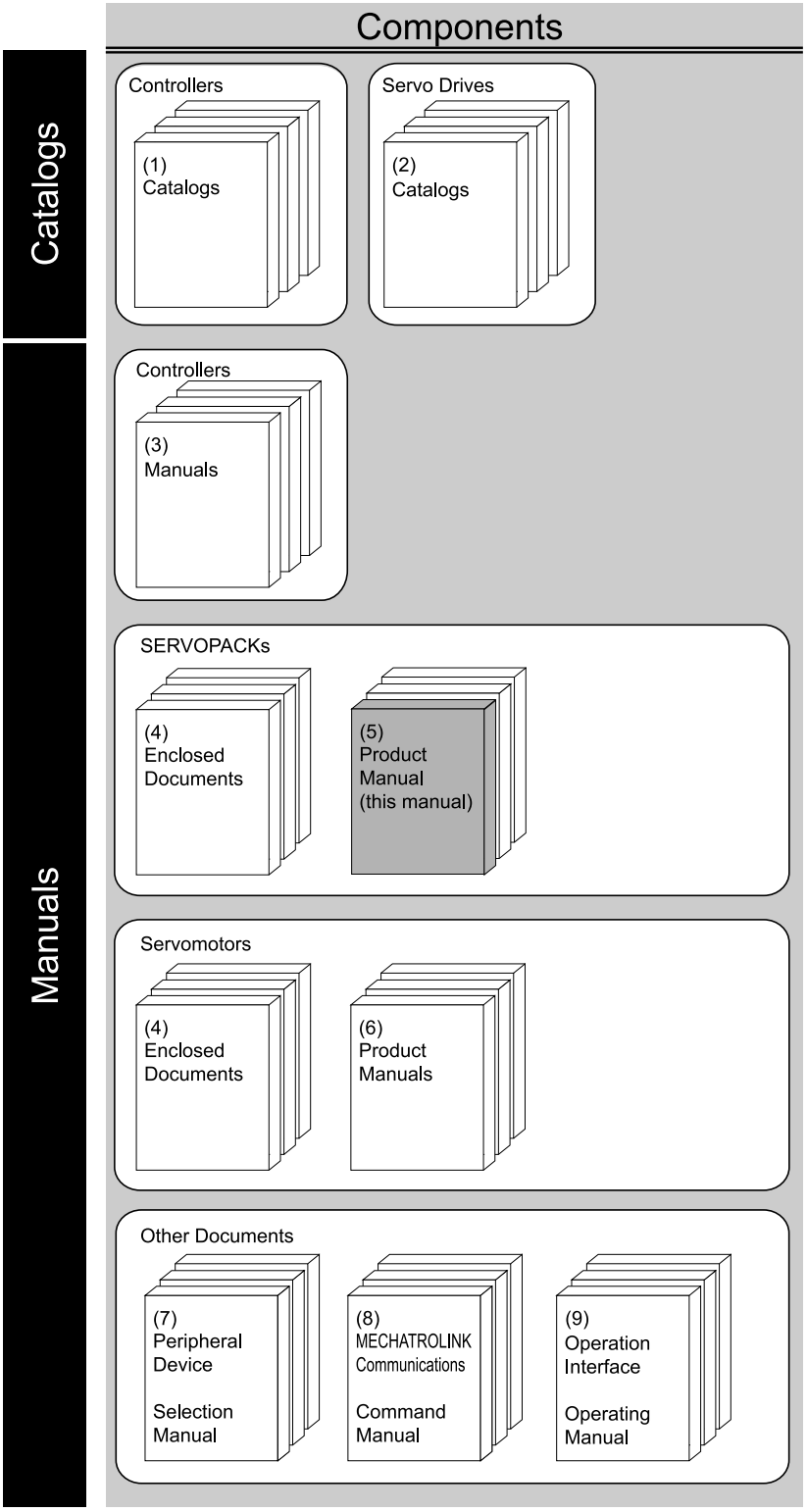
i.3 Related Documents

The relationships between the documents that are related to the Servo Drives are shown in the following figure. The numbers in the figure correspond to the numbers in the table on the following pages. Refer to these documents as required.



i.3.1 Related Documents

(1) Machine Controllers Catalogs

You can check for products related to YASKAWA machine controllers. Refer to these documents as required.

(2) Servo Drives Catalogs

Document Name	Document No.	Description
AC Servo Drives Sigma-X Series	KAEP C710812 03	Provides detailed information on Σ-X-series AC servo drives, including features and specifications.

(3) Machine Controllers Manuals

The machine controller to use depends on the SERVOPACK that is used. Refer to the manual for the machine controller as required.

(4) Enclosed Documents

Document Name	Document No.	Description
Σ-X-Series AC Servo Drive Σ-XS/Σ-XW SERVOPACK Safety Precautions	TOMP C710812 00	Provides detailed information for the safe usage of Σ-X-series SERVOPACKs.
Σ-X-Series AC Servo Drive Σ-XT SERVOPACK Safety Precautions	TOMP C710812 16	
Σ-X-Series AC Servo Drive Σ-LINK II Sensor Hub Instructions	TOMP C710812 06	Provides detailed information for the safe usage of the Σ-LINK II sensor hub, as well as specifications, installation, and connection information.
Σ-X-Series AC Servo Drive Σ-LINK II Booster Unit Instructions	TOMP C710812 08	Provides detailed information for the safe usage of the Σ-LINK II booster unit, as well as specifications, installation, and connection information.
Σ-V-Series/Σ-V-Series for Large-Capacity Models/Σ-7-Series/Σ-X-Series Installation Guide Fully-closed Module	TOBP C720829 03	Provides detailed procedures for installing the fully-closed module in a SERVOPACK.
AC Servo Drive Rotary Servomotor Safety Precautions	TOBP C230260 00	Provides detailed information for the safe usage of rotary servomotors and direct drive servomotors.

(5) SERVOPACK Product Manuals

Document Name	Document No.	Description
Σ-X-Series AC Servo Drive Σ-XS SERVOPACK with MECHATROLINK-4/III Communications References Product Manual	SIEP C710812 01	Provide detailed information on selecting Σ-X-series Σ-XS or Σ-XW SERVOPACKs; installing, connecting, setting, testing in trial operation, tuning, monitoring, and maintaining servo drives; and other information.
Σ-X-Series AC Servo Drive Σ-XS SERVOPACK with EtherCAT Communications References Product Manual	SIEP C710812 02	
Σ-X-Series AC Servo Drive Σ-XS SERVOPACK with Analog Voltage/Pulse Train References Product Manual	SIEP C710812 03	
Σ-X-Series AC Servo Drive Σ-XW SERVOPACK with MECHATROLINK-4/III Communications References Product Manual	SIEP C710812 04	
Σ-X-Series AC Servo Drive Σ-XW SERVOPACK with EtherCAT Communications References Product Manual	SIEP C710812 05	
Σ-X-Series AC Servo Drive Σ-XT SERVOPACK with MECHATROLINK-4/III Communications References Product Manual	SIEP C710812 16	Provide detailed information on selecting Σ-X-series Σ-XT SERVOPACKs; installing, connecting, setting, testing in trial operation, tuning, monitoring, and maintaining servo drives; and other information.
Σ-X-Series AC Servo Drive Σ-XT SERVOPACK with EtherCAT Communications References Product Manual	SIEP C710812 17	
Σ-X-Series AC Servo Drive Σ-XW/Σ-XT SERVOPACK Hardware Option Specifications HWBB Function Product Manual	SIEP C710812 13	Provides information on servo drives equipped with the HWBB safety function (SGDXW-□□□□40□1000, SGDXW-□□□□A0□1000, SGDXT-□□□□40□1000, and SGDXT-□□□□A0□1000)). The differences in specifications from SERVOPACKs not equipped with the HWBB are given in this manual.
Σ-X-Series AC Servo Drive Σ-XS/Σ-XW/Σ-XT SERVOPACK Hardware Option Specifications Dynamic Brake Product Manual	SIEP C710812 14	Provides information on Σ-X-series AC servo drives (SGDX□-□□□□□□□0020) with the dynamic brake option. The differences in specifications from SERVOPACKs without the dynamic brake option are given in this manual.

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Document Name	Document No.	Description
Σ-X-Series AC Servo Drive Σ-XS/Σ-XW SERVOPACK with MECHATROLINK-4/III Communications References FT Specification for Gantry Applications Product Manual	SIEP C710812 19	Provide information on the gantry application function and torque/force assistance in the Σ-X-series Σ-XS/Σ-XW SERVOPACK.
Σ-X-Series AC Servo Drive Σ-XS/Σ-XW SERVOPACK with EtherCAT Communications References FT Specification for Gantry Applications Product Manual	SIEP C710812 20	
Σ-X-Series AC Servo Drive Σ-XS SERVOPACK with MECHATROLINK-4/III Communications References FT Specification for Press and Injection Molding Applications Product Manual	SIEP C710812 22	Provide information on the press and injection molding function in the Σ-X-series Σ-XS SERVOPACK.
Σ-X-Series AC Servo Drive Σ-XS SERVOPACK with EtherCAT Communications References FT Specification for Press and Injection Molding Applications Product Manual	SIEP C710812 23	
Σ-X-Series AC Servo Drive Σ-XS SERVOPACK with FT Specification Customized Sensing Data Function Option Product Manual	SIEP C710812 18	Provides information on the customized sensing data function in the Σ-X-series Σ-XS SERVOPACK.
Σ-X-Series AC Servo Drive Σ-XS SERVOPACK with FT Specification Customized Sensing Data Function Option (with Custom Motion Function) Product Manual	SIEP C710812 21	Provides information on the customized sensing data function (with custom motion function) in the Σ-X-series Σ-XS SERVOPACK.

(6) Servomotor Product Manuals

Document Name	Document No.	Description
Σ-X-Series AC Servo Drive Rotary Servomotor Product Manual	SIEP C230210 00	Provides detailed information on selecting, installing, and connecting the Σ-X-series servomotors.

(7) Peripheral Device Selection Manual

Document Name	Document No.	Description
Σ-X-Series AC Servo Drive Peripheral Device Selection Manual	SIEP C710812 12	Provides the following information in detail for Σ-X-series servo systems. • Cables: Models, dimensions, wiring materials, connector models, and connection specifications • Peripheral devices: Models, specifications, diagrams, and selection (calculation) methods

(8) MECHATROLINK Communications Command Manuals

Document Name	Document No.	Description
Σ-7/Σ-X-Series AC Servo Drive MECHATROLINK-III Communications Standard Servo Profile Command Manual	SIEP S800001 31	Provides detailed information on the MECHATROLINK-III communications standard servo profile commands that are used for a Σ-7/Σ-X-series servo system.
Σ-7/Σ-X-Series AC Servo Drive MECHATROLINK-4 Communications Standard Servo Profile Command Manual	SIEP S800002 32	Provides detailed information on the MECHATROLINK-4 communications standard servo profile commands that are used for a Σ-7/Σ-X-series servo system.

(9) Operation Interface Operating Manuals

Document Name	Document No.	Description
System Integrated Engineering Tool MPE720 Ver.7 User's Manual	SIEP C880761 03	Describes in detail how to operate MPE720 version 7.
Σ-7/Σ-X-Series AC Servo Drive Digital Operator Operating Manual	SIEP S800001 33	Describes the operating procedures for a digital operator for a Σ-7/Σ-X-series servo system.
AC Servo Drive Engineering Tool SigmaWin+ Operation Manual	SIET S800001 34	Provides detailed operating procedures for the SigmaWin+ engineering tool for a Σ-7/Σ-X series servo system.

i.4 Using This Manual

i.4.1 Technical Terms Used in This Manual

The following terms are used in this manual.

Term	Meaning
servomotor	A generic term for a rotary servomotor or linear servomotor that can be driven by this SERVOPACK.
rotary servomotor	A generic term used for a Σ-X-series or Σ-7-series rotary servomotor (SGMXJ, SGMXA, SGMXP, SGMXG, SGM7M) or a Σ-7-series direct drive servomotor (SGM7D, SGM7E, SGM7F). The descriptions will specify when direct drive servomotors are excluded.
linear servomotor	A generic term used for a Σ-7-series linear servomotor (SGLG, SGLF, SGLT).
SERVOPACK	A Σ-X-series Σ-XS servo amplifier with MECHATROLINK-4/III communications references.
servo drive	The combination of a servomotor and SERVOPACK.
servo system	A servo control system that includes the combination of a servo drive with a host controller and peripheral devices.
servo ON	Supplying power to the motor.
servo OFF	Not supplying power to the motor.
base block (BB)	Shutting OFF the power supply to the motor by shutting OFF the base current to the power transistor in the SERVOPACK.
servo lock	A state in which the motor is stopped and is in a position loop with a position reference of 0.
main circuit cable	One of the cables that connect to the main circuit terminals, including the main circuit power supply cable, control power supply cable, and servomotor main circuit cable.
SigmaWin+	The engineering tool for setting up and tuning servo drives or a computer in which the engineering tool is installed.

i.4.2 Differences in Terms for Rotary Servomotors and Linear Servomotors

There are differences in the terms that are used for rotary servomotors and linear servomotors. This manual primarily describes rotary servomotors. If you are using a linear servomotor, you need to interpret the terms as given in the following table.

Rotary Servomotor	Linear Servomotor
torque	force
moment of inertia	mass
rotation	movement
forward rotation and reverse rotation	forward movement and reverse movement
CW + CCW pulse trains	forward and reverse pulse trains
rotary encoder	linear encoder
absolute rotary encoder	absolute linear encoder
incremental rotary encoder	incremental linear encoder
unit: min^{-1}	unit: mm/s
unit: N·m	unit: N

i.4.3 Notation Used in this Manual

(1) Notation for Reverse Signals

The names of reverse signals (i.e., ones that are valid when low) are written with a forward slash (/) before the signal abbreviation.

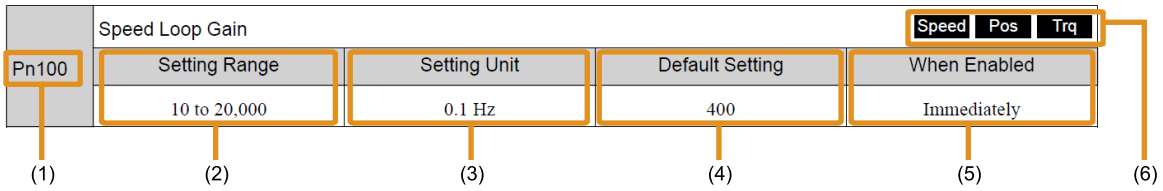
Notation Example

$\overline{BK}$ is written as /BK.

(2) Notation for Parameters

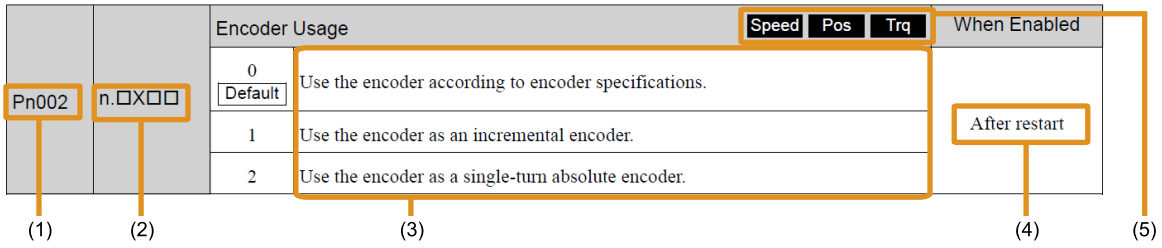
The notation depends on whether the parameter requires a numeric setting (parameter for numeric setting) or requires the selection of a function (parameter for selecting functions).

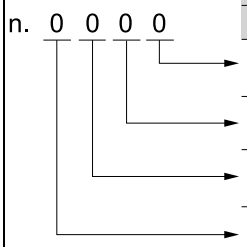
(a) Parameters for Numeric Settings



No.	Description
(1)	Parameter number
(2)	This is the setting range for the parameter.
(3)	This is the setting unit (setting increment) that you can set for the parameter.
(4)	This is the parameter setting before shipment.
(5)	This is when any change made to the parameter will become effective.
(6)	The control methods for which the parameters apply are given. Speed: A parameter that can be used in speed control. Pos: A parameter that can be used in position control. Trq: A parameter that can be used in torque control. "Torque" is used even for linear servomotor parameters. Grayed-out icons (Speed, Pos, Trq) indicate parameters that cannot be used in the corresponding control method.

(b) Parameters for Selecting Functions



<table>
<tr><th>No.</th><th>Description</th></tr>
<tr><td>(1)</td><td>Parameter number</td></tr>
<tr><td>(2)</td><td>The notation “n.□□□□” indicates a parameter for selecting functions. The digit shown as "X" is the content being explained in this parameter.
Notation Example
 

Notation Examples for Pn002
<table><tr><th colspan="2">Digit Notation</th><th colspan="2">Numeric Value Notation</th></tr><tr><th>Notation</th><th>Meaning</th><th>Notation</th><th>Meaning</th></tr><tr><td>Pn002 = n.□□□X</td><td>Indicates the first digit from the right in Pn002.</td><td>Pn002 = n.□□□1</td><td>Indicates that the first digit from the right in Pn002 is set to 1.</td></tr><tr><td>Pn002 = n.□□X□</td><td>Indicates the second digit from the right in Pn002.</td><td>Pn002 = n.□□1□</td><td>Indicates that the second digit from the right in Pn002 is set to 1.</td></tr><tr><td>Pn002 = n.□X□□</td><td>Indicates the third digit from the right in Pn002.</td><td>Pn002 = n.□1□□</td><td>Indicates that the third digit from the right in Pn002 is set to 1.</td></tr><tr><td>Pn002 = n.X□□□</td><td>Indicates the fourth digit from the right in Pn002.</td><td>Pn002 = n.1□□□</td><td>Indicates that the fourth digit from the right in Pn002 is set to 1.</td></tr></table></td></tr>
<tr><td>(3)</td><td>This column explains the selections for the function.
In the above example, the first line gives an explanation of when Pn002 = n.□0□□ is set.</td></tr>
<tr><td>(4)</td><td>This is when any change made to the parameter will become effective.</td></tr>
<tr><td>(5)</td><td>The control methods for which the parameters apply are given.
Speed: A parameter that can be used in speed control.
Pos: A parameter that can be used in position control.
Trq: A parameter that can be used in torque control. "Torque" is used even for linear servomotor parameters.
Grayed-out icons (Speed, Pos, Trq) indicate parameters that cannot be used in the corresponding control method.</td></tr>
</table>

i.4.4 Engineering Tools Used in This Manual

This manual uses the interfaces of the SigmaWin+ for descriptions.

The interfaces and procedures contained in this manual are currently in development and may differ from the actual specifications.

i.4.5 Trademarks

- QR code is a trademark of Denso Wave Inc.
- MECHATROLINK is a trademark of the MECHATROLINK Members Association.
- Σ-LINK is a trademark of the MECHATROLINK Members Association.
- Other product names and company names are the trademarks or registered trademarks of their respective companies. “TM” and the ® mark do not appear with product or company names in this manual.

i.4.6 Visual Aids

The following aids are used to indicate certain types of information for easier reference.


Important

Indicates precautions or restrictions that must be observed.
Also indicates alarm displays and other precautions that will not result in machine damage.


Term

Indicates definitions of difficult terms or terms that have not been previously explained in this manual.

Information Indicates supplemental information to deepen understanding or useful information.

i.5 Safety Precautions

i.5.1 Safety Information

To prevent personal injury and equipment damage in advance, the following signal words are used to indicate safety precautions in this document. The signal words are used to classify the hazards and the degree of damage or injury that may occur if a product is used incorrectly. Information marked as shown below is important for safety. Always read this information and heed the precautions that are provided.

⚠ DANGER

Indicates precautions that, if not heeded, are likely to result in loss of life, serious injury, or fire.

⚠ WARNING

Indicates precautions that, if not heeded, could result in loss of life, serious injury, or fire.

⚠ CAUTION

Indicates precautions that, if not heeded, could result in relatively serious or minor injury, or in fire.

NOTICE

Indicates precautions that, if not heeded, could result in property damage.

i.5.2 Safety Precautions That Must Always Be Observed

(1) General Precautions

⚠ DANGER

Read and understand this manual to ensure the safe usage of the product.

Keep this manual in a safe, convenient place so that it can be referred to whenever necessary. Make sure that it is delivered to the final user of the product.

Do not remove covers, cables, connectors, or optional devices while power is being supplied to the SERVOPACK.

There is a risk of electric shock, operational failure of the product, or burning.

⚠ WARNING

Use a power supply with specifications (number of phases, voltage, frequency, and AC/DC type) that are appropriate for the product.

There is a risk of burning, electric shock, or fire.

Connect the ground terminals on the SERVOPACK and servomotor to ground poles according to local electrical codes (100 Ω max).

There is a risk of electric shock or fire.

Do not attempt to disassemble, repair, or modify the product.

There is a risk of fire or failure. The warranty is void for the product if you disassemble, repair, or modify it.

⚠ CAUTION

The SERVOPACK heat sinks, regenerative resistors, external dynamic brake resistors, servomotors, and other components can be very hot while power is ON or soon after the power is turned OFF. Implement safety measures, such as installing covers, so that hands and parts such as cables do not come into contact with hot components.

There is a risk of burning.

For a 24-VDC power supply, use a power supply device with double insulation or reinforced insulation.

There is a risk of electric shock.

Do not damage, pull on, apply excessive force to, place heavy objects on, or pinch cables.

There is a risk of failure, damage, or electric shock.

The person who designs the system that uses the safety function must have a complete knowledge of the related safety standards and a complete understanding of the instructions in this document.

There is a risk of injury, product damage, or machine damage.

Do not place the product in locations where it is subject to water, corrosive gases, flammable gases, potentially explosive atmospheres, or near flammable materials.

There is a risk of electric shock or fire.

NOTICE

Do not attempt to use a SERVOPACK or servomotor that is damaged or that has missing parts.

Install external emergency stop circuits that shut OFF the power and stops operation immediately when an error occurs.

In locations with poor power supply conditions, install the necessary protective devices (such as AC reactors) to ensure that the input power is supplied within the specified voltage range.

There is a risk of damage to the SERVOPACK.

Use a noise filter to minimize the effects of electromagnetic interference.

Electronic devices used near the SERVOPACK may be affected by electromagnetic interference.

Always use a servomotor and SERVOPACK in one of the specified combinations.

Do not touch a SERVOPACK or servomotor with wet hands.

There is a risk of product failure.

(2) Storage Precautions

⚠ CAUTION

Do not place an excessive load on the product. (Follow all instructions on the packages.)

There is a risk of injury or damage.

NOTICE

Do not install or store the product in any of the following locations.

- **Locations that are subject to direct sunlight**
- **Locations that are subject to surrounding temperatures that exceed product specifications**
- **Locations that are subject to relative humidities that exceed product specifications**
- **Locations that are subject to condensation as the result of extreme changes in temperature**
- **Locations that are subject to corrosive or flammable gases**
- **Locations that are near flammable materials**
- **Locations that are subject to dust, salts, or iron powder**
- **Locations that are subject to water, oil, or chemicals**
- **Locations that are subject to vibration or shock that exceeds product specifications**
- **Locations that are subject to radiation**

If you store or install the product in any of the above locations, the product may fail or be damaged.

(3) Transportation Precautions

⚠ CAUTION

Transport the product in a way that is suitable to the mass of the product.

Do not use the eyebolts on a SERVOPACK or servomotor to move the machine.

There is a risk of damage or injury.

When you handle a SERVOPACK or servomotor, be careful of sharp parts, such as the corners.

There is a risk of injury.

Do not place an excessive load on the product. (Follow all instructions on the packages.)

There is a risk of injury or damage.

NOTICE

Do not hold onto the front cover or connectors when you move a SERVOPACK.

There is a risk of the SERVOPACK falling.

SERVOPACK or servomotor is a precision device. Do not drop it or subject it to strong shock.

There is a risk of failure or damage.

Do not subject connectors to shock.

There is a risk of faulty connections or damage.

NOTICE

If disinfectants or insecticides must be used to treat packing materials such as wooden frames, plywood, or pallets, use a method other than fumigation. For example, use heat sterilization (core temperature of 56°C or higher for 30 minutes or longer). Treat the packing materials before the product is packaged instead of using a method that treats the entire packaged product.

If the electronic products, which include stand-alone products and products installed in machines, are packed with fumigated wooden materials, the electrical components may be greatly damaged by the gases or fumes resulting from the fumigation process. In particular, disinfectants containing halogen, which includes chlorine, fluorine, bromine, or iodine can contribute to the erosion of the capacitors.

Do not overtighten the eyebolts on a SERVOPACK or servomotor.

If you use a tool to overtighten the eyebolts, the tapped holes may be damaged.

(4) Installation Precautions

⚠ CAUTION

Install the servomotor or SERVOPACK in a way that will support the mass given in technical documents.

Install SERVOPACKs, servomotors, regenerative resistors, and external dynamic brake resistors on nonflammable materials.

Installation directly onto or near flammable materials may result in fire.

Provide the specified clearances between the SERVOPACK and the control panel as well as with other devices.

There is a risk of fire or failure.

Install the SERVOPACK in the specified orientation.

There is a risk of fire or failure.

Do not step on or place a heavy object on the product.

There is a risk of failure, damage, or injury.

Do not allow any foreign matter to enter the SERVOPACK or servomotor.

There is a risk of failure or fire.

NOTICE

Do not install or store the product in any of the following locations.

- **Locations that are subject to direct sunlight**
- **Locations that are subject to surrounding temperatures that exceed product specifications**
- **Locations that are subject to relative humidities that exceed product specifications**
- **Locations that are subject to condensation as the result of extreme changes in temperature**
- **Locations that are subject to corrosive or flammable gases**
- **Locations that are near flammable materials**
- **Locations that are subject to dust, salts, or iron powder**
- **Locations that are subject to water, oil, or chemicals**
- **Locations that are subject to vibration or shock that exceeds product specifications**
- **Locations that are subject to radiation**

If you store or install the product in any of the above locations, the product may fail or be damaged.

Use the product in an environment that is appropriate for the product specifications.

If you use the product in an environment that exceeds product specifications, the product may fail or be damaged.

NOTICE

SERVOPACK or servomotor is a precision device. Do not drop it or subject it to strong shock.

There is a risk of failure or damage.

Always install a SERVOPACK in a control panel.

Do not allow any foreign matter to enter a SERVOPACK or a servomotor with a cooling fan and do not cover the outlet from the servomotor's cooling fan.

There is a risk of failure.

(5) Wiring Precautions

⚠ DANGER

Do not change any wiring while power is being supplied.

There is a risk of electric shock or injury.

⚠ WARNING

Wiring and inspections must be performed only by qualified engineers.

There is a risk of electric shock or product failure.

Check all wiring and power supplies carefully.

Incorrect wiring or incorrect voltage application to the output circuits may cause short-circuit failures. If a short-circuit failure occurs as a result of any of these causes, the holding brake will not work. This could damage the machine or cause an accident that may result in death or injury. There is also a risk that some parts damaged by the short-circuit failure may fall from the SERVOPACK.

Connect the AC or DC power supplies to the specified SERVOPACK terminals.

- **Connect an AC power supply to the L1, L2, and L3 terminals and the L1C and L2C terminals on the SERVOPACK.**
- **Connect a DC power supply to the B1/⊕ and ⊖ 2 terminals and the L1C and L2C terminals on the SERVOPACK.**

There is a risk of failure or fire.

If you use a SERVOPACK with the dynamic brake hardware option, connect an external dynamic brake resistor that is suitable for the machine and equipment specifications to the specified terminals.

There is a risk of unexpected operation, machine damage, burning, or injury when an emergency stop is performed.

⚠ CAUTION

Wait for at least 20 minutes (or 100 minutes when using DC power supply input) after turning OFF the power and then make sure that the CHARGE indicator is not lit before starting wiring or inspection work. Do not touch the main circuit terminals while the CHARGE indicator is lit because high voltage may still remain in the SERVOPACK even after turning OFF the power.

There is a risk of electric shock.

Observe the precautions and instructions for wiring and trial operation precisely as described in this document.

Failures caused by incorrect wiring or incorrect voltage application in the brake circuit may cause the SERVOPACK to fail, damage the equipment, or cause an accident resulting in death or injury.

⚠ CAUTION

Check the wiring to be sure it has been performed correctly. Connectors and pin layouts are sometimes different for different models. Always confirm the pin layouts in technical documents for your model before operation.

There is a risk of failure or malfunction.

Connect wires to main circuit terminals and motor connection terminals securely with the specified methods and tightening torque.

Insufficient tightening may cause wires and terminal blocks to generate heat due to faulty contact, possibly resulting in fire.

Use shielded twisted-pair cables or screened unshielded multi-twisted-pair cables for I/O signal cables and encoder cables.

The maximum wiring length is 3 m for I/O signal cables and 50 m for servomotor main circuit cables and encoder cables.

Observe the following precautions when wiring the SERVOPACK's main circuit terminals.

- **Turn ON the power to the SERVOPACK only after all wiring, including the main circuit terminals, has been completed.**
- **If a connector is used for the main circuit terminals, remove the main circuit connector from the SERVOPACK before you wire it.**
- **Insert only one wire per insertion hole in the main circuit terminals.**
- **When you insert a wire, make sure that the conductor wire (e.g., whiskers) does not come into contact with adjacent wires and cause a short-circuit.**

Install molded-case circuit breakers and other safety measures to provide protection against short circuits in external wiring.

There is a risk of fire or failure.

NOTICE

Whenever possible, use the cables specified by Yaskawa. If you use any other cables, confirm the rated current and application environment of your model and use the wiring materials specified by Yaskawa or equivalent materials.

Securely tighten connector screws and lock mechanisms.

Insufficient tightening may result in connectors falling off during operation.

Do not bundle power lines (e.g., the main circuit cable) and low-current lines (e.g., the I/O signal cables or encoder cables) together or run them through the same duct. If you do not place power lines and low-current lines in separate ducts, separate them by at least 30 cm.

If the cables are too close to each other, malfunctions may occur due to noise affecting the low-current lines.

Install a battery at either the host controller or on the encoder cable.

If you install batteries both at the host controller and on the encoder cable at the same time, you will create a loop circuit between the batteries, resulting in a risk of damage or burning.

When connecting a battery, connect the polarity correctly.

There is a risk of battery rupture or encoder failure.

(6) Operation Precautions

⚠ WARNING

Before starting operation with a machine connected, change the settings of the switches and parameters to match the machine.

Unexpected machine operation, failure, or personal injury may occur if operation is started before appropriate settings are made.

Do not radically change the settings of the parameters.

There is a risk of unstable operation, machine damage, or injury.

Install limit switches or stoppers at the ends of the moving parts of the machine to prevent unexpected accidents.

There is a risk of machine damage or injury.

For trial operation, securely mount the servomotor and disconnect it from the machine.

There is a risk of injury.

Forcing the motor to stop for overtravel is disabled when the Jog, Origin Search, or Easy FFT utility function is executed. Take necessary precautions.

There is a risk of machine damage or injury.

When an alarm occurs, the servomotor will coast to a stop or stop with the dynamic brake according to the SERVOPACK option and settings. The coasting distance will change with the moment of inertia of the load and the external dynamic brake resistance. Check the coasting distance during trial operation and implement suitable safety measures on the machine.

Do not enter the machine's range of motion during operation.

There is a risk of injury.

Do not touch the moving parts of the servomotor or machine during operation.

There is a risk of injury.

Perform the correct operation with the servomotor connected to the machine.

There is a risk of machine damage or personal injury.

⚠ CAUTION

Design the system to ensure safety even when problems, such as broken signal lines, occur. For example, the P-OT and N-OT signals are set in the default settings to operate on the safe side if a signal line breaks. Do not change the polarity of this type of signal.

When overtravel occurs, the power to the motor is turned OFF and the brake is released. If you use the servomotor to drive a vertical load, set the servomotor to enter a zero-clamped state after the servomotor stops. Also, install safety devices (such as an external brake or counterweight) to prevent the moving parts of the machine from falling.

⚠ CAUTION

Always turn OFF the servo before you turn OFF the power. If you turn OFF the main circuit power or control power during operation before you turn OFF the servo, the servomotor will stop as follows:

- **If you turn OFF the main circuit power during operation without turning OFF the servo, the servomotor will stop abruptly with the dynamic brake.**
- **If you turn OFF the control power without turning OFF the servo, the stopping method that is used by the servomotor depends on the model of the SERVOPACK. For details, refer to the manual for the SERVOPACK.**
- **If you use a SERVOPACK with the dynamic brake hardware option, the servomotor stopping methods will be different from the stopping methods used without the option or with other hardware options.**

Do not use the dynamic brake for any application other than an emergency stop.

There is a risk of failure due to rapid deterioration of elements in the SERVOPACK and the risk of unexpected operation, machine damage, burning, or injury.

NOTICE

When you adjust the gain during system commissioning, use a measuring instrument to monitor the torque waveform and speed waveform and confirm that there is no vibration.

If a high gain causes vibration, the servomotor will be damaged quickly.

Do not frequently turn the power ON and OFF. After you have started actual operation, allow at least one hour between turning the power ON and OFF (as a guideline). Do not use the product in applications that require the power to be turned ON and OFF frequently.

The elements in the SERVOPACK will deteriorate quickly.

An alarm or warning may occur if communications are performed with the host controller while the SigmaWin+ or digital operator is operating.

If an alarm or warning occurs, it may interrupt the current process and stop the system.

After you complete trial operation of the machine and facilities, use the SigmaWin+ to back up the settings of the SERVOPACK parameters. You can use them to reset the parameters after SERVOPACK replacement.

If you do not copy backed up parameter settings, normal operation may not be possible after a faulty SERVOPACK is replaced, possibly resulting in machine or equipment damage.

(7) Maintenance and Inspection Precautions

⚠ DANGER

Do not change any wiring while power is being supplied.

There is a risk of electric shock or injury.

⚠ WARNING

Wiring and inspections must be performed only by qualified engineers.

There is a risk of electric shock or product failure.

⚠ CAUTION

Wait for at least 20 minutes (or 100 minutes when using DC power supply input) after turning OFF the power and then make sure that the CHARGE indicator is not lit before starting wiring or inspection work. Do not touch the main circuit terminals while the CHARGE indicator is lit because high voltage may still remain in the SERVOPACK even after turning OFF the power.

There is a risk of electric shock.

Before you replace a SERVOPACK, back up the settings of the SERVOPACK parameters. Copy the backed up parameter settings to the new SERVOPACK and confirm that they were copied correctly.

If you do not copy backed up parameter settings or if the copy operation is not completed correctly, normal operation may not be possible, possibly resulting in machine or equipment damage.

NOTICE

Discharge all static electricity from your body before you operate any of the buttons or switches inside the front cover of the SERVOPACK.

There is a risk of equipment damage.

(8) Troubleshooting Precautions

⚠ DANGER

If the safety device (molded-case circuit breaker or fuse) installed in the power supply line operates, remove the cause before you supply power to the SERVOPACK again. If necessary, repair or replace the SERVOPACK, check the wiring, and remove the factor that caused the safety device to operate.

There is a risk of fire, electric shock, or injury.

⚠ WARNING

The product may suddenly start to operate when the power supply is recovered after a momentary power interruption. Design the machine to ensure human safety when operation restarts.

There is a risk of injury.

⚠ CAUTION

When an alarm occurs, remove the cause of the alarm and ensure safety. Then reset the alarm or turn the power OFF and ON again to restart operation.

There is a risk of injury or machine damage.

If the Servo ON signal is input to the SERVOPACK and an alarm is reset, the servomotor may suddenly restart operation. Confirm that the servo is OFF and ensure safety before you reset an alarm.

There is a risk of injury or machine damage.

Always insert a magnetic contactor in the line between the main circuit power supply and the main circuit terminals on the SERVOPACK so that the power can be shut OFF at the main circuit power supply.

If a magnetic contactor is not connected when the SERVOPACK fails, a large current may flow continuously, possibly resulting in fire.

⚠ CAUTION

If an alarm occurs, shut OFF the main circuit power supply.

There is a risk of fire due to a regenerative resistor overheating as the result of regenerative transistor failure.

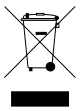
Install a ground fault detector against overloads and short-circuiting or install a molded-case circuit breaker combined with a ground fault detector.

There is a risk of SERVOPACK failure or fire if a ground fault occurs.

The holding brake on a servomotor will not ensure safety if there is the possibility that an external force (including gravity) may move the current position and create a hazardous situation when power is interrupted or an error occurs. If an external force may cause movement, install an external braking mechanism that ensures safety.

(9) Disposal Precautions

- Correctly discard the product as stipulated by regional, local, and municipal laws and regulations. Be sure to include these contents in all labelling and warning notifications on the final product as necessary.



(10) General Precautions

- Figures provided in this manual are typical examples or conceptual representations. There may be differences between them and actual wiring, circuits, and products.
- The products shown in illustrations in this manual are sometimes shown with their covers or protective guards removed to illustrate detail. Always replace all covers and protective guards before you use the product.
- If you need a new copy of this manual because it has been lost or damaged, contact your nearest Yaskawa representative or one of the offices listed on the back of this manual.
- This manual is subject to change without notice for product improvements, specifications changes, and improvements to the manual itself. We will update the manual number of the manual and issue revisions when changes are made.
- Any and all quality guarantees provided by Yaskawa are null and void if the customer modifies the product in any way. Yaskawa disavows any responsibility for damages or losses that are caused by modified products.

i.6 Warranty

i.6.1 Details of Warranty

(1) Warranty Period

The warranty period for a product that was purchased (hereinafter called the “delivered product”) is one year from the time of delivery to the location specified by the customer or 18 months from the time of shipment from the Yaskawa factory, whichever is sooner.

(2) Warranty Scope

Yaskawa shall replace or repair a defective product free of charge if a defect attributable to Yaskawa occurs during the above warranty period. This warranty does not cover defects caused by the delivered product reaching the end of its service life and replacement of parts that require replacement or that have a limited service life.

This warranty does not cover failures that result from any of the following causes.

- Improper handling, abuse, or use in unsuitable conditions or in environments not described in product catalogs or manuals, or in any separately agreed-upon specifications
- Causes not attributable to the delivered product itself
- Modifications or repairs not performed by Yaskawa
- Use of the delivered product in a manner in which it was not originally intended
- Causes that were not foreseeable with the scientific and technological understanding at the time of shipment from Yaskawa
- Events for which Yaskawa is not responsible, such as natural or human-made disasters

i.6.2 Limitations of Liability

- Yaskawa shall in no event be responsible for any damage or loss of opportunity to the customer that arises due to failure of the delivered product.
- Yaskawa shall not be responsible for any programs (including parameter settings) or the results of program execution of the programs provided by the user or by a third party for use with programmable Yaskawa products.
- The information described in product catalogs or manuals is provided for the purpose of the customer purchasing the appropriate product for the intended application. The use thereof does not guarantee that there are no infringements of intellectual property rights or other proprietary rights of Yaskawa or third parties, nor does it construe a license.
- Yaskawa shall not be responsible for any damage arising from infringements of intellectual property rights or other proprietary rights of third parties as a result of using the information described in catalogs or manuals.

i.6.3 Suitability for Use

- It is the customer's responsibility to confirm conformity with any standards, codes, or regulations that apply if the Yaskawa product is used in combination with any other products.
- The customer must confirm that the Yaskawa product is suitable for the systems, machines, and equipment used by the customer.
- Consult with Yaskawa to determine whether use in the following applications is acceptable. If use in the application is acceptable, use the product with extra allowance in ratings and specifications, and provide safety measures to minimize hazards in the event of failure.
  - Outdoor use, use involving potential chemical contamination or electrical interference, or use in conditions or environments not described in product catalogs or manuals
  - Nuclear energy control systems, combustion systems, railroad systems, aviation systems, vehicle systems, medical equipment, amusement machines, and installations subject to separate industry or government regulations
  - Systems, machines, and equipment that may present a risk to life or property
  - Systems that require a high degree of reliability, such as systems that supply gas, water, or electricity, or systems that operate continuously 24 hours a day
  - Other systems that require a similar high degree of safety
- Never use the product for an application involving serious risk to life or property without first ensuring that the system is designed to secure the required level of safety with risk warnings and redundancy, and that the Yaskawa product is properly rated and installed.
- The circuit examples and other application examples described in product catalogs and manuals are for reference. Check the functionality and safety of the actual devices and equipment to be used before using the product.
- Read and understand all use prohibitions and precautions, and operate the Yaskawa product correctly to prevent accidental harm to third parties.

i.6.4 Specifications Change

The names, specifications, appearance, and accessories of products in product catalogs and manuals may be changed at any time based on improvements and other reasons. The next editions of the revised catalogs or manuals will be published with updated code numbers. Consult with your Yaskawa representative to confirm the actual specifications before purchasing a product.

i.7 Compliance with UL Standards, EU Directives, and Other Safety Standards

Certification marks for the standards for which the product has been certified by certification bodies are shown on nameplate. Products that do not have the marks are not certified for the standards.

Refer to the servomotor manual for compliant standards of servomotors.

i.7.1 North American Safety Standards (UL)

Product	Model	North American Safety Standards (UL File No.)
SERVOPACK	SGDXS	UL 61800-5-1 (E147823), CSA C22.2 No.274

i.7.2 EU Directives

Product	Model	EU Directives	Harmonized Standards
SERVOPACK	SGDXS	Machinery Directive 2006/42/EC	EN 62061 EN 61800-5-2
		EMC Directive 2014/30/EU	EN 55011 group 1, class A EN 61000-6-2 EN 61000-6-4 EN 61800-3 (Category C2, Second environment)
		Low Voltage Directive 2014/35/EU	EN 61800-5-1
		RoHS Directive 2011/65/EU (EU)2015/863	EN IEC 63000
		WEEE Directive 2012/19/EU	–

Note:

- We declared the CE Marking based on the harmonized standards in the above table. These products complied with the corresponding IEC standards. Refer to the declaration of conformity for details.
- These products are for industrial use. In home environments, these products may cause electromagnetic interference and additional noise reduction measures may be necessary.

i.7.3 Safety Standards

Product	Model	Standards
SERVOPACK	SGDXS	EN ISO 13849-1:2015 EN 62061 EN 61800-5-2 EN 61000-6-7 EN 61326-3-1 EN 61508 series

Note:

These products complied with the corresponding IEC standards. Refer to the declaration of conformity for details.

- Safety Parameters

Item	Standards	Performance Level
Safety Integrity Level	IEC 61508	SIL3
	IEC 62061	SILCL3/maximum SIL3
Mission Time	EN ISO 13849-1	20 years
Probability of Dangerous Failure per Hour	IEC 61508 IEC 62061	PFH = 8.57×10^{-9} [1/h] (8.57% of SIL3)
Performance Level	EN ISO 13849-1	PL e (Category 3)
Mean Time to Dangerous Failure of Each Channel	EN ISO 13849-1	MTTFd: High
Average Diagnostic Coverage	EN ISO 13849-1	DCavg: Medium
Stop Category	IEC 60204-1	Stop category 0
Safety Function	IEC 61800-5-2	STO
Hardware Fault Tolerance	IEC 61508	HFT = 1
Subsystem	IEC 61508	B

Note:

Mission time is a parameter used in the statistic calculation required by functional safety standards. Mission time is not related to the warranty period.

1

Basic Information on SERVOPACKs

This chapter provides information required to select SERVOPACKs, such as SERVOPACK model numbers.

1.1 Product Introduction

This product supports the pressure control function to achieve high-accuracy pressure control for molding equipment, compressors, and other machines that require press and injection molding.

1.2 Interpreting Model Numbers

1.2.1 Interpreting SERVOPACK Model Numbers

SGDXS - R70 A 40 A 0010 40 B

Σ-X-Series Σ-XS model | 1st+2nd+3rd digits | 4th digit | 5th+6th digits | 7th digit | 8th+9th+10th+11th digits | 12th+13th digits | 14th digit

1st+2nd+3rd digits Maximum Applicable Motor Capacity

Voltage	Code	Specification
Three-Phase, 200 VAC	R70*1	0.05 kW
	R90*1	0.1 kW
	1R6*1	0.2 kW
	2R8*1	0.4 kW
	3R8	0.5 kW
	5R5*1	0.75 kW
	7R6	1.0 kW
	120*2	1.5 kW
	180	2.0 kW
	200	3.0 kW
	330	5.0 kW
	470	6.0 kW
	550	7.5 kW
	590	11 kW
	780	15 kW

4th digit Voltage

Code	Specification
A	200 VAC

5th+6th digits Interface*3

Code	Specification
40	MECHATROLINK-4/III communications reference

7th digit Design Revision Order

A

8th+9th+10th+11th digits Hardware Options Specification

Code	Specification	Applicable Models
0010	Analog sensor input	All models
0011	Analog sensor input + Rack-mounted	SGDXS-R70A to -330A
	Analog sensor input + Duct-ventilated	SGDXS-470A to -780A
0012	Analog sensor input + Varnished	All models
0018	Analog sensor input + Single-phase, 200-VAC power supply input	SGDXS-120A
0030*4	Analog sensor input + No dynamic brake	SGDXS-R70A to -2R8A
	Analog sensor input + External dynamic brake resistor	SGDXS-3R8A to -780A

12th+13th digits FT Specification

Code	Specification
40	Press and injection molding option

14th digit BTO Specification (under development)

Code	Specification
None	None
B	BTO specification

*1 You can use these models with either a single-phase or three-phase input.
*2 A model with a single-phase, 200-VAC power supply input is available as a hardware option specification. (Model: SGDXS-120A40A0018)
*3 The same SERVOPACKs are used for both rotary servomotors and linear servomotors.
*4 Refer to the following manual for details.

Σ-X-Series Σ-XS/Σ-XW/Σ-XT SERVOPACK with Dynamic Brake Hardware Option Specifications Product Manual (Manual No.: SIEP C710812 14)

1.2.2 Interpreting Servomotor Model Numbers

This section outlines the model numbers of servomotors that can be combined with a Σ-X-series SERVOPACK. Refer to the relevant manual in the following list for details.

Σ-X-series Rotary Servomotor Product Manual (Manual No.: SIEP C230210 00)

Σ-7-series Rotary Servomotor Product Manual (Manual No.: SIEP S800001 36)

Σ-7-series Linear Servomotor Product Manual (Manual No.: SIEP S800001 37)

Σ-7-Series Direct Drive Servomotor Product Manual (Manual No.: SIEP S800001 38)

(1) Rotary Servomotors

SGM□□ - 01 A U A 2 1 A 1

Series | 1st+2nd digits | 3rd digit | 4th digit | 5th digit | 6th digit | 7th digit | 8th digit | 9th digit

Series

Σ-X Series Servomotors

Code	Specification
SGMXJ	Medium inertia, high speed
SGMXA	Low inertia, high speed
SGMXP	Medium inertia, flat
SGMXG	Medium inertia, low speed, high torque

Σ-7 Series Servomotors

Code	Specification
SGM7M	Low inertia, ultra-small capacity

1st+2nd digits Rated Output

3rd digit Power Supply Voltage

- 200 VAC
- 24 VDC/48 VDC

4th digit Serial Encoder Specification

- 20-bit absolute encoder
- 26-bit batteryless absolute encoder
- 26-bit absolute encoder

5th digit Design Revision Order

6th digit Shaft End Specification

- Straight without key
- Straight with tap
- Straight with key and tap
- Straight with flat seat
- With two flat seats

7th digit Option Specification

- With 24-V holding brake
- With oil seal

8th digit Destination

A

9th digit Ancillary Specification

Code	Specification
1	Standard
2	Σ-7 compatible

(2) Direct Drive Servomotors

SGM□□ - 02 B 3 C 1 1

Series | 1st+2nd digits | 3rd digit | 4th digit | 5th digit | 6th digit | 7th digit

Series Σ-7 Series Servomotors

Code	Specification
SGM7D	With core outer rotor
SGM7E	Small capacity, coreless inner rotor
SGM7F	Small capacity,with core inner rotor
	Medium capacity, with core inner rotor

1st+2nd digits Rated Torque

3rd digit Servomotor Outer Diameter

4th digit Serial Encoder Specification

5th digit Design Revision Order

6th digit Flange Specification

- Cable drawn to load side
- Cable drawn to non-load side

7th digit Option Specification

- High mechanical precision

(3) Linear Servomotors

SGL □ □ - 30 A 050 C P □

Series | 1st digit | 2nd digit | 3rd digit on

Series Σ-7 Series Servomotors

1st digit Servomotor Type

Code	Specification
G	Coreless models
F	Models with F-type iron core
T	Models with T-type iron core

2nd digit Moving Coil/Magnetic Way

Code	Specification
W	Moving coil
W2	
M	Magnetic way
M2	

3rd digit on

The specifications for the 3rd digit on depend on the servomotor type.

1.3 Functions

This section lists the functions provided by SERVOPACKs with the FT40 specification (press and injection molding application). Refer to the following manual for details on the functions.

Σ-X-Series Σ-XS SERVOPACK with MECHATROLINK-4/III Communications References Product Manuals (Manual No.: SIEP C710812 01)

The ▭ sections of the tables are functions with usage restrictions when you use the press and injection molding function. Refer to the following section for details on the restrictions on the use of functions.

☞ *1.4 Restrictions on page 42*

- Functions Related to the Machine

Function
Setting the Power Supply Type for the Main Circuit and Control Circuit
Automatic Detection of Connected Motor
Motor Direction Setting
Setting the Linear Encoder Pitch
Writing the Linear Servomotor Parameters
Selecting the Phase Sequence for a Linear Servomotor
Polarity Sensor Setting
Polarity Detection
Overtravel and Related Settings
Holding Brake
Motor Stopping Methods for Servo OFF and Alarms
Resetting the Absolute Encoder
Setting the Origin of the Absolute Encoder
Setting the Regenerative Resistor Capacity
Operation for Momentary Power Interruptions
SEMI F47 Function
Setting the Maximum Motor Speed
Software Limits and Settings
Setting the Multiturn Limit
Adjusting the Motor Current Detection Signal Offset
Forcing the Motor to Stop
Overheat Protection
Speed Ripple Compensation
Triggers at Preset Positions
Specify Output Status When a Host Communications Error Occurs
Current Control Mode Selection
Setting the Current Gain Level
Selecting the Speed Detection Method
Fully-Closed Loop Control
Σ-LINK II Function
Safety Function
External Latches

- Functions Related to the Host Controller

Function
MECHATROLINK-4/III Communications Switching
Electronic Gear Settings
Allocating the I/O Signal
ALM (Servo Alarm Output) Signal
/WARN (Warning Output) Signal
/TGON (Rotation Detection Output) Signal
/S-RDY (Servo Ready Output) Signal
/V-CMP (Speed Coincidence Detection Output) Signal
/COIN (Positioning Completion Output) Signal
/NEAR (Near Output) Signal
Speed Limit during Torque Control
/VLT (Speed Limit Detection Output) Signal
Encoder Divided Pulse Output
Selecting Torque Limits
Initializing the Vibration Detection Level
Setting the Position Deviation Overflow Alarm Level
Alarm Reset
Replacing the Battery

- Functions to Achieve Optimum Motions

Function
Tuning-less Function
Autotuning without a Host Reference
Autotuning with a Host Reference
Custom Tuning
Anti-Resonance Control Adjustment
Vibration Suppression
Load Fluctuation Compensation Control
Gain Switching
Friction Compensation
Gravity Compensation
Output Torque Compensation
Backlash Compensation
Model Following Control
Compatible Adjustment Functions
Mechanical Analysis
Easy FFT

- Functions for Trial Operation during Setup

Function
Software Reset
Trial Operation for the Servomotor without a Load
Program JOG Operation
Origin Search
Test without a Motor
Monitoring Machine Operation Status and Signal Waveforms

- Functions for Inspection and Maintenance

Function
Write Prohibition Setting for Parameters
Initializing Parameter Settings
Automatic Detection of Connected Motor
Monitoring Product Information
Monitoring Product Life
Error Detection Setting
Displaying the Alarm History
Alarm Tracing

1.4 Restrictions

This section describes the restrictions when using this product.

1.4.1 Restrictions on the Use of Functions

There are following restrictions on the use of functions when using this product.

Function	Description of Restriction
Overheat Protection	Cannot be used.
Tuning-less Function	Cannot be used during pressure control and during the pressure control approach operation.
Load Fluctuation Compensation Control	
Motor Stopping Method for Overtravel	The motor stopping method during pressure control and during the pressure control approach operation is the setting of Pn001 = n.□□□X (Motor Stopping Method for Servo OFF and Group 1 Alarms) (dynamic brake or coast to a stop).
Servomotor Stopping Method for Alarms	
Forcing the Motor to Stop	

1.4.2 Restrictions Related to Specifications

There are following restrictions on the specifications when using this product.

Item		Specification
I/O Signals	TH (Overheat Protection Input) signal	Cannot be used.

1.5 SigmaWin+

To use the SigmaWin+, a model information file for the SERVOPACK must be added to SigmaWin+ version 7. Contact your Yaskawa representative for the model information file.

1.6 Combinations with MP-Series Machine Controllers and the MPE720 Engineering Tool

To use the parameters and functions unique to the FT40, use the SigmaWin+ to configure the settings.

MP-series machine controllers and the MPE720 engineering tool will recognize this product as a SERVOPACK with the standard specification. For this reason, you cannot configure the parameter settings unique to the FT40 by using a machine controller and the MPE720.

2

SERVOPACK Ratings and Specifications

This chapter provides the specifications required to select SERVOPACKs.

2.1 Ratings

2.1.1 Three-Phase, 200 VAC

Model SGDXS-			R70A	R90A	1R6A	2R8A	3R8A	5R5A	7R6A	120A	180A	200A	330A
Maximum Applicable Motor Capacity [kW]			0.05	0.1	0.2	0.4	0.5	0.75	1.0	1.5	2.0	3.0	5.0
Continuous Output Current [Arms]			0.66	0.91	1.6	2.8	3.8	5.5	7.6	11.6	18.5	19.6	32.9
Instantaneous Maximum Output Current [Arms]			2.1	3.2	5.9	9.3	11	16.9	17	28	42	56	84
Main Circuit	Power Supply		200 VAC to 240 VAC, -15% to +10%, 50 Hz/60 Hz										
	Input Current [Arms] *1		0.4	0.8	1.3	2.5	3.0	4.1	5.7	7.3	10	15	25
Control	Power Supply		200 VAC to 240 VAC, -15% to +10%, 50 Hz/60 Hz										
	Input Current [Arms] *1		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.25	0.25	0.3
Power Supply Capacity [kVA] *1			0.2	0.3	0.5	1.0	1.3	1.6	2.3	3.2	4.0	5.9	7.5
Power Loss *1	Main Circuit Power Loss [W]		5.0	7.0	11.9	22.5	28.5	38.9	49.2	72.6	104.2	114.2	226.6
	Control Circuit Power Loss [W]		12	12	12	12	14	14	14	15	16	16	19
	Total Power Loss [W]		17.0	19.0	23.9	34.5	42.5	52.9	63.2	87.6	120.2	130.2	245.6
Regenerative Resistor	Built-In Regenerative Resistor	Resistance [Ω]	–	–	–	–	35	35	35	20	12	10	6
		Capacity [W]	–	–	–	–	60	60	60	60	60	60	180
		Allowable Power Consumption [W]	–	–	–	–	15	15	15	30	30	30	36
	Minimum Allowable External Resistance [Ω]		40	40	40	40	35	35	35	20	12	10	6
Overvoltage Category			III										

*1 This is the net value at the rated load.

Model SGDXS-		470A	550A	590A	780A
Maximum Applicable Motor Capacity [kW]		6.0	7.5	11	15
Continuous Output Current [Arms]		46.9	54.7	58.6	78.0
Instantaneous Maximum Output Current [Arms]		110	130	140	170
Main Circuit	Power Supply	200 VAC to 240 VAC, -15% to +10%, 50 Hz/60 Hz			
	Input Current [Arms] *1	29	37	54	73
Control	Power Supply	200 VAC to 240 VAC, -15% to +10%, 50 Hz/60 Hz			
	Input Current [Arms] *1	0.3	0.3	0.4	0.4
Power Supply Capacity [kVA] *1		10.7	14.6	21.7	29.6
Power Loss *1	Main Circuit Power Loss [W]	271.7	326.9	365.3	501.4
	Control Circuit Power Loss [W]	21	21	28	28
	Total Power Loss [W]	292.7	347.9	393.3	529.4
External Regenerative Resistor Unit	Resistance [Ω]	5 *2	3.13 *1	3.13 *3	3.13 *3
	Capacity [W]	880 *2	1760 *3	1760 *3	1760 *3
	Allowable Power Consumption [W]	180 *2	350 *3	350 *3	350 *3
	Minimum Allowable External Resistance [Ω]	5	2.9	2.9	2.9
Overvoltage Category		III			

*1 This is the net value at the rated load.
*2 This value is for the optional JUSP-RA29-E regenerative resistor unit.
*3 This value is for the optional JUSP-RA05-E regenerative resistor unit.

2.1.2 Single-Phase, 200 VAC

Model SGDXS-		R70A	R90A	1R6A	2R8A	5R5A	120A
Maximum Applicable Motor Capacity [kW]		0.05	0.1	0.2	0.4	0.75	1.5
Continuous Output Current [Arms]		0.66	0.91	1.6	2.8	5.5	11.6
Instantaneous Maximum Output Current [Arms]		2.1	3.2	5.9	9.3	16.9	28
Main Circuit	Power Supply	200 VAC to 240 VAC, -15% to +10%, 50 Hz/60 Hz					
	Input Current [Arms] *1	0.8	1.6	2.4	5.0	8.7	16 *2
Control	Power Supply	200 VAC to 240 VAC, -15% to +10%, 50 Hz/60 Hz					
	Input Current [Arms] *1	0.2	0.2	0.2	0.2	0.2	0.2
Power Supply Capacity [kVA] *1		0.2	0.3	0.6	1.2	1.9	4.0
Power Loss *1	Main Circuit Power Loss [W]	5.0	7.1	12.1	23.7	39.2	72.6
	Control Circuit Power Loss [W]	12	12	12	12	14	15
	Total Power Loss [W]	17.0	19.1	24.1	35.7	53.2	87.6

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Model SGDXS-			R70A	R90A	1R6A	2R8A	5R5A	120A
Regenerative Resistor	Built-In Regenerative Resistor	Resistance [Ω]	–	–	–	–	35	20
		Capacity [W]	–	–	–	–	60	60
		Allowable Power Consumption [W]	–	–	–	–	15	30
	Minimum Allowable External Resistance [Ω]		40	40	40	40	35	20
Overvoltage Category			III					

*1 This is the net value at the rated load.
*2 Derate to 12 Arms for UL certification.

2.1.3 270 VDC

Model SGDXS-		R70A	R90A	1R6A	2R8A	3R8A	5R5A	7R6A	120A
Maximum Applicable Motor Capacity [kW]		0.05	0.1	0.2	0.4	0.5	0.75	1.0	1.5
Continuous Output Current [Arms]		0.66	0.91	1.6	2.8	3.8	5.5	7.6	11.6
Instantaneous Maximum Output Current [Arms]		2.1	3.2	5.9	9.3	11.0	16.9	17.0	28.0
Main Circuit	Power Supply	270 VDC to 324 VDC, -15% to +10%							
	Input Current [Arms] *1	0.5	1.0	1.5	3.0	3.8	4.9	6.9	11
Control	Power Supply	270 VDC to 324 VDC, -15% to +10%							
	Input Current [Arms] *1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Power Supply Capacity [kVA] *1		0.2	0.3	0.6	1	1.4	1.6	2.3	3.2
Power Loss *1	Main Circuit Power Loss [W]	4.4	5.9	9.8	17.5	23.0	30.7	38.7	55.8
	Control Circuit Power Loss [W]	12	12	12	12	14	14	14	15
	Total Power Loss [W]	16.4	17.9	21.8	29.5	37.0	44.7	52.7	70.8
Overvoltage Category		III							

*1 This is the net value at the rated load.

Model SGDXS-		180A	200A	330A	470A	550A	590A	780A
Maximum Applicable Motor Capacity [kW]		2.0	3.0	5.0	6.0	7.5	11.0	15.0
Continuous Output Current [Arms]		18.5	19.6	32.9	46.9	54.7	58.6	78.0
Instantaneous Maximum Output Current [Arms]		42.0	56.0	84.0	110	130	140	170
Main Circuit	Power Supply	270 VDC to 324 VDC, -15% to +10%						
	Input Current [Arms] *1	14	20	34	36	48	68	92
Control	Power Supply	270 VDC to 324 VDC, -15% to +10%						
	Input Current [Arms] *1	0.25	0.25	0.3	0.3	0.3	0.4	0.4
Power Supply Capacity [kVA] *1		4.0	5.9	7.5	10.7	14.6	21.7	29.6

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Model SGDXS-		180A	200A	330A	470A	550A	590A	780A
Power Loss *1	Main Circuit Power Loss [W]	82.7	83.5	146.2	211.6	255.3	243.6	343.4
	Control Circuit Power Loss [W]	16	16	19	21	21	28	28
	Total Power Loss [W]	98.7	99.5	165.2	232.6	276.3	271.6	371.4
Overvoltage Category		III						

*1 This is the net value at the rated load.

2.2 SERVOPACK Overload Protection Characteristics

The overload detection level is set for hot start conditions with a SERVOPACK surrounding air temperature of 55°C.

A.710 or A.720 (an overload alarm) will occur if overload operation that exceeds the overload protection characteristics shown in the following diagram (i.e., operation on the right side of the applicable line) is performed.

The actual overload detection level will be the detection level of the connected SERVOPACK or servomotor that has the lower overload protection characteristics.

In most cases, that will be the overload protection characteristics of the servomotor.

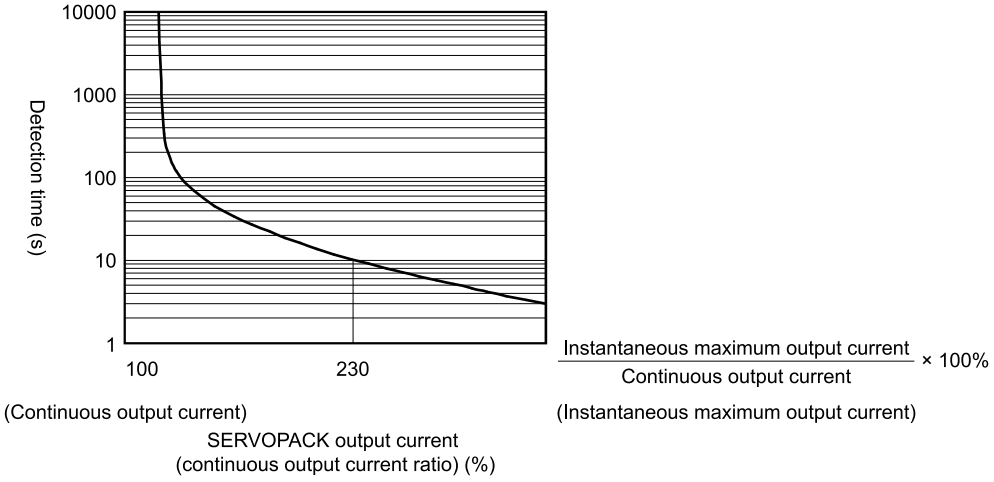

Figure 2.1 SGDXS-R70A, -R90A, -1R6A, -2R8A

Note:

- The above overload protection characteristics do not mean that you can perform continuous duty operation with an output of 100% or higher.
  For a Yaskawa-specified combination of SERVOPACK and servomotor, maintain the effective torque within the continuous duty zone of the torque-motor speed characteristic of the servomotor.
- This overload protection function is not a protection function related to speed. This product does not have a built-in thermal memory hold function.

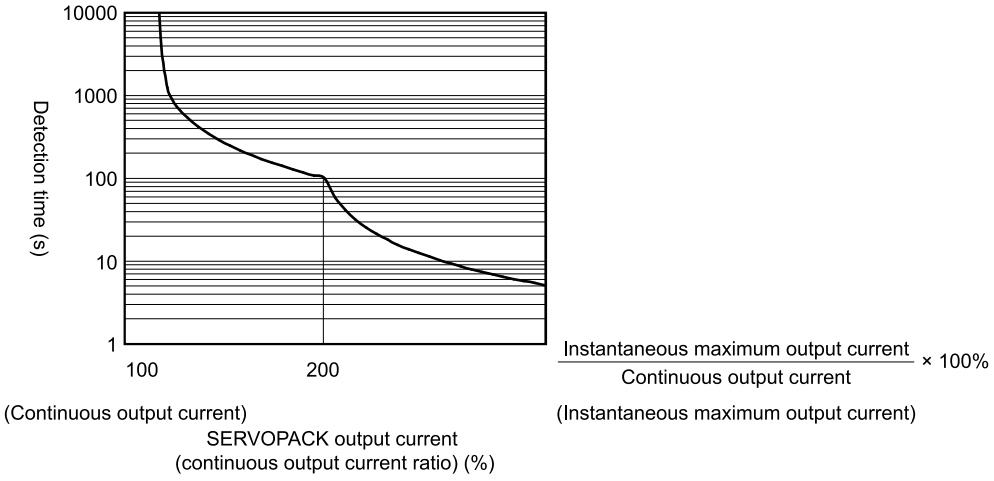

Figure 2.2 SGDXS-3R8A, -5R5A, -7R6A, -120A, -180A, -200A, -330A, -470A, -550A, -590A, -780A

Note:

- The above overload protection characteristics do not mean that you can perform continuous duty operation with an output of 100% or higher.
  For a Yaskawa-specified combination of SERVOPACK and servomotor, maintain the effective torque within the continuous duty zone of the torque-motor speed characteristic of the servomotor.
- This overload protection function is not a protection function related to speed. This product does not have a built-in thermal memory hold function.

2.3 Specification

2.3.1 Environmental Conditions

Item	Specification
Surrounding Air Temperature	-5°C to 55°C (With derating, usage is possible between 55°C and 60°C.) Refer to the following manual for derating specifications. Σ-X-Series Σ-XS SERVOPACK with MECHATROLINK-4/III Communications References Product Manuals (Manual No.: SIEP C710812 01)
Storage Temperature *1	-20°C to 85°C
Surrounding Air Humidity	95% relative humidity max. (with no freezing or condensation)
Storage Humidity	95% relative humidity max. (with no freezing or condensation)
Vibration Resistance	When there is continuous vibration: 10 Hz to 55 Hz, acceleration amplitude 5.9 m/s^2 (0.6G)
Impact Resistance	19.6 m/s^2
Degree of Protection	IP20: Models SGDXS-R70A, -R90A, -1R6A, -2R8A, -3R8A, -5R5A, -7R6A, -120A IP10: Models SGDXS-180A, -200A, -330A, -470A, -550A, -590A, -780A
Pollution Degree	2 • Must be no corrosive or flammable gases. • Must be no exposure to water, oil, or chemicals. • Must be no dust, salts, or iron dust.
Altitude *1	1000 m max. (With derating, usage is possible between 1000 m and 2000 m.) Refer to the following manual for derating specifications. Σ-X-Series Σ-XS SERVOPACK with MECHATROLINK-4/III Communications References Product Manuals (Manual No.: SIEP C710812 01)
Others	Do not use the SERVOPACK in the following locations: Locations subject to static electricity noise, strong electro-magnetic/magnetic fields, or radioactivity

*1 If you combine a Σ-X-series SERVOPACK with a Σ-V-series option module, the following Σ-V-series SERVOPACKs specifications must be used: a surrounding air temperature of 0°C to 55°C and an altitude of 1000 m max. Also, the applicable surrounding range cannot be increased by derating.

2.3.2 I/O Signals

Item		Specification
For Pressure Sensor Signal Input	Analog Input	Number of input points: 1 Input voltage range: ±12 V
	Sensor Hub	Number of input points: 5 (total number of voltage input and current input points) Input voltage range: ±12 V Input current range: 0 mA to 20 mA Σ-LINK II communications: 62.5 µs to 1 ms Data updating cycle: 62.5 µs min.
Encoder Divided Pulse Output		Phase A, phase B, phase C: Line-driver output Number of divided output pulses: Any setting is allowed.

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Item		Specification
Outputs for Triggers at Preset Positions		Number of output points: 3 (output method: line-driver output) Output signal: /HSO1 to 3 (High-Speed Output Signal for Triggers at Preset Positions 1 to 3) signal **Note:** Use the /NSO1 to 3 (Normal Output Signal for Triggers at Preset Positions 1 to 3) signals by allocating these signals to sequence output signals.
Sequence Input Signals	Input Signals That Can Be Allocated	Allowable voltage range: 24 VDC ±20% Number of input points: 7 (input method: sink inputs or source inputs)
		Input signals: • P-OT (Forward Drive Prohibit Input) and N-OT (Reverse Drive Prohibit Input) signals • /P-CL (Forward External Torque Limit Input) and /N-CL (Reverse External Torque Limit Input) signals • /DEC (Origin Return Deceleration Switch Input) signal • /EXT1 to /EXT3 (External Latch Input 1 to 3) signals • FSTP (Forced Stop Input) signal A signal can be allocated and the positive and negative logic can be changed.
Sequence Output Signals	Fixed Output	Allowable voltage range: 5 VDC to 30 VDC Number of output points: 1 (output method: a photocoupler output (isolated))
		Output signal: ALM (Servo Alarm Output) signal
	Output Signals That Can Be Allocated	Allowable voltage range: 5 VDC to 30 VDC Number of output points: 3 (output method: a photocoupler output (isolated))
		Output signals: • /COIN (Positioning Completion Output) signal • /V-CMP (Speed Coincidence Detection Output) signal • /TGON (Rotation Detection Output) signal • /S-RDY (Servo Ready Output) signal • /CLT (Torque Limit Detection Output) signal • /VLT (Speed Limit Detection Output) signal • /BK (Brake Output) signal • /WARN (Warning Output) signal • /NEAR (Near Output) signal • /NSO1 to 3 (Normal Output Signal for Triggers at Preset Positions 1 to 3) signal A signal can be allocated and the positive and negative logic can be changed.

2.3.3 Function

Item			Specification
Communications	USB Communications (CN7)	Interfaces	Personal computer (with SigmaWin+), digital operator (JUSP-OP07A-E)
		Communications Standard	Conforms to USB2.0 standard (12 Mbps).
Displays/Indicators			CHARGE, PWR, CN, L1, L2, and one-digit seven-segment LED

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Item		Specification
MECHATROLINK-4 Communications *1	Communications Protocol	MECHATROLINK-4
	Station Address Settings	01h to FFh (maximum number of slaves: 127) The rotary switches (S1 and S2) are used to set the station address.
	Transmission Speed	100 Mbps
	Transmission Cycle *2	62.5 µs, 125 µs, 250 µs, 500 µs, 750 µs, 1.0 ms to 4.0 ms (multiples of 0.5 ms)
	Number of Transmission Bytes	16 to 80 bytes/station
Reference Methods for MECHATROLINK-4 Communications	Performance	Position, speed, or torque control with MECHATROLINK-4 communications
	Reference Input	MECHATROLINK-4 commands (sequence, motion, data setting, data access, monitoring, adjustment, etc.)
	Profile	MECHATROLINK-4 standard servo profile MECHATROLINK-III standard servo profile
MECHATROLINK-III Communications *1	Communications Protocol	MECHATROLINK-III
	Station Address Settings	03h to EFh (maximum number of slaves: 62) The rotary switches (S1 and S2) are used to set the station address.
	Transmission Speed	100 Mbps
	Transmission Cycle	125 µs, 250 µs, 500 µs, 750 µs, 1.0 ms to 4.0 ms (multiples of 0.5 ms)
	Number of Transmission Bytes	32 or 48 bytes/station A DIP switch (S3) is used to select the transmission bytes.
Reference Methods for MECHATROLINK-III Communications	Performance	Position, speed, or torque control with MECHATROLINK-III communications
	Reference Input	MECHATROLINK-III commands (sequence, motion, data setting, data access, monitoring, adjustment, etc.)
	Profile	MECHATROLINK-III standard servo profile
MECHATROLINK-4 and MECHATROLINK-III Communications Setting Switches		Rotary switch (S1 and S2) positions: 16
		Number of DIP switch (S3) pins: 4
Analog Monitor (CN5)		Number of points: 2 Output voltage range: ±10 VDC (effective linearity range: ±8 V) Resolution: 16 bits Accuracy: ±20 mV (Typ) Maximum output current: ±10 mA
Dynamic Brake (DB)		Activated when a servo alarm or overtravel (OT) occurs, or when the power to the main circuit or servo is OFF.
Regenerative Processing		Built-in (An external resistor must be connected to the SGDXS-470A to -780A.)
Overtravel (OT) Prevention		Stopping with dynamic brake, deceleration to a stop, or coasting to a stop for the P-OT (Forward Drive Prohibit Input) or N-OT (Reverse Drive Prohibit Input) signal
Protective Functions		Overcurrent, overvoltage, undervoltage, overload, regeneration error, etc.
Utility Functions		Gain tuning, alarm history, jogging operation, origin search, etc.

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Item		Specification
Safety Functions	Inputs	/HWBB1 and /HWBB2: Base block signals for power modules
	Output	EDM1: Monitors the status of built-in safety circuit (fixed output). *3
	Applicable Standards *4	ISO13849-1 PLe (Category 3) and IEC61508 SIL3

*1 Use the DIP switch S3 to switch the communications protocol. Refer to the following manual for details.

Σ-X-Series Σ-XS SERVOPACK with MECHATROLINK-4/III Communications References Product Manuals (Manual No.: SIEP C710812 01)

*2 Multiple transmission cycles are supported.
*3 Whether or not you use the EDM1 signal does not affect the performance level of safety parameters.
*4 Always perform risk assessment for the system and confirm that the safety requirements are met.

2.3.4 Option

Item	Specification
Applicable Option Modules	Fully-closed module

3

Pressure Control Function

This chapter provides detailed information on the pressure control function.

3.1 Outline

3.1.1 Overview

The pressure control function provides pressure feedback using a pressure sensor and controls pressure to match the pressure reference from the host controller.

Information There are the following two methods to input a feedback signal from a pressure sensor. You can also combine these two methods.

- Input the output of a pressure sensor amplifier to the SERVOPACK as an analog signal on CN1.
- Input the output of a pressure sensor amplifier to the SERVOPACK as Σ-LINK II data.

The system can perform high-speed and high-precision pressure control with the pressure control function.

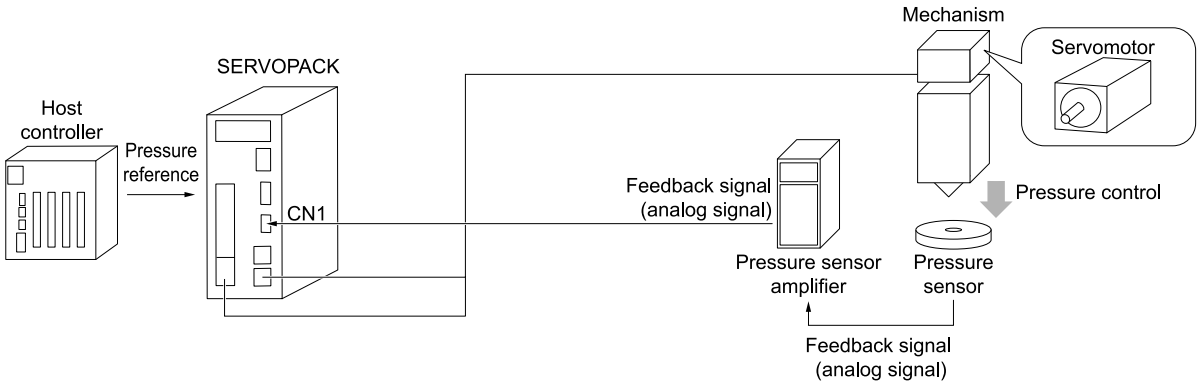
The pressure control function can be executed in torque control mode. It cannot be executed in speed control mode or position control mode.

3.1.2 System Configuration Example

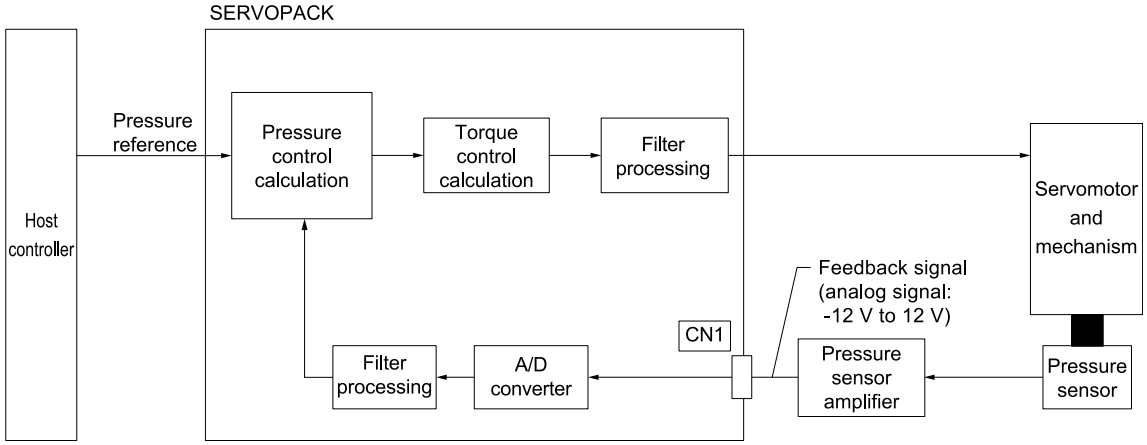
The following figures show examples of the system configuration for the pressure control function.

(1) When Using CN1

The following figure shows an example of a system configuration when the output of a pressure sensor amplifier is input to the SERVOPACK as an analog signal on CN1.

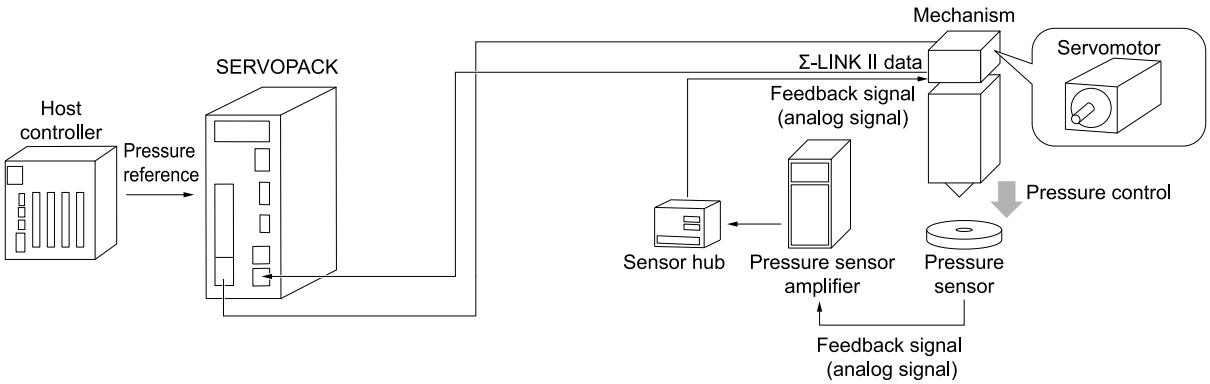


An outline of the control block diagram is shown below.

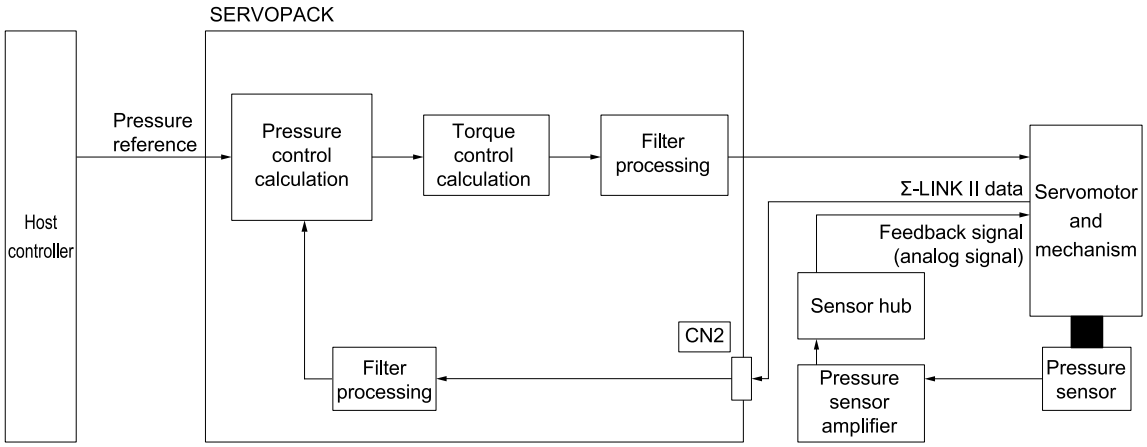


(2) When Using a Sensor Hub

The following figure shows an example of a system configuration when the output of a pressure sensor amplifier is input to the SERVOPACK as Σ-LINK II data.



An outline of the control block diagram is shown below.



3.2 Connecting a Pressure Sensor Amplifier

3.2.1 Recommended Pressure Amplifier Specifications

- Output voltage: ±12 V
- Response frequency: Not specified

Note:

The response frequency is not specified, but you cannot increase the pressure control gain if the response frequency is slow.

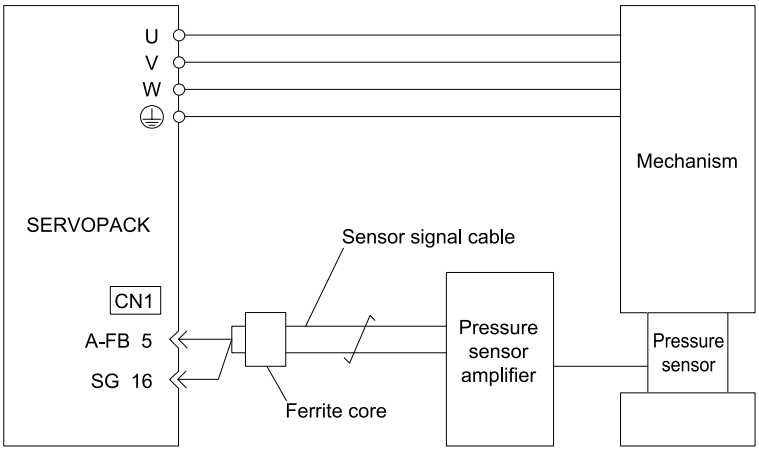
3.2.2 When Using CN1

Connect the input signal from the pressure sensor amplifier to pins 5 (A-FB) and 16 (SG) on the I/O signal connector (CN1).

Classification	Signal	Pin No.	Name	Remarks
Input	A-FB	5	Pressure Detection Input	Connect to pressure sensor amplifier.
	SG	16	Signal Ground	

The input specifications are given next.

- Maximum input voltage: ±12 V
- Input voltage resolution: ±12 bits
- Input impedance: 30 kΩ



Implement countermeasures against noise such as the following to prevent induction noise.

- Use twisted-pair cables.
- Make connections as short as possible.
- Install ferrite cores.

3.2.3 When Using a Sensor Hub

Connect the pressure sensor amplifier to the sensor hub (analog input type) and connect the sensor hub to the SERVOPACK.

Refer to the following manuals for details on the connections and settings.

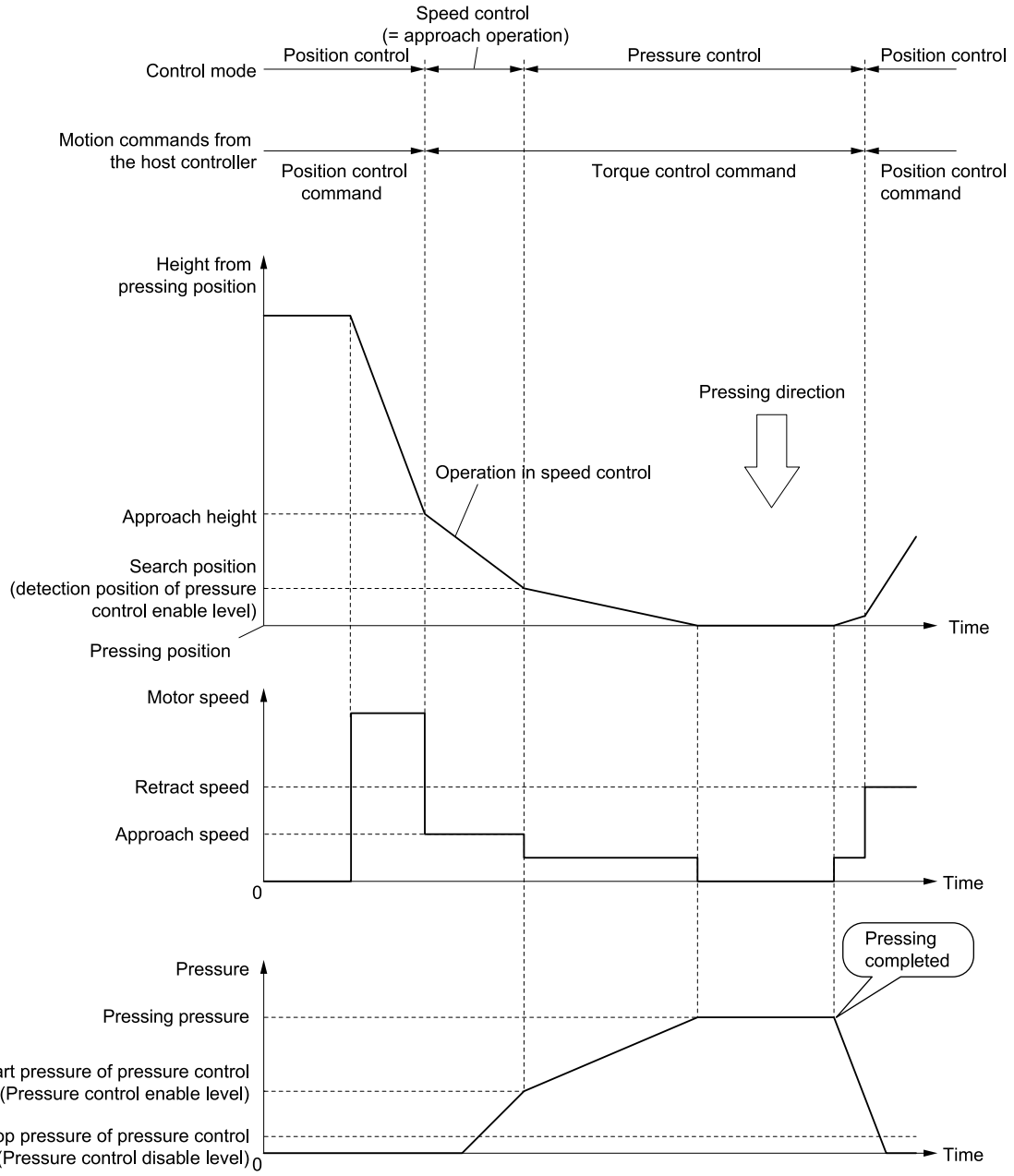
Σ-X-Series Σ-XS SERVOPACK with MECHATROLINK-4/III Communications References Product Manuals (Manual No.: SIEP C710812 01)

Σ-X-Series Σ-LINK II Sensor Hub Instructions (Manual No.: TOMP C710812 06)

3.3 Pressure Control Operation Pattern

Execute the torque control command and the pressure control function will be executed when the pressure detection value exceeds the pressure control enable level. The following timing chart shows an example of pressure control operation.

This timing chart example shows the operations to change from control mode: speed control (= approach operation) to pressure control and to retract in position control while reducing pressure after pressing is complete.



Information

- The approach speed is used to so that the target object undergoing pressure control touches the pressure sensor with as little torque as possible.
- In the retraction operation after pressing is complete in the above example, the reference (operation command) is output from the host controller and pressure control is switched to position control, but there is also an operation pattern in which the pressure drops to the pressure control disable level or lower and retraction is performed in the approach operation.

3.4 MECHATROLINK-4/III Pressure Control Commands

3.4.1 Commands Outline

Set the MECHATROLINK commands shown below when using pressure control.

Item to Set		Description	Reference
SVCMD_OUT field or SVCMD_OUT/SVCMD_IO (output) field	Bit 26 (VREF_SIGN) *1	Set the sign of the speed reference during the approach operation.	☞ *3.4.3 Command Details: SVCMD_OUT/SVCMD_IO (Output) Fields on page 61*
	Bit 27 (PRES_CTRL) *1	Set 1 to use the torque control command (TRQCTRL: 3DH) as the pressure control command.	
	Bit 28 (PRES_APRCH) *1	Switch between speed control (approach speed) and pressure control.	
Torque control command (TRQCTRL: 3DH)	Bytes 12 to 15 (VREF)	Set the speed reference value.	☞ *3.4.4 Command Details: Torque Control Command (TRQCTRL: 3DH) on page 63*
	Bytes 16 to 19 (PRESSREF)	Set the pressure reference value.	

*1 This bit is valid when using the torque control command (TRQCTRL: 3DH) only. When you change these set values, execute them with the torque control command only.

3.4.2 Settings When Using an MP-Series Machine Controller for the Host Controller

If you are using a YASKAWA MP-series machine controller for the host controller, configure the following register settings in the MP-series machine controller.

Reference	Register for Reference Value Setting	Remarks
PRESSREF (pressure reference)	OL□□□0C	Set OW□□□03 bits C to F to 0 and then set the reference value in units of 0.01% × the percentage (%) of maximum pressure.
VREF (speed reference)	OW□□□0E	Set the reference value in units of 0.01% × the percentage (%) of rated speed.
Servo command output signal (SVCMD_OUT or SVCMD_IO (output))	OW□□□06	Bit 10: VREF_SIGN Bit 11: PRES_CTRL Bit 12: PRES_APRCH

When you abort or stop the pressure control command, set OW□□□09 bit 1 to 1 (command abort in the motion command control flags = ON).

Do not use OW□□□09 bit 0 (command pause in the motion command control flags).

3.4.3 Command Details: SVCMD_OUT/SVCMD_IO (Output) Fields

This section describes the details on the SVCMD_OUT/SVCMD_IO (output) *1 fields. The ▭ sections of the tables are functions unique to the FT40.

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
N_CL	P_CL	P_PPI	V_PPI	Reserved (0).			

Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8
Reserved (0).				G-SEL			

Bit 23	Bit 22	Bit 21	Bit 20	Bit 19	Bit 18	Bit 17	Bit 16
SLO4	SO3/SLO3	SO2/SLO2	SO1/SLO1	BANK_SEL			

Bit 31	Bit 30	Bit 29	Bit 28	Bit 27	Bit 26	Bit 25	Bit 24
EXT_TRC	FOUT_STOP	Reserved (0).	PRES_ APRCH *2	PRES_CTRL *2	VREF_SIGN *2	Reserved (0).	

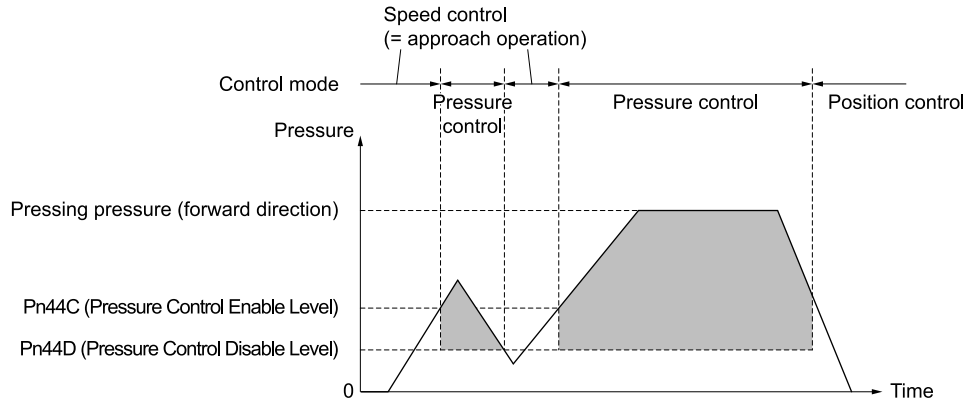
*1 This is SVCMD_OUT when using MECHATROLINK-4 commands and SVCMD_IO when using MECHATROLINK-III commands.
*2 This bit is valid when using the torque control command (TRQCTRL: 3DH) only. When you change the set value, execute it with the torque control command only.

The following table gives the details of the output signal bits.

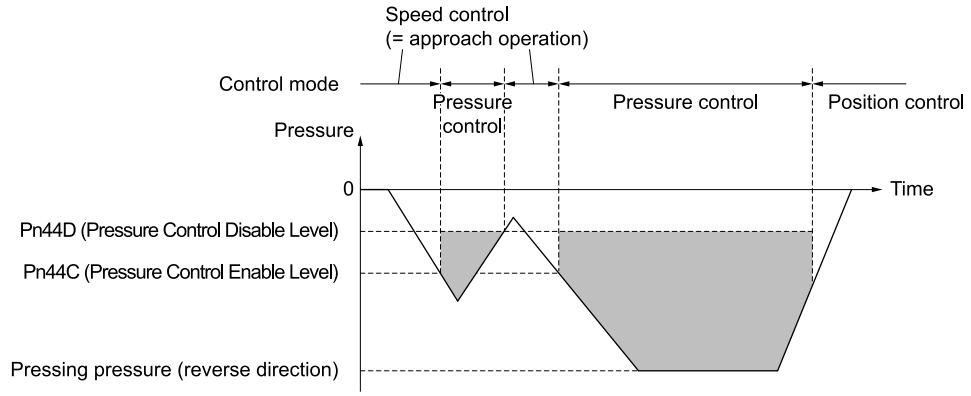
Bit	Name	Description	Value	Setting	When Enabled
26	VREF_SIGN	Sign of the approach operation speed reference	0	Positive	Level
			1	Negative	
	The setting will function only when all of the following conditions are met. • When Pn441 is set to n.□□□0 (switch with parameters (Pn44C and Pn44D)): – The torque control command (TRQCTRL: 3DH) is enabled. – SVCMD_OUT.PRES_CTRL = 1 – The pressure control is enabled. *1 • When Pn441 is set to n.□□□1 (switch with host reference (PRES_APRCH command)): – The torque control command (TRQCTRL: 3DH) is enabled. – SVCMD_OUT.PRES_CTRL = 1 – SVCMD_OUT.PRES_APRCH = 1				
27	PRES_CTRL	Use the torque control command (TRQCTRL: 3DH) as the pressure control command.	0	Use as torque control command	Level
			1	Use as pressure control command	
	The setting will function only when the torque control command (TRQCTRL: 3DH) is enabled.				
28	PRES_APRCH	Switch from speed control (approach operation) to pressure control	0	Pressure control	Level
			1	Speed control (approach operation)	
	The setting will function only when all of the following conditions are met. • Pn441 is set to n.□□□1 (switch with host reference (PRES_APRCH command)). • The torque control command (TRQCTRL: 3DH) is enabled. • SVCMD_OUT.PRES_CTRL = 1				

*1 A timing chart example is provided below. The sections shown in gray are the areas in which pressure control is enabled.

- Positive Pressure Control



- Negative Pressure Control



3.4.4 Command Details: Torque Control Command (TRQCTRL: 3DH)

This section describes details on the torque control command (TRQCTRL: 3DH). The ▭ sections of the tables are commands unique to the FT40.

(1) MECHATROLINK-4 Communications

Usable Communications Phases		2, 3	Command Type	Servo standard command	Asynchronized command
Processing Time		Within communications cycle	Subcommand Expansion	Allowed	

Byte	TRQCTRL		Description
	Command	Response	
0	3DH	3DH	• When you use this command, set SVCMD_OUT.PRES_CTRL to 1. Refer to the following section for details on SVCMD_OUT.PRES_CTRL. ☞ *3.4.3 Command Details: SVCMD_OUT/SVCMD_IO (Output) Fields on page 61* • Send VREF (speed reference) and PRESSREF (pressure reference) to the slave station and perform speed control (approach operation) and pressure control. <Application Precautions> • VREF (speed reference): Set the speed reference as an unsigned 4-byte value. – Setting range: 0 to maximum output speed – Set the sign in SVCMD_OUT.VREF_SIGN. Refer to the following section for details on SVCMD_OUT.VREF_SIGN. ☞ *3.4.3 Command Details: SVCMD_OUT/SVCMD_IO (Output) Fields on page 61* – Set the unit of the reference value in common parameter 41 PnA82 (Speed Unit) and 42 PnA84 (Speed Base Unit). • PRESSREF (pressure reference): Set the pressure reference as an signed 4-byte value. – Setting range: Negative maximum pressure to positive maximum pressure – Set the reference value in units of 0.01% (pct. of max. pressure). – Use common parameter 47 PnA8E (Torque Unit) and common parameter 48 PnA90 (Torque Base Unit) with the default settings (47 PnA8E = 0001h, 48 PnA90 = -2). **1* This command is the same as standard specification command except for the above items.
1	WDT	RWDT	
2	CMD_CTRL	CMD_STAT	
3			
4 to 7	SVCMD_CTRL	SVCMD_STAT	
8 to 11	SVCMD_OUT	SVCMD_IN	
12 to 15	VREF	CPRM_SEL_MON1	
16 to 19	PRESSREF	CPRM_SEL_MON2	
20 to 23	Reserved	MONITOR1	
24 to 27		MONITOR2	
28 to 31		MONITOR3	
32 to 35	CPRM_SEL_CMD1	CPRM_SEL_MON3	
:	:	:	
60 to 63	CPRM_SEL_CMD8	CPRM_SEL_MON10	

*1 To use PRESSREF in combination with the torque reference, set common parameter 47 PnA8E to 0001h (percentage (%) of rated torque). When using the torque reference, you can change the unit of the percentage (%) of rated torque between 10^{-5}% to 1%. To change the unit, change the setting of common parameter 48 PnA90 (Torque Base Unit).

(2) MECHATROLINK-III Communications

Usable Communications Phases		2, 3	Command Type	Servo standard command	Asynchronized command
Processing Time		Within communications cycle	Subcommand Expansion	Allowed	
Byte	TRQCTRL		Description		
	Command	Response			
0	3DH	3DH	• When you use this command, set SVCMD_IO (output).PRES_CTRL to 1. Refer to the following section for details on SVCMD_IO (output).PRES_CTRL. ☞ *3.4.3 Command Details: SVCMD_OUT/SVCMD_IO (Output) Fields on page 61* • Send VREF (speed reference) and PRESSREF (pressure reference) to the slave station and perform speed control (approach operation) and pressure control. <Application Precautions> • VREF (speed reference): Set the speed reference as an unsigned 4-byte value. – Setting range: 0 to maximum output speed – Set the sign in SVCMD_IO (output).VREF_SIGN. Refer to the following section for details on SVCMD_IO (output).VREF_SIGN. ☞ *3.4.3 Command Details: SVCMD_OUT/SVCMD_IO (Output) Fields on page 61* – Set the unit of the reference value in common parameter 41 PnA82 (Speed Unit) and 42 PnA84 (Speed Base Unit). • PRESSREF (pressure reference): Set the pressure reference as an signed 4-byte value. – Setting range: Negative maximum pressure to positive maximum pressure – Set the reference value in units of 0.01% (pct. of max. pressure). – Use common parameter 47 PnA8E (Torque Unit) and common parameter 48 PnA90 (Torque Base Unit) with the default settings (47 PnA8E = 0001h, 48 PnA90 = -2). **1* This command is the same as standard specification command except for the above items.		
1	WDT	RWDT			
2	CMD_CTRL	CMD_STAT			
3					
4 to 7	SVCMD_CTRL	SVCMD_STAT			
8 to 11	SVCMD_IO	SVCMD_IO			
12 to 15	VREF	CPRM_SEL_MON1			
16 to 19	PRESSREF	CPRM_SEL_MON2			
20 to 23	Reserved	MONITOR1			
24 to 27		MONITOR2			
28 to 31		MONITOR3			

*1 To use PRESSREF in combination with the torque reference, set common parameter 47 PnA8E to 0001h (percentage (%) of rated torque). When using the torque reference, you can change the unit of the percentage (%) of rated torque between 10^{-5}% to 1%. To change the unit, change the setting of common parameter 48 PnA90 (Torque Base Unit).

3.5 Outline of Setting Procedure

The following table contains an outline of settings for the pressure control function.

Setup Procedure	Reference
1	☞ *3.6.1 Selecting the Switching Method from Speed Control (Approach Speed) to Pressure Control on page 67*
2	☞ *3.6.2 Selecting the Pressure Control Method on page 68*
3	☞ *3.6.3 Setting the Maximum Pressure on page 70*
4	☞ *3.6.4 Setting Pressure Sensor Inputs on page 70*
5	☞ *3.6.5 Configuring Settings for a System Using the Pressure Control Function on page 72*
6	☞ *3.6.6 Adjusting Pressure Sensor Offsets on page 73*
7	☞ *3.6.7 Configuring Settings before Pressure Control Operation on page 75*
8	☞ *3.6.8 Gain Adjustment on page 76*

3.6 Detailed Description of Settings

3.6.1 Selecting the Switching Method from Speed Control (Approach Speed) to Pressure Control

There are two types of methods to switch from speed control (approach speed) to pressure control. Set the method to use in Pn441 = □□□X (Pressure Control Function Switching Method Selection).

Important

Pressure control is a function that performs control so that the pressure detection value equals the pressure reference. If the system switches to pressure control when there is no feedback from the pressure sensor (i.e., the control target is not touching the pressure sensor), the system will switch from the approach operation to pressure control, but the operation will be performed follows:

- If Pn441 is set to n.□□0□ (Pressure Control Type 1): The operation will be performed with Pn407 (Speed Limit during Torque Control).
- If Pn441 is set to n.□□1□ (Pressure Control Type 2): The operation will stop or be performed at the speed set in Pn407 or slower.

		Pressure Control Function Switching Method Selection	Speed Pos **Trq**	When Enabled
Pn441	n.□□□X	0 Default	Switch with parameters (Pn44C and Pn44D).	Immediately
		1	Switch with host reference (PRES_APRCH command).	

(1) Pn441 = n.□□□0

Set the value to switch between speed control (approach speed) and pressure control in the following parameters.

Important

The pressure control enable level is the pressure detection value (level) at which to judge that the control target has touched the pressure sensor. For this reason, set a level that can be used to judge that the control target has touched the pressure sensor.

	Pressure Control Enable Level			Speed Pos **Trq**
Pn44C	Setting Range	Setting Unit	Default Setting	When Enabled
	0 to 10000	0.01% (pct. of max. pressure)	1000	Immediately
	Pressure Control Disable Level			Speed Pos **Trq**
Pn44D	Setting Range	Setting Unit	Default Setting	When Enabled
	0 to 10000	0.01% (pct. of max. pressure)	0	Immediately

Information

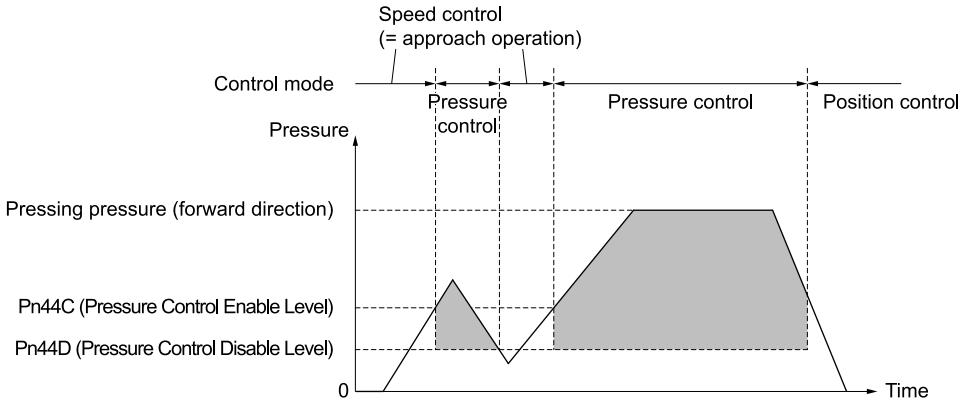
"0.01% (pct. of max. pressure)" means to set the set value in units of 0.01% as a proportion with the maximum pressure value as 100%.

For example, to enable Pn44C (Pressure Control Enable Level) when the maximum pressure value is 100 and the pressure value is 80, set Pn44C to 8000 (8000 × 0.01% = 80%).

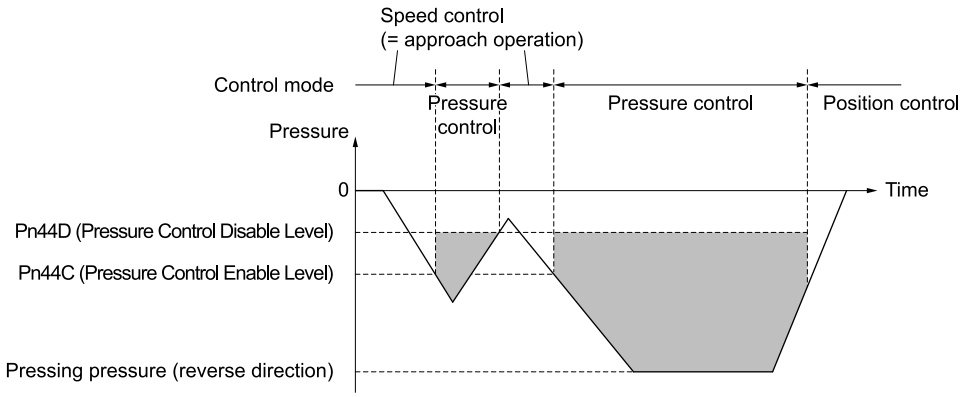
A timing chart example is provided below.

The sections shown in gray are the areas in which pressure control is enabled.

- Positive Pressure Control



- Negative Pressure Control



(2) Pn441 = n.□□□1

Use the MECHATROLINK commands to switch between speed control (approach speed) and pressure control. Refer to the following section for details on the settings.

☞ *3.4 MECHATROLINK-4/III Pressure Control Commands on page 61*

> Important
>
> Monitor the pressure detection value in the host controller. After you confirm that the control target has touched the pressure sensor, switch to pressure control.

3.6.2 Selecting the Pressure Control Method

There are two types of pressure control methods: type 1 and type 2. This section describes how to use these two types.

Pressure Control Type	Purpose
Type 1	Use this pressure control type when the following items are applicable. • When Σ-7 FT40/FT41 pressure control type 1 was used • When you will freely set proportional gain and integral time constant in pressure control to individual values
Type 2	Normally use this pressure control type (when the above items are not applicable).

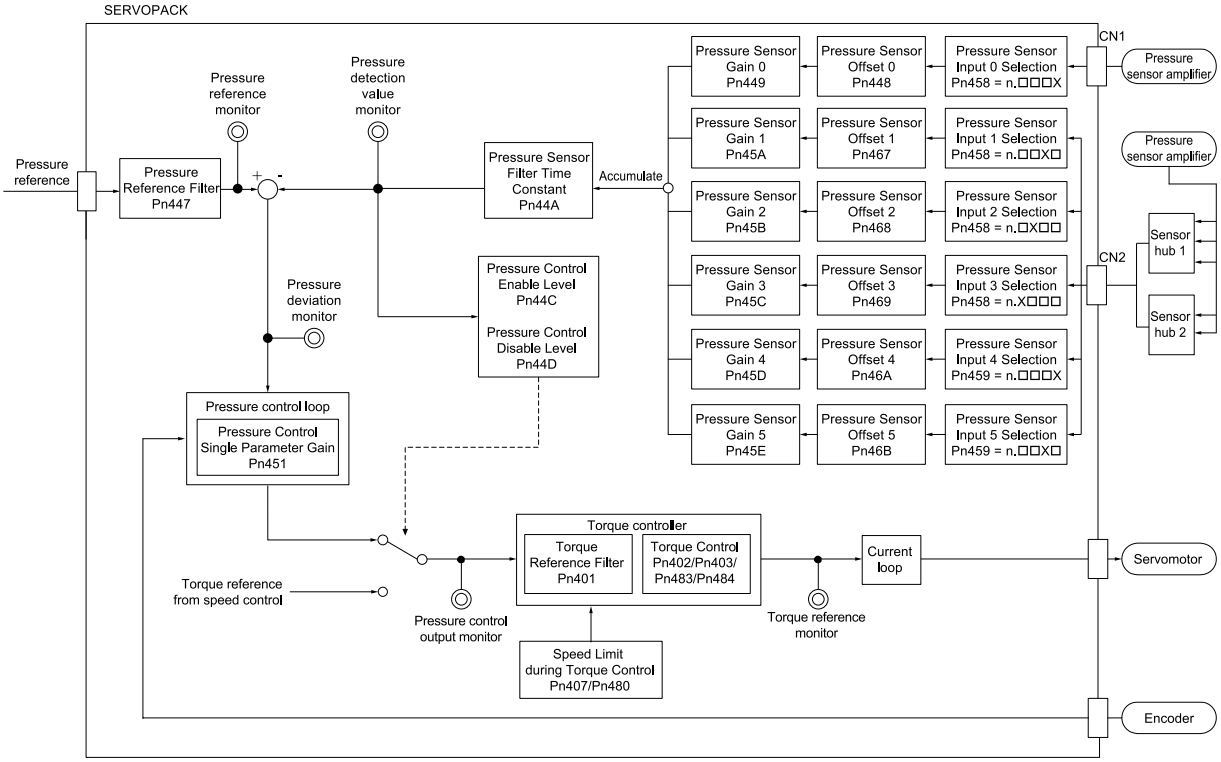
Set the pressure control method type in Pn441 = n.□□X□ (Pressure Control Type Selection).

		Pressure Control Type Selection (Speed / Pos / Trq)		When Enabled
Pn441	n.□□X□	0	Use pressure control type 1.	After restart
		1 Default	Use pressure control type 2.	

(1) Control Block Diagram

The control block diagrams for each type of position control function are shown below.

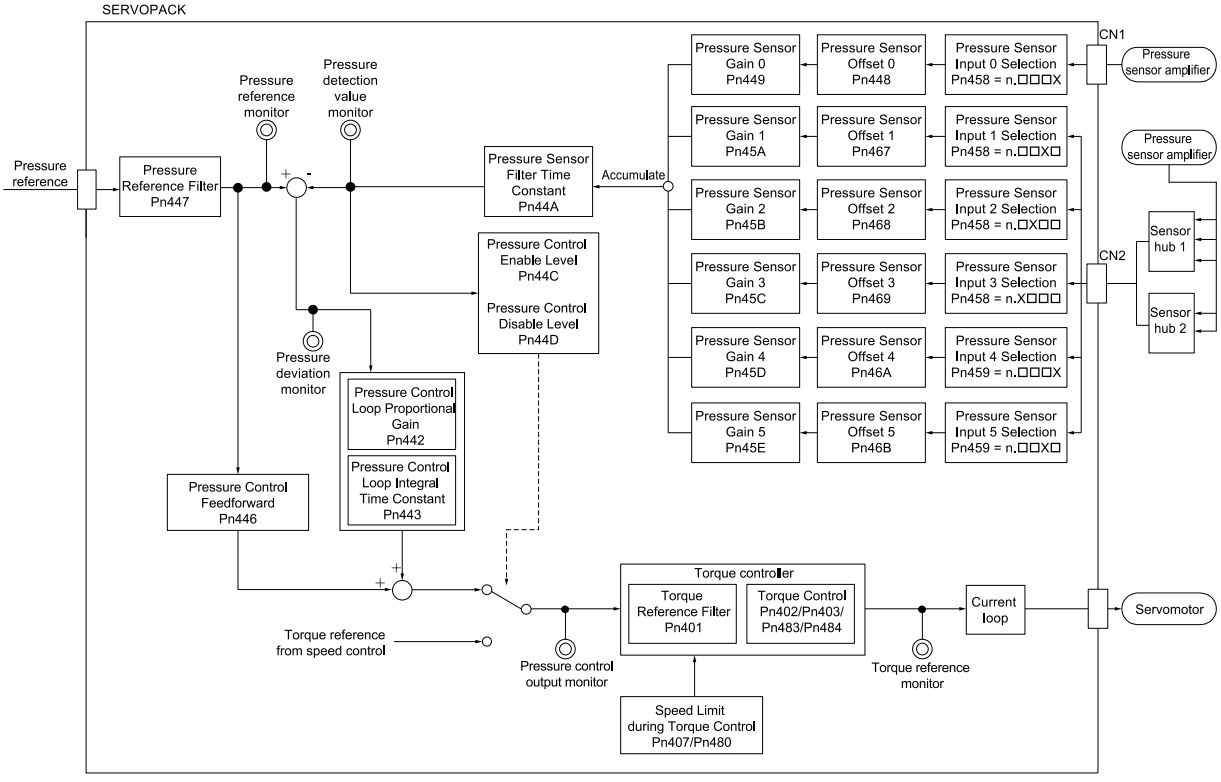
(a) When Pn441 = n.□□1□ (Pressure Control Type 2)



Note:

Four pressure sensors can be connected with one sensor hub and the SERVOPACK can accept up to five pressure sensor inputs.

(b) When Pn441 = n.□□0□ (Pressure Control Type 1)



Note:

Four pressure sensors can be connected with one sensor hub and the SERVOPACK can accept up to five pressure sensor inputs.

3.6.3 Setting the Maximum Pressure

Set the pressure conversion gain in the following parameters to set the maximum pressure for the system.

Set the pressure conversion gain within the following range.

0.001 ≤ Pressure Conversion Gain (Pn4A0/ Pn4A2) ≤ 1000

If the setting range is exceeded, A.040 (Parameter Setting Error) will occur. If the setting range is exceeded, set Pressure Conversion Gain (Pn4A0/Pn4A2) to a value that equals 1.

Note:

However, if you set Pressure Conversion Gain (Pn4A0/Pn4A2) to a value that equals 1 (which is the same as not setting the pressure conversion gain), the maximum pressure will be the pressure at the maximum torque of the servomotor. Use caution when configuring settings for parameters that use the pressure reference or maximum pressure.

Pn4A0	Pressure Conversion Gain (Numerator)			Speed Pos **Trq**
	Setting Range	Setting Unit	Default Setting	When Enabled
	1 to 1073741824	–	1	After restart
Pn4A2	Pressure Conversion Gain (Denominator)			Speed Pos **Trq**
	Setting Range	Setting Unit	Default Setting	When Enabled
	1 to 1073741824	–	1	After restart

You can set the maximum pressure to any appropriate value. Use the following setting example as a guide.

<Setting Example>

Item		Specification
Maximum pressure to set		900 N
System specifications	Servomotor to use	SGMXG-20
	Maximum output torque (Can be monitored with common parameter 08 PnA10.)	28.7 N·m
	Ball screw lead	20 mm
	Pressure sensor specification	0 N to 980 N

- Pressure at maximum torque:
  28.7 [N·m] × 2π/0.02 [m] = 9016.4[N]
- Pressure conversion gain:

$$\text{Pressure conversion gain } \frac{B}{A} = \frac{Pn4A0}{Pn4A2} = \frac{\text{Maximum pressure [N]}}{\text{Pressure at maximum torque of servomotor [N]}}$$

$$= \frac{900}{9016.4}$$

$$= \frac{9000}{90164}$$

Set Pn4A0 to 9000 and Pn4A2 to 90164.

3.6.4 Setting Pressure Sensor Inputs

Configure the pressure sensor inputs according to the system.

To use CN1, set Pn458 to n.□□□1 or n.□□□2 (use analog input or use analog input (invert polarity)).

To use a sensor hub, you must configure the following two types of settings.

- Sensor hub settings (SigmaLINK II Response Data Selections)
- Pressure sensor input settings

The following table shows the relationship between the parameters used for these settings.

Sensor Hub Settings (SigmaLINK II Response Data Selections) *1		Pressure Sensor Input Settings	
Parameter No.	Name	Parameter No.	Name
Pn050	SigmaLINK II Response Data Selection 1	Pn458 = n.□□X□	Pressure Sensor Input 1 Selection
Pn052	SigmaLINK II Response Data Selection 2	Pn458 = n.□X□□	Pressure Sensor Input 2 Selection
Pn054	SigmaLINK II Response Data Selection 3	Pn458 = n.X□□□	Pressure Sensor Input 3 Selection
Pn056	SigmaLINK II Response Data Selection 4	Pn459 = n.□□□X	Pressure Sensor Input 4 Selection
Pn058	SigmaLINK II Response Data Selection 5	Pn459 = n.□□X□	Pressure Sensor Input 5 Selection
Pn05A	SigmaLINK II Response Data Selection 6	Cannot be used for pressure sensor input.	
Pn05C	SigmaLINK II Response Data Selection 7		
Pn05E	SigmaLINK II Response Data Selection 8		

*1 Refer to explanation of the Σ-LINK II functions in the following manuals for the settings of Pn050 to Pn05E.

Σ-X-Series Σ-XS SERVOPACK with MECHATROLINK-4/III Communications References Product Manuals (Manual No.: SIEP C710812 01)

Refer to the following manual for details on parameters for a sensor hub.

Σ-X-Series Σ-LINK II Sensor Hub Instructions (Manual No.: TOMP C710812 06)

(1) Related Parameters

Important

- If the forward direction of the motor and the orientation of the pressure sensor are reversed, use the set value to invert the polarity.
- To perform pressure control in the reverse direction of the motor, set the parameter so that the output of the pressure sensor is a negative value when the motor is operating in the reverse direction.
- If you will use the motor with Pn000 set to n.□□□1 (use CCW as the forward direction (reverse rotation mode)), first set Pn000 to n.□□□1 and turn the power supply OFF and ON again, and then set whether to invert the polarity of the pressure sensor by taking into consideration the forward direction of the motor and the orientation of the pressure sensor.

Pn458	n.□□□X	Pressure Sensor Input 0 Selection (Dedicated Analog Input) Speed Pos Trq		When Enabled
		0 Default	Do not use.	After restart
		1	Use (do not invert polarity).	
		2	Use (invert polarity).	
Pn458	n.□□X□	Pressure Sensor Input 1 Selection Speed Pos Trq		When Enabled
		0 Default	Do not use.	After restart
		1	Use input as a sensor hub input (do not invert polarity).	
		2	Use input as a sensor hub input (invert polarity).	
Pn458	n.□X□□	Pressure Sensor Input 2 Selection Speed Pos Trq		When Enabled
		0 Default	Do not use.	After restart
		1	Use input as a sensor hub input (do not invert polarity).	
		2	Use input as a sensor hub input (invert polarity).	
Pn458	n.X□□□	Pressure Sensor Input 3 Selection Speed Pos Trq		When Enabled
		0 Default	Do not use.	After restart
		1	Use input as a sensor hub input (do not invert polarity).	
		2	Use input as a sensor hub input (invert polarity).	

Continued on next page.

Continued from previous page.

Pn459	n.□□□X	Pressure Sensor Input 4 Selection	Speed Pos Trq	When Enabled
		0 Default	Do not use.	After restart
		1	Use input as a sensor hub input (do not invert polarity).	
		2	Use input as a sensor hub input (invert polarity).	
Pn459	n.□□X□	Pressure Sensor Input 5 Selection	Speed Pos Trq	When Enabled
		0 Default	Do not use.	After restart
		1	Use input as a sensor hub input (do not invert polarity).	
		2	Use input as a sensor hub input (invert polarity).	

3.6.5 Configuring Settings for a System Using the Pressure Control Function

Set Pn449 to Pn45E (Pressure Sensor Gain 0 to 5) for the output of the sensor amplifiers.

The method to calculate the values to set in Pn449 to Pn45E depends on the settings of Pn4A0 and Pn4A2 (Pressure Conversion Gain).

Condition	Setting of Pn449 to Pn45E
Pressure conversion gain was set	Output voltage of the sensor amplifier when maximum pressure is applied
Pressure conversion gain was not set	Output voltage of the sensor amplifier when maximum torque is applied to the servomotor

Note:

You can execute pressure control without setting Pn449 to Pn45E to appropriate values, but the pressure reference and pressure detection value will no longer match.

Details on Pn449 to Pn45E are shown below.

Pn449	Pressure Sensor Gain 0			Speed Pos Trq
	Setting Range	Setting Unit	Default Setting	When Enabled
	0 to 65535	0.01 V/maximum pressure	0	Immediately
Pn45A	Pressure Sensor Gain 1			Speed Pos Trq
	Setting Range	Setting Unit	Default Setting	When Enabled
	0 to 65535	AD value / maximum pressure	0	Immediately
Pn45B	Pressure Sensor Gain 2			Speed Pos Trq
	Setting Range	Setting Unit	Default Setting	When Enabled
	0 to 65535	AD value / maximum pressure	0	Immediately
Pn45C	Pressure Sensor Gain 3			Speed Pos Trq
	Setting Range	Setting Unit	Default Setting	When Enabled
	0 to 65535	AD value / maximum pressure	0	Immediately
Pn45D	Pressure Sensor Gain 4			Speed Pos Trq
	Setting Range	Setting Unit	Default Setting	When Enabled
	0 to 65535	AD value / maximum pressure	0	Immediately
Pn45E	Pressure Sensor Gain 5			Speed Pos Trq
	Setting Range	Setting Unit	Default Setting	When Enabled
	0 to 65535	AD value / maximum pressure	0	Immediately

Term

AD value :

The AD value is an analog value that was converted to a digital value.

3.6.6 Adjusting Pressure Sensor Offsets

Set the offsets in Pn448 and Pn467 to 46B (Pressure Sensor 0 to 5).

The offset of Pn448 (Pressure Sensor 0) can be adjusted automatically or manually.

The offsets of Pn467 to Pn46B (Pressure Sensor 1 to 5) can be adjusted manually.

Pn448	Pressure Sensor Offset 0			Speed Pos Trq
	Setting Range	Setting Unit	Default Setting	When Enabled
	-32768 to 32767	0.001 V	0	Immediately
Pn467	Pressure Sensor Offset 1			Speed Pos Trq
	Setting Range	Setting Unit	Default Setting	When Enabled
	-32768 to 32767	AD value	0	Immediately
Pn468	Pressure Sensor Offset 2			Speed Pos Trq
	Setting Range	Setting Unit	Default Setting	When Enabled
	-32768 to 32767	AD value	0	Immediately
Pn469	Pressure Sensor Offset 3			Speed Pos Trq
	Setting Range	Setting Unit	Default Setting	When Enabled
	-32768 to 32767	AD value	0	Immediately
Pn46A	Pressure Sensor Offset 4			Speed Pos Trq
	Setting Range	Setting Unit	Default Setting	When Enabled
	-32768 to 32767	AD value	0	Immediately
Pn46B	Pressure Sensor Offset 5			Speed Pos Trq
	Setting Range	Setting Unit	Default Setting	When Enabled
	-32768 to 32767	AD value	0	Immediately

(1) Automatically Adjusting the Offsets of the Pressure Sensor Input Signals (Fn009)

(a) Preparations

You must check the following item in advance to automatically adjust the offsets of the pressure sensor input signals.

- The parameters must not be write prohibited.
- The servo must be OFF.
- There must be no force applied to the pressure sensor.

(b) Applicable Tools and Operating Procedure Reference

The following table lists the tools that you can use to automatically adjust the offsets of the pressure sensor input signals.

Tool	Fn No./Function Name	Reference
Digital Operator	Fn009	Σ-7/Σ-X-Series Digital Operator Operating Manual (Manual No.: SIEP S800001 33)
SigmaWin+	[Others] – [Speed/Torque Reference Offset Adjustment]	Σ-X-Series Σ-XS SERVOPACK with MECHATROLINK-4/III Communications References Product Manuals (Manual No.: SIEP C710812 01)

(2) Manually Adjusting the Offsets of the Pressure Sensor Input Signals

(a) Preparations

You must check the following item in advance to manually adjust the offsets of the pressure sensor input signals.

- There must be no force applied to the pressure sensor.

(b) Applicable Tools

The following table lists the tools that you can use to manually adjust the offsets of the pressure sensor input signals.

Tool	Fn No./Function Name	Reference
Digital Operator	You cannot manually adjust the offsets of the pressure sensor input signals from the digital operator.	
SigmaWin+	• [Monitor] – [Monitor] • [Basic Functions] – [Edit Parameters]	☞ *(c) Operating Procedure on page 74*

(c) Operating Procedure

Use the following procedure to manually adjust the offsets of the pressure sensor input signals.

1. **Connect the SigmaWin+, click the [ ] button for the servo drive in the workspace of the Main window of the SigmaWin+, and click [Monitor] in the Menu window. You can now monitor the pressure sensor detection value.**
2. **Confirm that no force is being applied to the pressure sensor.**
3. **Change the set value of the offset adjustment parameter for each pressure sensor and make the pressure sensor detection value zero.**

   - For the parameter settings, click the [ ] button for the servo drive in the workspace of the Main window of the SigmaWin+, and click [Edit Parameters] in the Menu window. You can change the parameter settings in the displayed window.
   - Refer to the following section for the parameters to adjust.
     ☞ *3.6.6 Adjusting Pressure Sensor Offsets on page 73*

This concludes the procedure to manually adjust the offsets of the pressure sensor input signals.

3.6.7 Configuring Settings before Pressure Control Operation

Important

If the system switched to pressure control when the control target is not touching the pressure sensor, the torque reference may increase and the servomotor may accelerate. Set the following parameters and commands to appropriate values by taking into consideration the anticipated amount of servomotor acceleration.

Parameter	Name	Remarks
Pn44E	Pressure Deviation Overflow Level	–
Pn402	Forward Torque Limit	–
Pn403	Reverse Torque Limit	–
Pn404	Forward External Torque Limit	–
Pn405	Reverse External Torque Limit	–
Pn407	Speed Limit during Torque Control	When using a rotary servomotor
Pn480	Speed Limit during Force Control	When using a linear servomotor
Pn483	Forward Force Limit	When using a linear servomotor
Pn484	Reverse Force Limit	When using a linear servomotor
–	P_CL: Forward Torque Limit N_CL: Reverse Torque Limit	Limit torque with MECHATROLINK commands

Refer to the following manual for parameter and command settings that are not contained in this manual.

Σ-X-Series Σ-XS SERVOPACK with MECHATROLINK-4/III Communications References Product Manual (Manual No.: SIEP C710812 01)

1. **Set Pn44A (Pressure Sensor Filter Time Constant) as necessary.**

Information A primary low-pass filter will be applied to the pressure sensor signal by setting Pn44A. Set this parameter if signal noise is a concern.

Pn44A	Pressure Sensor Filter Time Constant			Speed Pos Trq
	Setting Range	Setting Unit	Default Setting	When Enabled
	0 to 65535	0.01 ms	0	Immediately

2. **Set Pn44E (Pressure Deviation Overflow Level).**

If the difference between the pressure reference and pressure detection value exceeds the value set in Pn44E, an A.d0A alarm (Pressure Deviation Overflow) will occur.

Pn44E	Pressure Deviation Overflow Level			Speed Pos Trq
	Setting Range	Setting Unit	Default Setting	When Enabled
	0 to 800	1% (pct. of max. pressure)	100	Immediately

3. **Set Pn44F (Pressure Detection Overflow Level) and Pn450 (Pressure Detection Overflow Time).**

You can adjust the detection timing of the A.922 warning (Pressure Detection Overflow) by setting these parameters.

Pn44F	Pressure Detection Overflow Level			Speed Pos Trq
	Setting Range	Setting Unit	Default Setting	When Enabled
	0 to 800	1% (pct. of max. pressure)	300	Immediately
Pn450	Pressure Detection Overflow Time			Speed Pos Trq
	Setting Range	Setting Unit	Default Setting	When Enabled
	0 to 5000	0.1 ms	0	Immediately

4. **If Pn441 is set to n.□□0□ (Pressure Control Type 1), set Pn407 (Speed Limit during Torque Control) or Pn480 (Speed Limit during Force Control).**

> Important
> The default setting is a low value to ensure safety during setup. Set the parameter to an appropriate value by checking the motor speed with a monitor.

- Rotary Servomotors

Pn407	Speed Limit during Torque Control			Speed Pos Trq
	Setting Range	Setting Unit	Default Setting	When Enabled
	0 to 10000	1 min^{-1}	100	Immediately

- Linear Servomotors

Pn480	Speed Limit during Force Control			Speed Pos Trq
	Setting Range	Setting Unit	Default Setting	When Enabled
	0 to 10000	1 mm/s	100	Immediately

Information If Pn441 is set to n.□□1□ (Pressure Control Type 2), you do not need to set Pn407 or Pn480 because there is a mechanism to stabilize and control speed.

5. **Set the following parameters only if you want to lessen the pressure when the control target starts the touch the pressure sensor during the approach operation.**

You can control the pressure by setting these parameters.

However, use caution because the approach operation will not be possible if a set value is made too small.

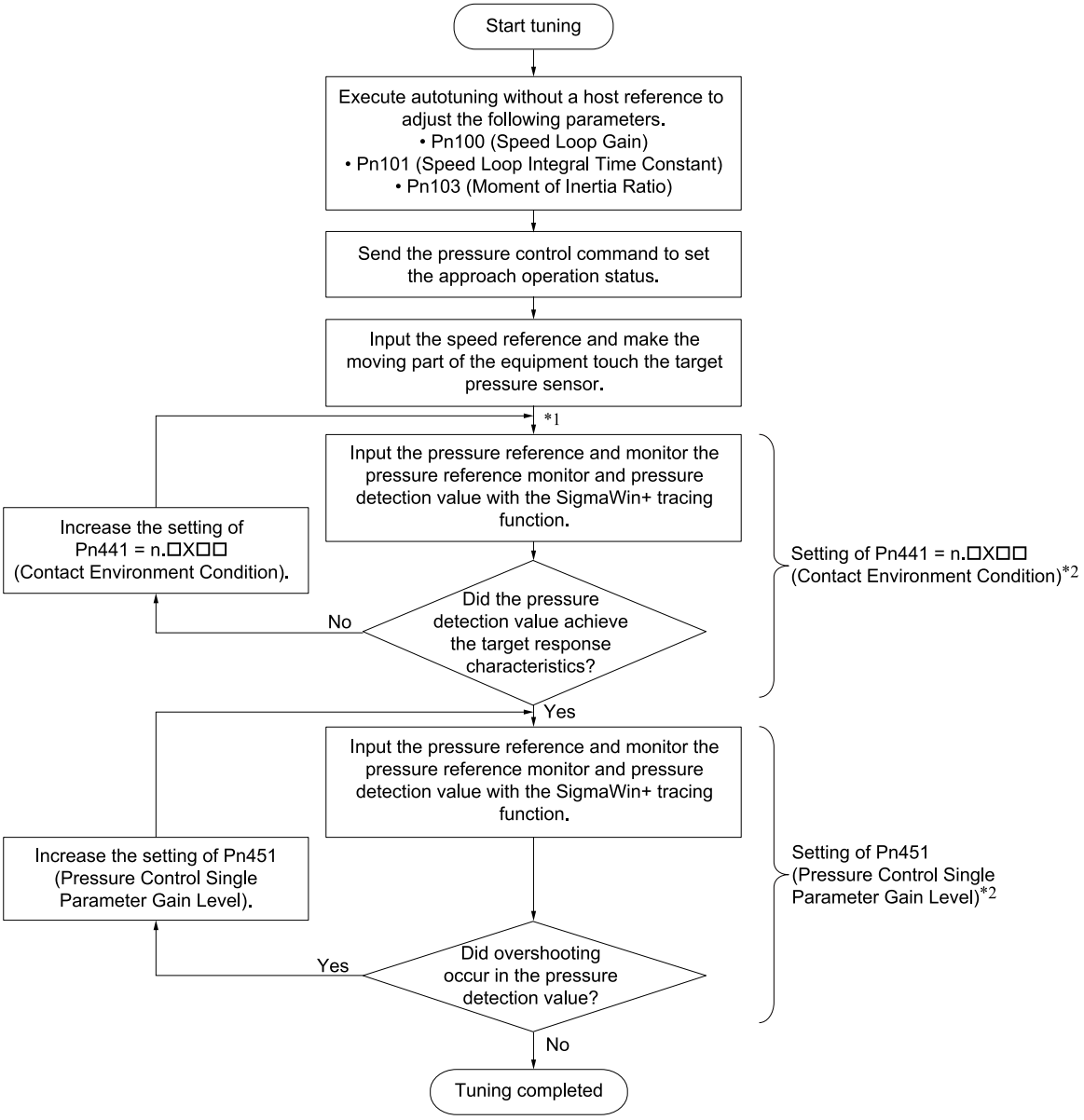
Pn4A4	Forward Pressure Limit during Approach Operation			Speed Pos Trq
	Setting Range	Setting Unit	Default Setting	When Enabled
	0 to 10000	0.01% (pct. of max. pressure)	10000	Immediately
Pn4A5	Reverse Pressure Limit during Approach Operation			Speed Pos Trq
	Setting Range	Setting Unit	Default Setting	When Enabled
	0 to 10000	0.01% (pct. of max. pressure)	10000	Immediately

This concludes the procedure to configure settings before pressure control operation.

3.6.8 Gain Adjustment

The gain adjustment procedure depends on the setting of Pn441 = n.□□X□ (Pressure Control Type Selection). This section shows each gain adjustment method.

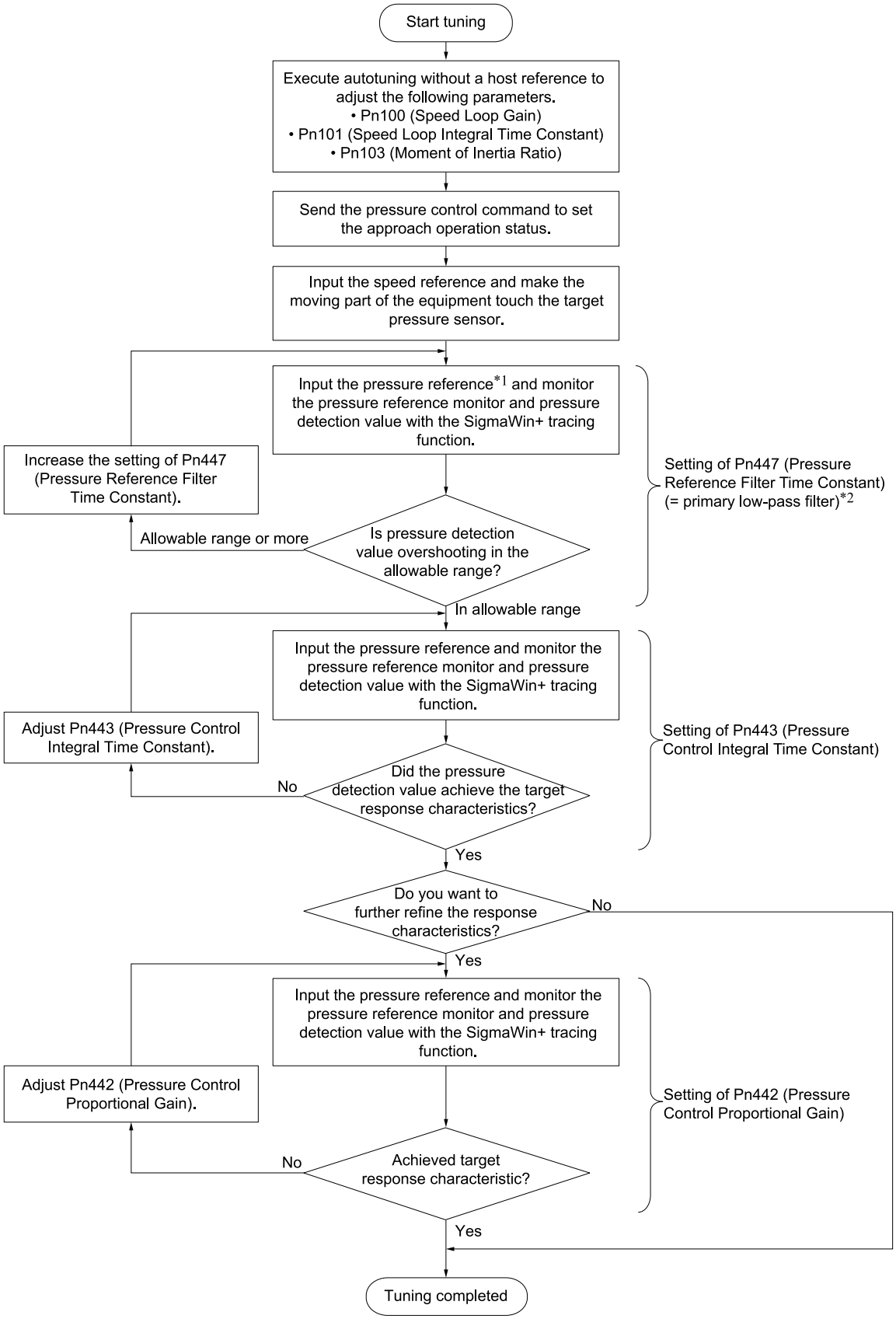
(1) Gain Adjustment When Pn441 = n.□□1□ (Pressure Control Type 2)



*1 Set Pn447 (Pressure Reference Filter Time Constant) as necessary. Refer to the following section for details.
☞ *(a) Adjusting Pn447 (Pressure Reference Filter Time Constant) on page 79*

*2 Refer to the following section for details.
☞ *(b) Adjusting Pn441 = n.□X□□ (Contact Environment Condition) and Pn451 (Pressure Control Single Parameter Gain Level) on page 79*

(2) Gain Adjustment When Pn441 = n.□□0□ (Pressure Control Type 1)



*1 For example, if the friction of the machine is very large, the motor may not operate even when the pressure reference is input because of this friction. When this happens, adjust the setting of Pn446 (Pressure Control Feedforward) so a pressure reference greater than the friction will be input.

*2 Refer to the following section for details on Pn447 (Pressure Reference Filter Time Constant).

☞ *(a) Adjusting Pn447 (Pressure Reference Filter Time Constant) on page 79*

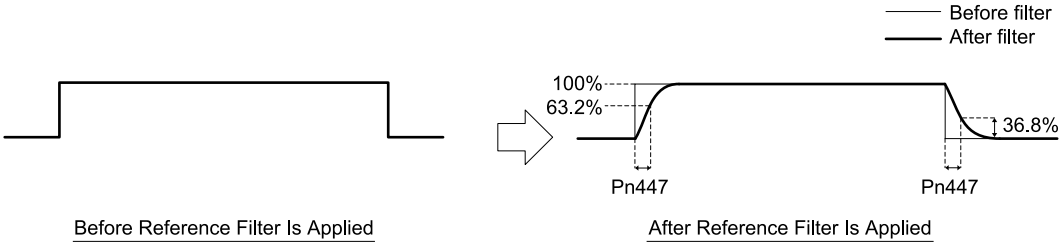
(3) Details on Gain Adjustments

(a) Adjusting Pn447 (Pressure Reference Filter Time Constant)

You can reduce variations when the pressure reference changes (including when switching to pressure control) and reduce overshooting in pressure control by adjusting Pn447 (Pressure Reference Filter Time Constant). If a large value is set, it will increase the delay and make response slower.

Pn447	Pressure Reference Filter Time Constant			Speed Pos Trq
	Setting Range	Setting Unit	Default Setting	When Enabled
	0 to 65535	0.01 ms	0	Immediately

An example waveform of the pressure reference before and after setting Pn447 is shown below.



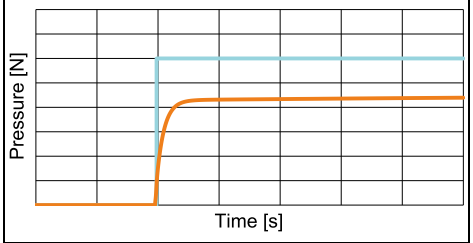
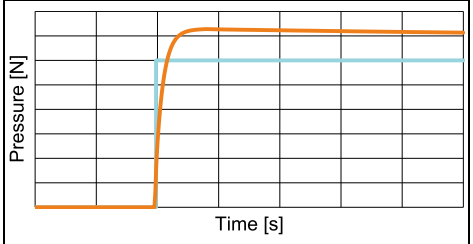
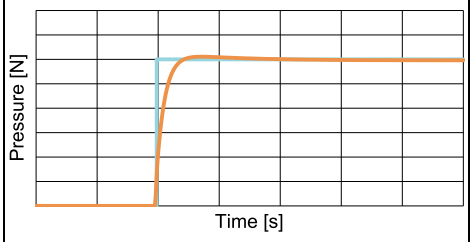
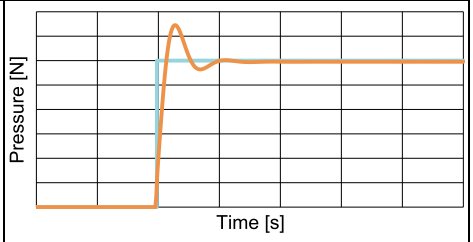
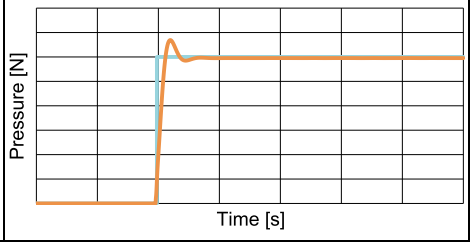
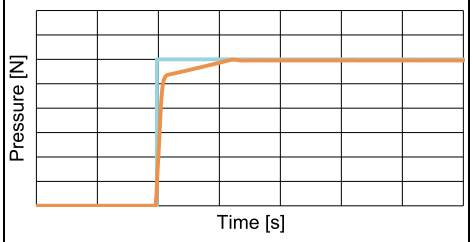
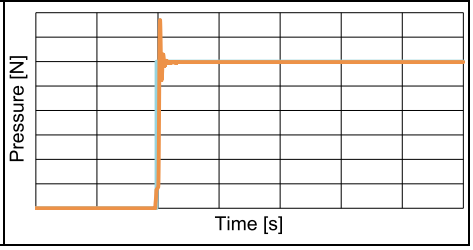
(b) Adjusting Pn441 = n.□X□□ (Contact Environment Condition) and Pn451 (Pressure Control Single Parameter Gain Level)

To adjust gains, you must make fine adjustments to multiple set values while viewing the waveform in the SigmaWin+. This can not be accomplished simply by telling you set certain values.

This section describes the instructions for adjusting gains while showing you examples of waveforms in the SigmaWin+.

Interpret the waveform samples as shown below.

- ——: Pressure reference
- ——: Pressure detection value

Timing	Description or Operation	Waveform Example in the SigmaWin+
Immediately after the start of adjustments (i.e., when the parameters are the default settings)	The pressure detection value may be insufficient or excessive.	
		
When the pressure detection value is insufficient or excessive	Increase the set value of Pn441 = n.□X□□ (contact environment condition) *1 and make the pressure detection value follow the pressure reference value.	
	However, if the set value of Pn441 = n.□X□□ (contact environment condition) is increased too much, a large amount of overshooting will occur.	
When the result of increasing the set value of Pn441 = n.□X□□ is overshooting	The adjustments were not completed before overshooting.	
	Or increase the set value of Pn451 (Pressure Control Single Parameter Gain Level) to reduce overshooting.	
	However, if the set value of Pn451 is increased too much, the output torque may be limited more than necessary and the response characteristics may become worse.	
	Or depending on the adjustments, vibration may occur without reducing overshooting when Pn451 is increased.	

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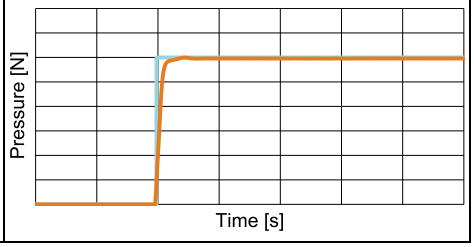
Timing	Description or Operation	Waveform Example in the SigmaWin+
When the result of adjusting the set values of Pn441 = n.□X□□ and Pn451 is vibration	Decrease the set value of Pn441 = n.□X□□ or Pn451. You can achieve pressure control with high response characteristics and no overshooting when the adjustments are made in an appropriate manner.	

*1 "Contact environmental condition" means the rigidity of the target to which pressure will be applied. Set Pn441 = n.□X□□ to a small value when the rigidity of the target to which pressure will be applied is low and set it to a large value when the rigidity is high. Adjust the set value while viewing the waveform.

3.7 Monitors

You can monitor the following signals by using the analog monitors or option monitors over MECHATROLINK communications.

3.7.1 Analog Monitor

Pn006/Pn007	Signal Name	Output Unit
30h	Pressure Reference	1 V/100% (pct. of max. pressure)
31h	Pressure Detection Value	1 V/100% (pct. of max. pressure)
32h	Pressure Control Output	1 V/100% (pct. of max. pressure)
33h	Pressure Deviation	1 V/100% (pct. of max. pressure)

3.7.2 Option Monitors over MECHATROLINK Communications

Pn824/Pn825	Signal Name	Unit or Monitor Contents
0050h	Pressure Detection Value	0.01% (pct. of max. pressure)
0052h	Control Mode	0: Position control/speed control, 1: Speed control (approach operation), 2: Torque control, 3: Pressure control
0094h	Pressure Reference	0.01% (pct. of max. pressure)
0095h	Pressure Deviation	0.01% (pct. of max. pressure)
0096h	Pressure Control Output	0.01% (pct. of max. pressure)

Information Refer to the following sections for details on the signal name (= item to monitor).

☞ *(1) Control Block Diagram on page 69*

Information If you are using a YASKAWA MP-series machine controller for the host controller, configure the following settings.

1. On the MP-series machine controller, set register OW□□□4E bits 4 to 7 to F (= OMN1) and bits C to F to F (= OMN2).
2. On the SERVOPACK, set the items to monitor (signal names) in Pn824 and Pn825.

With the above settings, you will be able to monitor the item set in Pn824 with the IL□□□30 register and the item set in Pn825 with the IL□□□34 register in the MP-series machine controller.

3.7.3 Monitors by Waveform Tracing in the SigmaWin+

Signal Name	Unit or Monitor Contents
Pressure Reference	% (pct. of max. pressure)
Pressure Detection Value	% (pct. of max. pressure)
Pressure Control Output	% (pct. of max. pressure)
Pressure Deviation	% (pct. of max. pressure)
Control Mode Monitor	0: Position control/speed control, 1: Speed control (approach operation), 2: Torque control, 3: Pressure control

3.7.4 Monitors Using the Operation Monitors in the SigmaWin+

Monitor Items	Description	Unit
Pressure Sensor Detection Value 0 (polarity/offset are added to the value)	The value will be displayed with the following set values added to the feedback signal from the pressure sensor amplifier. • Polarity: Pn458 = n.□□□X (Pressure Sensor Input 0 Selection (Dedicated Analog Input)) • Offset: Pn448 (Pressure Sensor Offset 0)	0.001 V
Pressure Sensor Detection Value 1 (polarity/offset are added to the value)	The value will be displayed with the following set values added to the feedback signal from the pressure sensor amplifier. • Polarity: Pn458 = n.□□X□ (Pressure Sensor Input 1 Selection) • Offset: Pn467 (Pressure Sensor Offset 1)	AD value
Pressure Sensor Detection Value 2 (polarity/offset are added to the value)	The value will be displayed with the following set values added to the feedback signal from the pressure sensor amplifier. • Polarity: Pn458 = n.□X□□ (Pressure Sensor Input 2 Selection) • Offset: Pn468 (Pressure Sensor Offset 2)	AD value
Pressure Sensor Detection Value 3 (polarity/offset are added to the value)	The value will be displayed with the following set values added to the feedback signal from the pressure sensor amplifier. • Polarity: Pn458 = n.X□□□ (Pressure Sensor Input 3 Selection) • Offset: Pn469 (Pressure Sensor Offset 3)	AD value
Pressure Sensor Detection Value 4 (polarity/offset are added to the value)	The value will be displayed with the following set values added to the feedback signal from the pressure sensor amplifier. • Polarity: Pn459 = n.□□□X (Pressure Sensor Input 4 Selection) • Offset: Pn46A (Pressure Sensor Offset 4)	AD value
Pressure Sensor Detection Value 5 (polarity/offset are added to the value)	The value will be displayed with the following set values added to the feedback signal from the pressure sensor amplifier. • Polarity: Pn459 = n.□□X□ (Pressure Sensor Input 5 Selection) • Offset: Pn46B (Pressure Sensor Offset 5)	AD value

3.7.5 Monitors by I/O Tracing in the SigmaWin+

Signal Name	Selection Data Name	Monitor Contents
Pressure Control in Progress	PRES_ON	0: Pressure control not in progress, 1: Pressure control in progress
Approach Operation in Progress	APRCH_ON	0: Approach operation not in progress, 1: Approach operation in progress

4

Maintenance

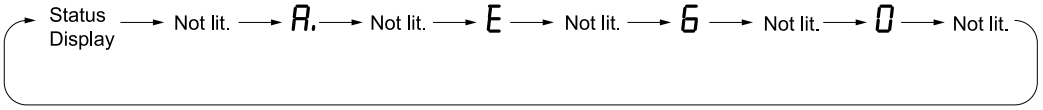
This chapter provides information on the meaning of, causes of, and corrections for alarms and warnings.

4.1 Alarm Displays

If an error occurs in the SERVOPACK, an alarm number will be displayed on the panel display. However, if no alarm number appears on the panel display, this indicates a SERVOPACK system error. Replace the SERVOPACK.

If there is an alarm, the display will change in the following order.

Example: Alarm A.E60



This section provides a list of the alarms that may occur and the causes of and corrections for those alarms.

4.1.1 List of Alarms

The list of alarms gives the alarm name, alarm meaning, alarm stopping method, and alarm reset possibility in order of the alarm numbers.

(1) Servomotor Stopping Method for Alarms

Refer to the following manual for information on the stopping method for alarms.

Σ-X-Series Σ-XS SERVOPACK with MECHATROLINK-4/III Communications References Product Manuals (Manual No.: SIEP C710812 01)

(2) Alarm Reset Possibility

Yes: You can use an alarm reset to clear the alarm. However, this assumes that the cause of the alarm has been removed.

No: You cannot clear the alarm.

(3) List of Alarms

The following table lists the alarms.

Information Alarm numbers A.E50, A.E60, and FL-1 to FL-7 are not stored in the alarm history. They are only displayed on the panel display.

Alarm Number	Alarm Name	Alarm Meaning	Servomotor Stopping Method	Alarm Reset Possibility
A.020	Parameter Checksum Error	There is an error in the parameter data in the SERVOPACK.	Gr.1	No
A.021	Parameter Format Error	There is an error in the parameter data in the SERVOPACK.	Gr.1	No
A.022	System Checksum Error	There is an error in the parameter data in the SERVOPACK.	Gr.1	No
A.024	System Alarm	An internal program error occurred in the SERVOPACK.	Gr.1	No
A.025	System Alarm	An internal program error occurred in the SERVOPACK.	Gr.1	No
A.030	Main Circuit Detector Error	There is an error in the detection data for the main circuit.	Gr.1	Yes
A.040	Parameter Setting Error	A parameter setting is outside of the setting range.	Gr.1	No
A.041	Encoder Output Pulse Setting Error	The setting of Pn212 (Number of Encoder Output Pulses) or Pn281 (Encoder Output Resolution) is outside of the setting range or does not satisfy the setting conditions.	Gr.1	No
A.042	Parameter Combination Error	The combination of some parameters exceeds the setting range.	Gr.1	No
A.044	Semi-Closed/Fully-Closed Loop Control Parameter Setting Error	The settings of parameters related to semi-closed/fully-closed loop control do not match.	Gr.1	No

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Alarm Number	Alarm Name	Alarm Meaning	Servomotor Stopping Method	Alarm Reset Possibility
A.046	SigmaLINK II Command/ Response Parameter Setting Error	An error was detected in the SigmaLINK II response data or SigmaLINK II command data settings.	Gr.1	No
A.04A	Parameter Setting Error 2	There is an error in the bank members or bank data settings.	Gr.1	No
A.050	Combination Error	The capacities of the SERVOPACK and servomotor do not match.	Gr.1	Yes
A.051	Unsupported Device Alarm	An unsupported device was connected.	Gr.1	No
A.070	Motor Type Change Detected	The connected motor is a different type of motor from the previously connected motor.	Gr.1	No
A.080	Linear Encoder Pitch Setting Error	The setting of Pn282 (Linear Encoder Scale Pitch) has not been changed from the default setting.	Gr.1	No
A.0b0	Invalid Servo ON Command Alarm	The SV_ON (Servo ON) command was sent from the host controller after a utility function that turns ON the servomotor was executed..	Gr.1	Yes
A.100	Overcurrent Detected	An overcurrent flowed through the power transistor or the heat sink overheated.	Gr.1	No
A.101	Motor Overcurrent Detected	The current to the motor exceeded the allowable current.	Gr.1	No
A.102	Motor Overcurrent Detected 2	The current to the motor exceeded the allowable current.	Gr.1	No
A.300	Regeneration Error	There is an error related to regeneration.	Gr.1	Yes
A.320	Regenerative Overload	A regenerative overload occurred.	Gr.2	Yes
A.330	Main Circuit Power Supply Wiring Error	• The AC power supply input setting or DC power supply input setting is not correct. • The power supply wiring is not correct.	Gr.1	Yes
A.400	Overvoltage	The main circuit DC voltage is too high.	Gr.1	Yes
A.410	Undervoltage	The main circuit DC voltage is too low.	Gr.2	Yes
A.510	Overspeed	The motor exceeded the maximum speed.	Gr.1	Yes
A.511	Encoder Output Pulse Overspeed	• The pulse output speed for the setting of Pn212 (Number of Encoder Output Pulses) was exceeded. (Rotary Servomotor) • The motor speed upper limit for the setting of Pn281 (Encoder Output Resolution) was exceeded. (Linear Servomotor)	Gr.1	Yes
A.520	Vibration Alarm	Abnormal oscillation was detected in the motor speed.	Gr.1	Yes
A.521	Autotuning Alarm	Vibration was detected during autotuning for the tuning- less function.	Gr.1	Yes
A.550	Maximum Motor Speed Setting Error	The setting of Pn385 (Maximum Motor Speed) is greater than the maximum motor speed.	Gr.1	Yes
A.710	Instantaneous Overload	The servomotor was operating for several seconds to several tens of seconds under a torque that largely exceeded the rating.	Gr.2	Yes
A.720	Continuous Overload	The servomotor was operating continuously under a torque that exceeded the rating.	Gr.1	Yes
A.730	Dynamic Brake Overload	When the dynamic brake was applied, the rotational or linear kinetic energy exceeded the capacity of the dynamic brake resistor.	Gr.1	Yes
A.731	Dynamic Brake Overload	When the dynamic brake was applied, the rotational or linear kinetic energy exceeded the capacity of the dynamic brake resistor.	Gr.1	Yes
A.740	Inrush Current Limiting Resistor Overload	The main circuit power was frequently turned ON and OFF.	Gr.1	Yes

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Alarm Number	Alarm Name	Alarm Meaning	Servomotor Stopping Method	Alarm Reset Possibility
A.7A1	Internal Temperature Error 1 (Control Board Temperature Error)	The surrounding temperature of the control board is abnormal.	Gr.2	Yes
A.7A2	Internal Temperature Error 2 (Power Board Temperature Error)	The surrounding temperature of the power board is abnormal.	Gr.2	Yes
A.7A3	Internal Temperature Sensor Error	An error occurred in the temperature sensor circuit.	Gr.2	No
A.7Ab	SERVOPACK Built-in Fan Stopped	The fan inside the SERVOPACK stopped.	Gr.1	Yes
A.810	Encoder Backup Alarm	The power supplies to the encoder all failed and the position data was lost.	Gr.1	No
A.820	Encoder Checksum Alarm	There is an error in the checksum results for encoder memory.	Gr.1	No
A.830	Encoder Battery Alarm	The battery voltage was lower than the specified level after the control power was turned ON.	Gr.1	Yes
A.840	Encoder Data Alarm	There is an internal data error in the encoder.	Gr.1	No
A.850	Encoder Overspeed	The encoder was operating at high speed when the power was turned ON.	Gr.1	No
A.860	Encoder Overheated	The internal temperature of encoder is too high.	Gr.1	No
A.861	Motor Overheated	The internal temperature of motor is too high.	Gr.1	No
A.890	Encoder Scale Error	A failure occurred in the linear encoder.	Gr.1	No
A.891	Encoder Module Error	An error occurred in the linear encoder.	Gr.1	No
A.8A0	External Encoder Error	An error occurred in the external encoder.	Gr.1	Yes
A.8A1	External Encoder Module Error	An error occurred in the serial converter unit.	Gr.1	Yes
A.8A2	External Incremental Encoder Sensor Error	An error occurred in the external encoder.	Gr.1	Yes
A.8A3	External Absolute Encoder Position Error	An error occurred in the position data of the external encoder.	Gr.1	Yes
A.8A5	External Encoder Overspeed	An overspeed error occurred in the external encoder.	Gr.1	Yes
A.8A6	External Encoder Overheated	An overheating error occurred in the external encoder.	Gr.1	Yes
A.b33	Current Detection Error 3	An error occurred in the current detection circuit.	Gr.1	No
A.b6A	MECHATROLINK Communications ASIC Error 1	ASIC error 1 occurred in MECHATROLINK communications.	Gr.1	No
A.b6b	MECHATROLINK Communications ASIC Error 2	ASIC error 2 occurred in MECHATROLINK communications.	Gr.2	No
A.bE2	Firmware error	A firmware error occurred in the SERVOPACK.	Gr.1	No
A.bF0	System Alarm 0	Internal program error 0 occurred in the SERVOPACK.	Gr.1	No
A.bF1	System Alarm 1	Internal program error 1 occurred in the SERVOPACK.	Gr.1	No
A.bF2	System Alarm 2	Internal program error 2 occurred in the SERVOPACK.	Gr.1	No
A.bF3	System Alarm 3	Internal program error 3 occurred in the SERVOPACK.	Gr.1	No
A.bF4	System Alarm 4	Internal program error 4 occurred in the SERVOPACK.	Gr.1	No
A.bF5	System Alarm 5	Internal program error 5 occurred in the SERVOPACK.	Gr.1	No
A.bF6	System Alarm 6	Internal program error 6 occurred in the SERVOPACK.	Gr.1	No
A.bF7	System Alarm 7	Internal program error 7 occurred in the SERVOPACK.	Gr.1	No
A.bF8	System Alarm 8	Internal program error 8 occurred in the SERVOPACK.	Gr.1	No

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Alarm Number	Alarm Name	Alarm Meaning	Servomotor Stopping Method	Alarm Reset Possibility
A.bFd	System Alarm D	An internal program error D occurred in the SERVOPACK.	Gr.1	No
A.C10	Servomotor Out of Control	The servomotor ran out of control.	Gr.1	Yes
A.C20	Phase Detection Error	The detection of the phase is not correct.	Gr.1	No
A.C21	Polarity Sensor Error	An error occurred in the polarity sensor.	Gr.1	No
A.C22	Phase Information Disagreement	The phase information does not match.	Gr.1	No
A.C50	Polarity Detection Failure	The polarity detection failed.	Gr.1	No
A.C51	Overtravel Detected during Polarity Detection	The overtravel signal was detected during polarity detection.	Gr.1	Yes
A.C52	Polarity Detection Not Completed	The servo was turned ON before the polarity was detected.	Gr.1	Yes
A.C53	Out of Range of Motion for Polarity Detection	The travel distance exceeded the setting of Pn48E (Polarity Detection Range).	Gr.1	No
A.C54	Polarity Detection Failure 2	The polarity detection failed.	Gr.1	No
A.C80	Encoder Clear Error or Multiturn Limit Setting Error	The multiturn data for the absolute encoder was not correctly cleared or set.	Gr.1	No
A.C90	Encoder Communications Error	Communications between the encoder and SERVOPACK is not possible.	Gr.1	No
A.C91	Encoder Communications Position Data Acceleration Rate Error	An error occurred in calculating the position data of the encoder.	Gr.1	No
A.C92	Encoder Communications Timer Error	An error occurred in the communications timer between the encoder and SERVOPACK.	Gr.1	No
A.CA0	Encoder Parameter Error	The parameters in the encoder are corrupted.	Gr.1	No
A.Cb0	Encoder Echoback Error	The contents of communications with the encoder are incorrect.	Gr.1	No
A.CC0	Multiturn Limit Disagreement	Different multiturn limits have been set in the encoder and the SERVOPACK.	Gr.1	No
A.Cd1	SigmaLINK II Node Configuration Error	A configuration that cannot be connected with SigmaLINK II was detected.	Gr.1	No
A.Cd2	SigmaLINK II Power Supply Short-Circuit Detected	An error occurred in the power system of the SigmaLINK II connection.	Gr.1	No
A.Cd3	SigmaLINK II Configuration Data Checksum Error	Saving the configuration data failed.	Gr.1	No
A.Cd4	SigmaLINK II Node Change Detected	The content saved in the configuration and the content detected in node detection are different.	Gr.1	No
A.Cd7	SigmaLINK II I/O Device Communications Error	An error occurred in communications with the SigmaLINK II I/O device.	Gr.2	No
A.Cd8	SigmaLINK II I/O Device Status Error	The SigmaLINK II I/O device detected an error.	Gr.2	No
A.CF1	Reception Failed Error in Feedback Option Module Communications	Receiving data from the feedback option module failed.	Gr.1	No
A.CF2	Timer Stopped Error in Feedback Option Module Communications	An error occurred in the timer for communications with the feedback option module.	Gr.1	No
A.d00	Position Deviation Overflow	The setting of Pn520 (Position Deviation Overflow Alarm Level) was exceeded by the position deviation.	Gr.1	Yes

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Alarm Number	Alarm Name	Alarm Meaning	Servomotor Stopping Method	Alarm Reset Possibility
A.d01	Position Deviation Overflow Alarm at Servo ON	The servo was turned ON after the position deviation exceeded the setting of Pn526 (Position Deviation Overflow Alarm Level at Servo ON) while the servo was OFF.	Gr.1	Yes
A.d02	Position Deviation Overflow Alarm for Speed Limit at Servo ON	If position deviation remains in the deviation counter, the setting of Pn529 or Pn584 (Speed Limit Level at Servo ON) limits the speed when the servo is turned ON. This alarm occurs if position reference is input and the setting of Pn520 (Position Deviation Overflow Alarm Level) is exceeded before the limit is cleared.	Gr.2	Yes
A.d04	Overtravel Alarm	Overtravel was detected while the servo was ON.	Gr.1	Yes
A.d0A	Pressure Deviation Overflow	The difference between the pressure reference and the pressure detection value is greater than or equal to the value set in Pn44E (Pressure Deviation Overflow Level).	Gr.1	Yes
A.d0F	Pressure Deviation Error	The accumulated value of the pressure deviation exceeded Pn44E (Pressure Deviation Overflow Level).	Gr.1	Yes
A.d10	Motor-Load Position Deviation Overflow	There was too much position deviation between the motor and load during fully-closed loop control.	Gr.2	Yes
A.d30	Position Data Overflow	The position feedback data exceeded ±1879048192.	Gr.1	No
A.E02	MECHATROLINK Internal Synchronization Error 1	A synchronization error occurred during MECHATROLINK communications with the SERVOPACK.	Gr.1	Yes
A.E40	MECHATROLINK Transmission Cycle Setting Error	The setting of the MECHATROLINK communications transmission cycle is not correct.	Gr.2	Yes
A.E41	MECHATROLINK Communications Data Size Setting Error (This alarm can occur when using MECHATROLINK-III communications.)	The setting of the MECHATROLINK communications data size is not correct.	Gr.2	Yes
A.E42	MECHATROLINK Station Address Setting Error(This alarm can occur when using MECHATROLINK-III communications.)	The setting of the MECHATROLINK station address is not correct.	Gr.2	No
A.E43	MECHATROLINK Communications Setting Error(This alarm can occur when using MECHATROLINK-4 communications.)	There is an error in the MECHATROLINK communications settings.	Gr.2	Yes
A.E50	MECHATROLINK Synchronization Error	A synchronization error occurred during MECHATROLINK communications.	Gr.2	Yes
A.E51	MECHATROLINK Synchronization Failed	Synchronization failed during MECHATROLINK communications.	Gr.2	Yes
A.E60	Reception Error in MECHATROLINK Communications	Communications errors occurred continuously during MECHATROLINK communications.	Gr.2	Yes
A.E61	Synchronization Interval Error in MECHATROLINK Transmission Cycle	An error occurred in the transmission cycle during MECHATROLINK communications.	Gr.2	Yes
A.E63	MECHATROLINK Synchronization Frame Not Received	Synchronization frames were continuously not received during MECHATROLINK communications.	Gr.2	Yes
A.E72	Feedback Option Module Detection Failure	Detection of the feedback option module failed.	Gr.1	No
A.Eb1	Safety Function Signal Input Timing Error	An error occurred in the input timing of the safety function signal.	Gr.1	No
A.EC8	Gate Drive Error 1	An error occurred in the gate drive circuit.	Gr.1	No
A.EC9	Gate Drive Error 2	An error occurred in the gate drive circuit.	Gr.1	No

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Alarm Number	Alarm Name	Alarm Meaning	Servomotor Stopping Method	Alarm Reset Possibility
A.Ed1	Command Execution Timeout	A timeout error occurred for a MECHATROLINK command.	Gr.2	Yes
A.F10	Power Supply Line Open Phase	The voltage was low for more than one second for phase R, S, or T when the main power was ON.	Gr.2	Yes
FL-1	System Alarm	An internal program error occurred in the SERVOPACK.	–	No
FL-2	System Alarm	An internal program error occurred in the SERVOPACK.	–	No
FL-3	System Alarm	An internal program error occurred in the SERVOPACK.	–	No
FL-4	System Alarm	An internal program error occurred in the SERVOPACK.	–	No
FL-5	System Alarm	An internal program error occurred in the SERVOPACK.	–	No
FL-6	System Alarm	An internal program error occurred in the SERVOPACK.	–	No
FL-7	System Alarm	An internal program error occurred in the SERVOPACK.	–	No
CPF00	Digital Operator Communications Error 1	Communications were not possible between the digital operator and the SERVOPACK.	–	No
CPF01	Digital Operator Communications Error 2	Communications were not possible between the digital operator and the SERVOPACK.	–	No

4.1.2 Troubleshooting Alarms

The causes of and corrections for the alarms are given in the following table. Contact your Yaskawa representative if you cannot solve a problem with the correction given in the table.

◆ A.020:Parameter Checksum Error

Possible Cause	Confirmation	Correction	Reference
The power supply voltage suddenly dropped.	Measure the power supply voltage.	Set the power supply voltage within the specified range, and initialize the parameter settings.	–
The power was shut OFF while writing parameter settings.	Check the timing of shutting OFF the power.	Initialize the parameter settings and then set the parameters again.	–
The number of times that parameters were written exceeded the limit.	Check to see if the parameters were frequently changed from the host controller.	The SERVOPACK may be faulty. Replace the SERVOPACK. Reconsider the method for writing the parameters.	–
A malfunction was caused by noise from the AC power supply, ground, static electricity, or other source.	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, noise may be the cause.	Implement countermeasures against noise.	–
Gas, water drops, or cutting oil entered the SERVOPACK and caused failure of the internal components.	Check the installation conditions.	The SERVOPACK may be faulty. Replace the SERVOPACK.	–
A failure occurred in the SERVOPACK.	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may have failed.	The SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.021:Parameter Format Error

Possible Cause	Confirmation	Correction	Reference
The software version of the SERVOPACK that caused the alarm is older than the software version of the parameters specified to write.	Read the product information to see if the software versions are the same. If they are different, it could be the cause of the alarm.	Write the parameters from another SERVOPACK with the same model and the same software version, and then turn the power OFF and ON again.	–
A failure occurred in the SERVOPACK.	–	The SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.022:System Checksum Error

Possible Cause	Confirmation	Correction	Reference
The power supply voltage suddenly dropped.	Measure the power supply voltage.	The SERVOPACK may be faulty. Replace the SERVOPACK.	–
The power was shut OFF while setting a utility function.	Check the timing of shutting OFF the power.	The SERVOPACK may be faulty. Replace the SERVOPACK.	–
A failure occurred in the SERVOPACK.	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may have failed.	The SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.024:System Alarm
A.025:System Alarm
A.030:Main Circuit Detector Error

Possible Cause	Confirmation	Correction	Reference
A failure occurred in the SERVOPACK.	–	The SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.040:Parameter Setting Error

Possible Cause	Confirmation	Correction	Reference
The SERVOPACK and servomotor capacities do not match each other.	Check the combination of the SERVOPACK and servomotor capacities.	Select a proper combination of SERVOPACK and servomotor capacities.	–
The motor parameter file was not written to the linear encoder. (This applies only when not using a serial converter unit.)	Check to see if the motor parameter file was written to the linear encoder.	Write the motor parameter file to the linear encoder.	–
A failure occurred in the SERVOPACK.	–	The SERVOPACK may be faulty. Replace the SERVOPACK.	–
A parameter setting is outside of the setting range.	Check the setting ranges of the parameters that have been changed.	Set the parameters to values within the setting ranges.	–
The electronic gear ratio is outside of the setting range.	Check the electronic gear ratio. The ratio must be within the following range: 0.001 < (Pn20E/Pn210) < 64000.	Set the electronic gear ratio in the following range: 0.001 < (Pn20E/ Pn210) < 64000.	–
A pin number or sequence input number that does not exist on the SERVOPACK was allocated in Pn590 to Pn5BC = n.□XXX (Allocated Pin Number). (An alarm will not occur, however, if the signal is disabled.)	Check the setting of Pn590 to Pn5BC = n.□XXX.	Set a pin number or sequence input number that exists in Pn590 to Pn5BC = n.□XXX.	–

◆ A.041:Encoder Output Pulse Setting Error

Possible Cause	Confirmation	Correction	Reference
The setting of Pn212 (Number of Encoder Output Pulses) or Pn281 (Encoder Output Resolution) is outside of the setting range or does not satisfy the setting conditions.	Check the setting of Pn212 or Pn281.	Set Pn212 or Pn281 to an appropriate value.	–

◆ A.042:Parameter Combination Error

Possible Cause	Confirmation	Correction	Reference
The speed of program jogging went below the setting range when the electronic gear ratio (Pn20E/ Pn210) or the servomotor was changed.	Check if the setting of the electronic gear ratio (Pn20E/Pn210) satisfies the conditions given in the preparations for program jogging.	Decrease the setting of the electronic gear ratio (Pn20E/Pn210).	–
The speed of program jogging went below the setting range when Pn533 or Pn585 (Program Jogging Movement Speed) was changed.	Check if the setting of Pn533 or Pn585 satisfies the conditions given in the preparations for program jogging.	Increase the setting of Pn533 or Pn585.	–
The travel speed during autotuning without a host reference went below the setting range when the electronic gear ratio (Pn20E/ Pn210) or the servomotor was changed.	Check if the setting of the electronic gear ratio (Pn20E/Pn210) satisfies the conditions given in the preparations for autotuning without a host reference.	Decrease the setting of the electronic gear ratio (Pn20E/Pn210).	–
Triggers at preset positions are enabled, but the allocations of the input signal allocation mode settings are not correct.	Check the settings of Pn660 = n.X□□□ (Triggers at Preset Positions Selections) and Pn50A = n.□□□X (Input Signal Allocation Mode).	Set Pn660 to n.1□□□ (enable triggers at preset positions), and set Pn50A to n.□□□2 (use Pn590 to Pn5BC (SigmaLINK II input signal allocation mode)).	–

◆ A.044:Semi-Closed/Fully-Closed Loop Control Parameter Setting Error

Possible Cause	Confirmation	Correction	Reference
The node specified by Pn0DA or Pn0DB does not exist.	Check if the setting for Pn0DA or Pn0DB is the node address of the connected device.	Set Pn0DA and Pn0DB to appropriate values.	–
An unsupported serial converter unit, encoder, or external encoder was specified by Pn0DA.	Check if the connected serial converter unit, encoder, or external encoder is a supported model.	Connect a supported serial converter unit, encoder, or external encoder.	–
A serial converter unit, encoder, or external encoder was specified by Pn0DA.	Check the node address set in Pn0DA.	Set the node address of a servomotor in Pn0DA.	–
A servomotor was specified by Pn0DB.	Check the node address set in Pn0DB.	Set the node address of a serial converter unit, encoder, or external encoder in Pn0DB (a servomotor cannot be used as an external encoder).	–
An I/O device was specified by Pn0DA or Pn0DB.	Check the node address set in Pn0DA and Pn0DB.	Set the node address of a servomotor in Pn0DA, and set the node address of a serial converter unit, encoder, or external encoder in Pn0DB.	–
The same node was specified in Pn0DA and Pn0DB.	Check if Pn0DA and Pn0DB are the same value.	Set Pn0DA and Pn0DB to different values.	–
The settings of the fully-closed module and Pn002 = n.X□□□ (External Encoder Usage) do not match.	Check the setting of Pn002 = n.X□□□.	Make sure that the setting of the fully-closed module agrees with the setting of Pn002 = n.X□□□.	–

◆ A.046:SigmaLINK II Command/Response Parameter Setting Error

Possible Cause	Confirmation	Correction	Reference
Slave parameters specified by Pn050 to Pn05E and Pn090 to Pn096 (SigmaLINK II Response Data Selection 1 to 8/SigmaLINK II Command Data Selection 1 to 4) do not exist.	Check the parameter numbers set in Pn050 to Pn05E and Pn090 to Pn096.	Refer to the I/O device manual and set the correct values.	–

◆ A.04A:Parameter Setting Error 2

Possible Cause	Confirmation	Correction	Reference
For 4-byte parameter bank members, there are two consecutive members with nothing registered.	–	Change the number of bytes for bank members to an appropriate value.	–
The total amount of bank data exceeds 64 (Pn900 × Pn901 > 64).	–	Reduce the total amount of bank data to 64 or less.	–

◆ A.050:Combination Error

Possible Cause	Confirmation	Correction	Reference
The SERVOPACK and servomotor capacities do not match each other.	Confirm that the following condition is met: 1/4 ≤ (Servomotor capacity/SERVOPACK capacity) ≤ 4	Select a proper combination of the SERVOPACK and servomotor capacities.	–
A failure occurred in the encoder.	Replace the encoder and check to see if the alarm still occurs.	Replace the servomotor or encoder.	–
A failure occurred in the SERVOPACK.	–	The SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.051:Unsupported Device Alarm

Possible Cause	Confirmation	Correction	Reference
The motor parameter file was not written to the linear encoder. (This applies only when not using a serial converter unit.)	Check to see if the motor parameter file was written to the linear encoder.	Write the motor parameter file to the linear encoder.	–
An unsupported serial converter unit or encoder (e.g., an external encoder) is connected to the SERVOPACK.	Check the product combination specifications.	Change to a correct combination of models.	–

◆ A.070:Motor Type Change Detected

Possible Cause	Confirmation	Correction	Reference
A rotary servomotor was removed and a linear servomotor was connected.	–	Set the parameters for a linear servomotor and reset the motor type alarm. Then, turn the power to the SERVOPACK OFF and ON again.	–
A linear servomotor was removed and a rotary servomotor was connected.	–	Set the parameters for a rotary servomotor and reset the motor type alarm. Then, turn the power to the SERVOPACK OFF and ON again.	–
The node specified by Pn0DA was changed from rotary servomotor to linear servomotor.	Check the setting of Pn0DA.	Change Pn0DA to the setting for a linear servomotor and reset the motor type alarm. Then, turn the power to the SERVOPACK OFF and ON again.	–
The node specified by Pn0DA was changed from linear servomotor to rotary servomotor.	Check the setting of Pn0DA.	Change Pn0DA to the setting for a rotary servomotor and reset the motor type alarm. Then, turn the power to the SERVOPACK OFF and ON again.	–

◆ A.080:Linear Encoder Pitch Setting Error

Possible Cause	Confirmation	Correction	Reference
The setting of Pn282 (Linear Encoder Scale Pitch) has not been changed from the default setting.	Check the setting of Pn282.	Correct the setting of Pn282.	–

◆ A.0b0:Invalid Servo ON Command Alarm

Possible Cause	Confirmation	Correction	Reference
The SV_ON (Servo ON) command was sent from the host controller after a utility function that turns ON the servomotor was executed.	–	Turn the power to the SERVOPACK OFF and ON again. Or, execute a software reset.	–

◆ A.100:Overcurrent Detected

Possible Cause	Confirmation	Correction	Reference
The main circuit cable is not wired correctly or there is faulty contact.	Check the wiring.	Correct the wiring.	–
There is a short-circuit or ground fault in a main circuit cable.	Check for short-circuits across servomotor phases U, V, and W, or between the ground and servomotor phases U, V, and W.	The cable may be shortcircuited. Replace the cable.	–
There is a short-circuit or ground fault inside the servomotor.	Check for short-circuits across servomotor phases U, V, and W, or between the ground and servomotor phases U, V, or W.	The servomotor may be faulty. Replace the servomotor.	–
There is a short-circuit or ground fault inside the SERVOPACK.	Check for short-circuits across the servomotor connection terminals U, V, and W on the SERVOPACK, or between the ground and terminals U, V, or W.	The SERVOPACK may be faulty. Replace the SERVOPACK.	–
The regenerative resistor is not wired correctly or there is faulty contact.	Check the wiring.	Correct the wiring.	–
The dynamic brake (DB, emergency stop executed from the SERVOPACK) was frequently activated, or a DB overload alarm occurred.	Check the power consumed by the DB resistor to see how frequently the DB is being used. Or, check the alarm display to see if an A.730 or A.731 alarm (Dynamic Brake Overload) has occurred.	Change the SERVOPACK model, operating methods, or the mechanisms so that the dynamic brake does not need to be used so frequently.	–
The regenerative processing capacity was exceeded.	Check the regenerative load ratio in the operation monitor of the SigmaWin+ to see how frequently the regenerative resistor is being used.	Recheck the operating conditions and load.	–
The SERVOPACK regenerative resistance is too small.	Check the regenerative load ratio in the operation monitor of the SigmaWin+ to see how frequently the regenerative resistor is being used.	Change the regenerative resistance to a value larger than the SERVOPACK minimum allowable resistance.	–
A heavy load was applied while the servomotor was stopped or running at a low speed.	Check to see if the operating conditions exceed servo drive specifications.	Reduce the load applied to the servomotor. Or, increase the operating speed.	–
A malfunction was caused by noise.	Improve the noise environment, e.g. by improving the wiring or installation conditions, and check to see if the alarm still occurs.	Implement countermeasures against noise, such as correct wiring of the FG. Use an FG wire size equivalent to the SERVOPACK's main circuit wire size.	–
A failure occurred in the SERVOPACK.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.101:Motor Overcurrent Detected
A.102:Motor Overcurrent Detected 2

Possible Cause	Confirmation	Correction	Reference
The main circuit cable is not wired correctly or there is faulty contact.	Check the wiring.	Correct the wiring.	–
There is a short-circuit or ground fault in a main circuit cable.	Check for short-circuits across servomotor phases U, V, and W, or between the ground and servomotor phases U, V, and W.	The cable may be shortcircuited. Replace the cable.	–
There is a short-circuit or ground fault inside the servomotor.	Check for short-circuits across servomotor phases U, V, and W, or between the ground and servomotor phases U, V, or W.	The servomotor may be faulty. Replace the servomotor.	–
There is a short-circuit or ground fault inside the SERVOPACK.	Check for short-circuits across the servomotor connection terminals U, V, and W on the SERVOPACK, or between the ground and terminals U, V, or W.	The SERVOPACK may be faulty. Replace the SERVOPACK.	–
A heavy load was applied while the servomotor was stopped or running at a low speed.	Check to see if the operating conditions exceed servo drive specifications.	Reduce the load applied to the servomotor. Or, increase the operating speed.	–
A malfunction was caused by noise.	Improve the noise environment, e.g. by improving the wiring or installation conditions, and check to see if the alarm still occurs.	Implement countermeasures against noise, such as correct wiring of the FG. Use an FG wire size equivalent to the SERVOPACK's main circuit wire size.	–
A failure occurred in the SERVOPACK.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–
Pn43D (Reserved parameter) is set to anything other than the default setting.	–	Initialize the parameter settings.	–

◆ A.300:Regeneration Error

Possible Cause	Confirmation	Correction	Reference
When using the built-in regenerative resistor, the jumper between the regenerative resistor terminals (B2 and B3) was removed from one of the following SERVOPACKs: SGDXS-3R8A, -5R5A, -7R6A, -120A, -180A, -200A, or -330A.	Confirm to see if the jumper is connected between main circuit terminals B2 and B3.	Correctly connect a jumper.	–
The external regenerative resistor or regenerative resistor unit is not wired correctly, or was removed or disconnected.	Check the wiring of the external regenerative resistor or regenerative resistor unit.	Remove the jumper between B2 and B3, and correctly wire the external regenerative resistor or regenerative resistor unit.	–
Pn600 (Regenerative Resistor Capacity) is not set to 0 and an external regenerative resistor is not connected to one of the following SERVOPACKs: SGDXS-R70A, -R90A,-1R6A, or -2R8A.	Check to see if an external regenerative resistor is connected and check the setting of Pn600.	Connect an external regenerative resistor, or set Pn600 (Regenerative Resistor Capacity) to 0 (setting unit: ×10 W) if no regenerative resistor is required.	–
An external regenerative resistor is not connected to one of the following SERVOPACKs: SGDXS-470A, -550A, -590A, or -780A.	Check to see if an external regenerative resistor or regenerative resistor unit is connected and check the setting of Pn600.	Connect an external regenerative resistor and set Pn600 to an appropriate value. Or connect a regenerative resistor unit and set Pn600 (Regenerative Resistor Capacity) to 0 (setting unit: 10 W).	–
A failure occurred in the SERVOPACK.	–	While the main circuit power is OFF, turn the control power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.320:Regenerative Overload

Possible Cause	Confirmation	Correction	Reference
The power supply voltage exceeded the specified range.	Measure the power supply voltage.	Set the power supply voltage within the specified range.	–
The external regenerative resistance value or regenerative resistor capacity is too small, or there has been a continuous regeneration state.	Check the operating conditions or the capacity.	Change the regenerative resistance value or capacity. Reconsider the operating conditions.	–
There was a continuous regeneration state because a negative load was continuously applied.	Check the load applied to the servomotor during operation.	Reconsider the system including the servo, machine, and operating conditions.	–
The setting of Pn600 (Regenerative Resistor Capacity) is smaller than the capacity of the external regenerative resistor.	Check to see if a regenerative resistor is connected and check the setting of Pn600.	Correct the setting of Pn600.	–
The setting of Pn603 (Regenerative Resistance) is smaller than the capacity of the external regenerative resistor.	Check to see if a regenerative resistor is connected and check the setting of Pn603.	Correct the setting of Pn603.	–
The external regenerative resistance is too high.	Check the regenerative resistance.	Change the regenerative resistance to a correct value or use an external regenerative resistor of an appropriate capacity.	–
A failure occurred in the SERVOPACK.	–	The SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.330:Main Circuit Power Supply Wiring Error

Possible Cause	Confirmation	Correction	Reference
The regenerative resistor was disconnected when the SERVOPACK power supply voltage was high.	Measure the resistance of the regenerative resistor using a measuring instrument.	If you are using the regenerative resistor built into the SERVOPACK, replace the SERVOPACK. If you are using an external regenerative resistor, replace the external regenerative resistor.	–
DC power was supplied when an AC power supply input was specified in the settings.	Check the power supply to see if it is a DC power supply.	Correct the power supply setting to match the actual power supply.	–
AC power was supplied when a DC power supply input was specified in the settings.	Check the power supply to see if it is an AC power supply.	Correct the power supply setting to match the actual power supply.	–
Pn600 (Regenerative Resistor Capacity) is not set to 0 and an external regenerative resistor is not connected to one of the following SERVOPACKs: SGDXS-R70A, -R90A,-1R6A, or -2R8A.	Check to see if an external regenerative resistor is connected and check the setting of Pn600.	Connect an external regenerative resistor, or if an external regenerative resistor is not required, set Pn600 to 0.	–
A failure occurred in the SERVOPACK.	–	The SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.400:Overvoltage

Possible Cause	Confirmation	Correction	Reference
The power supply voltage exceeded the specified range.	Measure the power supply voltage.	Set the AC/DC power supply voltage within the specified range.	–
The power supply is not stable or was influenced by a lightning surge.	Measure the power supply voltage.	Improve the power supply conditions, install a surge absorber, and then turn the power OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–
The voltage for AC power supply was too high during acceleration or deceleration.	Check the power supply voltage and the speed and torque during operation.	Set the AC power supply voltage within the specified range.	–
The external regenerative resistance is too high for the operating conditions.	Check the operating conditions and the regenerative resistance.	Select a regenerative resistance value that is appropriate for the operating conditions and load.	–
The load moment of inertia ratio or mass ratio exceeded the allowable value.	Check to see if the moment of inertia ratio or mass ratio is within the allowable range.	Increase the deceleration time, or reduce the load.	–
A failure occurred in the SERVOPACK.	–	While the main circuit power is OFF, turn the control power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.410:Undervoltage

Possible Cause	Confirmation	Correction	Reference
The power supply voltage went below the specified range.	Measure the power supply voltage.	Set the power supply voltage within the specified range.	–
The power supply voltage dropped during operation.	Measure the power supply voltage.	Increase the power supply capacity.	–
A momentary power interruption occurred.	Measure the power supply voltage.	If you have changed the setting of Pn509 (Momentary Power Interruption Hold Time), decrease the setting.	–
The SERVOPACK fuse is blown out.	–	Replace the SERVOPACK and connect a reactor to the DC reactor terminals (⊖1, ⊖2) on the SERVOPACK.	–
A failure occurred in the SERVOPACK.	–	The SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.510:Overspeed

Possible Cause	Confirmation	Correction	Reference
The order of phases U, V, and W in the motor wiring is not correct.	Check the wiring of the servomotor.	Make sure that the servomotor is correctly wired.	–
A reference value that exceeded the overspeed detection level was input.	Check the input reference.	Reduce the reference value. Or, adjust the gain.	–
The motor exceeded the maximum speed.	Check the waveform of the motor speed.	Reduce the speed reference input gain and adjust the servo gain. Or, reconsider the operating conditions.	–
A failure occurred in the SERVOPACK.	–	The SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.511:Encoder Output Pulse Overspeed

Possible Cause	Confirmation	Correction	Reference
The encoder output pulse frequency exceeded the limit.	Check the encoder output pulse setting.	Decrease the setting of Pn212 (Number of Encoder Output Pulses) or Pn281 (Encoder Output Resolution).	–
The encoder output pulse frequency exceeded the limit because the motor speed was too high.	Check the encoder output pulse setting and the motor speed.	Reduce the motor speed.	–

◆ A.520:Vibration Alarm

Possible Cause	Confirmation	Correction	Reference
Abnormal oscillation was detected in the motor speed.	Check for abnormal motor noise, and check the speed and torque waveforms during operation.	Reduce the motor speed. Or, reduce the setting of Pn100 (Speed Loop Gain).	–
The setting of Pn103 (Moment of Inertia Ratio) is greater than the actual moment of inertia or was greatly changed.	Check the moment of inertia ratio or mass ratio.	Set Pn103 (Moment of Inertia Ratio) to an appropriate value.	–
The setting of Pn312 or Pn384 (Vibration Detection Level) is not suitable.	Check that the setting of Pn312 or Pn384 (Vibration Detection Level) is suitable.	Set Pn312 or Pn384 (Vibration Detection Level) to an appropriate value.	–

◆ A.521:Autotuning Alarm

Possible Cause	Confirmation	Correction	Reference
The servomotor vibrated considerably while performing the tuning-less function.	Check the waveform of the motor speed.	Reduce the load so that the load moment of inertia ratio is within the allowable value. Or increase the load level or reduce the response level in the tuning-less level settings.	–
The servomotor vibrated considerably while performing custom tuning or Easy FFT.	Check the waveform of the motor speed.	Check the operating procedure of corresponding function and implement corrections.	–

◆ A.550:Maximum Motor Speed Setting Error

Possible Cause	Confirmation	Correction	Reference
The setting of Pn385 (Maximum Motor Speed) is greater than the maximum speed.	Check the setting of Pn385, and the upper limits of the maximum motor speed setting and the encoder output resolution setting.	Set Pn385 to a value that does not exceed the maximum motor speed.	–

◆ A.710:Instantaneous Overload A.720:Continuous Overload

Possible Cause	Confirmation	Correction	Reference
The wiring is not correct or there is a faulty connection in the motor or encoder wiring.	Check the wiring.	Make sure that the servomotor and encoder are correctly wired.	–
Operation was performed that exceeded the overload protection characteristics.	Check the motor overload characteristics and operation reference.	Reconsider the load and operating conditions. Or, increase the motor capacity.	–
An excessive load was applied during operation because the servomotor was not driven due to mechanical problems.	Check the operation reference and motor speed.	Remove the mechanical problem.	–
There is an error in the setting of Pn282 (Linear Encoder Scale Pitch).	Check the setting of Pn282.	Set Pn282 to an appropriate value.	–
There is an error in the setting of Pn080 = n.□□X□ (Motor Phase Sequence Selection).	Check the setting of Pn080 = n.□□X□.	Set Pn080 = n.□□X□ to an appropriate value.	–
A failure occurred in the SERVOPACK.	–	The SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.730:Dynamic Brake Overload A.731:Dynamic Brake Overload

Possible Cause	Confirmation	Correction	Reference
The servomotor was rotated by an external force.	Check the operation status.	Implement measures to ensure that the motor will not be rotated by an external force.	–
When the servomotor was stopped with the dynamic brake, the rotational or linear kinetic energy exceeded the capacity of the dynamic brake resistor.	Check the power consumed by the DB resistor to see how frequently the DB is being used.	Reconsider the following: • Reduce the servomotor command speed. • Decrease the moment of inertia ratio or mass ratio. • Reduce the frequency of stopping with the dynamic brake.	–
A failure occurred in the SERVOPACK.	–	The SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.740:Inrush Current Limiting Resistor Overload

Possible Cause	Confirmation	Correction	Reference
The allowable frequency of the inrush current limiting resistor was exceeded when the main circuit power was turned ON and OFF.	–	Reduce the frequency of turning the main circuit power ON and OFF.	–
A failure occurred in the SERVOPACK.	–	The SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.7A1:Internal Temperature Error 1 (Control Board Temperature Error) A.7A2:Internal Temperature Error 2 (Power Board Temperature Error)

Possible Cause	Confirmation	Correction	Reference
The surrounding temperature is too high.	Check the surrounding temperature using a thermometer. Or, check the operating status with the SERVOPACK installation environment monitor.	Decrease the surrounding temperature by improving the SERVOPACK installation conditions.	–
An overload alarm was reset by turning OFF the power too many times.	Check the alarm display to see if there is an overload alarm.	Change the method for resetting the alarm.	–
There was an excessive load or operation was performed that exceeded the regenerative processing capacity.	Check the load during operation with [Cumulative Load] and check the regenerative capacity with [Regenerative Load] on the operation monitor of the SigmaWin+.	Reconsider the load and operating conditions.	–
The SERVOPACK installation orientation is not correct or there is insufficient space around the SERVOPACK.	Check the SERVOPACK installation conditions.	Install the SERVOPACK according to specifications.	–
A failure occurred in the SERVOPACK.	–	The SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.7A3:Internal Temperature Sensor Error

Possible Cause	Confirmation	Correction	Reference
A failure occurred in the SERVOPACK.	–	The SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.7Ab:SERVOPACK Built-in Fan Stopped

Possible Cause	Confirmation	Correction	Reference
The fan inside the SERVOPACK stopped.	Check for foreign matter inside the SERVOPACK.	Remove foreign matter from the SERVOPACK. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.810:Encoder Backup Alarm

Possible Cause	Confirmation	Correction	Reference
The power to the absolute encoder was turned ON for the first time.	Check to see if the power was turned ON for the first time.	Set up the encoder.	–
The encoder cable was disconnected and then connected again.	Check to see if the power was turned ON for the first time.	Check the encoder connection and set up the encoder.	–
Power is not being supplied both from the control power supply (+5 V) from the SERVOPACK and from the battery power supply.	Check the encoder connector battery and the connector status.	Replace the battery or implement similar measures to supply power to the encoder, and set up the encoder.	–
A failure occurred in the absolute encoder.	–	If the alarm still occurs after setting up the encoder again, replace the servomotor.	–
A failure occurred in the SERVOPACK.	–	The SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.820:Encoder Checksum Alarm

Possible Cause	Confirmation	Correction	Reference
A failure occurred in the encoder.	–	• When Using an Absolute Encoder Set up the encoder again. If the alarm still occurs, the servomotor may be faulty. Replace the servomotor. • When Using a Singleturn Absolute Encoder or Incremental Encoder – The servomotor may be faulty. Replace the servomotor. – The linear encoder may be faulty. Replace the linear encoder.	–
A failure occurred in the SERVOPACK.	–	The SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.830:Encoder Battery Alarm

Possible Cause	Confirmation	Correction	Reference
The battery connection is faulty or a battery is not connected.	Check the battery connection.	Correct the battery connection.	–
The battery voltage is lower than the specified value (2.7 V).	Measure the battery voltage.	Replace the battery.	–
A failure occurred in the SERVOPACK.	–	The SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.840:Encoder Data Alarm

Possible Cause	Confirmation	Correction	Reference
The encoder malfunctioned.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the servomotor or linear encoder may be faulty. Replace the servomotor or linear encoder.	–
An error occurred in reading data from the linear encoder.	–	The linear encoder is not mounted within an appropriate tolerance. Correct the mounting of the linear encoder.	–
Excessive speed occurred in the linear encoder.	–	Control the motor speed within the range specified by the linear encoder manufacturer and then turn ON the control power.	–
The encoder malfunctioned due to noise.	–	Correct the wiring around the encoder by separating the encoder cable from the servomotor main circuit cable or by grounding the encoder.	–
The polarity sensor is not wired correctly.	Check the wiring of the polarity sensor.	Correct the wiring of the polarity sensor.	–
The polarity sensor failed.	–	Replace the polarity sensor.	–

◆ A.850:Encoder Overspeed

Possible Cause	Confirmation	Correction	Reference
Rotary Servomotor: The servomotor speed was 200 min^{-1} or higher when the control power was turned ON.	Check the motor speed when the power is turned ON.	Reduce the servomotor speed to a value less than 200 min^{-1}, and turn ON the control power.	–
Linear Servomotor: The servomotor exceeded the specified speed when the control power was turned ON.	Check the motor speed when the power is turned ON.	Control the motor speed within the range specified by the linear encoder manufacturer and then turn ON the control power.	–
A failure occurred in the encoder.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the servomotor or linear encoder may be faulty. Replace the servomotor or linear encoder.	–
A failure occurred in the SERVOPACK.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.860:Encoder Overheated

Possible Cause	Confirmation	Correction	Reference
The surrounding temperature around the servomotor is too high.	Measure the surrounding temperature around the servomotor.	Reduce the surrounding temperature of the servomotor to 40°C or less.	–
The servomotor load is greater than the rated load.	Check the load with the [Cumulative Load] on the operation monitor of the SigmaWin+.	Operate the servo drive so that the motor load remains within the specified range.	–
A failure occurred in the encoder.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the servomotor or absolute linear encoder may be faulty. Replace the servomotor or absolute linear encoder.	–
A failure occurred in the SERVOPACK.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.861:Motor Overheated

Possible Cause	Confirmation	Correction	Reference
The surrounding temperature around the servomotor is too high.	Measure the surrounding temperature around the servomotor.	Reduce the surrounding temperature of the servomotor to 40°C or less.	–
The servomotor load is greater than the rated load.	Check the load with the [Cumulative Load] on the operation monitor of the SigmaWin+.	Operate the servo drive so that the motor load remains within the specified range.	–
A failure occurred in the serial converter unit.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the serial converter unit may be faulty. Replace the serial converter unit.	–
A failure occurred in the SERVOPACK.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.890:Encoder Scale Error

Possible Cause	Confirmation	Correction	Reference
A failure occurred in the linear encoder.	–	The linear encoder may be faulty. Replace the linear encoder.	–

◆ A.891:Encoder Module Error

Possible Cause	Confirmation	Correction	Reference
A failure occurred in the linear encoder.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the linear encoder may be faulty. Replace the linear encoder.	–

◆ A.8A0:External Encoder Error

Possible Cause	Confirmation	Correction	Reference
Setting the origin of the absolute linear encoder failed because the motor moved.	Before you set the origin, use the fully-closed feedback pulse counter to confirm that the motor is not moving.	The motor must be stopped while setting the origin position.	–
A failure occurred in the external encoder.	–	Replace the external encoder.	–

◆ A.8A1:External Encoder Module Error

Possible Cause	Confirmation	Correction	Reference
A failure occurred in the external encoder.	–	Replace the external encoder.	–
A failure occurred in the serial converter unit.	–	Replace the serial converter unit.	–

◆ A.8A2:External Incremental Encoder Sensor Error

Possible Cause	Confirmation	Correction	Reference
A failure occurred in the external encoder.	–	Replace the external encoder.	–

◆ A.8A3:External Absolute Encoder Position Error

Possible Cause	Confirmation	Correction	Reference
A failure occurred in the external absolute encoder.	–	The external absolute encoder may be faulty. Refer to the encoder manufacturer's instruction manual for corrections.	–

◆ A.8A5:External Encoder Overspeed

Possible Cause	Confirmation	Correction	Reference
An overspeed error was detected in the external encoder.	Check the maximum speed of the external encoder.	Keep the external encoder below its maximum speed.	–

◆ A.8A6:External Encoder Overheated

Possible Cause	Confirmation	Correction	Reference
An overheating error was detected in the external encoder.	–	Replace the external encoder.	–

◆ A.b33:Current Detection Error 3

Possible Cause	Confirmation	Correction	Reference
A failure occurred in the current detection circuit.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.b6A:MECHATROLINK Communications ASIC Error 1

Possible Cause	Confirmation	Correction	Reference
There is a fault in the SERVOPACK MECHATROLINK communications section.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.b6b:MECHATROLINK Communications ASIC Error 2

Possible Cause	Confirmation	Correction	Reference
A malfunction occurred in the MECHATROLINK communications section due to noise.	–	Implement the following countermeasures against noise. • Check the MECHATROLINK communications cable and FG wiring. • Attach a ferrite core to the MECHATROLINK communications cable.	–
There is a fault in the SERVOPACK MECHATROLINK communications section.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.bE2:Firmware error
A.bF0:System Alarm 0
A.bF1:System Alarm 1
A.bF2:System Alarm 2
A.bF3:System Alarm 3
A.bF4:System Alarm 4
A.bF5:System Alarm 5
A.bF6:System Alarm 6
A.bF7:System Alarm 7
A.bF8:System Alarm 8
A.bFd:System Alarm D

Possible Cause	Confirmation	Correction	Reference
A failure occurred in the SERVOPACK.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.C10:Servomotor Out of Control

Possible Cause	Confirmation	Correction	Reference
The order of phases U, V, and W in the motor wiring is not correct.	Check the servomotor wiring.	Make sure that the servomotor is correctly wired.	–
There is an error in the setting of Pn080 = n.□□X□ (Motor Phase Sequence Selection).	Check the setting of Pn080 = n.□□X□.	Set Pn080 = n.□□X□ to an appropriate value.	–
When using an absolute encoder, the setting of Pn080 = n.□□X□ (Motor Phase Sequence Selection) was changed after polarity detection was executed.	–	Execute polarity detection again.	–
A failure occurred in the encoder.	–	If the motor wiring is correct and an alarm still occurs after turning the power OFF and ON again, the servomotor or linear encoder may be faulty. Replace the servomotor or linear encoder.	–
A failure occurred in the SERVOPACK.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.C20:Phase Detection Error

Possible Cause	Confirmation	Correction	Reference
The linear encoder signal level is too low.	Check the voltage of the linear encoder signal.	Fine-tune the mounting of the scale sensor head. Or, replace the linear encoder.	–
The count-up direction of the linear encoder does not match the forward direction of the moving coil in the motor.	Check the setting of Pn080 = n.□□X□ (Motor Phase Sequence Selection). Check the installation orientation for the linear encoder and moving coil.	Change the setting of Pn080 = n.□□X□. Correctly reinstall the linear encoder or moving coil.	–
The polarity sensor signal is being affected by noise.	–	Correct the FG wiring. Implement countermeasures against noise for the polarity sensor wiring.	–
The setting of Pn282 (Linear Encoder Scale Pitch) is not correct.	Check the setting of Pn282 (Linear Encoder Scale Pitch).	Check the specifications of the linear encoder and set a correct value.	–

◆ A.C21:Polarity Sensor Error

Possible Cause	Confirmation	Correction	Reference
The polarity sensor is protruding from the magnetic way of the motor.	Check the polarity sensor.	Correctly reinstall the moving coil or magnetic way of the motor.	–
The polarity sensor is not wired correctly.	Check the wiring of the polarity sensor.	Correct the wiring of the polarity sensor.	–
The polarity sensor failed.	–	Replace the polarity sensor.	–

◆ A.C22:Phase Information Disagreement

Possible Cause	Confirmation	Correction	Reference
The SERVOPACK phase information is different from the linear encoder phase information.	–	Perform polarity detection.	–

◆ A.C50:Polarity Detection Failure

Possible Cause	Confirmation	Correction	Reference
The parameter settings are not correct.	Check the linear encoder specifications and feedback signal status.	The settings of Pn282 (Linear Encoder Scale Pitch) and Pn080 = n.□□X□ (Motor Phase Sequence Selection) may not match the installation. Set the parameters to correct values.	–
There is noise on the scale signal.	Check to make sure that the frame grounds of the serial converter unit and servomotor are connected to the FG terminal on the SERVOPACK and that the FG terminal on the SERVOPACK is connected to the frame ground on the power supply. And, confirm that the shield is properly processed on the linear encoder cable. Check to see if the detection reference is repeatedly output in one direction.	Implement appropriate countermeasures against noise for the linear encoder cable.	–
An external force was applied to the moving coil of the motor.	–	The polarity cannot be properly detected if the detection reference is 0 and the speed feedback is not 0 because of an external force, such as cable tension, applied to the moving coil. Implement measures to reduce the external force so that the speed feedback goes to 0. If the external force cannot be reduced, increase the setting of Pn481 (Polarity Detection Speed Loop Gain).	–
The linear encoder resolution is too low.	Check the linear encoder scale pitch to see if it is within 100 μm.	If the linear encoder scale pitch is 100 μm or higher, the SERVOPACK cannot detect the correct speed feedback. Use a linear encoder scale pitch with higher resolution. (We recommend a pitch of 40 μm or less.) Or, increase the setting of Pn485 (Polarity Detection Reference Speed). However, increasing the setting of Pn485 will increase the servomotor movement range that is required for polarity detection.	–

◆ A.C51:Overtravel Detected during Polarity Detection

Possible Cause	Confirmation	Correction	Reference
The overtravel signal was detected during polarity detection.	Check the overtravel position.	Wire the overtravel signals. Execute polarity detection at a position where an overtravel signal would not be detected.	–

◆ A.C52:Polarity Detection Not Completed

Possible Cause	Confirmation	Correction	Reference
The servo was turned ON when using an absolute linear encoder, Pn587 was set to n.□□□0 (do not detect polarity), and the polarity had not been detected.	–	When using an absolute linear encoder, set Pn587 to n.□□□1 (detect polarity).	–

◆ A.C53:Out of Range of Motion for Polarity Detection

Possible Cause	Confirmation	Correction	Reference
The travel distance exceeded the setting of Pn48E (Polarity Detection Range) in the middle of detection.	–	Increase the setting of Pn48E (Polarity Detection Range). Or, increase the setting of Pn481 (Polarity Detection Speed Loop Gain).	–

◆ A.C54:Polarity Detection Failure 2

Possible Cause	Confirmation	Correction	Reference
An external force was applied to the servomotor.	–	Increase the setting of Pn495 (Polarity Detection Confirmation Force Reference). Increase the setting of Pn498 (Polarity Detection Allowable Error Range). Increasing the allowable error will also increase the motor temperature.	–

◆ A.C80:Encoder Clear Error or Multiturn Limit Setting Error

Possible Cause	Confirmation	Correction	Reference
A failure occurred in the encoder.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the servomotor or linear encoder may be faulty. Replace the servomotor or linear encoder.	–
A failure occurred in the SERVOPACK.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.C90:Encoder Communications Error

Possible Cause	Confirmation	Correction	Reference
The content saved in the configuration and the content detected in node detection are different when SigmaLINK II was used.	Check the content that was saved with self-configuration and the actual device connections.	If the actual device configuration is correct, execute self-configuration again. If the content that was saved with self-configuration is correct, change the actual device configuration to match the saved content.	–
There is a faulty contact in the connector or the connector is not wired correctly for the encoder cable.	Check the condition of the connector for encoder cable.	Reconnect the connector for encoder cable and check the encoder wiring.	–
There is a cable disconnection or short-circuit in the encoder. Or, the cable impedance is outside the specified values.	Check the condition of the encoder cable.	Use the encoder cable within the specified specifications.	–
One of the following has occurred: corrosion caused by improper temperature, humidity, or gas, a short-circuit caused by entry of water drops or cutting oil, or faulty contact in connector caused by vibration.	Check the operating environment.	Improve the operating environment, and replace the cable. If the alarm still occurs, replace the SERVOPACK.	–
A malfunction was caused by noise.	–	Correct the wiring around the encoder by separating the encoder cable from the servomotor main circuit cable or by grounding the encoder.	–
A failure occurred in the SERVOPACK.	–	If the alarm does not occur when the servomotor is connected to a different SERVOPACK and the control power is supplied, the SERVOPACK may be faulty. Replace the SERVOPACK.	–
Pn0D8 (Reserved parameter) is set to anything other than the default setting. (This alarm can occur when using MECHATROLINK-III communications.)	–	Initialize the parameter settings.	–

◆ A.C91:Encoder Communications Position Data Acceleration Rate Error

Possible Cause	Confirmation	Correction	Reference
Noise entered on the signal lines because the encoder cable is bent or the sheath is damaged.	Check the condition of the encoder cable and connectors.	Check the encoder cable to see if it is installed correctly.	–
The encoder cable is bundled with a high-current line or installed near a high-current line.	Check the installation condition of the encoder cable.	Confirm that there is no surge voltage on the encoder cable.	–
There is variation in the FG potential because of the influence of machines on the servomotor side, such as a welder.	Check the installation condition of the encoder cable.	Properly ground the machine to separate it from the FG of the encoder.	–

◆ A.C92:Encoder Communications Timer Error

Possible Cause	Confirmation	Correction	Reference
Noise entered on the signal line from the encoder.	–	Implement countermeasures against noise for the encoder wiring.	–
Excessive vibration or shock was applied to the encoder.	Check the operating conditions.	Reduce machine vibration. Correctly install the servomotor or linear encoder.	–
A failure occurred in the encoder.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the servomotor or linear encoder may be faulty. Replace the servomotor or linear encoder.	–
A failure occurred in the SERVOPACK.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.CA0:Encoder Parameter Error

Possible Cause	Confirmation	Correction	Reference
A failure occurred in the encoder.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the servomotor or linear encoder may be faulty. Replace the servomotor or linear encoder.	–
A failure occurred in the SERVOPACK.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.Cb0:Encoder Echoback Error

Possible Cause	Confirmation	Correction	Reference
The encoder is wired incorrectly or there is faulty contact.	Check the wiring of the encoder.	Make sure that the encoder is correctly wired.	–
The specifications of the encoder cable are not correct and noise entered on it.	–	Use a shielded twisted-pair wire cable or a screened twisted-pair cable with conductors of at least 0.12 mm ^{2}.	–
The encoder cable is too long and noise entered on it.	–	• Rotary Servomotors: The encoder cable wiring distance must be 50 m max. • Linear Servomotors: The encoder cable wiring distance must be 20 m max.	–
There is variation in the FG potential because of the influence of machines on the servomotor side, such as a welder.	Check the condition of the encoder cable and connectors.	Properly ground the machine to separate it from the FG of the encoder.	–
Excessive vibration or shock was applied to the encoder.	Check the operating conditions.	Reduce machine vibration. Correctly install the servomotor or linear encoder.	–
A failure occurred in the encoder.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the servomotor or linear encoder may be faulty. Replace the servomotor or linear encoder.	–
A failure occurred in the SERVOPACK.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.CC0:Multiturn Limit Disagreement

Possible Cause	Confirmation	Correction	Reference
When using a direct drive servomotor, the setting of Pn205 (Multiturn Limit) does not agree with the encoder.	Check the setting of Pn205.	Correct the setting of Pn205 (0 to 65535).	–
The multiturn limit of the encoder is different from that of the SERVOPACK. Or, the multiturn limit of the SERVOPACK has been changed.	Check the setting of Pn205 (Multiturn Limit).	Change the setting if the alarm occurs.	–
A failure occurred in the SERVOPACK.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.Cd1:SigmaLINK II Node Configuration Error

Possible Cause	Confirmation	Correction	Reference
Nodes that are compatible and incompatible with SigmaLINK II are connected.	Check if nodes that are compatible and incompatible with SigmaLINK II are connected.	Make all of the connected nodes either compatible or incompatible with SigmaLINK II.	–
Four or more nodes are connected.	Check the number of connected servomotors, external encoders, and I/O devices.	Connect no more than a total of three servomotors, external encoders, and I/O devices.	–
Two or more servomotors are connected.	Check the number of servomotors that are connected.	Connect one servomotor.	–
Two or more external encoders are connected.	Check the number of external encoders that are connected.	Connect one external encoder.	–

◆ A.Cd2:SigmaLINK II Power Supply Short-Circuit Detected

Possible Cause	Confirmation	Correction	Reference
The CN2 power supply is short-circuited.	Check the condition of the encoder cable.	Disconnect the connected node and check if the alarm occurs. If the alarm occurs even when the connected node is disconnected, replace the encoder cable. If the alarm still occurs, replace the connected node or SERVOPACK.	–

◆ A.Cd3:SigmaLINK II Configuration Data Checksum Error

Possible Cause	Confirmation	Correction	Reference
Saving the configuration data failed.	–	Execute SigmaLINK II self-configuration again and save the settings.	–
The SigmaLINK II configuration data saved in nonvolatile memory is damaged.	–	Execute SigmaLINK II self-configuration again and save the settings.	–

◆ A.Cd4:SigmaLINK II Node Change Detected

Possible Cause	Confirmation	Correction	Reference
The content saved in the configuration and the content detected in node detection are different.	Check the content that was saved with self-configuration and the actual device connections.	If the actual device configuration is correct, execute self-configuration again. If the content that was saved with self-configuration is correct, change the actual device configuration to match the saved content.	–
Detection of the node failed.	–	Execute SigmaLINK II self-configuration again and save the settings.	–

◆ A.Cd7:SigmaLINK II I/O Device Communications Error

Possible Cause	Confirmation	Correction	Reference
There is a faulty contact in the connector or the connector is not wired correctly for the encoder cable.	Check the connection and condition of the encoder cable.	• Correctly connect the encoder cable. • Replace the encoder cable.	–
There is a cable disconnection or short-circuit in the encoder. Or, the cable impedance is outside the specified values.	Check the condition of the encoder cable.	Use the encoder cable within the specified specifications.	–
One of the following has occurred: corrosion caused by improper temperature, humidity, or gas, a short-circuit caused by entry of water drops or cutting oil, or faulty contact in connector caused by vibration.	Check the operating environment.	Improve the operating environment, and replace the cable. If the alarm still occurs, replace the SERVOPACK.	–
A malfunction was caused by noise.	–	Correct the wiring around the encoder by separating the encoder cable from the servomotor main circuit cable or by grounding the encoder.	–
A failure occurred in the SERVOPACK.	–	If the alarm does not occur when the I/O device is connected to a different SERVOPACK and the control power is supplied, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.Cd8:SigmaLINK II I/O Device Status Error

Possible Cause	Confirmation	Correction	Reference
The I/O device detected a warning.	Check the alarm code by reading the I/O device alarm in the SigmaWin+.	Take corrective action according to the I/O device manual.	–

◆ A.CF1:Reception Failed Error in Feedback Option Module Communications

Possible Cause	Confirmation	Correction	Reference
The cable between the serial converter unit and SERVOPACK is not wired correctly or there is a faulty contact.	Check the wiring of the external encoder.	Correctly wire the cable between the serial converter unit and SERVOPACK.	–
A specified cable is not being used between serial converter unit and SERVOPACK.	Check the wiring specifications of the external encoder.	Use a specified cable.	–
The cable between the serial converter unit and SERVOPACK is too long.	Measure the length of the cable that connects the serial converter unit.	The length of the cable between the serial converter unit and SERVOPACK must be 20 m or less.	–
The sheath on cable between the serial converter unit and SERVOPACK is broken.	Check the cable that connects the serial converter unit.	Replace the cable between the serial converter unit and SERVOPACK.	–

◆ A.CF2:Timer Stopped Error in Feedback Option Module Communications

Possible Cause	Confirmation	Correction	Reference
Noise entered the cable between the serial converter unit and SERVOPACK.	–	Correct the wiring around the serial converter unit, e.g., separate I/O signal lines from the main circuit cables or ground.	–
A failure occurred in the serial converter unit.	–	Replace the serial converter unit.	–
A failure occurred in the SERVOPACK.	–	Replace the SERVOPACK.	–

◆ A.d00:Position Deviation Overflow

Possible Cause	Confirmation	Correction	Reference
The servomotor U, V, and W wiring is not correct.	Check the wiring of the servomotor main circuit cables.	Make sure that there are no faulty contacts in the wiring for the servomotor and encoder.	–
The position reference speed is too fast.	Reduce the position reference speed and try operating the SERVOPACK.	Reduce the position reference speed or the reference acceleration rate, or reconsider the electronic gear ratio.	–
The acceleration of the position reference is too high.	Reduce the reference acceleration and try operating the SERVOPACK.	Reduce the acceleration of the position reference using a MECHATROLINK command. Or, smooth the position reference acceleration by selecting the position reference filter (ACCFIL) using a MECHATROLINK command.	–
The setting of Pn520 (Position Deviation Overflow Alarm Level) is too low for the operating conditions.	Check the setting of Pn520 (Position Deviation Overflow Alarm Level) to see if it is set to an appropriate value.	Optimize the setting of Pn520.	–
A failure occurred in the SERVOPACK.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.d01:Position Deviation Overflow Alarm at Servo ON

Possible Cause	Confirmation	Correction	Reference
The servo was turned ON after the position deviation exceeded the setting of Pn526 (Position Deviation Overflow Alarm Level at Servo ON) while the servo was OFF.	Check the position deviation while the servo is OFF.	Optimize the setting of Pn526 (Position Deviation Overflow Alarm Level at Servo ON).	–

◆ A.d02:Position Deviation Overflow Alarm for Speed Limit at Servo ON

Possible Cause	Confirmation	Correction	Reference
If position deviation remains in the deviation counter, the setting of Pn529 or Pn584 (Speed Limit Level at Servo ON) limits the speed when the servo is turned ON. This alarm occurs if a position reference is input and the setting of Pn520 (Position Deviation Overflow Alarm Level) is exceeded.	–	Optimize the setting of Pn520 (Position Deviation Overflow Alarm Level). Or, set Pn529 or Pn584 (Speed Limit Level at Servo ON) to an appropriate value.	–

◆ A.d04:Overtravel Alarm

Possible Cause	Confirmation	Correction	Reference
Overtravel was detected while the servo was ON.	Check the status of the overtravel signals on the input signal monitor.	• Review the references from the host controller so that the moving parts of the machine do not exceed the overtravel range and software limits. • Check the wiring of the overtravel signals. • Implement countermeasures against noise.	–

◆ A.d0A:Pressure Deviation Overflow

Possible Cause	Confirmation	Correction	Reference
The difference between the pressure reference and the pressure detection value is greater than or equal to the value set in Pn44E (Pressure Deviation Overflow Level).	Check the pressure detection value monitor or pressure deviation monitor and the set value of Pn44E.	• Change the set value of Pn44E. • Adjust the pressure control gain again.	76, 82

◆ A.d0F:Pressure Deviation Error

Possible Cause	Confirmation	Correction	Reference
The accumulated value of the pressure deviation exceeded Pn44E (Pressure Deviation Overflow Level).	Check the pressure detection value monitor or pressure deviation monitor and the set value of Pn44E.	• Switch to pressure control when the pressure sensor is touching the target. • First check the pressure detection value when the pressure sensor is touching the target and then change the value of Pn44E.	68, 82

◆ A.d10:Motor-Load Position Deviation Overflow

Possible Cause	Confirmation	Correction	Reference
The motor direction and external encoder installation orientation are backward.	Check the motor direction and the external encoder installation orientation.	Install the external encoder in the opposite direction, or change the setting of Pn002 = n.X□□□ (External Encoder Usage) to reverse the direction.	–
There is an error in the connection between the load (e.g., stage) and external encoder coupling.	Check the coupling of the external encoder.	Check the mechanical coupling.	–

◆ A.d30:Position Data Overflow

Possible Cause	Confirmation	Correction	Reference
The position data exceeded ±1879048192.	Check the input reference pulse counter.	Reconsider the operating specifications.	–

◆ A.E02:MECHATROLINK Internal Synchronization Error 1

Possible Cause	Confirmation	Correction	Reference
The MECHATROLINK transmission cycle fluctuated.	–	Remove the cause of transmission cycle fluctuation at the host controller.	–
A failure occurred in the SERVOPACK.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.E40:MECHATROLINK Transmission Cycle Setting Error

Possible Cause	Confirmation	Correction	Reference
The setting of MECHATROLINK transmission cycle is outside of the specified range.	Check the setting of the MECHATROLINK transmission cycle.	Set the MECHATROLINK transmission cycle to an appropriate value.	–

◆ A.E41:MECHATROLINK Communications Data Size Setting Error(This alarm can occur when using MECHATROLINK-III communications.)

Possible Cause	Confirmation	Correction	Reference
The number of transmission bytes set on DIP switch S3 is not correct.	Check the MECHATROLINK communications data size of the host controller.	Reset DIP switch S3 to change the number of transmission bytes to an appropriate value.	–

◆ A.E42:MECHATROLINK Station Address Setting Error(This alarm can occur when using MECHATROLINK-III communications.)

Possible Cause	Confirmation	Correction	Reference
The station address is outside of the setting range.	Check rotary switches S1 and S2 to see if the station address is between 03 and EF.	Check the setting of the station address of the host controller, and reset rotary switches S1 and S2 to change the address to an appropriate value between 03 and EF.	–
Two or more stations on the communications network have the same address.	Check to see if two or more stations on the communications network have the same address.	Check the setting of the station address of the host controller, and reset rotary switches S1 and S2 to change the address to an appropriate value between 03 and EF.	–

◆ A.E43:MECHATROLINK Communications Setting Error(This alarm can occur when using MECHATROLINK-4 communications.)

Possible Cause	Confirmation	Correction	Reference
MECHATROLINK communications settings that were set from the host controller are not correct.	Read the MECHATROLINK communications settings that were set from the host controller.	Reconsider the host controller communications settings.	–

◆ A.E50:MECHATROLINK Synchronization Error

Possible Cause	Confirmation	Correction	Reference
The WDT data in the host controller was not updated normally.	Check to see if the WDT data is being updated at the host controller.	Correctly update the WDT data at the host controller.	–
A failure occurred in the SERVOPACK.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.E51:MECHATROLINK Synchronization Failed

Possible Cause	Confirmation	Correction	Reference
The WDT data at the host controller was not updated correctly at the start of synchronous communications, so synchronous communications could not be started.	Check to see if the WDT data is being updated at the host controller.	Correctly update the WDT data at the host controller.	–
A failure occurred in the SERVOPACK.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.E60:Reception Error in MECHATROLINK Communications

Possible Cause	Confirmation	Correction	Reference
MECHATROLINK wiring is not correct.	Check the MECHATROLINK wiring.	Correct the MECHATROLINK cable wiring.	–
A MECHATROLINK data reception error occurred due to noise.	–	Implement countermeasures against noise. (Check the MECHATROLINK cable and FG wiring, and implement measures such as attaching a ferrite core to the MECHATROLINK cable.)	–
A failure occurred in the SERVOPACK.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.E61:Synchronization Interval Error in MECHATROLINK Transmission Cycle

Possible Cause	Confirmation	Correction	Reference
The MECHATROLINK transmission cycle fluctuated.	Check the setting of the MECHATROLINK transmission cycle.	Remove the cause of transmission cycle fluctuation at the host controller.	–
A failure occurred in the SERVOPACK.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.E63:MECHATROLINK Synchronization Frame Not Received

Possible Cause	Confirmation	Correction	Reference
MECHATROLINK wiring is not correct.	Check the MECHATROLINK wiring.	Correct the MECHATROLINK cable wiring.	–
A MECHATROLINK data reception error occurred due to noise.	–	Implement countermeasures against noise. (Check the MECHATROLINK cable and FG wiring, and implement measures such as attaching a ferrite core to the MECHATROLINK cable.)	–
A failure occurred in the SERVOPACK.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.E72:Feedback Option Module Detection Failure

Possible Cause	Confirmation	Correction	Reference
There is a faulty connection between the SERVOPACK and the feedback option module.	Check the connection between the SERVOPACK and the feedback option module.	Correctly connect the feedback option module.	–
The feedback option module was disconnected.	–	Reset the option module configuration error and turn the power to the SERVOPACK OFF and ON again.	–
A failure occurred in the feedback option module.	–	Replace the feedback option module.	–
A failure occurred in the SERVOPACK.	–	Replace the SERVOPACK.	–

◆ A.Eb1:Safety Function Signal Input Timing Error

Possible Cause	Confirmation	Correction	Reference
The delay between activation of the /HWBB1 and /HWBB2 input signals for the HWBB was ten second or longer.	Measure the time delay between the /HWBB1 and /HWBB2 signals.	The output signal circuits or devices for /HWBB1 and /HWBB2 or the SERVOPACK input signal circuits may be faulty. Alternatively, the input signal cables may be disconnected. Check to see if any of these items are faulty or have been disconnected.	–
A failure occurred in the SERVOPACK.	–	Replace the SERVOPACK.	–

◆ A.EC8:Gate Drive Error 1
A.EC9:Gate Drive Error 2

Possible Cause	Confirmation	Correction	Reference
A failure occurred in the SERVOPACK.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.Ed1:Command Execution Timeout

Possible Cause	Confirmation	Correction	Reference
A timeout error occurred for a MECHATROLINK command.	Check the motor status when the command is executed.	Execute the SV_ON (Servo ON) command or SENS_ON (Turn Sensor ON) command only when the motor is not operating.	–
A timeout error occurred for a MECHATROLINK command.	• For fully-closed loop control, check the status of the external encoder when the command is executed. • For other types of control, check the status of the linear encoder when the command is executed.	Execute the SENS_ON (Turn Sensor ON) command only when an external encoder (e.g., a linear encoder) is connected.	–

◆ A.F10:Power Supply Line Open Phase

Possible Cause	Confirmation	Correction	Reference
The three-phase power supply wiring is not correct.	Check the power supply wiring.	Make sure that the power supply is correctly wired.	–
The three-phase power supply is unbalanced.	Measure the voltage for each phase of the three-phase power supply.	Balance the power supply by changing phases.	–
A single-phase AC power supply was input without specifying Pn00B = n.□1□□ (Single-phase AC Power Supply Input).	Check the power supply and the parameter setting.	Match the parameter setting to the power supply.	–
A failure occurred in the SERVOPACK.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ FL-1:System Alarm
FL-2:System Alarm
FL-3:System Alarm
FL-4:System Alarm
FL-5:System Alarm
FL-6:System Alarm
FL-7:System Alarm

Possible Cause	Confirmation	Correction	Reference
A failure occurred in the SERVOPACK.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ CPF00:Digital Operator Communications Error 1

Possible Cause	Confirmation	Correction	Reference
There is a faulty connection between the digital operator and the SERVOPACK.	Check the connector contact.	Disconnect the connector and insert it again. Or, replace the cable.	–
A malfunction was caused by noise.	–	Keep the digital operator or the cable away from sources of noise.	–

◆ CPF01:Digital Operator Communications Error 2

Possible Cause	Confirmation	Correction	Reference
A failure occurred in the digital operator.	–	Disconnect the digital operator and then connect it again. If the alarm still occurs, the digital operator may be faulty. Replace the digital operator.	–
A failure occurred in the SERVOPACK.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–
A malfunction was caused by noise.	–	Keep the digital operator or the cable away from sources of noise.	–

4.2 Warning Displays

If a warning occurs in the SERVOPACK, a warning number will be displayed on the panel display. Warnings are displayed to warn you before an alarm occurs.

Certain warnings are reset with the SigmaWin+ and other warnings are automatically reset when a normal command is received. To reset a warning with the SigmaWin+, first eliminate the cause of the warning and then reset it. The reset procedure is the same as an alarm reset. Refer to the following manual for details.

Σ-X-Series Σ-XS SERVOPACK with MECHATROLINK-4/III Communications References Product Manuals (Manual No.: SIEP C710812 01)

This section provides a list of warnings and the causes of and corrections for warnings.

4.2.1 Warnings Table

The list of warnings gives the warning name and warning meaning in order of the warning numbers.

Note:

Use Pn008 = n.□X□□ (Warning Detection Selection) to control warning detection. However, the following warnings are not affected by the setting of Pn008 = n.□X□□ and other parameter settings are required in addition to Pn008 = n.□X□□.

Warning Number	Parameters That Must Be Set to Select Warning Detection
A.911	Pn310 = n.□□□X (Vibration Detection Selection)
A.923	– (Not affected by the setting of Pn008 = n.□X□□.)
A.930	Pn008 = n.□□□X (Low Battery Voltage Alarm/Warning Selection)
A.932	Pn0DD = n.□□□X (SigmaLINK II I/O Device Communications Check Mask)
A.933	Pn0DD = n.□X□□ (SigmaLINK II I/O Device Status Check Mask)
A.94A to A.960, A.97A to A.97F	Pn800=n.□□X□ (Warning Check Masks)
A.971	Pn008 = n.□□X□ (Function Selection for Undervoltage) (Not affected by the setting of Pn008 = n.□X□□.)
A.9A0	Pn00D = n.X□□□ (Overtravel Warning Detection Selection) (Not affected by the setting of Pn008 = n.□X□□.)
A.9b0	Pn00F = n.□□□X (SERVOPACK Preventative Maintenance Warning Selection)
A.9b1	Pn00F = n.□□X□ (Servomotor Preventative Maintenance Warning Selection)

Warning Number	Warning Name	Warning Meaning	Resetting
A.900	Position Deviation Overflow	The position deviation exceeded the percentage set with the following formula: (Pn520 × Pn51E/100)	Required.
A.901	Position Deviation Overflow Alarm at Servo ON	The position deviation when the servo was turned ON exceeded the percentage set with the following formula: (Pn526 × Pn528/100)	Required.
A.905	Error Detection Warning	An error was detected in error detection.	Required.
A.910	Overload	This warning occurs before an A.710 or A.720 alarm (overload) occurs. If the warning is ignored and operation is continued, an alarm may occur.	Required.
A.911	Vibration	Abnormal vibration was detected during motor operation. The detection level is the same as A.520. Set whether to output an alarm or a warning by setting Pn310 (Vibration Detection Selections).	Required.
A.912	Internal Temperature Warning 1 (Control Board Temperature Error)	The surrounding temperature of the control board is abnormal.	Required.

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Warning Number	Warning Name	Warning Meaning	Resetting
A.913	Internal Temperature Warning 2 (Power Board Temperature Error)	The surrounding temperature of the power board is abnormal.	Required.
A.920	Regenerative Overload	This warning occurs before an A.320 alarm (Regenerative Overload) occurs. If the warning is ignored and operation is continued, an alarm may occur.	Required.
A.922	Pressure Detection Overflow	The pressure detection value is greater than or equal to the set value of Pn44F (Pressure Detection Overflow Level) and an amount of time greater than or equal to the set value of Pn450 (Pressure Detection Overflow Time) has elapsed.	Required.
A.923	SERVOPACK Built- Fan Stopped	The fan inside the SERVOPACK stopped.	Required.
A.930	Absolute Encoder Battery Error	This warning occurs when the voltage of absolute encoder's battery is low.	Required.
A.932	SigmaLINK II I/O Device Communications Warning	An error occurred in communications with the SigmaLINK II I/O device.	Required.
A.933	SigmaLINK II I/O Device Status Warning	The SigmaLINK II I/O device detected an error.	Required.
A.942	Speed Ripple Compensation Information Disagreement	The speed ripple compensation information stored in the encoder does not agree with the speed ripple compensation information stored in the SERVOPACK.	Required.
A.94A	Data Setting Warning 1 (Parameter Number Error)	There is an error in the parameter number for a Data Setting Warning 1 (Parameter Number) command.	Automatically reset.
A.94b	Data Setting Warning 2 (Out of Range)	The command data is out of range.	Automatically reset.
A.94d	Data Setting Warning 4 (Parameter Size)	The data sizes do not match.	Automatically reset.
A.94E	Data Setting Warning 5 (Latch Mode Error)	A latch mode error was detected.	Required.
A.95A	Command Warning 1 (Unsatisfied Command Conditions)	A command was sent when the conditions for sending a command were not satisfied.	Automatically reset.
A.95b	Command Warning 2 (Unsupported Command)	An unsupported command was sent.	Automatically reset.
A.95d	Command Warning 4 (Command Interference)	There was command interference, particularly latch command interference.	Automatically reset.
A.95E	Command Warning 5 (Subcommand Not Possible)	The subcommand and main command interfere with each other.	Automatically reset.
A.95F	Command Warning 6 (Undefined Command)	An undefined command was sent.	Automatically reset.
A.960	MECHATROLINK Communications Warning	A communications error occurred during MECHATROLINK communications.	Required.
A.971	Undervoltage	This warning occurs before an A.410 alarm (Undervoltage) occurs. If the warning is ignored and operation is continued, an alarm may occur.	Required.
A.97A	Command Warning 7 (Phase Error)	A command that cannot be executed in the current phase was sent.	Automatically reset.
A.97b	Data Clamp Out of Range	The set command data was clamped to the minimum or maximum value of the allowable setting range.	Automatically reset.
A.97E	MECHATROLINK Communications Settings Not Configured Warning(This alarm can occur when using MECHATROLINK-4 communications.)	The host controller attempted to start communications when the MECHATROLINK communications settings were not configured.	Required.

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Warning Number	Warning Name	Warning Meaning	Resetting
A.97F	MECHATROLINK Communications Setting Warning(This alarm can occur when using MECHATROLINK-4 communications.)	A MECHATROLINK communications setting does not match the servo profile specifications.	Required.
A.9A0	Overtravel	Overtravel was detected while the servo was ON.	Required.
A.9b0	SERVOPACK Preventative Maintenance Warning	One of the consumable parts of the SERVOPACK has reached the end of its service life.	Required.
A.9b1	Servomotor Preventative Maintenance Warning	One of the consumable parts of the servomotor has reached the time when maintenance is needed.	Required.

4.2.2 Troubleshooting Warnings

The causes of and corrections for the warnings are given in the following table. Contact your Yaskawa representative if you cannot solve a problem with the correction given in the table.

◆ A.900:Position Deviation Overflow

Possible Cause	Confirmation	Correction	Reference
The servomotor U, V, and W wiring is not correct.	Check the wiring of the servomotor main circuit cables.	Make sure that there are no faulty contacts in the wiring for the servomotor and encoder.	–
A SERVOPACK gain is too low.	Check the SERVOPACK gains.	Increase the servo gain, e.g., by using autotuning without a host reference.	–
The acceleration of the position reference is too high.	Reduce the reference acceleration and try operating the SERVOPACK.	Reduce the acceleration of the position reference using a MECHATROLINK command. Or, smooth the position reference acceleration by selecting the position reference filter (ACCFIL) using a MECHATROLINK command.	–
The excessive position deviation alarm level (Pn520 × Pn51E/100) is too low for the operating conditions.	Check excessive position deviation alarm level (Pn520 × Pn51E/100) to see if it is set to an appropriate value.	Optimize the settings of Pn520 and Pn51E.	–
A failure occurred in the SERVOPACK.	–	Turn the power to the SERVOPACK OFF and ON again. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.901:Position Deviation Overflow Alarm at Servo ON

Possible Cause	Confirmation	Correction	Reference
The position deviation when the servo was turned ON exceeded the percentage set with the following formula: (Pn526 × Pn528/100)	–	Optimize the setting of Pn528 (Position Deviation Overflow Warning Level at Servo ON).	–

◆ A.905:Error Detection Warning

Possible Cause	Confirmation	Correction	Reference
A behavior was detected that differs greatly from the sample data in error detection tracing.	Check the error detection tracing waveform and error rate.	Check if an error has occurred on the equipment. Reconsider Pn5C4 (Error Detection Sample Data Set 1 Warning Level 1) and Pn5C5 (Error Detection Sample Data Set 1 Judgment Level 1).	–
The correct sample data is not saved.	Check if the SigmaWin+ is Ver. 7.42 or higher.	First upgrade to the SigmaWin+ Ver. 7.42 or higher, and then create the sample data again.	–

◆ A.910:Overload

Possible Cause	Confirmation	Correction	Reference
The wiring is not correct or there is a faulty connection in the motor or encoder wiring.	Check the wiring.	Make sure that the servomotor and encoder are correctly wired.	–
Operation was performed that exceeded the overload protection characteristics.	Check the motor overload characteristics and operation reference.	Reconsider the load and operating conditions. Or, increase the motor capacity.	–
An excessive load was applied during operation because the servomotor was not driven due to mechanical problems.	Check the operation reference and motor speed.	Remove the mechanical problem.	–
The setting of Pn52B (Overload Warning Level) is not suitable.	Check that the setting of Pn52B (Overload Warning Level) is suitable.	Set Pn52B (Overload Warning Level) to an appropriate value.	–
A failure occurred in the SERVOPACK.	–	The SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.911:Vibration

Possible Cause	Confirmation	Correction	Reference
Abnormal vibration was detected during motor operation.	Check for abnormal motor noise, and check the speed and torque waveforms during operation.	Reduce the motor speed. Or, reduce the servo gain with custom tuning.	–
The setting of Pn103 (Moment of Inertia Ratio) is greater than the actual moment of inertia or was greatly changed.	Check the moment of inertia ratio or mass ratio.	Set Pn103 (Moment of Inertia Ratio) to an appropriate value.	–
The setting of Pn312 or Pn384 (Vibration Detection Level) is not suitable.	Check that the setting of Pn312 or Pn384 (Vibration Detection Level) is suitable.	Set Pn312 or Pn384 (Vibration Detection Level) to an appropriate value.	–

◆ A.912:Internal Temperature Warning 1 (Control Board Temperature Error)
A.913:Internal Temperature Warning 2 (Power Board Temperature Error)

Possible Cause	Confirmation	Correction	Reference
The surrounding temperature is too high.	Check the surrounding temperature using a thermometer. Or, check the operating status with the SERVOPACK installation environment monitor.	Decrease the surrounding temperature by improving the SERVOPACK installation conditions.	–
An overload alarm was reset by turning OFF the power too many times.	Check the alarm display to see if there is an overload alarm.	Change the method for resetting the alarm.	–
There was an excessive load or operation was performed that exceeded the regenerative processing capacity.	Check the load during operation with [Cumulative Load] and check the regenerative capacity with [Regenerative Load] on the operation monitor of the SigmaWin+.	Reconsider the load and operating conditions.	–
The SERVOPACK installation orientation is not correct or there is insufficient space around the SERVOPACK.	Check the SERVOPACK installation conditions.	Install the SERVOPACK according to specifications.	–
A failure occurred in the SERVOPACK.	–	The SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.920:Regenerative Overload

Possible Cause	Confirmation	Correction	Reference
The power supply voltage exceeded the specified range.	Measure the power supply voltage.	Set the power supply voltage within the specified range.	–
There is insufficient external regenerative resistance, regenerative resistor capacity, or SERVOPACK capacity, or there has been a continuous regeneration state.	Check the operating conditions or the capacity.	Change the regenerative resistance value, regenerative resistance capacity, or SERVOPACK capacity. Reconsider the operating conditions.	–
There was a continuous regeneration state because a negative load was continuously applied.	Check the load applied to the servomotor during operation.	Reconsider the system including the servo, machine, and operating conditions.	–

◆ A.922:Pressure Detection Overflow

Possible Cause	Confirmation	Correction	Reference
The pressure detection value is greater than or equal to the set value of Pn44F (Pressure Detection Overflow Level).	Check the output from the pressure sensor amplifier.	Adjust the pressure sensor amplifier.	70, 70, 72, 73
The pressure detection value is greater than or equal to the set value of Pn44F (Pressure Detection Overflow Level).	Check the settings of Pn449 and Pn45A to Pn45E (Pressure Sensor Gain 0 to 5).	Change the set values of Pn449 and Pn45A to Pn45E.	72
The pressure detection value is greater than or equal to the set value of Pn44F (Pressure Detection Overflow Level) and an amount of time greater than or equal to the set value of Pn450 (Pressure Detection Overflow Time) has elapsed.	Check the pressure reference, Pn44F, and Pn450.	Set Pn44F and Pn450 to appropriate values.	75

◆ A.923:SERVOPACK Built- Fan Stopped

Possible Cause	Confirmation	Correction	Reference
The fan inside the SERVOPACK stopped.	Check for foreign matter inside the SERVOPACK.	Remove foreign matter from the SERVOPACK. If the alarm still occurs, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.930:Absolute Encoder Battery Error

Possible Cause	Confirmation	Correction	Reference
The battery connection is faulty or a battery is not connected.	Check the battery connection.	Correct the battery connection.	–
The battery voltage is lower than the specified value (2.7 V).	Measure the battery voltage.	Replace the battery.	–
A failure occurred in the SERVOPACK.	–	The SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.932:SigmaLINK II I/O Device Communications Warning

Possible Cause	Confirmation	Correction	Reference
There is a faulty contact in the connector or the connector is not wired correctly for the encoder cable.	Check the condition of the encoder cable.	Replace the encoder cable.	–
There is a cable disconnection or short-circuit in the encoder. Or, the cable impedance is outside the specified values.	Check the condition of the encoder cable.	Use the encoder cable within the specified specifications.	–
One of the following has occurred: corrosion caused by improper temperature, humidity, or gas, a short-circuit caused by entry of water drops or cutting oil, or faulty contact in connector caused by vibration.	Check the operating environment.	Improve the operating environment, and replace the cable. If the alarm still occurs, replace the SERVOPACK.	–
A malfunction was caused by noise.	–	Correct the wiring around the encoder by separating the encoder cable from the servomotor main circuit cable or by grounding the encoder.	–
A failure occurred in the SERVOPACK.	–	If the alarm does not occur when the I/O device is connected to a different SERVOPACK and the control power is supplied, the SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.933:SigmaLINK II I/O Device Status Warning

Possible Cause	Confirmation	Correction	Reference
The I/O device detected a warning.	Check the alarm code by reading the I/O device alarm in the SigmaWin+.	Take corrective action according to the I/O device manual.	–

◆ A.942:Speed Ripple Compensation Information Disagreement

Possible Cause	Confirmation	Correction	Reference
The speed ripple compensation information stored in the encoder does not agree with the speed ripple compensation information stored in the SERVOPACK.	–	Reset the speed ripple compensation value on the SigmaWin+.	–
The speed ripple compensation information stored in the encoder does not agree with the speed ripple compensation information stored in the SERVOPACK.	–	Set Pn423 to n.□□□2 (execute speed ripple compensation using the default adjustment value). However, changing this setting may increase the speed ripple when using a Σ-X rotary servomotor.	–
The speed ripple compensation information stored in the encoder does not agree with the speed ripple compensation information stored in the SERVOPACK.	–	Set Pn423 to n.□□1□ (do not detect A.942 alarms) . However, changing this setting may increase the speed ripple.	–
The speed ripple compensation information stored in the encoder does not agree with the speed ripple compensation information stored in the SERVOPACK.	–	Set Pn423 to n.□□□0 (disable speed ripple compensation). However, changing this setting may increase the speed ripple.	–

◆ A.94A:Data Setting Warning 1 (Parameter Number Error)

Possible Cause	Confirmation	Correction	Reference
An invalid parameter number was used.	Check the command that caused the warning.	Use the correct parameter number.	–

◆ A.94b:Data Setting Warning 2 (Out of Range)

Possible Cause	Confirmation	Correction	Reference
The set command data was out of the setting range.	Check the command that caused the warning.	Set the parameter within the setting range.	–

◆ A.94d:Data Setting Warning 4 (Parameter Size)

Possible Cause	Confirmation	Correction	Reference
The parameter size set in the command is not correct.	Check the command that caused the warning.	Set the correct parameter size.	–

◆ A.94E:Data Setting Warning 5 (Latch Mode Error)

Possible Cause	Confirmation	Correction	Reference
A latch mode error was detected.	Check the command that caused the warning.	Change the setting of Pn850 or the LT_MOD data for the LTMOD_ON command sent by the host controller to an appropriate value.	–

◆ A.95A:Command Warning 1 (Unsatisfied Command Conditions)

Possible Cause	Confirmation	Correction	Reference
The command conditions are not satisfied.	Check the command that caused the warning.	Send the command after the command conditions are satisfied.	–

◆ A.95b:Command Warning 2 (Unsupported Command)

Possible Cause	Confirmation	Correction	Reference
An unsupported command was received.	Check the command that caused the warning.	Do not send unsupported commands.	–

◆ A.95d:Command Warning 4 (Command Interference)

Possible Cause	Confirmation	Correction	Reference
The command sending conditions for latch-related commands was not satisfied.	Check the command that caused the warning.	Send the command after the conditions are satisfied.	–

◆ A.95E:Command Warning 5 (Subcommand Not Possible)

Possible Cause	Confirmation	Correction	Reference
The command sending conditions for subcommands was not satisfied.	Check the command that caused the warning.	Send the command after the conditions are satisfied.	–

◆ A.95F:Command Warning 6 (Undefined Command)

Possible Cause	Confirmation	Correction	Reference
An undefined command was sent.	Check the command that caused the warning.	Do not send undefined commands.	–

◆ A.960:MECHATROLINK Communications Warning

Possible Cause	Confirmation	Correction	Reference
The MECHATROLINK cable is not wired correctly.	Check the wiring conditions.	Correct the MECHATROLINK cable wiring.	–
A MECHATROLINK data reception error occurred due to noise.	Check the installation conditions.	Implement the following countermeasures against noise. • Check the MECHATROLINK cable and FG wiring and implement countermeasures to prevent noise from entering. • Attach a ferrite core to the MECHATROLINK cable.	–
A failure occurred in the SERVOPACK.	–	The SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.971:Undervoltage

Possible Cause	Confirmation	Correction	Reference
For a 200-V SERVOPACK, the AC power supply voltage dropped below 140 V.	Measure the power supply voltage.	Set the power supply voltage within the specified range.	–
The power supply voltage dropped during operation.	Measure the power supply voltage.	Increase the power supply capacity.	–
A momentary power interruption occurred.	Measure the power supply voltage.	If you have changed the setting of Pn509 (Momentary Power Interruption Hold Time), decrease the setting.	–
The SERVOPACK fuse is blown out.	–	Replace the SERVOPACK and connect a reactor.	–
A failure occurred in the SERVOPACK.	–	The SERVOPACK may be faulty. Replace the SERVOPACK.	–

◆ A.97A:Command Warning 7 (Phase Error)

Possible Cause	Confirmation	Correction	Reference
A command that cannot be executed in the current phase was sent.	–	Send the command after the conditions are satisfied.	–

◆ A.97b:Data Clamp Out of Range

Possible Cause	Confirmation	Correction	Reference
The set command data was out of the setting range.	–	Set the command data within the setting ranges.	–

◆ A.97E:MECHATROLINK Communications Settings Not Configured Warning

Possible Cause	Confirmation	Correction	Reference
The host controller attempted to start communications when the MECHATROLINK communications settings were not configured.	Check if the MECHATROLINK connection configuration settings on the host controller differ from the actual connection configuration.	Configure the MECHATROLINK connection configuration settings on the host controller again. Start the host controller after the power to the SERVOPACK is turned ON and the SERVOPACK has started.	–
The host controller attempted to start communications when the MECHATROLINK communications settings were not configured.	Check if the power to the SERVOPACK is turned ON after MECHATROLINK communications initialization is completed on the host controller.	First turn ON the power to the SERVOPACK, and then execute MECHATROLINK communications initialization on the host controller.	–

◆ A.97F:MECHATROLINK Communications Setting Warning

Possible Cause	Confirmation	Correction	Reference
The setting value for the number of transmission bytes is not a multiple of four.	Check if the number of transmission bytes in the communications settings on the host controller is correct.	Set the number of transmission bytes in the communications settings on the host controller again as a multiple of four.	–
The setting value for the number of transmission bytes is less than 16 bytes or greater than 80 bytes.	Check if the number of transmission bytes in the communications settings on the host controller is correct.	Set the number of transmission bytes in the communications settings on the host controller again to between 16 bytes and 80 bytes.	–
The transmission cycle setting is a setting that is not supported by the product specifications.	Check if the transmission cycle in the communications settings on the host controller is correct.	Set the transmission cycle again to a value within the following setting range from the host controller. 62.5 µs, 125 µs, 250 µs, 500 µs, 750 µs, 1.0 ms to 4.0 ms (multiple of 0.5 ms)	–
Reading the MECHATROLINK communications settings failed.	–	Check the address and data size of the MECHATROLINK communications settings to read.	–

◆ A.9A0:Overtravel

Possible Cause	Confirmation	Correction	Reference
Overtravel was detected while the servo was ON.	Check the status of the overtravel signals on the input signal monitor.	Even if an overtravel signal is not shown by the input signal monitor, momentary overtravel may have been detected. Take the following precautions. • Do not specify movements that would cause overtravel from the host controller. • Check the wiring of the overtravel signals. • Implement countermeasures against noise.	–

◆ A.9b0:SERVOPACK Preventative Maintenance Warning

Possible Cause	Confirmation	Correction	Reference
One of the consumable parts of the SERVOPACK has reached the end of its service life.	–	Replace the part. Contact your Yaskawa representative for replacement.	–

◆ A.9b1:Servomotor Preventative Maintenance Warning

Possible Cause	Confirmation	Correction	Reference
One of the consumable parts of the servomotor has reached the time when maintenance is needed.	–	Replace the part. Contact your Yaskawa representative for replacement.	–

4.3 Troubleshooting Based on the Operation and Conditions of the Servomotor

This section provides troubleshooting based on the operation and conditions of the servomotor, including causes and corrections.

4.3.1 Servomotor Does Not Start

Possible Cause	Confirmation	Correction	Reference
There is a mistake in the wiring of the MECHATROLINK cable.	Check if the L1 and L2 LED indicators are lit.	Turn OFF the power to the servo system. Correct the MECHATROLINK cable wiring.	–
MECHATROLINK Cyclic Communications Did Not Start	Check if the CN6A LED indicator is lit.	Use the correct procedure to configure the communications settings from the host controller.	–
The control power is not turned ON.	Measure the voltage between control power supply terminals.	Turn OFF the power to the servo system. Correct the wiring so that the control power is turned ON.	–
The main circuit power is not turned ON.	Measure the voltage between the main circuit power input terminals.	Turn OFF the power to the servo system. Correct the wiring so that the main circuit power is turned ON.	–
The I/O signal connector (CN1) pins are not wired correctly or are disconnected.	Turn OFF the power to the servo system. Check the wiring condition of the I/O signal connector (CN1) pins.	Correct the wiring of the I/O signal connector (CN1) pins.	–
The wiring servomotor main circuit cables or encoder cable is disconnected.	Check the wiring conditions.	Turn OFF the power to the servo system. Wire the cable correctly.	–
There is an overload on the servomotor.	Operate the servomotor with no load and check the load status.	Turn OFF the power to the servo system. Reduce the load or replace the servomotor with a servomotor with a larger capacity.	–
The type of encoder that is being used does not agree with the setting of Pn002 = n.□X□□ (Encoder Usage).	Check the type of the encoder that is being used and the setting of Pn002 = n.□X□□.	Set Pn002 = n.□X□□ according to the type of the encoder that is being used.	–
There is a mistake in the input signal allocations.	Check the allocations of the input signals. • Pn50A, Pn50B, Pn511, Pn516 or • Pn50A, Pn590 to Pn599	Correctly allocate the input signals.	–
The SV_ON (Servo ON) command was not sent.	Check the commands sent from the host controller.	Send the SV_ON (Servo ON) command from the host controller.	–
The SENS_ON (Turn Sensor ON) command was not sent.	Check the commands sent from the host controller.	Send the commands to the SERVOPACK in the correct sequence.	–
The P-OT (Forward Drive Prohibit Input) or N-OT (Reverse Drive Prohibit Input) signal is still OFF.	Check the P-OT and N-OT signals.	Turn ON the P-OT and N-OT signals.	–
The safety input signals (/HWBB1 or /HWBB2) are still OFF.	Check the /HWBB1 and /HWBB2 input signals.	Turn ON the /HWBB1 and /HWBB2 input signals. If you are not using the safety function, connect the safety jumper connector (provided as an accessory) to CN8.	–
		Validate the safety functions.	–

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Possible Cause	Confirmation	Correction	Reference
The FSTP (Forced Stop Input) signal is still OFF.	Check the FSTP signal.	• Turn ON the FSTP signal. • If you will not use the function to force the motor to stop, set Pn516 = n.□□□X (FSTP (Forced Stop Input) Signal Allocation) to disable the signal.	–
A failure occurred in the SERVOPACK.	–	Turn OFF the power to the servo system. Replace the SERVOPACK.	–
The polarity detection was not executed.	Check the setting of Pn080 = n.□□□X (Polarity Sensor Selection).	Correct the parameter setting.	–
	Check the inputs to the SV_ON (Servo ON) command.	• If you are using an incremental linear encoder, send the SV_ON (Servo ON) command from the host controller. • If you are using an absolute linear encoder, execute polarity detection.	–

4.3.2 Servomotor Moves Instantaneously, and Then Stops

Possible Cause	Confirmation	Correction	Reference
There is a mistake in the servomotor wiring.	Turn OFF the power to the servo system. Check the wiring.	Wire the cable correctly.	–
There is a mistake in the wiring of the encoder or serial converter unit.	Turn OFF the power to the servo system. Check the wiring.	Wire the cable correctly.	–
There is a mistake in the linear encoder wiring.	Turn OFF the power to the servo system. Check the wiring.	Wire the cable correctly.	–
The setting of Pn282 (Linear Encoder Scale Pitch) is not correct.	Check the setting of Pn282.	Correct the setting of Pn282.	–
The count-up direction of the linear encoder does not match the forward direction of the moving coil in the motor.	Check the directions.	Change the setting of Pn080 = n.□□X□ (Motor Phase Sequence Selection). Place the linear encoder and motor in the same direction.	–
Polarity detection was not performed correctly.	Check to see if electrical angle 2 (electrical angle from polarity origin) at any position is between ±10°.	Correct the settings for the polarity detection-related parameters.	–

4.3.3 Servomotor Speed Is Unstable

Possible Cause	Confirmation	Correction	Reference
There is a faulty connection in the servomotor wiring.	The connector connections for the power line (U, V, and W phases) and the encoder or serial converter unit may be unstable. Turn OFF the power to the servo system. Check the wiring.	Tighten any loose terminals or connectors and correct the wiring.	–

4.3.4 Servomotor Moves without a Reference Input

Possible Cause	Confirmation	Correction	Reference
A failure occurred in the SERVOPACK.	–	Turn OFF the power to the servo system. Replace the SERVOPACK.	–
The count-up direction of the linear encoder does not match the forward direction of the moving coil in the motor.	Check the directions.	Change the setting of Pn080 = n.□□X□ (Motor Phase Sequence Selection). Match the linear encoder direction and servomotor direction.	–
Polarity detection was not performed correctly.	Check to see if electrical angle 2 (electrical angle from polarity origin) at any position is between ±10°.	Correct the settings for the polarity detection-related parameters.	–

4.3.5 Dynamic Brake Does Not Operate

Possible Cause	Confirmation	Correction	Reference
The setting of Pn001 = n.□□□X (Motor Stopping Method for Servo OFF and Group 1 Alarms) is not suitable.	Check the setting of Pn001 = n.□□□X.	Correct the setting of Pn001 = n.□□□X.	–
The dynamic brake resistor is disconnected.	Check the moment of inertia, motor speed, and dynamic brake frequency of use. If the moment of inertia, motor speed, or dynamic brake frequency of use is excessive, the dynamic brake resistor may be disconnected.	Turn OFF the power to the servo system. Replace the SERVOPACK. To prevent disconnection, reduce the load.	–
There was a failure in the dynamic brake drive circuit.	–	There is a defective component in the dynamic brake circuit. Turn OFF the power to the servo system. Replace the SERVOPACK.	–

4.3.6 Abnormal Noise from Servomotor

Possible Cause	Confirmation	Correction	Reference
The servomotor vibrated considerably while performing the tuning-less function with the default settings.	Check the waveform of the motor speed.	Reduce the load so that the load moment of inertia ratio or mass ratio is within the allowable value, or increase the load level or reduce the response level in the tuning-less level settings. If the situation is not improved, set Pn170 = n.□□□0 (disable the tuning-less function) and execute autotuning either with or without a host reference.	–
The machine mounting is not secure.	Turn OFF the power to the servo system. Check the servomotor installation.	Tighten the mounting screws.	–
	Turn OFF the power to the servo system. Check to see if there is misalignment in the coupling.	Align the coupling.	–
	Turn OFF the power to the servo system. Check to see if the coupling is balanced.	Balance the coupling.	–
The bearings are defective.	Turn OFF the power to the servo system. Check for noise and vibration around the bearings.	Replace the servomotor.	–

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Possible Cause	Confirmation	Correction	Reference
There is a vibration source at the driven machine.	Turn OFF the power to the servo system. Check for any foreign matter, damage, or deformation in the machine's moving parts.	Consult with the machine manufacturer.	–
Noise interference occurred because of incorrect I/O signal cable specifications.	Turn OFF the power to the servo system. Check the I/O signal cables to see if they satisfy specifications. Use a shielded twisted-pair wire cable or a screened twisted-pair cable with conductors of at least 0.12 mm^2.	Use cables that satisfy the specifications.	–
Noise interference occurred because an I/O signal cable is too long.	Turn OFF the power to the servo system. Check the lengths of the I/O signal cables.	The I/O signal cables must be no longer than 3 m.	–
Noise interference occurred because of incorrect encoder cable specifications.	Turn OFF the power to the servo system. Check the encoder cable to see if it satisfies specifications. Use a shielded twisted-pair wire cable or a screened twisted-pair cable with conductors of at least 0.12 mm^2.	Use cables that satisfy the specifications.	–
Noise interference occurred because the encoder cable is too long.	Turn OFF the power to the servo system. Check the length of the encoder cable.	• Rotary servomotors: The encoder cable length must be 50 m max. • Linear servomotors: Make sure that the serial converter unit cable is no longer than 20 m and that the linear encoder cable and the sensor cable are no longer than 15 m each.	–
Noise interference occurred because the encoder cable is damaged.	Turn OFF the power to the servo system. Check the encoder cable to see if it is pinched or the sheath is damaged.	Replace the encoder cable and correct the cable installation environment.	–
The encoder cable was subjected to excessive noise interference.	Turn OFF the power to the servo system. Check to see if the encoder cable is bundled with a power line or installed near a power line.	Correct the cable layout so that no surge is applied by power line.	–
There is variation in the FG potential because of the influence of machines on the servomotor side, such as a welder.	Turn OFF the power to the servo system. Check to see if the machines are correctly grounded.	Properly ground the machines to separate them from the FG of the encoder.	–
There is a SERVOPACK pulse counting error due to noise.	Check to see if there is noise interference on the signal line from the encoder.	Turn OFF the power to the servo system. Implement countermeasures against noise for the encoder wiring.	–
The encoder was subjected to excessive vibration or shock.	Turn OFF the power to the servo system. Check to see if vibration from the machine occurred. Check the servomotor installation (mounting surface precision, securing state, and alignment). Check the linear encoder installation (mounting surface precision and securing method).	Reduce machine vibration. Improve the mounting state of the servomotor or linear encoder.	–
A failure occurred in the encoder.	–	Turn OFF the power to the servo system. Replace the servomotor.	–
A failure occurred in the serial converter unit.	–	Turn OFF the power to the servo system. Replace the serial converter unit.	–
A failure occurred in the linear encoder.	–	Turn OFF the power to the servo system. Replace the linear encoder.	–

4.3.7 Servomotor Vibrates at Frequency of Approx. 200 to 400 Hz.

Possible Cause	Confirmation	Correction	Reference
The servo gains are not balanced.	Check to see if the servo gains have been correctly tuned.	Perform autotuning without a host reference.	–
The setting of Pn100 (Speed Loop Gain) is too high.	Check the setting of Pn100 (Speed Loop Gain). The default setting is Kv = 40.0 Hz.	Set Pn100 (Speed Loop Gain) to an appropriate value.	–
The setting of Pn102 (Position Loop Gain) is too high.	Check the setting of Pn102 (Position Loop Gain). The default setting is Kp = 40.0/s.	Set Pn102 (Position Loop Gain) to an appropriate value.	–
The setting of Pn101 (Speed Loop Integral Time Constant) is not appropriate.	Check the setting of Pn101 (Speed Loop Integral Time Constant). The default setting is Ti = 20.0 ms.	Set Pn101 (Speed Loop Integral Time Constant) to an appropriate value.	–
The setting of Pn103 (Moment of Inertia Ratio) is not appropriate.	Check the setting of Pn103 (Moment of Inertia Ratio).	Set Pn103 (Moment of Inertia Ratio) to an appropriate value.	–

4.3.8 Large Motor Speed on Starting and Stopping

Possible Cause	Confirmation	Correction	Reference
The servo gains are not balanced.	Check to see if the servo gains have been correctly tuned.	Perform autotuning without a host reference.	–
The setting of Pn100 (Speed Loop Gain) is too high.	Check the setting of Pn100 (Speed Loop Gain). The default setting is Kv = 40.0 Hz.	Set Pn100 (Speed Loop Gain) to an appropriate value.	–
The setting of Pn102 (Position Loop Gain) is too high.	Check the setting of Pn102 (Position Loop Gain). The default setting is Kp = 40.0/s.	Set Pn102 (Position Loop Gain) to an appropriate value.	–
The setting of Pn101 (Speed Loop Integral Time Constant) is not appropriate.	Check the setting of Pn101 (Speed Loop Integral Time Constant). The default setting is Ti = 20.0 ms.	Set Pn101 (Speed Loop Integral Time Constant) to an appropriate value.	–
The setting of Pn103 (Moment of Inertia Ratio) is not appropriate.	Check the setting of Pn103 (Moment of Inertia Ratio).	Set Pn103 (Moment of Inertia Ratio) to an appropriate value.	–
The torque reference is saturated.	Check the waveform of the torque reference.	Use the mode switching.	–
Pn483 (Forward Force Limit) and Pn484 (Reverse Force Limit) are set to the default values.	Force limits: Default settings Pn483 = 30% Pn484 = 30%	Set Pn483 (Forward Force Limit) and Pn484 (Reverse Force Limit) to appropriate values.	–

4.3.9 Absolute Encoder Position Deviation Error (The position that was saved in the host controller when the power was turned OFF is different from the position when the power was next turned ON.)

Possible Cause	Confirmation	Correction	Reference
Noise interference occurred because of incorrect encoder cable specifications.	Turn OFF the power to the servo system. Check the encoder cable to see if it satisfies specifications. Use a shielded twisted-pair wire cable or a screened twisted-pair cable with conductors of at least 0.12 mm^2.	Use cables that satisfy the specifications.	–
Noise interference occurred because the encoder cable is too long.	Turn OFF the power to the servo system. Check the length of the encoder cable.	• Rotary servomotors: The encoder cable length must be 50 m max. • Linear servomotors: Make sure that the serial converter unit cable is no longer than 20 m and that the linear encoder cable and the sensor cable are no longer than 15 m each.	–
Noise interference occurred because the encoder cable is damaged.	Turn OFF the power to the servo system. Check the encoder cable to see if it is pinched or the sheath is damaged.	Replace the encoder cable and correct the cable installation environment.	–
The encoder cable was subjected to excessive noise interference.	Turn OFF the power to the servo system. Check to see if the encoder cable is bundled with a power line or installed near a power line.	Correct the cable layout so that no surge is applied by power line.	–
There is variation in the FG potential because of the influence of machines on the servomotor side, such as a welder.	Turn OFF the power to the servo system. Check to see if the machines are correctly grounded.	Properly ground the machines to separate them from the FG of the encoder.	–
There is a SERVOPACK pulse counting error due to noise.	Turn OFF the power to the servo system. Check to see if there is noise interference on the signal line from the encoder or serial converter unit.	Implement countermeasures against noise for the encoder or serial converter unit wiring.	–
The encoder was subjected to excessive vibration or shock.	Turn OFF the power to the servo system. Check to see if vibration from the machine occurred. Check the servomotor installation (mounting surface precision, securing state, and alignment). Check the linear encoder installation (mounting surface precision and securing method).	Reduce machine vibration. Improve the mounting state of the servomotor or linear encoder.	–
A failure occurred in the encoder.	–	Turn OFF the power to the servo system. Replace the servomotor or linear encoder.	–
A failure occurred in the SERVOPACK.	–	Turn OFF the power to the servo system. Replace the SERVOPACK.	–
Host controller multiturn data or absolute encoder position data reading error	Check the error detection section of the host controller.	Correct the error detection section of the host controller.	–
	Check to see if the host controller is executing data parity checks.	Perform parity checks for the multiturn data or absolute encoder position data.	–
	Check for noise interference in the cable between the SERVOPACK and the host controller.	Implement countermeasures against noise and then perform parity checks again for the multiturn data or absolute encoder position data.	–

4.3.10 Overtravel Occurred

Possible Cause	Confirmation	Correction	Reference
The P-OT/N-OT (Forward Drive Prohibit Input or Reverse Drive Prohibit Input) signal was input.	Check the external power supply (+24 V) voltage for the input signals.	Correct the external power supply (+24 V) voltage for the input signals.	–
	Check the operating condition of the overtravel limit switches.	Make sure that the overtravel limit switches operate correctly.	–
	Check the wiring of the overtravel limit switches.	Correct the wiring of the overtravel limit switches.	–
	Check the settings of the overtravel input signal allocation (Pn50A/Pn50B or Pn590/Pn591).	Set the parameters to correct values.	–
The P-OT/N-OT (Forward Drive Prohibit Input or Reverse Drive Prohibit Input) signal malfunctioned.	Check for fluctuation in the external power supply (+24 V) voltage for the input signals.	Eliminate fluctuation from the external power supply (+24 V) voltage for the input signals.	–
	Check to see if the operation of the overtravel limit switches is unstable.	Stabilize the operating condition of the overtravel limit switches.	–
	Check the wiring of the overtravel limit switches (e.g., check for cable damage and loose screws).	Correct the wiring of the overtravel limit switches.	–
There is a mistake in the allocation of the P-OT/N-OT (Forward Drive Prohibit Input or Reverse Drive Prohibit Input).	Check if the SERVOPACK is configured in one of the following ways: • Pn50A = n.□□□1 (use Sigma-7S-compatible I/O signal allocations) and the P-OT signal is allocated to CN1 with Pn50A = n.X□□□. • Pn50A = n.□□□2 (use SigmaLINK II input signal allocation) and the P-OT signal is allocated to CN1 with Pn590.	Set the parameters to correct values.	–
	Check if the SERVOPACK is configured in one of the following ways: • Pn50A = n.□□□1 (use Sigma-7S-compatible I/O signal allocations) and the N-OT signal is allocated to CN1 with Pn50B = n.□□□X. • Pn50A = n.□□□2 (use SigmaLINK II input signal allocation) and the N-OT signal is allocated to CN1 with Pn591.	Set the parameters to correct values.	
The selection of the servomotor stopping method is not correct.	Check the servo OFF stopping method set in Pn001 = n.□□□X or Pn001 = n.□□X□.	Select a servomotor stopping method other than coasting to a stop.	–
	Check the torque control stopping method set in Pn001 = n.□□□X or Pn001 = n.□□X□.	Select a servomotor stopping method other than coasting to a stop.	

4.3.11 Improper Stop Position for Overtravel (OT) Signal

Possible Cause	Confirmation	Correction	Reference
The limit switch position and dog length are not appropriate.	–	Install the limit switch at the appropriate position.	–
The overtravel limit switch position is too close for the coasting distance.	–	Install the overtravel limit switch at the appropriate position.	–

4.3.12 Position Deviation (without Alarm)

Possible Cause	Confirmation	Correction	Reference
Noise interference occurred because of incorrect encoder cable specifications.	Turn OFF the power to the servo system. Check the encoder cable to see if it satisfies specifications. Use a shielded twisted-pair wire cable or a screened twisted-pair cable with conductors of at least 0.12 mm^2.	Use cables that satisfy the specifications.	–
Noise interference occurred because the encoder cable is too long.	Turn OFF the power to the servo system. Check the length of the encoder cable.	• Rotary servomotors: The encoder cable length must be 50 m max. • Linear servomotors: Make sure that the serial converter unit cable is no longer than 20 m and that the linear encoder cable and the sensor cable are no longer than 15 m each.	–
Noise interference occurred because the encoder cable is damaged.	Turn OFF the power to the servo system. Check the encoder cable to see if it is pinched or the sheath is damaged.	Replace the encoder cable and correct the cable installation environment.	–
The encoder cable was subjected to excessive noise interference.	Turn OFF the power to the servo system. Check to see if the encoder cable is bundled with a power line or installed near a power line.	Correct the cable layout so that no surge is applied by power line.	–
There is variation in the FG potential because of the influence of machines on the servomotor side, such as a welder.	Turn OFF the power to the servo system. Check to see if the machines are correctly grounded.	Properly ground the machines to separate them from the FG of the encoder.	–
There is a SERVOPACK pulse counting error due to noise.	Turn OFF the power to the servo system. Check to see if there is noise interference on the signal line from the encoder or serial converter unit.	Implement countermeasures against noise for the encoder wiring or serial converter unit wiring.	–
The encoder was subjected to excessive vibration or shock.	Turn OFF the power to the servo system. Check to see if vibration from the machine occurred. Check the servomotor installation (mounting surface precision, securing state, and alignment). Check the linear encoder installation (mounting surface precision and securing method).	Reduce machine vibration. Improve the mounting state of the servomotor or linear encoder.	–
The coupling between the machine and servomotor not suitable.	Turn OFF the power to the servo system. Check to see if position offset occurs at the coupling between machine and servomotor.	Correctly secure the coupling between the machine and servomotor.	–
Noise interference occurred because of incorrect I/O signal cable specifications.	Turn OFF the power to the servo system. Check the I/O signal cables to see if they satisfy specifications. Use a shielded twisted-pair wire cable or a screened twisted-pair cable with conductors of at least 0.12 mm^2.	Use cables that satisfy the specifications.	–
Noise interference occurred because an I/O signal cable is too long.	Turn OFF the power to the servo system. Check the lengths of the I/O signal cables.	The I/O signal cables must be no longer than 3 m.	–
An encoder fault occurred. (The pulse count does not change.)	–	Turn OFF the power to the servo system. Replace the servomotor or linear encoder.	–
A failure occurred in the SERVOPACK.	–	Turn OFF the power to the servo system. Replace the SERVOPACK.	–

4.3.13 Servomotor Overheated

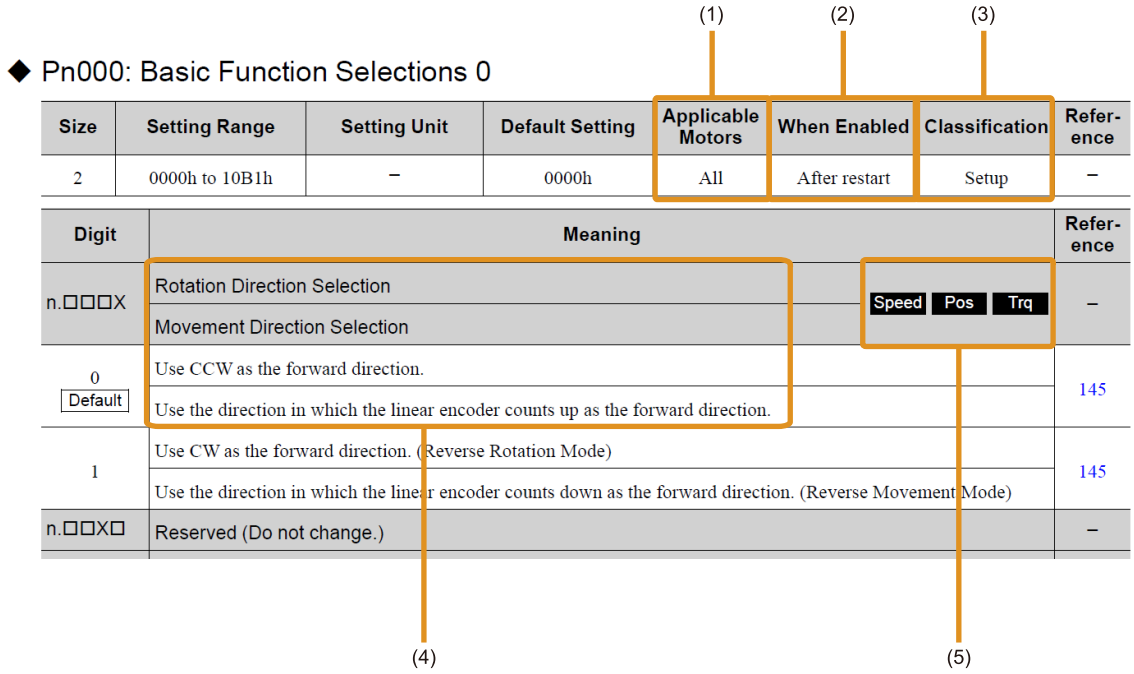
Possible Cause	Confirmation	Correction	Reference
The surrounding temperature is too high.	Measure the surrounding temperature around the servomotor.	Reduce the surrounding temperature to 40°C or less.	–
The surface of the servomotor is dirty.	Turn OFF the power to the servo system. Visually check the surface for dirt.	Clean dirt, dust, and oil from the surface.	–
There is an overload on the servomotor.	Check the load status with a monitor.	If the servomotor is overloaded, reduce the load or replace the servo drive with a SERVOPACK and servomotor with larger capacities.	–
Polarity detection was not performed correctly.	Check to see if electrical angle 2 (electrical angle from polarity origin) at any position is between ±10°.	Correct the settings for the polarity detection-related parameters.	–

5

Parameter Lists

Provides information on the parameters.

5.1 Servo Parameters: Interpreting the Parameter Lists



No.	Item	Meaning
(1)	Applicable Motors	Indicates the types of servomotors to which the parameter applies. • All: The parameter is used for both rotary servomotors and linear servomotors. • Rotary: The parameter is used for only rotary servomotors. • Linear: The parameter is used for only linear servomotors. If this item differs by digit, it is added to the digit table. Rotary servomotor terms are used for parameters that are applicable to all servomotors. If you are using a linear servomotor, you need to interpret the terms accordingly. Refer to the following sections for details. ☞ *i.4.2 Differences in Terms for Rotary Servomotors and Linear Servomotors on page 16*
(2)	When Enabled	Indicates when a change to the parameter will be effective. “After restart” indicates parameters that will be effective after one of the following is executed. • The power is turned OFF and ON again. • The CONFIG (Device setup request) command is sent. • A software reset is executed. If this item differs by digit, it is added to the digit table.
(3)	Classification	There are the following two classifications. • Setup • Tuning Refer to the following manual for details. 🕮 Σ-X-Series Σ-XS SERVOPACK with MECHATROLINK-4/III Communications References Product Manuals (Manual No.: SIEP C710812 01)

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No.	Item	Meaning
(4)	Digit Name and Setting Description	If there are differences in the parameters for rotary servomotor and linear servomotor, information is provided for both. • Top row: For rotary servomotors • Bottom row: For linear servomotors
(5)	Control Mode	Speed: A parameter that can be used in speed control. Pos: A parameter that can be used in position control. Trq: A parameter that can be used in torque control. "Torque" is used even for linear servomotor parameters. Grayed-out icons (Speed, Speed, Speed) indicate parameters that cannot be used in the corresponding control method. For parameters for numeric settings, this item is added next to the parameter name. For parameters for selecting functions, this item is added to each digit in the table. Information Pressure control does not have an icon because it is included in torque control.

5.2 List of Servo Parameters: MECHATROLINK-4 Communications References

The following table lists the parameters.

Note:

Do not change the following parameters from their default settings.

- Reserved parameters
- Parameters not given in this manual
- Parameters that are not valid for the servomotor that you are using, as given in the parameter table

◆ Pn000: Basic Function Selections 0

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 10B1h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Rotation Direction Selection / Movement Direction Selection — Speed Pos Trq
0 Default	Use CCW as the forward direction.
	Use the direction in which the linear encoder counts up as the forward direction.
1	Use CW as the forward direction. (Reverse Rotation Mode)
	Use the direction in which the linear encoder counts down as the forward direction. (Reverse Movement Mode)
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Rotary/Linear Servomotor Startup Selection When Encoder Is Not Connected — Speed Pos Trq
0 Default	When an encoder is not connected, start as SERVOPACK for rotary servomotor.
1	When an encoder is not connected, start as SERVOPACK for linear servomotor.

◆ Pn001: Application Function Selections 1

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 1142h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Motor Stopping Method for Servo OFF and Group 1 Alarms Speed Pos Trq
0 Default	Stop the motor by applying the dynamic brake.
1	Stop the motor by the applying dynamic brake and then release the dynamic brake.
2	Coast the motor to a stop without the dynamic brake.
n.□□X□	Overtravel Stopping Method Speed Pos Trq
0 Default	Apply the dynamic brake or coast the motor to a stop (use the stopping method set in Pn001 = n.□□□X).
1	Decelerate the motor to a stop using the torque set in Pn406 as the maximum torque and then servo-lock the motor.
2	Decelerate the motor to a stop using the torque set in Pn406 as the maximum torque and then let the motor coast.
3	Decelerate the motor to a stop using the deceleration time set in Pn30A and then servo-lock the motor.
4	Decelerate the motor to a stop using the deceleration time set in Pn30A and then let the motor coast.
n.□X□□	Main Circuit Power Supply AC/DC Input Selection Speed Pos Trq
0 Default	Input AC power as the main circuit power supply using the L1, L2, and L3 terminals (do not use shared converter).
1	Input DC as the main circuit power supply using the B1/⊕, ⊖2 terminals or the B1 and ⊖2 terminals (use an external converter or the shared converter).
n.X□□□	Reserved (Do not change.)

◆ Pn002: Application Function Selections 2

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 4213h	–	0011h	–	After restart	Setup	–

Digit	Meaning	Applicable Motors
n.□□□X	MECHATROLINK Command Position and Speed Control Option Speed Pos Trq	–
0	Reserved (Do not use.)	All
1 Default	Use TLIM as the torque limit.	All
2	Reserved (Do not use.)	All
3	Reserved (Do not use.)	All
n.□□X□	Torque Control Option Speed Pos Trq	–
0	Reserved (Do not use.)	All
1 Default	Use the speed limit for torque control (VLIM) as the speed limit.	All
n.□X□□	Encoder Usage Speed Pos Trq	–
0 Default	Use the encoder according to encoder specifications.	All
1	Use the encoder as an incremental encoder.	All
2	Use the encoder as a single-turn absolute encoder.	Rotary
n.X□□□	External Encoder Usage Speed Pos Trq	–
0 Default	Do not use an external encoder.	Rotary
1	The external encoder moves in the forward direction for CCW motor rotation.	Rotary
2	Reserved (Do not use.)	Rotary
3	The external encoder moves in the reverse direction for CCW motor rotation.	Rotary
4	Reserved (Do not use.)	Rotary

◆ Pn006: Application Function Selections 6

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 105Fh	–	0002h	All	Immediately	Setup	82

Digit	Meaning
n.□□XX	Analog Monitor 1 Signal Selection Speed Pos Trq
00	Motor speed (1 V/1000 min^{-1})
	Motor speed (1 V/1000 mm/s)
01	Speed reference (1 V/1000 min^{-1})
	Speed reference (1 V/1000 mm/s)
02 Default	Torque reference (1 V/100% rated torque)
	Force reference (1 V/100% rated force)
03	Position deviation (0.05 V/reference unit)
04	Position amplifier deviation (after electronic gear) (0.05 V/encoder pulse unit)
	Position amplifier deviation (after electronic gear) (0.05 V/linear encoder pulse unit)
05	Position reference speed (1 V/1000 min^{-1})
	Position reference speed (1 V/1000 mm/s)
06	Reserved (Do not use.)
07	Position deviation between motor and load (0.01 V/reference unit)
08	Positioning completion (positioning completed: 5 V, positioning not completed: 0 V)
09	Speed feedforward (1 V/1000 min^{-1})
	Speed feedforward (1 V/1000 mm/s)
0A	Torque feedforward (1 V/100% rated torque)
	Force feedforward (1 V/100% rated force)
0B	Active gain (gain 1: 1 V, gain 2: 2 V) 2 V)
0C	Completion of position reference distribution (completed: 5 V, not completed: 0 V)
0D	External encoder speed (1 V/1000 min^{-1}: value at the motor shaft)
0E	Reserved (Do not use.)
0F	Reserved (Do not use.)
10	Main circuit DC voltage
11 to 2F	Reserved (Do not use.)
30	Pressure Reference (unit: 1 V/100% (pct. of max. pressure))
31	Pressure Detection Value (unit: 1 V/100% (pct. of max. pressure))
32	Pressure Control Output (unit: 1 V/100% (pct. of max. pressure))
33	Pressure Deviation (unit: 1 V/100% (pct. of max. pressure))
34 to 5F	Reserved (Do not use.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn007: Application Function Selections 7

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 105Fh	–	0000h	All	Immediately	Setup	82

Digit	Meaning
n.□□XX	Analog Monitor 2 Signal Selection Speed Pos Trq
00 to 5F	Same as Pn006 = n.□□XX (Analog Monitor 1 Signal Selection).
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn008: Application Function Selections 8

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 7121h	–	4000h	Rotary	After restart	Setup	–

Digit	Meaning
n.□□□X	Low Battery Voltage Alarm/Warning Selection Speed Pos Trq
0 Default	Output alarm (A.830) for low battery voltage.
1	Output warning (A.930) for low battery voltage.
n.□□X□	Function Selection for Undervoltage Speed Pos Trq
0 Default	Do not detect undervoltage.
1	Detect undervoltage warning and limit torque at host controller.
2	Detect undervoltage warning and limit torque with Pn424 and Pn425 (i.e., only in SERVOPACK).
n.□X□□	Warning Detection Selection Speed Pos Trq
0 Default	Detect warnings.
1	Do not detect warnings except for A.971.
n.X□□□	Reserved (Do not change.)

◆ Pn009: Application Function Selections 9

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0141h	–	0040h	All	After restart	Tuning	–

Digit	Meaning
n.□□□X	Reserved (Do not change.)
n.□□X□	Current Control Mode Selection Speed Pos Trq
0	Use current control mode 1.
1	• SERVOPACK Models SGDXS-R70A, -R90A, -1R6A, -2R8A, - 3R8A, -5R5A, -7R6A: Use current control mode 1. • SERVOPACK Models SGDXS-120A, -180A, -200A, -330A, -470A, -550A, -590A, -780A: Use current control mode 2. (For noise reduction when the motor is stopped)
2	Use current control mode 2. (For noise reduction when the motor is stopped)
3	Use current control mode 3. (For noise reduction when the motor is operating at high speed)
4 Default	Use current control mode 4. (For noise reduction when the motor is stopped and operating at high speed)
n.□X□□	Speed Detection Method Selection Speed Pos Trq
0 Default	Use speed detection 1.
1	Use speed detection 2.
n.X□□□	Reserved (Do not change.)

◆ Pn00A: Application Function Selections A

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 1244h	–	0001h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Motor Stopping Method for Group 2 Alarms Speed Pos Trq
0	Apply the dynamic brake or coast the motor to a stop (use the stopping method set in Pn001 = n.□□□X).
1 Default	Decelerate the motor to a stop using the torque set in Pn406 as the maximum torque. Use the setting of Pn001 = n.□□□X for the status after stopping.
2	Decelerate the motor to a stop using the torque set in Pn406 as the maximum torque and then let the motor coast.
3	Decelerate the motor to a stop using the deceleration time set in Pn30A. Use the setting of Pn001 = n.□□□X for the status after stopping.
4	Decelerate the motor to a stop using the deceleration time set in Pn30A and then let the motor coast.
n.□□X□	Stopping Method for Forced Stops Speed Pos Trq
0 Default	Apply the dynamic brake or coast the motor to a stop (use the stopping method set in Pn001 = n.□□□X).
1	Decelerate the motor to a stop using the torque set in Pn406 as the maximum torque. Use the setting of Pn001 = n.□□□X for the status after stopping.
2	Decelerate the motor to a stop using the torque set in Pn406 as the maximum torque and then let the motor coast.
3	Decelerate the motor to a stop using the deceleration time set in Pn30A. Use the setting of Pn001 = n.□□□X for the status after stopping.
4	Decelerate the motor to a stop using the deceleration time set in Pn30A and then let the motor coast.
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn00B: Application Function Selections B

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 1121h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Operator Parameter Display Selection Speed Pos Trq
0 Default	Display only setup parameters.
1	Display all parameters.
n.□□X□	Motor Stopping Method for Group 2 Alarms Speed Pos Trq
0 Default	Stop the motor by setting the speed reference to 0.
1	Apply the dynamic brake or coast the motor to a stop (use the stopping method set in Pn001 = n.□□□X).
2	Set the stopping method with Pn00A = n.□□□X.
n.□X□□	Power Input Selection for Three-phase SERVOPACK Speed Pos Trq
0 Default	Use a three-phase power supply input.
1	Use a three-phase power supply input as a single-phase power supply input.
n.X□□□	Reserved (Do not change.)

◆ Pn00C: Application Function Selections C

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0141h	–	0040h	–	After restart	Setup	–

Digit	Meaning	Appli-cable Motors
n.□□□X	Function Selection for Test without a Motor Speed Pos Trq	–
0 Default	Disable tests without a motor.	All
1	Enable tests without a motor.	All
n.□□X□	Encoder Resolution for Tests without a Motor Speed Pos Trq	–
0	Use 13 bits.	Rotary
1	Use 20 bits.	Rotary
2	Use 22 bits.	Rotary
3	Use 24 bits.	Rotary
4 Default	Use 26 bits.	Rotary
n.□X□□	Encoder Type Selection for Tests without a Motor Speed Pos Trq	–
0 Default	Use an incremental encoder.	All
1	Use an absolute encoder.	All
n.X□□□	Reserved (Do not change.)	–

◆ Pn00D: Application Function Selections D

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2001h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Reserved (Do not change.)
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Overtravel Warning Detection Selection Speed Pos Trq
0 Default	Do not detect overtravel warnings.
1	Detect overtravel warnings.
2	Detect overtravel alarms.

◆ Pn00E: Application Function Selections E

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 4001h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Reserved (Do not change.)
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	External Encoder Monitor Usage Speed Pos Trq
0 Default	Do not use an external encoder monitor.
1	Use CCW as the forward direction.
2	Reserved (Do not use.)
3	Use CW as the forward direction.
4	Reserved (Do not use.)

◆ Pn00F: Application Function Selections F

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2021h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	SERVOPACK Preventative Maintenance Warning Selection Speed Pos Trq
0 Default	Do not detect SERVOPACK preventative maintenance warnings.
1	Detect SERVOPACK preventative maintenance warnings.
n.□□X□	Servomotor Preventative Maintenance Warning Selection Speed Pos Trq
0 Default	Do not detect servomotor preventative maintenance warnings.
1	Detect servomotor preventative maintenance warnings.
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn021: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	–	–	0000h	All	–	–	–

◆ Pn022: Application Function Selections 22

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0011h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Overtravel Release Method Selection Speed Pos Trq
0 Default	Overtravel exists while the P-OT or N-OT signal is being input.
1	Overtravel exists while the P-OT or N-OT signal is input and the current position of the workpiece is separated from the P-OT signal or N-OT signal.
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn02F: Application Function Selections 2F

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0002h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Selection of Capacitor Discharge Mode When Main Circuit Power OFF Speed Pos Trq
0 Default	• SGDXS-R70A to -200A： Do not perform rapid discharge. • SGDXS-330A to -780A： Perform rapid discharge.
1	Perform rapid discharge.
2	Reserved (Do not use.)
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn030: Ethernet IP Address

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
4	00000000h to FFFFFFFFh	–	C0A80101h	All	After restart	Setup	–

◆ Pn032: Ethernet Subnet Mask

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
4	00000000h to FFFFFFFFh	–	FFFFFF00h	All	After restart	Setup	–

◆ Pn034: Ethernet Default Gateway

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	00000000h to FFFFFFFFh	–	00000000h	All	After restart	Setup	–

◆ Pn040: Sigma-V/Sigma-7 Compatible Function Switch

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 2112h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Σ-X/Σ-7 Compatibility Mode Selection Speed Pos Trq
0 Default	Perform Sigma-X communications.
1	Reserved (Do not use.)
2	Perform Sigma-7 communications.
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn050: SigmaLINK II Response Data Selection 1

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	00000000h to FF7EFFFFh	–	00000000h	All	After restart	Setup	–

Digit	Meaning
n.□□□□XXXX	Parameter Number (0000h to FFFFh)
n.□□XX□□□□	Node Address (10h to 1Eh)
n.XX□□□□□□	Reserved.

◆ Pn052: SigmaLINK II Response Data Selection 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	00000000h to FF7EFFFFh	–	00000000h	All	After restart	Setup	–

Digit	Meaning
n.□□□□XXXX	Parameter Number (0000h to FFFFh)
n.□□XX□□□□	Node Address (10h to 1Eh)
n.XX□□□□□□	Reserved.

◆ Pn054: SigmaLINK II Response Data Selection 3

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
4	00000000h to FF7EFFFFh	–	00000000h	All	After restart	Setup	–

Digit	Meaning
n.□□□□XXXX	Parameter Number (0000h to FFFFh)
n.□□XX□□□□	Node Address (10h to 1Eh)
n.XX□□□□□□	Reserved.

◆ Pn056: SigmaLINK II Response Data Selection 4

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
4	00000000h to FF7EFFFFh	–	00000000h	All	After restart	Setup	–

Digit	Meaning
n.□□□□XXXX	Parameter Number (0000h to FFFFh)
n.□□XX□□□□	Node Address (10h to 1Eh)
n.XX□□□□□□	Reserved.

◆ Pn058: SigmaLINK II Response Data Selection 5

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
4	00000000h to FF7EFFFFh	–	00000000h	All	After restart	Setup	–

Digit	Meaning
n.□□□□XXXX	Parameter Number (0000h to FFFFh)
n.□□XX□□□□	Node Address (10h to 1Eh)
n.XX□□□□□□	Reserved.

◆ Pn05A: SigmaLINK II Response Data Selection 6

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
4	00000000h to FF7EFFFFh	–	00000000h	All	After restart	Setup	–

Digit	Meaning
n.□□□□XXXX	Parameter Number (0000h to FFFFh)
n.□□XX□□□□	Node Address (10h to 1Eh)
n.XX□□□□□□	Reserved.

◆ Pn05C: SigmaLINK II Response Data Selection 7

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
4	00000000h to FF7EFFFFh	–	00000000h	All	After restart	Setup	–

Digit	Meaning
n.□□□□XXXX	Parameter Number (0000h to FFFFh)
n.□□XX□□□□	Node Address (10h to 1Eh)
n.XX□□□□□□	Reserved.

◆ Pn05E: SigmaLINK II Response Data Selection 8

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
4	00000000h to FF7EFFFFh	–	00000000h	All	After restart	Setup	–

Digit	Meaning
n.□□□□XXXX	Parameter Number (0000h to FFFFh)
n.□□XX□□□□	Node Address (10h to 1Eh)
n.XX□□□□□□	Reserved.

◆ Pn080: Application Function Selections 80

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 1111h	–	0000h	Linear	After restart	Setup	–

Digit	Meaning
n.□□□X	Polarity Sensor Selection — Speed Pos Trq
0 Default	Use polarity sensor.
1	Do not use polarity sensor.
n.□□X□	Motor Phase Sequence Selection — Speed Pos Trq
0 Default	Set a phase-A lead as a phase sequence of U, V, and W.
1	Set a phase-B lead as a phase sequence of U, V, and W.
n.□X□□	Reserved (Do not change.)
n.X□□□	Calculation Method for Maximum Speed or Encoder Output Pulses — Speed Pos Trq
0 Default	Calculate the encoder output pulse setting for a fixed maximum motor speed.
1	Calculate the maximum motor speed for a fixed encoder output pulse setting.

◆ Pn081: Application Function Selections 81

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 1111h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Phase-C Pulse Output Selection Speed Pos Trq
0 Default	Output phase-C pulses only in the forward direction.
1	Output phase-C pulses in both the forward and reverse directions.
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn090: SigmaLINK II Command Data Selection 1 Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	00000000h to FF7EFFFFh	–	00000000h	All	After restart	Setup	–

Digit	Meaning
n.□□□□XXXX	Parameter Number (0000h to FFFFh)
n.□□XX□□□□	Node Address (10h to 1Eh)
n.XX□□□□□□	Reserved.

◆ Pn092: SigmaLINK II Command Data Selection 2 Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	00000000h to FF7EFFFFh	–	00000000h	All	After restart	Setup	–

Digit	Meaning
n.□□□□XXXX	Parameter Number (0000h to FFFFh)
n.□□XX□□□□	Node Address (10h to 1Eh)
n.XX□□□□□□	Reserved.

◆ Pn094: SigmaLINK II Command Data Selection 3 Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	00000000h to FF7EFFFFh	–	00000000h	All	After restart	Setup	–

Digit	Meaning
n.□□□□XXXX	Parameter Number (0000h to FFFFh)
n.□□XX□□□□	Node Address (10h to 1Eh)
n.XX□□□□□□	Reserved.

◆ Pn096: SigmaLINK II Command Data Selection 4

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
4	00000000h to FF7EFFFFh	–	00000000h	All	After restart	Setup	–

Digit	Meaning
n.□□□□XXXX	Parameter Number (0000h to FFFFh)
n.□□XX□□□□	Node Address (10h to 1Eh)
n.XX□□□□□□	Reserved.

◆ Pn0B1: SigmaLINK II Sequence Input Allocation 1

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to FFFFh	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□XX	SigmaLINK II Response Data Selection Speed Pos Trq
00 Default	Disable (data is not set to the SigmaLINK II sequence input).
01	Allocate SigmaLINK II Response Data 1 to the SigmaLINK II sequence input.
02	Allocate SigmaLINK II Response Data 2 to the SigmaLINK II sequence input.
03	Allocate SigmaLINK II Response Data 3 to the SigmaLINK II sequence input.
04	Allocate SigmaLINK II Response Data 4 to the SigmaLINK II sequence input.
05	Allocate SigmaLINK II Response Data 5 to the SigmaLINK II sequence input.
06	Allocate SigmaLINK II Response Data 6 to the SigmaLINK II sequence input.
07	Allocate SigmaLINK II Response Data 7 to the SigmaLINK II sequence input.
08	Allocate SigmaLINK II Response Data 8 to the SigmaLINK II sequence input.
n.XX□□	SigmaLINK II Sequence Input Allocation Start Position Selection Speed Pos Trq
00 to 20	Specify the allocation start bit to the SigmaLINK II sequence input.

◆ Pn0B2: SigmaLINK II Sequence Input Allocation 2

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to FFFFh	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□XX	SigmaLINK II Response Data Selection Speed Pos Trq
00 Default	Disable (data is not set to the SigmaLINK II sequence input).
01	Allocate SigmaLINK II Response Data 1 to the SigmaLINK II sequence input.
02	Allocate SigmaLINK II Response Data 2 to the SigmaLINK II sequence input.
03	Allocate SigmaLINK II Response Data 3 to the SigmaLINK II sequence input.
04	Allocate SigmaLINK II Response Data 4 to the SigmaLINK II sequence input.
05	Allocate SigmaLINK II Response Data 5 to the SigmaLINK II sequence input.
06	Allocate SigmaLINK II Response Data 6 to the SigmaLINK II sequence input.
07	Allocate SigmaLINK II Response Data 7 to the SigmaLINK II sequence input.
08	Allocate SigmaLINK II Response Data 8 to the SigmaLINK II sequence input.
n.XX□□	SigmaLINK II Sequence Input Allocation Start Position Selection Speed Pos Trq
00 to 20	Specify the allocation start bit to the SigmaLINK II sequence input.

◆ Pn0B5: SigmaLINK II Sequence Output Allocation 1

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to FFFFh	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□XX	SigmaLINK II Command Data Selection Speed Pos Trq
00 Default	Disable (data is not set to the SigmaLINK II sequence output).
01	Allocate SigmaLINK II Command Data 1 to the SigmaLINK II sequence output.
02	Allocate SigmaLINK II Command Data 2 to the SigmaLINK II sequence output.
03	Allocate SigmaLINK II Command Data 3 to the SigmaLINK II sequence output.
04	Allocate SigmaLINK II Command Data 4 to the SigmaLINK II sequence output.
n.XX□□	SigmaLINK II Sequence Output Allocation Start Position Selection Speed Pos Trq
00 to 20	Specify the allocation start bit to the SigmaLINK II sequence output.

◆ Pn0DA: SigmaLINK II Semi-closed Encoder Selection

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 011Eh	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□XX	Node Address Speed Pos Trq
00 to 1E	Select an encoder with a node address between 00h and 1Eh.
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn0DB: SigmaLINK II Fully-closed Encoder Selection

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 011Eh	–	0101h	All	After restart	Setup	–

Digit	Meaning
n.□□XX	Node Address Speed Pos Trq
00 to 1E	Select an encoder with a node address between 00h and 1Eh.
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn0DC: SigmaLINK II Node Change Detection Condition Selection

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0003h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Connected Node Change Detection Condition Speed Pos Trq
0 Default	Set vendor ID and product ID as conditions.
1	Set vendor ID, product ID, and serial number as conditions.
2	Set vendor ID, product ID, and product version as conditions.
3	Set vendor ID, product ID, product version, and serial number as conditions.
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn0DD: SigmaLINK II I/O Device Error Detection Selection

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to F4F2h	–	0110h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	SigmaLINK II I/O Device Communications Check Mask Speed Pos Trq
0 Default	Set SigmaLINK II slave communications error as an alarm (A.Cd7).
1	Set SigmaLINK II slave communications error as a warning (A.932).
2	Do not detect the SigmaLINK II slave communications error.
n.□□X□	Reserved (Do not change.)
n.□X□□	SigmaLINK II I/O Device Status Check Mask Speed Pos Trq
0	A.Cd8 occurs when the alarm or warning signal is received from the SigmaLINK II slave.
1 Default	A.Cd8 occurs when the alarm signal is received from the SigmaLINK II slave and A.933 occurs when the warning signal is received.
2	A.933 occurs when the alarm or warning signal is received from the SigmaLINK II slave.
3	Do not detect the SigmaLINK II slave status error.
n.X□□□	Reserved (Do not change.)

◆ Pn100: Speed Loop Gain

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 20000	0.1 Hz	400	All	Immediately	Tuning	–

◆ Pn101: Speed Loop Integral Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	15 to 51200	0.01 ms	2000	All	Immediately	Tuning	–

◆ Pn102: Position Loop Gain

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 20000	0.1/s	400	All	Immediately	Tuning	–

◆ Pn103: Moment of Inertia Ratio

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65535	1%	100	All	Immediately	Tuning	–

◆ Pn104: Second Speed Loop Gain

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 20000	0.1 Hz	400	All	Immediately	Tuning	–

◆ Pn105: Second Speed Loop Integral Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	15 to 51200	0.01 ms	2000	All	Immediately	Tuning	–

◆ Pn106: Second Position Loop Gain

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 20000	0.1/s	400	All	Immediately	Tuning	–

◆ Pn109: Feedforward

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 100	1%	0	All	Immediately	Tuning	–

◆ Pn10A: Feedforward Filter Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 6400	0.01 ms	0	All	Immediately	Tuning	–

◆ Pn10B: Gain Application Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 5334h	–	0000h	All	–	Setup	–

Digit	Meaning	When Enabled
n.□□□X	Mode Switching Selection Speed Pos Trq	–
0 Default	Use the internal torque reference as the condition (level setting: Pn10C).	Immediately
1	Use the speed reference as the condition (level setting: Pn10D).	Immediately
	Use the speed reference as the condition (level setting: Pn181).	
2	Use the acceleration reference as the condition (level setting: Pn10E).	Immediately
	Use the acceleration reference as the condition (level setting: Pn182).	
3	Use the position deviation as the condition (level setting: Pn10F).	Immediately
4	Do not use mode switching.	Immediately
n.□□X□	Speed Loop Control Method Speed Pos Trq	–
0 Default	PI control	After restart
1	I-P control	After restart
2, 3	Reserved (Do not use.)	After restart
n.□X□□	Reserved (Do not change.)	–
n.X□□□	Reserved (Do not change.)	–

◆ Pn10C: Mode Switching Level for Torque Reference

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 800	1%	200	All	Immediately	Tuning	–

◆ Pn10D: Mode Switching Level for Speed Reference

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10000	1 min^{-1}	0	Rotary	Immediately	Tuning	–

◆ Pn10E: Mode Switching Level for Acceleration

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 30000	1 min^{-1}/s	0	Rotary	Immediately	Tuning	–

◆ Pn10F: Mode Switching Level for Position Deviation

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10000	1 reference unit	0	All	Immediately	Tuning	–

◆ Pn11F: Position Integral Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 50000	0.1 ms	0	All	Immediately	Tuning	–

◆ Pn121: Friction Compensation Gain

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 1000	1%	100	All	Immediately	Tuning	–

◆ Pn122: Second Friction Compensation Gain

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 1000	1%	100	All	Immediately	Tuning	–

◆ Pn123: Friction Compensation Coefficient

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 100	1%	0	All	Immediately	Tuning	–

◆ Pn124: Friction Compensation Frequency Correction

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	-10000 to 10000	0.1 Hz	0	All	Immediately	Tuning	–

◆ Pn125: Friction Compensation Gain Correction

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	1 to 1000	1%	100	All	Immediately	Tuning	–

◆ Pn131: Gain Switching Time 1

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65535	1 ms	0	All	Immediately	Tuning	–

◆ Pn132: Gain Switching Time 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65535	1 ms	0	All	Immediately	Tuning	–

◆ Pn135: Gain Switching Waiting Time 1

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65535	1 ms	0	All	Immediately	Tuning	–

◆ Pn136: Gain Switching Waiting Time 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65535	1 ms	0	All	Immediately	Tuning	–

◆ Pn139: Automatic Gain Switching Selections 1

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0052h	–	0000h	All	Immediately	Tuning	–

Digit	Meaning
n.□□□X	Gain Switching Selection Speed Pos Trq
0 Default	Manual Gain Switching The gain is switched manually with G-SEL in SVCMD_IO.
1	Reserved (Do not use.)
2	Use automatic gain switching pattern 1. The gain settings 1 switch automatically to 2 when switching condition A is satisfied. The gain settings 2 switch automatically to 1 when switching condition A is not satisfied.
n.□□X□	Gain Switching Condition A Speed Pos Trq
0 Default	/COIN (Positioning Completion Output) signal turns ON.
1	/COIN (Positioning Completion Output) signal turns OFF.
2	/NEAR (Near Output) signal turns ON.
3	/NEAR (Near Output) signal turns OFF.
4	Position reference filter output is 0 and position reference input is OFF.
5	Position reference input is ON.
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn13D: Current Gain Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	100 to 2000	1%	2000	All	Immediately	Tuning	–

◆ Pn140: Model Following Control-Related Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 1121h	–	0100h	All	Immediately	Tuning	–

Digit	Meaning
n.□□□X	Model Following Control Selection Speed **Pos** Trq
0 Default	Do not use model following control.
1	Use model following control.
n.□□X□	Vibration Suppression Selection Speed **Pos** Trq
0 Default	Do not perform vibration suppression.
1	Perform vibration suppression for a specific frequency.
2	Perform vibration suppression for two specific frequencies.
n.□X□□	Vibration Suppression Adjustment Selection Speed **Pos** Trq
0	Do not adjust vibration suppression automatically during execution of autotuning without a host reference, autotuning with a host reference, and custom tuning.
1 Default	Adjust vibration suppression automatically during execution of autotuning without a host reference, autotuning with a host reference, and custom tuning.
n.X□□□	Speed Feedforward (VFF)/Torque Feedforward (TFF) Selection Speed **Pos** Trq
0 Default	Do not use model following control and speed/torque feedforward together.
1	Use model following control and speed/torque feedforward together.

◆ Pn141: Model Following Control Gain

Speed **Pos** Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 20000	0.1/s	500	All	Immediately	Tuning	–

◆ Pn142: Model Following Control Gain Correction

Speed **Pos** Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	500 to 2000	0.1%	1000	All	Immediately	Tuning	–

◆ Pn143: Model Following Control Bias in the Forward Direction

Speed **Pos** Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10000	0.1%	1000	All	Immediately	Tuning	–

◆ Pn144: Model Following Control Bias in the Reverse Direction

Speed **Pos** Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10000	0.1%	1000	All	Immediately	Tuning	–

◆ Pn145: Vibration Suppression 1 Frequency A

Speed **Pos** Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 2500	0.1 Hz	500	All	Immediately	Tuning	–

◆ Pn146: Vibration Suppression 1 Frequency B

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 2500	0.1 Hz	700	All	Immediately	Tuning	–

◆ Pn147: Model Following Control Speed Feedforward Compensation

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10000	0.1%	1000	All	Immediately	Tuning	–

◆ Pn148: Second Model Following Control Gain

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 20000	0.1/s	500	All	Immediately	Tuning	–

◆ Pn149: Second Model Following Control Gain Correction

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	500 to 2000	0.1%	1000	All	Immediately	Tuning	–

◆ Pn14A: Vibration Suppression 2 Frequency

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 2000	0.1 Hz	800	All	Immediately	Tuning	–

◆ Pn14B: Vibration Suppression 2 Correction

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 1000	1%	100	All	Immediately	Tuning	–

◆ Pn14F: Control-Related Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 0031h	–	0030h	All	After restart	Tuning	–

Digit	Meaning
n.□□□X	Model Following Control Type Selection — Speed Pos Trq
0 Default	Use overshoot control type for model following control.
1	Use response emphasis type for model following control.
n.□□X□	Tuning-less Type Selection — Speed Pos Trq
0	Use tuning-less type 1.
1	Use tuning-less type 2.
2	Use tuning-less type 3.
3 Default	Use tuning-less type 4.
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn160: Anti-Resonance Control-Related Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0011h	–	0010h	All	Immediately	Tuning	–

Digit	Meaning
n.□□□X	Anti-Resonance Control Selection Speed Pos Trq
0 Default	Do not use anti-resonance control.
1	Use anti-resonance control.
n.□□X□	Anti-Resonance Control Adjustment Selection Speed Pos Trq
0	Do not adjust anti-resonance control automatically during execution of autotuning without a host reference, autotuning with a host reference, and custom tuning.
1 Default	Adjust anti-resonance control automatically during execution of autotuning without a host reference, autotuning with a host reference, and custom tuning.
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn161: Anti-Resonance Frequency

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	10 to 20000	0.1 Hz	1000	All	Immediately	Tuning	–

◆ Pn162: Anti-Resonance Gain Correction

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	1 to 1000	1%	100	All	Immediately	Tuning	–

◆ Pn163: Anti-Resonance Damping Gain

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 300	1%	0	All	Immediately	Tuning	–

◆ Pn164: Anti-Resonance Filter Time Constant 1 Correction

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	-1000 to 1000	0.01 ms	0	All	Immediately	Tuning	–

◆ Pn165: Anti-Resonance Filter Time Constant 2 Correction

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	-1000 to 1000	0.01 ms	0	All	Immediately	Tuning	–

◆ Pn166: Anti-Resonance Damping Gain 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 1000	1%	0	All	Immediately	Tuning	–

◆ Pn170: Tuning-less Function-Related Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2711h	–	1400h	All	–	Setup	–

Digit	Meaning	When Enabled
n.□□□X	Tuning-less Selection Speed Pos Trq	–
0 Default	Disable tuning-less function.	After restart
1	Enable tuning-less function.	After restart
n.□□X□	Speed Control Method Speed Pos Trq	–
0 Default	Use for speed control.	After restart
1	Use for speed control and use host controller for position control.	After restart
n.□X□□	Tuning-less Level Speed Pos Trq	–
0	Set the tuning-less level to 0.	Immediately
1	Set the tuning-less level to 1.	Immediately
2	Set the tuning-less level to 2.	Immediately
3	Set the tuning-less level to 3.	Immediately
4 Default	Set the tuning-less level to 4.	Immediately
5	Set the tuning-less level to 5.	Immediately
6	Set the tuning-less level to 6.	Immediately
7	Set the tuning-less level to 7.	Immediately
n.X□□□	Tuning-less Load Level Speed Pos Trq	–
0	Set the tuning-less load level to 0.	Immediately
1 Default	Set the tuning-less load level to 1.	Immediately
2	Set the tuning-less load level to 2.	Immediately

◆ Pn173: Load Fluctuation Compensation Control-Related Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0001h	–	0000h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	Load Fluctuation Compensation Control Selection Speed Pos Trq
0 Default	Do not use load fluctuation compensation control.
1	Use load fluctuation compensation control.
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn174: Load Fluctuation Compensation Control Response Level Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	10 to 20000	0.1	400	All	Immediately	Tuning	–

◆ Pn181: Mode Switching Level for Speed Reference

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10000	1 mm/s	0	Linear	Immediately	Tuning	–

◆ Pn182: Mode Switching Level for Acceleration

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 30000	1 mm/s^2	0	Linear	Immediately	Tuning	–

◆ Pn205: Multiturn Limit

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65535	1 rev	65535	Rotary	After restart	Setup	–

◆ Pn207: Position Control Function Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 2210h	–	0010h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Reserved (Do not change.)
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	/COIN (Positioning Completion Output) Signal Output Timing Speed Pos Trq
0 Default	Output when the absolute value of the position deviation is the same or less than the setting of Pn522 (Positioning Completed Width).
1	Output when the absolute value of the position error is the same or less than the setting of Pn522 (Positioning Completed Width) and the reference after the position reference filter is 0.
2	Output when the absolute value of the position error is the same or less than the setting of Pn522 (Positioning Completed Width) and the reference input is 0.

◆ Pn20A: Number of External Encoder Scale Pitches

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	4 to 1048576	1 scale pitch/ revolution	32768	Rotary	After restart	Setup	–

◆ Pn20E: Electronic Gear Ratio (Numerator)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	1 to 1073741824	–	64	All	After restart	Setup	–

◆ Pn210: Electronic Gear Ratio (Denominator)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	1 to 1073741824	–	1	All	After restart	Setup	–

◆ Pn212: Number of Encoder Output Pulses

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	16 to 1073741824	1 P/Rev	2048	Rotary	After restart	Setup	–

◆ Pn21D: Encoder Resolution Setting

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 00A1h	–	0080h	Rotary	After restart	Setup	–

Digit	Meaning
n.□□□X	Encoder Resolution Compatibility Selection (Speed Pos Trq)
0 Default	Disable encoder resolution compatibility.
1	Enable encoder resolution compatibility.
n.□□X□	Encoder Resolution Compatibility: Resolution Selection (Speed Pos Trq)
4	Operate as 20-bit encoder.
6	Operate as 22-bit encoder.
8 Default	Operate as 24-bit encoder.
A	Operate as 26-bit encoder.
Other values	Reserved (Do not use.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn22A: Fully-closed Control Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 1003h	–	0000h	Rotary	After restart	Setup	–

Digit	Meaning
n.□□□X	Reserved (Do not change.)
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Fully-closed Control Speed Feedback Selection (Speed Pos Trq)
0 Default	Use motor encoder speed.
1	Use external encoder speed.

◆ Pn230: Position Control Expansion Function Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0001h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Backlash Compensation Direction Speed Pos Trq
0 Default	Compensate forward references.
1	Compensate reverse references.
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn231: Backlash Compensation Value

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
4	-500000 to 500000	0.1 reference unit	0	All	Immediately	Setup	–

◆ Pn233: Backlash Compensation Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 65535	0.01 ms	0	All	Immediately	Setup	–

◆ Pn281: Encoder Output Resolution

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	1 to 4096	1 edge/pitch	20	All	After restart	Setup	–

◆ Pn282: Linear Encoder Scale Pitch

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
4	0 to 6553600	0.01 µm	0	Linear	After restart	Setup	–

◆ Pn304: Jogging Speed

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 10000	Rotary: 1 min^{-1} Direct Drive: 0.1 min^{-1}	500	Rotary	Immediately	Setup	–

◆ Pn305: Soft Start Acceleration Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 12000	1 ms	0	All	Immediately	Setup	–

◆ Pn306: Soft Start Deceleration Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 12000	1 ms	0	All	Immediately	Setup	–

◆ Pn308: Speed Feedback Filter Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65535	0.01 ms	0	All	Immediately	Setup	–

◆ Pn30A: Deceleration Time for Servo OFF and Forced Stops

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 12000	1 ms	0	All	Immediately	Setup	–

◆ Pn30C: Speed Feedforward Average Movement Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 5100	0.1 ms	0	All	Immediately	Setup	–

◆ Pn310: Vibration Detection Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 0002h	–	0000h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	Vibration Detection Selection (Speed Pos Trq)
0 [Default]	Do not detect vibration.
1	Output a warning (A.911) if vibration is detected.
2	Output an alarm (A.520) if vibration is detected.
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn311: Vibration Detection Sensitivity

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	50 to 500	1%	100	All	Immediately	Tuning	–

◆ Pn312: Vibration Detection Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 5000	1 min^{-1}	50	Rotary	Immediately	Tuning	–

◆ Pn316: Maximum Motor Speed

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65535	1 min^{-1}	10000	Rotary	After restart	Setup	–

◆ Pn324: Moment of Inertia Calculation Starting Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 20000	1%	300	All	Immediately	Setup	–

◆ Pn383: Jogging Speed

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10000	1 mm/s	50	Linear	Immediately	Setup	–

◆ Pn384: Vibration Detection Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 5000	1 mm/s	10	Linear	Immediately	Tuning	–

◆ Pn385: Maximum Motor Speed

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	1 to 100	100 mm/s	50	Linear	After restart	Setup	–

◆ Pn401: First Stage First Torque Reference Filter Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65535	0.01 ms	100	All	Immediately	Tuning	–

◆ Pn402: Forward Torque Limit

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 800	1%	800	Rotary	Immediately	Setup	–

Note:
The setting is a percentage of the motor rated torque.

◆ Pn403: Reverse Torque Limit

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 800	1%	800	Rotary	Immediately	Setup	–

Note:
The setting is a percentage of the motor rated torque.

◆ Pn404: Forward External Torque Limit

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 800	1%	100	All	Immediately	Setup	–

Note:
The setting is a percentage of the motor rated torque.

◆ Pn405: Reverse External Torque Limit

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 800	1%	100	All	Immediately	Setup	–

Note:
The setting is a percentage of the motor rated torque.

◆ Pn406: Emergency Stop Torque

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 800	1%	800	All	Immediately	Setup	–

Note:
The setting is a percentage of the motor rated torque.

◆ Pn407: Speed Limit during Torque Control

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 10000	1 min^{-1}	100	Rotary	Immediately	Setup	75

◆ Pn408: Torque-Related Function Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 1111h	–	0000h	All	–	Setup	–

Digit	Meaning	When Enabled
n.□□□X	Notch Filter Selection 1 Speed Pos Trq	–
0 Default	Disable first stage notch filter.	Immediately
1	Enable first stage notch filter.	Immediately
n.□□X□	Speed Limit Selection Speed Pos Trq	–
0 Default	Use the smaller of the maximum motor speed and the setting of Pn407 as the speed limit.	After restart
	Use the smaller of the maximum motor speed and the setting of Pn480 as the speed limit.	
1	Use the smaller of the overspeed alarm detection speed and the setting of Pn407 as the speed limit.	After restart
	Use the smaller of the overspeed alarm detection speed and the setting of Pn480 as the speed limit.	
n.□X□□	Notch Filter Selection 2 Speed Pos Trq	–
0 Default	Disable second stage notch filter.	Immediately
1	Enable second stage notch filter.	Immediately
n.X□□□	Friction Compensation Function Selection Speed Pos Trq	–
0 Default	Disable friction compensation.	Immediately
1	Enable friction compensation.	Immediately

◆ Pn409: First Stage Notch Filter Frequency

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	10 to 5000	1 Hz	5000	All	Immediately	Tuning	–

◆ Pn40A: First Stage Notch Filter Q Value

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	50 to 1000	0.01	70	All	Immediately	Tuning	–

◆ Pn40B: First Stage Notch Filter Depth

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 1000	0.001	0	All	Immediately	Tuning	–

◆ Pn40C: Second Stage Notch Filter Frequency

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 5000	1 Hz	5000	All	Immediately	Tuning	–

◆ Pn40D: Second Stage Notch Filter Q Value

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	50 to 1000	0.01	70	All	Immediately	Tuning	–

◆ Pn40E: Second Stage Notch Filter Depth

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 1000	0.001	0	All	Immediately	Tuning	–

◆ Pn40F: Second Stage Second Torque Reference Filter Frequency

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	100 to 5000	1 Hz	5000	All	Immediately	Tuning	–

◆ Pn410: Second Stage Second Torque Reference Filter Q Value

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	50 to 100	0.01	50	All	Immediately	Tuning	–

◆ Pn412: First Stage Second Torque Reference Filter Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65535	0.01 ms	100	All	Immediately	Tuning	–

◆ Pn416: Torque-Related Function Selections 2

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 1111h	–	0000h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	Notch Filter Selection 3 Speed Pos Trq
0 Default	Disable third stage notch filter.
1	Enable third stage notch filter.
n.□□X□	Notch Filter Selection 4 Speed Pos Trq
0 Default	Disable fourth stage notch filter.
1	Enable fourth stage notch filter.
n.□X□□	Notch Filter Selection 5 Speed Pos Trq
0 Default	Disable fifth stage notch filter.
1	Enable fifth stage notch filter.
n.X□□□	Reserved (Do not change.)

◆ Pn417: Third Stage Notch Filter Frequency

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 5000	1 Hz	5000	All	Immediately	Tuning	–

◆ Pn418: Third Stage Notch Filter Q Value

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	50 to 1000	0.01	70	All	Immediately	Tuning	–

◆ Pn419: Third Stage Notch Filter Depth

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 1000	0.001	0	All	Immediately	Tuning	–

◆ Pn41A: Fourth Stage Notch Filter Frequency

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 5000	1 Hz	5000	All	Immediately	Tuning	–

◆ Pn41B: Fourth Stage Notch Filter Q Value

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	50 to 1000	0.01	70	All	Immediately	Tuning	–

◆ Pn41C: Fourth Stage Notch Filter Depth

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 1000	0.001	0	All	Immediately	Tuning	–

◆ Pn41D: Fifth Stage Notch Filter Frequency

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 5000	1 Hz	5000	All	Immediately	Tuning	–

◆ Pn41E: Fifth Stage Notch Filter Q Value

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	50 to 1000	0.01	70	All	Immediately	Tuning	–

◆ Pn41F: Fifth Stage Notch Filter Depth

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 1000	0.001	0	All	Immediately	Tuning	–

◆ Pn423: Speed Ripple Compensation Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000H to 1112h	–	0002h	–	–	Setup	–

Digit	Meaning	Appli-cable Motors	When Enabled
n.□□□X	Speed Ripple Compensation Function Selection Speed Pos Trq	–	–
0	Do not execute speed ripple compensation.	Rotary	Immediately
1	Execute speed ripple compensation using the value adjusted by the user.	Rotary	Immediately
2 Default	Execute speed ripple compensation using the default adjustment value.	Rotary	Immediately
n.□□X□	Speed Ripple Compensation Information Disagreement Warning Detection Selection Speed Pos Trq	–	–
0 Default	Detect A.942 alarms.	Rotary	After restart
1	Do not detect A.942 alarms.	Rotary	After restart
n.□X□□	Speed Ripple Compensation Enable Condition Selection Speed Pos Trq	–	–
0 Default	Speed Reference	Rotary	After restart
1	Motor Speed	Rotary	After restart
n.X□□□	Speed Ripple Compensation Function Operation Mode Selection Speed Pos Trq	–	–
0 Default	Execute speed ripple compensation in normal mode.	All	After restart
1	Execute speed ripple compensation in press operation mode.	All	After restart
2	Reserved (Do not use.)	All	After restart
3	Reserved (Do not use.)	All	After restart

◆ Pn424: Torque Limit at Main Circuit Voltage Drop

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 100	1%	50	All	Immediately	Setup	–

Note:

The setting is a percentage of the motor rated torque.

◆ Pn425: Release Time for Torque Limit at Main Circuit Voltage Drop

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 1000	1 ms	100	All	Immediately	Setup	–

◆ Pn426: Torque Feedforward Average Movement Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 5100	0.1 ms	0	All	Immediately	Setup	–

◆ Pn427: Speed Ripple Compensation Enable Speed

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 10000	1 min^{-1}	0	Rotary	Immediately	Tuning	–

◆ Pn428: Output Torque Compensation Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0001h	–	0001h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Output Torque Compensation Function Selection Speed Pos Trq
0	Disable output torque compensation.
1 Default	Enable output torque compensation.
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn43D: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	–	–	10000	All	–	–	–

◆ Pn440: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	–	–	0001h	All	–	–	–

◆ Pn441: Pressure Control Function Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2711h	–	0010h	All	–	Setup	–

Digit	Meaning	When Enabled	Refer-ence
n.□□□X	Pressure Control Function Switching Method Selection Speed Pos **Trq**	–	–
0 Default	Switch with parameters (Pn44C and Pn44D).	Immediately	67
1	Switch with host reference (PRES_APRCH command).	Immediately	67
n.□□X□	Pressure Control Type Selection Speed Pos **Trq**	–	–
0	Use pressure control type 1.	After restart	68
1 Default	Use pressure control type 2.	After restart	68
n.□X□□	Contact Environment Condition (Rigidity Level) Speed Pos **Trq**	–	–
0 Default	Set the contact environment condition (rigidity level) to 0 (= highest rigidity level).	Immediately	77
1	Set the contact environment condition (rigidity level) to 1.	Immediately	77
2	Set the contact environment condition (rigidity level) to 2.	Immediately	77
3	Set the contact environment condition (rigidity level) to 3.	Immediately	77
4	Set the contact environment condition (rigidity level) to 4.	Immediately	77
5	Set the contact environment condition (rigidity level) to 5.	Immediately	77
6	Set the contact environment condition (rigidity level) to 6.	Immediately	77
7	Set the contact environment condition (rigidity level) to 7 (= lowest rigidity level).	Immediately	77
n.X□□□	Unit Selection for Pn443 (Pressure Control Integral Time Constant) Speed Pos **Trq**	–	–
0 Default	0.01 ms	Immediately	–
1	0.1 ms	Immediately	–
2	1 ms	Immediately	–

◆ Pn442: Pressure Control Proportional Gain

Speed Pos **Trq**

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 10000	1%	100	All	Immediately	Setup	69

◆ Pn443: Pressure Control Integral Time Constant

Speed Pos **Trq**

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	15 to 51200	Set in Pn441 = n. X□□□	2000	All	Immediately	Setup	69

◆ Pn446: Pressure Control Feedforward

Speed Pos **Trq**

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 1000	1%	0	All	Immediately	Setup	78

◆ Pn447: Pressure Reference Filter Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 65535	0.01 ms	0	All	Immediately	Setup	79

◆ Pn448: Pressure Sensor Offset 0

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	-32768 to 32767	0.001 V	0	All	Immediately	Setup	73

◆ Pn449: Pressure Sensor Gain 0

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 65535	0.01 V/maximum pressure	0	All	Immediately	Setup	72

◆ Pn44A: Pressure Sensor Filter Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 65535	0.01 ms	0	All	Immediately	Setup	75

◆ Pn44C: Pressure Control Enable Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 10000	0.01% (pct. of max. pressure)	1000	All	Immediately	Setup	67

◆ Pn44D: Pressure Control Disable Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 10000	0.01% (pct. of max. pressure)	0	All	Immediately	Setup	67

◆ Pn44E: Pressure Deviation Overflow Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 800	1% (pct. of max. pressure)	100	All	Immediately	Setup	75

◆ Pn44F: Pressure Detection Overflow Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 800	1% (pct. of max. pressure)	300	All	Immediately	Setup	75

◆ Pn450: Pressure Detection Overflow Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 5000	0.1 ms	0	All	Immediately	Setup	75

◆ Pn451: Pressure Control Single Parameter Gain Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	1 to 65535	0.01	100	All	Immediately	Setup	77

◆ Pn456: Sweep Torque Reference Amplitude

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	1 to 800	1%	15	All	Immediately	Tuning	–

◆ Pn458: Pressure Sensor Input Selections 1

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2222h	–	0000h	All	After restart	Setup	70

Digit	Meaning
n.□□□X	Pressure Sensor Input 0 Selection (Dedicated Analog Input) Speed Pos Trq
0 Default	Do not use.
1	Use (do not invert polarity).
2	Use (invert polarity).
n.□□X□	Pressure Sensor Input 1 Selection Speed Pos Trq
0 Default	Do not use.
1	Use input as a sensor hub input (do not invert polarity).
2	Use input as a sensor hub input (invert polarity).
n.□X□□	Pressure Sensor Input 2 Selection Speed Pos Trq
0 Default	Do not use.
1	Use input as a sensor hub input (do not invert polarity).
2	Use input as a sensor hub input (invert polarity).
n.X□□□	Pressure Sensor Input 3 Selection Speed Pos Trq
0 Default	Do not use.
1	Use input as a sensor hub input (do not invert polarity).
2	Use input as a sensor hub input (invert polarity).

◆ Pn459: Pressure Sensor Input Selections 2

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 0022h	–	0000h	All	After restart	Setup	70

Digit	Meaning
n.□□□X	Pressure Sensor Input 4 Selection Speed Pos Trq
0 Default	Do not use.
1	Use input as a sensor hub input (do not invert polarity).
2	Use input as a sensor hub input (invert polarity).
n.□□X□	Pressure Sensor Input 5 Selection Speed Pos Trq
0 Default	Do not use.
1	Use input as a sensor hub input (do not invert polarity).
2	Use input as a sensor hub input (invert polarity).
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn45A: Pressure Sensor Gain 1

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65535	AD value / maximum pressure	0	All	Immediately	Setup	72

◆ Pn45B: Pressure Sensor Gain 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65535	AD value / maximum pressure	0	All	Immediately	Setup	72

◆ Pn45C: Pressure Sensor Gain 3

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65535	AD value / maximum pressure	0	All	Immediately	Setup	72

◆ Pn45D: Pressure Sensor Gain 4

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65535	AD value / maximum pressure	0	All	Immediately	Setup	72

◆ Pn45E: Pressure Sensor Gain 5

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65535	AD value / maximum pressure	0	All	Immediately	Setup	72

◆ Pn460: Notch Filter Adjustment Selections 1

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0101h	–	0101h	All	Immediately	Tuning	–

Digit	Meaning
n.□□□X	Notch Filter Adjustment Selection 1 Speed Pos Trq
0	Do not adjust the first stage notch filter automatically during execution of autotuning without a host reference, autotuning with a host reference, and custom tuning.
1 Default	Adjust the first stage notch filter automatically during execution of autotuning without a host reference, autotuning with a host reference, and custom tuning.
n.□□X□	Reserved (Do not change.)
n.□X□□	Notch Filter Adjustment Selection 2 Speed Pos Trq
0	Do not adjust the second stage notch filter automatically when the tuning-less function is enabled or during execution of auto-tuning without a host reference, autotuning with a host reference, and custom tuning.
1 Default	Adjust the second stage notch filter automatically when the tuning-less function is enabled or during execution of autotuning without a host reference, autotuning with a host reference, and custom tuning.
n.X□□□	Reserved (Do not change.)

◆ Pn467: Pressure Sensor Offset 1

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	-32768 to 32767	AD value	0	All	Immediately	Setup	73

◆ Pn468: Pressure Sensor Offset 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	-32768 to 32767	AD value	0	All	Immediately	Setup	73

◆ Pn469: Pressure Sensor Offset 3

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	-32768 to 32767	AD value	0	All	Immediately	Setup	73

◆ Pn46A: Pressure Sensor Offset 4

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	-32768 to 32767	AD value	0	All	Immediately	Setup	73

◆ Pn46B: Pressure Sensor Offset 5

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	-32768 to 32767	AD value	0	All	Immediately	Setup	73

◆ Pn475: Gravity Compensation-Related Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0001h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Gravity Compensation Selection Speed Pos Trq
0 Default	Disable gravity compensation.
1	Enable gravity compensation.
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn476: Gravity Compensation Torque Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	-1000 to 1000	0.1%	0	All	Immediately	Tuning	–

◆ Pn480: Speed Limit during Force Control Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 10000	1 mm/s	100	Linear	Immediately	Setup	75

◆ Pn481: Polarity Detection Speed Loop Gain Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	10 to 20000	0.1 Hz	400	Linear	Immediately	Tuning	–

◆ Pn482: Polarity Detection Speed Loop Integral Time Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	15 to 51200	0.01 ms	3000	Linear	Immediately	Tuning	–

◆ Pn483: Forward Force Limit Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 800	1%	30	Linear	Immediately	Setup	–

Note:
The setting is a percentage of the motor rated torque.

◆ Pn484: Reverse Force Limit Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 800	1%	30	Linear	Immediately	Setup	–

Note:
The setting is a percentage of the motor rated torque.

◆ Pn485: Polarity Detection Reference Speed

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 100	1 mm/s	20	Linear	Immediately	Tuning	–

◆ Pn486: Polarity Detection Reference Acceleration/Deceleration Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 100	1 ms	25	Linear	Immediately	Tuning	–

◆ Pn487: Polarity Detection Constant Speed Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 300	1 ms	0	Linear	Immediately	Tuning	–

◆ Pn488: Polarity Detection Reference Waiting Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	50 to 500	1 ms	100	Linear	Immediately	Tuning	–

◆ Pn48E: Polarity Detection Range

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	1 to 65535	1 mm	10	Linear	Immediately	Tuning	–

◆ Pn490: Polarity Detection Load Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 20000	1%	100	Linear	Immediately	Tuning	–

◆ Pn495: Polarity Detection Confirmation Force Reference

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 200	1%	100	Linear	Immediately	Tuning	–

◆ Pn498: Polarity Detection Allowable Error Range

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 30	1 deg	10	Linear	Immediately	Tuning	–

◆ Pn49F: Speed Ripple Compensation Enable Speed (Linear)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10000	1 mm/s	0	Linear	Immediately	Tuning	–

◆ Pn4A0: Pressure Conversion Gain (Numerator)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	1 to 1073741824	–	1	All	After restart	Setup	70

◆ Pn4A2: Pressure Conversion Gain (Denominator)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
4	1 to 1073741824	–	1	All	After restart	Setup	70

◆ Pn4A4: Forward Pressure Limit during Approach Operation

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 10000	0.01% (pct. of max. pressure)	10000	All	Immediately	Setup	75

◆ Pn4A5: Reverse Pressure Limit during Approach Operation

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 10000	0.01% (pct. of max. pressure)	10000	All	Immediately	Setup	75

◆ Pn502: Rotation Detection Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	1 to 10000	1 min^{-1}	20	Rotary	Immediately	Setup	–

◆ Pn503: Speed Coincidence Detection Signal Output Width

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 100	1 min^{-1}	10	Rotary	Immediately	Setup	–

◆ Pn506: Brake Reference-Servo OFF Delay Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 50	10 ms	0	All	Immediately	Setup	–

◆ Pn507: Brake Reference Output Speed Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 10000	1 min^{-1}	100	Rotary	Immediately	Setup	–

◆ Pn508: Servo OFF-Brake Command Waiting Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	10 to 100	10 ms	50	All	Immediately	Setup	–

◆ Pn509: Momentary Power Interruption Hold Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	20 to 50000	1 ms	20	All	Immediately	Setup	–

◆ Pn50A: Input Signal Selections 1

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to FFF2h	–	1881h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Input Signal Allocation Mode Speed Pos Trq
0	Reserved (Do not use.)
1 Default	Use Pn50A to Pn516 (Sigma-7S-compatible I/O signal allocation mode).
2	Use Pn590 to Pn5BC (SigmaLINK II input signal allocation mode).
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	P-OT (Forward Drive Prohibit Input) Signal Allocation Speed Pos Trq
0	Enable forward drive when CN1-13 input signal is ON (closed).
1 Default	Enable forward drive when CN1-7 input signal is ON (closed).
2	Enable forward drive when CN1-8 input signal is ON (closed).
3	Enable forward drive when CN1-9 input signal is ON (closed).
4	Enable forward drive when CN1-10 input signal is ON (closed).
5	Enable forward drive when CN1-11 input signal is ON (closed).
6	Enable forward drive when CN1-12 input signal is ON (closed).
7	Set the signal to always prohibit forward drive.
8	Set the signal to always enable forward drive.
9	Enable forward drive when CN1-13 input signal is OFF (open).
A	Enable forward drive when CN1-7 input signal is OFF (open).
B	Enable forward drive when CN1-8 input signal is OFF (open).
C	Enable forward drive when CN1-9 input signal is OFF (open).
D	Enable forward drive when CN1-10 input signal is OFF (open).
E	Enable forward drive when CN1-11 input signal is OFF (open).
F	Enable forward drive when CN1-12 input signal is OFF (open).

◆ Pn50B: Input Signal Selections 2

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to FFFFh	–	8882h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	N-OT (Reverse Drive Prohibit Input) Signal Allocation Speed Pos Trq
0	Enable reverse drive when CN1-13 input signal is ON (closed).
1	Enable reverse drive when CN1-7 input signal is ON (closed).
2 Default	Enable reverse drive when CN1-8 input signal is ON (closed).
3	Enable reverse drive when CN1-9 input signal is ON (closed).
4	Enable reverse drive when CN1-10 input signal is ON (closed).
5	Enable reverse drive when CN1-11 input signal is ON (closed).
6	Enable reverse drive when CN1-12 input signal is ON (closed).
7	Set the signal to always prohibit reverse drive.
8	Set the signal to always enable reverse drive.
9	Enable reverse drive when CN1-13 input signal is OFF (open).
A	Enable reverse drive when CN1-7 input signal is OFF (open).
B	Enable reverse drive when CN1-8 input signal is OFF (open).
C	Enable reverse drive when CN1-9 input signal is OFF (open).
D	Enable reverse drive when CN1-10 input signal is OFF (open).
E	Enable reverse drive when CN1-11 input signal is OFF (open).
F	Enable reverse drive when CN1-12 input signal is OFF (open).
n.□□X□	Reserved (Do not change.)
n.□X□□	/P-CL (Forward External Torque Limit Input) Signal Allocation Speed Pos Trq
0	Active when CN1-13 input signal is ON (closed).
1	Active when CN1-7 input signal is ON (closed).
2	Active when CN1-8 input signal is ON (closed).
3	Active when CN1-9 input signal is ON (closed).
4	Active when CN1-10 input signal is ON (closed).
5	Active when CN1-11 input signal is ON (closed).
6	Active when CN1-12 input signal is ON (closed).
7	The signal is always active.
8 Default	The signal is always inactive.
9	Active when CN1-13 input signal is OFF (open).
A	Active when CN1-7 input signal is OFF (open).
B	Active when CN1-8 input signal is OFF (open).
C	Active when CN1-9 input signal is OFF (open).
D	Active when CN1-10 input signal is OFF (open).
E	Active when CN1-11 input signal is OFF (open).
F	Active when CN1-12 input signal is OFF (open).
n.X□□□	/N-CL (Reverse External Torque Limit Input) Signal Allocation Speed Pos Trq
0 to F	The allocations are the same as the /P-CL (Forward External Torque Limit Input) signal allocations.

◆ Pn50E: Output Signal Selections 1

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 6666h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	/COIN (Positioning Completion Output) Signal Allocation Speed Pos Trq
0 Default	Disabled (the above signal output is not used).
1	Output the signal from the CN1-1 or CN1-2 output terminal.
2	Output the signal from the CN1-23 or CN1-24 output terminal.
3	Output the signal from the CN1-25 or CN1-26 output terminal.
4	Reserved (Do not use.)
5	Reserved (Do not use.)
6	Reserved (Do not use.)
Other values	Disabled (the above signal output is not used).
n.□□X□	/V-CMP (Speed Coincidence Detection Output) Signal Allocation Speed Pos Trq
0 to 6	The allocations are the same as the /COIN (Positioning Completion Output) signal allocations.
n.□X□□	/TGON (Rotation Detection Output) Signal Allocation Speed Pos Trq
0 to 6	The allocations are the same as the /COIN (Positioning Completion Output) signal allocations.
n.X□□□	/S-RDY (Servo Ready Output) Signal Allocation Speed Pos Trq
0 to 6	The allocations are the same as the /COIN (Positioning Completion Output) signal allocations.

◆ Pn50F: Output Signal Selections 2

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 6666h	–	0100h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	/CLT (Torque Limit Detection Output) Signal Allocation Speed Pos Trq
0 Default	Disabled (the above signal output is not used).
1	Output the signal from the CN1-1 or CN1-2 output terminal.
2	Output the signal from the CN1-23 or CN1-24 output terminal.
3	Output the signal from the CN1-25 or CN1-26 output terminal.
4	Reserved (Do not use.)
5	Reserved (Do not use.)
6	Reserved (Do not use.)
Other values	Disabled (the above signal output is not used).
n.□□X□	/VLT (Speed Limit Detection Output) Signal Allocation Speed Pos Trq
0 to 6	The allocations are the same as the /CLT (Torque Limit Detection Output) signal allocations.
n.□X□□	/BK (Brake Output) Signal Allocation Speed Pos Trq
0 to 6	The allocations are the same as the /CLT (Torque Limit Detection Output) signal allocations.
n.X□□□	/WARN (Warning Output) Signal Allocation Speed Pos Trq
0 to 6	The allocations are the same as the /CLT (Torque Limit Detection Output) signal allocations.

◆ Pn510: Output Signal Selections 3

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0666h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	/NEAR (Near Output) Signal Allocation Speed Pos Trq
0 Default	Disabled (the above signal output is not used).
1	Output the signal from the CN1-1 or CN1-2 output terminal.
2	Output the signal from the CN1-23 or CN1-24 output terminal.
3	Output the signal from the CN1-25 or CN1-26 output terminal.
4	Reserved (Do not use.)
5	Reserved (Do not use.)
6	Reserved (Do not use.)
Other values	Disabled (the above signal output is not used).
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn511: Input Signal Selections 5

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to FFFFh	–	6543h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	/DEC (Origin Return Deceleration Switch Input) Signal Allocation Speed Pos Trq
0	Active when CN1-13 input signal is ON (closed).
1	Active when CN1-7 input signal is ON (closed).
2	Active when CN1-8 input signal is ON (closed).
3 Default	Active when CN1-9 input signal is ON (closed).
4	Active when CN1-10 input signal is ON (closed).
5	Active when CN1-11 input signal is ON (closed).
6	Active when CN1-12 input signal is ON (closed).
7	The signal is always active.
8	The signal is always inactive.
9	Active when CN1-13 input signal is OFF (open).
A	Active when CN1-7 input signal is OFF (open).
B	Active when CN1-8 input signal is OFF (open).
C	Active when CN1-9 input signal is OFF (open).
D	Active when CN1-10 input signal is OFF (open).
E	Active when CN1-11 input signal is OFF (open).
F	Active when CN1-12 input signal is OFF (open).
n.□□X□	/EXT1 (External Latch Input 1) Signal Allocation Speed Pos Trq
0 to 3	The signal is always inactive.
4 Default	Active when CN1-10 input signal is ON (closed).
5	Active when CN1-11 input signal is ON (closed).
6	Active when CN1-12 input signal is ON (closed).
7 to C	The signal is always inactive.
D	Active when CN1-10 input signal is OFF (open).
E	Active when CN1-11 input signal is OFF (open).
F	Active when CN1-12 input signal is OFF (open).
n.□X□□	/EXT2 (External Latch Input 2) Signal Allocation Speed Pos Trq
0 to F	The allocations are the same as the /EXT1 (External Latch Input 1) signal allocations.
n.X□□□	/EXT3 (External Latch Input 3) Signal Allocation Speed Pos Trq
0 to F	The allocations are the same as the /EXT1 (External Latch Input 1) signal allocations.

◆ Pn512: Output Signal Inverse Settings

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 1111h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Output Signal Inversion for CN1-1 and CN1-2 Terminals Speed Pos Trq
0 Default	The signal is not inverted.
1	The signal is inverted.
n.□□X□	Output Signal Inversion for CN1-23 and CN1-24 Terminals Speed Pos Trq
0 Default	The signal is not inverted.
1	The signal is inverted.
n.□X□□	Output Signal Inversion for CN1-25 and CN1-26 Terminals Speed Pos Trq
0 Default	The signal is not inverted.
1	The signal is inverted.
n.X□□□	Reserved (Do not change.)

◆ Pn514: Output Signal Selections 4

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0666h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Reserved (Do not change.)
n.□□X□	Reserved (Do not change.)
n.□X□□	/PM (Preventative Maintenance Output) Signal Allocation Speed Pos Trq
0 Default	Disabled (the above signal output is not used).
1	Output the signal from the CN1-1 or CN1-2 output terminal.
2	Output the signal from the CN1-23 or CN1-24 output terminal.
3	Output the signal from the CN1-25 or CN1-26 output terminal.
4	Reserved (Do not use.)
5	Reserved (Do not use.)
6	Reserved (Do not use.)
Other values	Disabled (the above signal output is not used).
n.X□□□	Reserved (Do not change.)

◆ Pn516: Input Signal Selections 7

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to FFFFh	–	8888h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	FSTP (Forced Stop Input) Signal Allocation Speed Pos Trq
0	Enable drive when CN1-13 input signal is ON (closed).
1	Enable drive when CN1-7 input signal is ON (closed).
2	Enable drive when CN1-8 input signal is ON (closed).
3	Enable drive when CN1-9 input signal is ON (closed).
4	Enable drive when CN1-10 input signal is ON (closed).
5	Enable drive when CN1-11 input signal is ON (closed).
6	Enable drive when CN1-12 input signal is ON (closed).
7	Set the signal to always prohibit drive (always force the motor to stop).
8 Default	Set the signal to always enable drive (always disable forcing the motor to stop).
9	Enable drive when CN1-13 input signal is OFF (open).
A	Enable drive when CN1-7 input signal is OFF (open).
B	Enable drive when CN1-8 input signal is OFF (open).
C	Enable drive when CN1-9 input signal is OFF (open).
D	Enable drive when CN1-10 input signal is OFF (open).
E	Enable drive when CN1-11 input signal is OFF (open).
F	Enable drive when CN1-12 input signal is OFF (open).
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn518: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
–	–	–	–	All	–	–	–

◆ Pn51B: Motor-Load Position Deviation Overflow Detection Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
4	0 to 1073741824	1 reference unit	1000	Rotary	Immediately	Setup	–

◆ Pn51E: Position Deviation Overflow Warning Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	10 to 100	1%	100	All	Immediately	Setup	–

◆ Pn520: Position Deviation Overflow Alarm Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
4	1 to 1073741823	1 reference unit	6116694	All	Immediately	Setup	–

◆ Pn522: In-position Range

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	0 to 1073741824	1 reference unit	7	All	Immediately	Setup	–

◆ Pn524: Near Signal Width

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	1 to 1073741824	1 reference unit	1073741824	All	Immediately	Setup	–

◆ Pn526: Position Deviation Overflow Alarm Level at Servo ON

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	1 to 1073741823	1 reference unit	6116694	All	Immediately	Setup	–

◆ Pn528: Position Deviation Overflow Warning Level at Servo ON

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 100	1%	100	All	Immediately	Setup	–

◆ Pn529: Speed Limit Level at Servo ON

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10000	1 min^{-1}	10000	Rotary	Immediately	Setup	–

◆ Pn52A: Multiplier per Fully-closed Rotation

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 100	1%	20	Rotary	Immediately	Tuning	–

◆ Pn52B: Overload Warning Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	1 to 100	1%	20	All	After restart	Setup	–

◆ Pn52C: Base Current Derating at Motor Overload Detection

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 100	1%	100	All	After restart	Setup	–

◆ Pn530: Program Jogging-Related Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0005h	–	0000h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	Program Jogging Operation Pattern Speed Pos Trq
0 Default	(Waiting time in Pn535 → Forward by travel distance in Pn531) × Number of movements in Pn536
1	(Waiting time in Pn535 → Reverse by travel distance in Pn531) × Number of movements in Pn536
2	(Waiting time in Pn535 → Forward by travel distance in Pn531) × Number of movements in Pn536 (Waiting time in Pn535 → Reverse by travel distance in Pn531) × Number of movements in Pn536
3	(Waiting time in Pn535 → Reverse by travel distance in Pn531) × Number of movements in Pn536 (Waiting time in Pn535 → Forward by travel distance in Pn531) × Number of movements in Pn536
4	(Waiting time in Pn535 → Forward by travel distance in Pn531 → Waiting time in Pn535 → Reverse by travel distance in Pn531) × Number of movements in Pn536
5	(Waiting time in Pn535 → Reverse by travel distance in Pn531 → Waiting time in Pn535 → Forward by travel distance in Pn531) × Number of movements in Pn536
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn531: Program Jogging Travel Distance Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
4	1 to 1073741824	1 reference unit	32768	All	Immediately	Setup	–

◆ Pn533: Program Jogging Movement Speed Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	1 to 10000	Rotary: 1 min^{-1} Direct Drive: 0.1 min^{-1}	500	Rotary	Immediately	Setup	–

◆ Pn534: Program Jogging Acceleration/Deceleration Time Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	2 to 10000	1 ms	100	All	Immediately	Setup	–

◆ Pn535: Program Jogging Waiting Time Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 10000	1 ms	100	All	Immediately	Setup	–

◆ Pn536: Program Jogging Number of Movements Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 1000	1 time	1	All	Immediately	Setup	–

◆ Pn540: Maximum Search Gain

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 4000	0.1 Hz	3000	All	Immediately	Tuning	–

◆ Pn550: Analog Monitor 1 Offset Voltage

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	-10000 to 10000	0.1 V	0	All	Immediately	Setup	–

◆ Pn551: Analog Monitor 2 Offset Voltage

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	-10000 to 10000	0.1 V	0	All	Immediately	Setup	–

◆ Pn552: Analog Monitor 1 Magnification

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	-10000 to 10000	× 0.01	100	All	Immediately	Setup	–

◆ Pn553: Analog Monitor 2 Magnification

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	-10000 to 10000	× 0.01	100	All	Immediately	Setup	–

◆ Pn55A: Power Consumption Monitor Unit Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	1 to 1440	1 min	1	All	Immediately	Setup	–

◆ Pn55C: Function Selections to Specify Output Status When a Host Communications Error Occurs

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 0001h	–	0001h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Function Selection to Specify Output Status When a Host Communications Error Occurs Speed Pos Trq
0	Do not use the function to specify the output status when a host communications error occurs.
1 Default	Use the function to specify the output status when a host communications error occurs.
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn55D: Specify Output Status When a Host Communications Error Occurs

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 001Fh	–	0000h	All	After restart	Setup	–

Bit	Meaning
Bit 0	Use the SO1 output (0: OFF when there is a host communications error, 1: ON when there is a host communications error)
Bit 1	Use the SO2 output (0: OFF when there is a host communications error, 1: ON when there is a host communications error)
Bit 2	Use the SO3 output (0: OFF when there is a host communications error, 1: ON when there is a host communications error)
Bits 3 to 15	Reserved (Do not use.)

◆ Pn560: Residual Vibration Detection Width

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	1 to 3000	0.1%	400	All	Immediately	Setup	–

◆ Pn561: Overshoot Detection Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 1000	1%	100	All	Immediately	Setup	–

◆ Pn562: Setting Gain Ratio

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 100	1%	80	All	Immediately	Tuning	–

◆ Pn56A: Output Signal Reference Method Selections 1

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2222h	–	1111h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	SO1 Output Signal Reference Method Selection Speed Pos Trq
0	Reserved (Do not use.)
1 Default	Output OR of parameter-assigned SO1 signal and signal set by SVCMD_OUT.
2	Output signal set by SCVMD_OUT to SLO1.
n.□□X□	SO2 Output Signal Reference Method Selection Speed Pos Trq
0	Reserved (Do not use.)
1 Default	Output OR of parameter-assigned SO2 signal and signal set by SVCMD_OUT.
2	Output signal set by SCVMD_OUT to SLO2.
n.□X□□	SO3 Output Signal Reference Method Selection Speed Pos Trq
0	Reserved (Do not use.)
1 Default	Output OR of parameter-assigned SO3 signal and signal set by SVCMD_OUT.
2	Output signal set by SCVMD_OUT to SLO3.
n.X□□□	SLO4 Output Signal Reference Method Selection Speed Pos Trq
0	Reserved (Do not use.)
1 Default	Do not output signal to SLO4.
2	Output signal set by SCVMD_OUT to SLO4.

◆ Pn56B: Reserved (Do not change.) Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	–	–	0001h	All	–	–	–

◆ Pn581: Zero Speed Level Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	1 to 10000	1 mm/s	20	Linear	Immediately	Setup	–

◆ Pn582: Speed Coincidence Detection Signal Output Width Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 100	1 mm/s	10	Linear	Immediately	Setup	–

◆ Pn583: Brake Reference Output Speed Level Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 10000	1 mm/s	10	Linear	Immediately	Setup	–

◆ Pn584: Speed Limit Level at Servo ON

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10000	1 mm/s	10000	Linear	Immediately	Setup	–

◆ Pn585: Program Jogging Movement Speed

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	1 to 10000	1 mm/s	50	Linear	Immediately	Setup	–

◆ Pn586: Motor Running Cooling Ratio

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 100	1% / Maximum Motor Speed	0	Linear	Immediately	Setup	–

◆ Pn587: Polarity Detection Execution Selection for Absolute Linear Encoder

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 0001h	–	0000h	Linear	Immediately	Setup	–

Digit	Meaning
n.□□□X	Polarity Detection Selection for Absolute Linear Encoder Speed Pos Trq
0 Default	Do not detect polarity.
1	Detect polarity.
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn589: SigmaLINK II Node Detection Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	100 to 10000	1 ms	1500	All	After restart	Setup	–

◆ Pn590: P-OT (Forward Drive Prohibit Input) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 3149h	–	1007h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
007 Default	Allocate the signal to CN1-7.
008	Allocate the signal to CN1-8.
009	Allocate the signal to CN1-9.
010	Allocate the signal to CN1-10.
011	Allocate the signal to CN1-11.
012	Allocate the signal to CN1-12.
013	Allocate the signal to CN1-13.
100	Allocate the signal to SigmaLINK II Sequence Input 0.
101	Allocate the signal to SigmaLINK II Sequence Input 1.
102	Allocate the signal to SigmaLINK II Sequence Input 2.
103	Allocate the signal to SigmaLINK II Sequence Input 3.
104	Allocate the signal to SigmaLINK II Sequence Input 4.
105	Allocate the signal to SigmaLINK II Sequence Input 5.
106	Allocate the signal to SigmaLINK II Sequence Input 6.
107	Allocate the signal to SigmaLINK II Sequence Input 7.
Other values	Set the signal to always enable forward drive.
n.X□□□	Polarity Selection Speed Pos Trq
0	Set the signal to always enable forward drive.
1 Default	Active when input signal is ON (closed).
2	Active when input signal is OFF (open).
3	Set the signal to always prohibit forward drive.

◆ Pn591: N-OT (Reverse Drive Prohibit Input) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 3149h	–	1008h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
007	Allocate the signal to CN1-7.
008 Default	Allocate the signal to CN1-8.
009	Allocate the signal to CN1-9.
010	Allocate the signal to CN1-10.
011	Allocate the signal to CN1-11.
012	Allocate the signal to CN1-12.
013	Allocate the signal to CN1-13.
100	Allocate the signal to SigmaLINK II Sequence Input 0.
101	Allocate the signal to SigmaLINK II Sequence Input 1.
102	Allocate the signal to SigmaLINK II Sequence Input 2.
103	Allocate the signal to SigmaLINK II Sequence Input 3.
104	Allocate the signal to SigmaLINK II Sequence Input 4.
105	Allocate the signal to SigmaLINK II Sequence Input 5.
106	Allocate the signal to SigmaLINK II Sequence Input 6.
107	Allocate the signal to SigmaLINK II Sequence Input 7.
Other values	Set the signal to always enable reverse drive.
n.X□□□	Polarity Selection Speed Pos Trq
0	Set the signal to always enable reverse drive.
1 Default	Active when input signal is ON (closed).
2	Active when input signal is OFF (open).
3	Set the signal to always prohibit reverse drive.

◆ Pn592: /DEC (Origin Return Deceleration Switch Input) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 3149h	–	1009h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
007	Allocate the signal to CN1-7.
008	Allocate the signal to CN1-8.
009 Default	Allocate the signal to CN1-9.
010	Allocate the signal to CN1-10.
011	Allocate the signal to CN1-11.
012	Allocate the signal to CN1-12.
013	Allocate the signal to CN1-13.
100	Allocate the signal to SigmaLINK II Sequence Input 0.
101	Allocate the signal to SigmaLINK II Sequence Input 1.
102	Allocate the signal to SigmaLINK II Sequence Input 2.
103	Allocate the signal to SigmaLINK II Sequence Input 3.
104	Allocate the signal to SigmaLINK II Sequence Input 4.
105	Allocate the signal to SigmaLINK II Sequence Input 5.
106	Allocate the signal to SigmaLINK II Sequence Input 6.
107	Allocate the signal to SigmaLINK II Sequence Input 7.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0	The signal is always inactive.
1 Default	Active when input signal is ON (closed).
2	Active when input signal is OFF (open).
3	The signal is always active.

◆ Pn593: /EXT1 (External Latch Input 1) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2149h	–	1010h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
010 Default	Allocate the signal to CN1-10.
011	Allocate the signal to CN1-11.
012	Allocate the signal to CN1-12.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0	The signal is always inactive.
1 Default	Active when input signal is ON (closed).
2	Active when input signal is OFF (open).

◆ Pn594: /EXT2 (External Latch Input 2) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2149h	–	1011h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
010	Allocate the signal to CN1-10.
011 Default	Allocate the signal to CN1-11.
012	Allocate the signal to CN1-12.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0	The signal is always inactive.
1 Default	Active when input signal is ON (closed).
2	Active when input signal is OFF (open).

◆ Pn595: /EXT3 (External Latch Input 3) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2149h	–	1012h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
010	Allocate the signal to CN1-10.
011	Allocate the signal to CN1-11.
012 Default	Allocate the signal to CN1-12.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0	The signal is always inactive.
1 Default	Active when input signal is ON (closed).
2	Active when input signal is OFF (open).

◆ Pn597: FSTP (Forced Stop Input) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 3049h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
007	Allocate the signal to CN1-7.
008	Allocate the signal to CN1-8.
009	Allocate the signal to CN1-9.
010	Allocate the signal to CN1-10.
011	Allocate the signal to CN1-11.
012	Allocate the signal to CN1-12.
013	Allocate the signal to CN1-13.
Other values	Set the signal to always enable drive (always disable forcing the motor to stop).
n.X□□□	Polarity Selection Speed Pos Trq
0 Default	Set the signal to always enable drive (always disable forcing the motor to stop).
1	Enable drive when the input signal is ON (closed).
2	Enable drive when the input signal is OFF (open).
3	Set the signal to always prohibit drive (always force the motor to stop).

◆ Pn598: /P-CL (Forward External Torque Limit Input) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 3149h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
000 Default	The signal is always inactive.
007	Allocate the signal to CN1-7.
008	Allocate the signal to CN1-8.
009	Allocate the signal to CN1-9.
010	Allocate the signal to CN1-10.
011	Allocate the signal to CN1-11.
012	Allocate the signal to CN1-12.
013	Allocate the signal to CN1-13.
100	Allocate the signal to SigmaLINK II Sequence Input 0.
101	Allocate the signal to SigmaLINK II Sequence Input 1.
102	Allocate the signal to SigmaLINK II Sequence Input 2.
103	Allocate the signal to SigmaLINK II Sequence Input 3.
104	Allocate the signal to SigmaLINK II Sequence Input 4.
105	Allocate the signal to SigmaLINK II Sequence Input 5.
106	Allocate the signal to SigmaLINK II Sequence Input 6.
107	Allocate the signal to SigmaLINK II Sequence Input 7.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0 Default	The signal is always inactive.
1	Active when input signal is ON (closed).
2	Active when input signal is OFF (open).
3	The signal is always active.

◆ Pn599: /N-CL (Reverse External Torque Limit Input) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 3149h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
000 Default	The signal is always inactive.
007	Allocate the signal to CN1-7.
008	Allocate the signal to CN1-8.
009	Allocate the signal to CN1-9.
010	Allocate the signal to CN1-10.
011	Allocate the signal to CN1-11.
012	Allocate the signal to CN1-12.
013	Allocate the signal to CN1-13.
100	Allocate the signal to SigmaLINK II Sequence Input 0.
101	Allocate the signal to SigmaLINK II Sequence Input 1.
102	Allocate the signal to SigmaLINK II Sequence Input 2.
103	Allocate the signal to SigmaLINK II Sequence Input 3.
104	Allocate the signal to SigmaLINK II Sequence Input 4.
105	Allocate the signal to SigmaLINK II Sequence Input 5.
106	Allocate the signal to SigmaLINK II Sequence Input 6.
107	Allocate the signal to SigmaLINK II Sequence Input 7.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0 Default	The signal is always inactive.
1	Active when input signal is ON (closed).
2	Active when input signal is OFF (open).
3	The signal is always active.

◆ Pn5B0: /COIN (Positioning Completion Output) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2039h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
001	Allocate the signal to CN1-1.
023	Allocate the signal to CN1-23.
025	Allocate the signal to CN1-25.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0 Default	The signal is always inactive.
1	Output the above signal.
2	Invert the above signal and output it.

◆ Pn5B1: /V-CMP (Speed Coincidence Detection Output) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2039h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
001	Allocate the signal to CN1-1.
023	Allocate the signal to CN1-23.
025	Allocate the signal to CN1-25.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0 Default	The signal is always inactive.
1	Output the above signal.
2	Invert the above signal and output it.

◆ Pn5B2: /TGON (Rotation Detection Output) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2039h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
001	Allocate the signal to CN1-1.
023	Allocate the signal to CN1-23.
025	Allocate the signal to CN1-25.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0 Default	The signal is always inactive.
1	Output the above signal.
2	Invert the above signal and output it.

◆ Pn5B3: /S-RDY (Servo Ready Output) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2039h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
001	Allocate the signal to CN1-1.
023	Allocate the signal to CN1-23.
025	Allocate the signal to CN1-25.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0 Default	The signal is always inactive.
1	Output the above signal.
2	Invert the above signal and output it.

◆ Pn5B4: /CLT (Torque Limit Detection Output) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2039h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
001	Allocate the signal to CN1-1.
023	Allocate the signal to CN1-23.
025	Allocate the signal to CN1-25.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0 Default	The signal is always inactive.
1	Output the above signal.
2	Invert the above signal and output it.

◆ Pn5B5: /VLT (Speed Limit Detection Output) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2039h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
001	Allocate the signal to CN1-1.
023	Allocate the signal to CN1-23.
025	Allocate the signal to CN1-25.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0 Default	The signal is always inactive.
1	Output the above signal.
2	Invert the above signal and output it.

◆ Pn5B6: /BK (Brake Output) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2039h	–	1001h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
001 Default	Allocate the signal to CN1-1.
023	Allocate the signal to CN1-23.
025	Allocate the signal to CN1-25.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0	The signal is always inactive.
1 Default	Output the above signal.
2	Invert the above signal and output it.

◆ Pn5B7: /WARN (Warning Output) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2039h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
001	Allocate the signal to CN1-1.
023	Allocate the signal to CN1-23.
025	Allocate the signal to CN1-25.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0 Default	The signal is always inactive.
1	Output the above signal.
2	Invert the above signal and output it.

◆ Pn5B8: /NEAR (Near Output) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2039h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
001	Allocate the signal to CN1-1.
023	Allocate the signal to CN1-23.
025	Allocate the signal to CN1-25.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0 Default	The signal is always inactive.
1	Output the above signal.
2	Invert the above signal and output it.

◆ Pn5BC: /PM (Preventative Maintenance Output) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2039h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
001	Allocate the signal to CN1-1.
023	Allocate the signal to CN1-23.
025	Allocate the signal to CN1-25.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0 Default	The signal is always inactive.
1	Output the above signal.
2	Invert the above signal and output it.

◆ Pn5C3: Error Detection Setting

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0011h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Error Detection Selections Speed Pos Trq
0 Default	Disable error detection.
1	Enable error detection.
n.□□X□	Execution Selection when Error Detection Warning Speed Pos Trq
0 Default	Stop error detection when A.905 (Error Detection Warning) occurs.
1	Do not stop error detection when A.905 (Error Detection Warning) occurs.
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn5C4: Error Detection Sample Data Set 1 Warning Level 1

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10000	0.01%	2000	All	Immediately	Setup	–

◆ Pn5C5: Error Detection Sample Data Set 1 Judgment Level 1

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10000	0.01	1520	All	Immediately	Setup	–

◆ Pn5C6: Error Detection Sample Data Set 1 Warning Level 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10000	0.01%	2000	All	Immediately	Setup	–

◆ Pn5C7: Error Detection Sample Data Set 1 Judgment Level 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10000	0.01	1520	All	Immediately	Setup	–

◆ Pn5C8: Error Detection Sample Data Set 2 Warning Level 1

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10000	0.01%	2000	All	Immediately	Setup	–

◆ Pn5C9: Error Detection Sample Data Set 2 Judgment Level 1

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10000	0.01	1520	All	Immediately	Setup	–

◆ Pn5CA: Error Detection Sample Data Set 2 Warning Level 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10000	0.01%	2000	All	Immediately	Setup	–

◆ Pn5CB: Error Detection Sample Data Set 2 Judgment Level 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10000	0.01	1520	All	Immediately	Setup	–

◆ Pn5D7: Output Signal Inversion for Triggers at Preset Positions

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000H to 01F7h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	High-Speed Output Signal Inverse Settings for Triggers at Preset Positions Speed Pos Trq
0 Default	The signal is not inverted.
1	Invert CN1-17, -18 (PAO) and output it.
2	Invert CN1-19, -20 (PBO) and output it.
3	Invert CN1-17, -18 (PAO) and CN1-19, -20 (PBO) and output them.
4	Invert CN1-21, -22 (PCO) and output it.
5	Invert CN1-17, -18 (PAO) and CN1-21, -22 (PCO) and output them.
6	Invert CN1-19, -20 (PBO) and CN1-21, -22 (PCO) and output them.
7	Invert CN1-17, -18 (PAO), CN1-19, -20 (PBO), and CN1-21, -22 (PCO) and output them.
n.□□X□	Normal Output Signal Inverse Settings for Triggers at Preset Positions 1 Speed Pos Trq
0 Default	The signal is not inverted.
1	Invert CN1-1, -2 (SO1) and output it.
2	Invert CN1-23, -24 (SO2) and output it.
3	Invert CN1-1, -2 (SO1) and CN1-23, -24 (SO2) and output them.
4	Invert CN1-25, -26 (SO3) and output it.
5	Invert CN1-1, -2 (SO1) and CN1-25, -26 (SO3) and output them.
6	Invert CN1-23, -24 (SO2) and CN1-25, -26 (SO3) and output them.
7	Invert CN1-1, -2 (SO1), CN1-23, -24 (SO2), and CN1-25, -26 (SO3) and output them.
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn600: Regenerative Resistor Capacity Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to SERVOPACK's maximum applicable motor capacity	10 W	0	All	Immediately	Setup	–

◆ Pn601: Dynamic Brake Resistor Allowable Energy Consumption Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 65535	10 J	0	All	After restart	Setup	–

◆ Pn603: Regenerative Resistance Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 65535	10 mΩ	0	All	Immediately	Setup	–

◆ Pn604: Dynamic Brake Resistance

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65535	10 mΩ	0	All	After restart	Setup	–

◆ Pn61A: Overheat Protection Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 0003h	–	0000h	Linear	After restart	Setup	–

Digit	Meaning
n.□□□X	Overheat Protection Selections Speed Pos Trq
0 Default	Disable overheat protection.
1	Use overheat protection in the Yaskawa linear servomotor.
2	Monitor a negative voltage input from a sensor attached to the machine and use overheat protection.
3	Monitor a positive voltage input from a sensor attached to the machine and use overheat protection.
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn61B: Overheat Alarm Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 500	0.01 V	250	All	Immediately	Setup	–

Note:
Valid only when Pn61A is set to n.□□□2 or n.□□□3 (enable overheat protection).

◆ Pn61C: Overheat Warning Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 100	1%	100	All	Immediately	Setup	–

Note:
Valid only when Pn61A is set to n.□□□2 or n.□□□3 (enable overheat protection).

◆ Pn61D: Overheat Alarm Filter Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65535	1 s	0	All	Immediately	Setup	–

Note:
Valid only when Pn61A is set to n.□□□2 or n.□□□3 (enable overheat protection).

◆ Pn621: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
–	–	–	–	All	–	–	–

◆ Pn622: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
–	–	–	–	All	–	–	–

◆ Pn623: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
–	–	–	–	All	–	–	–

◆ Pn624: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
–	–	–	–	All	–	–	–

◆ Pn625: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
–	–	–	–	All	–	–	–

◆ Pn626: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
–	–	–	–	All	–	–	–

◆ Pn627: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
–	–	–	–	All	–	–	–

◆ Pn628: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
–	–	–	–	All	–	–	–

◆ Pn660: Triggers at Preset Positions Switch

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 2011h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Output Unit Setting Speed Pos Trq
0 Default	Set the signal output width as a time [μs].
1	Set the signal output width as a distance [reference units].
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Triggers at Preset Positions Selections Speed Pos Trq
0 Default	Disable triggers at preset positions.
1	Enable triggers at preset positions.
2	Reserved (Do not use.)

◆ Pn800: Communications Controls

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 1FF3h	–	1040h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	MECHATROLINK Communications Check Mask for Debugging Speed Pos Trq
0 Default	Do not mask.
1	Ignore A.E60 (MECHATROLINK communications error).
2	Ignore A.E50 (WDT errors).
3	Ignore both A.E60 (MECHATROLINK communications errors) and A.E50 (WDT errors).
n.□□X□	Warning Check Masks Speed Pos Trq
0	Do not mask.
1	Ignore A.94□ (data setting warnings).
2	Ignore A.95□ (command warnings).
3	Ignore both A.94□ and A.95□ warnings.
4 Default	Ignore A.96□ (communications warnings).
5	Ignore both A.94□ and A.96□ warnings.
6	Ignore both A.95□ and A.96□ warnings.
7	Ignore A.94□, A.95□, and A.96□ warnings.
8	Ignore A.97□ (data setting warnings).
9	Ignore both A.94□ and A.97□ warnings.
A	Ignore both A.95□ and A.97□ warnings.
B	Ignore A.94□, A.95□, and A.97□ warnings.
C	Ignore both A.96□ and A.97□ warnings.
D	Ignore A.94□, A.96□, and A.97□ warnings.
E	Ignore A.95□, A.96□, and A.97□ warnings.
F	Ignore A.94□, A.95□, A.96□, and A.97□ warnings.
n.□X□□	Reserved (Do not change.)
n.X□□□	Automatic Warning Clear Selection for Debugging Speed Pos Trq
0	Retain warnings for debugging.
1 Default	Automatically clear warnings (MECHATROLINK-4 specification).

◆ Pn801: Application Function Selections 6 (Software Limits)

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 0103h	–	0003h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	Software Limits Speed Pos Trq
0	Enable both forward and reverse software limits.
1	Disable forward software limit.
2	Disable reverse software limit.
3 Default	Disable both forward and reverse software limits.
n.□□X□	Reserved (Do not change.)
n.□X□□	Software Limit Check for References Speed Pos Trq
0 Default	Do not perform software limit checks for references.
1	Perform software limit checks for references.
n.X□□□	Reserved (Do not change.)

◆ Pn803: Origin Range

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 250	1 reference unit	10	All	Immediately	Setup	–

◆ Pn804: Forward Software Limit

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	-1073741823 to 1073741823	1 reference unit	1073741823	All	Immediately	Setup	–

◆ Pn806: Reverse Software Limit

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	-1073741823 to 1073741823	1 reference unit	-1073741823	All	Immediately	Setup	–

◆ Pn808: Absolute Encoder Origin Offset

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	-1073741823 to 1073741823	1 reference unit	0	All	Immediately	Setup	–

Note:
Enabled after SENS_ON command execution is completed.

◆ Pn80A: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	100	All	–	–	–

◆ Pn80B: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	100	All	–	–	–

◆ Pn80C: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	0	All	–	–	–

◆ Pn80D: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	100	All	–	–	–

◆ Pn80E: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	100	All	–	–	–

◆ Pn80F: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	0	All	–	–	–

◆ Pn810: Exponential Acceleration/ Deceleration Bias

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65535	100 reference units/s	0	All	Immediately	Setup	–

Note:

The value is updated only when the reference is stopped (DEN = 1).

◆ Pn811: Exponential Acceleration/Deceleration Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 5100	0.1 ms	0	All	Immediately	Setup	–

Note:

The value is updated only when the reference is stopped (DEN = 1).

◆ Pn812: Movement Average Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 5100	0.1 ms	0	All	Immediately	Setup	–

Note:

The value is updated only when the reference is stopped (DEN = 1).

◆ Pn814: External Positioning Final Travel Distance

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	-1073741823 to 1073741823	1 reference unit	100	All	Immediately	Setup	–

◆ Pn816: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	0000h	All	–	–	–

◆ Pn817: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	0	All	–	–	–

◆ Pn818: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	0	All	–	–	–

◆ Pn819: Final Travel Distance for Origin Return

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	-1073741823 to 1073741823	1 reference unit	100	All	Immediately	Setup	–

◆ Pn81E: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	0000h	All	–	–	–

◆ Pn81F: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	0010h	All	–	–	–

◆ Pn820: Forward Latching Area

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	-2147483648 to 2147483647	1 reference unit	0	All	Immediately	Setup	–

◆ Pn822: Reverse Latching Area

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	-2147483648 to 2147483647	1 reference unit	0	All	Immediately	Setup	–

◆ Pn824: Option Monitor 1 Selection

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to FFFFh	–	0000h	–	Immediately	Setup	82

- High-Speed Monitor Region

Set Value	Meaning	Applicable Motors
0000h Default	Motor speed [overspeed detection speed / 1000000h]	All
0001h	Speed reference [overspeed detection speed / 1000000h]	All
0002h	Torque [maximum torque] / 1000000h]	All
0003h	Position deviation (lower 32 bits) [reference units]	All
0004h	Position deviation (upper 32 bits) [reference units]	All
000Ah	PG count (lower 32 bits) [reference units]	All
000Bh	PG count (upper 32 bits) [reference units]	All
000Ch	FPG count (lower 32 bits) [reference units]	All
000Dh	FPG count (upper 32 bits) [reference units]	All
0055h	Estimated Vibration [overspeed detection speed / 1000000h]	All
0056h	Estimated External Disturbance Torque [maximum torque / 1000000h]	All
0113h	File Upload Counter	All
0114h	File Upload Data	All
0115h	Error Detection Trace Counter	All
0116h	Error Detection Trace Error Rate	All
0200h	SigmaLINK II Response Data 1	All
0201h	SigmaLINK II Response Data 2	All
0202h	SigmaLINK II Response Data 3	All
0203h	SigmaLINK II Response Data 4	All
0204h	SigmaLINK II Response Data 5	All
0205h	SigmaLINK II Response Data 6	All
0206h	SigmaLINK II Response Data 7	All
0207h	SigmaLINK II Response Data 8	All
0210h	SigmaLINK II Command Data 1	All
0211h	SigmaLINK II Command Data 2	All
0212h	SigmaLINK II Command Data 3	All
0213h	SigmaLINK II Command Data 4	All
0240h	Σ-LINK II Data Status Information	All

- Low-Speed Monitor Region

Set Value	Meaning	Applicable Motors
0010h	Un000: Motor Speed [min^{-1}]	All
0011h	Un001: Speed Reference [min^{-1}]	All
0012h	Un002: Torque Reference [%]	All

Set Value	Meaning	Applicable Motors
0013h	Un003: Rotational Angle 1 [encoder pulses] Number of encoder pulses from origin within one encoder rotation displayed in decimal	All
	Un003: Electrical Angle 1 [linear encoder pulses] Linear encoder pulses from the polarity origin displayed in decimal	
0014h	Un004: Rotational Angle 2 [deg] Electrical angle from polarity origin	All
	Un004: Electrical Angle 2 [deg] Electrical angle from polarity origin	
0015h	Un005: Input Signal Monitor	All
0016h	Un006: Output Signal Monitor	All
0017h	Un007: Input Reference Pulse Speed [min^{-1}]	All
0018h	Un008: Position Deviation [reference units]	All
0019h	Un009: Accumulated Load Ratio [%]	All
001Ah	Un00A: Regenerative Load Ratio [%]	All
001Bh	Un00B: Dynamic Brake Resistor Power Consumption [%]	All
001Ch	Un00C: Input Reference Pulse Counter [reference units]	All
001Dh	Un00D: Feedback Pulse Counter [encoder pulses]	All
001Eh	Un00E: Fully-closed Loop Feedback Pulse Counter [external encoder resolution]	Rotary
0025h	Initial absolute position data (lower 32 bits) [pulses]	Linear
0026h	Initial absolute position data (upper 32 bits) [pulses]	Linear
0040h	Un025: SERVOPACK Installation Environment Monitor	All
0041h	Un026: Servomotor Installation Environment Monitor	All
0042h	Un027: Built-in Fan Remaining Life Ratio	All
0043h	Un028: Capacitor Remaining Life Ratio	All
0044h	Un029: Surge Prevention Circuit Remaining Life Ratio	All
0045h	Un02A: Dynamic Brake Circuit Remaining Life Ratio	All
0046h	Un032: Instantaneous Power	All
0047h	Un033: Power Consumption	All
0048h	Un034: Cumulative Power Consumption	All
004Dh	Un173: Temperature Margin until SERVOPACK Overheats	All
0050h	Pressure Detection Value [0.01% (pct. of max. pressure)]	All
0052h	Control Mode (0: Position control/speed control, 1: Speed control (approach operation), 2: Torque control, 3: Pressure control)	All
0058h	Un13C: Margin until Regenerative Overload	All
005Ah	Un13E: Margin until Undervoltage	All
005Bh	Un13F: Margin until Overvoltage	All
0060h	Un023: Main Circuit DC Voltage	All
0070h	Un078: Maximum Value of Amplitude of Estimated Vibration [min^{-1}]	All
0071h	Un07A: Maximum Value of Estimated External Disturbance Torque [%]	All
0072h	Un07B: Minimum Value of Estimated External Disturbance Torque [%]	All
0073h	Un147: Number of MECHATROLINK Communications Errors [times]	All
0074h	Un104: Number of Serial Encoder Communications Errors [times]	All
0075h	Un105: Settling Time [0.1 ms]	All

Set Value	Meaning	Applicable Motors
0076h	Un106: Amount of Overshoot [reference units]	All
0077h	Un107: Residual Vibration Frequency [0.1 Hz]	All
0079h	Un174: Temperature Margin until Servomotor Overheats [°C]	All
007Ah	Un145: Maximum Value of Accumulated Load Ratio [%]	All
007Bh	Un14E: Margin until Overload [0.01 %]	All
007Ch	Un07C: Identified Moment of Inertia Ratio	All
007Eh	Un108: Maximum Settling Time [0.1ms]	All
007Fh	Un109: Maximum Amount of Overshoot [reference units]	All
0094h	Pressure Reference [0.01% (pct. of max. pressure)]	All
0095h	Pressure Deviation [0.01% (pct. of max. pressure)]	All
0096h	Pressure Control Output [0.01% (pct. of max. pressure)]	All
0104h	Un177: Encoder Power Supplied Time	Rotary
0106h	Un17A: Encoder Power Supply Voltage	Rotary
0107h	Un17B: Encoder Battery Voltage	Rotary
010Ch	Un181: Motor Total Number of Rotations	Rotary
010Dh	Un183: Maintenance Prediction Monitor - Bearings	Rotary
010Eh	Un184: Maintenance Prediction Monitor - Oil Seal	Rotary
0126h	Un190: Motor Vibration in X-Axis Direction	Rotary
0127h	Un191: Motor Vibration in Y-Axis Direction	Rotary
0128h	Un192: Motor Vibration in Z-Axis Direction	Rotary
0129h	Un193: Motor Vibration XYZ Composite Value	Rotary
012Ah	Un194: Maximum Motor Vibration	Rotary

- Low-Speed Monitor Region (Communications Module Only)

Set Value	Meaning	Applicable Motors
0080h	Previous value of latched feedback position (LPOS1) [reference units]	All
0081h	Previous value of latched feedback position (LPOS2) [reference units]	All
0084h	Continuous Latch Status (EX STATUS)	All

- All Areas

Set Value	Meaning	Applicable Motors
Other values	Reserved (Do not use.)	All

◆ Pn825: Option Monitor 2 Selection

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to FFFFh	–	0000h	–	Immediately	Setup	82

Set Value	Meaning
0000h to FFFFh	The settings are the same as those for the Option Monitor 1 Selection.

◆ Pn827: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	100	All	–	–	–

◆ Pn829: SVOFF Waiting Time (for SVOFF at Deceleration to Stop)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65535	10 ms	0	All	Immediately	Setup	–

Note:

Change the setting when the reference is stopped (while DEN is set to 1). If you change the setting during operation, the reference output will be affected.

◆ Pn82A: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	1813h	All	–	–	–

◆ Pn82B: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	1D1Ch	All	–	–	–

◆ Pn82C: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	1F1Eh	All	–	–	–

◆ Pn82D: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	0000h	All	–	–	–

◆ Pn82E: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	0000h	All	–	–	–

◆ Pn833: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	0001h	All	–	–	–

◆ Pn834: First Stage Linear Acceleration Constant

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	1 to 4294967295	10000 reference units/s^2	100	All	Immediately	Setup	–

Note:

Change the setting when the reference is stopped (while DEN is set to 1). If you change the setting during operation, the reference output will be affected.

◆ Pn836: Second Stage Linear Acceleration Constant

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	1 to 4294967295	10000 reference units/s^2	100	All	Immediately	Setup	–

Note:

Change the setting when the reference is stopped (while DEN is set to 1). If you change the setting during operation, the reference output will be affected.

◆ Pn838: Acceleration Constant Switching Speed

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	0 to 2097152000	1 reference unit/s	0	All	Immediately	Setup	–

Note:

Change the setting when the reference is stopped (while DEN is set to 1). If you change the setting during operation, the reference output will be affected.

◆ Pn83A: First Stage Linear Deceleration Constant

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	1 to 4294967295	10000 reference units/s^2	100	All	Immediately	Setup	–

Note:

Change the setting when the reference is stopped (while DEN is set to 1). If you change the setting during operation, the reference output will be affected.

◆ Pn83C: Second Stage Linear Deceleration Constant

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	1 to 4294967295	10000 reference units/s^2	100	All	Immediately	Setup	–

Note:

Change the setting when the reference is stopped (while DEN is set to 1). If you change the setting during operation, the reference output will be affected.

◆ Pn83E: Deceleration Constant Switching Speed

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	0 to 2097152000	1 reference unit/s	0	All	Immediately	Setup	–

Note:

Change the setting when the reference is stopped (while DEN is set to 1). If you change the setting during operation, the reference output will be affected.

◆ Pn840: Linear Deceleration Constant for Stopping

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	1 to 4294967295	10000 reference units/s^2	100	All	Immediately	Setup	–

Note:

Change the setting when the reference is stopped (while DEN is set to 1). If you change the setting during operation, the reference output will be affected.

◆ Pn842: Origin Approach Speed 1

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	0 to 20971520	100 reference units/s	50	All	Immediately	Setup	–

Note:

Change the setting when the reference is stopped (while DEN is set to 1). If you change the setting during operation, the reference output will be affected.

◆ Pn844: Origin Approach Speed 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	0 to 20971520	100 reference units/s	5	All	Immediately	Setup	–

Note:

Change the setting when the reference is stopped (while DEN is set to 1). If you change the setting during operation, the reference output will be affected.

◆ Pn846: POSING Command S-curve Acceleration/Deceleration Rate

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 50	1%	0	All	Immediately	Setup	–

Note:

Change the setting when the reference is stopped (while DEN is set to 1). If you change the setting during operation, the reference output will be affected.

◆ Pn850: Number of Latch Sequences

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 8	–	0	All	Immediately	Setup	–

◆ Pn851: Continuous Latch Sequence Count

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 255	–	0	All	Immediately	Setup	–

◆ Pn852: Latch Sequence 1 to 4 Settings

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 3333h	–	0000h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	Latch Sequence 1 Signal Selection Speed Pos Trq
0 Default	Phase C
1	EXT1 signal
2	EXT2 signal
3	EXT3 signal
n.□□X□	Latch Sequence 2 Signal Selection Speed Pos Trq
0 to 3	The settings are the same as those for the Latch Sequence 1 Signal Selection.
n.□X□□	Latch Sequence 3 Signal Selection Speed Pos Trq
0 to 3	The settings are the same as those for the Latch Sequence 1 Signal Selection.
n.X□□□	Latch Sequence 4 Signal Selection Speed Pos Trq
0 to 3	The settings are the same as those for the Latch Sequence 1 Signal Selection.

◆ Pn853: Latch Sequence 5 to 8 Settings

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 3333h	–	0000h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	Latch Sequence 5 Signal Selection Speed Pos Trq
0 Default	Phase C
1	EXT1 signal
2	EXT2 signal
3	EXT3 signal
n.□□X□	Latch Sequence 6 Signal Selection Speed Pos Trq
0 to 3	The settings are the same as those for the Latch Sequence 5 Signal Selection.
n.□X□□	Latch Sequence 7 Signal Selection Speed Pos Trq
0 to 3	The settings are the same as those for the Latch Sequence 5 Signal Selection.
n.X□□□	Latch Sequence 8 Signal Selection Speed Pos Trq
0 to 3	The settings are the same as those for the Latch Sequence 5 Signal Selection.

◆ Pn860: SVCMD_IN Input Signal Monitor Allocations 1

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 1717h	–	0000h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	Input Signal Monitor Allocation for CN1-13 (SVCMD_IN) Speed Pos Trq
0 Default	Allocate bit 24 (IO_STS1) to CN1-13 input signal monitor.
1	Allocate bit 25 (IO_STS2) to CN1-13 input signal monitor.
2	Allocate bit 26 (IO_STS3) to CN1-13 input signal monitor.
3	Allocate bit 27 (IO_STS4) to CN1-13 input signal monitor.
4	Allocate bit 28 (IO_STS5) to CN1-13 input signal monitor.
5	Allocate bit 29 (IO_STS6) to CN1-13 input signal monitor.
6	Allocate bit 30 (IO_STS7) to CN1-13 input signal monitor.
7	Allocate bit 31 (IO_STS8) to CN1-13 input signal monitor.
n.□□X□	CN1-13 Input Signal Monitor Enable/Disable Selection Speed Pos Trq
0 Default	Disable allocation for CN1-13 input signal monitor.
1	Enable allocation for CN1-13 input signal monitor.
n.□X□□	Input Signal Monitor Allocation for CN1-7 (SVCMD_IN) Speed Pos Trq
0 to 7	The settings are the same as the CN1-13 allocations.
n.X□□□	CN1-7 Input Signal Monitor Enable/Disable Selection Speed Pos Trq
0 Default	Disable allocation for CN1-7 input signal monitor.
1	Enable allocation for CN1-7 input signal monitor.

◆ Pn861: SVCMD_IN Input Signal Monitor Allocations 2

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 1717h	–	0000h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	Input Signal Monitor Allocation for CN1-8 (SVCMD_IN) Speed Pos Trq
0 to 7	The settings are the same as the CN1-13 allocations.
n.□□X□	CN1-8 Input Signal Monitor Enable/Disable Selection Speed Pos Trq
0 Default	Disable allocation for CN1-8 input signal monitor.
1	Enable allocation for CN1-8 input signal monitor.
n.□X□□	Input Signal Monitor Allocation for CN1-9 (SVCMD_IN) Speed Pos Trq
0 to 7	The settings are the same as the CN1-13 allocations.
n.X□□□	CN1-9 Input Signal Monitor Enable/Disable Selection Speed Pos Trq
0 Default	Disable allocation for CN1-9 input signal monitor.
1	Enable allocation for CN1-9 input signal monitor.

◆ Pn862: SVCMD_IN Input Signal Monitor Allocations 3

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 1717h	–	0000h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	Input Signal Monitor Allocation for CN1-10 (SVCMD_IN) Speed Pos Trq
0 to 7	The settings are the same as the CN1-13 allocations.
n.□□X□	CN1-10 Input Signal Monitor Enable/Disable Selection Speed Pos Trq
0 Default	Disable allocation for CN1-10 input signal monitor.
1	Enable allocation for CN1-10 input signal monitor.
n.□X□□	Input Signal Monitor Allocation for CN1-11 (SVCMD_IN) Speed Pos Trq
0 to 7	The settings are the same as the CN1-13 allocations.
n.X□□□	CN1-11 Input Signal Monitor Enable/Disable Selection Speed Pos Trq
0 Default	Disable allocation for CN1-11 input signal monitor.
1	Enable allocation for CN1-11 input signal monitor.

◆ Pn863: SVCMD_IN Input Signal Monitor Allocations 4

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 1717h	–	0000h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	Input Signal Monitor Allocation for CN1-12 (SVCMD_IN) Speed Pos Trq
0 to 7	The settings are the same as the CN1-13 allocations.
n.□□X□	CN1-12 Input Signal Monitor Enable/Disable Selection Speed Pos Trq
0 Default	Disable allocation for CN1-12 input signal monitor.
1	Enable allocation for CN1-12 input signal monitor.
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn868: SVCMD_IN Output Signal Monitor Allocations 1

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 1717h	–	0000h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	Output Signal Monitor Allocation for CN1-1 and CN1-2 (SVCMD_IN) Speed Pos Trq
0 Default	Allocate bit 24 (IO_STS1) to CN1-1/CN1-2 output signal monitor.
1	Allocate bit 25 (IO_STS2) to CN1-1/CN1-2 output signal monitor.
2	Allocate bit 26 (IO_STS3) to CN1-1/CN1-2 output signal monitor.
3	Allocate bit 27 (IO_STS4) to CN1-1/CN1-2 output signal monitor.
4	Allocate bit 28 (IO_STS5) to CN1-1/CN1-2 output signal monitor.
5	Allocate bit 29 (IO_STS6) to CN1-1/CN1-2 output signal monitor.
6	Allocate bit 30 (IO_STS7) to CN1-1/CN1-2 output signal monitor.
7	Allocate bit 31 (IO_STS8) to CN1-1/CN1-2 output signal monitor.
n.□□X□	CN1-1/CN1-2 Output Signal Monitor Enable/Disable Selection Speed Pos Trq
0 Default	Disable allocation for CN1-1/CN1-2 output signal monitor.
1	Enable allocation for CN1-1/CN1-2 output signal monitor.
n.□X□□	Output Signal Monitor Allocation for CN1-23 and CN1-24 (SVCMD_IN) Speed Pos Trq
0 to 7	The settings are the same as the CN1-1/CN1-2 allocations.
n.X□□□	CN1-23/CN1-24 Output Signal Monitor Enable/Disable Selection Speed Pos Trq
0 Default	Disable allocation for CN1-23/CN1-24 output signal monitor.
1	Enable allocation for CN1-23/CN1-24 output signal monitor.

◆ Pn869: SVCMD_IN Output Signal Monitor Allocations 2

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 1717h	–	0000h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	Output Signal Monitor Allocation for CN1-25 and CN1-26 (SVCMD_IN) Speed Pos Trq
0 to 7	The settings are the same as the CN1-1/CN1-2 allocations.
n.□□X□	CN1-25/CN1-26 Output Signal Monitor Enable/Disable Selection Speed Pos Trq
0 Default	Disable allocation for CN1-25/CN1-26 output signal monitor.
1	Enable allocation for CN1-25/CN1-26 output signal monitor.
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn880: Reserved (Do not change.) Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	–	All	–	–	–

◆ Pn881: Reserved (Do not change.) Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	–	All	–	–	–

◆ Pn882: Reserved (Do not change.) Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	–	All	–	–	–

◆ Pn883: Communications Cycle Setting Monitor [transmission cycles] (for maintenance, read only) Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 32	–	–	All	–	Setup	–

◆ Pn884: Communications Controls 2

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 0001h	–	0000h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	MECHATROLINK Communications Error Holding Brake Signal Setting Speed Pos Trq
0 Default	Maintain the status set by the BRK_ON or BRK_OFF command when a MECHATROLINK communications error occurs.
1	Apply the holding brake when a MECHATROLINK communications error occurs.
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn885: Reserved (Do not change.)

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	0000h	All	–	–	–

◆ Pn886: S-curve Maximum Acceleration/Deceleration Rate

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	1h to FFFFFFFFh	–	FFFFFFFFh	All	Immediately	Setup	–

◆ Pn88A: MECHATROLINK Receive Error Counter Monitor (for maintenance, read only)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65535	–	0	All	–	Setup	–

◆ Pn900: Number of Parameter Banks

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 16	–	0	All	After restart	Setup	–

◆ Pn901: Number of Parameter Bank Members

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 15	–	0	All	After restart	Setup	–

◆ Pn902to Pn910: Parameter Bank Member Definition

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 08FFh	–	0000h	All	After restart	Setup	–

◆ Pn920to Pn95F: Parameter Bank Data (Not saved in nonvolatile memory.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to FFFFh	–	0000h	All	Immediately	Setup	–

5.3 List of Servo Parameters: MECHATROLINK-III Communications References

The following table lists the parameters.

Note:

Do not change the following parameters from their default settings.

- Reserved parameters
- Parameters not given in this manual
- Parameters that are not valid for the servomotor that you are using, as given in the parameter table

◆ Pn000: Basic Function Selections 0

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 10B1h	–	0000h	All	After restart	Setup	–

Digit	Meaning	
n.□□□X	Rotation Direction Selection Movement Direction Selection	Speed Pos Trq
0 Default	Use CCW as the forward direction.	
	Use the direction in which the linear encoder counts up as the forward direction.	
1	Use CW as the forward direction. (Reverse Rotation Mode)	
	Use the direction in which the linear encoder counts down as the forward direction. (Reverse Movement Mode)	
n.□□X□	Reserved (Do not change.)	
n.□X□□	Reserved (Do not change.)	
n.X□□□	Rotary/Linear Servomotor Startup Selection When Encoder Is Not Connected	Speed Pos Trq
0 Default	When an encoder is not connected, start as SERVOPACK for rotary servomotor.	
1	When an encoder is not connected, start as SERVOPACK for linear servomotor.	

◆ Pn001: Application Function Selections 1

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 1142h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Motor Stopping Method for Servo OFF and Group 1 Alarms Speed Pos Trq
0 Default	Stop the motor by applying the dynamic brake.
1	Stop the motor by the applying dynamic brake and then release the dynamic brake.
2	Coast the motor to a stop without the dynamic brake.
n.□□X□	Overtravel Stopping Method Speed Pos Trq
0 Default	Apply the dynamic brake or coast the motor to a stop (use the stopping method set in Pn001 = n.□□□X).
1	Decelerate the motor to a stop using the torque set in Pn406 as the maximum torque and then servo-lock the motor.
2	Decelerate the motor to a stop using the torque set in Pn406 as the maximum torque and then let the motor coast.
3	Decelerate the motor to a stop using the deceleration time set in Pn30A and then servo-lock the motor.
4	Decelerate the motor to a stop using the deceleration time set in Pn30A and then let the motor coast.
n.□X□□	Main Circuit Power Supply AC/DC Input Selection Speed Pos Trq
0 Default	Input AC power as the main circuit power supply using the L1, L2, and L3 terminals (do not use shared converter).
1	Input DC as the main circuit power supply using the B1/⊕, ⊖2 terminals or the B1 and ⊖2 terminals (use an external converter or the shared converter).
n.X□□□	Reserved (Do not change.)

◆ Pn002: Application Function Selections 2

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 4213h	–	0011h	–	After restart	Setup	–

Digit	Meaning	Appli-cable Motors
n.□□□X	MECHATROLINK Command Position and Speed Control Option Speed Pos Trq	–
0	Reserved (Do not use.)	All
1 Default	Use TLIM as the torque limit.	All
2	Reserved (Do not use.)	All
3	Reserved (Do not use.)	All
n.□□X□	Torque Control Option Speed Pos Trq	–
0	Reserved (Do not use.)	All
1 Default	Use the speed limit for torque control (VLIM) as the speed limit.	All
n.□X□□	Encoder Usage Speed Pos Trq	–
0 Default	Use the encoder according to encoder specifications.	All
1	Use the encoder as an incremental encoder.	All
2	Use the encoder as a single-turn absolute encoder.	Rotary
n.X□□□	External Encoder Usage Speed Pos Trq	–
0 Default	Do not use an external encoder.	Rotary
1	The external encoder moves in the forward direction for CCW motor rotation.	Rotary
2	Reserved (Do not use.)	Rotary
3	The external encoder moves in the reverse direction for CCW motor rotation.	Rotary
4	Reserved (Do not use.)	Rotary

◆ Pn006: Application Function Selections 6

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 105Fh	–	0002h	All	Immediately	Setup	82

Digit	Meaning
n.□□XX	Analog Monitor 1 Signal Selection Speed Pos Trq
00	Motor speed (1 V/1000 min^{-1})
	Motor speed (1 V/1000 mm/s)
01	Speed reference (1 V/1000 min^{-1})
	Speed reference (1 V/1000 mm/s)
02 Default	Torque reference (1 V/100% rated torque)
	Force reference (1 V/100% rated force)
03	Position deviation (0.05 V/reference unit)
04	Position amplifier deviation (after electronic gear) (0.05 V/encoder pulse unit)
	Position amplifier deviation (after electronic gear) (0.05 V/linear encoder pulse unit)
05	Position reference speed (1 V/1000 min^{-1})
	Position reference speed (1 V/1000 mm/s)
06	Reserved (Do not use.)
07	Position deviation between motor and load (0.01 V/reference unit)
08	Positioning completion (positioning completed: 5 V, positioning not completed: 0 V)
09	Speed feedforward (1 V/1000 min^{-1})
	Speed feedforward (1 V/1000 mm/s)
0A	Torque feedforward (1 V/100% rated torque)
	Force feedforward (1 V/100% rated force)
0B	Active gain (gain 1: 1 V, gain 2: 2 V) 2 V)
0C	Completion of position reference distribution (completed: 5 V, not completed: 0 V)
0D	External encoder speed (1 V/1000 min^{-1}: value at the motor shaft)
0E	Reserved (Do not use.)
0F	Reserved (Do not use.)
10	Main circuit DC voltage
11 to 2F	Reserved (Do not use.)
30	Pressure Reference (unit: 1 V/100% (pct. of max. pressure))
31	Pressure Detection Value (unit: 1 V/100% (pct. of max. pressure))
32	Pressure Control Output (unit: 1 V/100% (pct. of max. pressure))
33	Pressure Deviation (unit: 1 V/100% (pct. of max. pressure))
34 to 5F	Reserved (Do not use.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn007: Application Function Selections 7

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 105Fh	–	0000h	All	Immediately	Setup	82

Digit	Meaning
n.□□XX	Analog Monitor 2 Signal Selection Speed Pos Trq
00 to 5F	Same as Pn006 = n.□□XX (Analog Monitor 1 Signal Selection).
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn008: Application Function Selections 8

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 7121h	–	4000h	Rotary	After restart	Setup	–

Digit	Meaning
n.□□□X	Low Battery Voltage Alarm/Warning Selection Speed Pos Trq
0 Default	Output alarm (A.830) for low battery voltage.
1	Output warning (A.930) for low battery voltage.
n.□□X□	Function Selection for Undervoltage Speed Pos Trq
0 Default	Do not detect undervoltage warning.
1	Detect undervoltage warning and limit torque at host controller.
2	Detect undervoltage warning and limit torque with Pn424 and Pn425 (i.e., only in SERVOPACK).
n.□X□□	Warning Detection Selection Speed Pos Trq
0 Default	Detect warnings.
1	Do not detect warnings except for A.971.
n.X□□□	Reserved (Do not change.)

◆ Pn009: Application Function Selections 9

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 0141h	–	0040h	All	After restart	Tuning	–

Digit	Meaning
n.□□□X	Reserved (Do not change.)
n.□□X□	Current Control Mode Selection Speed Pos Trq
0	Use current control mode 1.
1	• SERVOPACK Models SGDXS-R70A, -R90A, -1R6A, -2R8A, - 3R8A, -5R5A, -7R6A: Use current control mode 1. • SERVOPACK Models SGDXS-120A, -180A, -200A, -330A, -470A, -550A, -590A, -780A: Use current control mode 2. (For noise reduction when the motor is stopped)
2	Use current control mode 2. (For noise reduction when the motor is stopped)
3	Use current control mode 3. (For noise reduction when the motor is operating at high speed)
4 Default	Use current control mode 4. (For noise reduction when the motor is stopped and operating at high speed)
n.□X□□	Speed Detection Method Selection Speed Pos Trq
0 Default	Use speed detection 1.
1	Use speed detection 2.
n.X□□□	Reserved (Do not change.)

◆ Pn00A: Application Function Selections A

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 1244h	–	0001h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Motor Stopping Method for Group 2 Alarms Speed Pos Trq
0	Apply the dynamic brake or coast the motor to a stop (use the stopping method set in Pn001 = n.□□□X).
1 Default	Decelerate the motor to a stop using the torque set in Pn406 as the maximum torque. Use the setting of Pn001 = n.□□□X for the status after stopping.
2	Decelerate the motor to a stop using the torque set in Pn406 as the maximum torque and then let the motor coast.
3	Decelerate the motor to a stop using the deceleration time set in Pn30A. Use the setting of Pn001 = n.□□□X for the status after stopping.
4	Decelerate the motor to a stop using the deceleration time set in Pn30A and then let the motor coast.
n.□□X□	Stopping Method for Forced Stops Speed Pos Trq
0 Default	Apply the dynamic brake or coast the motor to a stop (use the stopping method set in Pn001 = n.□□□X).
1	Decelerate the motor to a stop using the torque set in Pn406 as the maximum torque. Use the setting of Pn001 = n.□□□X for the status after stopping.
2	Decelerate the motor to a stop using the torque set in Pn406 as the maximum torque and then let the motor coast.
3	Decelerate the motor to a stop using the deceleration time set in Pn30A. Use the setting of Pn001 = n.□□□X for the status after stopping.
4	Decelerate the motor to a stop using the deceleration time set in Pn30A and then let the motor coast.
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn00B: Application Function Selections B

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 1121h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Operator Parameter Display Selection Speed Pos Trq
0 Default	Display only setup parameters.
1	Display all parameters.
n.□□X□	Motor Stopping Method for Group 2 Alarms Speed Pos Trq
0 Default	Stop the motor by setting the speed reference to 0.
1	Apply the dynamic brake or coast the motor to a stop (use the stopping method set in Pn001 = n.□□□X).
2	Set the stopping method with Pn00A = n.□□□X.
n.□X□□	Power Input Selection for Three-phase SERVOPACK Speed Pos Trq
0 Default	Use a three-phase power supply input.
1	Use a three-phase power supply input as a single-phase power supply input.
n.X□□□	Reserved (Do not change.)

◆ Pn00C: Application Function Selections C

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0141h	–	0040h	–	After restart	Setup	–

Digit	Meaning	Appli-cable Motors
n.□□□X	Function Selection for Test without a Motor Speed Pos Trq	–
0 Default	Disable tests without a motor.	All
1	Enable tests without a motor.	All
n.□□X□	Encoder Resolution for Tests without a Motor Speed Pos Trq	–
0	Use 13 bits.	Rotary
1	Use 20 bits.	Rotary
2	Use 22 bits.	Rotary
3	Use 24 bits.	Rotary
4 Default	Use 26 bits.	Rotary
n.□X□□	Encoder Type Selection for Tests without a Motor Speed Pos Trq	–
0 Default	Use an incremental encoder.	All
1	Use an absolute encoder.	All
n.X□□□	Reserved (Do not change.)	–

◆ Pn00D: Application Function Selections D

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2001h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Reserved (Do not change.)
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Overtravel Warning Detection Selection Speed Pos Trq
0 Default	Do not detect overtravel warnings.
1	Detect overtravel warnings.
2	Detect overtravel alarms.

◆ Pn00E: Application Function Selections E

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 4001h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Reserved (Do not change.)
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	External Encoder Monitor Usage Speed Pos Trq
0 Default	Do not use an external encoder monitor.
1	Use CCW as the forward direction.
2	Reserved (Do not use.)
3	Use CW as the forward direction.
4	Reserved (Do not use.)

◆ Pn00F: Application Function Selections F

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2021h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	SERVOPACK Preventative Maintenance Warning Selection Speed Pos Trq
0 Default	Do not detect SERVOPACK preventative maintenance warnings.
1	Detect SERVOPACK preventative maintenance warnings.
n.□□X□	Servomotor Preventative Maintenance Warning Selection Speed Pos Trq
0 Default	Do not detect servomotor preventative maintenance warnings.
1	Detect servomotor preventative maintenance warnings.
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn021: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	–	–	0000h	All	–	–	–

◆ Pn022: Application Function Selections 22

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0011h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Overtravel Release Method Selection Speed Pos Trq
0 Default	Overtravel exists while the P-OT or N-OT signal is being input.
1	Overtravel exists while the P-OT or N-OT signal is input and the current position of the workpiece is separated from the P-OT signal or N-OT signal.
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn02F: Application Function Selections 2F

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0002h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Selection of Capacitor Discharge Mode When Main Circuit Power OFF Speed Pos Trq
0 Default	• SGDXS-R70A to -200A： Do not perform rapid discharge. • SGDXS-330A to -780A： Perform rapid discharge.
1	Perform rapid discharge.
2	Reserved (Do not use.)
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn040: Sigma-V/Sigma-7 Compatible Function Switch

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2112h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Σ-X/Σ-7 Compatibility Mode Selection Speed Pos Trq
0 Default	Perform Sigma-X communications.
1	Perform Sigma-V communications.
2	Perform Sigma-7 communications.
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn050: SigmaLINK II Response Data Selection 1

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	00000000h to FF7EFFFFh	–	00000000h	All	After restart	Setup	–

Digit	Meaning
n.□□□□XXXX	Parameter Number (0000h to FFFFh)
n.□□XX□□□□	Node Address (10h to 1Eh)
n.XX□□□□□□	Reserved.

◆ Pn052: SigmaLINK II Response Data Selection 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	00000000h to FF7EFFFFh	–	00000000h	All	After restart	Setup	–

Digit	Meaning
n.□□□□XXXX	Parameter Number (0000h to FFFFh)
n.□□XX□□□□	Node Address (10h to 1Eh)
n.XX□□□□□□	Reserved.

◆ Pn054: SigmaLINK II Response Data Selection 3

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	00000000h to FF7EFFFFh	–	00000000h	All	After restart	Setup	–

Digit	Meaning
n.□□□□XXXX	Parameter Number (0000h to FFFFh)
n.□□XX□□□□	Node Address (10h to 1Eh)
n.XX□□□□□□	Reserved.

◆ Pn056: SigmaLINK II Response Data Selection 4

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	00000000h to FF7EFFFFh	–	00000000h	All	After restart	Setup	–

Digit	Meaning
n.□□□□XXXX	Parameter Number (0000h to FFFFh)
n.□□XX□□□□	Node Address (10h to 1Eh)
n.XX□□□□□□	Reserved.

◆ Pn058: SigmaLINK II Response Data Selection 5

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	00000000h to FF7EFFFFh	–	00000000h	All	After restart	Setup	–

Digit	Meaning
n.□□□□XXXX	Parameter Number (0000h to FFFFh)
n.□□XX□□□□	Node Address (10h to 1Eh)
n.XX□□□□□□	Reserved.

◆ Pn05A: SigmaLINK II Response Data Selection 6

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	00000000h to FF7EFFFFh	–	00000000h	All	After restart	Setup	–

Digit	Meaning
n.□□□□XXXX	Parameter Number (0000h to FFFFh)
n.□□XX□□□□	Node Address (10h to 1Eh)
n.XX□□□□□□	Reserved.

◆ Pn05C: SigmaLINK II Response Data Selection 7

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	00000000h to FF7EFFFFh	–	00000000h	All	After restart	Setup	–

Digit	Meaning
n.□□□□XXXX	Parameter Number (0000h to FFFFh)
n.□□XX□□□□	Node Address (10h to 1Eh)
n.XX□□□□□□	Reserved.

◆ Pn05E: SigmaLINK II Response Data Selection 8

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	00000000h to FF7EFFFFh	–	00000000h	All	After restart	Setup	–

Digit	Meaning
n.□□□□XXXX	Parameter Number (0000h to FFFFh)
n.□□XX□□□□	Node Address (10h to 1Eh)
n.XX□□□□□□	Reserved.

◆ Pn080: Application Function Selections 80

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 1111h	–	0000h	Linear	After restart	Setup	–

Digit	Meaning
n.□□□X	Polarity Sensor Selection Speed Pos Trq
0 Default	Use polarity sensor.
1	Do not use polarity sensor.
n.□□X□	Motor Phase Sequence Selection Speed Pos Trq
0 Default	Set a phase-A lead as a phase sequence of U, V, and W.
1	Set a phase-B lead as a phase sequence of U, V, and W.
n.□X□□	Reserved (Do not change.)
n.X□□□	Calculation Method for Maximum Speed or Encoder Output Pulses Speed Pos Trq
0 Default	Calculate the encoder output pulse setting for a fixed maximum motor speed.
1	Calculate the maximum motor speed for a fixed encoder output pulse setting.

◆ Pn081: Application Function Selections 81

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 1111h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Phase-C Pulse Output Selection Speed Pos Trq
0 Default	Output phase-C pulses only in the forward direction.
1	Output phase-C pulses in both the forward and reverse directions.
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn090: SigmaLINK II Command Data Selection 1 Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
4	00000000h to FF7EFFFFh	–	00000000h	All	After restart	Setup	–

Digit	Meaning
n.□□□□XXXX	Parameter Number (0000h to FFFFh)
n.□□XX□□□□	Node Address (10h to 1Eh)
n.XX□□□□□□	Reserved.

◆ Pn092: SigmaLINK II Command Data Selection 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	00000000h to FF7EFFFFh	–	00000000h	All	After restart	Setup	–

Digit	Meaning
n.□□□□XXXX	Parameter Number (0000h to FFFFh)
n.□□XX□□□□	Node Address (10h to 1Eh)
n.XX□□□□□□	Reserved.

◆ Pn094: SigmaLINK II Command Data Selection 3

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	00000000h to FF7EFFFFh	–	00000000h	All	After restart	Setup	–

Digit	Meaning
n.□□□□XXXX	Parameter Number (0000h to FFFFh)
n.□□XX□□□□	Node Address (10h to 1Eh)
n.XX□□□□□□	Reserved.

◆ Pn096: SigmaLINK II Command Data Selection 4

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	00000000h to FF7EFFFFh	–	00000000h	All	After restart	Setup	–

Digit	Meaning
n.□□□□XXXX	Parameter Number (0000h to FFFFh)
n.□□XX□□□□	Node Address (10h to 1Eh)
n.XX□□□□□□	Reserved.

◆ Pn0B1: SigmaLINK II Sequence Input Allocation 1

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to FFFFh	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□XX	SigmaLINK II Response Data Selection Speed Pos Trq
00 Default	Disable (data is not set to the SigmaLINK II sequence input).
01	Allocate SigmaLINK II Response Data 1 to the SigmaLINK II sequence input.
02	Allocate SigmaLINK II Response Data 2 to the SigmaLINK II sequence input.
03	Allocate SigmaLINK II Response Data 3 to the SigmaLINK II sequence input.
04	Allocate SigmaLINK II Response Data 4 to the SigmaLINK II sequence input.
05	Allocate SigmaLINK II Response Data 5 to the SigmaLINK II sequence input.
06	Allocate SigmaLINK II Response Data 6 to the SigmaLINK II sequence input.
07	Allocate SigmaLINK II Response Data 7 to the SigmaLINK II sequence input.
08	Allocate SigmaLINK II Response Data 8 to the SigmaLINK II sequence input.
n.XX□□	SigmaLINK II Sequence Input Allocation Start Position Selection Speed Pos Trq
00 to 20	Specify the allocation start bit to the SigmaLINK II sequence input.

◆ Pn0B2: SigmaLINK II Sequence Input Allocation 2

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to FFFFh	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□XX	SigmaLINK II Response Data Selection Speed Pos Trq
00 Default	Disable (data is not set to the SigmaLINK II sequence input).
01	Allocate SigmaLINK II Response Data 1 to the SigmaLINK II sequence input.
02	Allocate SigmaLINK II Response Data 2 to the SigmaLINK II sequence input.
03	Allocate SigmaLINK II Response Data 3 to the SigmaLINK II sequence input.
04	Allocate SigmaLINK II Response Data 4 to the SigmaLINK II sequence input.
05	Allocate SigmaLINK II Response Data 5 to the SigmaLINK II sequence input.
06	Allocate SigmaLINK II Response Data 6 to the SigmaLINK II sequence input.
07	Allocate SigmaLINK II Response Data 7 to the SigmaLINK II sequence input.
08	Allocate SigmaLINK II Response Data 8 to the SigmaLINK II sequence input.
n.XX□□	SigmaLINK II Sequence Input Allocation Start Position Selection Speed Pos Trq
00 to 20	Specify the allocation start bit to the SigmaLINK II sequence input.

◆ Pn0B5: SigmaLINK II Sequence Output Allocation 1

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to FFFFh	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□XX	SigmaLINK II Command Data Selection Speed Pos Trq
00 Default	Disable (data is not set to the SigmaLINK II sequence output).
01	Allocate SigmaLINK II Command Data 1 to the SigmaLINK II sequence output.
02	Allocate SigmaLINK II Command Data 2 to the SigmaLINK II sequence output.
03	Allocate SigmaLINK II Command Data 3 to the SigmaLINK II sequence output.
04	Allocate SigmaLINK II Command Data 4 to the SigmaLINK II sequence output.
n.XX□□	SigmaLINK II Sequence Output Allocation Start Position Selection Speed Pos Trq
00 to 20	Specify the allocation start bit to the SigmaLINK II sequence output.

◆ Pn0D8: Reserved (Do not change.) Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	–	–	0000h	All	–	–	–

◆ Pn0D9: Reserved (Do not change.) Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	–	–	0000h	All	–	–	–

◆ Pn0DA: SigmaLINK II Semi-closed Encoder Selection

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 011Eh	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□XX	Node Address Speed Pos Trq
00 to 1E	Select an encoder with a node address between 00h and 1Eh.
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn0DB: SigmaLINK II Fully-closed Encoder Selection

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 011Eh	–	0101h	All	After restart	Setup	–

Digit	Meaning
n.□□XX	Node Address Speed Pos Trq
00 to 1E	Select an encoder with a node address between 00h and 1Eh.
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn0DC: SigmaLINK II Node Change Detection Condition Selection

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 0003h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Connected Node Change Detection Condition Speed Pos Trq
0 Default	Set vendor ID and product ID as conditions.
1	Set vendor ID, product ID, and serial number as conditions.
2	Set vendor ID, product ID, and product version as conditions.
3	Set vendor ID, product ID, product version, and serial number as conditions.
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn0DD: SigmaLINK II I/O Device Error Detection Selection

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to F4F2h	–	0110h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	SigmaLINK II I/O Device Communications Check Mask Speed Pos Trq
0 Default	Set SigmaLINK II slave communications error as an alarm (A.Cd7).
1	Set SigmaLINK II slave communications error as a warning (A.932).
2	Do not detect the SigmaLINK II slave communications error.
n.□□X□	Reserved (Do not change.)
n.□X□□	SigmaLINK II I/O Device Status Check Mask Speed Pos Trq
0	A.Cd8 occurs when the alarm or warning signal is received from the SigmaLINK II slave.
1 Default	A.Cd8 occurs when the alarm signal is received from the SigmaLINK II slave and A.933 occurs when the warning signal is received.
2	A.933 occurs when the alarm or warning signal is received from the SigmaLINK II slave.
3	Do not detect the SigmaLINK II slave status error.
n.X□□□	Reserved (Do not change.)

◆ Pn100: Speed Loop Gain

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 20,000	0.1 Hz	400	All	Immediately	Tuning	–

◆ Pn101: Speed Loop Integral Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	15 to 51,200	0.01 ms	2000	All	Immediately	Tuning	–

◆ Pn102: Position Loop Gain

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 20,000	0.1/s	400	All	Immediately	Tuning	–

◆ Pn103: Moment of Inertia Ratio

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65,535	1%	100	All	Immediately	Tuning	–

◆ Pn104: Second Speed Loop Gain

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 20,000	0.1 Hz	400	All	Immediately	Tuning	–

◆ Pn105: Second Speed Loop Integral Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	15 to 51,200	0.01 ms	2000	All	Immediately	Tuning	–

◆ Pn106: Second Position Loop Gain

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 20,000	0.1/s	400	All	Immediately	Tuning	–

◆ Pn109: Feedforward

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 100	1%	0	All	Immediately	Tuning	–

◆ Pn10A: Feedforward Filter Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 6,400	0.01 ms	0	All	Immediately	Tuning	–

◆ Pn10B: Gain Application Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 5334h	–	0000h	All	–	Setup	–

Digit	Meaning	When Enabled
n.□□□X	Mode Switching Selection Speed Pos Trq	–
0 Default	Use the internal torque reference as the condition (level setting: Pn10C).	Immediately
1	Use the speed reference as the condition (level setting: Pn10D).	Immediately
	Use the speed reference as the condition (level setting: Pn181).	
2	Use the acceleration reference as the condition (level setting: Pn10E).	Immediately
	Use the acceleration reference as the condition (level setting: Pn182).	
3	Use the position deviation as the condition (level setting: Pn10F).	Immediately
4	Do not use mode switching.	Immediately
n.□□X□	Speed Loop Control Method Speed Pos Trq	–
0 Default	PI control	After restart
1	I-P control	After restart
2, 3	Reserved (Do not use.)	After restart
n.□X□□	Reserved (Do not change.)	–
n.X□□□	Reserved (Do not change.)	–

◆ Pn10C: Mode Switching Level for Torque Reference

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 800	1%	200	All	Immediately	Tuning	–

◆ Pn10D: Mode Switching Level for Speed Reference

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 10,000	1 min^{-1}	0	Rotary	Immediately	Tuning	–

◆ Pn10E: Mode Switching Level for Acceleration

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 30,000	1 min^{-1}/s	0	Rotary	Immediately	Tuning	–

◆ Pn10F: Mode Switching Level for Position Deviation

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 10,000	1 reference unit	0	All	Immediately	Tuning	–

◆ Pn11F: Position Integral Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 50000	0.1 ms	0	All	Immediately	Tuning	–

◆ Pn121: Friction Compensation Gain

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 1000	1%	100	All	Immediately	Tuning	–

◆ Pn122: Second Friction Compensation Gain

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 1000	1%	100	All	Immediately	Tuning	–

◆ Pn123: Friction Compensation Coefficient

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 100	1%	0	All	Immediately	Tuning	–

◆ Pn124: Friction Compensation Frequency Correction

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	-10,000 to 10,000	0.1 Hz	0	All	Immediately	Tuning	–

◆ Pn125: Friction Compensation Gain Correction

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	1 to 1000	1%	100	All	Immediately	Tuning	–

◆ Pn131: Gain Switching Time 1

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65,535	1 ms	0	All	Immediately	Tuning	–

◆ Pn132: Gain Switching Time 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65,535	1 ms	0	All	Immediately	Tuning	–

◆ Pn135: Gain Switching Waiting Time 1

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65,535	1 ms	0	All	Immediately	Tuning	–

◆ Pn136: Gain Switching Waiting Time 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65,535	1 ms	0	All	Immediately	Tuning	–

◆ Pn139: Automatic Gain Switching Selections 1

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0052h	–	0000h	All	Immediately	Tuning	–

Digit	Meaning
n.□□□X	Gain Switching Selection Speed Pos Trq
0 Default	Manual Gain Switching The gain is switched manually with G-SEL in SVCMD_IO.
1	Reserved (Do not use.)
2	Use automatic gain switching pattern 1. The gain settings 1 switch automatically to 2 when switching condition A is satisfied. The gain settings 2 switch automatically to 1 when switching condition A is not satisfied.
n.□□X□	Gain Switching Condition A Speed Pos Trq
0 Default	/COIN (Positioning Completion Output) signal turns ON.
1	/COIN (Positioning Completion Output) signal turns OFF.
2	/NEAR (Near Output) signal turns ON.
3	/NEAR (Near Output) signal turns OFF.
4	Position reference filter output is 0 and position reference input is OFF.
5	Position reference input is ON.
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn13D: Current Gain Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	100 to 2,000	1%	2000	All	Immediately	Tuning	–

◆ Pn140: Model Following Control-Related Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 1121h	–	0100h	All	Immediately	Tuning	–

Digit	Meaning
n.□□□X	Model Following Control Selection (Speed / **Pos** / Trq)
0 Default	Do not use model following control.
1	Use model following control.
n.□□X□	Vibration Suppression Selection (Speed / **Pos** / Trq)
0 Default	Do not perform vibration suppression.
1	Perform vibration suppression for a specific frequency.
2	Perform vibration suppression for two specific frequencies.
n.□X□□	Vibration Suppression Adjustment Selection (Speed / **Pos** / Trq)
0	Do not adjust vibration suppression automatically during execution of autotuning without a host reference, autotuning with a host reference, and custom tuning.
1 Default	Adjust vibration suppression automatically during execution of autotuning without a host reference, autotuning with a host reference, and custom tuning.
n.X□□□	Speed Feedforward (VFF)/Torque Feedforward (TFF) Selection (Speed / **Pos** / Trq)
0 Default	Do not use model following control and speed/torque feedforward together.
1	Use model following control and speed/torque feedforward together.

◆ Pn141: Model Following Control Gain

Speed **Pos** Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 20,000	0.1/s	500	All	Immediately	Tuning	–

◆ Pn142: Model Following Control Gain Correction

Speed **Pos** Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	500 to 2,000	0.1%	1000	All	Immediately	Tuning	–

◆ Pn143: Model Following Control Bias in the Forward Direction

Speed **Pos** Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10,000	0.1%	1000	All	Immediately	Tuning	–

◆ Pn144: Model Following Control Bias in the Reverse Direction

Speed **Pos** Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10,000	0.1%	1000	All	Immediately	Tuning	–

◆ Pn145: Vibration Suppression 1 Frequency A

Speed **Pos** Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 2,500	0.1 Hz	500	All	Immediately	Tuning	–

◆ Pn146: Vibration Suppression 1 Frequency B

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 2,500	0.1 Hz	700	All	Immediately	Tuning	–

◆ Pn147: Model Following Control Speed Feedforward Compensation

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10,000	0.1%	1000	All	Immediately	Tuning	–

◆ Pn148: Second Model Following Control Gain

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 20,000	0.1/s	500	All	Immediately	Tuning	–

◆ Pn149: Second Model Following Control Gain Correction

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	500 to 2,000	0.1%	1000	All	Immediately	Tuning	–

◆ Pn14A: Vibration Suppression 2 Frequency

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 2000	0.1 Hz	800	All	Immediately	Tuning	–

◆ Pn14B: Vibration Suppression 2 Correction

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 1000	1%	100	All	Immediately	Tuning	–

◆ Pn14F: Control-Related Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 0031h	–	0030h	All	After restart	Tuning	–

Digit	Meaning
n.□□□X	Model Following Control Type Selection (Speed Pos Trq)
0 Default	Use overshoot control type for model following control.
1	Use response emphasis type for model following control.
n.□□X□	Tuning-less Type Selection (Speed Pos Trq)
0	Use tuning-less type 1.
1	Use tuning-less type 2.
2	Use tuning-less type 3.
3 Default	Use tuning-less type 4.
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn160: Anti-Resonance Control-Related Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0011h	–	0010h	All	Immediately	Tuning	–

Digit	Meaning
n.□□□X	Anti-Resonance Control Selection Speed Pos Trq
0 Default	Do not use anti-resonance control.
1	Use anti-resonance control.
n.□□X□	Anti-Resonance Control Adjustment Selection Speed Pos Trq
0	Do not adjust anti-resonance control automatically during execution of autotuning without a host reference, autotuning with a host reference, and custom tuning.
1 Default	Adjust anti-resonance control automatically during execution of autotuning without a host reference, autotuning with a host reference, and custom tuning.
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn161: Anti-Resonance Frequency

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	10 to 20,000	0.1 Hz	1000	All	Immediately	Tuning	–

◆ Pn162: Anti-Resonance Gain Correction

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	1 to 1000	1%	100	All	Immediately	Tuning	–

◆ Pn163: Anti-Resonance Damping Gain

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 300	1%	0	All	Immediately	Tuning	–

◆ Pn164: Anti-Resonance Filter Time Constant 1 Correction

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	-1,000 to 1,000	0.01 ms	0	All	Immediately	Tuning	–

◆ Pn165: Anti-Resonance Filter Time Constant 2 Correction

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	-1,000 to 1,000	0.01 ms	0	All	Immediately	Tuning	–

◆ Pn166: Anti-Resonance Damping Gain 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 1,000	1%	0	All	Immediately	Tuning	–

◆ Pn170: Tuning-less Function-Related Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2711h	–	1400h	All	–	Setup	–

Digit	Meaning	When Enabled
n.□□□X	Tuning-less Selection Speed Pos Trq	–
0 Default	Disable tuning-less function.	After restart
1	Enable tuning-less function.	After restart
n.□□X□	Speed Control Method Speed Pos Trq	–
0 Default	Use for speed control.	After restart
1	Use for speed control and use host controller for position control.	After restart
n.□X□□	Tuning-less Level Speed Pos Trq	–
0	Set the tuning-less level to 0.	Immediately
1	Set the tuning-less level to 1.	Immediately
2	Set the tuning-less level to 2.	Immediately
3	Set the tuning-less level to 3.	Immediately
4 Default	Set the tuning-less level to 4.	Immediately
5	Set the tuning-less level to 5.	Immediately
6	Set the tuning-less level to 6.	Immediately
7	Set the tuning-less level to 7.	Immediately
n.X□□□	Tuning-less Load Level Speed Pos Trq	–
0	Set the tuning-less load level to 0.	Immediately
1 Default	Set the tuning-less load level to 1.	Immediately
2	Set the tuning-less load level to 2.	Immediately

◆ Pn173: Load Fluctuation Compensation Control-Related Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0001h	–	0000h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	Load Fluctuation Compensation Control Selection Speed Pos Trq
0 Default	Do not use load fluctuation compensation control.
1	Use load fluctuation compensation control.
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn174: Load Fluctuation Compensation Control Response Level Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	10 to 20,000	0.1	400	All	Immediately	Tuning	–

◆ Pn181: Mode Switching Level for Speed Reference

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10,000	1 mm/s	0	Linear	Immediately	Tuning	–

◆ Pn182: Mode Switching Level for Acceleration

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 30,000	1 mm/s^2	0	Linear	Immediately	Tuning	–

◆ Pn205: Multiturn Limit

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65,535	1 rev	65535	Rotary	After restart	Setup	–

◆ Pn207: Position Control Function Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 2210h	–	0010h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Reserved (Do not change.)
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	/COIN (Positioning Completion Output) Signal Output Timing Speed Pos Trq
0 Default	Output when the absolute value of the position deviation is the same or less than the setting of Pn522 (Positioning Completed Width).
1	Output when the absolute value of the position error is the same or less than the setting of Pn522 (Positioning Completed Width) and the reference after the position reference filter is 0.
2	Output when the absolute value of the position error is the same or less than the setting of Pn522 (Positioning Completed Width) and the reference input is 0.

◆ Pn20A: Number of External Encoder Scale Pitches

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	4 to 1,048,576	1 scale pitch/ revolution	32768	Rotary	After restart	Setup	–

◆ Pn20E: Electronic Gear Ratio (Numerator)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	1 to 1073741824	–	64	All	After restart	Setup	–

◆ Pn210: Electronic Gear Ratio (Denominator)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	1 to 1073741824	–	1	All	After restart	Setup	–

◆ Pn212: Number of Encoder Output Pulses

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	16 to 1073741824	1 P/Rev	2048	Rotary	After restart	Setup	–

◆ Pn21D: Encoder Resolution Setting

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 00A1h	–	0080h	Rotary	After restart	Setup	–

Digit	Meaning
n.□□□X	Encoder Resolution Compatibility Selection (Speed Pos Trq)
0 Default	Disable encoder resolution compatibility.
1	Enable encoder resolution compatibility.
n.□□X□	Encoder Resolution Compatibility: Resolution Selection (Speed Pos Trq)
4	Operate as 20-bit encoder.
6	Operate as 22-bit encoder.
8 Default	Operate as 24-bit encoder.
A	Operate as 26-bit encoder.
Other values	Reserved (Do not use.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn22A: Fully-closed Control Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 1003h	–	0000h	Rotary	After restart	Setup	–

Digit	Meaning
n.□□□X	Reserved (Do not change.)
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Fully-closed Control Speed Feedback Selection (Speed Pos Trq)
0 Default	Use motor encoder speed.
1	Use external encoder speed.

◆ Pn230: Position Control Expansion Function Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0001h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Backlash Compensation Direction Speed Pos Trq
0 Default	Compensate forward references.
1	Compensate reverse references.
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn231: Backlash Compensation Value

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
4	-500,000 to 500,000	0.1 reference unit	0	All	Immediately	Setup	–

◆ Pn233: Backlash Compensation Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 65,535	0.01 ms	0	All	Immediately	Setup	–

◆ Pn281: Encoder Output Resolution

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	1 to 4,096	1 edge/pitch	20	All	After restart	Setup	–

◆ Pn282: Linear Encoder Scale Pitch

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
4	0 to 6553600	0.01 µm	0	Linear	After restart	Setup	–

◆ Pn304: Jogging Speed

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 10,000	Rotary: 1 min^{-1} Direct Drive: 0.1 min^{-1}	500	Rotary	Immediately	Setup	–

◆ Pn305: Soft Start Acceleration Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 12000	1 ms	0	All	Immediately	Setup	–

◆ Pn306: Soft Start Deceleration Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 12000	1 ms	0	All	Immediately	Setup	–

◆ Pn308: Speed Feedback Filter Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65,535	0.01 ms	0	All	Immediately	Setup	–

◆ Pn30A: Deceleration Time for Servo OFF and Forced Stops

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 12000	1 ms	0	All	Immediately	Setup	–

◆ Pn30C: Speed Feedforward Average Movement Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 5,100	0.1 ms	0	All	Immediately	Setup	–

◆ Pn310: Vibration Detection Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 0002h	–	0000h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	Vibration Detection Selection (Speed Pos Trq)
0 [Default]	Do not detect vibration.
1	Output a warning (A.911) if vibration is detected.
2	Output an alarm (A.520) if vibration is detected.
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn311: Vibration Detection Sensitivity

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	50 to 500	1%	100	All	Immediately	Tuning	–

◆ Pn312: Vibration Detection Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 5,000	1 min^{-1}	50	Rotary	Immediately	Tuning	–

◆ Pn316: Maximum Motor Speed

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65,535	1 min^{-1}	10000	Rotary	After restart	Setup	–

◆ Pn324: Moment of Inertia Calculation Starting Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 20000	1%	300	All	Immediately	Setup	–

◆ Pn383: Jogging Speed

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 10,000	1 mm/s	50	Linear	Immediately	Setup	–

◆ Pn384: Vibration Detection Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 5,000	1 mm/s	10	Linear	Immediately	Tuning	–

◆ Pn385: Maximum Motor Speed

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	1 to 100	100 mm/s	50	Linear	After restart	Setup	–

◆ Pn401: First Stage First Torque Reference Filter Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 65,535	0.01 ms	100	All	Immediately	Tuning	–

◆ Pn402: Forward Torque Limit

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 800	1%	800	Rotary	Immediately	Setup	–

Note:

The setting is a percentage of the motor rated torque.

◆ Pn403: Reverse Torque Limit

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 800	1%	800	Rotary	Immediately	Setup	–

Note:

The setting is a percentage of the motor rated torque.

◆ Pn404: Forward External Torque Limit

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 800	1%	100	All	Immediately	Setup	–

Note:

The setting is a percentage of the motor rated torque.

◆ Pn405: Reverse External Torque Limit

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 800	1%	100	All	Immediately	Setup	–

Note:

The setting is a percentage of the motor rated torque.

◆ Pn406: Emergency Stop Torque

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 800	1%	800	All	Immediately	Setup	–

Note:
The setting is a percentage of the motor rated torque.

◆ Pn407: Speed Limit during Torque Control

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 10,000	1 min^{-1}	100	Rotary	Immediately	Setup	75

◆ Pn408: Torque-Related Function Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 1111h	–	0000h	All	–	Setup	–

Digit	Meaning	When Enabled
n.□□□X	Notch Filter Selection 1 Speed Pos Trq	–
0 Default	Disable first stage notch filter.	Immediately
1	Enable first stage notch filter.	Immediately
n.□□X□	Speed Limit Selection Speed Pos Trq	–
0 Default	Use the smaller of the maximum motor speed and the setting of Pn407 as the speed limit.	After restart
	Use the smaller of the maximum motor speed and the setting of Pn480 as the speed limit.	
1	Use the smaller of the overspeed alarm detection speed and the setting of Pn407 as the speed limit.	After restart
	Use the smaller of the overspeed alarm detection speed and the setting of Pn480 as the speed limit.	
n.□X□□	Notch Filter Selection 2 Speed Pos Trq	–
0 Default	Disable second stage notch filter.	Immediately
1	Enable second stage notch filter.	Immediately
n.X□□□	Friction Compensation Function Selection Speed Pos Trq	–
0 Default	Disable friction compensation.	Immediately
1	Enable friction compensation.	Immediately

◆ Pn409: First Stage Notch Filter Frequency

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	10 to 5,000	1 Hz	5000	All	Immediately	Tuning	–

◆ Pn40A: First Stage Notch Filter Q Value

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	50 to 1,000	0.01	70	All	Immediately	Tuning	–

◆ Pn40B: First Stage Notch Filter Depth

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 1,000	0.001	0	All	Immediately	Tuning	–

◆ Pn40C: Second Stage Notch Filter Frequency

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 5,000	1 Hz	5000	All	Immediately	Tuning	–

◆ Pn40D: Second Stage Notch Filter Q Value

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	50 to 1,000	0.01	70	All	Immediately	Tuning	–

◆ Pn40E: Second Stage Notch Filter Depth

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 1,000	0.001	0	All	Immediately	Tuning	–

◆ Pn40F: Second Stage Second Torque Reference Filter Frequency

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	100 to 5,000	1 Hz	5000	All	Immediately	Tuning	–

◆ Pn410: Second Stage Second Torque Reference Filter Q Value

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	50 to 100	0.01	50	All	Immediately	Tuning	–

◆ Pn412: First Stage Second Torque Reference Filter Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65,535	0.01 ms	100	All	Immediately	Tuning	–

◆ Pn416: Torque-Related Function Selections 2

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 1111h	–	0000h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	Notch Filter Selection 3 Speed Pos Trq
0 Default	Disable third stage notch filter.
1	Enable third stage notch filter.
n.□□X□	Notch Filter Selection 4 Speed Pos Trq
0 Default	Disable fourth stage notch filter.
1	Enable fourth stage notch filter.
n.□X□□	Notch Filter Selection 5 Speed Pos Trq
0 Default	Disable fifth stage notch filter.
1	Enable fifth stage notch filter.
n.X□□□	Reserved (Do not change.)

◆ Pn417: Third Stage Notch Filter Frequency

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 5,000	1 Hz	5000	All	Immediately	Tuning	–

◆ Pn418: Third Stage Notch Filter Q Value

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	50 to 1,000	0.01	70	All	Immediately	Tuning	–

◆ Pn419: Third Stage Notch Filter Depth

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 1,000	0.001	0	All	Immediately	Tuning	–

◆ Pn41A: Fourth Stage Notch Filter Frequency

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 5,000	1 Hz	5000	All	Immediately	Tuning	–

◆ Pn41B: Fourth Stage Notch Filter Q Value

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	50 to 1,000	0.01	70	All	Immediately	Tuning	–

◆ Pn41C: Fourth Stage Notch Filter Depth

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 1,000	0.001	0	All	Immediately	Tuning	–

◆ Pn41D: Fifth Stage Notch Filter Frequency

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 5,000	1 Hz	5000	All	Immediately	Tuning	–

◆ Pn41E: Fifth Stage Notch Filter Q Value

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	50 to 1,000	0.01	70	All	Immediately	Tuning	–

◆ Pn41F: Fifth Stage Notch Filter Depth

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 1,000	0.001	0	All	Immediately	Tuning	–

◆ Pn423: Speed Ripple Compensation Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000H to 1112h	–	0002h	–	–	Setup	–

Digit	Meaning	Appli-cable Motors	When Enabled
n.□□□X	Speed Ripple Compensation Function Selection Speed Pos Trq	–	–
0	Do not execute speed ripple compensation.	Rotary	Immediately
1	Execute speed ripple compensation using the value adjusted by the user.	Rotary	Immediately
2 Default	Execute speed ripple compensation using the default adjustment value.	Rotary	Immediately
n.□□X□	Speed Ripple Compensation Information Disagreement Warning Detection Selection Speed Pos Trq	–	–
0	Detect A.942 alarms.	Rotary	After restart
1	Do not detect A.942 alarms.	Rotary	After restart
n.□X□□	Speed Ripple Compensation Enable Condition Selection Speed Pos Trq	–	–
0	Speed Reference	Rotary	After restart
1	Motor Speed	Rotary	After restart
n.X□□□	Speed Ripple Compensation Function Operation Mode Selection Speed Pos Trq	–	–
0 Default	Execute speed ripple compensation in normal mode.	All	After restart
1	Execute speed ripple compensation in press operation mode.	All	After restart
2	Reserved (Do not use.)	All	After restart
3	Reserved (Do not use.)	All	After restart

◆ Pn424: Torque Limit at Main Circuit Voltage Drop

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 100	1%	50	All	Immediately	Setup	–

Note:

The setting is a percentage of the motor rated torque.

◆ Pn425: Release Time for Torque Limit at Main Circuit Voltage Drop

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 1,000	1 ms	100	All	Immediately	Setup	–

◆ Pn426: Torque Feedforward Average Movement Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 5,100	0.1 ms	0	All	Immediately	Setup	–

◆ Pn427: Speed Ripple Compensation Enable Speed

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 10,000	1 min^{-1}	0	Rotary	Immediately	Tuning	–

◆ Pn428: Output Torque Compensation Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 0001h	–	0001h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Output Torque Compensation Function Selection Speed Pos Trq
0	Disable output torque compensation.
1 Default	Enable output torque compensation.
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn43A: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	10000	All	–	–	–

◆ Pn43B: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	10000	All	–	–	–

◆ Pn43C: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	10000	All	–	–	–

◆ Pn43D: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	10000	All	–	–	–

◆ Pn440: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	0001h	All	–	–	–

◆ Pn441: Pressure Control Function Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2711h	–	0010h	All	–	Setup	–

Digit	Meaning	When Enabled	Refer-ence
n.□□□X	Pressure Control Function Switching Method Selection Speed Pos Trq	–	–
0 Default	Switch with parameters (Pn44C and Pn44D).	Immediately	67
1	Switch with host reference (PRES_APRCH command).	Immediately	67
n.□□X□	Pressure Control Type Selection Speed Pos Trq	–	–
0	Use pressure control type 1.	After restart	68
1 Default	Use pressure control type 2.	After restart	68
n.□X□□	Contact Environment Condition (Rigidity Level) Speed Pos Trq	–	–
0 Default	Set the contact environment condition (rigidity level) to 0 (= highest rigidity level).	Immediately	77
1	Set the contact environment condition (rigidity level) to 1.	Immediately	77
2	Set the contact environment condition (rigidity level) to 2.	Immediately	77
3	Set the contact environment condition (rigidity level) to 3.	Immediately	77
4	Set the contact environment condition (rigidity level) to 4.	Immediately	77
5	Set the contact environment condition (rigidity level) to 5.	Immediately	77
6	Set the contact environment condition (rigidity level) to 6.	Immediately	77
7	Set the contact environment condition (rigidity level) to 7 (= lowest rigidity level).	Immediately	77
n.X□□□	Unit Selection for Pn443 (Pressure Control Integral Time Constant) Speed Pos Trq	–	–
0 Default	0.01 ms	Immediately	–
1	0.1 ms	Immediately	–
2	1 ms	Immediately	–

◆ Pn442: Pressure Control Proportional Gain

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 10,000	1%	100	All	Immediately	Setup	69

◆ Pn443: Pressure Control Integral Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	15 to 51,200	Set in Pn441 = n. X□□□	2000	All	Immediately	Setup	69

◆ Pn446: Pressure Control Feedforward

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 1,000	1%	0	All	Immediately	Setup	78

◆ Pn447: Pressure Reference Filter Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 65,535	0.01 ms	0	All	Immediately	Setup	79

◆ Pn448: Pressure Sensor Offset 0

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	-32768 to 32767	0.001 V	0	All	Immediately	Setup	73

◆ Pn449: Pressure Sensor Gain 0

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 65,535	0.01 V/maximum pressure	0	All	Immediately	Setup	72

◆ Pn44A: Pressure Sensor Filter Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 65,535	0.01 ms	0	All	Immediately	Setup	75

◆ Pn44C: Pressure Control Enable Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 10,000	0.01% (pct. of max. pressure)	1000	All	Immediately	Setup	67

◆ Pn44D: Pressure Control Disable Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 10,000	0.01% (pct. of max. pressure)	0	All	Immediately	Setup	67

◆ Pn44E: Pressure Deviation Overflow Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 800	1% (pct. of max. pressure)	100	All	Immediately	Setup	75

◆ Pn44F: Pressure Detection Overflow Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 800	1% (pct. of max. pressure)	300	All	Immediately	Setup	75

◆ Pn450: Pressure Detection Overflow Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 5,000	0.1 ms	0	All	Immediately	Setup	75

◆ Pn451: Pressure Control Single Parameter Gain Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	1 to 65535	0.01	100	All	Immediately	Setup	77

◆ Pn456: Sweep Torque Reference Amplitude

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	1 to 800	1%	15	All	Immediately	Tuning	–

◆ Pn458: Pressure Sensor Input Selections 1

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2222h	–	0000h	All	After restart	Setup	70

Digit	Meaning
n.□□□X	Pressure Sensor Input 0 Selection (Dedicated Analog Input) Speed Pos Trq
0 Default	Do not use.
1	Use (do not invert polarity).
2	Use (invert polarity).
n.□□X□	Pressure Sensor Input 1 Selection Speed Pos Trq
0 Default	Do not use.
1	Use input as a sensor hub input (do not invert polarity).
2	Use input as a sensor hub input (invert polarity).
n.□X□□	Pressure Sensor Input 2 Selection Speed Pos Trq
0 Default	Do not use.
1	Use input as a sensor hub input (do not invert polarity).
2	Use input as a sensor hub input (invert polarity).
n.X□□□	Pressure Sensor Input 3 Selection Speed Pos Trq
0 Default	Do not use.
1	Use input as a sensor hub input (do not invert polarity).
2	Use input as a sensor hub input (invert polarity).

◆ Pn459: Pressure Sensor Input Selections 2

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0022h	–	0000h	All	After restart	Setup	70

Digit	Meaning
n.□□□X	Pressure Sensor Input 4 Selection Speed Pos Trq
0 Default	Do not use.
1	Use input as a sensor hub input (do not invert polarity).
2	Use input as a sensor hub input (invert polarity).
n.□□X□	Pressure Sensor Input 5 Selection Speed Pos Trq
0 Default	Do not use.
1	Use input as a sensor hub input (do not invert polarity).
2	Use input as a sensor hub input (invert polarity).
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn45A: Pressure Sensor Gain 1

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 65,535	AD value / maxi-mum pressure	0	All	Immediately	Setup	72

◆ Pn45B: Pressure Sensor Gain 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 65,535	AD value / maxi-mum pressure	0	All	Immediately	Setup	72

◆ Pn45C: Pressure Sensor Gain 3

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 65,535	AD value / maxi-mum pressure	0	All	Immediately	Setup	72

◆ Pn45D: Pressure Sensor Gain 4

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 65,535	AD value / maxi-mum pressure	0	All	Immediately	Setup	72

◆ Pn45E: Pressure Sensor Gain 5

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 65,535	AD value / maxi-mum pressure	0	All	Immediately	Setup	72

◆ Pn460: Notch Filter Adjustment Selections 1

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0101h	–	0101h	All	Immediately	Tuning	–

Digit	Meaning
n.□□□X	Notch Filter Adjustment Selection 1 Speed Pos Trq
0	Do not adjust the first stage notch filter automatically during execution of autotuning without a host reference, autotuning with a host reference, and custom tuning.
1 Default	Adjust the first stage notch filter automatically during execution of autotuning without a host reference, autotuning with a host reference, and custom tuning.
n.□□X□	Reserved (Do not change.)
n.□X□□	Notch Filter Adjustment Selection 2 Speed Pos Trq
0	Do not adjust the second stage notch filter automatically when the tuning-less function is enabled or during execution of auto-tuning without a host reference, autotuning with a host reference, and custom tuning.
1 Default	Adjust the second stage notch filter automatically when the tuning-less function is enabled or during execution of autotuning without a host reference, autotuning with a host reference, and custom tuning.
n.X□□□	Reserved (Do not change.)

◆ Pn467: Pressure Sensor Offset 1

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	-32768 to 32767	AD value	0	All	Immediately	Setup	73

◆ Pn468: Pressure Sensor Offset 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	-32768 to 32767	AD value	0	All	Immediately	Setup	73

◆ Pn469: Pressure Sensor Offset 3

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	-32768 to 32767	AD value	0	All	Immediately	Setup	73

◆ Pn46A: Pressure Sensor Offset 4

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	-32768 to 32767	AD value	0	All	Immediately	Setup	73

◆ Pn46B: Pressure Sensor Offset 5

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	-32768 to 32767	AD value	0	All	Immediately	Setup	73

◆ Pn475: Gravity Compensation-Related Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0001h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Gravity Compensation Selection Speed Pos Trq
0 Default	Disable gravity compensation.
1	Enable gravity compensation.
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn476: Gravity Compensation Torque

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	-1,000 to 1,000	0.1%	0	All	Immediately	Tuning	–

◆ Pn480: Speed Limit during Force Control

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 10,000	1 mm/s	100	Linear	Immediately	Setup	75

◆ Pn481: Polarity Detection Speed Loop Gain

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	10 to 20,000	0.1 Hz	400	Linear	Immediately	Tuning	–

◆ Pn482: Polarity Detection Speed Loop Integral Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	15 to 51,200	0.01 ms	3000	Linear	Immediately	Tuning	–

◆ Pn483: Forward Force Limit

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 800	1%	30	Linear	Immediately	Setup	–

Note:

The setting is a percentage of the motor rated torque.

◆ Pn484: Reverse Force Limit

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 800	1%	30	Linear	Immediately	Setup	–

Note:

The setting is a percentage of the motor rated torque.

◆ Pn485: Polarity Detection Reference Speed

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 100	1 mm/s	20	Linear	Immediately	Tuning	–

◆ Pn486: Polarity Detection Reference Acceleration/Deceleration Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 100	1 ms	25	Linear	Immediately	Tuning	–

◆ Pn487: Polarity Detection Constant Speed Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 300	1 ms	0	Linear	Immediately	Tuning	–

◆ Pn488: Polarity Detection Reference Waiting Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	50 to 500	1 ms	100	Linear	Immediately	Tuning	–

◆ Pn48E: Polarity Detection Range

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	1 to 65535	1 mm	10	Linear	Immediately	Tuning	–

◆ Pn490: Polarity Detection Load Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 20000	1%	100	Linear	Immediately	Tuning	–

◆ Pn495: Polarity Detection Confirmation Force Reference

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 200	1%	100	Linear	Immediately	Tuning	–

◆ Pn498: Polarity Detection Allowable Error Range

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 30	1 deg	10	Linear	Immediately	Tuning	–

◆ Pn49F: Speed Ripple Compensation Enable Speed (Linear)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10,000	1 mm/s	0	Linear	Immediately	Tuning	–

◆ Pn502: Rotation Detection Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	1 to 10,000	1 min^{-1}	20	Rotary	Immediately	Setup	–

◆ Pn503: Speed Coincidence Detection Signal Output Width

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 100	1 min^{-1}	10	Rotary	Immediately	Setup	–

◆ Pn506: Brake Reference-Servo OFF Delay Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 50	10 ms	0	All	Immediately	Setup	–

◆ Pn507: Brake Reference Output Speed Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10,000	1 min^{-1}	100	Rotary	Immediately	Setup	–

◆ Pn508: Servo OFF-Brake Command Waiting Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 100	10 ms	50	All	Immediately	Setup	–

◆ Pn509: Momentary Power Interruption Hold Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	20 to 50,000	1 ms	20	All	Immediately	Setup	–

◆ Pn50A: Input Signal Selections 1

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to FFF2h	–	1881h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Input Signal Allocation Mode Speed Pos Trq
0	Reserved (Do not use.)
1 Default	Use Pn50A to Pn516 (Sigma-7S-compatible I/O signal allocation mode).
2	Use Pn590 to Pn5BC (SigmaLINK II input signal allocation mode).
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	P-OT (Forward Drive Prohibit Input) Signal Allocation Speed Pos Trq
0	Enable forward drive when CN1-13 input signal is ON (closed).
1 Default	Enable forward drive when CN1-7 input signal is ON (closed).
2	Enable forward drive when CN1-8 input signal is ON (closed).
3	Enable forward drive when CN1-9 input signal is ON (closed).
4	Enable forward drive when CN1-10 input signal is ON (closed).
5	Enable forward drive when CN1-11 input signal is ON (closed).
6	Enable forward drive when CN1-12 input signal is ON (closed).
7	Set the signal to always prohibit forward drive.
8	Set the signal to always enable forward drive.
9	Enable forward drive when CN1-13 input signal is OFF (open).
A	Enable forward drive when CN1-7 input signal is OFF (open).
B	Enable forward drive when CN1-8 input signal is OFF (open).
C	Enable forward drive when CN1-9 input signal is OFF (open).
D	Enable forward drive when CN1-10 input signal is OFF (open).
E	Enable forward drive when CN1-11 input signal is OFF (open).
F	Enable forward drive when CN1-12 input signal is OFF (open).

◆ Pn50B: Input Signal Selections 2

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to FFFFh	–	8882h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	N-OT (Reverse Drive Prohibit Input) Signal Allocation Speed Pos Trq
0	Enable reverse drive when CN1-13 input signal is ON (closed).
1	Enable reverse drive when CN1-7 input signal is ON (closed).
2 Default	Enable reverse drive when CN1-8 input signal is ON (closed).
3	Enable reverse drive when CN1-9 input signal is ON (closed).
4	Enable reverse drive when CN1-10 input signal is ON (closed).
5	Enable reverse drive when CN1-11 input signal is ON (closed).
6	Enable reverse drive when CN1-12 input signal is ON (closed).
7	Set the signal to always prohibit reverse drive.
8	Set the signal to always enable reverse drive.
9	Enable reverse drive when CN1-13 input signal is OFF (open).
A	Enable reverse drive when CN1-7 input signal is OFF (open).
B	Enable reverse drive when CN1-8 input signal is OFF (open).
C	Enable reverse drive when CN1-9 input signal is OFF (open).
D	Enable reverse drive when CN1-10 input signal is OFF (open).
E	Enable reverse drive when CN1-11 input signal is OFF (open).
F	Enable reverse drive when CN1-12 input signal is OFF (open).
n.□□X□	Reserved (Do not change.)
n.□X□□	/P-CL (Forward External Torque Limit Input) Signal Allocation Speed Pos Trq
0	Active when CN1-13 input signal is ON (closed).
1	Active when CN1-7 input signal is ON (closed).
2	Active when CN1-8 input signal is ON (closed).
3	Active when CN1-9 input signal is ON (closed).
4	Active when CN1-10 input signal is ON (closed).
5	Active when CN1-11 input signal is ON (closed).
6	Active when CN1-12 input signal is ON (closed).
7	The signal is always active.
8 Default	The signal is always inactive.
9	Active when CN1-13 input signal is OFF (open).
A	Active when CN1-7 input signal is OFF (open).
B	Active when CN1-8 input signal is OFF (open).
C	Active when CN1-9 input signal is OFF (open).
D	Active when CN1-10 input signal is OFF (open).
E	Active when CN1-11 input signal is OFF (open).
F	Active when CN1-12 input signal is OFF (open).
n.X□□□	/N-CL (Reverse External Torque Limit Input) Signal Allocation Speed Pos Trq
0 to F	The allocations are the same as the /P-CL (Forward External Torque Limit Input) signal allocations.

◆ Pn50E: Output Signal Selections 1

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 6666h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	/COIN (Positioning Completion Output) Signal Allocation Speed Pos Trq
0 Default	Disabled (the above signal output is not used).
1	Output the signal from the CN1-1 or CN1-2 output terminal.
2	Output the signal from the CN1-23 or CN1-24 output terminal.
3	Output the signal from the CN1-25 or CN1-26 output terminal.
4	Reserved (Do not use.)
5	Reserved (Do not use.)
6	Reserved (Do not use.)
Other values	Disabled (the above signal output is not used).
n.□□X□	/V-CMP (Speed Coincidence Detection Output) Signal Allocation Speed Pos Trq
0 to 6	The allocations are the same as the /COIN (Positioning Completion Output) signal allocations.
n.□X□□	/TGON (Rotation Detection Output) Signal Allocation Speed Pos Trq
0 to 6	The allocations are the same as the /COIN (Positioning Completion Output) signal allocations.
n.X□□□	/S-RDY (Servo Ready Output) Signal Allocation Speed Pos Trq
0 to 6	The allocations are the same as the /COIN (Positioning Completion Output) signal allocations.

◆ Pn50F: Output Signal Selections 2

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 6666h	–	0100h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	/CLT (Torque Limit Detection Output) Signal Allocation Speed Pos Trq
0 Default	Disabled (the above signal output is not used).
1	Output the signal from the CN1-1 or CN1-2 output terminal.
2	Output the signal from the CN1-23 or CN1-24 output terminal.
3	Output the signal from the CN1-25 or CN1-26 output terminal.
4	Reserved (Do not use.)
5	Reserved (Do not use.)
6	Reserved (Do not use.)
Other values	Disabled (the above signal output is not used).
n.□□X□	/VLT (Speed Limit Detection Output) Signal Allocation Speed Pos Trq
0 to 6	The allocations are the same as the /CLT (Torque Limit Detection Output) signal allocations.
n.□X□□	/BK (Brake Output) Signal Allocation Speed Pos Trq
0 to 6	The allocations are the same as the /CLT (Torque Limit Detection Output) signal allocations.
n.X□□□	/WARN (Warning Output) Signal Allocation Speed Pos Trq
0 to 6	The allocations are the same as the /CLT (Torque Limit Detection Output) signal allocations.

◆ Pn510: Output Signal Selections 3

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0666h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	/NEAR (Near Output) Signal Allocation Speed Pos Trq
0 Default	Disabled (the above signal output is not used).
1	Output the signal from the CN1-1 or CN1-2 output terminal.
2	Output the signal from the CN1-23 or CN1-24 output terminal.
3	Output the signal from the CN1-25 or CN1-26 output terminal.
4	Reserved (Do not use.)
5	Reserved (Do not use.)
6	Reserved (Do not use.)
Other values	Disabled (the above signal output is not used).
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn511: Input Signal Selections 5

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to FFFFh	–	6543h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	/DEC (Origin Return Deceleration Switch Input) Signal Allocation Speed Pos Trq
0	Active when CN1-13 input signal is ON (closed).
1	Active when CN1-7 input signal is ON (closed).
2	Active when CN1-8 input signal is ON (closed).
3 Default	Active when CN1-9 input signal is ON (closed).
4	Active when CN1-10 input signal is ON (closed).
5	Active when CN1-11 input signal is ON (closed).
6	Active when CN1-12 input signal is ON (closed).
7	The signal is always active.
8	The signal is always inactive.
9	Active when CN1-13 input signal is OFF (open).
A	Active when CN1-7 input signal is OFF (open).
B	Active when CN1-8 input signal is OFF (open).
C	Active when CN1-9 input signal is OFF (open).
D	Active when CN1-10 input signal is OFF (open).
E	Active when CN1-11 input signal is OFF (open).
F	Active when CN1-12 input signal is OFF (open).
n.□□X□	/EXT1 (External Latch Input 1) Signal Allocation Speed Pos Trq
0 to 3	The signal is always inactive.
4 Default	Active when CN1-10 input signal is ON (closed).
5	Active when CN1-11 input signal is ON (closed).
6	Active when CN1-12 input signal is ON (closed).
7 to C	The signal is always inactive.
D	Active when CN1-10 input signal is OFF (open).
E	Active when CN1-11 input signal is OFF (open).
F	Active when CN1-12 input signal is OFF (open).
n.□X□□	/EXT2 (External Latch Input 2) Signal Allocation Speed Pos Trq
0 to F	The allocations are the same as the /EXT1 (External Latch Input 1) signal allocations.
n.X□□□	/EXT3 (External Latch Input 3) Signal Allocation Speed Pos Trq
0 to F	The allocations are the same as the /EXT1 (External Latch Input 1) signal allocations.

◆ Pn512: Output Signal Inverse Settings

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 1111h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Output Signal Inversion for CN1-1 and CN1-2 Terminals Speed Pos Trq
0 Default	The signal is not inverted.
1	The signal is inverted.
n.□□X□	Output Signal Inversion for CN1-23 and CN1-24 Terminals Speed Pos Trq
0 Default	The signal is not inverted.
1	The signal is inverted.
n.□X□□	Output Signal Inversion for CN1-25 and CN1-26 Terminals Speed Pos Trq
0 Default	The signal is not inverted.
1	The signal is inverted.
n.X□□□	Reserved (Do not change.)

◆ Pn514: Output Signal Selections 4

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0666h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Reserved (Do not change.)
n.□□X□	Reserved (Do not change.)
n.□X□□	/PM (Preventative Maintenance Output) Signal Allocation Speed Pos Trq
0 Default	Disabled (the above signal output is not used).
1	Output the signal from the CN1-1 or CN1-2 output terminal.
2	Output the signal from the CN1-23 or CN1-24 output terminal.
3	Output the signal from the CN1-25 or CN1-26 output terminal.
4	Reserved (Do not use.)
5	Reserved (Do not use.)
6	Reserved (Do not use.)
Other values	Disabled (the above signal output is not used).
n.X□□□	Reserved (Do not change.)

◆ Pn516: Input Signal Selections 7

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to FFFFh	–	8888h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	FSTP (Forced Stop Input) Signal Allocation Speed Pos Trq
0	Enable drive when CN1-13 input signal is ON (closed).
1	Enable drive when CN1-7 input signal is ON (closed).
2	Enable drive when CN1-8 input signal is ON (closed).
3	Enable drive when CN1-9 input signal is ON (closed).
4	Enable drive when CN1-10 input signal is ON (closed).
5	Enable drive when CN1-11 input signal is ON (closed).
6	Enable drive when CN1-12 input signal is ON (closed).
7	Set the signal to always prohibit drive (always force the motor to stop).
8 Default	Set the signal to always enable drive (always disable forcing the motor to stop).
9	Enable drive when CN1-13 input signal is OFF (open).
A	Enable drive when CN1-7 input signal is OFF (open).
B	Enable drive when CN1-8 input signal is OFF (open).
C	Enable drive when CN1-9 input signal is OFF (open).
D	Enable drive when CN1-10 input signal is OFF (open).
E	Enable drive when CN1-11 input signal is OFF (open).
F	Enable drive when CN1-12 input signal is OFF (open).
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn518: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
–	–	–	–	All	–	–	–

◆ Pn51B: Motor-Load Position Deviation Overflow Detection Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	0 to 1073741824	1 reference unit	1000	Rotary	Immediately	Setup	–

◆ Pn51E: Position Deviation Overflow Warning Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 100	1%	100	All	Immediately	Setup	–

◆ Pn520: Position Deviation Overflow Alarm Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	1 to 1073741823	1 reference unit	6116694	All	Immediately	Setup	–

◆ Pn522: In-position Range

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	0 to 1073741824	1 reference unit	7	All	Immediately	Setup	–

◆ Pn524: Near Signal Width

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	1 to 1073741824	1 reference unit	1073741824	All	Immediately	Setup	–

◆ Pn526: Position Deviation Overflow Alarm Level at Servo ON

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	1 to 1073741823	1 reference unit	6116694	All	Immediately	Setup	–

◆ Pn528: Position Deviation Overflow Warning Level at Servo ON

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 100	1%	100	All	Immediately	Setup	–

◆ Pn529: Speed Limit Level at Servo ON

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10,000	1 min^{-1}	10000	Rotary	Immediately	Setup	–

◆ Pn52A: Multiplier per Fully-closed Rotation

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 100	1%	20	Rotary	Immediately	Tuning	–

◆ Pn52B: Overload Warning Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	1 to 100	1%	20	All	After restart	Setup	–

◆ Pn52C: Base Current Derating at Motor Overload Detection

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 100	1%	100	All	After restart	Setup	–

◆ Pn530: Program Jogging-Related Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0005h	–	0000h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	Program Jogging Operation Pattern Speed Pos Trq
0 Default	(Waiting time in Pn535 → Forward by travel distance in Pn531) × Number of movements in Pn536
1	(Waiting time in Pn535 → Reverse by travel distance in Pn531) × Number of movements in Pn536
2	(Waiting time in Pn535 → Forward by travel distance in Pn531) × Number of movements in Pn536 (Waiting time in Pn535 → Reverse by travel distance in Pn531) × Number of movements in Pn536
3	(Waiting time in Pn535 → Reverse by travel distance in Pn531) × Number of movements in Pn536 (Waiting time in Pn535 → Forward by travel distance in Pn531) × Number of movements in Pn536
4	(Waiting time in Pn535 → Forward by travel distance in Pn531 → Waiting time in Pn535 → Reverse by travel distance in Pn531) × Number of movements in Pn536
5	(Waiting time in Pn535 → Reverse by travel distance in Pn531 → Waiting time in Pn535 → Forward by travel distance in Pn531) × Number of movements in Pn536
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn531: Program Jogging Travel Distance

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
4	1 to 1073741824	1 reference unit	32768	All	Immediately	Setup	–

◆ Pn533: Program Jogging Movement Speed

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	1 to 10,000	Rotary: 1 min^{-1} Direct Drive: 0.1 min^{-1}	500	Rotary	Immediately	Setup	–

◆ Pn534: Program Jogging Acceleration/Deceleration Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	2 to 10,000	1 ms	100	All	Immediately	Setup	–

◆ Pn535: Program Jogging Waiting Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 10,000	1 ms	100	All	Immediately	Setup	–

◆ Pn536: Program Jogging Number of Movements

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 1,000	1 time	1	All	Immediately	Setup	–

◆ Pn540: Maximum Search Gain

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 4000	0.1 Hz	3000	All	Immediately	Tuning	–

◆ Pn550: Analog Monitor 1 Offset Voltage

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	-10,000 to 10,000	0.1 V	0	All	Immediately	Setup	–

◆ Pn551: Analog Monitor 2 Offset Voltage

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	-10,000 to 10,000	0.1 V	0	All	Immediately	Setup	–

◆ Pn552: Analog Monitor 1 Magnification

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	-10,000 to 10,000	× 0.01	100	All	Immediately	Setup	–

◆ Pn553: Analog Monitor 2 Magnification

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	-10,000 to 10,000	× 0.01	100	All	Immediately	Setup	–

◆ Pn55A: Power Consumption Monitor Unit Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	1 to 1440	1 min	1	All	Immediately	Setup	–

◆ Pn55C: Function Selections to Specify Output Status When a Host Communications Error Occurs

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 0001h	–	0001h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Function Selection to Specify Output Status When a Host Communications Error Occurs Speed Pos Trq
0	Do not use the function to specify the output status when a host communications error occurs.
1 Default	Use the function to specify the output status when a host communications error occurs.
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn55D: Specify Output Status When a Host Communications Error Occurs

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 001Fh	–	0000h	All	After restart	Setup	–

Bit	Meaning
Bit 0	Use the SO1 output (0: OFF when there is a host communications error, 1: ON when there is a host communications error)
Bit 1	Use the SO2 output (0: OFF when there is a host communications error, 1: ON when there is a host communications error)
Bit 2	Use the SO3 output (0: OFF when there is a host communications error, 1: ON when there is a host communications error)
Bits 3 to 15	Reserved (Do not use.)

◆ Pn560: Residual Vibration Detection Width

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	1 to 3000	0.1%	400	All	Immediately	Setup	–

◆ Pn561: Overshoot Detection Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 1,000	1%	100	All	Immediately	Setup	–

◆ Pn562: Setting Gain Ratio

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	10 to 100	1%	80	All	Immediately	Tuning	–

◆ Pn56A: Output Signal Reference Method Selections 1

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2222h	–	1111h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	SO1 Output Signal Reference Method Selection Speed Pos Trq
0	Reserved (Do not use.)
1 Default	Output OR of parameter-assigned SO1 signal and signal set by SVCMD_IO.
2	Output signal set by SCVMD_IO to SLO1.
n.□□X□	SO2 Output Signal Reference Method Selection Speed Pos Trq
0	Reserved (Do not use.)
1 Default	Output OR of parameter-assigned SO2 signal and signal set by SVCMD_IO.
2	Output signal set by SCVMD_IO to SLO2.
n.□X□□	SO3 Output Signal Reference Method Selection Speed Pos Trq
0	Reserved (Do not use.)
1 Default	Output OR of parameter-assigned SO3 signal and signal set by SVCMD_IO.
2	Output signal set by SCVMD_IO to SLO3.
n.X□□□	SLO4 Output Signal Reference Method Selection Speed Pos Trq
0	Reserved (Do not use.)
1 Default	Do not output signal to SLO4.
2	Output signal set by SCVMD_IO to SOL4.

◆ Pn56B: Reserved (Do not change.) Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	–	–	0001h	All	–	–	–

◆ Pn581: Zero Speed Level Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	1 to 10,000	1 mm/s	20	Linear	Immediately	Setup	–

◆ Pn582: Speed Coincidence Detection Signal Output Width Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 100	1 mm/s	10	Linear	Immediately	Setup	–

◆ Pn583: Brake Reference Output Speed Level Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 10,000	1 mm/s	10	Linear	Immediately	Setup	–

◆ Pn584: Speed Limit Level at Servo ON

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10,000	1 mm/s	10000	Linear	Immediately	Setup	–

◆ Pn585: Program Jogging Movement Speed

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	1 to 10,000	1 mm/s	50	Linear	Immediately	Setup	–

◆ Pn586: Motor Running Cooling Ratio

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 100	1% / Maximum Motor Speed	0	Linear	Immediately	Setup	–

◆ Pn587: Polarity Detection Execution Selection for Absolute Linear Encoder

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 0001h	–	0000h	Linear	Immediately	Setup	–

Digit	Meaning
n.□□□X	Polarity Detection Selection for Absolute Linear Encoder Speed Pos Trq
0 Default	Do not detect polarity.
1	Detect polarity.
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn589: SigmaLINK II Node Detection Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	100 to 10,000	1 ms	1500	All	After restart	Setup	–

◆ Pn590: P-OT (Forward Drive Prohibit Input) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 3149h	–	1007h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
007 Default	Allocate the signal to CN1-7.
008	Allocate the signal to CN1-8.
009	Allocate the signal to CN1-9.
010	Allocate the signal to CN1-10.
011	Allocate the signal to CN1-11.
012	Allocate the signal to CN1-12.
013	Allocate the signal to CN1-13.
100	Allocate the signal to Σ-LINK II Sequence Input 0.
101	Allocate the signal to Σ-LINK II Sequence Input 1.
102	Allocate the signal to Σ-LINK II Sequence Input 2.
103	Allocate the signal to Σ-LINK II Sequence Input 3.
104	Allocate the signal to Σ-LINK II Sequence Input 4.
105	Allocate the signal to Σ-LINK II Sequence Input 5.
106	Allocate the signal to Σ-LINK II Sequence Input 6.
107	Allocate the signal to SigmaLINK II Sequence Input 7.
Other values	Set the signal to always enable forward drive.
n.X□□□	Polarity Selection Speed Pos Trq
0	Set the signal to always enable forward drive.
1 Default	Active when input signal is ON (closed).
2	Active when input signal is OFF (open).
3	Set the signal to always prohibit forward drive.

◆ Pn591: N-OT (Reverse Drive Prohibit Input) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 3149h	–	1008h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
007	Allocate the signal to CN1-7.
008 Default	Allocate the signal to CN1-8.
009	Allocate the signal to CN1-9.
010	Allocate the signal to CN1-10.
011	Allocate the signal to CN1-11.
012	Allocate the signal to CN1-12.
013	Allocate the signal to CN1-13.
100	Allocate the signal to Σ-LINK II Sequence Input 0.
101	Allocate the signal to Σ-LINK II Sequence Input 1.
102	Allocate the signal to Σ-LINK II Sequence Input 2.
103	Allocate the signal to Σ-LINK II Sequence Input 3.
104	Allocate the signal to Σ-LINK II Sequence Input 4.
105	Allocate the signal to Σ-LINK II Sequence Input 5.
106	Allocate the signal to Σ-LINK II Sequence Input 6.
107	Allocate the signal to SigmaLINK II Sequence Input 7.
Other values	Set the signal to always enable reverse drive.
n.X□□□	Polarity Selection Speed Pos Trq
0	Set the signal to always enable reverse drive.
1 Default	Active when input signal is ON (closed).
2	Active when input signal is OFF (open).
3	Set the signal to always prohibit reverse drive.

◆ Pn592: /DEC (Origin Return Deceleration Switch Input) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 3149h	–	1009h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
007	Allocate the signal to CN1-7.
008	Allocate the signal to CN1-8.
009 Default	Allocate the signal to CN1-9.
010	Allocate the signal to CN1-10.
011	Allocate the signal to CN1-11.
012	Allocate the signal to CN1-12.
013	Allocate the signal to CN1-13.
100	Allocate the signal to Σ-LINK II Sequence Input 0.
101	Allocate the signal to Σ-LINK II Sequence Input 1.
102	Allocate the signal to Σ-LINK II Sequence Input 2.
103	Allocate the signal to Σ-LINK II Sequence Input 3.
104	Allocate the signal to Σ-LINK II Sequence Input 4.
105	Allocate the signal to Σ-LINK II Sequence Input 5.
106	Allocate the signal to Σ-LINK II Sequence Input 6.
107	Allocate the signal to SigmaLINK II Sequence Input 7.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0	The signal is always inactive.
1 Default	Active when input signal is ON (closed).
2	Active when input signal is OFF (open).
3	The signal is always active.

◆ Pn593: /EXT1 (External Latch Input 1) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2149h	–	1010h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
010 Default	Allocate the signal to CN1-10.
011	Allocate the signal to CN1-11.
012	Allocate the signal to CN1-12.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0	The signal is always inactive.
1 Default	Active when input signal is ON (closed).
2	Active when input signal is OFF (open).

◆ Pn594: /EXT2 (External Latch Input 2) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2149h	–	1011h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
010	Allocate the signal to CN1-10.
011 Default	Allocate the signal to CN1-11.
012	Allocate the signal to CN1-12.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0	The signal is always inactive.
1 Default	Active when input signal is ON (closed).
2	Active when input signal is OFF (open).

◆ Pn595: /EXT3 (External Latch Input 3) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2149h	–	1012h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
010	Allocate the signal to CN1-10.
011	Allocate the signal to CN1-11.
012 Default	Allocate the signal to CN1-12.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0	The signal is always inactive.
1 Default	Active when input signal is ON (closed).
2	Active when input signal is OFF (open).

◆ Pn597: FSTP (Forced Stop Input) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 3049h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
007	Allocate the signal to CN1-7.
008	Allocate the signal to CN1-8.
009	Allocate the signal to CN1-9.
010	Allocate the signal to CN1-10.
011	Allocate the signal to CN1-11.
012	Allocate the signal to CN1-12.
013	Allocate the signal to CN1-13.
Other values	Set the signal to always enable drive (always disable forcing the motor to stop).
n.X□□□	Polarity Selection Speed Pos Trq
0 Default	Set the signal to always enable drive (always disable forcing the motor to stop).
1	Enable drive when the input signal is ON (closed).
2	Enable drive when the input signal is OFF (open).
3	Set the signal to always prohibit drive (always force the motor to stop).

◆ Pn598: /P-CL (Forward External Torque Limit Input) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 3149h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
000 Default	The signal is always inactive.
007	Allocate the signal to CN1-7.
008	Allocate the signal to CN1-8.
009	Allocate the signal to CN1-9.
010	Allocate the signal to CN1-10.
011	Allocate the signal to CN1-11.
012	Allocate the signal to CN1-12.
013	Allocate the signal to CN1-13.
100	Allocate the signal to Σ-LINK II Sequence Input 0.
101	Allocate the signal to Σ-LINK II Sequence Input 1.
102	Allocate the signal to Σ-LINK II Sequence Input 2.
103	Allocate the signal to Σ-LINK II Sequence Input 3.
104	Allocate the signal to Σ-LINK II Sequence Input 4.
105	Allocate the signal to Σ-LINK II Sequence Input 5.
106	Allocate the signal to Σ-LINK II Sequence Input 6.
107	Allocate the signal to SigmaLINK II Sequence Input 7.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0 Default	The signal is always inactive.
1	Active when input signal is ON (closed).
2	Active when input signal is OFF (open).
3	The signal is always active.

◆ Pn599: /N-CL (Reverse External Torque Limit Input) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 3149h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
000 Default	The signal is always inactive.
007	Allocate the signal to CN1-7.
008	Allocate the signal to CN1-8.
009	Allocate the signal to CN1-9.
010	Allocate the signal to CN1-10.
011	Allocate the signal to CN1-11.
012	Allocate the signal to CN1-12.
013	Allocate the signal to CN1-13.
100	Allocate the signal to Σ-LINK II Sequence Input 0.
101	Allocate the signal to Σ-LINK II Sequence Input 1.
102	Allocate the signal to Σ-LINK II Sequence Input 2.
103	Allocate the signal to Σ-LINK II Sequence Input 3.
104	Allocate the signal to Σ-LINK II Sequence Input 4.
105	Allocate the signal to Σ-LINK II Sequence Input 5.
106	Allocate the signal to Σ-LINK II Sequence Input 6.
107	Allocate the signal to SigmaLINK II Sequence Input 7.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0 Default	The signal is always inactive.
1	Active when input signal is ON (closed).
2	Active when input signal is OFF (open).
3	The signal is always active.

◆ Pn5B0: /COIN (Positioning Completion Output) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2039h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
001	Allocate the signal to CN1-1.
023	Allocate the signal to CN1-23.
025	Allocate the signal to CN1-25.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0 Default	The signal is always inactive.
1	Output the above signal.
2	Invert the above signal and output it.

◆ Pn5B1: /V-CMP (Speed Coincidence Detection Output) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2039h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
001	Allocate the signal to CN1-1.
023	Allocate the signal to CN1-23.
025	Allocate the signal to CN1-25.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0 Default	The signal is always inactive.
1	Output the above signal.
2	Invert the above signal and output it.

◆ Pn5B2: /TGON (Rotation Detection Output) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2039h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
001	Allocate the signal to CN1-1.
023	Allocate the signal to CN1-23.
025	Allocate the signal to CN1-25.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0 Default	The signal is always inactive.
1	Output the above signal.
2	Invert the above signal and output it.

◆ Pn5B3: /S-RDY (Servo Ready Output) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2039h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
001	Allocate the signal to CN1-1.
023	Allocate the signal to CN1-23.
025	Allocate the signal to CN1-25.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0 Default	The signal is always inactive.
1	Output the above signal.
2	Invert the above signal and output it.

◆ Pn5B4: /CLT (Torque Limit Detection Output) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2039h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
001	Allocate the signal to CN1-1.
023	Allocate the signal to CN1-23.
025	Allocate the signal to CN1-25.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0 Default	The signal is always inactive.
1	Output the above signal.
2	Invert the above signal and output it.

◆ Pn5B5: /VLT (Speed Limit Detection Output) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2039h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
001	Allocate the signal to CN1-1.
023	Allocate the signal to CN1-23.
025	Allocate the signal to CN1-25.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0 Default	The signal is always inactive.
1	Output the above signal.
2	Invert the above signal and output it.

◆ Pn5B6: /BK (Brake Output) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2039h	–	1001h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
001 Default	Allocate the signal to CN1-1.
023	Allocate the signal to CN1-23.
025	Allocate the signal to CN1-25.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0	The signal is always inactive.
1 Default	Output the above signal.
2	Invert the above signal and output it.

◆ Pn5B7: /WARN (Warning Output) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2039h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
001	Allocate the signal to CN1-1.
023	Allocate the signal to CN1-23.
025	Allocate the signal to CN1-25.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0 Default	The signal is always inactive.
1	Output the above signal.
2	Invert the above signal and output it.

◆ Pn5B8: /NEAR (Near Output) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2039h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
001	Allocate the signal to CN1-1.
023	Allocate the signal to CN1-23.
025	Allocate the signal to CN1-25.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0 Default	The signal is always inactive.
1	Output the above signal.
2	Invert the above signal and output it.

◆ Pn5BC: /PM (Preventative Maintenance Output) Signal Allocation

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 2039h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□XXX	Allocated Pin Number Speed Pos Trq
001	Allocate the signal to CN1-1.
023	Allocate the signal to CN1-23.
025	Allocate the signal to CN1-25.
Other values	The signal is always inactive.
n.X□□□	Polarity Selection Speed Pos Trq
0 Default	The signal is always inactive.
1	Output the above signal.
2	Invert the above signal and output it.

◆ Pn5C3: Error Detection Setting

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0011h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Error Detection Selections Speed Pos Trq
0 Default	Disable error detection.
1	Enable error detection.
n.□□X□	Execution Selection when Error Detection Warning Speed Pos Trq
0 Default	Stop error detection when A.905 (Error Detection Warning) occurs.
1	Do not stop error detection when A.905 (Error Detection Warning) occurs.
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn5C4: Error Detection Sample Data Set 1 Warning Level 1

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10,000	0.01%	2000	All	Immediately	Setup	–

◆ Pn5C5: Error Detection Sample Data Set 1 Judgment Level 1

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10,000	0.01	1520	All	Immediately	Setup	–

◆ Pn5C6: Error Detection Sample Data Set 1 Warning Level 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10,000	0.01%	2000	All	Immediately	Setup	–

◆ Pn5C7: Error Detection Sample Data Set 1 Judgment Level 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10,000	0.01	1520	All	Immediately	Setup	–

◆ Pn5C8: Error Detection Sample Data Set 2 Warning Level 1

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10,000	0.01%	2000	All	Immediately	Setup	–

◆ Pn5C9: Error Detection Sample Data Set 2 Judgment Level 1

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10,000	0.01	1520	All	Immediately	Setup	–

◆ Pn5CA: Error Detection Sample Data Set 2 Warning Level 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10,000	0.01%	2000	All	Immediately	Setup	–

◆ Pn5CB: Error Detection Sample Data Set 2 Judgment Level 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 10,000	0.01	1520	All	Immediately	Setup	–

◆ Pn5D7: Output Signal Inversion for Triggers at Preset Positions

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000H to 01F7h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	High-Speed Output Signal Inverse Settings for Triggers at Preset Positions Speed Pos Trq
0 Default	The signal is not inverted.
1	Invert CN1-17, -18 (PAO) and output it.
2	Invert CN1-19, -20 (PBO) and output it.
3	Invert CN1-17, -18 (PAO) and CN1-19, -20 (PBO) and output them.
4	Invert CN1-21, -22 (PCO) and output it.
5	Invert CN1-17, -18 (PAO) and CN1-21, -22 (PCO) and output them.
6	Invert CN1-19, -20 (PBO) and CN1-21, -22 (PCO) and output them.
7	Invert CN1-17, -18 (PAO), CN1-19, -20 (PBO), and CN1-21, -22 (PCO) and output them.
n.□□X□	Normal Output Signal Inverse Settings for Triggers at Preset Positions 1 Speed Pos Trq
0 Default	The signal is not inverted.
1	Invert CN1-1, -2 (SO1) and output it.
2	Invert CN1-23, -24 (SO2) and output it.
3	Invert CN1-1, -2 (SO1) and CN1-23, -24 (SO2) and output them.
4	Invert CN1-25, -26 (SO3) and output it.
5	Invert CN1-1, -2 (SO1) and CN1-25, -26 (SO3) and output them.
6	Invert CN1-23, -24 (SO2) and CN1-25, -26 (SO3) and output them.
7	Invert CN1-1, -2 (SO1), CN1-23, -24 (SO2), and CN1-25, -26 (SO3) and output them.
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn600: Regenerative Resistor Capacity

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to SERVOPACK's maximum applicable motor capacity	10 W	0	All	Immediately	Setup	–

◆ Pn601: Dynamic Brake Resistor Allowable Energy Consumption

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 65,535	10 J	0	All	After restart	Setup	–

◆ Pn603: Regenerative Resistance

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 65,535	10 mΩ	0	All	Immediately	Setup	–

◆ Pn604: Dynamic Brake Resistance

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65,535	10 mΩ	0	All	After restart	Setup	–

◆ Pn61A: Overheat Protection Selections

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 0003h	–	0000h	Linear	After restart	Setup	–

Digit	Meaning
n.□□□X	Overheat Protection Selections Speed Pos Trq
0 Default	Disable overheat protection.
1	Use overheat protection in the Yaskawa linear servomotor.
2	Monitor a negative voltage input from a sensor attached to the machine and use overheat protection.
3	Monitor a positive voltage input from a sensor attached to the machine and use overheat protection.
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn61B: Overheat Alarm Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 500	0.01 V	250	All	Immediately	Setup	–

Note:
Valid only when Pn61A is set to n.□□□2 or n.□□□3 (enable overheat protection).

◆ Pn61C: Overheat Warning Level

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 100	1%	100	All	Immediately	Setup	–

Note:
Valid only when Pn61A is set to n.□□□2 or n.□□□3 (enable overheat protection).

◆ Pn61D: Overheat Alarm Filter Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65,535	1 s	0	All	Immediately	Setup	–

Note:
Valid only when Pn61A is set to n.□□□2 or n.□□□3 (enable overheat protection).

◆ Pn621: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
–	–	–	–	All	–	–	–

◆ Pn622: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
–	–	–	–	All	–	–	–

◆ Pn623: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
–	–	–	–	All	–	–	–

◆ Pn624: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
–	–	–	–	All	–	–	–

◆ Pn625: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
–	–	–	–	All	–	–	–

◆ Pn626: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
–	–	–	–	All	–	–	–

◆ Pn627: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
–	–	–	–	All	–	–	–

◆ Pn628: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
–	–	–	–	All	–	–	–

◆ Pn660: Triggers at Preset Positions Switch

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 2011h	–	0000h	All	After restart	Setup	–

Digit	Meaning
n.□□□X	Output Unit Setting Speed Pos Trq
0 Default	Set the signal output width as a time [μs].
1	Set the signal output width as a distance [reference units].
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Triggers at Preset Positions Selections Speed Pos Trq
0 Default	Disable triggers at preset positions.
1	Enable triggers at preset positions.
2	Reserved (Do not use.)

◆ Pn800: Communications Controls

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 1FF3h	–	1040h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	MECHATROLINK Communications Check Mask for Debugging Speed Pos Trq
0 Default	Do not mask.
1	Ignore A.E60 (MECHATROLINK communications error).
2	Ignore A.E50 (WDT errors).
3	Ignore both A.E60 (MECHATROLINK communications errors) and A.E50 (WDT errors).
n.□□X□	Warning Check Masks Speed Pos Trq
0	Do not mask.
1	Ignore A.94□ (data setting warnings).
2	Ignore A.95□ (command warnings).
3	Ignore both A.94□ and A.95□ warnings.
4 Default	Ignore A.96□ (communications warnings).
5	Ignore both A.94□ and A.96□ warnings.
6	Ignore both A.95□ and A.96□ warnings.
7	Ignore A.94□, A.95□, and A.96□ warnings.
8	Ignore A.97□ (data setting warnings).
9	Ignore both A.94□ and A.97□ warnings.
A	Ignore both A.95□ and A.97□ warnings.
B	Ignore A.94□, A.95□, and A.97□ warnings.
C	Ignore both A.96□ and A.97□ warnings.
D	Ignore A.94□, A.96□, and A.97□ warnings.
E	Ignore A.95□, A.96□, and A.97□ warnings.
F	Ignore A.94□, A.95□, A.96□, and A.97□ warnings.
n.□X□□	Reserved (Do not change.)
n.X□□□	Automatic Warning Clear Selection for Debugging Speed Pos Trq
0	Retain warnings for debugging.
1 Default	Automatically clear warnings (MECHATROLINK-III specification).

◆ Pn801: Application Function Selections 6 (Software Limits)

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 0103h	–	0003h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	Software Limits Speed Pos Trq
0	Enable both forward and reverse software limits.
1	Disable forward software limit.
2	Disable reverse software limit.
3 Default	Disable both forward and reverse software limits.
n.□□X□	Reserved (Do not change.)
n.□X□□	Software Limit Check for References Speed Pos Trq
0 Default	Do not perform software limit checks for references.
1	Perform software limit checks for references.
n.X□□□	Reserved (Do not change.)

◆ Pn803: Origin Range

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 250	1 reference unit	10	All	Immediately	Setup	–

◆ Pn804: Forward Software Limit

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
4	-1073741823 to 1073741823	1 reference unit	1073741823	All	Immediately	Setup	–

◆ Pn806: Reverse Software Limit

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
4	-1073741823 to 1073741823	1 reference unit	-1073741823	All	Immediately	Setup	–

◆ Pn808: Absolute Encoder Origin Offset

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
4	-1073741823 to 1073741823	1 reference unit	0	All	Immediately	Setup	–

Note:

Enabled after SENS_ON command execution is completed.

◆ Pn80A: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	–	–	100	All	–	Setup	–

◆ Pn80B: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	100	All	Immediately	Setup	–

◆ Pn80C: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	0	All	Immediately	Setup	–

◆ Pn80D: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	100	All	Immediately	Setup	–

◆ Pn80E: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	100	All	Immediately	Setup	–

◆ Pn80F: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	0	All	Immediately	Setup	–

◆ Pn810: Exponential Acceleration/ Deceleration Bias

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65,535	100 reference units/s	0	All	Immediately	Setup	–

Note:

The value is updated only when the reference is stopped (DEN = 1).

◆ Pn811: Exponential Function Acceleration/Deceleration Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 5,100	0.1 ms	0	All	Immediately	Setup	–

Note:

The value is updated only when the reference is stopped (DEN = 1).

◆ Pn812: Movement Average Time

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 5,100	0.1 ms	0	All	Immediately	Setup	–

Note:

The value is updated only when the reference is stopped (DEN = 1).

◆ Pn814: External Positioning Final Travel Distance

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	-1073741823 to 1073741823	1 reference unit	100	All	Immediately	Setup	–

◆ Pn816: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	–	–	0000h	All	–	Setup	–

◆ Pn817: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	–	–	0	All	Immediately	Setup	–

◆ Pn818: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	–	–	0	All	Immediately	Setup	–

◆ Pn819: Final Travel for Zero Point Return

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
4	-1073741823 to 1073741823	1 reference unit	100	All	Immediately	Setup	–

◆ Pn81E: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	–	–	0000h	All	–	Setup	–

◆ Pn81F: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	–	–	0010h	All	–	Setup	–

◆ Pn820: Forward Latching Area

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
4	-2147483648 to 2147483647	1 reference unit	0	All	Immediately	Setup	–

◆ Pn822: Reverse Latching Area

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
4	-2147483648 to 2147483647	1 reference unit	0	All	Immediately	Setup	–

◆ Pn824: Option Monitor 1 Selection

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to FFFFh	–	0000h	–	Immediately	Setup	82

- High-Speed Monitor Region

Set Value	Meaning	Applicable Motors
0000h Default	Motor speed [overspeed detection speed / 1000000h]	All
0001h	Speed reference [overspeed detection speed / 1000000h]	All
0002h	Torque [maximum torque] / 1000000h]	All
0003h	Position deviation (lower 32 bits) [reference units]	All
0004h	Position deviation (upper 32 bits) [reference units]	All
000Ah	PG count (lower 32 bits) [reference units]	All
000Bh	PG count (upper 32 bits) [reference units]	All
000Ch	FPG count (lower 32 bits) [reference units]	All
000Dh	FPG count (upper 32 bits) [reference units]	All
0055h	Estimated Vibration [overspeed detection speed / 1000000h]	All
0056h	Estimated External Disturbance Torque [maximum torque / 1000000h]	All
0113h	File Upload Counter	All
0114h	File Upload Data	All
0115h	Error Detection Trace Counter	All
0116h	Error Detection Trace Error Rate	All
0200h	SigmaLINK II Response Data 1	All
0201h	SigmaLINK II Response Data 2	All
0202h	SigmaLINK II Response Data 3	All
0203h	SigmaLINK II Response Data 4	All
0204h	SigmaLINK II Response Data 5	All
0205h	SigmaLINK II Response Data 6	All
0206h	SigmaLINK II Response Data 7	All
0207h	SigmaLINK II Response Data 8	All
0210h	SigmaLINK II Command Data 1	All
0211h	SigmaLINK II Command Data 2	All
0212h	SigmaLINK II Command Data 3	All
0213h	SigmaLINK II Command Data 4	All
0240h	SigmaLINK II Data Status Information	All

- Low-Speed Monitor Region

Set Value	Meaning	Applicable Motors
0010h	Un000: Motor Speed [min^{-1}]	All
0011h	Un001: Speed Reference [min^{-1}]	All
0012h	Un002: Torque Reference [%]	All

Set Value	Meaning	Applicable Motors
0013h	Un003: Rotational Angle 1 [encoder pulses] Number of encoder pulses from origin within one encoder rotation displayed in decimal	All
	Un003: Electrical Angle 1 [linear encoder pulses] Linear encoder pulses from the polarity origin displayed in decimal	
0014h	Un004: Rotational Angle 2 [deg] Electrical angle from polarity origin	All
	Un004: Electrical Angle 2 [deg] Electrical angle from polarity origin	
0015h	Un005: Input Signal Monitor	All
0016h	Un006: Output Signal Monitor	All
0017h	Un007: Input Reference Pulse Speed [min^{-1}]	All
0018h	Un008: Position Deviation [reference units]	All
0019h	Un009: Accumulated Load Ratio [%]	All
001Ah	Un00A: Regenerative Load Ratio [%]	All
001Bh	Un00B: Dynamic Brake Resistor Power Consumption [%]	All
001Ch	Un00C: Input Reference Pulse Counter [reference units]	All
001Dh	Un00D: Feedback Pulse Counter [encoder pulses]	All
001Eh	Un00E: Fully-closed Loop Feedback Pulse Counter [external encoder resolution]	Rotary
0025h	Initial absolute position data (lower 32 bits) [pulses]	Linear
0026h	Initial absolute position data (upper 32 bits) [pulses]	Linear
0040h	Un025: SERVOPACK Installation Environment Monitor	All
0041h	Un026: Servomotor Installation Environment Monitor	All
0042h	Un027: Built-in Fan Remaining Life Ratio	All
0043h	Un028: Capacitor Remaining Life Ratio	All
0044h	Un029: Surge Prevention Circuit Remaining Life Ratio	All
0045h	Un02A: Dynamic Brake Circuit Remaining Life Ratio	All
0046h	Un032: Instantaneous Power	All
0047h	Un033: Power Consumption	All
0048h	Un034: Cumulative Power Consumption	All
004Dh	Un173: Temperature Margin until SERVOPACK Overheats	All
0050h	Pressure Detection Value [0.01% (pct. of max. pressure)]	All
0052h	Control Mode (0: Position control/speed control, 1: Speed control (approach operation), 2: Torque control, 3: Pressure control)	All
0058h	Un13C: Margin until Regenerative Overload	All
005Ah	Un13E: Margin until Undervoltage	All
005Bh	Un13F: Margin until Overvoltage	All
0060h	Un023: Main Circuit DC Voltage	All
0070h	Un078: Maximum Value of Amplitude of Estimated Vibration [min^{-1}]	All
0071h	Un07A: Maximum Value of Estimated External Disturbance Torque [%]	All
0072h	Un07B: Minimum Value of Estimated External Disturbance Torque [%]	All
0073h	Un147: Number of MECHATROLINK Communications Errors [times]	All
0074h	Un104: Number of Serial Encoder Communications Errors [times]	All
0075h	Un105: Settling Time [0.1 ms]	All

Set Value	Meaning	Applicable Motors
0076h	Un106: Amount of Overshoot [reference units]	All
0077h	Un107: Residual Vibration Frequency [0.1 Hz]	All
0079h	Un174: Temperature Margin until Servomotor Overheats [°C]	All
007Ah	Un145: Maximum Value of Accumulated Load Ratio [%]	All
007Bh	Un14E: Margin until Overload [0.01 %]	All
007Ch	Un07C: Identified Moment of Inertia Ratio	All
007Eh	Un108: Maximum Settling Time [0.1ms]	All
007Fh	Un109: Maximum Amount of Overshoot [reference units]	All
0094h	Pressure Reference [0.01% (pct. of max. pressure)]	All
0095h	Pressure Deviation [0.01% (pct. of max. pressure)]	All
0096h	Pressure Control Output [0.01% (pct. of max. pressure)]	All
0104h	Un177: Encoder Power Supplied Time	Rotary
0106h	Un17A: Encoder Power Supply Voltage	Rotary
0107h	Un17B: Encoder Battery Voltage	Rotary
010Ch	Un181: Motor Total Number of Rotations	Rotary
010Dh	Un183: Maintenance Prediction Monitor - Bearings	Rotary
010Eh	Un184: Maintenance Prediction Monitor - Oil Seal	Rotary
0126h	Un190: Motor Vibration in X-Axis Direction	Rotary
0127h	Un191: Motor Vibration in Y-Axis Direction	Rotary
0128h	Un192: Motor Vibration in Z-Axis Direction	Rotary
0129h	Un193: Motor Vibration XYZ Composite Value	Rotary
012Ah	Un194: Maximum Motor Vibration	Rotary

• Low-Speed Monitor Region (Communications Module Only)

Set Value	Meaning	Applicable Motors
0080h	Previous value of latched feedback position (LPOS1) [reference units]	All
0081h	Previous value of latched feedback position (LPOS2) [reference units]	All
0084h	Continuous Latch Status (EX STATUS)	All

• All Areas

Set Value	Meaning	Applicable Motors
Other values	Reserved (Do not use.)	All

◆ Pn825: Option Monitor 2 Selection

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to FFFFh	–	0000h	–	Immediately	Setup	–

Set Value	Meaning
0000h to FFFFh	The settings are the same as those for the Option Monitor 1 Selection.

◆ Pn827: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	–	–	100	All	–	Setup	–

◆ Pn829: SVOFF Waiting Time (for SVOFF at Deceleration to Stop)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0 to 65,535	10 ms	0	All	Immediately	Setup	–

Note:

Change the setting when the reference is stopped (while DEN is set to 1). If you change the setting during operation, the reference output will be affected.

◆ Pn82A: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	–	–	1813h	All	–	Setup	–

◆ Pn82B: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	–	–	1D1Ch	All	–	Setup	–

◆ Pn82C: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	–	–	1F1Eh	All	–	Setup	–

◆ Pn82D: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	–	–	0000h	All	–	Setup	–

◆ Pn82E: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	–	–	0000h	All	–	Setup	–

◆ Pn833: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	–	–	0001h	All	–	–	–

◆ Pn834: First Stage Linear Acceleration Constant 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
4	1 to 4294967295	10000 reference units/s^2	100	All	Immediately	Setup	–

Note:

Change the setting when the reference is stopped (while DEN is set to 1). If you change the setting during operation, the reference output will be affected.

◆ Pn836: Second Stage Linear Acceleration Constant 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	1 to 4294967295	10000 reference units/s^2	100	All	Immediately	Setup	–

Note:

Change the setting when the reference is stopped (while DEN is set to 1). If you change the setting during operation, the reference output will be affected.

◆ Pn838: Acceleration Constant Switching Speed 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	0 to 2097152000	1 reference unit/s	0	All	Immediately	Setup	–

Note:

Change the setting when the reference is stopped (while DEN is set to 1). If you change the setting during operation, the reference output will be affected.

◆ Pn83A: First Stage Linear Deceleration Constant 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	1 to 4294967295	10000 reference units/s^2	100	All	Immediately	Setup	–

Note:

Change the setting when the reference is stopped (while DEN is set to 1). If you change the setting during operation, the reference output will be affected.

◆ Pn83C: Second Stage Linear Deceleration Constant 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	1 to 4294967295	10000 reference units/s^2	100	All	Immediately	Setup	–

Note:

Change the setting when the reference is stopped (while DEN is set to 1). If you change the setting during operation, the reference output will be affected.

◆ Pn83E: Deceleration Constant Switching Speed 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	0 to 2097152000	1 reference unit/s	0	All	Immediately	Setup	–

Note:

Change the setting when the reference is stopped (while DEN is set to 1). If you change the setting during operation, the reference output will be affected.

◆ Pn840: Linear Deceleration Constant 2 for Stopping

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	1 to 4294967295	10000 reference units/s^2	100	All	Immediately	Setup	–

Note:

Change the setting when the reference is stopped (while DEN is set to 1). If you change the setting during operation, the reference output will be affected.

◆ Pn842: Second Origin Approach Speed 1

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	0 to 20971520	100 reference units/s	50	All	Immediately	Setup	–

Note:

Change the setting when the reference is stopped (while DEN is set to 1). If you change the setting during operation, the reference output will be affected.

◆ Pn844: Second Origin Approach Speed 2

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	0 to 20971520	100 reference units/s	5	All	Immediately	Setup	–

Note:

Change the setting when the reference is stopped (while DEN is set to 1). If you change the setting during operation, the reference output will be affected.

◆ Pn846: POSING Command S-curve Acceleration/Deceleration Rate

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 50	1%	0	All	Immediately	Setup	–

Note:

Change the setting when the reference is stopped (while DEN is set to 1). If you change the setting during operation, the reference output will be affected.

◆ Pn850: Number of Latch Sequences

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 8	–	0	All	Immediately	Setup	–

◆ Pn851: Continuous Latch Sequence Count

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 255	–	0	All	Immediately	Setup	–

◆ Pn852: Latch Sequence 1 to 4 Settings

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 3333h	–	0000h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	Latch Sequence 1 Signal Selection Speed Pos Trq
0 Default	Phase C
1	EXT1 signal
2	EXT2 signal
3	EXT3 signal
n.□□X□	Latch Sequence 2 Signal Selection Speed Pos Trq
0 to 3	The settings are the same as those for the Latch Sequence 1 Signal Selection.
n.□X□□	Latch Sequence 3 Signal Selection Speed Pos Trq
0 to 3	The settings are the same as those for the Latch Sequence 1 Signal Selection.
n.X□□□	Latch Sequence 4 Signal Selection Speed Pos Trq
0 to 3	The settings are the same as those for the Latch Sequence 1 Signal Selection.

◆ Pn853: Latch Sequence 5 to 8 Settings

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 3333h	–	0000h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	Latch Sequence 5 Signal Selection Speed Pos Trq
0 Default	Phase C
1	EXT1 signal
2	EXT2 signal
3	EXT3 signal
n.□□X□	Latch Sequence 6 Signal Selection Speed Pos Trq
0 to 3	The settings are the same as those for the Latch Sequence 5 Signal Selection.
n.□X□□	Latch Sequence 7 Signal Selection Speed Pos Trq
0 to 3	The settings are the same as those for the Latch Sequence 5 Signal Selection.
n.X□□□	Latch Sequence 8 Signal Selection Speed Pos Trq
0 to 3	The settings are the same as those for the Latch Sequence 5 Signal Selection.

◆ Pn860: SVCMD_IO Input Signal Monitor Allocations 1

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 1717h	–	0000h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	Input Signal Monitor Allocation for CN1-13 (SVCMD_IO) Speed Pos Trq
0 Default	Allocate bit 24 (IO_STS1) to CN1-13 input signal monitor.
1	Allocate bit 25 (IO_STS2) to CN1-13 input signal monitor.
2	Allocate bit 26 (IO_STS3) to CN1-13 input signal monitor.
3	Allocate bit 27 (IO_STS4) to CN1-13 input signal monitor.
4	Allocate bit 28 (IO_STS5) to CN1-13 input signal monitor.
5	Allocate bit 29 (IO_STS6) to CN1-13 input signal monitor.
6	Allocate bit 30 (IO_STS7) to CN1-13 input signal monitor.
7	Allocate bit 31 (IO_STS8) to CN1-13 input signal monitor.
n.□□X□	CN1-13 Input Signal Monitor Enable/Disable Selection Speed Pos Trq
0 Default	Disable allocation for CN1-13 input signal monitor.
1	Enable allocation for CN1-13 input signal monitor.
n.□X□□	Input Signal Monitor Allocation for CN1-7 (SVCMD_IO) Speed Pos Trq
0 to 7	The settings are the same as the CN1-13 allocations.
n.X□□□	CN1-7 Input Signal Monitor Enable/Disable Selection Speed Pos Trq
0 Default	Disable allocation for CN1-7 input signal monitor.
1	Enable allocation for CN1-7 input signal monitor.

◆ Pn861: SVCMD_IO Input Signal Monitor Allocations 2

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 1717h	–	0000h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	Input Signal Monitor Allocation for CN1-8 (SVCMD_IO) Speed Pos Trq
0 to 7	The settings are the same as the CN1-13 allocations.
n.□□X□	CN1-8 Input Signal Monitor Enable/Disable Selection Speed Pos Trq
0 Default	Disable allocation for CN1-8 input signal monitor.
1	Enable allocation for CN1-8 input signal monitor.
n.□X□□	Input Signal Monitor Allocation for CN1-9 (SVCMD_IO) Speed Pos Trq
0 to 7	The settings are the same as the CN1-13 allocations.
n.X□□□	CN1-9 Input Signal Monitor Enable/Disable Selection Speed Pos Trq
0 Default	Disable allocation for CN1-9 input signal monitor.
1	Enable allocation for CN1-9 input signal monitor.

◆ Pn862: SVCMD_IO Input Signal Monitor Allocations 3

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 1717h	–	0000h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	Input Signal Monitor Allocation for CN1-10 (SVCMD_IO) Speed Pos Trq
0 to 7	The settings are the same as the CN1-13 allocations.
n.□□X□	CN1-10 Input Signal Monitor Enable/Disable Selection Speed Pos Trq
0 Default	Disable allocation for CN1-10 input signal monitor.
1	Enable allocation for CN1-10 input signal monitor.
n.□X□□	Input Signal Monitor Allocation for CN1-11 (SVCMD_IO) Speed Pos Trq
0 to 7	The settings are the same as the CN1-13 allocations.
n.X□□□	CN1-11 Input Signal Monitor Enable/Disable Selection Speed Pos Trq
0 Default	Disable allocation for CN1-11 input signal monitor.
1	Enable allocation for CN1-11 input signal monitor.

◆ Pn863: SVCMD_IO Input Signal Monitor Allocations 4

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 1717h	–	0000h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	Input Signal Monitor Allocation for CN1-12 (SVCMD_IO) Speed Pos Trq
0 to 7	The settings are the same as the CN1-13 allocations.
n.□□X□	CN1-12 Input Signal Monitor Enable/Disable Selection Speed Pos Trq
0 Default	Disable allocation for CN1-12 input signal monitor.
1	Enable allocation for CN1-12 input signal monitor.
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn868: SVCMD_IO Output Signal Monitor Allocations 1

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
2	0000h to 1717h	–	0000h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	Output Signal Monitor Allocation for CN1-1 and CN1-2 (SVCMD_IO) Speed Pos Trq
0 Default	Allocate bit 24 (IO_STS1) to CN1-1/CN1-2 output signal monitor.
1	Allocate bit 25 (IO_STS2) to CN1-1/CN1-2 output signal monitor.
2	Allocate bit 26 (IO_STS3) to CN1-1/CN1-2 output signal monitor.
3	Allocate bit 27 (IO_STS4) to CN1-1/CN1-2 output signal monitor.
4	Allocate bit 28 (IO_STS5) to CN1-1/CN1-2 output signal monitor.
5	Allocate bit 29 (IO_STS6) to CN1-1/CN1-2 output signal monitor.
6	Allocate bit 30 (IO_STS7) to CN1-1/CN1-2 output signal monitor.
7	Allocate bit 31 (IO_STS8) to CN1-1/CN1-2 output signal monitor.
n.□□X□	CN1-1/CN1-2 Output Signal Monitor Enable/Disable Selection Speed Pos Trq
0 Default	Disable allocation for CN1-1/CN1-2 output signal monitor.
1	Enable allocation for CN1-1/CN1-2 output signal monitor.
n.□X□□	Output Signal Monitor Allocation for CN1-23 and CN1-24 (SVCMD_IO) Speed Pos Trq
0 to 7	The settings are the same as the CN1-1/CN1-2 allocations.
n.X□□□	CN1-23/CN1-24 Output Signal Monitor Enable/Disable Selection Speed Pos Trq
0 Default	Disable allocation for CN1-23/CN1-24 output signal monitor.
1	Enable allocation for CN1-23/CN1-24 output signal monitor.

◆ Pn869: SVCMD_IO Output Signal Monitor Allocations 2

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 1717h	–	0000h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	Output Signal Monitor Allocation for CN1-25 and CN1-26 (SVCMD_IO) Speed Pos Trq
0 to 7	The settings are the same as the CN1-1/CN1-2 allocations.
n.□□X□	CN1-25/CN1-26 Output Signal Monitor Enable/Disable Selection Speed Pos Trq
0 Default	Disable allocation for CN1-25/CN1-26 output signal monitor.
1	Enable allocation for CN1-25/CN1-26 output signal monitor.
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn879: Reserved (Do not change.) Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	–	–	0300h	All	–	–	–

◆ Pn880: Station Address Monitor (for maintenance, read only) Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	03h to FFh	–	–	All	–	Setup	–

◆ Pn881: Set Transmission Byte Count Monitor [bytes] (for maintenance, read only) Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	17, 32, 48	–	–	All	–	Setup	–

◆ Pn882: Transmission Cycle Setting Monitor [× 0.25 μs] (for maintenance, read only) Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0h to FFFFh	–	–	All	–	Setup	–

◆ Pn883: Communications Cycle Setting Monitor [transmission cycles] (for maintenance, read only) Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 32	–	–	All	–	Setup	–

◆ Pn884: Communications Controls 2

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 0001h	–	0000h	All	Immediately	Setup	–

Digit	Meaning
n.□□□X	MECHATROLINK Communications Error Holding Brake Signal Setting Speed Pos Trq
0 Default	Maintain the status set by the BRK_ON or BRK_OFF command when a MECHATROLINK communications error occurs.
1	Apply the holding brake when a MECHATROLINK communications error occurs.
n.□□X□	Reserved (Do not change.)
n.□X□□	Reserved (Do not change.)
n.X□□□	Reserved (Do not change.)

◆ Pn886: S-curve Maximum Acceleration/Deceleration Rate

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	1h to FFFFFFFFh	–	FFFFFFFFh	All	Immediately	Setup	–

◆ Pn88A: MECHATROLINK Receive Error Counter Monitor (for maintenance, read only)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 65,535	–	0	All	–	Setup	–

◆ Pn900: Number of Parameter Banks

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 16	–	0	All	After restart	Setup	–

◆ Pn901: Number of Parameter Bank Members

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0 to 15	–	0	All	After restart	Setup	–

◆ Pn902to Pn910: Parameter Bank Member Definition

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to 08FFh	–	0000h	All	After restart	Setup	–

◆ Pn920to Pn95F: Parameter Bank Data (Not saved in nonvolatile memory.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
2	0000h to FFFFh	–	0000h	All	Immediately	Setup	–

◆ PnA1A: Reserved (Do not change.)

Speed Pos Trq

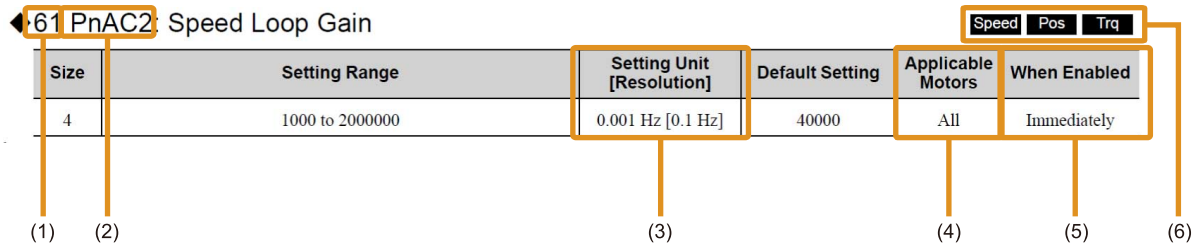
Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Reference
4	–	–	64	All	–	–	–

◆ PnB42to PnBD0: Reserved (Do not change.)

Speed Pos Trq

Size	Setting Range	Setting Unit	Default Setting	Applicable Motors	When Enabled	Classification	Refer-ence
4	–	–	0	All	–	–	–

5.4 MECHATROLINK Common Parameters: Interpreting the Parameter Lists



No.	Item	Meaning
(1)	Common Parameter Number	A parameter with a common number that is not dependent on a device defined in the MECHATROLINK-4 standard servo profile or the MECHATROLINK-III standard servo profile. You can use a common parameter to read and set a parameter without using the parameter number and name specific to a device.
(2)	Device Parameter Number	A parameter number that is specific to this SERVOPACK.
(3)	Setting Unit	You can set the parameter in increments of the setting unit. However, if a unit is given in square brackets, the setting is automatically converted to the resolution given in the square brackets.
(4)	Applicable Motors	Indicates the types of servomotors to which the parameter applies. • All: The parameter is used for both rotary servomotors and linear servomotors. • Rotary: The parameter is used for only rotary servomotors. • Linear: The parameter is used for only linear servomotors. Rotary servomotor terms are used for parameters that are applicable to all servomotors. If you are using a linear servomotor, you need to interpret the terms accordingly. Refer to the following sections for details. ☞ *i.4.2 Differences in Terms for Rotary Servomotors and Linear Servomotors on page 16*
(5)	When Enabled	Indicates when a change to the parameter will be effective. “After restart” indicates parameters that will be effective after one of the following is executed. • The power is turned OFF and ON again. • The CONFIG command is sent. • A software reset is executed.
(6)	Control Mode	Speed: A parameter that can be used in speed control. Pos: A parameter that can be used in position control. Trq: A parameter that can be used in torque control. "Torque" is used even for linear servomotor parameters. Grayed-out icons (Speed, Pos, Trq) indicate parameters that cannot be used in the corresponding control method.

5.5 List of MECHATROLINK Common Parameters： MECHATROLINK-4 Communications References

The following table lists the common MECHATROLINK-4 parameters. These common parameters are used to make settings from the host controller via MECHATROLINK communications. Do not change the settings with the digital operator or any other device.

◆ 01 PnA02: Encoder Type (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h, 1h	–	–	All	–

Set Value	Meaning
0000h	Absolute encoder
0001h	Incremental encoder

◆ 02 PnA04: Motor Type (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h, 1h	–	–	All	–

Set Value	Meaning
0000h	Rotary servomotor
0001h	Linear servomotor

◆ 03 PnA06: Semi-closed/Fully-closed Type (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h, 1h	–	–	All	–

Set Value	Meaning
0000h	Semi-closed
0001h	Fully-closed

◆ 04 PnA08: Rated Speed (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h to FFFFFFFFh	10^{PnA0C} min^{-1}	–	All	–

◆ 05 PnA0A: Maximum Output Speed (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h to FFFFFFFFh	10^{PnA0C} min^{-1}	–	All	–

◆ 06 PnA0C: Speed Multiplier (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	-1073741823 to 1073741823	–	–	All	–

◆ 07 PnA0E: Rated Torque (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h to FFFFFFFFh	10^{PnA12} N·m	–	All	–

◆ 08 PnA10: Maximum Output Torque (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h to FFFFFFFFh	10^{PnA12} N·m	–	All	–

◆ 09 PnA12: Torque Multiplier (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	-1073741823 to 1073741823	–	–	All	–

◆ 0A PnA14: Resolution (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h to FFFFFFFFh	1 pulse/rev	–	Rotary	–

◆ 0B PnA16: Linear Scale Pitch

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0 to 65536000	1 nm [0.01 μm]	0	Linear	After restart

◆ 0C PnA18: Pulses per Scale Pitch (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h to FFFFFFFFh	1 pulse/ pitch	–	Linear	–

◆ 21 PnA42: Electronic Gear Ratio (Numerator)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	1 to 1073741824	–	64	All	After restart

◆ 22 PnA44: Electronic Gear Ratio (Denominator)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	1 to 1073741824	–	1	All	After restart

◆ 23 PnA46: Absolute Encoder Origin Offset

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	-1073741823 to 1073741823	1 reference unit	0	All	Immediately

Note:

The parameter setting is enabled after SENS_ON command execution is completed.

◆ 24 PnA48: Multiturn Limit

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0 to 65,535	1 Rev	65535	Rotary	After restart

◆ 25 PnA4A: Limit Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h to 33h	–	0000h	All	After restart

Bit	Meaning
Bit 0	P-OT (0: Enabled, 1: Disabled)
Bit 1	N-OT (0: Enabled, 1: Disabled)
Bit 2	Reserved.
Bit 3	Reserved.
Bit 4	P-SOT (0: Disabled, 1: Enabled)
Bit 5	N-SOT (0: Disabled, 1: Enabled)
Bits 6 to 31	Reserved.

◆ 26 PnA4C: Forward Software Limit

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	-1073741823 to 1073741823	1 reference unit	1073741823	All	Immediately

◆ 27 PnA4E: Reserved by System

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	–	–	0	All	Immediately

◆ 28 PnA50: Reverse Software Limit

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	-1073741823 to 1073741823	1 reference unit	-1073741823	All	Immediately

◆ 29 PnA52: Reserved by System

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	–	–	0	All	Immediately

◆ 41 PnA82: Speed Unit

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h to 4h	–	0h	All	After restart

Set Value	Meaning
0000h	Reference units/s
0001h	Reference units/min
0002h	Percentage (%) of rated speed
0003h	min^{-1}
0004h	Maximum motor speed/40000000h

Note:

- When using fully-closed loop control, set 0000h: reference units/s.
- If you set this parameter to either 0002h or 0003h, set the common parameter 42 PnA84 (Speed Base Unit) to a number between -3 and 0.
- If you set this parameter to 0004h, set the common parameter 42 PnA84 (Speed Base Unit) to 0.

◆ 42 PnA84: Speed Base Unit (Set the value of n from the following formula: Speed unit (41 PnA82) × is 10^n.)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	-3 to 3	–	0	All	After restart

Note:

• If you set common parameter 41 PnA82 (Speed Unit) to either 0002h or 0003h, set this parameter to a number between -3 and 0.

• If you set common parameter 41 PnA82 (Speed Unit) to 0004h, set this parameter to 0.

◆ 43 PnA86: Position Unit

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h	–	0h	All	After restart

Set Value	Meaning
0000h	Reference units

◆ 44 PnA88: Position Base Unit (Set the value of n from the following formula: Position unit (43 PnA86) × is 10^n)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0	–	0	All	After restart

◆ 45 PnA8A: Acceleration Unit

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h	–	0h	All	After restart

Set Value	Meaning
0000h	Reference unit/s^2

◆ 46 PnA8C: Acceleration Base Unit (Set the value of n from the following formula: Acceleration unit (45 PnA8A) × 10^n.)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	4 to 6	–	4	All	After restart

◆ 47 PnA8E: Torque Unit

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	1h, 2h	–	1h	All	After restart

Set Value	Meaning
0001h	Percentage (%) of rated torque
0002h	Maximum torque/40000000h

Note:

If you set this parameter to 0002h, set the common parameter 48 PnA90 (Torque Base Unit) to 0.

◆ 48 PnA90: Torque Base Unit (Set the value of n from the following formula: Torque unit (47 PnA8E) × is 10^n.)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	-5 to 0	–	-2	All	After restart

Note:

If you set common parameter 47 PnA8E (Torque Unit) to 0002h, set this parameter to 0.

◆ 49 PnA92: Supported Unit (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	–	–	0601011Fh	All	–

Bit	Meaning
Speed Units	
Bit 0	Reference units/s (1: Enabled)
Bit 1	Reference units/min (1: Enabled)
Bit 2	Percentage (%) of rated speed (1: Enabled)
Bit 3	min^{-1} (rpm) (1: Enabled)
Bit 4	Maximum motor speed/4000000h (1: Enabled)
Bits 5 to 7	Reserved (0: Disabled).
Position Units	
Bit 8	Reference units (1: Enabled)
Bits 9 to 15	Reserved (0: Disabled).
Acceleration Units	
Bit 16	Reference unit/s^2 (1: Enabled)
Bit 17	ms (acceleration time required to reach rated speed) (0: Disabled)
Bits 18 to 23	Reserved (0: Disabled).
Torque Units	
Bit 24	N·m (0: Disabled)
Bit 25	Percentage (%) of rated torque (1: Enabled)
Bit 26	Maximum torque/40000000h (1: Enabled)
Bits 27 to 31	Reserved (0: Disabled).

◆ 61 PnAC2: Speed Loop Gain

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	1000 to 2000000	0.001 Hz [0.1 Hz]	40000	All	Immediately

◆ 62 PnAC4: Speed Loop Integral Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	150 to 512000	1 µs [0.01 ms]	20000	All	Immediately

◆ 63 PnAC6: Position Loop Gain

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	1000 to 2000000	0.001/s [0.1/s]	40000	All	Immediately

◆ 64 PnAC8: Feed Forward Compensation

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0 to 100	1%	0	All	Immediately

◆ 65 PnACA: Position Loop Integral Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0 to 5000000	1 μs [0.1 ms]	0	All	Immediately

◆ 66 PnACC: In-position Range

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0 to 1073741824	1 reference unit	7	All	Immediately

◆ 67 PnACE: Near-position Range

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	1 to 1073741824	1 reference unit	1073741824	All	Immediately

◆ 81 PnB02: Exponential Function Acceleration/Deceleration Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0 to 510000	1 μs [0.1 ms]	0	All	Immediately

Note:

Change the setting when the reference is stopped (while DEN is set to 1). If you change the setting during operation, the reference output will be affected.

◆ 82 PnB04: Movement Average Time

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0 to 510000	1 μs [0.1 ms]	0	All	Immediately

Note:

Change the setting when the reference is stopped (while DEN is set to 1). If you change the setting during operation, the reference output will be affected.

◆ 83 PnB06: Final Travel for External Input Positioning

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	-1073741823 to 1073741823	1 reference unit	100	All	Immediately

◆ 84 PnB08: Zero Point Return Approach Speed

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h to 3FFFFFFFh	10^{-3} min^{-1}	× 5000h reference units/s converted to 10^{-3} min^{-1}	All	Immediately

◆ 85 PnB0A: Zero Point Return Creep Speed

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h to 3FFFFFFh	10^{-3} min^{-1}	× 500h reference units/s converted to 10^{-3} min^{-1}	All	Immediately

◆ 86 PnB0C: Final Travel for Zero Point Return

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	-1073741823 to 1073741823	1 reference unit	100	All	Immediately

◆ 87 PnB0E: Monitor Select 1

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	–	0001h	All	Immediately

Set Value	Meaning
0000h	APOS
0001h Default	CPOS
0002h	PERR
0003h	LPOS1
0004h	LPOS2
0005h	FSPD
0006h	CSPD
0007h	TRQ
0008h	ALARM
0009h	MPOS
000Ah	Reserved (undefined value).
000Bh	Reserved (undefined value).
000Ch	CMN1 (common monitor 1)
000Dh	CMN2 (common monitor 2)
000Eh	OMN1 (optional monitor 1)
000Fh	OMN2 (optional monitor 2)
0010h	TPOS
0011h	IPOS
0012h	POS_OFST
0013h	TSPD
0014h	SPD_LIM
0015h	TRQ_LIM
0016h	SV_STAT
0018h	INIT_PGPOS (Low)
0019h	INIT_PGPOS (High)
001Ah	ERR_STS
0050h	Motor speed [overspeed detection speed / 1000000h]
0051h	Speed reference [overspeed detection speed / 1000000h]
0052h	Torque [maximum torque] / 1000000h]
0053h	Position deviation (lower 32 bits) [reference units]
0054h	Position deviation (upper 32 bits) [reference units]
005Ah	PG count (lower 32 bits) [reference units]
005Bh	PG count (upper 32 bits) [reference units]
005Ch	FPG count (lower 32 bits) [reference units]
005Dh	FPG count (upper 32 bits) [reference units]
0060h	Un000: Motor Speed [min^{-1}]
0061h	Un001: Speed Reference [min^{-1}]
0062h	Un002: Torque Reference [%]

Set Value	Meaning
0063h	Un003: Rotational Angle 1 [encoder pulses] Number of encoder pulses from origin within one encoder rotation displayed in decimal
	Un003: Electrical Angle 1 [linear encoder pulses] Linear encoder pulses from the polarity origin displayed in decimal
0064h	Un004: Rotational Angle 2 [deg] Electrical angle from polarity origin
	Un004: Electrical Angle 2 [deg] Electrical angle from polarity origin
0065h	Un005: Input Signal Monitor
0066h	Un006: Output Signal Monitor
0067h	Un007: Input Reference Pulse Speed [min^{-1}]
0068h	Un008: Position Deviation [reference units]
0069h	Un009: Accumulated Load Ratio [%]
006Ah	Un00A: Regenerative Load Ratio [%]
006Bh	Un00B: Dynamic Brake Resistor Power Consumption [%]
006Ch	Un00C: Input Reference Pulse Counter [reference units]
006Dh	Un00D: Feedback Pulse Counter [encoder pulses]
006Eh	Un00E: Fully-closed Loop Feedback Pulse Counter [external encoder resolution]
0073h	Initial multiturn data [Rev]
0074h	Initial incremental data [pulses]
0075h	Initial absolute position data (lower 32 bits) [pulses]
0076h	Initial absolute position data (upper 32 bits) [pulses]
0090h	Un025: SERVOPACK Installation Environment Monitor
0091h	Un026: Servomotor Installation Environment Monitor
0092h	Un027: Built-in Fan Remaining Life Ratio
0093h	Un028: Capacitor Remaining Life Ratio
0094h	Un029: Surge Prevention Circuit Remaining Life Ratio
0095h	Un02A: Dynamic Brake Circuit Remaining Life Ratio
0096h	Un032: Instantaneous Power
0097h	Un033: Power Consumption
0098h	Un034: Cumulative Power Consumption
009Dh	Un173: Temperature Margin until SERVOPACK Overheats
00A5h	Estimated Vibration [overspeed detection speed / 1000000h]
00A6h	Estimated External Disturbance Torque [maximum torque / 1000000h]
00A8h	Un13C: Margin until Regenerative Overload
00AAh	Un13E: Margin until Undervoltage
00ABh	Un13F: Margin until Overvoltage
00B0h	Un023: Main Circuit DC Voltage
00C0h	Un078: Maximum Value of Amplitude of Estimated Vibration [min^{-1}]
00C1h	Un07A: Maximum Value of Estimated External Disturbance Torque [%]
00C2h	Un07B: Minimum Value of Estimated External Disturbance Torque [%]
00C3h	Un147: Number of MECHATROLINK Communications Errors [times]
00C4h	Un104: Number of Serial Encoder Communications Errors [times]

Set Value	Meaning
00C5h	Un105: Settling Time [0.1 ms]
00C6h	Un106: Amount of Overshoot [reference units]
00C7h	Un107: Residual Vibration Frequency [0.1 Hz]
00C9h	Un174: Temperature Margin until Servomotor Overheats [°C]
00CAh	Un145: Maximum Value of Accumulated Load Ratio [%]
00CBh	Un14E: Margin until Overload [0.01 %]
00CCh	Un07C: Identified Moment of Inertia Ratio
00CEh	Un108: Maximum Settling Time
00CFh	Un109: Maximum Amount of Overshoot
00D0h	Previous value of latched feedback position (LPOS1) [reference units]
00D1h	Previous value of latched feedback position (LPOS2) [reference units]
00D4h	Continuous Latch Status (EX STATUS)
0154h	Un177: Encoder Power Supplied Time
0156h	Un17A: Encoder Power Supply Voltage
0157h	Un17B: Encoder Battery Voltage
015Ch	Un181: Motor Total Number of Rotations
015Dh	Un183: Maintenance Prediction Monitor - Bearings
015Eh	Un184: Maintenance Prediction Monitor - Oil Seal
0163h	File Upload Counter
0164h	File Upload Data
0165h	Error Detection Trace Counter
0166h	Error Detection Trace Error Rate
0176h	Un190: Motor Vibration in X-Axis Direction
0177h	Un191: Motor Vibration in Y-Axis Direction
0178h	Un192: Motor Vibration in Z-Axis Direction
0179h	Un193: Motor Vibration XYZ Composite Value
017Ah	Un194: Maximum Motor Vibration
0250h	SigmaLINK II Response Data 1
0251h	SigmaLINK II Response Data 2
0252h	SigmaLINK II Response Data 3
0253h	SigmaLINK II Response Data 4
0254h	SigmaLINK II Response Data 5
0255h	SigmaLINK II Response Data 6
0256h	SigmaLINK II Response Data 7
0257h	SigmaLINK II Response Data 8
0260h	SigmaLINK II Command Data 1
0261h	SigmaLINK II Command Data 2
0262h	SigmaLINK II Command Data 3
0263h	SigmaLINK II Command Data 4
0290h	SigmaLINK II Data Status Information
Other values	Reserved (Do not use.)

◆ 88 PnB10: Monitor Select 2

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	–	0000h	All	Immediately

Set Value	Meaning
0000h to FFFFh	The settings are the same as those for Monitor Select 1.

◆ 89 PnB12: Monitor Select for SEL_MON1 (CMN1)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h to Ah	–	0h	All	Immediately

Set Value	Meaning
0000h	TPOS (target position in reference coordinate system)
0001h	IPOS (reference position in reference coordinate system)
0002h	POS_OFFSET (offset set in POS_SET (Set Coordinate System) command)
0003h	TSPD (target speed)
0004h	SPD_LIM (speed limit)
0005h	TRQ_LIM (torque limit)
0006h	SV_STAT (servo actual operating status) Monitor Description • Byte 1: Current communications phase – 00h: Phase 0 – 01h: Phase 1 – 02h: Phase 2 – 03h: Phase 3 • Byte 2: Current control mode – 00h: Position control mode – 01h: Speed control mode – 02h: Torque control mode • Byte 3: Reserved • Byte 4: Expansion signal monitor – Bit 0: LT_RDY1: Processing status for latch detection for LT_REQ1 in SVCMD_CTRL region (0: Latch detection not yet processed. 1: Processing latch detection in progress.) – Bit 1: LT_RDY1: Processing status for latch detection for LT_REQ2 in SVCMD_CTRL region (0: Latch detection not yet processed. 1: Processing latch detection in progress.) – Bits 2 and 3: LT_SEL1R: Latch signal (0: Phase C, 1: External input signal 1, 2: External input signal 2, external input signal 3) – Bits 4 and 5: LT_SEL2R: Latch signal (0: Phase C, 1: External input signal 1, 2: External input signal 2, external input signal 3) – Bit 6: Reserved (0).
0007h	Reserved.
0008h	INIT_PGPOS (Low) Lower 32 bits of initial encoder position converted to 64-bit position reference data
0009h	INIT_PGPOS (High) Upper 32 bits of initial encoder position converted to 64-bit position reference data
000Ah	ERR_STS Error status read from communications ASIC

◆ 8A PnB14: Monitor Select for SEL_MON2 (CMN2)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h to Ah	−	0h	All	Immediately

Set Value	Meaning
0000h to 000Ah	The settings are the same as those for SEL_MON Monitor Selection 1.

◆ 8B PnB16: Zero Point Detection Range

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0 to 250	1 reference unit	10	All	Immediately

◆ 8C PnB18: Forward Torque Limit

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0 to 800	1%	100	All	Immediately

◆ 8D PnB1A: Reverse Torque Limit

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0 to 800	1%	100	All	Immediately

◆ 8E PnB1C: Zero Speed Detection Range

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	1000 to 10000000	10^{-3} min^{-1}	20000	All	Immediately

◆ 8F PnB1E: Speed Match Signal Detection Range

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0 to 100000	10^{-3} min^{-1}	10000	All	Immediately

◆ 90 PnB20: SVCMD_ CTRL bit Enabled/Disabled (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	–	–	FFFF3F3Fh	All	–

Bit	Meaning
Bit 0	CMD_PAUSE (1: Enabled)
Bit 1	CMD_CANCEL (1: Enabled)
Bits 2, 3	STOP_MODE (1: Enabled)
Bits 4, 5	ACCFIL (1: Enabled)
Bits 6, 7	Reserved (0: Disabled).
Bit 8	LT_REQ1 (1: Enabled)
Bit 9	LT_REQ2 (1: Enabled)
Bits 10, 11	LT_SEL1 (1: Enabled)
Bits 12, 13	LT_SEL2 (1: Enabled)
Bits 14, 15	Reserved (0: Disabled).
Bits 16 to 19	SEL_MON1 (1: Enabled)
Bits 20 to 23	SEL_MON2 (1: Enabled)
Bits 24 to 31	SEL_MON3 (1: Enabled)

◆ 91 PnB22: SVCMD_ STAT bit Enabled/Disabled (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	–	–	FFFF3F33h	All	–

Bit	Meaning
Bit 0	CMD_PAUSE_CMP (1: Enabled)
Bit 1	CMD_CANCEL_CMP (1: Enabled)
Bits 2, 3	Reserved (0: Disabled).
Bits 4, 5	ACCFIL (1: Enabled)
Bits 6, 7	Reserved (0: Disabled).
Bit 8	L_CMP1 (1: Enabled)
Bit 9	L_CMP2 (1: Enabled)
Bit 10	POS_RDY (1: Enabled)
Bit 11	PON (1: Enabled)
Bit 12	M_RDY (1: Enabled)
Bit 13	SV_ON (1: Enabled)
Bits 14, 15	Reserved (0: Disabled).
Bits 16 to 19	SEL_MON1 (1: Enabled)
Bits 20 to 23	SEL_MON2 (1: Enabled)
Bits 24 to 31	SEL_MON3 (1: Enabled)

◆ 92 PnB24: I/O Bit Enabled/Disabled (Output) (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	–	–	DCFF01F0h	All	–

Bit	Meaning
Bits 0 to 3	Reserved (0: Disabled).
Bit 4	V_PPI (1: Enabled)
Bit 5	P_PPI (1: Enabled)
Bit 6	P_CL (1: Enabled)
Bit 7	N_CL (1: Enabled)
Bit 8	G_SEL (1: Enabled)
Bits 9 to 11	G_SEL (0: Disabled)
Bits 12 to 15	Reserved (0: Disabled).
Bits 16 to 19	BANK_SEL (1: Enabled)
Bits 20 to 22	SO1 to SO3 or SO1 to SO3 (1: Enabled)
Bit 23	SLO4 (1: Enabled)
Bits 24, 25	Reserved (0: Disabled).
Bit 26	VREF_SIGN (1: Enabled)
Bit 27	PRES_CTRL (1: Enabled)
Bit 28	PRES_APRCH (1: Enabled)
Bit 29	Reserved (0: Disabled).
Bit 30	FOUT_STOP (1: Enabled)
Bit 31	EXT_TRC (1: Enabled)

◆ 93 PnB26: I/O Bit Enabled/Disabled (Input) (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	–	–	FF0FFEFEh	All	–

Bit	Meaning
Bit 0	Reserved (0: Disabled).
Bit 1	DEC (1: Enabled)
Bit 2	P-OT (1: Enabled)
Bit 3	N-OT (1: Enabled)
Bit 4	EXT1 (1: Enabled)
Bit 5	EXT2 (1: Enabled)
Bit 6	EXT3 (1: Enabled)
Bit 7	ESTP (1: Enabled)
Bit 8	Reserved (0: Disabled).
Bit 9	BRK_ON (1: Enabled)
Bit 10	P-SOT (1: Enabled)
Bit 11	N-SOT (1: Enabled)
Bit 12	DEN (1: Enabled)
Bit 13	NEAR (1: Enabled)
Bit 14	PSET (1: Enabled)
Bit 15	ZPOINT (1: Enabled)
Bit 16	T_LIM (1: Enabled)
Bit 17	V_LIM (1: Enabled)
Bit 18	V_CMP (1: Enabled)
Bit 19	ZSPD (1: Enabled)
Bits 20 to 23	Reserved (0: Disabled).
Bits 24 to 31	IO_STS1 to IO_STS8 (1: Enabled)

◆ 94 PnB28: Selectable Command Values (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	–	–	7Eh	All	–

Bit	Meaning
Bit 0	Reserved (0: Disabled).
Bit 1	ACCR (1: Supported)
Bit 2	DECR (1: Supported)
Bit 3	VFF (1: Supported)
Bit 4	TFF (1: Supported)
Bit 5	VLIM (1: Supported)
Bit 6	TLIM (1: Supported)
Bits 7 to 31	Reserved (0).

◆ A0 PnB40: CPRM_SEL_CMDP1 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	−	0000h	All	After restart

Set Value	Meaning
0000h	Disabled (no allocation setting)
0001h	ACCR
0002h	DECR
0003h	VFF
0004h	TFF
0005h	VLIM
0006h	TLIM
0007h to 008Fh	Reserved.
0090h	Triggers at Preset Positions Table 1 Output Position Settings
0091h	Triggers at Preset Positions Table 2 Output Position Settings
0092h	Triggers at Preset Positions Table 3 Output Position Settings
0093h	Triggers at Preset Positions Table 4 Output Position Settings
0094h	Triggers at Preset Positions Table 5 Output Position Settings
0095h	Triggers at Preset Positions Table 6 Output Position Settings
0096h to 025Fh	Reserved.
0260h	SigmaLINK II Command Data 1
0261h	SigmaLINK II Command Data 2
0262h	SigmaLINK II Command Data 3
0263h	SigmaLINK II Command Data 4
0264h to FFFFh	Reserved.

◆ A1 PnB42: CPRM_SEL_CMDP2 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	−	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ A2 PnB44: CPRM_SEL_CMDP3 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	−	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ A3 PnB46: CPRM_SEL_CMDP4 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	–	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ A4 PnB48: CPRM_SEL_CMDP5 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	–	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ A5 PnB4A: CPRM_SEL_CMDP6 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	–	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ A6 PnB4C: CPRM_SEL_CMDP7 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	–	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ A7 PnB4E: CPRM_SEL_CMDP8 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	–	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ A8 PnB50: CPRM_SEL_CMDP9 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	–	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ A9 PnB52: CPRM_SEL_CMDP10 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	–	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ AA PnB54: CPRM_SEL_CMDP11 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	–	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ AB PnB56: CPRM_SEL_CMDP12 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	–	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ B0 PnB60: CPRM_SEL_CMDV1 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	–	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ B1 PnB62: CPRM_SEL_CMDV2 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	–	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ B2 PnB64: CPRM_SEL_CMDV3 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	–	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ B3 PnB66: CPRM_SEL_CMDV4 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	−	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ B4 PnB68: CPRM_SEL_CMDV5 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	−	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ B5 PnB6A: CPRM_SEL_CMDV6 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	−	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ B6 PnB6C: CPRM_SEL_CMDV7 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	−	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ B7 PnB6E: CPRM_SEL_CMDV8 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	−	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ B8 PnB70: CPRM_SEL_CMDV9 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	−	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ B9 PnB72: CPRM_SEL_CMDV10 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	−	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ BA PnB74: CPRM_SEL_CMDV11 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	−	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ BB PnB76: CPRM_SEL_CMDV12 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	−	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ C0 PnB80: CPRM_SEL_CMDT1 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	−	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ C1 PnB82: CPRM_SEL_CMDT2 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	−	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ C2 PnB84: CPRM_SEL_CMDT3 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	−	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ C3 PnB86: CPRM_SEL_CMDT4 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	–	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ C4 PnB88: CPRM_SEL_CMDT5 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	–	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ C5 PnB8A: CPRM_SEL_CMDT6 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	–	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ C6 PnB8C: CPRM_SEL_CMDT7 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	–	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ C7 PnB8E: CPRM_SEL_CMDT8 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	–	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ C8 PnB90: CPRM_SEL_CMDT9 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	–	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ C9 PnB92: CPRM_SEL_CMDT10 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	–	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ CA PnB94: CPRM_SEL_CMDT11 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	–	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ CB PnB96: CPRM_SEL_CMDT12 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	–	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ D0 PnBA0: CPRM_SEL_CMD1 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	–	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ D1 PnBA2: CPRM_SEL_CMD2 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	–	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ D2 PnBA4: CPRM_SEL_CMD3 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	–	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ D3 PnBA6: CPRM_SEL_CMD4 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	−	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ D4 PnBA8: CPRM_SEL_CMD5 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	−	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ D5 PnBAA: CPRM_SEL_CMD6 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	−	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ D6 PnBAC: CPRM_SEL_CMD7 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	−	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ D7 PnBAE: CPRM_SEL_CMD8 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	−	0000h	All	After restart

Set Value	Meaning
0000h to FFFFh	Same as common parameter A0 PnB40.

◆ E0 PnBC0: CPRM_SEL_MON3 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	−	0000h	All	Immediately

Set Value	Meaning
0000h to FFFFh	Same as common parameter 87 PnB0E.

◆ E1 PnBC2: CPRM_SEL_MON4 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	−	0000h	All	Immediately

Set Value	Meaning
0000h to FFFFh	Same as common parameter 87 PnB0E.

◆ E2 PnBC4: CPRM_SEL_MON5 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	−	0000h	All	Immediately

Set Value	Meaning
0000h to FFFFh	Same as common parameter 87 PnB0E.

◆ E3 PnBC6: CPRM_SEL_MON6 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	−	0000h	All	Immediately

Set Value	Meaning
0000h to FFFFh	Same as common parameter 87 PnB0E.

◆ E4 PnBC8: CPRM_SEL_MON7 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	−	0000h	All	Immediately

Set Value	Meaning
0000h to FFFFh	Same as common parameter 87 PnB0E.

◆ E5 PnBCA: CPRM_SEL_MON8 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	−	0000h	All	Immediately

Set Value	Meaning
0000h to FFFFh	Same as common parameter 87 PnB0E.

◆ E6 PnBCC: CPRM_SEL_MON9 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	−	0000h	All	Immediately

Set Value	Meaning
0000h to FFFFh	Same as common parameter 87 PnB0E.

◆ E7 PnBCE: CPRM_SEL_MON10 Allocation Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	−	0000h	All	Immediately

Set Value	Meaning
0000h to FFFFh	Same as common parameter 87 PnB0E.

5.6 List of MECHATROLINK Common Parameters: MECHATROLINK-III Communications References

The following table lists the common MECHATROLINK-III parameters. These common parameters are used to make settings from the host controller via MECHATROLINK communications. Do not change the settings with the digital operator or any other device.

◆ 01 PnA02: Encoder Type (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h, 1h	–	–	All	–

Set Value	Meaning
0000h	Absolute encoder
0001h	Incremental encoder

◆ 02 PnA04: Motor Type (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h, 1h	–	–	All	–

Set Value	Meaning
0000h	Rotary servomotor
0001h	Linear servomotor

◆ 03 PnA06: Semi-closed/Fully-closed Type (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h, 1h	–	–	All	–

Set Value	Meaning
0000h	Semi-closed
0001h	Fully-closed

◆ 04 PnA08: Rated Speed (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h to FFFFFFFFh	10^{PnA0C} min^{-1}	–	All	–

◆ 05 PnA0A: Maximum Output Speed (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h to FFFFFFFFh	10^{PnA0C} min^{-1}	–	All	–

◆ 06 PnA0C: Speed Multiplier (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	-1073741823 to 1073741823	–	–	All	–

◆ 07 PnA0E: Rated Torque (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h to FFFFFFFFh	10^{PnA12} N·m	–	All	–

◆ 08 PnA10: Maximum Output Torque (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h to FFFFFFFFh	10^{PnA12} N·m	–	All	–

◆ 09 PnA12: Torque Multiplier (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	-1073741823 to 1073741823	–	–	All	–

◆ 0A PnA14: Resolution (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h to FFFFFFFFh	1 pulse/rev	–	Rotary	–

◆ 0B PnA16: Linear Scale Pitch

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0 to 65536000	1 nm [0.01 μm]	0	Linear	After restart

◆ 0C PnA18: Pulses per Scale Pitch (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h to FFFFFFFFh	1 pulse/ pitch	–	Linear	–

◆ 21 PnA42: Electronic Gear Ratio (Numerator)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	1 to 1073741824	–	64	All	After restart

◆ 22 PnA44: Electronic Gear Ratio (Denominator)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	1 to 1073741824	–	1	All	After restart

◆ 23 PnA46: Absolute Encoder Origin Offset

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	-1073741823 to 1073741823	1 reference unit	0	All	Immediately

Note:

The parameter setting is enabled after SENS_ON command execution is completed.

◆ 24 PnA48: Multiturn Limit

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0 to 65,535	1 Rev	65535	Rotary	After restart

◆ 25 PnA4A: Limit Setting

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h to 33h	–	0000h	All	After restart

Bit	Meaning
Bit 0	P-OT (0: Enabled, 1: Disabled)
Bit 1	N-OT (0: Enabled, 1: Disabled)
Bit 2	Reserved.
Bit 3	Reserved.
Bit 4	P-SOT (0: Disabled, 1: Enabled)
Bit 5	N-SOT (0: Disabled, 1: Enabled)
Bits 6 to 31	Reserved.

◆ 26 PnA4C: Forward Software Limit

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	-1073741823 to 1073741823	1 reference unit	1073741823	All	Immediately

◆ 27 PnA4E: Reserved by System

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	–	–	0	All	Immediately

◆ 28 PnA50: Reverse Software Limit

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	-1073741823 to 1073741823	1 reference unit	-1073741823	All	Immediately

◆ 29 PnA52: Reserved by System

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	–	–	0	All	Immediately

◆ 41 PnA82: Speed Unit

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h to 4h	–	0h	All	After restart

Set Value	Meaning
0000h	Reference units/s
0001h	Reference units/min
0002h	Percentage (%) of rated speed
0003h	min^{-1}
0004h	Maximum motor speed/40000000h

Note:

- When using fully-closed loop control, set 0000h: reference units/s.
- If you set this parameter to either 0002h or 0003h, set the common parameter 42 PnA84 (Speed Base Unit) to a number between -3 and 0.
- If you set this parameter to 0004h, set the common parameter 42 PnA84 (Speed Base Unit) to 0.

◆ 42 PnA84: Speed Base Unit (Set the value of n from the following formula: Speed unit (41 PnA82) × is 10^n.)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	-3 to 3	–	0	All	After restart

Note:

• If you set common parameter 41 PnA82 (Speed Unit) to either 0002h or 0003h, set this parameter to a number between -3 and 0.

• If you set common parameter 41 PnA82 (Speed Unit) to 0004h, set this parameter to 0.

◆ 43 PnA86: Position Unit

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h	–	0h	All	After restart

Set Value	Meaning
0000h	Reference units

◆ 44 PnA88: Position Base Unit (Set the value of n from the following formula: Position unit (43 PnA86) × is 10^n)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0	–	0	All	After restart

◆ 45 PnA8A: Acceleration Unit

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h	–	0h	All	After restart

Set Value	Meaning
0000h	Reference unit/s^2

◆ 46 PnA8C: Acceleration Base Unit (Set the value of n from the following formula: Acceleration unit (45 PnA8A) × 10^n.)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	4 to 6	–	4	All	After restart

◆ 47 PnA8E: Torque Unit

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	1h, 2h	–	1h	All	After restart

Set Value	Meaning
0001h	Percentage (%) of rated torque
0002h	Maximum torque/40000000h

Note:

If you set this parameter to 0002h, set the common parameter 48 PnA90 (Torque Base Unit) to 0.

◆ 48 PnA90: Torque Base Unit (Set the value of n from the following formula: Torque unit (47 PnA8E) × is 10^n.)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	-5 to 0	–	-2	All	After restart

Note:

If you set common parameter 47 PnA8E (Torque Unit) to 0002h, set this parameter to 0.

◆ 49 PnA92: Supported Unit (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	–	–	0601011Fh	All	–

Bit	Meaning
Speed Units	
Bit 0	Reference units/s (1: Enabled)
Bit 1	Reference units/min (1: Enabled)
Bit 2	Percentage (%) of rated speed (1: Enabled)
Bit 3	min^{-1} (rpm) (1: Enabled)
Bit 4	Maximum motor speed/4000000h (1: Enabled)
Bits 5 to 7	Reserved (0: Disabled).
Position Units	
Bit 8	Reference units (1: Enabled)
Bits 9 to 15	Reserved (0: Disabled).
Acceleration Units	
Bit 16	Reference unit/s^2 (1: Enabled)
Bit 17	ms (acceleration time required to reach rated speed) (0: Disabled)
Bits 18 to 23	Reserved (0: Disabled).
Torque Units	
Bit 24	N·m (0: Disabled)
Bit 25	Percentage (%) of rated torque (1: Enabled)
Bit 26	Maximum torque/40000000h (1: Enabled)
Bits 27 to 31	Reserved (0: Disabled).

◆ 61 PnAC2: Speed Loop Gain

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	1000 to 2000000	0.001 Hz [0.1 Hz]	40000	All	Immediately

◆ 62 PnAC4: Speed Loop Integral Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	150 to 512000	1 µs [0.01 ms]	20000	All	Immediately

◆ 63 PnAC6: Position Loop Gain

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	1000 to 2000000	0.001/s [0.1/s]	40000	All	Immediately

◆ 64 PnAC8: Feed Forward Compensation

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0 to 100	1%	0	All	Immediately

◆ 65 PnACA: Position Loop Integral Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0 to 5000000	1 μs [0.1 ms]	0	All	Immediately

◆ 66 PnACC: In-position Range

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0 to 1073741824	1 reference unit	7	All	Immediately

◆ 67 PnACE: Near-position Range

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	1 to 1073741824	1 reference unit	1073741824	All	Immediately

◆ 81 PnB02: Exponential Function Acceleration/Deceleration Time Constant

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0 to 510000	1 μs [0.1 ms]	0	All	Immediately

Note:

Change the setting when the reference is stopped (while DEN is set to 1). If you change the setting during operation, the reference output will be affected.

◆ 82 PnB04: Movement Average Time

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0 to 510000	1 μs [0.1 ms]	0	All	Immediately

Note:

Change the setting when the reference is stopped (while DEN is set to 1). If you change the setting during operation, the reference output will be affected.

◆ 83 PnB06: Final Travel for External Input Positioning

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	-1073741823 to 1073741823	1 reference unit	100	All	Immediately

◆ 84 PnB08: Zero Point Return Approach Speed

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h to 3FFFFFFFh	10^{-3} min^{-1}	× 5000h reference units/s converted to 10^{-3} min^{-1}	All	Immediately

◆ 85 PnB0A: Zero Point Return Creep Speed

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h to 3FFFFFFFh	10^{-3} min^{-1}	× 500h reference units/s converted to 10^{-3} min^{-1}	All	Immediately

◆ 86 PnB0C: Final Travel for Zero Point Return

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	-1073741823 to 1073741823	1 reference unit	100	All	Immediately

◆ 87 PnB0E: Monitor Select 1

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	–	0001h	All	Immediately

Set Value	Meaning
0000h	APOS
0001h Default	CPOS
0002h	PERR
0003h	LPOS1
0004h	LPOS2
0005h	FSPD
0006h	CSPD
0007h	TRQ
0008h	ALARM
0009h	MPOS
000Ah	Reserved (undefined value).
000Bh	Reserved (undefined value).
000Ch	CMN1 (common monitor 1)
000Dh	CMN2 (common monitor 2)
000Eh	OMN1 (optional monitor 1)
000Fh	OMN2 (optional monitor 2)
Other values	Reserved (Do not use.)

◆ 88 PnB10: Monitor Select 2

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0000h to FFFFh	–	0000h	All	Immediately

Set Value	Meaning
0000h to FFFFh	The settings are the same as those for Monitor Select 1.

◆ 89 PnB12: Monitor Select for SEL_MON1 (CMN1)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h to Ah	–	0h	All	Immediately

Set Value	Meaning
0000h	TPOS (target position in reference coordinate system)
0001h	IPOS (reference position in reference coordinate system)
0002h	POS_OFFSET (offset set in POS_SET (Set Coordinate System) command)
0003h	TSPD (target speed)
0004h	SPD_LIM (speed limit)
0005h	TRQ_LIM (torque limit)
0006h	SV_STAT (servo actual operating status) Monitor Description • Byte 1: Current communications phase – 00h: Phase 0 – 01h: Phase 1 – 02h: Phase 2 – 03h: Phase 3 • Byte 2: Current control mode – 00h: Position control mode – 01h: Speed control mode – 02h: Torque control mode • Byte 3: Reserved • Byte 4: Expansion signal monitor – Bit 0: LT_RDY1: Processing status for latch detection for LT_REQ1 in SVCMD_CTRL region (0: Latch detection not yet processed. 1: Processing latch detection in progress.) – Bit 1: LT_RDY1: Processing status for latch detection for LT_REQ2 in SVCMD_CTRL region (0: Latch detection not yet processed. 1: Processing latch detection in progress.) – Bits 2 and 3: LT_SEL1R: Latch signal (0: Phase C, 1: External input signal 1, 2: External input signal 2, external input signal 3) – Bits 4 and 5: LT_SEL2R: Latch signal (0: Phase C, 1: External input signal 1, 2: External input signal 2, external input signal 3) – Bit 6: Reserved (0).
0007h	Reserved.
0008h	INIT_PGPOS (Low) Lower 32 bits of initial encoder position converted to 64-bit position reference data
0009h	INIT_PGPOS (High) Upper 32 bits of initial encoder position converted to 64-bit position reference data
000Ah	Reserved.

◆ 8A PnB14: Monitor Select for SEL_MON2 (CMN2)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0h to Ah	–	0h	All	Immediately

Set Value	Meaning
0000h to 000Ah	The settings are the same as those for SEL_MON Monitor Selection 1.

◆ 8B PnB16: Zero Point Detection Range

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0 to 250	1 reference unit	10	All	Immediately

◆ 8C PnB18: Forward Torque Limit

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0 to 800	1%	100	All	Immediately

◆ 8D PnB1A: Reverse Torque Limit

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0 to 800	1%	100	All	Immediately

◆ 8E PnB1C: Zero Speed Detection Range

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	1000 to 10000000	10^{-3} min^{-1}	20000	All	Immediately

◆ 8F PnB1E: Speed Match Signal Detection Range

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	0 to 100000	10^{-3} min^{-1}	10000	All	Immediately

◆ 90 PnB20: SVCMD_ CTRL bit Enabled/Disabled (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	–	–	0FFF3F3Fh	All	–

Bit	Meaning
Bit 0	CMD_PAUSE (1: Enabled)
Bit 1	CMD_CANCEL (1: Enabled)
Bits 2, 3	STOP_MODE (1: Enabled)
Bits 4, 5	ACCFIL (1: Enabled)
Bits 6, 7	Reserved (0: Disabled).
Bit 8	LT_REQ1 (1: Enabled)
Bit 9	LT_REQ2 (1: Enabled)
Bits 10, 11	LT_SEL1 (1: Enabled)
Bits 12, 13	LT_SEL2 (1: Enabled)
Bits 14, 15	Reserved (0: Disabled).
Bits 16 to 19	SEL_MON1 (1: Enabled)
Bits 20 to 23	SEL_MON2 (1: Enabled)
Bits 24 to 27	SEL_MON3 (1: Enabled)
Bits 28 to 31	Reserved (0: Disabled).

◆ 91 PnB22: SVCMD_ STAT bit Enabled/Disabled (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	–	–	0FFF3F33h	All	–

Bit	Meaning
Bit 0	CMD_PAUSE_CMP (1: Enabled)
Bit 1	CMD_CANCEL_CMP (1: Enabled)
Bits 2, 3	Reserved (0: Disabled).
Bits 4, 5	ACCFIL (1: Enabled)
Bits 6, 7	Reserved (0: Disabled).
Bit 8	L_CMP1 (1: Enabled)
Bit 9	L_CMP2 (1: Enabled)
Bit 10	POS_RDY (1: Enabled)
Bit 11	PON (1: Enabled)
Bit 12	M_RDY (1: Enabled)
Bit 13	SV_ON (1: Enabled)
Bits 14, 15	Reserved (0: Disabled).
Bits 16 to 19	SEL_MON1 (1: Enabled)
Bits 20 to 23	SEL_MON2 (1: Enabled)
Bits 24 to 27	SEL_MON3 (1: Enabled)
Bits 28 to 31	Reserved (0: Disabled).

◆ 92 PnB24: I/O Bit Enabled/Disabled (Output) (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	–	–	DCFF01F0h	All	–

Bit	Meaning
Bits 0 to 3	Reserved (0: Disabled).
Bit 4	V_PPI (1: Enabled)
Bit 5	P_PPI (1: Enabled)
Bit 6	P_CL (1: Enabled)
Bit 7	N_CL (1: Enabled)
Bit 8	G_SEL (1: Enabled)
Bits 9 to 11	G_SEL (0: Disabled)
Bits 12 to 15	Reserved (0: Disabled).
Bits 16 to 19	BANK_SEL (1: Enabled)
Bits 20 to 22	SO1 to SO3 or SO1 to SO3 (1: Enabled)
Bit 23	SLO4 (1: Enabled)
Bits 24, 25	Reserved (0: Disabled).
Bit 26	VREF_SIGN (1: Enabled)
Bit 27	PRES_CTRL (1: Enabled)
Bit 28	PRES_APRCH (1: Enabled)
Bit 29	Reserved (0: Disabled).
Bit 30	FOUT_STOP (1: Enabled)
Bit 31	EXT_TRC (1: Enabled)

◆ 93 PnB26: I/O Bit Enabled/Disabled (Input) (read only)

Speed Pos Trq

Size	Setting Range	Setting Unit [Resolution]	Default Setting	Applicable Motors	When Enabled
4	–	–	FF0FFEFEh	All	–

Bit	Meaning
Bit 0	Reserved (0: Disabled).
Bit 1	DEC (1: Enabled)
Bit 2	P-OT (1: Enabled)
Bit 3	N-OT (1: Enabled)
Bit 4	EXT1 (1: Enabled)
Bit 5	EXT2 (1: Enabled)
Bit 6	EXT3 (1: Enabled)
Bit 7	ESTP (1: Enabled)
Bit 8	Reserved (0: Disabled).
Bit 9	BRK_ON (1: Enabled)
Bit 10	P-SOT (1: Enabled)
Bit 11	N-SOT (1: Enabled)
Bit 12	DEN (1: Enabled)
Bit 13	NEAR (1: Enabled)
Bit 14	PSET (1: Enabled)
Bit 15	ZPOINT (1: Enabled)
Bit 16	T_LIM (1: Enabled)
Bit 17	V_LIM (1: Enabled)
Bit 18	V_CMP (1: Enabled)
Bit 19	ZSPD (1: Enabled)
Bits 20 to 23	Reserved (0: Disabled).
Bits 24 to 31	IO_STS1 to IO_STS8 (1: Enabled)

5.7 Parameter Recording Table: MECHATROLINK-4 Communications References

Use the following table to record the settings of the parameters.

Parameter No.	Default Setting						Name	When Enabled
Pn000	0000h						Basic Function Selections 0	After restart
Pn001	0000h						Application Function Selections 1	After restart
Pn002	0011h						Application Function Selections 2	After restart
Pn006	0002h						Application Function Selections 6	Immediately
Pn007	0000h						Application Function Selections 7	Immediately
Pn008	4000h						Application Function Selections 8	After restart
Pn009	0040h						Application Function Selections 9	After restart
Pn00A	0001h						Application Function Selections A	After restart
Pn00B	0000h						Application Function Selections B	After restart
Pn00C	0040h						Application Function Selections C	After restart
Pn00D	0000h						Application Function Selections D	After restart
Pn00E	0000h						Application Function Selections E	After restart
Pn00F	0000h						Application Function Selections F	After restart
Pn021	0000h						Reserved (Do not change.)	–
Pn022	0000h						Application Function Selections 22	After restart
Pn02F	0000h						Application Function Selections 2F	After restart
Pn030	C0A80101-h						Ethernet IP Address	After restart
Pn032	FFFFFF00-h						Ethernet Subnet Mask	After restart
Pn034	00000000h						Ethernet Default Gateway	After restart
Pn040	0000h						Sigma-V/Sigma-7 Compatible Function Switch	After restart
Pn050	00000000h						SigmaLINK II Response Data Selection 1	After restart
Pn052	00000000h						SigmaLINK II Response Data Selection 2	After restart
Pn054	00000000h						SigmaLINK II Response Data Selection 3	After restart
Pn056	00000000h						SigmaLINK II Response Data Selection 4	After restart
Pn058	00000000h						SigmaLINK II Response Data Selection 5	After restart
Pn05A	00000000h						SigmaLINK II Response Data Selection 6	After restart
Pn05C	00000000h						SigmaLINK II Response Data Selection 7	After restart
Pn05E	00000000h						SigmaLINK II Response Data Selection 8	After restart
Pn080	0000h						Application Function Selections 80	After restart
Pn081	0000h						Application Function Selections 81	After restart

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Parameter No.	Default Setting						Name	When Enabled
Pn090	00000000h						SigmaLINK II Command Data Selection 1	After restart
Pn092	00000000h						SigmaLINK II Command Data Selection 2	After restart
Pn094	00000000h						SigmaLINK II Command Data Selection 3	After restart
Pn096	00000000h						SigmaLINK II Command Data Selection 4	After restart
Pn0B1	0000h						SigmaLINK II Sequence Input Allocation 1	After restart
Pn0B2	0000h						SigmaLINK II Sequence Input Allocation 2	After restart
Pn0B5	0000h						SigmaLINK II Sequence Output Allocation 1	After restart
Pn0DA	0000h						SigmaLINK II Semi-closed Encoder Selection	After restart
Pn0DB	0101h						SigmaLINK II Fully-closed Encoder Selection	After restart
Pn0DC	0000h						SigmaLINK II Node Change Detection Condition Selection	After restart
Pn0DD	0110h						SigmaLINK II I/O Device Error Detection Selection	After restart
Pn100	400						Speed Loop Gain	Immediately
Pn101	2000						Speed Loop Integral Time Constant	Immediately
Pn102	400						Position Loop Gain	Immediately
Pn103	100						Moment of Inertia Ratio	Immediately
Pn104	400						Second Speed Loop Gain	Immediately
Pn105	2000						Second Speed Loop Integral Time Constant	Immediately
Pn106	400						Second Position Loop Gain	Immediately
Pn109	0						Feedforward	Immediately
Pn10A	0						Feedforward Filter Time Constant	Immediately
Pn10B	0000h						Gain Application Selections	–
Pn10C	200						Mode Switching Level for Torque Reference	Immediately
Pn10D	0						Mode Switching Level for Speed Reference	Immediately
Pn10E	0						Mode Switching Level for Acceleration	Immediately
Pn10F	0						Mode Switching Level for Position Deviation	Immediately
Pn11F	0						Position Integral Time Constant	Immediately
Pn121	100						Friction Compensation Gain	Immediately
Pn122	100						Second Friction Compensation Gain	Immediately
Pn123	0						Friction Compensation Coefficient	Immediately
Pn124	0						Friction Compensation Frequency Correction	Immediately

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Parameter No.	Default Setting						Name	When Enabled
Pn125	100						Friction Compensation Gain Correction	Immediately
Pn131	0						Gain Switching Time 1	Immediately
Pn132	0						Gain Switching Time 2	Immediately
Pn135	0						Gain Switching Waiting Time 1	Immediately
Pn136	0						Gain Switching Waiting Time 2	Immediately
Pn139	0000h						Automatic Gain Switching Selections 1	Immediately
Pn13D	2000						Current Gain Level	Immediately
Pn140	0100h						Model Following Control-Related Selections	Immediately
Pn141	500						Model Following Control Gain	Immediately
Pn142	1000						Model Following Control Gain Correction	Immediately
Pn143	1000						Model Following Control Bias in the Forward Direction	Immediately
Pn144	1000						Model Following Control Bias in the Reverse Direction	Immediately
Pn145	500						Vibration Suppression 1 Frequency A	Immediately
Pn146	700						Vibration Suppression 1 Frequency B	Immediately
Pn147	1000						Model Following Control Speed Feedforward Compensation	Immediately
Pn148	500						Second Model Following Control Gain	Immediately
Pn149	1000						Second Model Following Control Gain Correction	Immediately
Pn14A	800						Vibration Suppression 2 Frequency	Immediately
Pn14B	100						Vibration Suppression 2 Correction	Immediately
Pn14F	0030h						Control-Related Selections	After restart
Pn160	0010h						Anti-Resonance Control-Related Selections	Immediately
Pn161	1000						Anti-Resonance Frequency	Immediately
Pn162	100						Anti-Resonance Gain Correction	Immediately
Pn163	0						Anti-Resonance Damping Gain	Immediately
Pn164	0						Anti-Resonance Filter Time Constant 1 Correction	Immediately
Pn165	0						Anti-Resonance Filter Time Constant 2 Correction	Immediately
Pn166	0						Anti-Resonance Damping Gain 2	Immediately
Pn170	1400h						Tuning-less Function-Related Selections	–
Pn173	0000h						Load Fluctuation Compensation Control-Related Selections	Immediately
Pn174	400						Load Fluctuation Compensation Control Response Level	Immediately
Pn181	0						Mode Switching Level for Speed Reference	Immediately

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Parameter No.	Default Setting						Name	When Enabled
Pn182	0						Mode Switching Level for Acceleration	Immediately
Pn205	65535						Multiturn Limit	After restart
Pn207	0010h						Position Control Function Selections	After restart
Pn20A	32768						Number of External Encoder Scale Pitches	After restart
Pn20E	64						Electronic Gear Ratio (Numerator)	After restart
Pn210	1						Electronic Gear Ratio (Denominator)	After restart
Pn212	2048						Number of Encoder Output Pulses	After restart
Pn21D	0080h						Encoder Resolution Setting	After restart
Pn22A	0000h						Fully-closed Control Selections	After restart
Pn230	0000h						Position Control Expansion Function Selections	After restart
Pn231	0						Backlash Compensation Value	Immediately
Pn233	0						Backlash Compensation Time Constant	Immediately
Pn281	20						Encoder Output Resolution	After restart
Pn282	0						Linear Encoder Scale Pitch	After restart
Pn304	500						Jogging Speed	Immediately
Pn305	0						Soft Start Acceleration Time	Immediately
Pn306	0						Soft Start Deceleration Time	Immediately
Pn308	0						Speed Feedback Filter Time Constant	Immediately
Pn30A	0						Deceleration Time for Servo OFF and Forced Stops	Immediately
Pn30C	0						Speed Feedforward Average Movement Time	Immediately
Pn310	0000h						Vibration Detection Selections	Immediately
Pn311	100						Vibration Detection Sensitivity	Immediately
Pn312	50						Vibration Detection Level	Immediately
Pn316	10000						Maximum Motor Speed	After restart
Pn324	300						Moment of Inertia Calculation Starting Level	Immediately
Pn383	50						Jogging Speed	Immediately
Pn384	10						Vibration Detection Level	Immediately
Pn385	50						Maximum Motor Speed	After restart
Pn401	100						First Stage First Torque Reference Filter Time Constant	Immediately
Pn402	800						Forward Torque Limit	Immediately
Pn403	800						Reverse Torque Limit	Immediately
Pn404	100						Forward External Torque Limit	Immediately
Pn405	100						Reverse External Torque Limit	Immediately
Pn406	800						Emergency Stop Torque	Immediately
Pn407	100						Speed Limit during Torque Control	Immediately
Pn408	0000h						Torque-Related Function Selections	–

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Parameter No.	Default Setting						Name	When Enabled
Pn409	5000						First Stage Notch Filter Frequency	Immediately
Pn40A	70						First Stage Notch Filter Q Value	Immediately
Pn40B	0						First Stage Notch Filter Depth	Immediately
Pn40C	5000						Second Stage Notch Filter Frequency	Immediately
Pn40D	70						Second Stage Notch Filter Q Value	Immediately
Pn40E	0						Second Stage Notch Filter Depth	Immediately
Pn40F	5000						Second Stage Second Torque Reference Filter Frequency	Immediately
Pn410	50						Second Stage Second Torque Reference Filter Q Value	Immediately
Pn412	100						First Stage Second Torque Reference Filter Time Constant	Immediately
Pn416	0000h						Torque-Related Function Selections 2	Immediately
Pn417	5000						Third Stage Notch Filter Frequency	Immediately
Pn418	70						Third Stage Notch Filter Q Value	Immediately
Pn419	0						Third Stage Notch Filter Depth	Immediately
Pn41A	5000						Fourth Stage Notch Filter Frequency	Immediately
Pn41B	70						Fourth Stage Notch Filter Q Value	Immediately
Pn41C	0						Fourth Stage Notch Filter Depth	Immediately
Pn41D	5000						Fifth Stage Notch Filter Frequency	Immediately
Pn41E	70						Fifth Stage Notch Filter Q Value	Immediately
Pn41F	0						Fifth Stage Notch Filter Depth	Immediately
Pn423	0002h						Speed Ripple Compensation Selections	–
Pn424	50						Torque Limit at Main Circuit Voltage Drop	Immediately
Pn425	100						Release Time for Torque Limit at Main Circuit Voltage Drop	Immediately
Pn426	0						Torque Feedforward Average Movement Time	Immediately
Pn427	0						Speed Ripple Compensation Enable Speed	Immediately
Pn428	0001h						Output Torque Compensation Selections	After restart
Pn43D	10000						Reserved (Do not change.)	–
Pn440	0001h						Reserved (Do not change.)	–
Pn441	0010h						Pressure Control Function Selections	–
Pn442	100						Pressure Control Proportional Gain	Immediately
Pn443	2000						Pressure Control Integral Time Constant	Immediately
Pn446	0						Pressure Control Feedforward	Immediately
Pn447	0						Pressure Reference Filter Time Constant	Immediately
Pn448	0						Pressure Sensor Offset 0	Immediately
Pn449	0						Pressure Sensor Gain 0	Immediately

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Parameter No.	Default Setting						Name	When Enabled
Pn44A	0						Pressure Sensor Filter Time Constant	Immediately
Pn44C	1000						Pressure Control Enable Level	Immediately
Pn44D	0						Pressure Control Disable Level	Immediately
Pn44E	100						Pressure Deviation Overflow Level	Immediately
Pn44F	300						Pressure Detection Overflow Level	Immediately
Pn450	0						Pressure Detection Overflow Time	Immediately
Pn451	100						Pressure Control Single Parameter Gain Level	Immediately
Pn456	15						Sweep Torque Reference Amplitude	Immediately
Pn458	0000h						Pressure Sensor Input Selections 1	After restart
Pn459	0000h						Pressure Sensor Input Selections 2	After restart
Pn45A	0						Pressure Sensor Gain 1	Immediately
Pn45B	0						Pressure Sensor Gain 2	Immediately
Pn45C	0						Pressure Sensor Gain 3	Immediately
Pn45D	0						Pressure Sensor Gain 4	Immediately
Pn45E	0						Pressure Sensor Gain 5	Immediately
Pn460	0101h						Notch Filter Adjustment Selections 1	Immediately
Pn467	0						Pressure Sensor Offset 1	Immediately
Pn468	0						Pressure Sensor Offset 2	Immediately
Pn469	0						Pressure Sensor Offset 3	Immediately
Pn46A	0						Pressure Sensor Offset 4	Immediately
Pn46B	0						Pressure Sensor Offset 5	Immediately
Pn475	0000h						Gravity Compensation-Related Selections	After restart
Pn476	0						Gravity Compensation Torque	Immediately
Pn480	100						Speed Limit during Force Control	Immediately
Pn481	400						Polarity Detection Speed Loop Gain	Immediately
Pn482	3000						Polarity Detection Speed Loop Integral Time	Immediately
Pn483	30						Forward Force Limit	Immediately
Pn484	30						Reverse Force Limit	Immediately
Pn485	20						Polarity Detection Reference Speed	Immediately
Pn486	25						Polarity Detection Reference Acceleration/Deceleration Time	Immediately
Pn487	0						Polarity Detection Constant Speed Time	Immediately
Pn488	100						Polarity Detection Reference Waiting Time	Immediately
Pn48E	10						Polarity Detection Range	Immediately
Pn490	100						Polarity Detection Load Level	Immediately
Pn495	100						Polarity Detection Confirmation Force Reference	Immediately
Pn498	10						Polarity Detection Allowable Error Range	Immediately

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Parameter No.	Default Setting						Name	When Enabled
Pn49F	0						Speed Ripple Compensation Enable Speed (Linear)	Immediately
Pn4A0	1						Pressure Conversion Gain (Numerator)	After restart
Pn4A2	1						Pressure Conversion Gain (Denominator)	After restart
Pn4A4	10000						Forward Pressure Limit during Approach Operation	Immediately
Pn4A5	10000						Reverse Pressure Limit during Approach Operation	Immediately
Pn502	20						Rotation Detection Level	Immediately
Pn503	10						Speed Coincidence Detection Signal Output Width	Immediately
Pn506	0						Brake Reference-Servo OFF Delay Time	Immediately
Pn507	100						Brake Reference Output Speed Level	Immediately
Pn508	50						Servo OFF-Brake Command Waiting Time	Immediately
Pn509	20						Momentary Power Interruption Hold Time	Immediately
Pn50A	1881h						Input Signal Selections 1	After restart
Pn50B	8882h						Input Signal Selections 2	After restart
Pn50E	0000h						Output Signal Selections 1	After restart
Pn50F	0100h						Output Signal Selections 2	After restart
Pn510	0000h						Output Signal Selections 3	After restart
Pn511	6543h						Input Signal Selections 5	After restart
Pn512	0000h						Output Signal Inverse Settings	After restart
Pn514	0000h						Output Signal Selections 4	After restart
Pn516	8888h						Input Signal Selections 7	After restart
Pn518	–						Reserved (Do not change.)	–
Pn51B	1000						Motor-Load Position Deviation Overflow Detection Level	Immediately
Pn51E	100						Position Deviation Overflow Warning Level	Immediately
Pn520	6116694						Position Deviation Overflow Alarm Level	Immediately
Pn522	7						In-position Range	Immediately
Pn524	10737418-24						Near Signal Width	Immediately
Pn526	6116694						Position Deviation Overflow Alarm Level at Servo ON	Immediately
Pn528	100						Position Deviation Overflow Warning Level at Servo ON	Immediately
Pn529	10000						Speed Limit Level at Servo ON	Immediately
Pn52A	20						Multiplier per Fully-closed Rotation	Immediately
Pn52B	20						Overload Warning Level	After restart

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Parameter No.	Default Setting						Name	When Enabled
Pn52C	100						Base Current Derating at Motor Overload Detection	After restart
Pn530	0000h						Program Jogging-Related Selections	Immediately
Pn531	32768						Program Jogging Travel Distance	Immediately
Pn533	500						Program Jogging Movement Speed	Immediately
Pn534	100						Program Jogging Acceleration/Deceleration Time	Immediately
Pn535	100						Program Jogging Waiting Time	Immediately
Pn536	1						Program Jogging Number of Movements	Immediately
Pn540	3000						Maximum Search Gain	Immediately
Pn550	0						Analog Monitor 1 Offset Voltage	Immediately
Pn551	0						Analog Monitor 2 Offset Voltage	Immediately
Pn552	100						Analog Monitor 1 Magnification	Immediately
Pn553	100						Analog Monitor 2 Magnification	Immediately
Pn55A	1						Power Consumption Monitor Unit Time	Immediately
Pn55C	0001h						Function Selections to Specify Output Status When a Host Communications Error Occurs	After restart
Pn55D	0000h						Specify Output Status When a Host Communications Error Occurs	After restart
Pn560	400						Residual Vibration Detection Width	Immediately
Pn561	100						Overshoot Detection Level	Immediately
Pn562	80						Setting Gain Ratio	Immediately
Pn56A	1111h						Output Signal Reference Method Selections 1	After restart
Pn56B	0001h						Reserved (Do not change.)	–
Pn581	20						Zero Speed Level	Immediately
Pn582	10						Speed Coincidence Detection Signal Output Width	Immediately
Pn583	10						Brake Reference Output Speed Level	Immediately
Pn584	10000						Speed Limit Level at Servo ON	Immediately
Pn585	50						Program Jogging Movement Speed	Immediately
Pn586	0						Motor Running Cooling Ratio	Immediately
Pn587	0000h						Polarity Detection Execution Selection for Absolute Linear Encoder	Immediately
Pn589	1500						SigmaLINK II Node Detection Time	After restart
Pn590	1007h						P-OT (Forward Drive Prohibit Input) Signal Allocation	After restart
Pn591	1008h						N-OT (Reverse Drive Prohibit Input) Signal Allocation	After restart
Pn592	1009h						/DEC (Origin Return Deceleration Switch Input) Signal Allocation	After restart
Pn593	1010h						/EXT1 (External Latch Input 1) Signal Allocation	After restart

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Parameter No.	Default Setting						Name	When Enabled
Pn594	1011h						/EXT2 (External Latch Input 2) Signal Allocation	After restart
Pn595	1012h						/EXT3 (External Latch Input 3) Signal Allocation	After restart
Pn597	0000h						FSTP (Forced Stop Input) Signal Allocation	After restart
Pn598	0000h						/P-CL (Forward External Torque Limit Input) Signal Allocation	After restart
Pn599	0000h						/N-CL (Reverse External Torque Limit Input) Signal Allocation	After restart
Pn5B0	0000h						/COIN (Positioning Completion Output) Signal Allocation	After restart
Pn5B1	0000h						/V-CMP (Speed Coincidence Detection Output) Signal Allocation	After restart
Pn5B2	0000h						/TGON (Rotation Detection Output) Signal Allocation	After restart
Pn5B3	0000h						/S-RDY (Servo Ready Output) Signal Allocation	After restart
Pn5B4	0000h						/CLT (Torque Limit Detection Output) Signal Allocation	After restart
Pn5B5	0000h						/VLT (Speed Limit Detection Output) Signal Allocation	After restart
Pn5B6	1001h						/BK (Brake Output) Signal Allocation	After restart
Pn5B7	0000h						/WARN (Warning Output) Signal Allocation	After restart
Pn5B8	0000h						/NEAR (Near Output) Signal Allocation	After restart
Pn5BC	0000h						/PM (Preventative Maintenance Output) Signal Allocation	After restart
Pn5C3	0000h						Error Detection Setting	After restart
Pn5C4	2000						Error Detection Sample Data Set 1 Warning Level 1	Immediately
Pn5C5	1520						Error Detection Sample Data Set 1 Judgment Level 1	Immediately
Pn5C6	2000						Error Detection Sample Data Set 1 Warning Level 2	Immediately
Pn5C7	1520						Error Detection Sample Data Set 1 Judgment Level 2	Immediately
Pn5C8	2000						Error Detection Sample Data Set 2 Warning Level 1	Immediately
Pn5C9	1520						Error Detection Sample Data Set 2 Judgment Level 1	Immediately
Pn5CA	2000						Error Detection Sample Data Set 2 Warning Level 2	Immediately
Pn5CB	1520						Error Detection Sample Data Set 2 Judgment Level 2	Immediately
Pn5D7	0000h						Output Signal Inversion for Triggers at Preset Positions	After restart
Pn600	0						Regenerative Resistor Capacity	Immediately

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Parameter No.	Default Setting						Name	When Enabled
Pn601	0						Dynamic Brake Resistor Allowable Energy Consumption	After restart
Pn603	0						Regenerative Resistance	Immediately
Pn604	0						Dynamic Brake Resistance	After restart
Pn61A	0000h						Overheat Protection Selections	After restart
Pn61B	250						Overheat Alarm Level	Immediately
Pn61C	100						Overheat Warning Level	Immediately
Pn61D	0						Overheat Alarm Filter Time	Immediately
Pn621	–						Reserved (Do not change.)	–
Pn622	–						Reserved (Do not change.)	–
Pn623	–						Reserved (Do not change.)	–
Pn624	–						Reserved (Do not change.)	–
Pn625	–						Reserved (Do not change.)	–
Pn626	–						Reserved (Do not change.)	–
Pn627	–						Reserved (Do not change.)	–
Pn628	–						Reserved (Do not change.)	–
Pn660	0000h						Triggers at Preset Positions Switch	After restart
Pn800	1040h						Communications Controls	Immediately
Pn801	0003h						Application Function Selections 6 (Software Limits)	Immediately
Pn803	10						Origin Range	Immediately
Pn804	10737418-23						Forward Software Limit	Immediately
Pn806	-10737418-23						Reverse Software Limit	Immediately
Pn808	0						Absolute Encoder Origin Offset	Immediately
Pn80A	100						Reserved (Do not change.)	–
Pn80B	100						Reserved (Do not change.)	–
Pn80C	0						Reserved (Do not change.)	–
Pn80D	100						Reserved (Do not change.)	–
Pn80E	100						Reserved (Do not change.)	–
Pn80F	0						Reserved (Do not change.)	–
Pn810	0						Exponential Acceleration/ Deceleration Bias	Immediately
Pn811	0						Exponential Acceleration/Deceleration Time Constant	Immediately
Pn812	0						Movement Average Time	Immediately
Pn814	100						External Positioning Final Travel Distance	Immediately
Pn816	0000h						Reserved (Do not change.)	–
Pn817	0						Reserved (Do not change.)	–
Pn818	0						Reserved (Do not change.)	–
Pn819	100						Final Travel Distance for Origin Return	Immediately

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Parameter No.	Default Setting						Name	When Enabled
Pn81E	0000h						Reserved (Do not change.)	–
Pn81F	0010h						Reserved (Do not change.)	–
Pn820	0						Forward Latching Area	Immediately
Pn822	0						Reverse Latching Area	Immediately
Pn824	0000h						Option Monitor 1 Selection	Immediately
Pn825	0000h						Option Monitor 2 Selection	Immediately
Pn827	100						Reserved (Do not change.)	–
Pn829	0						SVOFF Waiting Time (for SVOFF at Deceleration to Stop)	Immediately
Pn82A	1813h						Reserved (Do not change.)	–
Pn82B	1D1Ch						Reserved (Do not change.)	–
Pn82C	1F1Eh						Reserved (Do not change.)	–
Pn82D	0000h						Reserved (Do not change.)	–
Pn82E	0000h						Reserved (Do not change.)	–
Pn833	0001h						Reserved (Do not change.)	–
Pn834	100						First Stage Linear Acceleration Constant	Immediately
Pn836	100						Second Stage Linear Acceleration Constant	Immediately
Pn838	0						Acceleration Constant Switching Speed	Immediately
Pn83A	100						First Stage Linear Deceleration Constant	Immediately
Pn83C	100						Second Stage Linear Deceleration Constant	Immediately
Pn83E	0						Deceleration Constant Switching Speed	Immediately
Pn840	100						Linear Deceleration Constant for Stopping	Immediately
Pn842	50						Origin Approach Speed 1	Immediately
Pn844	5						Origin Approach Speed 2	Immediately
Pn846	0						POSING Command S-curve Acceleration/Deceleration Rate	Immediately
Pn850	0						Number of Latch Sequences	Immediately
Pn851	0						Continuous Latch Sequence Count	Immediately
Pn852	0000h						Latch Sequence 1 to 4 Settings	Immediately
Pn853	0000h						Latch Sequence 5 to 8 Settings	Immediately
Pn860	0000h						SVCMD_IN Input Signal Monitor Allocations 1	Immediately
Pn861	0000h						SVCMD_IN Input Signal Monitor Allocations 2	Immediately
Pn862	0000h						SVCMD_IN Input Signal Monitor Allocations 3	Immediately
Pn863	0000h						SVCMD_IN Input Signal Monitor Allocations 4	Immediately

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Parameter No.	Default Setting						Name	When Enabled
Pn868	0000h						SVCMD_IN Output Signal Monitor Allocations 1	Immediately
Pn869	0000h						SVCMD_IN Output Signal Monitor Allocations 2	Immediately
Pn880	–						Reserved (Do not change.)	–
Pn881	–						Reserved (Do not change.)	–
Pn882	–						Reserved (Do not change.)	–
Pn883	–						Communications Cycle Setting Monitor [transmission cycles] (for maintenance, read only)	–
Pn884	0000h						Communications Controls 2	Immediately
Pn885	0000h						Reserved (Do not change.)	–
Pn886	FFFFFFFF-h						S-curve Maximum Acceleration/ Deceleration Rate	Immediately
Pn88A	0						MECHATROLINK Receive Error Counter Monitor (for maintenance, read only)	–
Pn900	0						Number of Parameter Banks	After restart
Pn901	0						Number of Parameter Bank Members	After restart
Pn902to Pn910	0000h						Parameter Bank Member Definition	After restart
Pn920to Pn95F	0000h						Parameter Bank Data (Not saved in nonvolatile memory.)	Immediately

5.8 Parameter Recording Table: MECHATROLINK- III Communications References

Use the following table to record the settings of the parameters.

Parameter No.	Default Setting						Name	When Enabled
Pn000	0000h						Basic Function Selections 0	After restart
Pn001	0000h						Application Function Selections 1	After restart
Pn002	0011h						Application Function Selections 2	After restart
Pn006	0002h						Application Function Selections 6	Immediately
Pn007	0000h						Application Function Selections 7	Immediately
Pn008	4000h						Application Function Selections 8	After restart
Pn009	0040h						Application Function Selections 9	After restart
Pn00A	0001h						Application Function Selections A	After restart
Pn00B	0000h						Application Function Selections B	After restart
Pn00C	0040h						Application Function Selections C	After restart
Pn00D	0000h						Application Function Selections D	After restart
Pn00E	0000h						Application Function Selections E	After restart
Pn00F	0000h						Application Function Selections F	After restart
Pn021	0000h						Reserved (Do not change.)	–
Pn022	0000h						Application Function Selections 22	After restart
Pn02F	0000h						Application Function Selections 2F	After restart
Pn040	0000h						Sigma-V/Sigma-7 Compatible Function Switch	After restart
Pn050	00000000h						SigmaLINK II Response Data Selection 1	After restart
Pn052	00000000h						SigmaLINK II Response Data Selection 2	After restart
Pn054	00000000h						SigmaLINK II Response Data Selection 3	After restart
Pn056	00000000h						SigmaLINK II Response Data Selection 4	After restart
Pn058	00000000h						SigmaLINK II Response Data Selection 5	After restart
Pn05A	00000000h						SigmaLINK II Response Data Selection 6	After restart
Pn05C	00000000h						SigmaLINK II Response Data Selection 7	After restart
Pn05E	00000000h						SigmaLINK II Response Data Selection 8	After restart
Pn080	0000h						Application Function Selections 80	After restart
Pn081	0000h						Application Function Selections 81	After restart
Pn090	00000000h						SigmaLINK II Command Data Selection 1	After restart
Pn092	00000000h						SigmaLINK II Command Data Selection 2	After restart
Pn094	00000000h						SigmaLINK II Command Data Selection 3	After restart

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Parameter No.	Default Setting						Name	When Enabled
Pn096	00000000h						SigmaLINK II Command Data Selection 4	After restart
Pn0B1	0000h						SigmaLINK II Sequence Input Allocation 1	After restart
Pn0B2	0000h						SigmaLINK II Sequence Input Allocation 2	After restart
Pn0B5	0000h						SigmaLINK II Sequence Output Allocation 1	After restart
Pn0D8	0000h						Reserved (Do not change.)	–
Pn0D9	0000h						Reserved (Do not change.)	–
Pn0DA	0000h						SigmaLINK II Semi-closed Encoder Selection	After restart
Pn0DB	0101h						SigmaLINK II Fully-closed Encoder Selection	After restart
Pn0DC	0000h						SigmaLINK II Node Change Detection Condition Selection	After restart
Pn0DD	0110h						SigmaLINK II I/O Device Error Detection Selection	After restart
Pn100	400						Speed Loop Gain	Immediately
Pn101	2000						Speed Loop Integral Time Constant	Immediately
Pn102	400						Position Loop Gain	Immediately
Pn103	100						Moment of Inertia Ratio	Immediately
Pn104	400						Second Speed Loop Gain	Immediately
Pn105	2000						Second Speed Loop Integral Time Constant	Immediately
Pn106	400						Second Position Loop Gain	Immediately
Pn109	0						Feedforward	Immediately
Pn10A	0						Feedforward Filter Time Constant	Immediately
Pn10B	0000h						Gain Application Selections	–
Pn10C	200						Mode Switching Level for Torque Reference	Immediately
Pn10D	0						Mode Switching Level for Speed Reference	Immediately
Pn10E	0						Mode Switching Level for Acceleration	Immediately
Pn10F	0						Mode Switching Level for Position Deviation	Immediately
Pn11F	0						Position Integral Time Constant	Immediately
Pn121	100						Friction Compensation Gain	Immediately
Pn122	100						Second Friction Compensation Gain	Immediately
Pn123	0						Friction Compensation Coefficient	Immediately
Pn124	0						Friction Compensation Frequency Correction	Immediately
Pn125	100						Friction Compensation Gain Correction	Immediately
Pn131	0						Gain Switching Time 1	Immediately
Pn132	0						Gain Switching Time 2	Immediately

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Parameter No.	Default Setting						Name	When Enabled
Pn135	0						Gain Switching Waiting Time 1	Immediately
Pn136	0						Gain Switching Waiting Time 2	Immediately
Pn139	0000h						Automatic Gain Switching Selections 1	Immediately
Pn13D	2000						Current Gain Level	Immediately
Pn140	0100h						Model Following Control-Related Selections	Immediately
Pn141	500						Model Following Control Gain	Immediately
Pn142	1000						Model Following Control Gain Correction	Immediately
Pn143	1000						Model Following Control Bias in the Forward Direction	Immediately
Pn144	1000						Model Following Control Bias in the Reverse Direction	Immediately
Pn145	500						Vibration Suppression 1 Frequency A	Immediately
Pn146	700						Vibration Suppression 1 Frequency B	Immediately
Pn147	1000						Model Following Control Speed Feedforward Compensation	Immediately
Pn148	500						Second Model Following Control Gain	Immediately
Pn149	1000						Second Model Following Control Gain Correction	Immediately
Pn14A	800						Vibration Suppression 2 Frequency	Immediately
Pn14B	100						Vibration Suppression 2 Correction	Immediately
Pn14F	0030h						Control-Related Selections	After restart
Pn160	0010h						Anti-Resonance Control-Related Selections	Immediately
Pn161	1000						Anti-Resonance Frequency	Immediately
Pn162	100						Anti-Resonance Gain Correction	Immediately
Pn163	0						Anti-Resonance Damping Gain	Immediately
Pn164	0						Anti-Resonance Filter Time Constant 1 Correction	Immediately
Pn165	0						Anti-Resonance Filter Time Constant 2 Correction	Immediately
Pn166	0						Anti-Resonance Damping Gain 2	Immediately
Pn170	1400h						Tuning-less Function-Related Selections	–
Pn173	0000h						Load Fluctuation Compensation Control-Related Selections	Immediately
Pn174	400						Load Fluctuation Compensation Control Response Level	Immediately
Pn181	0						Mode Switching Level for Speed Reference	Immediately
Pn182	0						Mode Switching Level for Acceleration	Immediately
Pn205	65535						Multiturn Limit	After restart
Pn207	0010h						Position Control Function Selections	After restart

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Parameter No.	Default Setting						Name	When Enabled
Pn20A	32768						Number of External Encoder Scale Pitches	After restart
Pn20E	64						Electronic Gear Ratio (Numerator)	After restart
Pn210	1						Electronic Gear Ratio (Denominator)	After restart
Pn212	2048						Number of Encoder Output Pulses	After restart
Pn21D	0080h						Encoder Resolution Setting	After restart
Pn22A	0000h						Fully-closed Control Selections	After restart
Pn230	0000h						Position Control Expansion Function Selections	After restart
Pn231	0						Backlash Compensation Value	Immediately
Pn233	0						Backlash Compensation Time Constant	Immediately
Pn281	20						Encoder Output Resolution	After restart
Pn282	0						Linear Encoder Scale Pitch	After restart
Pn304	500						Jogging Speed	Immediately
Pn305	0						Soft Start Acceleration Time	Immediately
Pn306	0						Soft Start Deceleration Time	Immediately
Pn308	0						Speed Feedback Filter Time Constant	Immediately
Pn30A	0						Deceleration Time for Servo OFF and Forced Stops	Immediately
Pn30C	0						Speed Feedforward Average Movement Time	Immediately
Pn310	0000h						Vibration Detection Selections	Immediately
Pn311	100						Vibration Detection Sensitivity	Immediately
Pn312	50						Vibration Detection Level	Immediately
Pn316	10000						Maximum Motor Speed	After restart
Pn324	300						Moment of Inertia Calculation Starting Level	Immediately
Pn383	50						Jogging Speed	Immediately
Pn384	10						Vibration Detection Level	Immediately
Pn385	50						Maximum Motor Speed	After restart
Pn401	100						First Stage First Torque Reference Filter Time Constant	Immediately
Pn402	800						Forward Torque Limit	Immediately
Pn403	800						Reverse Torque Limit	Immediately
Pn404	100						Forward External Torque Limit	Immediately
Pn405	100						Reverse External Torque Limit	Immediately
Pn406	800						Emergency Stop Torque	Immediately
Pn407	100						Speed Limit during Torque Control	Immediately
Pn408	0000h						Torque-Related Function Selections	–
Pn409	5000						First Stage Notch Filter Frequency	Immediately
Pn40A	70						First Stage Notch Filter Q Value	Immediately
Pn40B	0						First Stage Notch Filter Depth	Immediately

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Parameter No.	Default Setting						Name	When Enabled
Pn40C	5000						Second Stage Notch Filter Frequency	Immediately
Pn40D	70						Second Stage Notch Filter Q Value	Immediately
Pn40E	0						Second Stage Notch Filter Depth	Immediately
Pn40F	5000						Second Stage Second Torque Reference Filter Frequency	Immediately
Pn410	50						Second Stage Second Torque Reference Filter Q Value	Immediately
Pn412	100						First Stage Second Torque Reference Filter Time Constant	Immediately
Pn416	0000h						Torque-Related Function Selections 2	Immediately
Pn417	5000						Third Stage Notch Filter Frequency	Immediately
Pn418	70						Third Stage Notch Filter Q Value	Immediately
Pn419	0						Third Stage Notch Filter Depth	Immediately
Pn41A	5000						Fourth Stage Notch Filter Frequency	Immediately
Pn41B	70						Fourth Stage Notch Filter Q Value	Immediately
Pn41C	0						Fourth Stage Notch Filter Depth	Immediately
Pn41D	5000						Fifth Stage Notch Filter Frequency	Immediately
Pn41E	70						Fifth Stage Notch Filter Q Value	Immediately
Pn41F	0						Fifth Stage Notch Filter Depth	Immediately
Pn423	0002h						Speed Ripple Compensation Selections	–
Pn424	50						Torque Limit at Main Circuit Voltage Drop	Immediately
Pn425	100						Release Time for Torque Limit at Main Circuit Voltage Drop	Immediately
Pn426	0						Torque Feedforward Average Movement Time	Immediately
Pn427	0						Speed Ripple Compensation Enable Speed	Immediately
Pn428	0001h						Output Torque Compensation Selections	After restart
Pn43A	10000						Reserved (Do not change.)	–
Pn43B	10000						Reserved (Do not change.)	–
Pn43C	10000						Reserved (Do not change.)	–
Pn43D	10000						Reserved (Do not change.)	–
Pn440	0001h						Reserved (Do not change.)	–
Pn441	0010h						Pressure Control Function Selections	–
Pn442	100						Pressure Control Proportional Gain	Immediately
Pn443	2000						Pressure Control Integral Time Constant	Immediately
Pn446	0						Pressure Control Feedforward	Immediately
Pn447	0						Pressure Reference Filter Time Constant	Immediately
Pn448	0						Pressure Sensor Offset 0	Immediately
Pn449	0						Pressure Sensor Gain 0	Immediately

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Parameter No.	Default Setting						Name	When Enabled
Pn44A	0						Pressure Sensor Filter Time Constant	Immediately
Pn44C	1000						Pressure Control Enable Level	Immediately
Pn44D	0						Pressure Control Disable Level	Immediately
Pn44E	100						Pressure Deviation Overflow Level	Immediately
Pn44F	300						Pressure Detection Overflow Level	Immediately
Pn450	0						Pressure Detection Overflow Time	Immediately
Pn451	100						Pressure Control Single Parameter Gain Level	Immediately
Pn456	15						Sweep Torque Reference Amplitude	Immediately
Pn458	0000h						Pressure Sensor Input Selections 1	After restart
Pn459	0000h						Pressure Sensor Input Selections 2	After restart
Pn45A	0						Pressure Sensor Gain 1	Immediately
Pn45B	0						Pressure Sensor Gain 2	Immediately
Pn45C	0						Pressure Sensor Gain 3	Immediately
Pn45D	0						Pressure Sensor Gain 4	Immediately
Pn45E	0						Pressure Sensor Gain 5	Immediately
Pn460	0101h						Notch Filter Adjustment Selections 1	Immediately
Pn467	0						Pressure Sensor Offset 1	Immediately
Pn468	0						Pressure Sensor Offset 2	Immediately
Pn469	0						Pressure Sensor Offset 3	Immediately
Pn46A	0						Pressure Sensor Offset 4	Immediately
Pn46B	0						Pressure Sensor Offset 5	Immediately
Pn475	0000h						Gravity Compensation-Related Selections	After restart
Pn476	0						Gravity Compensation Torque	Immediately
Pn480	100						Speed Limit during Force Control	Immediately
Pn481	400						Polarity Detection Speed Loop Gain	Immediately
Pn482	3000						Polarity Detection Speed Loop Integral Time	Immediately
Pn483	30						Forward Force Limit	Immediately
Pn484	30						Reverse Force Limit	Immediately
Pn485	20						Polarity Detection Reference Speed	Immediately
Pn486	25						Polarity Detection Reference Acceleration/Deceleration Time	Immediately
Pn487	0						Polarity Detection Constant Speed Time	Immediately
Pn488	100						Polarity Detection Reference Waiting Time	Immediately
Pn48E	10						Polarity Detection Range	Immediately
Pn490	100						Polarity Detection Load Level	Immediately
Pn495	100						Polarity Detection Confirmation Force Reference	Immediately
Pn498	10						Polarity Detection Allowable Error Range	Immediately

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Parameter No.	Default Setting						Name	When Enabled
Pn49F	0						Speed Ripple Compensation Enable Speed (Linear)	Immediately
Pn502	20						Rotation Detection Level	Immediately
Pn503	10						Speed Coincidence Detection Signal Output Width	Immediately
Pn506	0						Brake Reference-Servo OFF Delay Time	Immediately
Pn507	100						Brake Reference Output Speed Level	Immediately
Pn508	50						Servo OFF-Brake Command Waiting Time	Immediately
Pn509	20						Momentary Power Interruption Hold Time	Immediately
Pn50A	1881h						Input Signal Selections 1	After restart
Pn50B	8882h						Input Signal Selections 2	After restart
Pn50E	0000h						Output Signal Selections 1	After restart
Pn50F	0100h						Output Signal Selections 2	After restart
Pn510	0000h						Output Signal Selections 3	After restart
Pn511	6543h						Input Signal Selections 5	After restart
Pn512	0000h						Output Signal Inverse Settings	After restart
Pn514	0000h						Output Signal Selections 4	After restart
Pn516	8888h						Input Signal Selections 7	After restart
Pn518	–						Reserved (Do not change.)	–
Pn51B	1000						Motor-Load Position Deviation Overflow Detection Level	Immediately
Pn51E	100						Position Deviation Overflow Warning Level	Immediately
Pn520	6116694						Position Deviation Overflow Alarm Level	Immediately
Pn522	7						In-position Range	Immediately
Pn524	10737418-24						Near Signal Width	Immediately
Pn526	6116694						Position Deviation Overflow Alarm Level at Servo ON	Immediately
Pn528	100						Position Deviation Overflow Warning Level at Servo ON	Immediately
Pn529	10000						Speed Limit Level at Servo ON	Immediately
Pn52A	20						Multiplier per Fully-closed Rotation	Immediately
Pn52B	20						Overload Warning Level	After restart
Pn52C	100						Base Current Derating at Motor Overload Detection	After restart
Pn530	0000h						Program Jogging-Related Selections	Immediately
Pn531	32768						Program Jogging Travel Distance	Immediately
Pn533	500						Program Jogging Movement Speed	Immediately
Pn534	100						Program Jogging Acceleration/Deceleration Time	Immediately
Pn535	100						Program Jogging Waiting Time	Immediately

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Parameter No.	Default Setting						Name	When Enabled
Pn536	1						Program Jogging Number of Movements	Immediately
Pn540	3000						Maximum Search Gain	Immediately
Pn550	0						Analog Monitor 1 Offset Voltage	Immediately
Pn551	0						Analog Monitor 2 Offset Voltage	Immediately
Pn552	100						Analog Monitor 1 Magnification	Immediately
Pn553	100						Analog Monitor 2 Magnification	Immediately
Pn55A	1						Power Consumption Monitor Unit Time	Immediately
Pn55C	0001h						Function Selections to Specify Output Status When a Host Communications Error Occurs	After restart
Pn55D	0000h						Specify Output Status When a Host Communications Error Occurs	After restart
Pn560	400						Residual Vibration Detection Width	Immediately
Pn561	100						Overshoot Detection Level	Immediately
Pn562	80						Setting Gain Ratio	Immediately
Pn56A	1111h						Output Signal Reference Method Selections 1	After restart
Pn56B	0001h						Reserved (Do not change.)	–
Pn581	20						Zero Speed Level	Immediately
Pn582	10						Speed Coincidence Detection Signal Output Width	Immediately
Pn583	10						Brake Reference Output Speed Level	Immediately
Pn584	10000						Speed Limit Level at Servo ON	Immediately
Pn585	50						Program Jogging Movement Speed	Immediately
Pn586	0						Motor Running Cooling Ratio	Immediately
Pn587	0000h						Polarity Detection Execution Selection for Absolute Linear Encoder	Immediately
Pn589	1500						SigmaLINK II Node Detection Time	After restart
Pn590	1007h						P-OT (Forward Drive Prohibit Input) Signal Allocation	After restart
Pn591	1008h						N-OT (Reverse Drive Prohibit Input) Signal Allocation	After restart
Pn592	1009h						/DEC (Origin Return Deceleration Switch Input) Signal Allocation	After restart
Pn593	1010h						/EXT1 (External Latch Input 1) Signal Allocation	After restart
Pn594	1011h						/EXT2 (External Latch Input 2) Signal Allocation	After restart
Pn595	1012h						/EXT3 (External Latch Input 3) Signal Allocation	After restart
Pn597	0000h						FSTP (Forced Stop Input) Signal Allocation	After restart
Pn598	0000h						/P-CL (Forward External Torque Limit Input) Signal Allocation	After restart

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Parameter No.	Default Setting						Name	When Enabled
Pn599	0000h						/N-CL (Reverse External Torque Limit Input) Signal Allocation	After restart
Pn5B0	0000h						/COIN (Positioning Completion Output) Signal Allocation	After restart
Pn5B1	0000h						/V-CMP (Speed Coincidence Detection Output) Signal Allocation	After restart
Pn5B2	0000h						/TGON (Rotation Detection Output) Signal Allocation	After restart
Pn5B3	0000h						/S-RDY (Servo Ready Output) Signal Allocation	After restart
Pn5B4	0000h						/CLT (Torque Limit Detection Output) Signal Allocation	After restart
Pn5B5	0000h						/VLT (Speed Limit Detection Output) Signal Allocation	After restart
Pn5B6	1001h						/BK (Brake Output) Signal Allocation	After restart
Pn5B7	0000h						/WARN (Warning Output) Signal Allocation	After restart
Pn5B8	0000h						/NEAR (Near Output) Signal Allocation	After restart
Pn5BC	0000h						/PM (Preventative Maintenance Output) Signal Allocation	After restart
Pn5C3	0000h						Error Detection Setting	After restart
Pn5C4	2000						Error Detection Sample Data Set 1 Warning Level 1	Immediately
Pn5C5	1520						Error Detection Sample Data Set 1 Judgment Level 1	Immediately
Pn5C6	2000						Error Detection Sample Data Set 1 Warning Level 2	Immediately
Pn5C7	1520						Error Detection Sample Data Set 1 Judgment Level 2	Immediately
Pn5C8	2000						Error Detection Sample Data Set 2 Warning Level 1	Immediately
Pn5C9	1520						Error Detection Sample Data Set 2 Judgment Level 1	Immediately
Pn5CA	2000						Error Detection Sample Data Set 2 Warning Level 2	Immediately
Pn5CB	1520						Error Detection Sample Data Set 2 Judgment Level 2	Immediately
Pn5D7	0000h						Output Signal Inversion for Triggers at Preset Positions	After restart
Pn600	0						Regenerative Resistor Capacity	Immediately
Pn601	0						Dynamic Brake Resistor Allowable Energy Consumption	After restart
Pn603	0						Regenerative Resistance	Immediately
Pn604	0						Dynamic Brake Resistance	After restart
Pn61A	0000h						Overheat Protection Selections	After restart
Pn61B	250						Overheat Alarm Level	Immediately
Pn61C	100						Overheat Warning Level	Immediately

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Parameter No.	Default Setting						Name	When Enabled
Pn61D	0						Overheat Alarm Filter Time	Immediately
Pn621	–						Reserved (Do not change.)	–
Pn622	–						Reserved (Do not change.)	–
Pn623	–						Reserved (Do not change.)	–
Pn624	–						Reserved (Do not change.)	–
Pn625	–						Reserved (Do not change.)	–
Pn626	–						Reserved (Do not change.)	–
Pn627	–						Reserved (Do not change.)	–
Pn628	–						Reserved (Do not change.)	–
Pn660	0000h						Triggers at Preset Positions Switch	After restart
Pn800	1040h						Communications Controls	Immediately
Pn801	0003h						Application Function Selections 6 (Software Limits)	Immediately
Pn803	10						Origin Range	Immediately
Pn804	10737418-23						Forward Software Limit	Immediately
Pn806	-10737418-23						Reverse Software Limit	Immediately
Pn808	0						Absolute Encoder Origin Offset	Immediately
Pn80A	100						Reserved (Do not change.)	–
Pn80B	100						Reserved (Do not change.)	Immediately
Pn80C	0						Reserved (Do not change.)	Immediately
Pn80D	100						Reserved (Do not change.)	Immediately
Pn80E	100						Reserved (Do not change.)	Immediately
Pn80F	0						Reserved (Do not change.)	Immediately
Pn810	0						Exponential Acceleration/ Deceleration Bias	Immediately
Pn811	0						Exponential Function Acceleration/ Deceleration Time Constant	Immediately
Pn812	0						Movement Average Time	Immediately
Pn814	100						External Positioning Final Travel Distance	Immediately
Pn816	0000h						Reserved (Do not change.)	–
Pn817	0						Reserved (Do not change.)	Immediately
Pn818	0						Reserved (Do not change.)	Immediately
Pn819	100						Final Travel for Zero Point Return	Immediately
Pn81E	0000h						Reserved (Do not change.)	–
Pn81F	0010h						Reserved (Do not change.)	–
Pn820	0						Forward Latching Area	Immediately
Pn822	0						Reverse Latching Area	Immediately
Pn824	0000h						Option Monitor 1 Selection	Immediately
Pn825	0000h						Option Monitor 2 Selection	Immediately
Pn827	100						Reserved (Do not change.)	–

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Parameter No.	Default Setting						Name	When Enabled
Pn829	0						SVOFF Waiting Time (for SVOFF at Deceleration to Stop)	Immediately
Pn82A	1813h						Reserved (Do not change.)	–
Pn82B	1D1Ch						Reserved (Do not change.)	–
Pn82C	1F1Eh						Reserved (Do not change.)	–
Pn82D	0000h						Reserved (Do not change.)	–
Pn82E	0000h						Reserved (Do not change.)	–
Pn833	0001h						Reserved (Do not change.)	–
Pn834	100						First Stage Linear Acceleration Constant 2	Immediately
Pn836	100						Second Stage Linear Acceleration Constant 2	Immediately
Pn838	0						Acceleration Constant Switching Speed 2	Immediately
Pn83A	100						First Stage Linear Deceleration Constant 2	Immediately
Pn83C	100						Second Stage Linear Deceleration Constant 2	Immediately
Pn83E	0						Deceleration Constant Switching Speed 2	Immediately
Pn840	100						Linear Deceleration Constant 2 for Stopping	Immediately
Pn842	50						Second Origin Approach Speed 1	Immediately
Pn844	5						Second Origin Approach Speed 2	Immediately
Pn846	0						POSING Command S-curve Acceleration/Deceleration Rate	Immediately
Pn850	0						Number of Latch Sequences	Immediately
Pn851	0						Continuous Latch Sequence Count	Immediately
Pn852	0000h						Latch Sequence 1 to 4 Settings	Immediately
Pn853	0000h						Latch Sequence 5 to 8 Settings	Immediately
Pn860	0000h						SVCMD_IO Input Signal Monitor Allocations 1	Immediately
Pn861	0000h						SVCMD_IO Input Signal Monitor Allocations 2	Immediately
Pn862	0000h						SVCMD_IO Input Signal Monitor Allocations 3	Immediately
Pn863	0000h						SVCMD_IO Input Signal Monitor Allocations 4	Immediately
Pn868	0000h						SVCMD_IO Output Signal Monitor Allocations 1	Immediately
Pn869	0000h						SVCMD_IO Output Signal Monitor Allocations 2	Immediately
Pn879	0300h						Reserved (Do not change.)	–
Pn880	–						Station Address Monitor (for maintenance, read only)	–
Pn881	–						Set Transmission Byte Count Monitor [bytes] (for maintenance, read only)	–

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Parameter No.	Default Setting						Name	When Enabled
Pn882	–						Transmission Cycle Setting Monitor [× 0.25 μs] (for maintenance, read only)	–
Pn883	–						Communications Cycle Setting Monitor [transmission cycles] (for maintenance, read only)	–
Pn884	0000h						Communications Controls 2	Immediately
Pn886	FFFFFFFF-h						S-curve Maximum Acceleration/ Deceleration Rate	Immediately
Pn88A	0						MECHATROLINK Receive Error Counter Monitor (for maintenance, read only)	–
Pn900	0						Number of Parameter Banks	After restart
Pn901	0						Number of Parameter Bank Members	After restart
Pn902to Pn910	0000h						Parameter Bank Member Definition	After restart
Pn920to Pn95F	0000h						Parameter Bank Data (Not saved in nonvolatile memory.)	Immediately
PnA1A	64						Reserved (Do not change.)	–
PnB42to PnBD0	0						Reserved (Do not change.)	–

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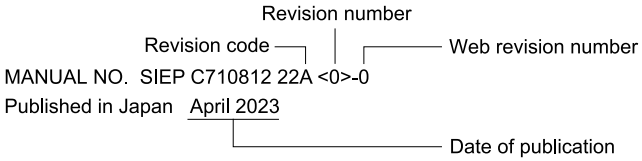
Revision History

The date of publication, revision code, revision number, and web revision number are given at the bottom right of the back cover. Refer to the following example.



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