

Sumitomo Drive Technologies

HF-430NEO Series

CC-Link for Communication option

Model : P1-CCL

User's Guide



NOTICE

1. Make sure that this user's guide is delivered to the end user of inverter unit.
2. Read the instruction manual and user's guide before installing or operating the inverter unit, and store it in a safe place for reference.



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Introduction

Thank you for purchasing the P1-CCL: communication option for HF-430NEO series inverter. This instruction manual describes how to handle and maintain the P1-CCL. Please read this manual carefully before using the P1-CCL, and keep it handy for those who operate, maintain and inspect it. For the purpose of reducing paper consumption and provision of the latest information, we enclose the instruction manual only, while providing the User's Guide for more detailed description through electronic data instead of CD or printed document.

■ User's Guide(this document)

The User's Guide provides detailed information necessary for handling the product.

Please make sure to read User's Guide for proper use.

If future updated descriptions differ from the Basic Guide, the description in the User's Guide will have higher priority. Always use the P1-CCL strictly within the range described in the User's Guide and perform proper inspection and maintenance to prevent failures or accidents.

The latest version of the User's guide can be obtained through our website.

■ Instruction manual

The instruction manual provides the minimum information necessary for handling the product.

Please make sure to read the Instruction manual as well as the User's Guide for more detailed information.

■ Handling the inverter HF-430NEO

For handling the inverter, please make sure to read its Instruction manual and User's Guide.

■ For a proper use

Before using the inverter, please read carefully the inverter's Instruction manual and User's Guide, the P1-CCL User's Guide and this manual.

In Addition any personnel handling or performing maintenance of the product must read carefully the inverter's Instruction manual and User's Guide, the P1-CCL User's Guide and this manual.

Before any attempt to install, operate, maintain or inspect this equipment, a complete understanding of the equipment specifications, safety instructions, precautions, handling and operation instructions is required. Please follow all the specifications and instructions for a proper use. Additionally, periodically review the inverter's Instruction manual and User's Guide, the P1-CCL User's Guide and this manual.

■ Precautions

It is prohibited to reproduce or reform this document partially or totally in any form without the publisher's permission.

The contents of the document are subject to change without prior notice.

Any handling, maintenance or operation method NOT described on the inverter's Instruction manual and User's Guide, the P1-CCL User's Guide or this manual is not covered by the product warranty.

Please DO NOT perform any procedure NOT described on the HF-430NEO or the P1-CCL manuals since it can be the cause of unexpected failures or accidents.

We are not responsible for any impact from operations regardless of unexpected failure or accident due to operation or handling of the product in a manner not specified on the inverter's Instruction manual and User's Guide, the P1-CCL User's Guide or this manual. We appreciate your understanding.

Note that, in case the inverter's Instruction manual and User's Guide, the P1-CCL User's Guide and this manual are enclosed, they should be delivered to the end user of the inverter. Also make sure to download and keep accessible any other related guides or instruction manuals for the end user.

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1

Chapter 1 Safety Precautions

1.1 About this chapter

This chapter contains the information about Safety precautions during the installation, wiring, operation and inspection.

Before installation, wiring, operation, inspection, or usage please read completely and fully understand this guide.

1.2 Types of warnings

In this guide, the safety precautions as well as residual risks are categorized by degree of risk as “Danger” , “Warning” and “Caution” .

The definition of each category is described below.

Danger

This category warns the user that in case of an incorrect or improper handling, it leads to a dangerous situation that have a high risk of causing death, serious injuries and/or major property damage.

Warning

This category warns the user that in case of an incorrect or improper handling, it leads to a dangerous situation that may cause death, serious injuries and/or major property damage.

Caution

This category warns the user that in case of an incorrect or improper handling, it leads to a dangerous situation that may cause physical injuries and/or property damage.

However, any content labeled with “ Caution” and depending on the case, might have a possibility of leading to a highly dangerous situation.

It is extremely important that you follow the instructions and warnings.

Furthermore, content labeled with “” must be followed and paid special attention.

1.3 Symbol explanation

In this guide, there are some explanatory notes using different symbols. Please pay attention to this content and keep in mind its information.

Symbol definition

	When handling this product, this symbol indicates danger, warning or caution about ignition, electric shock, high temperature or other dangers. Inside or near the symbol, the specific content will be shown.
	This symbol indicates “General hazard not specified, be cautious” .
	This symbol indicates “Electric shock hazard” .
	This symbol indicates prohibited actions “Actions that should not be done” when handling this device.
	This symbol indicates actions that must be done based on the instructions.

1.4 Precautions

1.4.1 Please be careful!



- If handled incorrectly or improperly, it might cause death, serious physical injuries, or damage to the inverter, motor or even the entire system.



- Before installation, wiring, operation, inspection, or usage please read and fully understand this guide and other references.



- There will be additional warnings about hazards and failure causes in other chapters.



- Before installation, wiring, operation, inspection, or usage please read and fully understand this guide.



- In order to explain this device details the illustrations in this guide might show this device without covers.



- Before operating this device please return all the covers to the original position, and follow all the necessary regulations and instructions written in this guide.

1.4.2 Precautions during the installation !

Danger

● Risk of Fire!



- Fire Hazard**
- DO NOT place inflammable objects nearby
 - DO NOT let scraps of wire, welding sputtering, irons scraps or other objects get inside the device.



- Prohibited**
- Avoid installing this device in places with high temperature, high humidity, Condensation-prone conditions, dusty conditions, corrosive gas, explosive gas, flammable gas, grinding fluid mist, hydrogen sulfide or salt damage prone conditions. Additionally, it is recommended to install this device in ventilated room not exposed to direct sunlight.

Do

● Risk of Injury!



- Injury**
- DO NOT install or operate products with damage or missing parts.



Prohibited

● Risk of an Inverter failure!



- Failure**
- This device is a precision equipment, DO NOT drop it, or give it a strong shock.
 - DO NOT get on (step on) or place heavy objects on this device.
 - When handling the object, avoid places prone to static electricity(like carpets).



- Since the human body can get charged with static electricity, as a safety measure please touch a safe metallic surface before handling this device.

1.4.3 Precautions during the wiring!

Danger

● Risk of an electric shock and/or fire!



- Electric shock and Fire hazard**
- Be sure to ground the inverter.
 - Entrust the wiring work only to a qualified electrician.
 - Before the wiring work make sure to turn off the power supply and wait for more than 10 or 15 minutes depending on the inverter model *. (Confirm that the charge lamp is OFF and the DC voltage between terminals P and N is 45 V or less.)

Do

*For HF4322-5A5 to HF4322-022, HF4324-5A5 to HF4324-022 models the wait time is 10 minutes.

For HF4322-030 to HF4322-055, HF4324-030 to HF4324-055 models the wait time is 15 minutes.

● Risk of inverter failure!

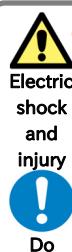


- Prohibited**
- DO NOT pull any wire after wiring.

**● Risk of an electric shock and/or injury!**

Electric
shock
and
injury

Do

**● Risk of an electric shock and/or injury!**

Electric
shock
and
injury

- Perform the wiring only after installing the inverter.

**Warning****● Risk of Fire!**

Fire

hazard

- Please handle the cables properly and DO NOT let them get damaged. Using damaged cables will not only interfere with the correct operation of this device but also might be the cause of a system failure.

Do

- Make sure that the inverter and this device are fixed together with the securing screw.
- Make sure that the connectors are properly fixed.

1.4.4 Precautions during operation and trial operation!

**Danger****● Risk of an electric shock or fire!**

Electric
shock
and Fire

hazard

- DO NOT touch the inside of this device, check the signal, do any wiring or plug/unplug the connectors while it energized.
- DO NOT insert any sick or rod like objects inside this device while it is energized.

Prohibited

**● Risk of an injury and/or fire!**

Injury
and Fire

hazard

- DO NOT touch the inside of this device or the inverter while they are energized.



● Risk of an electric shock!

**Electric
shock**

- Make sure to fasten all the screws of this device before turning it on. DO NOT detach this device while it is energized or the inverter capacitors are still charged.



- Additionally DO NOT touch the inside of the inverter while the inverter capacitors are still charged.
- DO NOT touch this device with wet hands.



Warning



● Risk of an injury and/or device damage!

**Injury or
device
Damage**

- By using this device it becomes easier to change the settings and the output frequency of the inverter. When changing the settings or the output frequency of the inverter please make sure that it is within the supported range by the gear motor and/or the equipment.



Do

- In case this device is being used to make the inverter produce high frequency outputs for a motor or other equipment, make sure with the respective manufacturer that the motor or the equipment can tolerate the high frequency output given by the inverter.
- During operation verify the motor rotation direction, and that there are no irregular sounds or vibrations.

1.4.5 Precautions during Maintenance/ Inspection!



Danger



● Risk of an electric shock!

**Electric
shock**

- Before the wiring work make sure to turn off the power supply and wait for more than 10 or 15 minutes depending on the inverter model *.



Do

- (Confirm that the charge lamp is OFF and the DC voltage between terminals P and N is 45 V or less.)



Prohibited

- Entrust the maintenance, inspection and/or part replacement only to a specialized personnel. (Be sure to remove wristwatches and metal accessories, e.g., bracelets, before maintenance and inspection work and use insulated tools for the work).

*For HF4322-5A5 to HF4322-022, HF4324-5A5 to HF4324-022 models the wait time is 10 minutes.

For HF4322-030 to HF4322-055, HF4324-030 to HF4324-055 models the wait time is 15 minutes.

1.4.6 Precautions for disposal!**Danger****● Risk of an injury and/or an explosion!**

- Injury and explosion hazard**
- Outsource to a qualified industrial waste disposal contractor when discarding this device.
 - Disposing of this device on your own may result in the production of poisonous gas
 - Contact your sales agent if you need to get this device fixed.



- Do**
- A qualified waste disposer includes industrial waste collector/transporter and industrial waste disposal operator. Follow all laws and decrees related to procedures of waste management and public cleansing when disposing of this device.

1.4.7 Other Precautions**Danger****● Risk of an injury, an electric shock and/or fire!**

**Electric
shock
injury
and Fire
hazard**

- DO NOT modify this device.



Prohibited

*In addition to the precautions described above, there are other precautions described in the chapter 8 of the inverter user's guide. Please read and follow those precautions as well.

2

Chapter 2 Overview

2.1 About this chapter

This chapter specifies the devices that this guide will describe. Additionally, it contains information necessary to clearly understand this guide, the objectives of this guide and its terminology.

2.2 Applicable devices

The contents of this guide will apply to the P1-CCL device. For information about the inverter please refer to the inverter's user's guide or the basic guide.

2.3 Before reading this guide

This guide is aimed for people who purchase, handle, install or connect control equipment, design systems or manage factories.

This guide units are based on the SI system.

2.4 Guide objectives

The objectives of this guide are:

- explain how to wire and connect the device.
- explain how to set the necessary parameters.

2.5 Guide outline

This guide has the following structure.

- The Chapter 1 “Safety Precautions” , contains the safety instructions for installing, wiring, operating, maintaining and inspecting this device.
- The Chapter 2 “Overview” , contains information necessary to clearly understand this guide, the objectives of this guide and its terminology.
- The Chapter 3 “Preparing for Operation” , contains the instructions step by step for operating this device successfully.
- The Chapter 4 “About this Product” , contains the explanation about the product appearance and general features.
- The Chapter 5 “Enclosed Items” , contains information about the items enclosed with this device.
- The Chapter 6 “Installation and Connection” , contains information for installing the P1-CCL on the inverter.
- The Chapter 7 “Parameter Settings” , contains the explanation of the inverter parameters that relate with the P1-CCL.
- The Chapter 8 “CC-Link” , contains the CC-Link explanation.
- The Chapter 9 “Function” , contains the function of P1-CCL explanation.
- The Chapter 10 “Troubleshooting” , contains the explanation of the P1-CCL LEDs lighting patterns, the explanation of inverter error (trip) status and its trouble shooting.
- The Chapter 11 “Specifications” , contains the specifications of the P1-CCL.
- The Chapter 12 “Parameter list” , contains the parameter list of the inverter.

2.6 Terminology

Term	Description
CC-Link	Control & Communication Link It is one of the open networks for industrial use. Standardized by the IEC 61158 and 61784.
CC-Link Ver.	There are 4 CC-Link versions. Ver.1.00 (*) Ver.1.10 (*) Ver.1.11 Ver.2.00 (*) P1-CCL supports 3 versions of the (*) mark.
CSP+ file	It is the file which contains the information of the CC-Link device.
Extended Cyclic Setting	In the extended cyclic transmission (Ver.2), the extended cyclic points can be set as double, quadruple or octuple of the normal cyclic transmission points.
MFG No.	Manufacture number
Number of Occupied stations (logic stations)	The number of logic stations used by a single slave node in a network. Between one to four stations can be set depending on the amount of data. P1-CCL can only be set to occupy one station.
Remote device station	A station that can use both bit data and word data. P1-CCL is a remote device station.
RWr	Remote register It is the input data (read area) in the master station. P1-CCL sends this data.
RWw	Remote register It is the output data (write area) in the master station. P1-CCL receives this data.
RX	Remote input It is the input data (read area) in the master station. P1-CCL sends this data.
RY	Remote output It is the output data (write area) in the master station. P1-CCL receives this data.
Station number	The number 0 assigned to master station connected to CC-Link network, and the number 1 through 64 assigned to each slave station. Unique station numbers without duplication must be used considering occupied station number.

3

Chapter 3 Preparing for Operation

3.1 About this chapter

This chapter contains the instructions step by step for operating this device successfully.

This chapter will refer to others chapters for more detail explanation. Hence for installation, mounting, wiring, operation setting and function detailed explanation, refer to the indicated or corresponding chapter. Additionally, when doing any work or operation, always follow the safety instructions and cautions given in the chapter 1.

3.2 Preparation steps

3.2.1 Step 1: Preparing the inverter

Follow the steps written in the inverter user's guide in order to prepare the inverter for operation. Furthermore, configure the parameters related to the motor.

3.2.2 Step 2: Installing the P1-CCL

First set the transmission setting switch.

Check the power of the inverter is OFF (refer to 1.4.3 for safety precautions), then install the P1-CCL.

3.2.3 Step 3: Parameter setting

Configure the parameters related to the P1-CCL.

When the parameters shown below are configured, P1-CCL must be turned off and on to enable the configuration.

- [oA-11], [oA-21], [oA-31]
 Communication monitoring timer setting
- [oA-12], [oA-22], [oA-32]
 Operation setting at the time of communication error

The rest of the parameters can be configured without turning off and on P1-CCL.

3.2.4 Step 4: Communicate with CC-Link

Configure with CC-Link engineering tool so the CC-Link master and the P1-CCL can communicate through CC-Link.

If the engineering tool supports CSP+ files, you can use the P1-CCL's CSP+ file.

3.2.5 Step 5: Operate the inverter

The inverter can be operated by changing remote output RY and remote register RWw settings.

If the steps described above were followed correctly, remote input RX, remote register RWr, and the inverter frequency output will change as shown in the table below

■ Parameter setting value and monitor values
(in case the Maximum frequency setting is 60.00 [Hz].)

Remote output RY	Remote input RX	Set frequency RWwn+1	Output frequency RWrn+1	Output frequency [Hz]
-	Remote ready RX(n+1)B = ON	0	0	0.00
Frequency setting command (RAM) RYnD = OFF	-	0	0	0.00
-	-	6000	0	0.00
Frequency setting command (RAM) RYnD = ON	Frequency setting complete (RAM) RXnD = ON	6000	0	0.00
Forward command RYn0 = ON RYn1 = OFF	Forward rotation RXn0 = ON RXn1 = OFF	6000	Accelerate from 0 to 6000	Forward accelerate until 60.00
-	-	6000	6000	Forward 60.00
-	-	0	Decelerate from 6000 to 0	Decelerate until 0.00
-	Stop RXn0 = OFF RXn1 = OFF	0	0	0.00
Stop command RYn0 = OFF RYn1 = OFF	-	0	0	0.00
Reverse command RYn0 = OFF RYn1 = ON	Reverse rotation RXn0 = OFF RXn1 = ON	6000	Accelerate from 0 to 6000	Reverse accelerate until 60.00
-	-	6000	6000	Reverse 60.00
Stop command RYn0 = OFF RYn1 = OFF	-	6000	Decelerate from 6000 to 0	Decelerate until 0.00
-	Stop RXn0 = OFF RXn1 = OFF	6000	0	0.00

4

Chapter 4 P1-CCL

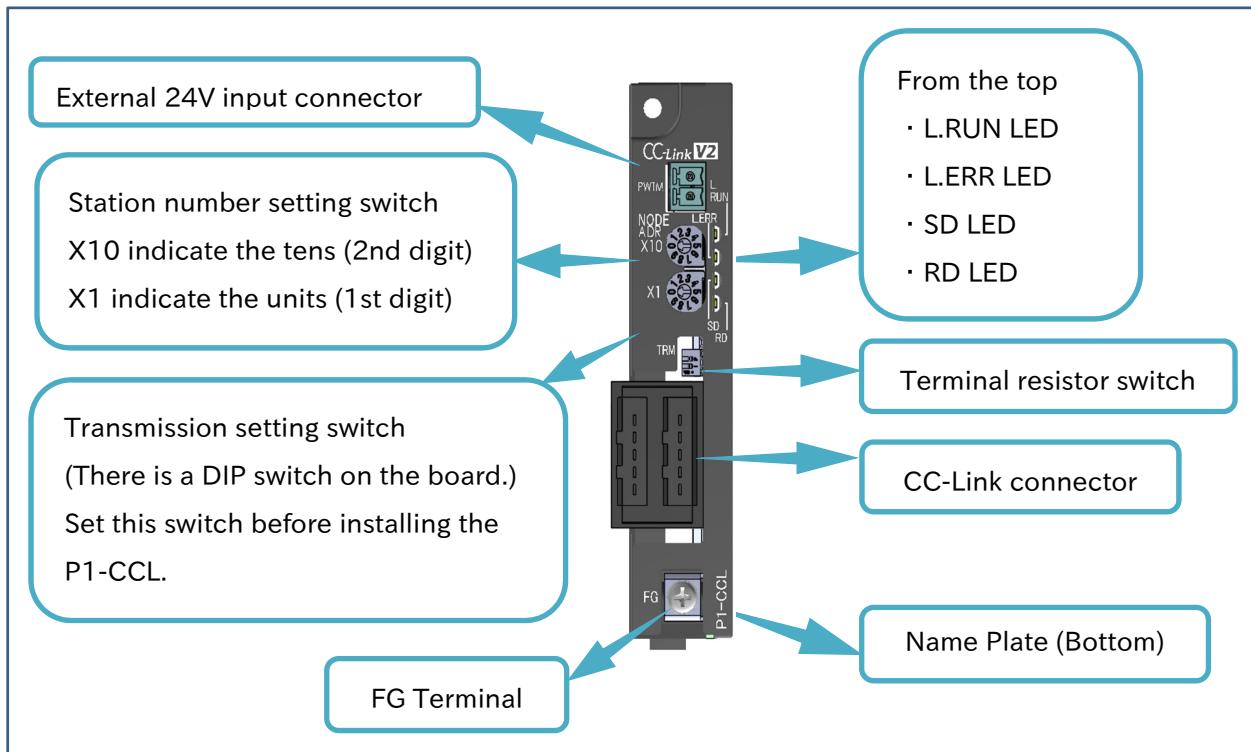
4.1 About this chapter

This chapter contains the explanation about this product external features and information on the name plate. It is recommended to check this chapter contents and verify the device after the purchase.

4.2 External features

4.2.1 P1-CCL appearance and nomenclature

- P1-CCL external view is shown below.



4.2.2 External 24V input connector

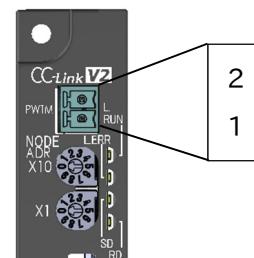
There is usually no need to supply the external 24V.

However, you can hold the control circuit of inverter with supplying it.

You can do the following without main power supply.

- CC-Link communication
- Check or change parameter
- The external 24V input connector are explained in the table below.

Pin number	Symbol	Name	Remarks
2	P-	common	DC24V±10%
1	P+	External 24V input	Maximum current 1A



- It needs a diode in order to avoid conflict between the internal 24V DC in the inverter and an external 24V DC. However, you don't need to attach a diode outside, because there is a diode in P1-CCL.
- When an external 24V DC is wired to P1-CCL, please don't wire an external 24V DC to the P+ terminal in the inverter.
- Please input +24V to 0V. (Please don't input 0V to -24V)
Please don't earth the 24V terminal. There is a risk of it breaking.
- The allowable voltage is DC24V±10%. Please don't input voltage more than.
- The wiring distance of 24V DC has to be 20 m or shorter.

4.2.3 LED definition

■ LED definition

LED	Color	Lighting pattern	Description
L.RUN	Green	Light on	P1-CCL is communicating with CC-Link master.
		Light off	P1-CCL doesn't communicate with CC-Link master, because the CC-Link cable is disconnected.
L.ERR	Red	Light on	P1-CCL detects communication error or incorrect switch setting (station number or transmission setting).
		Blinking	P1-CCL detects changing station number switch.
		Light off	P1-CCL doesn't detect any errors.
SD	Green	Light on	P1-CCL is transmitting data.
		Light off	P1-CCL isn't transmitting data.
RD	Green	Light on	P1-CCL is receiving data. This LED is on when any data are received. It doesn't matter whether P1-CCL is communicating with CC-Link master normally or not.
		Light off	P1-CCL isn't receiving data.

Blinking is 0.4 second switching on and 0.4 second switching off is repeated.

4.2.4 Station number setting switch

Station number setting switch
X10 indicate the tens (2nd digit)
X1 indicate the units (1st digit)



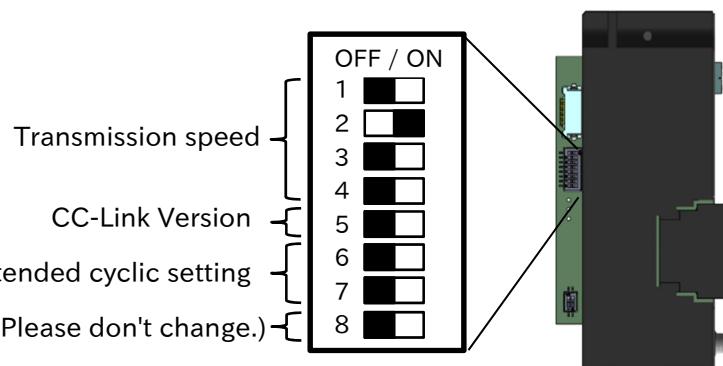
- The upper rotary switch(X10) determine the tens(2nd digit) of the station number while the lower rotary switch(X1) will determine the units (1st digit) of the station number. The range of the station number will be from 01 to 64. When the station number is out of range, L. ERR LED turns on.
- The station number will become effective after the device is turn on. While the power is on, any change on the station number setting switch will be ineffective. Thus, any change will only become effective after the device is turn on again.
- Additionally, if a station number is overlapped or repeated inside the same CC-Link network there will be an abnormality and the CC-Link will not transmit properly.

4.2.5 Transmission setting switch

This DIP switch is on the board.

Set this switch before installing the P1-CCL.

Transmission setting switch	Factory setting
Transmission speed	10 Mbps
CC-Link Version	Ver.1.00, 1.10
Extended cyclic setting	Single



The black shows the setting position of the switches. In the above, 2 is ON, the others are OFF.

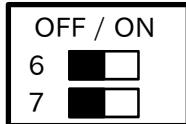
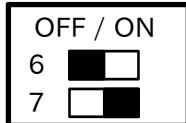
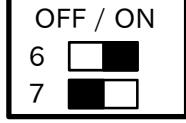
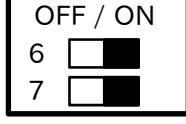
■ Setting of transmission speed (Transmission setting switch 1 to 4)

Transmission speed (bps)	Transmission setting switch	Remarks					
156 k	<table border="1"> <tr> <td>OFF / ON</td> </tr> <tr> <td>1 []</td> </tr> <tr> <td>2 []</td> </tr> <tr> <td>3 []</td> </tr> <tr> <td>4 []</td> </tr> </table>	OFF / ON	1 []	2 []	3 []	4 []	SW1 : OFF SW2 : OFF SW3 : OFF SW4 : OFF
OFF / ON							
1 []							
2 []							
3 []							
4 []							
625 k	<table border="1"> <tr> <td>OFF / ON</td> </tr> <tr> <td>1 []</td> </tr> <tr> <td>2 []</td> </tr> <tr> <td>3 []</td> </tr> <tr> <td>4 []</td> </tr> </table>	OFF / ON	1 []	2 []	3 []	4 []	SW1 : OFF SW2 : OFF SW3 : OFF SW4 : ON
OFF / ON							
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2.5 M	<table border="1"> <tr> <td>OFF / ON</td> </tr> <tr> <td>1 []</td> </tr> <tr> <td>2 []</td> </tr> <tr> <td>3 []</td> </tr> <tr> <td>4 []</td> </tr> </table>	OFF / ON	1 []	2 []	3 []	4 []	SW1 : OFF SW2 : OFF SW3 : ON SW4 : OFF
OFF / ON							
1 []							
2 []							
3 []							
4 []							
5 M	<table border="1"> <tr> <td>OFF / ON</td> </tr> <tr> <td>1 []</td> </tr> <tr> <td>2 []</td> </tr> <tr> <td>3 []</td> </tr> <tr> <td>4 []</td> </tr> </table>	OFF / ON	1 []	2 []	3 []	4 []	SW1 : OFF SW2 : OFF SW3 : ON SW4 : ON
OFF / ON							
1 []							
2 []							
3 []							
4 []							
10 M	<table border="1"> <tr> <td>OFF / ON</td> </tr> <tr> <td>1 []</td> </tr> <tr> <td>2 []</td> </tr> <tr> <td>3 []</td> </tr> <tr> <td>4 []</td> </tr> </table>	OFF / ON	1 []	2 []	3 []	4 []	<Factory setting> SW1 : OFF SW2 : ON SW3 : OFF SW4 : OFF
OFF / ON							
1 []							
2 []							
3 []							
4 []							

■ Setting of CC-Link version (Transmission setting switch 5)

CC-Link Version	Transmission setting switch	Remarks
Ver.1.00, 1.10		<Factory setting> SW5 : OFF
Ver.2.00		SW5 : ON

■ Setting of extended cyclic setting (Transmission setting switch 6、7)

Extended cyclic setting	Transmission setting switch	Remarks
1		<Factory setting> This is the same as Ver.1.00, 1.10 SW6 : OFF SW7 : OFF
2		SW6 : OFF SW7 : ON
4		SW6 : ON SW7 : OFF
8		SW6 : ON SW7 : ON

- The extended cyclic setting is available at the time of CC-Link Ver.2.00. In this case, the transmission setting switch 5 also has to be set.

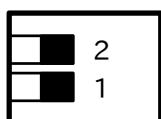
4.2.6 Terminal resister switch

The terminal resister switch is in front of P1-CCL.

Please set the terminal resister switch, when P1-CCL is terminal,

Please set the terminal resister switch unavailable, when P1-CCL isn't terminal.

ON / OFF



The black shows the setting position of the switched.

In the above, all are OFF.

■ Setting of terminal register switch

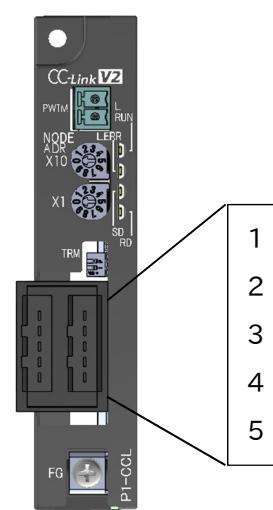
Terminal register	Terminal register switch	Remarks
Not connected	ON / OFF 	Factory setting SW2 : OFF SW1 : OFF
	ON / OFF 	SW2 : ON SW1 : OFF
130 Ω	ON / OFF 	SW2 : OFF SW1 : ON
110 Ω	ON / OFF 	SW2 : ON SW1 : ON

4.2.7 CC-Link connector

P1-CCL can be connected to CC-Link network with a removable FA connector.

■ Pin assignment

Pin number	Symbol	Signal type	Covering color
1	DA	Transmission data High	Blue
2	DB	Transmission data Low	White
3	DG	Signal ground	Yellow
4	(NC)	-	-
5	SLD	Shield	(Shield)



4.2.8 Cable for CC-Link

CC-Link dedicated cable shall be used in CC-Link system.

If CC-Link non-dedicated cable is used, the performance of the CC-Link system is not guaranteed.

The transmission distance conforms to the specifications of CC-Link. The following explains about multi-dropped connection. In the following description, all devices and CC-Link cable should be Ver.1.10 compatible products. If any of products is in Ver.1.00, follow the specification for Ver.1.00.

■ CC-Link dedicated cable Ver.1.10 (Characteristic Impedance: 110 ohm type)

Transmission speed	156kbps	625kbps	2.5Mbps	5Mbps	10Mbps
Station-to-Station cable length	20cm or more				
Maximum transmission distance	1200m	900m	400m	160m	100m

■ CC-Link dedicated high flexible cable Ver.1.10 (Characteristic Impedance: 110 ohm type)

Transmission distance 70% product (the cable model name is ended by "-7".)

Transmission speed	156kbps	625kbps	2.5Mbps	5Mbps	10Mbps
Station-to-Station cable length	20cm or more				
Maximum transmission distance	840m	630m	280m	112m	70m

Transmission distance 50% product (the cable model name is ended by "-5".)

Transmission speed	156kbps	625kbps	2.5Mbps	5Mbps	10Mbps
Station-to-Station cable length	20cm or more				
Maximum transmission distance	600m	450m	200m	80m	50m

Transmission distance 30% product (the cable model name is ended by "-3".)

Transmission speed	156kbps	625kbps	2.5Mbps	5Mbps	10Mbps
Station-to-Station cable length	20cm or more				
Maximum transmission distance	360m	270m	120m	48m	30m

- When using CC-Link dedicated cables and high flexible cables together, within the following expression range, the Ver.1.10 compatible CC-Link dedicated cables and Ver.1.10 compatible CC-Link dedicated high flexible cables can be used together.

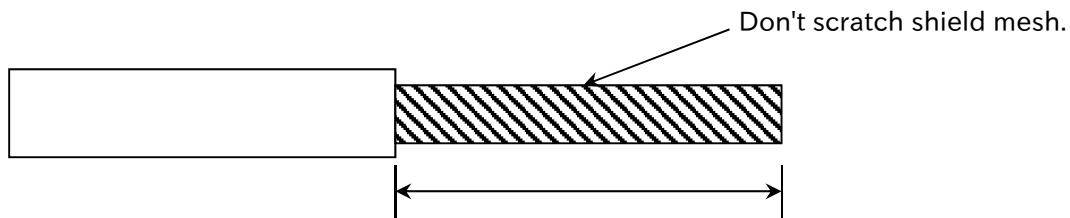
Maximum transmission distance of CC-Link dedicated cables \geq

$$\begin{aligned}
 & (\text{CC-Link dedicated cable length}) \\
 & + (\text{high flexible cable length (transmission distance 70% product)}) / 0.7 \\
 & + (\text{high flexible cable length (transmission distance 50% product)}) / 0.5 \\
 & + (\text{high flexible cable length (transmission distance 30% product)}) / 0.3
 \end{aligned}$$

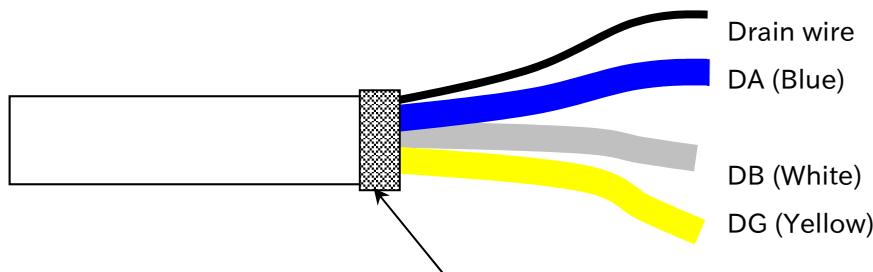
In CC-Link Ver.1.00, specifications of station-to-station cable length and maximum transmission distance are different from the above. When you wire T-branch connection, they are also different. Please refer to CC-Link cable wiring manual published by CLPA.

4.2.9 Process for CC-Link Cable

(1) Removing CC-Link cable coat.

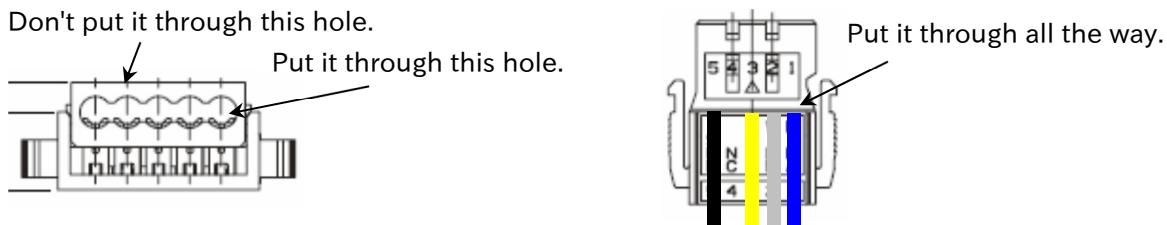


(2) Ravel shield mesh carefully.



Please protect the shield mesh with electrical tape, because it is unnecessary.

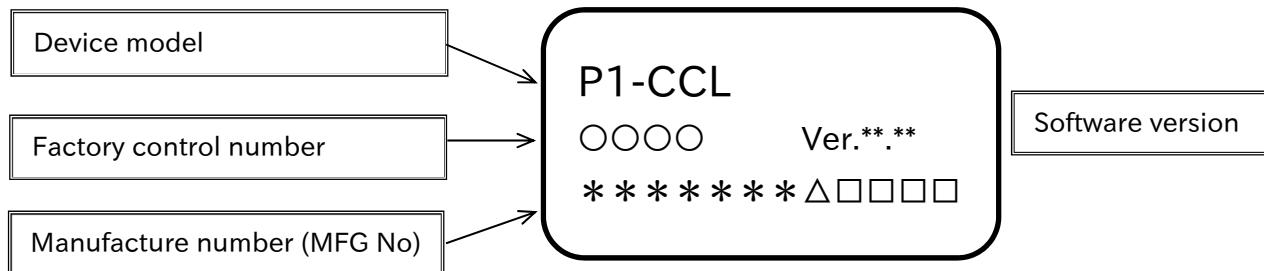
(3) Put each signal wire to through the hole in the cover of connector.



(4) Press the cover of connector with tools, and fix each signal wire.

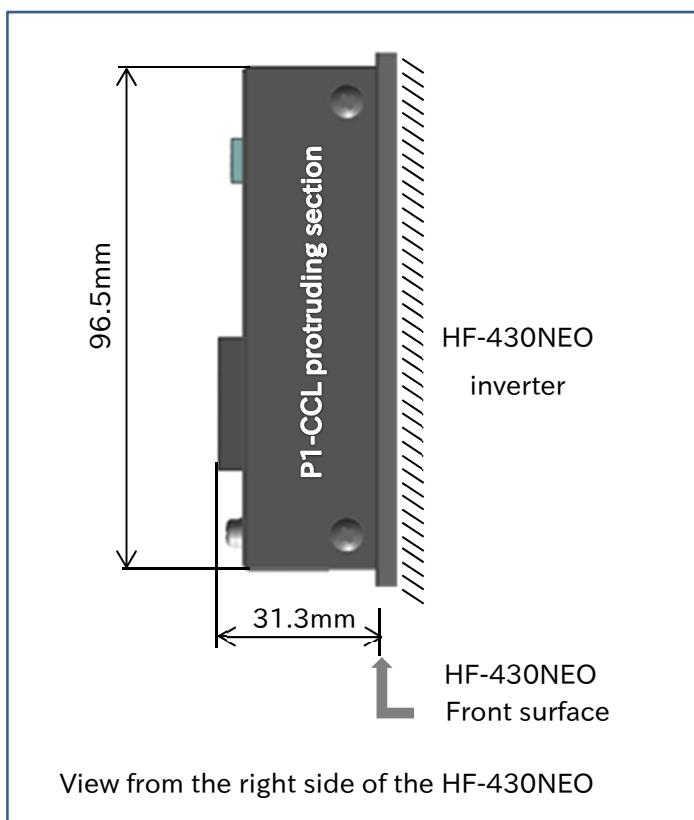
4.3 Name plate

- The image below The P1-CCL name plate gives the following information.



4.4 Dimensions after installed

The dimensions of the P1-CCL after it is installed on HF-430NEO are shown in the image below. As shown on the image a part of this device will stand out from HF-430NEO. Please be cautious when installing the device.



5

Chapter 5 Enclosed Items

5.1 About this chapter

This chapter contains information about the items enclosed with the P1-CCL. Additionally, it is explained how to inspect and verify this product after its purchase.

5.2 About the enclosed items

- Enclosed items



P1-CCL x1



Instruction manual x1



CC-Link connector x2



External 24V input connector x1

■ Enclosed Connector Specification

Item Name	Manufacturer	Model
CC-Link connector	3M Company	35505-6000-BOMGF
External 24V input connector	PHOENIX CONTACT GmbH & Co. KG	MC 1,5/2-ST-3,5

Contact your sales agent immediately in case there are defects or imperfections.

5.3 Verification after the purchase

5.3.1 Verification when unpacking

- Please verify the items written on the right when unpacking.
- In case there is any doubt or trouble with the product please contact your sales agent as soon as possible.



Check that the items were not smashed or damaged during the delivery.



Check that there is a P1-CCL, there is an Instruction Manual, there are 2 CC-Link connectors, there is an External 24V input connector, when unpacking.



Please check again that your order match with the name plate of the device.

6

Chapter 6 Installation and Connection

6.1 About this chapter

This chapter contains information for installing the P1-CCL on the inverter.
For information about the inverter installation please refer to HF-430NEO user's guide.

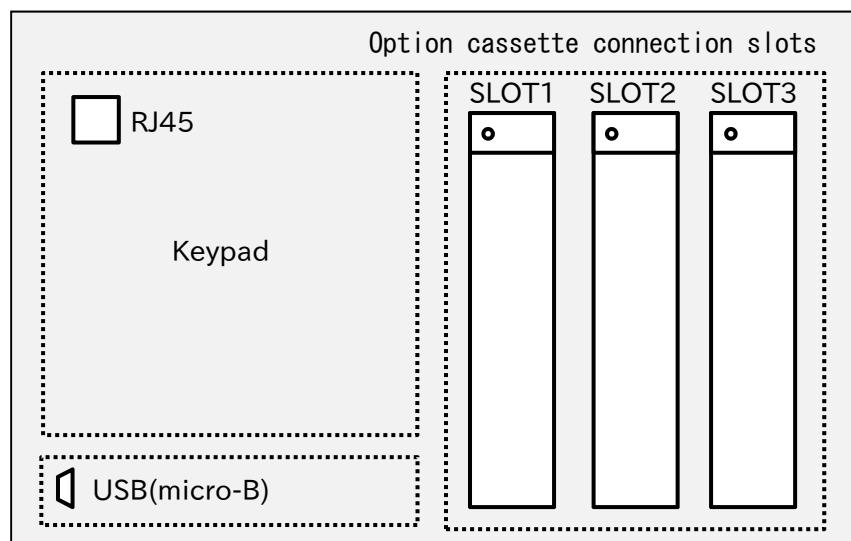
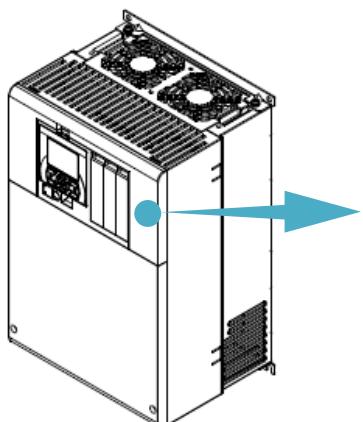
6.2 Installation

6.2.1 Installation

The P1-CCL can be attached to any of the 3 option slots of HF-430NEO inverter.
Before installing the P1-CCL, please refer to the chapter 4 "P1-CCL" and set the transmission setting switch which is on the base.

It is recommended that P1-CCL is attached to SLOT 1.

The CC-Link connector of P1-CCL interferes with the left slot. Therefore any other option can't be attached to left slot which P1-CCL is attached to.

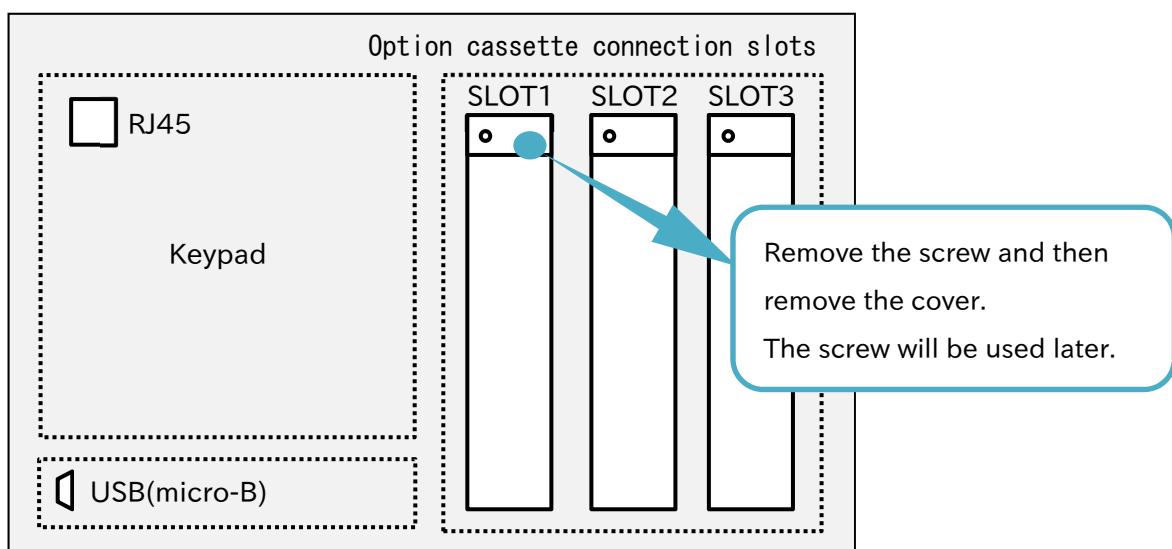


6.2.2 How to install

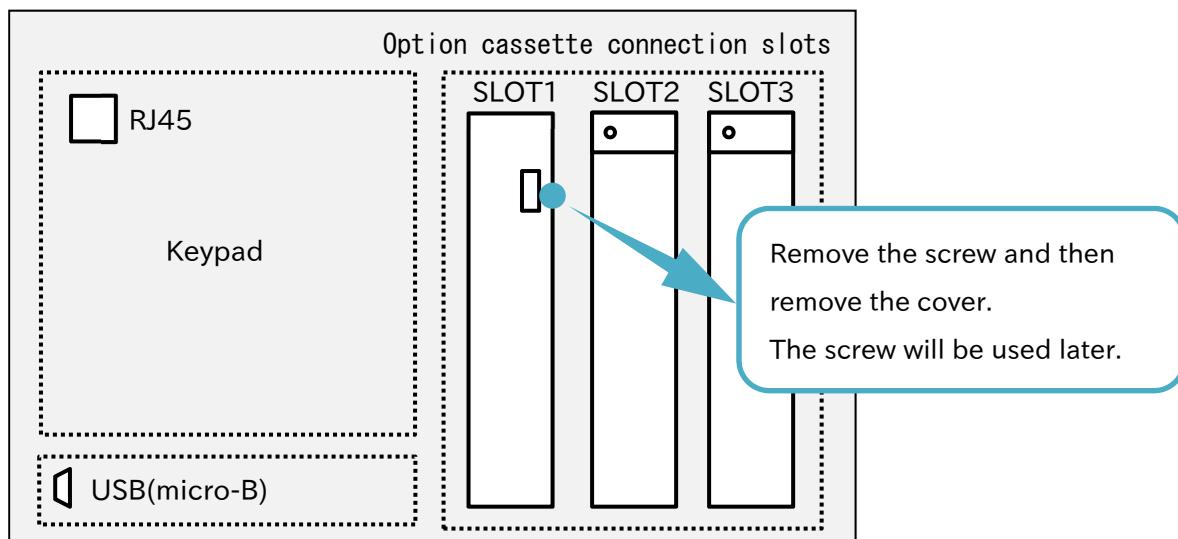
Before installing the P1-CCL please refer to the chapter 7 “Parameter Setting” and configure the inverter.

For explanation purposes, it will be assumed that the P1-CCL is going to be installed in the SLOT1.

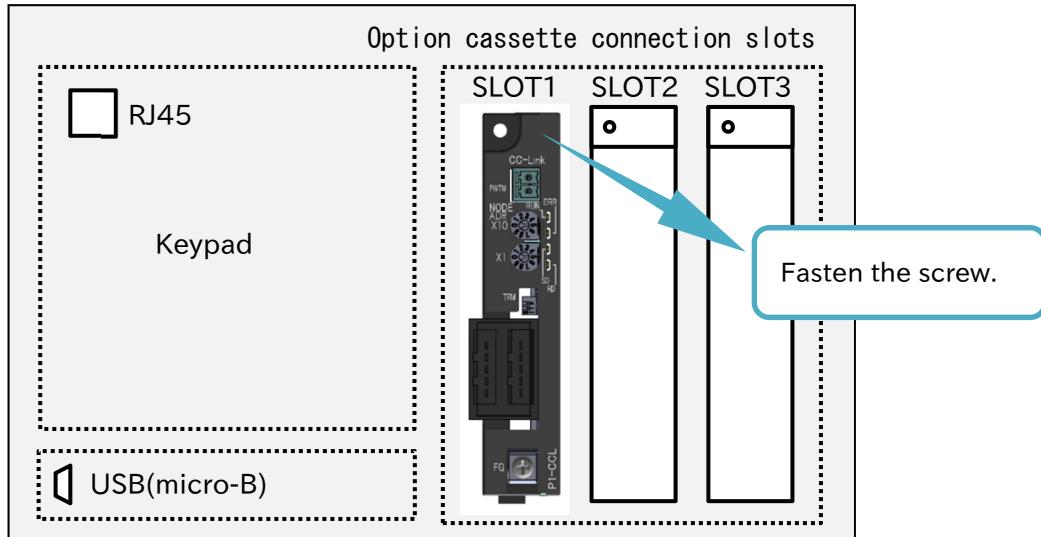
- (1) Remove the cover of the option cassette connection slot. Despite the removed cover will no longer be needed, it is recommended to keep it in a safe place. However the screw that secured the cover will be used to secure the P1-CCL.



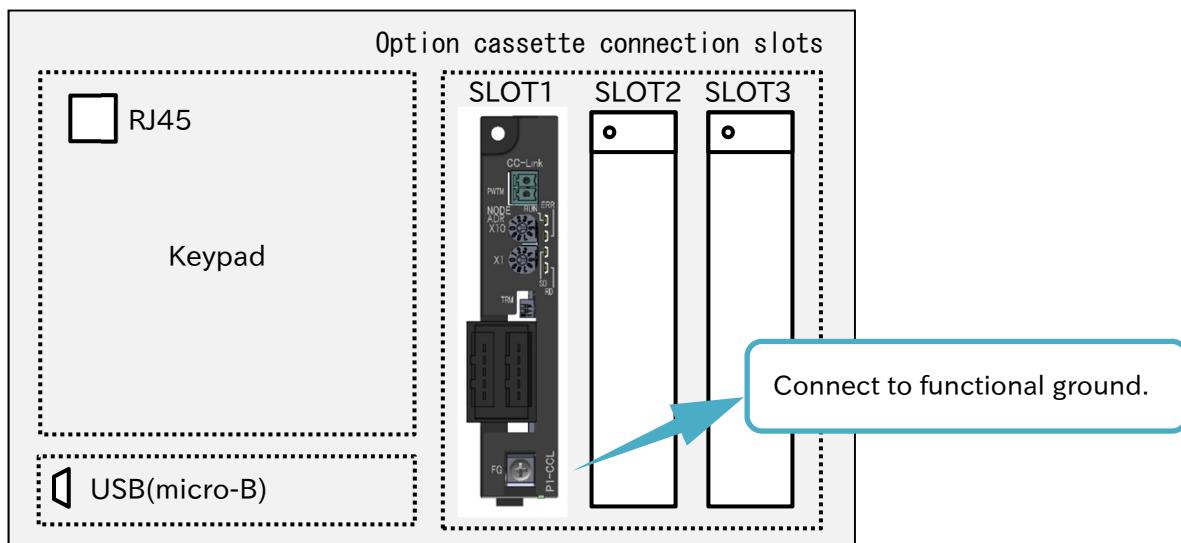
- (2) Attach the P1-CCL. The slots 2 and 3 have one more connection in the lower side. However, the P1-CCL will not need that connection.



(3) Secure the P1-CCL with the screw removed in procedure (1).



(4) Connect the FG terminal to functional ground.



6.3 Connection

- Make sure that the communication line and the power line are placed as far as possible from each other. If the power line and the communication line are placed close to each other, the communication line will pick up noise from the power line that can interfere with the transmission.
- Make sure to set up the system, so that in an event of a network failure, the inverter output stops immediately.

- (1) In case the master detects an abnormality in the connection, shut down the inverter primary power supply.
- (2) Allocate functions such as “free run” or “reset” to the input terminals, so when the master detects a connection abnormality it is capable of turning on these terminals.
- (3) Configure the inverter so in case of a connection abnormality, it stops, free run stops or trip.
(When the operation command is received through CC-Link, the inverter shipment settings are configured so that if there is any abnormality in the connection the inverter will immediately stop)

Connect the communication cable (CC-Link cable), so it minimizes the tension and stress over the connector.

For other information concerning the installation, please refer to HF-430NEO user's guide.

Chapter 7 Parameter Settings

7.1 About this chapter

This chapter contains the information about the parameter settings that must be done when using the P1-CCL.

7.2 Parameter settings

This chapter explains how to configure HF-430NEO inverter parameters in order to use the P1-CCL.

7.2.1 Parameters that must be configured

■ List of parameters.

Item	Parameter No	Data	Description
Main speed input source selection, 1st motor	[AA101]	9 (Option-1) 10 (Option-2) 11 (Option-3)	Select the slot in which the P1-CCL was installed.
Run-command input source selection, 1st motor	[AA111]	4 (Option-1) 5 (Option-2) 6 (Option-3)	

7.2.2 Parameters that must be set as required by the application.

■ List of parameters.

Item	Parameter No	Data	Description
Communication Watch Dog Timer	[oA-11] [oA-21] [oA-31]	0.00 ~ 100.00(s)	Set the communication watchdog timer of CC-Link. This watchdog timer is to monitor non communication after that P1-CCL detects communication error (the L.RUN LED of P1-CCL is turned OFF). If 0.00(s) is set, P1-CCL doesn't monitor non communication.
Action selection at communication error	[oA-12] [oA-22] [oA-32]	00~04	Set inverter action on communication error.

- When [oA-11/21/31] and [oA-12/22/32] parameters are configured, P1-CCL must be turned off and on to enable the configuration.

The other parameters will be effective immediately after the change.

7.2.3 Parameters correlating the Inverter and the P1-CCL

The parameters described in the following table control the action taken by the inverter when there is a problem with the P1-CCL or when the P1-CCL is connected.

■ Parameter

Code	Parameter name	Selection	Initial value
oA-10	Operation mode on option card error (SLOT-1)	00(Error) 01(Ignore error (Keep running))	00
oA-20	Operation mode on option card error (SLOT-2)		
oA-30	Operation mode on option card error (SLOT-3)		

- [oA-10]: Operation mode on option card error (SLOT-1)
- [oA-20]: Operation mode on option card error (SLOT-2)
- [oA-30]: Operation mode on option card error (SLOT-3)

These parameters can select whether to ignore the option error trip or not in cases where there are connection failures between the P1-CCL and the inverter.

Let the inverter trip: 00 (error).

Ignore the error and continue with the operation: 01(Ignore error (Keep running)).

Please make sure to configure the parameter corresponding to the slot in which the P1-CCL is attached.

In the event there is a communication failure between the inverter and the P1-CCL, and the option 01 (Ignore error (Keep running)) is selected, the inverter operation will not stop.

Additionally, in case there is a communication failure between the P1-CCL and the inverter, the higher-level device (master) stop command will not be received. Thus, safety measures and precautions are recommended.

7.2.4 Other parameters

In addition to the configurations explained in sections 7.2.2 and 7.2.3, please verify the configuration of the following parameters when using the P1-CCL.

- [CF-11]: Function for transforming the register data from A, V to %

When using the P1-CCL please select the 00(A, V) setting.
- [oA-13]: Run command selection at start up (SLOT-1)
- [oA-23]: Run command selection at start up (SLOT-2)
- [oA-33]: Run command selection at start up (SLOT-3)

Please do not change these settings

8

Chapter 8 CC-Link

8.1 About this chapter

This chapter contains a general explanation about CC-Link.

8.2 CSP+ File

If needed, please install the P1-CCL CSP+ file into the CC-Link master engineering tool.

The CSP+ file is a file that has the specific information of the CC-Link device.

The CSP+ file can be obtained through our website.

In case is not available or cannot be downloaded please contact the nearest sales office.

8.3 Remote input RX, Remote output RY

Remote input RX is bit data which P1-CCL sends to master by cyclic transmission.

Remote output RY is bit data which master sends to P1-CCL by cyclic transmission.

If needed, please install the P1-CCL CSP+ file into the CC-Link master engineering tool.

The CSP+ file is a file that has the specific information of the CC-Link device.

The final 16 bits of RX, RY of slave stations are the system range.

Therefore, the addresses of the following 3 flags depend on CC-Link version and extended cyclic settings.

Error status flag

Remote ready flag

Error reset request flag

8.3.1 Ver.1.00, 1.10, Ver.2.00 (Single)、Ver.2.00 (Double)

RX, RY are 32 bits.

P1-CCL → Master		Master → P1-CCL	
RX No.	Signal Name	RY No.	Signal Name
RXn0	Forward rotation	RYn0	Forward command
RXn1	Reverse rotation	RYn1	Reverse command
RXn2	Output terminal UPF	RYn2	Input terminal FR function
RXn3	Output terminal DRV	RYn3	Input terminal RR function
RXn4	Output terminal X1	RYn4	Input terminal DFL function
RXn5	Output terminal X2	RYn5	Input terminal DFM function
RXn6	Output terminal X3	RYn6	Input terminal AUT function
RXn7	Relay output terminal RL	RYn7	Input terminal MBS function
RXn8	Alarm relay output terminal FL	RYn8	Input terminal JOG Function
RXn9 ～ RXnB	Unused	RYn9	Free-run stop
RXnC	Monitoring	RYnA	Input terminal ES function
RXnD	Frequency setting complete (RAM)	RYnB	Input terminal RST Function
RXnE	Unused	RYnC	Monitor command
RXnF	Command code execution complete	RYnD	Frequency setting command (RAM)
RX(n+1)0 ～ RX(n+1)7	Reserved	RY(n+1)0 ～ RY(n+1)7	Reserved
RX(n+1)8 ～ RX(n+1)9	Unused	RY(n+1)8 ～ RY(n+1)9	Unused
RX(n+1)A	Error status flag	RY(n+1)A	Error reset request flag
RX(n+1)B	Remote ready	RY(n+1)B ～ RY(n+1)F	Reserved
RX(n+1)C ～ RX(n+1)F	Reserved		

n: Address assigned to the master module by the station number setting

8.3.2 Ver.2.00 (Quadruple)

RX, RY are 64 bits.

P1-CCL → Master		Master → P1-CCL	
RX No.	Signal Name	RY No.	Signal Name
RXn0	Forward rotation	RYn0	Forward command
RXn1	Reverse rotation	RYn1	Reverse command
RXn2	Output terminal UPF	RYn2	Input terminal FR function
RXn3	Output terminal DRV	RYn3	Input terminal RR function
RXn4	Output terminal X1	RYn4	Input terminal DFL function
RXn5	Output terminal X2	RYn5	Input terminal DFM function
RXn6	Output terminal X3	RYn6	Input terminal AUT function
RXn7	Relay output terminal RL	RYn7	Input terminal MBS function
RXn8	Alarm relay output terminal FL	RYn8	Input terminal JOG function
RXn9 ~ RXnB	Unused	RYn9	Free-run stop
RXnC	Monitoring	RYnA	Input terminal ES function
RXnD	Frequency setting complete (RAM)	RYnB	Input terminal RST function
RXnE	Unused	RYnC	Monitor command
RXnF	Command code execution complete	RYnD	Frequency setting command (RAM)
RX(n+1)0 ~ RX(n+2)F	Unused	RY(n+1)0 ~ RY(n+2)F	Unused
RX(n+3)0 ~ RX(n+3)7	Reserved	RY(n+3)0 ~ RY(n+3)7	Reserved
RX(n+3)8 ~ RX(n+3)9	Unused	RY(n+3)8 ~ RY(n+3)9	Unused
RX(n+3)A	Error status flag	RY(n+3)A	Error reset request flag
RX(n+3)B	Remote ready	RY(n+3)B ~ RY(n+3)F	Reserved
RX(n+3)C ~ RX(n+3)F	Reserved		

n: Address assigned to the master module by the station number setting

RX No. of Error status flag and Remote ready and RY No. of Error reset request flag are different from Ver.1.00, 1.10, Ver.2.00 (Single).

8.3.3 Ver.2.00 (Octuple)

RX, RY are 128 bits.

P1-CCL → Master		Master → P1-CCL		
RX No.	Signal Name	RY No.	Signal Name	
RXn0	Forward rotation	Common to all manufacturers	RYn0	Forward command
RXn1	Reverse rotation		RYn1	Reverse command
RXn2	Output terminal UPF		RYn2	Input terminal FR function
RXn3	Output terminal DRV		RYn3	Input terminal RR function
RXn4	Output terminal X1		RYn4	Input terminal DFL function
RXn5	Output terminal X2		RYn5	Input terminal DFM function
RXn6	Output terminal X3		RYn6	Input terminal AUT function
RXn7	Relay output terminal RL		RYn7	Input terminal MBS function
RXn8	Alarm relay output terminal FL		RYn8	Input terminal JOG function
RXn9 ~ RXnB	Unused		RYn9	Free-run stop
RXnC	Monitoring	Specific to each manufacturer	RYnA	Input terminal ES function
RXnD	Frequency setting complete (RAM)		RYnB	Input terminal RST function
RXnE	Unused		RYnC	Monitor command
RXnF	Command code execution complete		RYnD	Frequency setting command (RAM)
RX(n+1)0 ~ RX(n+6)F	Unused		RYnE	Input terminal DFH function
RX(n+7)0 ~ RX(n+7)7	Reserved		RYnF	Command code execution request
RX(n+7)8 ~ RX(n+7)9	Unused		RY(n+1)0 ~ RY(n+6)F	Unused
RX(n+7)A	Error status flag	RY(n+7)0 ~ RY(n+7)7	RY(n+7)A	Reserved
RX(n+7)B	Remote ready		RY(n+7)B	Unused
RX(n+7)C ~ RX(n+7)F	Reserved		RY(n+7)C ~ RY(n+7)F	Error reset request flag

n: Address assigned to the master module by the station number setting

RX No. of Error status flag and Remote ready and RY No. of Error reset request flag are different from Ver.1.00, 1.10, Ver.2.00 (Single) and Ver.2.00 (Double).

8.3.4 RX signal details

RX No.	Signal Name	Description
RXn0	Forward rotation	OFF : Other than forward rotation (during stop、reverse rotation) ON : Forward rotation
RXn1	Reverse rotation	OFF : Other than reverse rotation (during stop、forward rotation) ON : Reverse rotation
RXn2	Output terminal UPF	
RXn3	Output terminal DRV	
RXn4	Output terminal X1	
RXn5	Output terminal X2	
RXn6	Output terminal X3	
RXn7	Relay output terminal RL	
RXn8	Alarm relay output terminal FL	
RXnC	Monitoring	The monitoring (RXnC) turns ON when the monitor value is set in RWrn (include RWrn+4 - RWrn+7 at the time of Ver.2.00 double, quadruple, and octuple) by turning ON the monitor command (RYnC). It turns OFF when the monitor command (RYnC) is turned OFF.
RXnD	Frequency setting complete (RAM)	It turns ON when the frequency is written to the inverter while the frequency setting command (RYnD) is ON. This signal (RXnD) turns OFF when the frequency setting command (RYnD) is turned OFF.
RXnF	Command code execution complete	It turns ON when the process corresponding to the command code (RWwn+2 (include RWwn+8, RWwn+A at the time of Ver.2.00 quadruple and octuple)) is executed and completed by turning ON the command code execution request (RYnF). This signal (RXnF) turns OFF when the command code execution request (RYnF) is turned OFF.
RX(n+1)A RX(n+3)A RX(n+7)A	Error status flag	It turns ON while any trip occurs in the inverter.
RX(n+1)B RX(n+3)B RX(n+7)B	Remote ready	After a power-up, a hardware reset or a test mode operation it turns ON when the initial data setting is completed and the status enters a READY status. It is used as an interlock while reading from/writing to the master module. It is OFF while any trip occurs in the inverter.

n: Address assigned to the master module by the station number setting

RX No. of Error status flag and Remote ready depends on CC-Link version and extended cyclic settings.

8.3.5 RY signal details

RY No.	Signal Name	Description	
RYn0	Forward command	OFF : Stop command ON : Forward command	Turning RYn0 and RYn1 ON simultaneously is a stop command.
RYn1	Reverse command	OFF : Stop command ON : Reverse command	
RYn2	Input terminal FR function		
RYn3	Input terminal RR function		
RYn4	Input terminal DFL function		
RYn5	Input terminal DFM function		
RYn6	Input terminal AUT function		
RYn7	Input terminal MBS function		
RYn8	Input terminal JOG function		
RYn9	Free-run stop	OFF : Free-run stop OFF ON : Free-run stop ON	
RYnA	Input terminal ES function	OFF : Input terminal OFF	
RYnB	Input terminal RST function	ON : Input terminal ON	
RYnC	Monitor command	When the monitor command (RYnC) is turned ON, the monitor value is set in RWrn (include RWrn+4 - RWrn+7 at the time of Ver.2.00 double, quadruple, and octuple) and the monitoring (RXnC) turns ON. The monitor value is constantly changed while the monitor command (RYnC) is ON.	
RYnD	Frequency setting command (RAM)	When the frequency set command (RYnD) is turned ON, the frequency setting (RWwn+1) is written to the inverter. When the write is completed, the frequency setting complete (RXnD) turns ON.	
RYnE	Input terminal RL function	OFF : Input terminal OFF ON : Input terminal ON	
RYnF	Command code execution request	When the command code execution request (RYnF) is turned ON, the process corresponding to the command code set in (RWwn+2 (include RWwn+8, RWwn+A at the time of Ver.2.00 quadruple and octuple)) is executed. The command code execution complete (RXnF) turns ON after the command code execution is completed. If a command code execution error occurs, a non-zero value is set in the response code (RWrn+2).	
RY(n+1)A RY(n+3)A RY(n+7)A	Error reset request flag	When the error reset request flag is turned ON, reset for trip and the error status flag (RX(n+1)A, RX(n+3)A, RX(n+7)A) is turned OFF.	

n: Address assigned to the master module by the station number setting

RY No. of error reset request flag and RX No. of error status flag depend on CC-Link version and extended cyclic settings.

8.4 Remote register RWr / RWw

RWr is word data which P1-CCL sends to master by cyclic transmission.

RWw is word data which master sends to P1-CCL by cyclic transmission.

8.4.1 Ver.1.00, 1.10, Ver.2.00 (Single)

RWr, RWw are 4 words.

P1-CCL → Master		Master → P1-CCL	
Address	Description	Address	Description
RWr _n	Monitor value 1	RWw _n	Monitor code 1
RWr _{n+1}	Output frequency	RWw _{n+1}	Set frequency
RWr _{n+2}	Response code and error position	RWw _{n+2}	Command code 1
RWr _{n+3}	Monitor data 1	RWw _{n+3}	Write data 1

n: Address assigned to the master module by the station number setting

8.4.2 Ver.2.00 (Double)

RWr, RWw are 8 words.

P1-CCL → Master		Master → P1-CCL	
Address	Description	Address	Description
RWr _n	Monitor value 1	RWw _n	Monitor code 1
RWr _{n+1}	Output frequency	RWw _{n+1}	Set frequency
RWr _{n+2}	Response code and error position	RWw _{n+2}	Command code 1
RWr _{n+3}	Monitor data 1	RWw _{n+3}	Write data 1
RWr _{n+4}	Monitor value 2	RWw _{n+4}	Monitor code 2
RWr _{n+5}	Monitor value 3	RWw _{n+5}	Monitor code 3
RWr _{n+6}	Monitor value 4	RWw _{n+6}	Monitor code 4
RWr _{n+7}	Monitor value 5	RWw _{n+7}	Monitor code 5

n: Address assigned to the master module by the station number setting

8.4.3 Ver.2.00 (Quadruple)

RWr, RWw are 16 words.

P1-CCL → Master		Master → P1-CCL	
Address	Description	Address	Description
RWr _n	Monitor value 1	RWw _n	Monitor code 1
RWr _{n+1}	Output frequency	RWw _{n+1}	Set frequency
RWr _{n+2}	Response code and error position	RWw _{n+2}	Command code 1
RWr _{n+3}	Monitor data 1	RWw _{n+3}	Write data 1
RWr _{n+4}	Monitor value 2	RWw _{n+4}	Monitor code 2
RWr _{n+5}	Monitor value 3	RWw _{n+5}	Monitor code 3
RWr _{n+6}	Monitor value 4	RWw _{n+6}	Monitor code 4
RWr _{n+7}	Monitor value 5	RWw _{n+7}	Monitor code 5
RWr _{n+8}	Monitor data 2	RWw _{n+8}	Command code 2
RWr _{n+9}	Monitor data 3	RWw _{n+9}	Write data 2
RWr _{n+A} ~ RWr _{n+F}	Unused	RWw _{n+A}	Command code 3
		RWw _{n+B}	Write data 3
		RWw _{n+C} ~ RWw _{n+F}	Unused

n: Address assigned to the master module by the station number setting

8.4.4 Ver.2.00 (Octuple)

RWr, RWw are 32 words.

P1-CCL → Master		Master → P1-CCL	
Address	Description	Address	Description
RWr _n	Monitor value 1	RWw _n	Monitor code 1
RWr _{n+1}	Output frequency	RWw _{n+1}	Set frequency
RWr _{n+2}	Response code and error position	RWw _{n+2}	Command code 1
RWr _{n+3}	Monitor data 1	RWw _{n+3}	Write data 1
RWr _{n+4}	Monitor value 2	RWw _{n+4}	Monitor code 2
RWr _{n+5}	Monitor value 3	RWw _{n+5}	Monitor code 3
RWr _{n+6}	Monitor value 4	RWw _{n+6}	Monitor code 4
RWr _{n+7}	Monitor value 5	RWw _{n+7}	Monitor code 5
RWr _{n+8}	Monitor data 2	RWw _{n+8}	Command code 2
RWr _{n+9}	Monitor data 3	RWw _{n+9}	Write data 2
RWr _{n+A} ~ RWr _{n+1F}	Unused	RWw _{n+A}	Command code 3
		RWw _{n+B}	Write data 3
		RWw _{n+C} ~ RWw _{n+1F}	Unused

n: Address assigned to the master module by the station number setting

8.4.5 RWr signal details

Address	Signal Name	Description
RWr _n	Monitor value 1	Sets the monitor value specified by the RW _{wn} monitor code 1.
RWr _{n+1}	Output frequency	Constantly sets the present output frequency (Unit: 0.01Hz).
RWr _{n+2}	Response code and error position	The low byte is response code. The high byte is error position. [Response code] Sets the response code corresponding to the RW _{w+2} command code 1, RW _{w+8} command code 2, RW _{w+A} command code 3. Normal response sets a zero, and a data error sets a non-zero value. [Error position] a data error sets error position code.
RWr _{n+3}	Monitor data 1	Sets the response data corresponding to the command specified by the command code 1 when the response is normal.
RWr _{n+4}	Monitor value 2	Sets the monitor value specified by the RW _{wn+4} monitor code 2.
RWr _{n+5}	Monitor value 3	Sets the monitor value specified by the RW _{wn+5} monitor code 3.
RWr _{n+6}	Monitor value 4	Sets the monitor value specified by the RW _{wn+6} monitor code 4.
RWr _{n+7}	Monitor value 5	Sets the monitor value specified by the RW _{wn+7} monitor code 5.
RWr _{n+8}	Monitor data 2	Sets the response data corresponding to the command specified by the command code 2 when the response is normal.
RWr _{n+9}	Monitor data 3	Sets the response data corresponding to the command specified by the command code 3 when the response is normal.

n: Address assigned to the master module by the station number setting

8.4.6 RWw signal details

Address	Signal Name	Description
RWwn	Monitor code 1	Sets the monitor code to be referenced. Data for the specified monitor is set in RWrn by turning RYnC signal ON on the completion of the setting.
RWwn+1	Set frequency	Specifies the set frequency (Unit: 0.01Hz).
RWwn+2	Command code 1	Sets the command code for actions such as parameter read, write, error reference, error clear, etc. The command will be executed by turning RYnF ON after the register setting is completed. When the command execution is completed, RXnF turns ON.
RWwn+3	Write data 1	Sets data specified by the above-mentioned command code 1 (if necessary). RYnF is turned ON after setting the above-mentioned command code 1 and this register. If no data needs to be written, the value shall be zero.
RWwn+4	Monitor code 2	Sets the monitor code to be referenced. Data for the specified monitor is set in RWrn+4 by turning RYnC signal ON on the completion of the setting.
RWwn+5	Monitor code 3	Sets the monitor code to be referenced. Data for the specified monitor is set in RWrn+5 by turning RYnC signal ON on the completion of the setting.
RWwn+6	Monitor code 4	Sets the monitor code to be referenced. Data for the specified monitor is set in RWrn+6 by turning RYnC signal ON on the completion of the setting.
RWwn+7	Monitor code 5	Sets the monitor code to be referenced. Data for the specified monitor is set in RWrn+7 by turning RYnC signal ON on the completion of the setting.
RWwn+8	Command code 2	Sets the command code for actions such as parameter read, write, error reference, error clear, etc. The command will be executed by turning RYnF ON after the register setting is completed. When the command execution is completed, RXnF turns ON.
RWwn+9	Write data 2	Sets data specified by the above-mentioned command code 2 (if necessary). RYnF is turned ON after setting the above-mentioned command code 2 and this register. If no data needs to be written, the value shall be zero.
RWwn+A	Command code 3	Sets the command code for actions such as parameter read, write, error reference, error clear, etc. The command will be executed by turning RYnF ON after the register setting is completed. When the command execution is completed, RXnF turns ON.
RWwn+B	Write data 3	Sets data specified by the above-mentioned command code 3 (if necessary). RYnF is turned ON after setting the above-mentioned command code 3 and this register. If no data needs to be written, the value shall be zero.

n: Address assigned to the master module by the station number setting

8.4.7 Monitor code

When the monitor value of the 2 words parameter is more than the value which can be expressed at 1 byte, the value becomes the limit value.

Singed integer

Upper limit : 32767

Lower limit : -32768

Unsigned integer

Upper limit : 65535

Lower limit : 0

Code No.	Parameter code	Name	Range	Unit	Remarks	
0x0001	dA-01	Output frequency monitor	0 ~ 59000	0.01Hz	-	
0x0002	dA-02	Output current monitor	0 ~ 65535	0.01A		
0x0003	dA-18	Output voltage monitor	0 ~ 8000	0.1V		
0x0005	FA-01	Main speed command (monitor + setting)	0 ~ 59000	0.01Hz		
0x0006	dA-08	Speed detection value monitor	-32768 ~ 32767	0.01Hz	!	
0x0007	dA-17	Output torque monitor	-10000 ~ 10000	0.1%	-	
0x0009	dA-41	DBTR load factor monitor	0 ~ 10000	0.01%		
0x000A	dA-42	Electronic thermal load factor monitor (Motor)				
0x000D	dA-30	Input power monitor	0 ~ 60000	0.01kW		
0x000E	dA-34	Output power monitor				
0x000F	dA-51	Input terminal monitor	2^0 : Input terminal FR ~ 2^10 : Input terminal DHH	-	-	
0x0010	dA-54	Output terminal monitor	2^0 : Output terminal UPF ~ 2^4 : Output terminal X3 2^5 : Relay output terminal RL 2^6 : Alarm relay output terminal FL			
0x0013	dA-20	Current position monitor	-32768 ~ 32767	1pls	!	
0x0014	dC-24	Cumulative power-on time	0 ~ 65535	1hr		
0x0017	dC-22	Cumulative operating hours monitor during RUN				
0x0019	dA-32	Integrated input power monitor		0.1kW		
0x001A	dA-03	Operation direction monitor	0 : Stopped 1 : 0Hz output 2 : Forward rotation 3 : Reverse rotation	-	-	
0x001B	db-30	PID1 feedback data 1 monitor	0 ~ 10000	0.01%		
0x001C	dA-06	Output frequency conversion monitor	0 ~ 65535	0.01	!	
0x001D	dA-15	Torque command monitor (after calculation)	-10000 ~ 10000	0.1%		
0x001E	FA-16	Torque bias monitor (monitor + setting)	-5000 ~ 5000			
0x001F	dC-15	Cooling fin temperature monitor	-200 ~ 2000	0.1°C		
0x0020	dA-38	Motor temperature monitor				
0x0021	dC-16	Life diagnostic monitor	0 ~ 3 bit0 : lives of the capacitors on the circuit board bit1 : FAN life	-	-	
0x0022	dA-28	Pulse counter monitor	0 ~ 65535			
0x0023	FA-20	Position command monitor (monitor + setting)	-32768 ~ 32767		!	
0x0024	-	Trip count monitor	0 ~ 65535			
0x0025	-	Trip monitor 1	0 ~ 122	-	-	
0x0026	-	Trip monitor 2				
0x0027	-	Trip monitor 3				
0x0028	-	Trip monitor 4				
0x0029	-	Trip monitor 5				
0x002A	-	Trip monitor 6				
0x002B	dE-50	Warning monitor	0 ~ 207	0.1Vdc	-	
0x002C	dA-40	DC voltage monitor	0 ~ 10000			

8.4.8 Command code

Item	Code No.	Description	Remarks
Read error history No.1 and No.2	0x0074	Read trip monitor 1 and 2 Upper : Trip monitor 2 Lower : Trip monitor 1	-
Read error history No.3 and No.4	0x0075	Read trip monitor 3 and 4 Upper : Trip monitor 4 Lower : Trip monitor 3	
Read error history No.5 and No.6	0x0076	Read trip monitor 5 and 6 Upper : Trip monitor 6 Lower : Trip monitor 5	
Read error history No.7 and No.8	0x0077	Read trip monitor 7 and 8 Upper : Trip monitor 8 Lower : Trip monitor 7	
Read set frequency (RAM)	0x006D	Read set frequency (RAM)	Unit 0.01Hz
Read parameter	Modbus register number	Read parameter of inverter *	-
Write parameter	Modbus register number + 30000 (0x7530)	Write parameter of inverter *	
Batch clear error definition	0x00F4	Clear trip monitor	
Clear all parameters	0x00FC	Initialize	
Reset inverter	0x00FD	Reset the inverter	

*Please refer to "12 parameter list" for details.

8.4.9 Response code

Code No.	Description	Factor
0x01	Write mode error	Wrote to the read only parameter
0x02	Parameter selection error	Monitor code or command code was wrong.
0x03	Data error	The write data was out of range, etc.
0x04	Error by inverter state or soft-lock	The inverter was in the state that it didn't permit to write.
0x05	Command code is duplicated	Command code is duplicated.

8.4.10 Error position

Code No.	Description
0x01	Monitor code 1
0x02	Set frequency
0x03	Command code 1
0x04	Write data 1
0x05	Monitor code 2
0x06	Monitor code 3
0x07	Monitor code 4
0x08	Monitor code 5
0x09	Command code 2
0x0A	Write data 2
0x0B	Command code 3
0x0C	Write data 3

When you wrote to the consecutive registers and there was a fault to write to the latter register, error position may show the former register.

Chapter 9 Function

9.1 About this chapter

This chapter contains the information about the function of P1-CCL.

9.2 List of functions

The functions which P1-CCL supports are below.

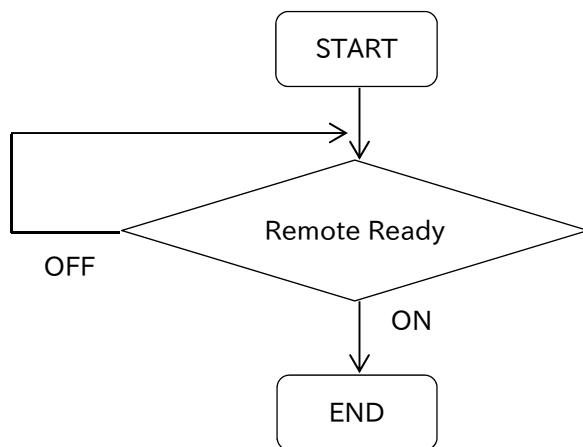
Section	Function
9.3	Confirm remote ready
9.4	Set frequency
9.5	Set run command
9.6	Reset trip
9.7	Set monitor code
9.8	Set command code (read)
9.9	Set command code (write)

9.3 Confirm remote ready

Please confirm the remote ready (RX(n+1)B, RX(n+3)B, RX(n+7)B) turns ON while reading from/writing to the CC-Link master.

RX No. of Remote Ready depends on CC-Link Ver. and extended cyclic setting.

Please refer to "Chapter 8 CC-Link" for details.

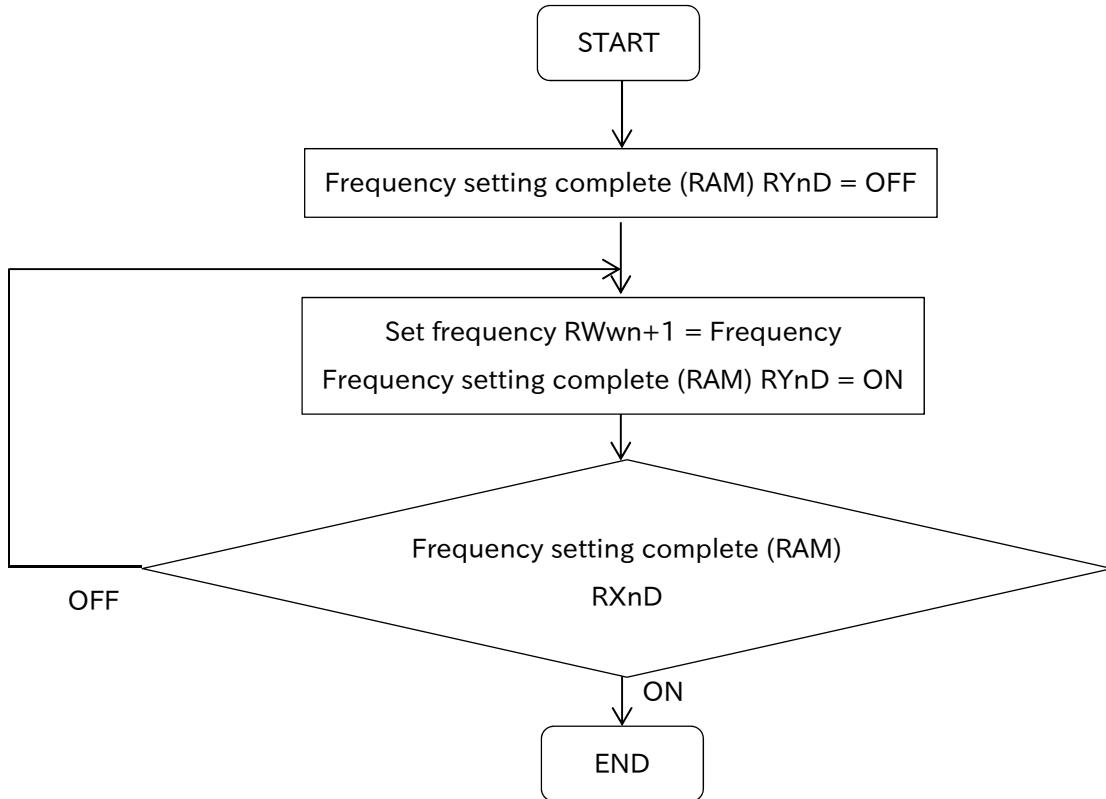


When the remote ready is OFF, the reasons are as follows.

- P1-CCL is OFF.
- The CC-Link master doesn't communicate with P1-CCL.
- HF-430NEO is trip.

9.4 Set frequency

Please set frequency according to the following procedure.

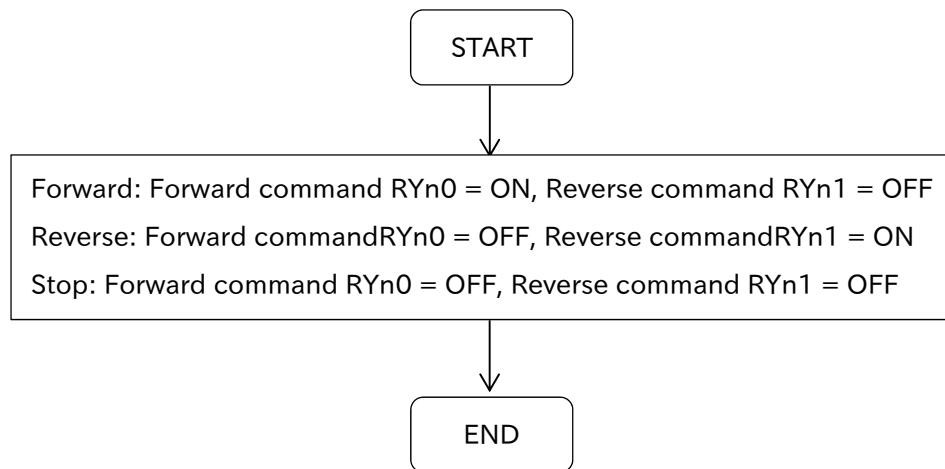


Please set frequency in 0.01Hz.

When the frequency setting complete (RAM) RXnD remains OFF, please correct the frequency.
You can set frequency in a row, when the frequency setting complete (RAM) RYnD remains ON.

9.5 Set run command

Please set run command according to the following procedure.



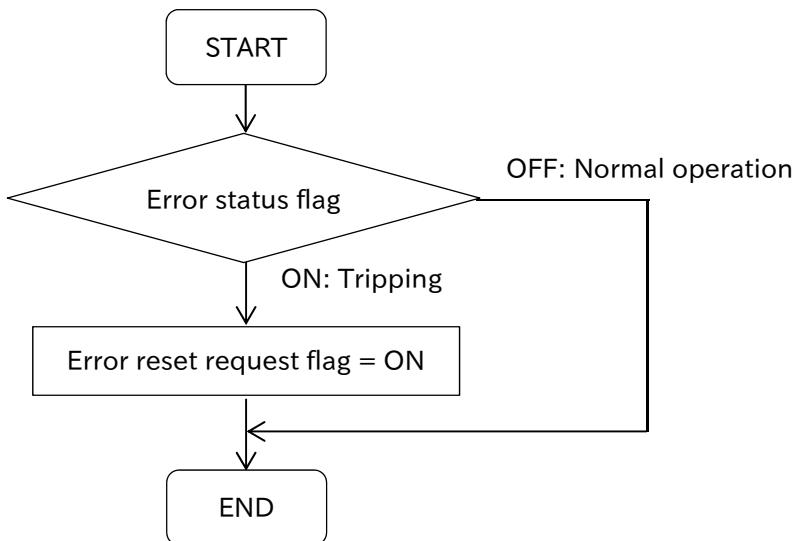
When both the forward command RYn0 and the reverse command turn ON, the command is the Stop command.

9.6 Reset trip

Please reset trip from CC-Link according to the following procedure.

RX No. of Error status flag and Error reset request flag depend on CC-Link Ver. and extended cyclic setting.

Please refer to "Chapter 8 CC-Link" for details.



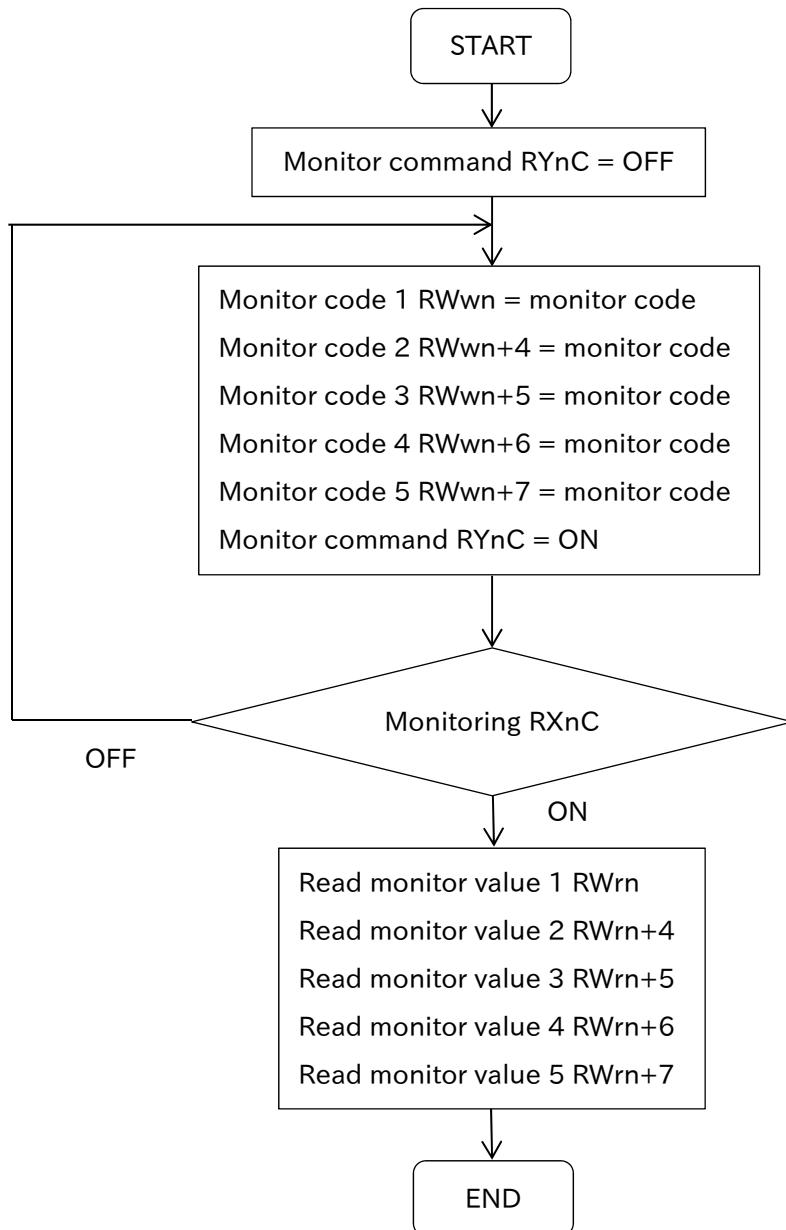
When the inverter is tripping, the error status flag (RX(n+1)A, RX(n+3)A, RX(n+7)A) turns ON and the remote ready (RX(n+1)B, RX(n+3)B, RX(n+7)B) turns OFF.

You can reset trip from keypad of the inverter.

After trip reset, the error status flag (RX(n+1)A, RX(n+3)A, RX(n+7)A) turns OFF and the remote ready (RX(n+1)B, RX(n+3)B, RX(n+7)B) turns ON.

9.7 Set monitor code

Please read parameter with monitor code according to the following procedure.

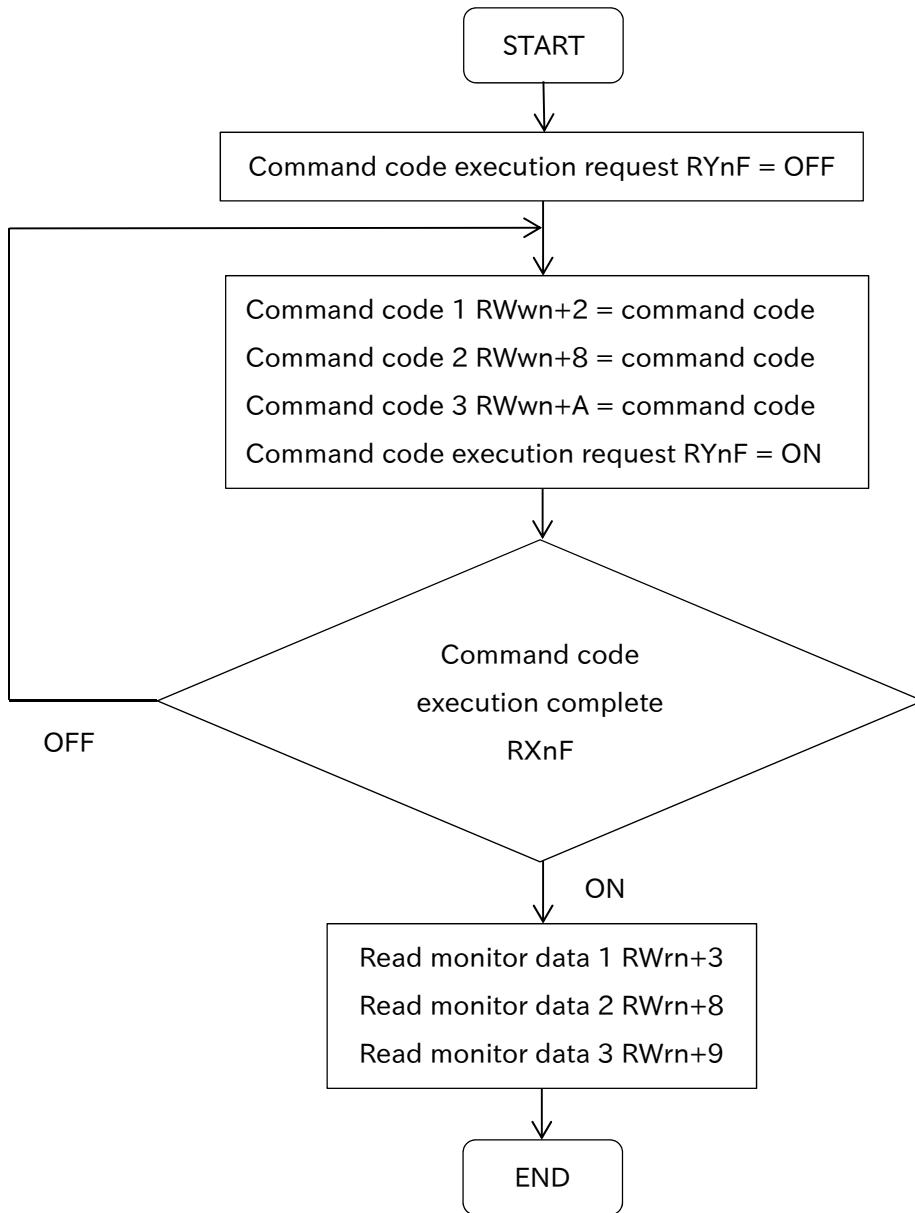


When you use RWwn+4 - 7 and RWrn+4 - 7, please use CC-Link Ver.2.00, extended cyclic setting double, quadruple or Octuple.

When the monitoring RXnC remains OFF, please correct the monitor code RWwn, RWwn+4 - 7. You can find error position in response code and error position RWrn+2. Set 0 to monitor code which isn't used. The monitor command RYnC need to turn OFF, when you set another monitor code.

9.8 Set command code (read)

Please read parameter with command code according to the following procedure.



When you use RWwn+8, RWwn+A, RWrn+8 and RWrn+9, please use CC-Link Ver.2.00, extended cyclic setting double, quadruple or Octuple.

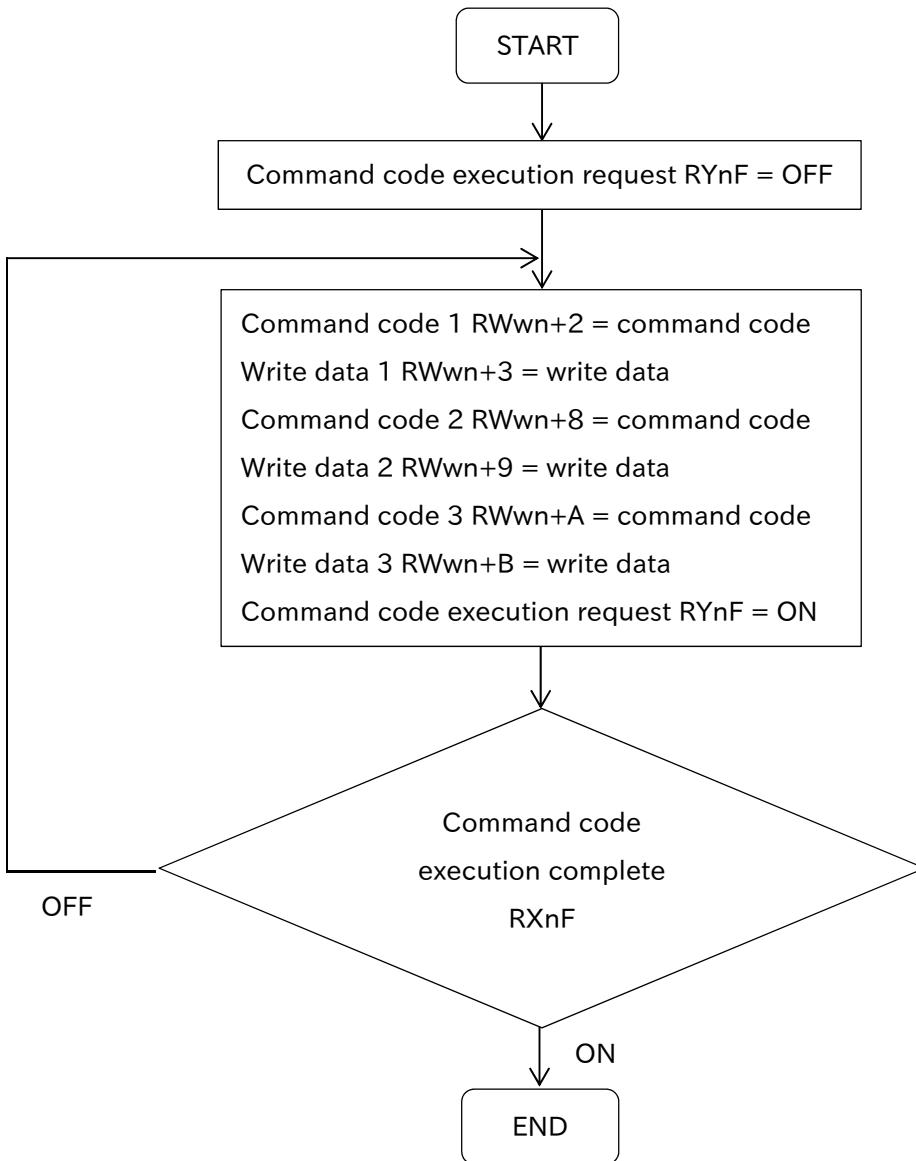
When the command code execution complete RXnF remains OFF, please correct the command code RWwn+2, RWwn+8 and RWwn+A.

You can find error position in response code and error position RWrn+2. Set 0 to command code which isn't used.

The command code execution complete RXnF need to turn OFF, when you set another command code.

9.9 Set command code (write)

Please write parameter with command code according to the following procedure.



When you use RWwn+8 - B, please use CC-Link Ver.2.00, extended cyclic setting double, quadruple or Octuple.

When the command code execution complete RXnF remains OFF, please correct the command code RWwn+2, RWwn+8, RWwn+A, write data RWwn+3, RWwn+9 and RWwn+B.

You can find error position in response code and error position RWrn+2. Set 0 to command code and write data which aren't used.

The command code execution complete RXnF need to turn OFF, when you set another command code and another write data.

10

Chapter10 Troubleshooting

10.1 About this chapter

This chapter contains the troubleshooting of cases such as errors detected by the protection function, warnings given by the warning function, or some cases in which the device is not working properly.

10.2 Self-diagnosis

The CC-Link communication is not working properly

Not working properly

Refer to this guide page 10-2

「10.3 CC-Link troubleshooting」

The inverter tripped.

It is displaying an error.

Refer to this guide page 10-3

「10.4 Inverter troubleshooting」



Please contact your supplier.

Before contacting the technical service, please confirm the items on the right.

- (1)Inverter model,
- (2)Inverter manufacture number (MFG No.),
- (3)Option device model (P1-CCL),
- (4)P1-CCL software version
- (5)P1-CCL manufacture number (MFG No.),
- (6)Date of purchase,
- (7)Inquiry contents,

For information about how to check the inverter model and the manufacture number (MFG No.) please refer to HF-430NEO user's manual.

For information about how to check the P1-CCL model, software version and the manufacture number (MFG No.) please refer to the chapter 4.

Furthermore, if the inquiry is about a P1-CCL communication problem please provide us with the following additional information.

- (8) Current problem or abnormality
- (9) Frequency of occurrence
- (10) The CC-Link master being used
- (11) The CC-Link network configuration

10.3 P1-CCL troubleshooting

10.3.1 Verify the LED

■ LED status

abbreviation	Description · status
ON	The LED is turned ON
OFF	The LED is turned OFF
B	Blinking The LED turns ON (0.4[s]) and OFF (0.4[s]).
-	Undefined

■ Probable cause and its solution

L.RUN	L.ERR	SD	RD	Description	Probable cause	Solution
ON	OFF	ON	ON	CC-Link Communicating	-	-
OFF	OFF	OFF	OFF	Power supply fault	The inverter main power, the external 24V power of the inverter or the external 24V power of the P1-CCL is not turned ON.	Please turn on the inverter power supply or the external 24V input.
					The P1-CCL is not correctly attached.	Turn off the inverter, then detach and attach again the P1-CCL. After this, turn on the inverter again.
				Cable failure	The cable is disconnected.	Check the cable connecting.
					The cable does not meet the required specifications.	Please exchange the cable for a cable that meets the specifications described in the section 4.2.7.
					The cable is broken.	Please exchange the cable.
				P1-CCL is damaged.	P1-CCL broke down	Please exchange the P1-CCL.
OFF	ON	OFF	OFF	Station number or transmission speed is out of range	Station number is 0 or greater than or equal to 65.	Please check station number.
					Transmission speed is out of range.	Please check transmission speed.
OFF	ON (*1)	-	-	CRC error	CRC error occurred.	Please set terminal resistor switch, if P1-CCL is terminal. Also, please implement measures to prevent noise, if there is an equipment close by that is generating noise.
-	B	-	-	P1-CCL settings is changed.	Station number is changed while P1-CCL is power ON.	Please turn off and on the inverter to enable changed station number. It works with the old station number until the inverter turns OFF.
OFF	OFF	OFF	ON	There isn't data addressed to this P1-CCL.	P1-CCL doesn't receive data addressed to itself.	Please check station number, because setting of P1-CCL and setting of the CC-Link master are different.
OFF	OFF	ON	ON	Parameter fault	The parameter (transmission speed, CC-Link Ver. and Extended cyclic setting) of P1-CCL that is set in the CC-Link master is wrong.	Please check that the parameter is set in the CC-Link master.

(*1) L.ERR LED is ON only while CRC error occurred. In some cases, L.ERR LED turns ON for an instant.

10.3.2 Verifying using CC-Link

- Inverter trips notifications can be verified using Error Status Flag of remote input RX.
In the event the inverter trips, Error Status Flag turns ON.

10.4 Inverter troubleshooting

10.4.1 Inverter error information

E060 / E069

Option 1 Error 0 / 9

E070 / E079

Option 2 Error 0 / 9

E080 / E089

Option 3 Error 0 / 9

When there is a communication error between the P1-CCL and the inverter, an inverter error will occur.

In case the communication error was detected by the P1-CCL, the error number will be E060, E070 or E080.

In case the communication error was detected by the inverter, the error number will be E069, E079 or E089.

The error code will depend on the slot in which the P1-CCL is attached.

Issue▶	Possible cause▶	Possible solution
An error occurred in the communication between the P1-CCL and the inverter	<ul style="list-style-type: none">• The P1-CCL is not correctly attached.• There is an intruding object in between the P1-CCL and the inverter connector	<ul style="list-style-type: none">• Turn off the inverter, then detach the P1-CCL and attach it again. After this, turn on the inverter again.• Remove the intruding object

E063**Option 1 Error 3****E073****Option 2 Error 3****E083****Option 3 Error 3**

The P1-CCL detected a CC-Link communication failure.

The error code will depend on the slot in which the P1-CCL is attached.

Issue▶	Possible cause ▶	Possible solution
There is a CC-Link communication error.	• The CC-Link IO controller stopped.	• Verify that the CC-Link IO controller did not stop.
	• The cable got disconnected.	• Verify that the cable is connected correctly. • Check if the cable specification meets the required specifications. If it doesn't, please exchange the cable.

E065**Option 1 Error 5****E075****Option 2 Error 5****E085****Option 3 Error 5**

The P1-CCL detected a read error of station number switches or transmission speed switch.

The error code will depend on the slot in which the P1-CCL is attached.

Issue▶	Possible cause ▶	Possible solution
There is a read error of station number switches or transmission speed switch.	• P1-CCL wasn't able to read switches normally.	• please implement measures to prevent noise, if there is an equipment close by that is generating noise.

Chapter 11 Specifications

11.1 About this chapter

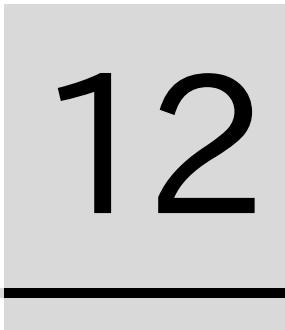
This chapter contains information about the P1-CCL specifications.

11.2 Device specifications

■ Specifications

Item		Specification								
Model		P1-CCL								
Weight		170g								
Environment	Ambient operating temperature	0~50°C	No icing or condensation conditions.							
	Ambient operating humidity	20~90%RH								
	Storage temperature	-20~65°C								
	Vibration resistance	5.9m/s ² (0.6G)、10~55Hz								
	Enclosure rating	IP00								
CC-Link Interface	Station type	Remote device station								
	Transmission speed	10M / 5M / 2.5M / 625k / 156kbps								
	Communication method	Broadcast polling method								
	Synchronization method	Frame synchronization								
	Encoding method	NRZI								
	Topology	Bus (EIA RS485 compatible)								
	Transmission format	HDLC compatible								
	Error detection code	CRC (X16+X12+X5+1)								
	CC-Link Version	Ver.1.00, 1.10	Ver.2.00							
	Extended cyclic setting	-	Single	Double	Quadruple	Octuple				
	Number of link points	RX	32		64	128				
		RY	32		64	128				
		RWr	4	8	16	32				
		RWw	4	8	16	32				
	Number of occupied stations	1 station								
	Transient transmission	Not supported								
	Maximum number of connected stations / nodes	Ver.1.00 Ver.1.10	Maximum 64 stations Maximum 42 stations only P1-CCL. Number of connected stations / nodes need to satisfy all of the below requirements. [1] $(1 \times a) + (2 \times b) + (3 \times c) + (4 \times d) \leq 64$ stations a: Number of nodes occupying 1 station, b: Number of nodes occupying 2 stations, c: Number of nodes occupying 3 stations, d: Number of nodes occupying 4 stations [2] $16 \times A + 54 \times B + 88 \times C \leq 2304$ A: Number of remote I/O stations maximum 64 nodes B: Number of remote device stations maximum 42 nodes C: Number of local and intelligent device stations maximum 26 nodes							

Item	Specification
CC-Link Interface	<p>Ver.2.00</p> <p>Maximum 64 stations Maximum 42 stations only P1-CCL Number of connected stations / nodes need to satisfy all of the below requirements.</p> <p>[1] $(a + a_2 + a_4 + a_8) + (b + b_2 + b_4 + b_8) \times 2 + (c + c_2 + c_4 + c_8) \times 3 + (d + d_2 + d_4 + d_8) \times 4 \leq 64$</p> <p>[2] $(a \times 32 + a_2 \times 32 + a_4 \times 64 + a_8 \times 128) + (b \times 64 + b_2 \times 96 + b_4 \times 192 + b_8 \times 384) + (c \times 96 + c_2 \times 160 + c_4 \times 320 + c_8 \times 640) + (d \times 128 + d_2 \times 224 + d_4 \times 448 + d_8 \times 896) \leq 8192$</p> <p>[3] $(a \times 4 + a_2 \times 8 + a_4 \times 16 + a_8 \times 32) + (b \times 8 + b_2 \times 16 + b_4 \times 32 + b_8 \times 64) + (c \times 12 + c_2 \times 24 + c_4 \times 48 + c_8 \times 96) + (d \times 16 + d_2 \times 32 + d_4 \times 64 + d_8 \times 128) \leq 2048$</p> <p>Single setting (1x)</p> <ul style="list-style-type: none"> a: Number of nodes occupying 1 station b: Number of nodes occupying 2 stations c: Number of nodes occupying 3 stations d: Number of nodes occupying 4 stations <p>Double setting (2x)</p> <ul style="list-style-type: none"> a2: Number of nodes occupying 1 station b2: Number of nodes occupying 2 stations c2: Number of nodes occupying 3 stations d2: Number of nodes occupying 4 stations <p>Quadruple setting (4x)</p> <ul style="list-style-type: none"> a4: Number of nodes occupying 1 station b4: Number of nodes occupying 2 stations c4: Number of nodes occupying 3 stations d4: Number of nodes occupying 4 stations <p>Octuple setting (8x)</p> <ul style="list-style-type: none"> a8: Number of nodes occupying 1 station b8: Number of nodes occupying 2 stations c8: Number of nodes occupying 3 stations d8: Number of nodes occupying 4 stations <p>[4] $16 \times A + 54 \times B + 88 \times C \leq 2304$</p> <ul style="list-style-type: none"> A: Number of remote I/O station Maximum 64 nodes B: Number of intelligent device station Maximum 42 nodes C: Number of local and intelligent device station Maximum 26 nodes
Slave station number	1 to 64
Connection cable	CC-Link dedicated cable Ver.1.10 CC-Link dedicated high flexible cable Ver.1.10 CC-Link dedicated cable
Terminating resistor	Selectable with the terminal resistor switch. 110Ω (When above cable is used.) 130Ω (When Ver.1.00 compatible CC-Link dedicated high-performance cable is used.) (Terminal resistor is connected between DA and DB.)
Profile	Inverter

A large, bold, black number '12' centered on a light gray rectangular background.

Chapter 12 Parameter List

13.1 About this chapter

This chapter contains the list of command code of inverter parameter.

13.2 Parameter list

The calculation method of command code:

- Read parameter
 - The modbus register
- Write parameter
 - The modbus register + 30000 (0x7530)

■ Items on the List

Item	Description
Func. code	Parameter function code.
Command code Read	Command code of read parameter
Command code Write	Command code of write parameter
Function name	Parameter name.
Setting Items	Range of Values
Data resolution·units	Resolution and units

12.2.1 Code-d

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
dA-01	0x2711	0x9C41	Output frequency monitor	0 ~59000	0.01Hz
dA-02	0x2712	0x9C42	Output current monitor	0~65535	0.01A
dA-03	0x2713	0x9C43	Operation direction monitor	0~3	1
dA-04	0x2714	0x9C44	Frequency command (after calculation) (High) (Low)	-59000~59000 (Register No. and monitor range are not the same with Ver1.xx.)	0.01Hz
(dA-05)	0x2715	0x9C45			
dA-06	0x2716	0x9C46	Output frequency conversion monitor (High) (Low)	0~59000000	0.01
(dA-07)	0x2717	0x9C47			
dA-08	0x2718	0x9C48	Speed detection value monitor (High) (Low)	-59000~59000	0.01Hz
(dA-09)	0x2719	0x9C49			
dA-12	0x271C	0x9C4C	Output frequency monitor (with sign) (High) (Low)	-59000~59000	0.01Hz
(dA-13)	0x271D	0x9C4D			
dA-14	0x271E	0x9C4E	Frequency upper limit monitor	0~59000	0.01Hz
dA-15	0x271F	0x9C4F	Torque command monitor (after calculation)	-10000~10000	0.10%
dA-16	0x2720	0x9C50	Torque limit monitor	0~5000	
dA-17	0x2721	0x9C51	Output torque monitor	-10000~10000	
dA-18	0x2722	0x9C52	Output voltage monitor	0~8000	0.1V
dA-20	0x2724	0x9C54	Current position monitor (High) (Low)	-268435455~268435455 In high resolution mode: -1073741823~1073741823	1pls
(dA-21)	0x2725	0x9C55			
dA-26	0x272A	0x9C5A	Pulse train position deviation monitor (High) (Low)	-2147483647~2147483647	1pls
(dA-27)	0x272B	0x9C5B			
dA-28	0x272C	0x9C5C	Pulse counter monitor (High) (Low)	0~2147483647	
(dA-29)	0x272D	0x9C5D			
dA-30	0x272E	0x9C5E	Input power monitor	0~60000 (~75kW)	0.01kWh
dA-32	0x2730	0x9C60	Integrated input power monitor (High) (Low)	0~10000000	0.1kWh
(dA-33)	0x2731	0x9C61			
dA-34	0x2732	0x9C62	Output power monitor	0~60000 (~75kW)	0.01kW
dA-36	0x2734	0x9C64	Integrated output power monitor (High) (Low)	0~10000000	0.1kWh
(dA-37)	0x2735	0x9C65			
dA-38	0x2736	0x9C66	Motor temperature monitor	-200~2000	0.1°C
dA-40	0x2738	0x9C68	DC voltage monitor	0~10000	0.1Vdc
dA-41	0x2739	0x9C69	DBTR load factor monitor		
dA-42	0x273A	0x9C6A	Electronic thermal load factor monitor (Motor)		
dA-43	0x273B	0x9C6B	Electronic thermal load factor monitor (Inverter)	0~10000	0.01%
dA-45	0x273D	0x9C6D	Safety STO monitor	0~7	1
dA-46	0x273E	0x9C6E	Reserved	-	-
dA-47	0x273F	0x9C6F			
dA-50	0x2742	0x9C72	Terminal block option mounted state	0~15	1
dA-51	0x2743	0x9C73	Input terminal monitor	0~0xFFFF	
dA-54	0x2746	0x9C76	Output terminal monitor	0~0xFF	
dA-60	0x274C	0x9C7C	Analog I/O selection monitor	0~10000	0.01%
dA-61	0x274D	0x9C7D	Analog input [VRF] monitor		
dA-62	0x274E	0x9C7E	Analog input [IRF] monitor		
dA-63	0x274F	0x9C7F	Analog input [VF2] monitor	-10000~10000	
dA-64	0x2750	0x9C80	Extended analog input [Ai4] monitor	0~10000	
dA-65	0x2751	0x9C81	Extended analog input [Ai5] monitor	0~10000	
dA-66	0x2752	0x9C82	Extended analog input [Ai6] monitor	-10000~10000	
dA-70	0x2756	0x9C86	Pulse train input monitor (inverter)		
dA-71	0x2757	0x9C87	Pulse train input monitor (option)		
dA-81	0x2761	0x9C91	Option slot 1 mounted state	0~48	1
dA-82	0x2762	0x9C92	Option slot 2 mounted state		
dA-83	0x2763	0x9C93	Option slot 3 mounted state		
db-01 to db-23	0x2775 to 0x278B	0x9CA5 to 0x9CBB	Reserved	-	-

Func. code	Command code		Function name	Setting items	Data resolution unit	
	Read	Write				
db-30 (db-31)	0x2792 0x2793	0x9CC2 0x9CC3	PID1 feedback data 1 monitor (High) (Low)	-10000~10000	Per AH-06 setting	
db-32 (db-33)	0x2794 0x2795	0x9CC4 0x9CC5	PID1 feedback data 2 monitor (High) (Low)			
db-34 (db-35)	0x2796 0x2797	0x9CC6 0x9CC7	PID1 feedback data 3 monitor (High) (Low)			
db-36 (db-37)	0x2798 0x2799	0x9CC8 0x9CC9	PID2 feedback data monitor (High) (Low)			
db-38 (db-39)	0x279A 0x279B	0x9CCA 0x9CCB	PID3 feedback data monitor (High) (Low)			
db-40 (db-41)	0x279C 0x279D	0x9CCC 0x9CCD	PID4 feedback data monitor (High) (Low)			
db-42 (db-43)	0x279E 0x279F	0x9CCE 0x9CCF	PID1 target value monitor (after calculation) (High) (Low)			
db-44 (db-45)	0x27A0 0x27A1	0x9CD0 0x9CD1	PID1 feedback data monitor (after calculation) (High) (Low)			
db-50	0x27A6	0x9CD6	PID1 output monitor		0.01%	
db-51	0x27A7	0x9CD7	PID1 deviation monitor			
db-52	0x27A8	0x9CD8	PID1 deviation 1 monitor			
db-53	0x27A9	0x9CD9	PID1 deviation 2 monitor			
db-54	0x27AA	0x9CDA	PID1 deviation 3 monitor			
db-55	0x27AB	0x9CDB	PID2 output monitor			
db-56	0x27AC	0x9CDC	PID2 deviation monitor			
db-57	0x27AD	0x9CDD	PID3 output monitor			
db-58	0x27AE	0x9CDE	PID3 deviation monitor			
db-59	0x27AF	0x9CDF	PID4 output monitor			
db-60	0x27B0	0x9CE0	PID4 deviation monitor			
db-61	0x27B1	0x9CE1	PID current P gain monitor	0~1000	0.1 x	
db-62	0x27B2	0x9CE2	PID current I gain monitor	0~36000	0.1s	
db-63	0x27B3	0x9CE3	PID current D gain monitor	0~10000	0.01s	
db-64	0x27B4	0x9CE4	PID feed forward monitor		0.01%	
dC-01	0x27D9	0x9D09	Inverter load type selection monitor	0~2	1	
dC-02	0x27DA	0x9D0A	Rated current monitor	0~65535	0.1A	
dC-07	0x27DF	0x9D0F	Speed command destination monitor (main)	0~34	1	
dC-08	0x27E0	0x9D10	Speed command destination monitor (auxiliary)			
dC-10	0x27E2	0x9D12	Operation command destination monitor			
dC-15	0x27E7	0x9D17	Cooling fin temperature monitor	-200~2000	0.1°C	
dC-16	0x27E8	0x9D18	Life diagnostic monitor	0~0xFF	1	
dC-20	0x27EC	0x9D1C	Total start-up count	1~65535		
dC-21	0x27ED	0x9D1D	Power-on count			
dC-22 (dC-23)	0x27EE 0x27EF	0x9D1E 0x9D1F	Cumulative operating hours monitor during RUN (High) (Low)	0~1000000	1hr	
dC-24 (dC-25)	0x27F0 0x27F1	0x9D20 0x9D21	Cumulative power-on time (High) (Low)			
dC-26 (dC-27)	0x27F2 0x27F3	0x9D22 0x9D23	Cumulative operating time of cooling fan (High) (Low)			
dC-37	0x27FD	0x9D2D	Detailed monitor for icon 2 LIM			
dC-38	0x27FE	0x9D2E	Detailed monitor for icon 2 LIM	0~4	1	
dC-39	0x27FF	0x9D2F	Detailed monitor for icon 2 RETRY	0~2		
dC-40	0x2800	0x9D30	Detailed monitor for icon 2 NRDY	0~9		
dC-45	0x2805	0x9D35	IM/SM monitor	0~1		
dC-50	0x280A	0x9D3A	Firmware Ver. monitor	0~0xFFFF Higher 1 byte: Major Lower 1 byte: Minor 1		
dC-53	0x280D	0x9D3D	Firmware Gr. monitor	0~1	1	
Trip monitor (dE-01)	0x03E8	0x7918	Trip count monitor	0~65535		

Func. code	Command code		Function name	Setting items	Data resolution unit	
	Read	Write				
Trip monitor (dE-11)	0x03E9	0x7919	Trip monitor 1 Factor	1~255	1	
	0x03EA	0x791A	Trip monitor 1 Output frequency (High)	-59000~59000	0.01Hz	
	0x03EB	0x791B	(with sign)			
	0x03EC	0x791C	Trip monitor 1 Output current	0~65535	0.01A	
	0x03ED	0x791D	Trip monitor 1 P-N DC voltage	0~10000	0.1Vdc	
	0x03EE	0x791E	Trip monitor 1 Inverter state	0~8	1	
	0x03EF	0x791F	Trip monitor 1 LAD state	0~5		
	0x03F0	0x7920	Trip monitor 1 INV control mode	0~11		
	0x03F1	0x7921	Trip monitor 1 Limit state	0~6		
	0x03F2	0x7922	Trip monitor 1 Special state			
	0x03F4	0x7924	Trip monitor 1 RUN time (High)	0~1000000	1hr	
	0x03F5	0x7925	(Low)			
	0x03F6	0x7926	Trip monitor 1 Power ON time (High)	0~1000000	1hr	
	0x03F7	0x7927	(Low)			
	0x03F8	0x7928	Trip monitor 1 Absolute time (year, month)	00 - 99 (BCD code)	1	
	0x03F9	0x7929	Trip monitor 1 Absolute time (day, day of the week)	01 - 31 (BCD code)		
				00 - 06 (BCD code)		
				00 - 23 (BCD code)		
				00 - 59 (BCD code)		

Func. code	Command code		Function name	Setting items	Data resolution unit	
	Read	Write				
Trip monitor (dE-12)	0x03FD	0x792D	Trip monitor 2 Factor	1~255	1	
	0x03FE	0x792E	Trip monitor 2 Output frequency (High)	-59000~59000	0.01Hz	
	0x03FF	0x792F	(with sign)			
	0x0400	0x7930	Trip monitor 2 Output current	0~65535	0.01A	
	0x0401	0x7931	Trip monitor 2 P-N DC voltage	0~10000	0.1Vdc	
	0x0402	0x7932	Trip monitor 2 Inverter state	0~8	1	
	0x0403	0x7933	Trip monitor 2 LAD state	0~5		
	0x0404	0x7934	Trip monitor 2 INV control mode	0~11		
	0x0405	0x7935	Trip monitor 2 Limit state	0~6		
	0x0406	0x7936	Trip monitor 2 Special state			
	0x0408	0x7938	Trip monitor 2 RUN time (High)	0~1000000	1hr	
	0x0409	0x7939	(Low)			
	0x040A	0x793A	Trip monitor 2 Power ON time (High)	0~1000000	1hr	
	0x040B	0x793B	(Low)			
	0x040C	0x793C	Trip monitor 2 Absolute time (year, month)	00 - 99 (BCD code)	1	
				01 - 12 (BCD code)		
	0x040D	0x793D	Trip monitor 2 Absolute time (day, day of the week)	01 - 31 (BCD code)		
				00 - 06 (BCD code)		
				00 - 23 (BCD code)		
	0x040E	0x793E	Trip monitor 2 Absolute time (hour, minute)	00 - 59 (BCD code)		

Func. code	Command code		Function name	Setting items	Data resolution unit	
	Read	Write				
Trip monitor (dE-13)	0x0411	0x7941	Trip monitor 3 Factor	1~255	1	
	0x0412	0x7942	Trip monitor 3 Output frequency (High) (with sign)	-59000~59000	0.01Hz	
	0x0413	0x7943	(Low)			
	0x0414	0x7944	Trip monitor 3 Output current	0~65535	0.01A	
	0x0415	0x7945	Trip monitor 3 P-N DC voltage	0~10000	0.1Vdc	
	0x0416	0x7946	Trip monitor 3 Inverter state	0~8	1	
	0x0417	0x7947	Trip monitor 3 LAD state	0~5		
	0x0418	0x7948	Trip monitor 3 INV control mode	0~11		
	0x0419	0x7949	Trip monitor 3 Limit state	0~6		
	0x041A	0x794A	Trip monitor 3 Special state			
	0x041C	0x794C	Trip monitor 3 RUN time (High) (Low)	0~1000000	1hr	
	0x041D	0x794D				
	0x041E	0x794E	Trip monitor 3 Power ON time (High) (Low)			
	0x041F	0x794F				
	0x0420	0x7950	Trip monitor 3 Absolute time (year, month)	00 - 99 (BCD code) 01 - 12 (BCD code)	1	
	0x0421	0x7951	Trip monitor 3 Absolute time (day, day of the week)	01 - 31 (BCD code) 00 - 06 (BCD code)		
	0x0422	0x7952	Trip monitor 3 Absolute time (hour, minute)	00 - 23 (BCD code) 00 - 59 (BCD code)		

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
Trip monitor (dE-14)	0x0425	0x7955	Trip monitor 4 Factor	1~255	1
	0x0426	0x7956	Trip monitor 4 Output frequency (High) (with sign)	-59000~59000	0.01Hz
	0x0427	0x7957	(Low)		
	0x0428	0x7958	Trip monitor 4 Output current	0~65535	0.01A
	0x0429	0x7959	Trip monitor 4 P-N DC voltage	0~10000	0.1Vdc
	0x042A	0x795A	Trip monitor 4 Inverter state	0~8	1
	0x042B	0x795B	Trip monitor 4 LAD state	0~5	
	0x042C	0x795C	Trip monitor 4 INV control mode	0~11	
	0x042D	0x795D	Trip monitor 4 Limit state	0~6	
	0x042E	0x795E	Trip monitor 4 Special state		
	0x0430	0x7960	Trip monitor 4 RUN time (High) (Low)	0~1000000	1hr
	0x0431	0x7961			
	0x0432	0x7962	Trip monitor 4 Power ON time (High) (Low)		1
	0x0433	0x7963			
	0x0434	0x7964	Trip monitor 4 Absolute time (year, month)	00 - 99 (BCD code) 01 - 12 (BCD code)	
	0x0435	0x7965	Trip monitor 4 Absolute time (day, day of the week)	01 - 31 (BCD code) 00 - 06 (BCD code)	
	0x0436	0x7966	Trip monitor 4 Absolute time (hour, minute)	00 - 23 (BCD code) 00 - 59 (BCD code)	

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
Trip monitor (dE-15)	0x0439	0x7969	Trip monitor 5 Factor	1~255	1
	0x043A	0x796A	Trip monitor 5 Output frequency (High)	-59000~59000	0.01Hz
	0x043B	0x796B	(with sign) (Low)		
	0x043C	0x796C	Trip monitor 5 Output current	0~65535	0.01A
	0x043D	0x796D	Trip monitor 5 P-N DC voltage	0~10000	0.1Vdc
	0x043E	0x796E	Trip monitor 5 Inverter state	0~8	
	0x043F	0x796F	Trip monitor 5 LAD state	0~5	
	0x0440	0x7970	Trip monitor 5 INV control mode	0~11	
	0x0441	0x7971	Trip monitor 5 Limit state	0~6	
	0x0442	0x7972	Trip monitor 5 Special state		
	0x0444	0x7974	Trip monitor 5 RUN time (High)		
	0x0445	0x7975	(Low)	0~1000000	1hr
	0x0446	0x7976	Trip monitor 5 Power ON time (High)		
	0x0447	0x7977	(Low)		
Trip monitor (dE-16)	0x0448	0x7978	Trip monitor 5 Absolute time (year, month)	00 - 99 (BCD code) 01 - 12 (BCD code)	
	0x0449	0x7979	Trip monitor 5 Absolute time (day, day of the week)	01 - 31 (BCD code) 00 - 06 (BCD code)	
	0x044A	0x797A	Trip monitor 5 Absolute time (hour, minute)	00 - 23 (BCD code) 00 - 59 (BCD code)	

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
Trip monitor (dE-16)	0x044D	0x797D	Trip monitor 6 Factor	1~255	1
	0x044E	0x797E	Trip monitor 6 Output frequency (High)	-59000 ~ 59000	0.01Hz
	0x044F	0x797F	(with sign) (Low)		
	0x0450	0x7980	Trip monitor 6 Output current	0~65535	0.01A
	0x0451	0x7981	Trip monitor 6 P-N DC voltage	0~10000	0.1Vdc
	0x0452	0x7982	Trip monitor 6 Inverter state	0~8	
	0x0453	0x7983	Trip monitor 6 LAD state	0~5	
	0x0454	0x7984	Trip monitor 6 INV control mode	0~11	
	0x0455	0x7985	Trip monitor 6 Limit state	0~6	
	0x0456	0x7986	Trip monitor 6 Special state		
	0x0458	0x7988	Trip monitor 6 RUN time (High)		
	0x0459	0x7989	(Low)	0~1000000	1hr
	0x045A	0x798A	Trip monitor 6 Power ON time (High)		
	0x045B	0x798B	(Low)		
Trip monitor (dE-16)	0x045C	0x798C	Trip monitor 6 Absolute time (year, month)	00 - 99 (BCD code) 01 - 12 (BCD code)	
	0x045D	0x798D	Trip monitor 6 Absolute time (day, day of the week)	01 - 31 (BCD code) 00 - 06 (BCD code)	
	0x045E	0x798E	Trip monitor 6 Absolute time (hour, minute)	00 - 23 (BCD code) 00 - 59 (BCD code)	

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
Trip monitor (dE-17)	0x0461	0x7991	Trip monitor 7 Factor	1~255	1
	0x0462	0x7992	Trip monitor 7 Output frequency (High)	-59000~9000	0.01Hz
	0x0463	0x7993	(with sign) (Low)		
	0x0464	0x7994	Trip monitor 7 Output current	0~65535	0.01A
	0x0465	0x7995	Trip monitor 7 P-N DC voltage	0~10000	0.1Vdc
	0x0466	0x7996	Trip monitor 7 Inverter state	0~8	
	0x0467	0x7997	Trip monitor 7 LAD state	0~5	
	0x0468	0x7998	Trip monitor 7 INV control mode	0~11	
	0x0469	0x7999	Trip monitor 7 Limit state	0~6	
	0x046A	0x799A	Trip monitor 7 Special state		
	0x046C	0x799C	Trip monitor 7 RUN time (High)		
	0x046D	0x799D	(Low)	0~1000000	1hr
	0x046E	0x799E	Trip monitor 7 Power ON time (High)		
	0x046F	0x799F	(Low)		
0x0470	0x79A0		Trip monitor 7 Absolute time (year, month)	00 - 99 (BCD code)	
				01 - 12 (BCD code)	
	0x0471		Trip monitor 7 Absolute time (day, day of the week)	01 - 31 (BCD code)	
				00 - 06 (BCD code)	
	0x0472		Trip monitor 7 Absolute time (hour, minute)	00 - 23 (BCD code)	
				00 - 59 (BCD code)	

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
Trip monitor (dE-18)	0x0475	0x79A5	Trip monitor 8 Factor	1~255	1
	0x0476	0x79A6	Trip monitor 8 Output frequency (High)	-59000~59000	0.01Hz
	0x0477	0x79A7	(with sign) (Low)		
	0x0478	0x79A8	Trip monitor 8 Output current	0~65535	0.01A
	0x0479	0x79A9	Trip monitor 8 P-N DC voltage	0~10000	0.1Vdc
	0x047A	0x79AA	Trip monitor 8 Inverter state	0~8	
	0x047B	0x79AB	Trip monitor 8 LAD state	0~5	
	0x047C	0x79AC	Trip monitor 8 INV control mode	0~11	
	0x047D	0x79AD	Trip monitor 8 Limit state	0~6	
	0x047E	0x79AE	Trip monitor 8 Special state		
	0x0480	0x79B0	Trip monitor 8 RUN time (High)		
	0x0481	0x79B1	(Low)	0~1000000	1hr
	0x0482	0x79B2	Trip monitor 8 Power ON time (High)		
	0x0483	0x79B3	(Low)		
0x0484	0x79B4		Trip monitor 8 Absolute time (year, month)	00 - 99 (BCD code)	
				01 - 12 (BCD code)	
	0x0485		Trip monitor 8 Absolute time (day, day of the week)	01 - 31 (BCD code)	
				00 - 06 (BCD code)	
	0x0486		Trip monitor 8 Absolute time (hour, minute)	00 - 23 (BCD code)	
				00 - 59 (BCD code)	

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
Trip monitor (dE-19)	0x0489	0x79B9	Trip monitor 9 Factor	1~255	1
	0x048A	0x79BA	Trip monitor 9 Output frequency (High)	-59000~9000	0.01Hz
	0x048B	0x79BB	(with sign) (Low)		
	0x048C	0x79BC	Trip monitor 9 Output current	0~65535	0.01A
	0x048D	0x79BD	Trip monitor 9 P-N DC voltage	0~10000	0.1Vdc
	0x048E	0x79BE	Trip monitor 9 Inverter state	0~8	
	0x048F	0x79BF	Trip monitor 9 LAD state	0~5	
	0x0490	0x79C0	Trip monitor 9 INV control mode	0~11	
	0x0491	0x79C1	Trip monitor 9 Limit state	0~6	
	0x0492	0x79C2	Trip monitor 9 Special state		
	0x0494	0x79C4	Trip monitor 9 RUN time (High)		
	0x0495	0x79C5	(Low)	0~1000000	1hr
	0x0496	0x79C6	Trip monitor 9 Power ON time (High)		
	0x0497	0x79C7	(Low)		
0x0498	0x79C8		Trip monitor 9 Absolute time (year, month)	00 - 99 (BCD code)	
				01 - 12 (BCD code)	
0x0499	0x79C9		Trip monitor 9 Absolute time (day, day of the week)	01 - 31 (BCD code)	
				00 - 06 (BCD code)	
	0x79CA		Trip monitor 9 Absolute time (hour, minute)	00 - 23 (BCD code)	
				00 - 59 (BCD code)	

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
Trip monitor (dE-20)	0x049D	0x79CD	Trip monitor 10 Factor	1~255	1
	0x049E	0x79CE	Trip monitor 10 Output frequency (High)	-59000~9000	0.01Hz
	0x049F	0x79CF	(with sign) (Low)		
	0x04A0	0x79D0	Trip monitor 10 Output current	0~65535	0.01A
	0x04A1	0x79D1	Trip monitor 10 P-N DC voltage	0~10000	0.1Vdc
	0x04A2	0x79D2	Trip monitor 10 Inverter state	0~8	
	0x04A3	0x79D3	Trip monitor 10 LAD state	0~5	
	0x04A4	0x79D4	Trip monitor 10 INV control mode	0~11	
	0x04A5	0x79D5	Trip monitor 10 Limit state	0~6	
	0x04A6	0x79D6	Trip monitor 10 Special state		
	0x04A8	0x79D8	Trip monitor 10 RUN time (High)		
	0x04A9	0x79D9	(Low)	0~1000000	1hr
	0x04AA	0x79DA	Trip monitor 10 Power ON time (High)		
	0x04AB	0x79DB	(Low)		
0x04AC	0x79DC		Trip monitor 10 Absolute time (year, month)	00 - 99 (BCD code)	
				01 - 12 (BCD code)	
	0x79DD		Trip monitor 10 Absolute time (day, day of the week)	01 - 31 (BCD code)	
				00 - 06 (BCD code)	
	0x79DE		Trip monitor 10 Absolute time (hour, minute)	00 - 23 (BCD code)	
				00 - 59 (BCD code)	

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
Retry monitor (dE-31)	0x04B1	0x79E1	Retry monitor 1 Factor	1~255	1
	0x04B2	0x79E2	Retry monitor 1 Output frequency (High)	-59000~9000	0.01Hz
	0x04B3	0x79E3	(with sign) (Low)		
	0x04B4	0x79E4	Retry monitor 1 Output current	0~65535	0.01A
	0x04B5	0x79E5	Retry monitor 1 P-N DC voltage	0~10000	0.1Vdc
	0x04B6	0x79E6	Retry monitor 1 Inverter state	0~8	1
	0x04B7	0x79E7	Retry monitor 1 LAD state	0~5	
	0x04B8	0x79E8	Retry monitor 1 INV control mode	0~11	
	0x04B9	0x79E9	Retry monitor 1 Limit state	0~6	
	0x04BA	0x79EA	Retry monitor 1 Special state		
	0x04BC	0x79EC	Retry monitor 1 RUN time (High)	0~1000000	1hr
	0x04BD	0x79ED	(Low)		
	0x04BE	0x79EE	Retry monitor 1 Power ON time (High)	00 - 99 (BCD code)	1
	0x04BF	0x79EF	(Low)	01 - 12 (BCD code)	
	0x04C0	0x79F0	Retry monitor 1 Absolute time (year, month)	01 - 31 (BCD code)	
	0x04C1	0x79F1	Retry monitor 1 Absolute time (day, day of the week)	00 - 06 (BCD code)	
	0x04C2	0x79F2	Retry monitor 1 Absolute time (hour, minute)	00 - 23 (BCD code)	
				00 - 59 (BCD code)	

Func. code	Command code		Function name	Setting items	Data resolution unit	
	Read	Write				
Retry monitor (dE-32)	0x04C5	0x79F5	Retry monitor 2 Factor	1~255	1	
	0x04C6	0x79F6	Retry monitor 2 Output frequency (High)	-59000~59000	0.01Hz	
	0x04C7	0x79F7	(with sign) (Low)			
	0x04C8	0x79F8	Retry monitor 2 Output current	0~65535	0.01A	
	0x04C9	0x79F9	Retry monitor 2 P-N DC voltage	0~10000	0.1Vdc	
	0x04CA	0x79FA	Retry monitor 2 Inverter state	0~8	1	
	0x04CB	0x79FB	Retry monitor 2 LAD state	0~5		
	0x04CC	0x79FC	Retry monitor 2 INV control mode	0~11		
	0x04CD	0x79FD	Retry monitor 2 Limit state	0~6		
	0x04CE	0x79FE	Retry monitor 2 Special state			
	0x04D0	0x7A00	Retry monitor 2 RUN time (High)	0~1000000	1hr	
	0x04D1	0x7A01	(Low)			
	0x04D2	0x7A02	Retry monitor 2 Power ON time (High)	00 - 99 (BCD code)	1	
	0x04D3	0x7A03	(Low)	01 - 12 (BCD code)		
	0x04D4	0x7A04	Retry monitor 2 Absolute time (year, month)	01 - 31 (BCD code)		
	0x04D5	0x7A05	Retry monitor 2 Absolute time (day, day of the week)	00 - 06 (BCD code)		
	0x04D6	0x7A06	Retry monitor 2 Absolute time (hour, minute)	00 - 23 (BCD code)		
				00 - 59 (BCD code)		

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
Retry monitor (dE-33)	0x04D9	0x7A09	Retry monitor 3 Factor	1~255	1
	0x04DA	0x7A0A	Retry monitor 3 Output frequency (High)	-59000~59000	0.01Hz
	0x04DB	0x7A0B	(with sign) (Low)		
	0x04DC	0x7A0C	Retry monitor 3 Output current	0~65535	0.01A
	0x04DD	0x7A0D	Retry monitor 3 P-N DC voltage	0~10000	0.1Vdc
	0x04DE	0x7A0E	Retry monitor 3 Inverter state	0~8	
	0x04DF	0x7A0F	Retry monitor 3 LAD state	0~5	
	0x04E0	0x7A10	Retry monitor 3 INV control mode	0~11	
	0x04E1	0x7A11	Retry monitor 3 Limit state	0~6	
	0x04E2	0x7A12	Retry monitor 3 Special state		
	0x04E4	0x7A14	Retry monitor 3 RUN time (High)		
	0x04E5	0x7A15	(Low)	0~1000000	1hr
	0x04E6	0x7A16	Retry monitor 3 Power ON time (High)		
	0x04E7	0x7A17	(Low)		
0x04E8	0x7A18		Retry monitor 3 Absolute time (year, month)	00 - 99 (BCD code) 01 - 12 (BCD code)	
	0x04E9	0x7A19	Retry monitor 3 Absolute time (day, day of the week)	01 - 31 (BCD code) 00 - 06 (BCD code)	
	0x04EA	0x7A1A	Retry monitor 3 Absolute time (hour, minute)	00 - 23 (BCD code) 00 - 59 (BCD code)	

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
Retry monitor (dE-34)	0x04ED	0x7A1D	Retry monitor 4 Factor	1~255	1
	0x04EE	0x7A1E	Retry monitor 4 Output frequency (High)	-59000~59000	0.01Hz
	0x04EF	0x7A1F	(with sign) (Low)		
	0x04F0	0x7A20	Retry monitor 4 Output current	0~65535	0.01A
	0x04F1	0x7A21	Retry monitor 4 P-N DC voltage	0~10000	0.1Vdc
	0x04F2	0x7A22	Retry monitor 4 Inverter state	0~8	
	0x04F3	0x7A23	Retry monitor 4 LAD state	0~5	
	0x04F4	0x7A24	Retry monitor 4 INV control mode	0~11	
	0x04F5	0x7A25	Retry monitor 4 Limit state	0~6	
	0x04F6	0x7A26	Retry monitor 4 Special state		
	0x04F8	0x7A28	Retry monitor 4 RUN time (High)		
	0x04F9	0x7A29	(Low)	0~1000000	1hr
	0x04FA	0x7A2A	Retry monitor 4 Power ON time (High)		
	0x04FB	0x7A2B	(Low)		
0x04FC	0x7A2C		Retry monitor 4 Absolute time (year, month)	00 - 99 (BCD code) 01 - 12 (BCD code)	
	0x04FD	0x7A2D	Retry monitor 4 Absolute time (day, day of the week)	01 - 31 (BCD code) 00 - 06 (BCD code)	
	0x04FE	0x7A2E	Retry monitor 4 Absolute time (hour, minute)	00 - 23 (BCD code) 00 - 59 (BCD code)	

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
Retry monitor (dE-35)	0x0501	0x7A31	Retry monitor 5 Factor	1~255	1
	0x0502	0x7A32	Retry monitor 5 Output frequency (High)	-59000~59000	0.01Hz
	0x0503	0x7A33	(with sign) (Low)		
	0x0504	0x7A34	Retry monitor 5 Output current	0~65535	0.01A
	0x0505	0x7A35	Retry monitor 5 P-N DC voltage	0~10000	0.1Vdc
	0x0506	0x7A36	Retry monitor 5 Inverter state	0~8	1
	0x0507	0x7A37	Retry monitor 5 LAD state	0~5	
	0x0508	0x7A38	Retry monitor 5 INV control mode	0~11	
	0x0509	0x7A39	Retry monitor 5 Limit state	0~6	
	0x050A	0x7A3A	Retry monitor 5 Special state		
	0x050C	0x7A3C	Retry monitor 5 RUN time (High)	0~1000000	1hr
	0x050D	0x7A3D	(Low)		
	0x050E	0x7A3E	Retry monitor 5 Power ON time (High)	00 - 99 (BCD code)	1
	0x050F	0x7A3F	(Low)	01 - 12 (BCD code)	
	0x0510	0x7A40	Retry monitor 5 Absolute time (year, month)	01 - 31 (BCD code)	
	0x0511	0x7A41	Retry monitor 5 Absolute time (day, day of the week)	00 - 06 (BCD code)	
	0x0512	0x7A42	Retry monitor 5 Absolute time (hour, minute)	00 - 23 (BCD code)	
				00 - 59 (BCD code)	

Func. code	Command code		Function name	Setting items	Data resolution unit	
	Read	Write				
Retry monitor (dE-36)	0x0515	0x7A45	Retry monitor 6 Factor	1~255	1	
	0x0516	0x7A46	Retry monitor 6 Output frequency (High)	-59000~59000	0.01Hz	
	0x0517	0x7A47	(with sign) (Low)			
	0x0518	0x7A48	Retry monitor 6 Output current	0~65535	0.01A	
	0x0519	0x7A49	Retry monitor 6 P-N DC voltage	0~10000	0.1Vdc	
	0x051A	0x7A4A	Retry monitor 6 Inverter state	0~8	1	
	0x051B	0x7A4B	Retry monitor 6 LAD state	0~5		
	0x051C	0x7A4C	Retry monitor 6 INV control mode	0~11		
	0x051D	0x7A4D	Retry monitor 6 Limit state	0~6		
	0x051E	0x7A4E	Retry monitor 6 Special state			
	0x0520	0x7A50	Retry monitor 6 RUN time (High)	0~1000000	1hr	
	0x0521	0x7A51	(Low)			
	0x0522	0x7A52	Retry monitor 6 Power ON time (High)	00 - 99 (BCD code)	1	
	0x0523	0x7A53	(Low)	01 - 12 (BCD code)		
	0x0524	0x7A54	Retry monitor 6 Absolute time (year, month)	01 - 31 (BCD code)		
	0x0525	0x7A55	Retry monitor 6 Absolute time (day, day of the week)	00 - 06 (BCD code)		
	0x0526	0x7A56	Retry monitor 6 Absolute time (hour, minute)	00 - 23 (BCD code)		
				00 - 59 (BCD code)		

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
Retry monitor (dE-37)	0x0529	0x7A59	Retry monitor 7 Factor	1~255	1
	0x052A	0x7A5A	Retry monitor 7 Output frequency (High)	-59000~59000	0.01Hz
	0x052B	0x7A5B	(with sign) (Low)		
	0x052C	0x7A5C	Retry monitor 7 Output current	0~65535	0.01A
	0x052D	0x7A5D	Retry monitor 7 P-N DC voltage	0~10000	0.1Vdc
	0x052E	0x7A5E	Retry monitor 7 Inverter state	0~8	1
	0x052F	0x7A5F	Retry monitor 7 LAD state	0~5	
	0x0530	0x7A60	Retry monitor 7 INV control mode	0~11	
	0x0531	0x7A61	Retry monitor 7 Limit state	0~6	
	0x0532	0x7A62	Retry monitor 7 Special state		
	0x0534	0x7A64	Retry monitor 7 RUN time (High)	0~1000000	1hr
	0x0535	0x7A65	(Low)		
	0x0536	0x7A66	Retry monitor 7 Power ON time (High)	00 - 99 (BCD code)	1
	0x0537	0x7A67	(Low)		
	0x0538	0x7A68	Retry monitor 7 Absolute time (year, month)	01 - 12 (BCD code)	
	0x0539	0x7A69	Retry monitor 7 Absolute time (day, day of the week)	01 - 31 (BCD code)	
	0x053A	0x7A6A	Retry monitor 7 Absolute time (hour, minute)	00 - 06 (BCD code)	
				00 - 23 (BCD code)	
				00 - 59 (BCD code)	

Func. code	Command code		Function name	Setting items	Data resolution unit		
	Read	Write					
Retry monitor (dE-38)	0x053D	0x7A6D	Retry monitor 8 Factor	1~255	1		
	0x053E	0x7A6E	Retry monitor 8 Output frequency (High)	-59000~59000	0.01Hz		
	0x053F	0x7A6F	(with sign) (Low)				
	0x0540	0x7A70	Retry monitor 8 Output current	0~65535	0.01A		
	0x0541	0x7A71	Retry monitor 8 P-N DC voltage	0~10000	0.1Vdc		
	0x0542	0x7A72	Retry monitor 8 Inverter state	0~8	1		
	0x0543	0x7A73	Retry monitor 8 LAD state	0~5			
	0x0544	0x7A74	Retry monitor 8 INV control mode	0~11			
	0x0545	0x7A75	Retry monitor 8 Limit state	0~6			
	0x0546	0x7A76	Retry monitor 8 Special state				
	0x0548	0x7A78	Retry monitor 8 RUN time (High)	0~1000000	1hr		
	0x0549	0x7A79	(Low)				
	0x054A	0x7A7A	Retry monitor 8 Power ON time (High)				
	0x054B	0x7A7B	(Low)				
	0x054C	0x7A7C	Retry monitor 8 Absolute time (year, month)	00 - 99 (BCD code)	1		
	0x054D	0x7A7D	Retry monitor 8 Absolute time (day, day of the week)	01 - 12 (BCD code)			
	0x054E	0x7A7E	Retry monitor 8 Absolute time (hour, minute)	01 - 31 (BCD code)			
				00 - 06 (BCD code)			
				00 - 23 (BCD code)			
				00 - 59 (BCD code)			

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
Retry monitor (dE-39)	0x0551	0x7A81	Retry monitor 9 Factor	1~255	1
	0x0552	0x7A82	Retry monitor 9 Output frequency (High)	-59000~59000	0.01Hz
	0x0553	0x7A83	(with sign) (Low)		
	0x0554	0x7A84	Retry monitor 9 Output current	0~65535	0.01A
	0x0555	0x7A85	Retry monitor 9 P-N DC voltage	0~10000	0.1Vdc
	0x0556	0x7A86	Retry monitor 9 Inverter state	0~8	1
	0x0557	0x7A87	Retry monitor 9 LAD state	0~5	
	0x0558	0x7A88	Retry monitor 9 INV control mode	0~11	
	0x0559	0x7A89	Retry monitor 9 Limit state	0~6	
	0x055A	0x7A8A	Retry monitor 9 Special state		
	0x055C	0x7A8C	Retry monitor 9 RUN time (High)	0~1000000	1hr
	0x055D	0x7A8D	(Low)		
	0x055E	0x7A8E	Retry monitor 9 Power ON time (High)	00 - 99 (BCD code)	1
	0x055F	0x7A8F	(Low)	01 - 12 (BCD code)	
	0x0560	0x7A90	Retry monitor 9 Absolute time (year, month)	01 - 31 (BCD code)	
	0x0561	0x7A91	Retry monitor 9 Absolute time (day, day of the week)	00 - 06 (BCD code)	
	0x0562	0x7A92	Retry monitor 9 Absolute time (hour, minute)	00 - 23 (BCD code)	
				00 - 59 (BCD code)	

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
Retry monitor (dE-40)	0x0565	0x7A95	Retry monitor 10 Factor	1~255	1
	0x0566	0x7A96	Retry monitor 10 Output frequency (High)	-59000~59000	0.01Hz
	0x0567	0x7A97	(with sign) (Low)		
	0x0568	0x7A98	Retry monitor 10 Output current	0~65535	0.01A
	0x0569	0x7A99	Retry monitor 10 P-N DC voltage	0~10000	0.1Vdc
	0x056A	0x7AA0	Retry monitor 10 Inverter state	0~8	1
	0x056B	0x7AA1	Retry monitor 10 LAD state	0~5	
	0x056C	0x7AA2	Retry monitor 10 INV control mode	0~11	
	0x056D	0x7AA3	Retry monitor 10 Limit state	0~6	
	0x056E	0x7AA4	Retry monitor 10 Special state		
	0x0570	0x7AA5	Retry monitor 10 RUN time (High)	0~1000000	1hr
	0x0571	0x7AA6	(Low)		
	0x0572	0x7AA7	Retry monitor 10 Power ON time (High)	00 - 99 (BCD code)	1
	0x0573	0x7AA8	(Low)	01 - 12 (BCD code)	
	0x0574	0x7AA9	Retry monitor 10 Absolute time (year, month)	01 - 31 (BCD code)	
	0x0575	0x7AA0	(day, day of the week)	00 - 06 (BCD code)	
	0x0576	0x7AA1	Retry monitor 10 Absolute time (hour, minute)	00 - 23 (BCD code)	
	dE-50	0x05DC	Warning monitor	0~65535	

12.2.2 Code-F

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
FA-01	0x2AF9	0xA029	Main speed command (monitor + setting)	0~59000	0.01Hz
(FA-03)	0x2AFA	0xA02A	Auxiliary speed command (monitor + setting)	-59000 to +59000 (monitor)	
(FA-03)	0x2AFB	0xA02B		0 to 59000 (setting)	
FA-10	0x2B02	0xA032	Acceleration time (monitor + setting)	(High)	
(FA-11)	0x2B03	0xA033		(Low)	
FA-12	0x2B04	0xA034	Deceleration time (monitor + setting)	(High)	
(FA-13)	0x2B05	0xA035		(Low)	
FA-15	0x2B07	0xA037	Torque command monitor (monitor + setting)	0~360000	0.01s
FA-16	0x2B08	0xA038	Torque bias monitor (monitor + setting)		
FA-20	0x2B0C	0xA03C	Position command monitor (monitor + setting)	-268435455~268435455 In high resolution mode: -1073741823~1073741823	1
(FA-21)	0x2B0D	0xA03D			
FA-30	0x2B16	0xA046	PID1 target value 1 (monitor + setting)	(High)	
(FA-31)	0x2B17	0xA047		(Low)	
FA-32	0x2B18	0xA048	PID1 target value 2 (monitor + setting)	(High)	
(FA-33)	0x2B19	0xA049		(Low)	
FA-34	0x2B1A	0xA04A	PID1 target value 3 (monitor + setting)	(High)	
(FA-35)	0x2B1B	0xA04B		(Low)	
FA-36	0x2B1C	0xA04C	PID2 target value (monitor + setting)	(High)	Per AH-06 setting
(FA-37)	0x2B1D	0xA04D		(Low)	
FA-38	0x2B1E	0xA04E	PID3 target value (monitor + setting)	(High)	
(FA-39)	0x2B1F	0xA04F		(Low)	
FA-40	0x2B20	0xA050	PID4 target value (monitor + setting)	(High)	Per AJ-06 setting
(FA-41)	0x2B21	0xA051		(Low)	

12.2.3 Code-A

Func. code	Command code		Function name	Setting items	Data resolution unit	
	Read	Write				
AA101	0x2EE1	0xA411	First main speed command selection	1~16	1	
AA102	0x2EE2	0xA412	First auxiliary speed command selection	0~16		
AA104	0x2EE4	0xA414	First auxiliary speed setting	0~59000		
AA105	0x2EE5	0xA415	First operator selection	0~3		
AA106	0x2EE6	0xA416	First additional frequency setting (High)	-59000~59000	0.01Hz	
(AA107)	0x2EE7	0xA417	(SET-POINT) (Low)			
AA111	0x2EEB	0xA41B	First operation command selection	0~6		
AA112	0x2EEC	0xA41C	RUN key direction selection	0~1		
AA113	0x2EED	0xA41D	STOP key selection	0~2		
AA114	0x2EEE	0xA41E	First operation direction limit selection			
AA115	0x2EEF	0xA41F	First stop mode selection	0~1	1	
AA121	0x2EF5	0xA425	First control mode	0~12		
AA123	0x2EF7	0xA427	First vector control mode selection	0~3		
AA201	0x55F1	0xCB21	Second main speed command selection	1~16		
AA202	0x55F2	0xCB22	Second auxiliary speed command selection	0~16		
AA204	0x55F4	0xCB24	Second auxiliary speed setting	0~59000	0.01Hz	
AA205	0x55F5	0xCB25	Second operator selection	0~3		
AA206	0x55F6	0xCB26	Second additional frequency setting (High)	-59000~59000		
(AA207)	0x55F7	0xCB27	(SET-POINT) (Low)			
AA211	0x55FB	0xCB2B	Second operation command selection	0~6	1	
AA214	0x55FE	0xCB2E	Second operation direction limit selection	0~2		
AA215	0x55FF	0xCB2F	Second stop mode selection	0~1		
AA221	0x5605	0xCB35	Second control mode	0~11		
AA223	0x5607	0xCB37	Second vector control mode selection	0~3		
Ab-01	0x2F45	0xA475	Frequency conversion coefficient	1~10000		

Func. code	Command code		Function name	Setting items	Data resolution unit		
	Read	Write					
Ab-03	0x2F47	0xA477	Multi-step speed selection	0~1	1		
Ab110	0x2F4E	0xA47E	0th speed of the 1st multi-step speed				
Ab-11	0x2F4F	0xA47F	1st speed of the multi-step speed				
Ab-12	0x2F50	0xA480	2nd speed of the multi-step speed				
Ab-13	0x2F51	0xA481	3rd speed of the multi-step speed				
Ab-14	0x2F52	0xA482	4th speed of the multi-step speed				
Ab-15	0x2F53	0xA483	5th speed of the multi-step speed				
Ab-16	0x2F54	0xA484	6th speed of the multi-step speed				
Ab-17	0x2F55	0xA485	7th speed of the multi-step speed				
Ab-18	0x2F56	0xA486	8th speed of the multi-step speed	0~59000	0.01Hz		
Ab-19	0x2F57	0xA487	9th speed of the multi-step speed				
Ab-20	0x2F58	0xA488	10th speed of the multi-step speed				
Ab-21	0x2F59	0xA489	11th speed of the multi-step speed				
Ab-22	0x2F5A	0xA48A	12th speed of the multi-step speed				
Ab-23	0x2F5B	0xA48B	13th speed of the multi-step speed				
Ab-24	0x2F5C	0xA48C	14th speed of the multi-step speed				
Ab-25	0x2F5D	0xA48D	15th speed of the multi-step speed				
Ab210	0x565E	0xCB8E	0th speed of the 2nd multi-step speed				
AC-01	0x2FA9	0xA4D9	Acceleration or deceleration time input type selection	0~4	1		
AC-02	0x2FAA	0xA4DA	Multi-stage acceleration or deceleration selection	0~1			
AC-03	0x2FAB	0xA4DB	Acceleration pattern selection	0~4			
AC-04	0x2FAC	0xA4DC	Deceleration pattern selection				
AC-05	0x2FAD	0xA4DD	Acceleration curve constant (S, U, reverse U)	1~10			
AC-06	0x2FAE	0xA4DE	Deceleration curve constant (S, U, reverse U)				
AC-08	0x2FB0	0xA4E0	Curvature 1 for EL-S-shaped acceleration	0~100	1%		
AC-09	0x2FB1	0xA4E1	Curvature 2 for EL-S-shaped acceleration				
AC-10	0x2FB2	0xA4E2	Curvature 1 for EL-S-shaped deceleration				
AC-11	0x2FB3	0xA4E3	Curvature 2 for EL-S-shaped deceleration				
AC115	0x2FB7	0xA4E7	First 2-stage acceleration or deceleration selection	0 ~2	1		
AC116	0x2FB8	0xA4E8	First 2-stage acceleration frequency	0~59000	0.01Hz		
AC117	0x2FB9	0xA4E9	First 2-stage deceleration frequency				
AC120	0x2FBC	0xA4EC	First acceleration time 1 (High) (Low)	0~360000	0.01s		
(AC121)	0x2FBD	0xA4ED					
AC122	0x2FBE	0xA4EE	First deceleration time 1 (High) (Low)				
(AC123)	0x2FBF	0xA4EF					
AC124	0x2FC0	0xA4F0	First acceleration time 2 (High) (Low)				
(AC125)	0x2FC1	0xA4F1					
AC126	0x2FC2	0xA4F2	First deceleration time 2 (High) (High)				
(AC127)	0x2FC3	0xA4F3					
AC-30	0x2FC6	0xA4F6	Acceleration time for multi-speed 1st speed (High) (Low)				
(AC-31)	0x2FC7	0xA4F7					
AC-32	0x2FC8	0xA4F8	Deceleration time for multi-speed 1st speed (High) (Low)				
(AC-33)	0x2FC9	0xA4F9					
AC-34	0x2FCA	0xA4FA	Acceleration time for multi-speed 2nd speed (High) (Low)				
(AC-35)	0x2FCB	0xA4FB					
AC-36	0x2FCC	0xA4FC	Deceleration time for multi-speed 2nd speed (High) (Low)				
(AC-37)	0x2FCD	0xA4FD					
AC-38	0x2FCE	0xA4FE	Acceleration time for multi-speed 3rd speed (High) (Low)				
(AC-39)	0x2FCF	0xA4FF					
AC-40	0x2FD0	0xA500	Deceleration time for multi-speed 3rd speed (High) (Low)				
(AC-41)	0x2FD1	0xA501					
AC-42	0x2FD2	0xA502	Acceleration time for multi-speed 4th speed (High) (Low)				
(AC-43)	0x2FD3	0xA503					
AC-44	0x2FD4	0xA504	Deceleration time for multi-speed 4th speed (High) (Low)				
(AC-45)	0x2FD5	0xA505					
AC-46	0x2FD6	0xA506	Acceleration time for multi-speed 5th speed (High) (Low)				
(AC-47)	0x2FD7	0xA507					
AC-48	0x2FD8	0xA508	Deceleration time for multi-speed 5th speed (High) (Low)				
(AC-49)	0x2FD9	0xA509					

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
AC-50 (AC-51)	0x2FDA 0x2FDB	0xA50A 0xA50B	Acceleration time for multi-speed 6th speed	(High) (Low)	0~360000
AC-52 (AC-53)	0x2FDC 0x2FDD	0xA50C 0xA50D	Deceleration time for multi-speed 6th speed	(High) (Low)	
AC-54 (AC-55)	0x2FDE 0x2FDF	0xA50E 0xA50F	Acceleration time for multi-speed 7th speed	(High) (Low)	
AC-56 (AC-57)	0x2FE0 0x2FE1	0xA510 0xA511	Deceleration time for multi-speed 7th speed	(High) (Low)	
AC-58 (AC-59)	0x2FE2 0x2FE3	0xA512 0xA513	Acceleration time for multi-speed 8th speed	(High) (Low)	
AC-60 (AC-61)	0x2FE4 0x2FE5	0xA514 0xA515	Deceleration time for multi-speed 8th speed	(High) (Low)	
AC-62 (AC-63)	0x2FE6 0x2FE7	0xA516 0xA517	Acceleration time for multi-speed 9th speed	(High) (Low)	
AC-64 (AC-65)	0x2FE8 0x2FE9	0xA518 0xA519	Deceleration time for multi-speed 9th speed	(High) (Low)	
AC-66 (AC-67)	0x2FEA 0x2FEB	0xA51A 0xA51B	Acceleration time for multi-speed 10th speed	(High) (Low)	
AC-68 (AC-69)	0x2FEC 0x2FED	0xA51C 0xA51D	Deceleration time for multi-speed 10th speed	(High) (Low)	
AC-70 (AC-71)	0x2FEE 0x2FEEF	0xA51E 0xA51F	Acceleration time for multi-speed 11th speed	(High) (Low)	
AC-72 (AC-73)	0x2FF0 0x2FF1	0xA520 0xA521	Deceleration time for multi-speed 11th speed	(High) (Low)	
AC-74 (AC-75)	0x2FF2 0x2FF3	0xA522 0xA523	Acceleration time for multi-speed 12th speed	(High) (Low)	
AC-76 (AC-77)	0x2FF4 0x2FF5	0xA524 0xA525	Deceleration time for multi-speed 12th speed	(High) (Low)	
AC-78 (AC-79)	0x2FF6 0x2FF7	0xA526 0xA527	Acceleration time for multi-speed 13th speed	(High) (Low)	0~59000
AC-80 (AC-81)	0x2FF8 0x2FF9	0xA528 0xA529	Deceleration time for multi-speed 13th speed	(High) (Low)	
AC-82 (AC-83)	0x2FFA 0x2FFB	0xA52A 0xA52B	Acceleration time for multi-speed 14th speed	(High) (Low)	
AC-84 (AC-85)	0x2FFC 0x2FFD	0xA52C 0xA52D	Deceleration time for multi-speed 14th speed	(High) (Low)	
AC-86 (AC-87)	0x2FFE 0x2FFF	0xA52E 0xA52F	Acceleration time for multi-speed 15th speed	(High) (Low)	
AC-88 (AC-89)	0x3000 0x3001	0xA530 0xA531	Deceleration time for multi-speed 15th speed	(High) (Low)	
AC215	0x56C7	0xCB7	Second 2-stage acceleration or deceleration selection	0~2	1
AC216	0x56C8	0xCB8	Second 2-stage acceleration frequency	0~59000	0.01Hz
AC217	0x56C9	0xCB9	Second 2-stage deceleration frequency		
AC220 (AC221)	0x56CC 0x56CD	0xCBFC 0xCBFD	Second acceleration time 1	(High) (Low)	0~360000
AC222 (AC223)	0x56CE 0x56CF	0xCBFE 0xCBFF	Second deceleration time 1	(High) (Low)	
AC224 (AC225)	0x56D0 0x56D1	0xCC00 0xCC01	Second acceleration time 2	(High) (Low)	
AC226 (AC227)	0x56D2 0x56D3	0xCC02 0xCC03	Second deceleration time 2	(High) (Low)	
Ad-01	0x300D	0xA53D	Torque command input selection	1~15	1
Ad-02	0x300E	0xA53E	Torque command setting	-5000~5000	0.10%
Ad-03	0x300F	0xA53F	Torque command polarity selection	0~1	1
Ad-04	0x3010	0xA540	Speed/torque control switch time	0~1000	1ms
Ad-11	0x3017	0xA547	Torque bias input selection	0~15	1
Ad-12	0x3018	0xA548	Torque bias setting	-5000~5000	0.10%
Ad-13	0x3019	0xA549	Torque bias polarity selection	0~1	1
Ad-14	0x301A	0xA54A	Enable torque bias terminal [TBS] selection		

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
Ad-40	0x3034	0xA564	Torque control speed limit value input selection	1~13	1
Ad-41	0x3035	0xA565	Torque control speed limit value (for normal rotation)	0~59000	0.01Hz
Ad-42	0x3036	0xA566	Torque control speed limit value (for reverse rotation)		
AE-01	0x3071	0xA5A1	Electronic gear installation position selection	0~1	
AE-02	0x3072	0xA5A2	Electronic gear ratio's numerator	1~10000	1
AE-03	0x3073	0xA5A3	Electronic gear ratio's denominator		
AE-04	0x3074	0xA5A4	Positioning completion range setting	0~10000	1pls
AE-05	0x3075	0xA5A5	Positioning completion delay time setting	0~1000	0.01s
AE-06	0x3076	0xA5A6	Position control feed forward	0~65535	0.01
AE-07	0x3077	0xA5A7	Position loop gain	0~10000	
AE-08	0x3078	0xA5A8	Position bias setting	-2048~2048	1pls
AE-10	0x307A	0xA5AA	Orientation stop position input destination selection	0~3	1
AE-11	0x307B	0xA5AB	Orientation stop position input destination selection	0~4095	
AE-12	0x307C	0xA5AC	Orientation speed setting	0~12000	0.01Hz
AE-13	0x307D	0xA5AD	Orientation direction setting	0~1	1
AE-20	0x3084	0xA5B4	Position command 0	(High) (Low)	-268435455~ 268435455 In high resolution mode: -1073741823~ 1073741823 1pls
(AE-21)	0x3085	0xA5B5	Position command 1	(High) (Low)	
AE-22	0x3086	0xA5B6	Position command 2	(High) (Low)	
(AE-23)	0x3087	0xA5B7	Position command 3	(High) (Low)	
AE-24	0x3088	0xA5B8	Position command 4	(High) (Low)	
(AE-25)	0x3089	0xA5B9	Position command 5	(High) (Low)	
AE-26	0x308A	0xA5BA	Position command 6	(High) (Low)	
(AE-27)	0x308B	0xA5BB	Position command 7	(High) (Low)	
AE-28	0x308C	0xA5BC	Position command 8	(High) (Low)	
(AE-29)	0x308D	0xA5BD	Position command 9	(High) (Low)	
AE-30	0x308E	0xA5BE	Position command 10	(High) (Low)	
(AE-31)	0x308F	0xA5BF	Position command 11	(High) (Low)	
AE-32	0x3090	0xA5C0	Position command 12	(High) (Low)	
(AE-33)	0x3091	0xA5C1	Position command 13	(High) (Low)	
AE-34	0x3092	0xA5C2	Position command 14	(High) (Low)	
(AE-35)	0x3093	0xA5C3	Position command 15	(High) (Low)	
AE-36	0x3094	0xA5C4	Position range designation (forward rotation side)	(High) (Low)	0~268435455 In high resolution mode: 0~1073741823
(AE-37)	0x3095	0xA5C5	Position range designation (reverse rotation side)	(High) (Low)	
AE-38	0x3096	0xA5C6	Positioning mode selection	0~1	1
(AE-39)	0x3097	0xA5C7	Teaching selection	0~15	
AE-40	0x3098	0xA5C8	Memorization of current position at power-off	0 ~ 1	
(AE-41)	0x3099	0xA5C9			
AE-42	0x309A	0xA5CA			
(AE-43)	0x309B	0xA5CB			
AE-44	0x309C	0xA5CC			
(AE-45)	0x309D	0xA5CD			
AE-46	0x309E	0xA5CE			
(AE-47)	0x309F	0xA5CF			
AE-48	0x30A0	0xA5D0			
(AE-49)	0x30A1	0xA5D1			
AE-50	0x30A2	0xA5D2			
(AE-51)	0x30A3	0xA5D3			
AE-52	0x30A4	0xA5D4			
(AE-53)	0x30A5	0xA5D5			
AE-54	0x30A6	0xA5D6			-268435455~0 In high resolution mode: -1073741823~0
(AE-55)	0x30A7	0xA5D7			
AE-56	0x30A8	0xA5D8			
AE-60	0x30AC	0xA5DC			
AE-61	0x30AD	0xA5DD			

Func. code	Command code		Function name	Setting items	Data resolution unit	
	Read	Write				
AE-62	0x30AE	0xA5DE	Preset position data (High) (Low)	-268435455~ 268435455 In high resolution mode: -1073741823~ 1073741823	1pls	
(AE-63)	0x30AF	0xA5DF				
AE-64	0x30B0	0xA5E0	Gain for calculating the deceleration stop distance	5000~20000	0.01%	
AE-65	0x30B1	0xA5E1	Bias for calculating the deceleration stop distance	0~65535		
AE-66	0x30B2	0xA5E2	APR control speed limit	0~10000	1	
AE-67	0x30B3	0xA5E3	APR start speed			
AE-70	0x30B6	0xA5E6	Zero return mode selection	0~2	0.01Hz	
AE-71	0x30B7	0xA5E7	Zero return direction selection	0~1		
AE-72	0x30B8	0xA5E8	Low speed zero return speed	0~1000	0.01s	
AE-73	0x30B9	0xA5E9	High speed zero return speed	0~59000		
AF101	0x30D5	0xA605	First DC braking selection	0~2	1	
AF102	0x30D6	0xA606	First braking mode selection			
AF103	0x30D7	0xA607	First DC braking frequency	0~59000	0.01Hz	
AF104	0x30D8	0xA608	First DC braking delay time	0~500	0.01s	
AF105	0x30D9	0xA609	First DC braking force at the time of the stop	0~100	1%	
AF106	0x30DA	0xA60A	First DC braking time at the time of the stop	0~6000	0.01s	
AF107	0x30DB	0xA60B	First DC braking trigger selection	0~1	1	
AF108	0x30DC	0xA60C	First DC braking force at the start	0~100	1%	
AF109	0x30DD	0xA60D	First DC braking time at the start	0~6000	0.01s	
AF120	0x30E8	0xA618	First contactor control selection	0~2	1	
AF121	0x30E9	0xA619	First start waiting time	0~200	0.01s	
AF122	0x30EA	0xA61A	First contactor release delay time			
AF123	0x30Eb	0xA61B	First contactor check time	0~500		
AF130	0x30F2	0xA622	First brake control selection	0~3	1	
AF131	0x30F3	0xA623	First brake release establishment waiting time (normal rotation side)	0~500	0.01s	
AF132	0x30F4	0xA624	First acceleration waiting time (normal rotation side)			
AF133	0x30F5	0xA625	First stop waiting time (normal rotation side)			
AF134	0x30F6	0xA626	First brake confirmation waiting time (normal rotation side)			
AF135	0x30F7	0xA627	First brake release frequency (normal rotation side)	0~59000	0.01Hz	
AF136	0x30F8	0xA628	First brake release current (normal rotation side)	(0 to 2.00) x Inverter rated current	0.1A	
AF137	0x30F9	0xA629	First brake apply frequency (normal rotation side)			
AF138	0x30FA	0xA62A	First brake release establishment waiting time (reverse rotation side)	0~500	0.01s	
AF139	0x30FB	0xA62B	First acceleration waiting time (reverse rotation side)			
AF140	0x30FC	0xA62C	First stop waiting time (reverse rotation side)			
AF141	0x30FD	0xA62D	First brake confirmation waiting time (reverse rotation side)			
AF142	0x30FE	0xA62E	First brake release frequency (reverse rotation side)	0~59000	0.01Hz	
AF143	0x30FF	0xA62F	First brake release current (reverse rotation side)	(0 to 2.00) x Inverter rated current	0.1A	
AF144	0x3100	0xA630	First brake apply frequency (reverse rotation side)			
AF150	0x3106	0xA636	First brake release delay time	0~200	0.01s	
AF151	0x3107	0xA637	First brake apply delay time			
AF152	0x3108	0xA638	First brake check time	0~500		
AF153	0x3109	0xA639	First servo lock time at start	0~1000		
AF154	0x310A	0xA63A	First servo lock time at the time of the stop			
AF201	0x57E5	0xCD15	Second DC braking selection	0~2	1	
AF202	0x57E6	0xCD16	Second braking mode selection			
AF203	0x57E7	0xCD17	Second DC braking frequency	0~59000	0.01Hz	
AF204	0x57E8	0xCD18	Second DC braking delay time	0~500	0.01s	
AF205	0x57E9	0xCD19	Second DC braking force at the time of the stop	0~100	1%	
AF206	0x57EA	0xCD1A	Second DC braking time at the time of the stop	0~6000	0.01s	
AF207	0x57EB	0xCD1B	Second DC braking trigger selection	0~1	1	
AF208	0x57EC	0xCD1C	Second DC braking force at the start	0~100	1%	

Func. code	Command code		Function name	Setting items	Data resolution unit	
	Read	Write				
AF209	0x57Ed	0xCD1D	Second DC braking time at the start	0~6000	0.01s	
AF220	0x57F8	0xCD28	Second contactor control selection	0~2	1	
AF221	0x57F9	0xCD29	Second start waiting time	0~200	0.01s	
AF222	0x57FA	0xCD2A	Second contactor release delay time			
AF223	0x57FB	0xCD2B	Second contactor check time	0~500	0.01s	
AF230	0x5802	0xCD32	Second brake control selection	0~3		
AF231	0x5803	0xCD33	Second brake release establishment waiting time (normal rotation side)	0~500	0.01s	
AF232	0x5804	0xCD34	Second acceleration waiting time (normal rotation side)			
AF233	0x5805	0xCD35	Second stop waiting time (normal rotation side)	0~500	0.01s	
AF234	0x5806	0xCD36	Second brake confirmation waiting time (normal rotation side)			
AF235	0x5807	0xCD37	Second brake release frequency (normal rotation side)	0~59000	0.01Hz	
AF236	0x5808	0xCD38	Second brake release current (normal rotation side)	(0 to 2.00) x Inverter rated current	0.1A	
AF237	0x5809	0xCD39	Second brake apply frequency (normal rotation side)	0~59000	0.01Hz	
AF238	0x580A	0xCD3A	Second brake release establishment waiting time (reverse rotation side)	0~500	0.01s	
AF239	0x580B	0xCD3B	Second acceleration waiting time (normal rotation side)			
AF240	0x580C	0xCD3C	Second stop waiting time (reverse rotation side)	0~500	0.01s	
AF241	0x580D	0xCD3D	Second brake confirmation waiting time (reverse rotation side)			
AF242	0x580E	0xCD3E	Second brake release frequency (reverse rotation side)	0~59000	0.01Hz	
AF243	0x580F	0xCD3F	Second brake release current (reverse rotation side)	(0 to 2.00) x Inverter rated current	0.1A	
AF244	0x5810	0xCD40	Second brake apply frequency (reverse rotation side)	0~59000	0.01Hz	
AF250	0x5816	0xCD46	Second brake release delay time	0~200	0.01s	
AF251	0x5817	0xCD47	Second brake apply delay time			
AF252	0x5818	0xCD48	Second brake check time	0~500	0.01s	
AF253	0x5819	0xCD49	Second servo lock time at start	0~1000		
AF254	0x581A	0xCD4A	Second servo lock time at the time of the stop			
AG101	0x3139	0xA669	First jump frequency 1	0~59000	0.01Hz	
AG102	0x313A	0xA66A	First jump frequency range 1	0~1000		
AG103	0x313B	0xA66B	First jump frequency 2	0~59000		
AG104	0x313C	0xA66C	First jump frequency range 2	0~1000		
AG105	0x313D	0xA66D	First jump frequency 3	0~59000		
AG106	0x313E	0xA66E	First jump frequency range 3	0~1000		
AG110	0x3142	0xA672	First acceleration-hold frequency	0~59000		
AG111	0x3143	0xA673	First acceleration-hold time	0~600	0.1s	
AG112	0x3144	0xA674	First deceleration-hold frequency	0~59000	0.01Hz	
AG113	0x3145	0xA675	First deceleration-hold time	0~600	0.1s	
AG-20	0x314C	0xA67C	Jogging frequency	0~1000	0.01Hz	
AG-21	0x314D	0xA67D	Jogging stop selection	0~5	1	
AG201	0x5849	0xCD79	Second jump frequency 1	0~59000	0.01Hz	
AG202	0x584A	0xCD7A	Second jump frequency range 1	0~1000		
AG203	0x584B	0xCD7B	Second jump frequency 2	0~59000		
AG204	0x584C	0xCD7C	Second jump frequency range 2	0~1000		
AG205	0x584D	0xCD7D	Second jump frequency 3	0~59000		
AG206	0x584E	0xCD7E	Second jump frequency range 3	0~1000		
AG210	0x5852	0xCD82	Second acceleration-hold frequency	0~59000		
AG211	0x5853	0xCD83	Second acceleration-hold time	0~600	0.1s	
AG212	0x5854	0xCD84	Second deceleration-hold frequency	0~59000	0.01Hz	
AG213	0x5855	0xCD85	Second deceleration-hold time	0~600	0.1s	
AH-01	0x319D	0xA6CD	PID1 selection	0~2	1	
AH-02	0x319E	0xA6CE	PID1 deviation minus	0~1		
AH-03	0x319F	0xA6CF	PID1 unit selection (PID1)	0~58		
AH-04	0x31A0	0xA6D0	PID1 scale adjustment (0%)	-10000~10000		
AH-05	0x31A1	0xA6D1	PID1 scale adjustment (100%)			
AH-06	0x31A2	0xA6D2	PID1 scale adjustment (decimal point)	0~4		

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
AH-07	0x31A3	0xA6D3	PID1 target value 1 input destination selection	0~13	1
AH-10	0x31A6	0xA6D6	PID1 target value 1 set value (High)		
(AH-11)	0x31A7	0xA6D7	PID1 target value 1 set value (Low)		
AH-12	0x31A8	0xA6D8	PID1 multistage target value 1 (High)		
(AH-13)	0x31A9	0xA6D9	PID1 multistage target value 1 (Low)		
AH-14	0x31AA	0xA6DA	PID1 multistage target value 2 (High)		
(AH-15)	0x31AB	0xA6DB	PID1 multistage target value 2 (Low)		
AH-16	0x31AC	0xA6DC	PID1 multistage target value 3 (High)		
(AH-17)	0x31AD	0xA6DD	PID1 multistage target value 3 (Low)		
AH-18	0x31AE	0xA6DE	PID1 multistage target value 4 (High)		
(AH-19)	0x31AF	0xA6DF	PID1 multistage target value 4 (Low)		
AH-20	0x31B0	0xA6E0	PID1 multistage target value 5 (High)		
(AH-21)	0x31B1	0xA6E1	PID1 multistage target value 5 (Low)		
AH-22	0x31B2	0xA6E2	PID1 multistage target value 6 (High)		
(AH-23)	0x31B3	0xA6E3	PID1 multistage target value 6 (Low)		
AH-24	0x31B4	0xA6E4	PID1 multistage target value 7 (High)		
(AH-25)	0x31B5	0xA6E5	PID1 multistage target value 7 (Low)		
AH-26	0x31B6	0xA6E6	PID1 multistage target value 8 (High)		
(AH-27)	0x31B7	0xA6E7	PID1 multistage target value 8 (Low)		
AH-28	0x31B8	0xA6E8	PID1 multistage target value 9 (High)		
(AH-29)	0x31B9	0xA6E9	PID1 multistage target value 9 (Low)		
AH-30	0x31BA	0xA6EA	PID1 multistage target value 10 (High)		
(AH-31)	0x31BB	0xA6EB	PID1 multistage target value 10 (Low)		
AH-32	0x31BC	0xA6EC	PID1 multistage target value 11 (High)		
(AH-33)	0x31BD	0xA6ED	PID1 multistage target value 11 (Low)		
AH-34	0x31BE	0xA6EE	PID1 multistage target value 12 (High)		
(AH-35)	0x31BF	0xA6EF	PID1 multistage target value 12 (Low)		
AH-36	0x31C0	0xA6F0	PID1 multistage target value 13 (High)		
(AH-37)	0x31C1	0xA6F1	PID1 multistage target value 13 (Low)		
AH-38	0x31C2	0xA6F2	PID1 multistage target value 14 (High)		
(AH-39)	0x31C3	0xA6F3	PID1 multistage target value 14 (Low)		
AH-40	0x31C4	0xA6F4	PID1 multistage target value 15 (High)		
(AH-41)	0x31C5	0xA6F5	PID1 multistage target value 15 (Low)		
AH-42	0x31C6	0xA6F6	PID1 target value 2 input destination selection	0~13	1
AH-44	0x31C8	0xA6F8	PID1 target value 2 set value (High)	-10000~10000	Per AH-06 setting
(AH-45)	0x31C9	0xA6F9	PID1 target value 2 set value (Low)		
AH-46	0x31CA	0xA6FA	PID1 target value 3 input destination selection	0~13	1
AH-48	0x31CC	0xA6FC	PID1 target value 3 set value (High)	-10000~10000	Per AH-06 setting
(AH-49)	0x31CD	0xA6FD	PID1 target value 3 set value (Low)		
AH-50	0x31CE	0xA6FE	PID1 target value 1 operator selection	1~6	1
AH-51	0x31CF	0xA6FF	PID1 feedback data 1 input destination selection		
AH-52	0x31D0	0xA700	PID1 feedback data 2 input destination selection	0~13	
AH-53	0x31D1	0xA701	PID1 feedback data 3 input destination selection		
AH-54	0x31D2	0xA702	PID1 feedback data operator selection	1~10	
AH-60	0x31D8	0xA708	PID1 gain switch method selection	0~1	
AH-61	0x31D9	0xA709	PID1 proportional gain 1	0~1000	0.1
AH-62	0x31DA	0xA70A	PID1 integral gain 1	0~36000	0.1s
AH-63	0x31DB	0xA70B	PID1 differential gain 1	0~10000	0.01s
AH-64	0x31DC	0xA70C	PID1 proportional gain 2	0~1000	0.1
AH-65	0x31DD	0xA70D	PID1 integral gain 2	0~36000	0.1s
AH-66	0x31DE	0xA70E	PID1 differential gain 2		0.01s
AH-67	0x31DF	0xA70F	PID1 gain switch time		
AH-70	0x31E2	0xA712	PID1 feed forward selection	0~6	1ms
AH-71	0x31E3	0xA713	PID1 changeable range		0.01%
AH-72	0x31E4	0xA714	PID1 deviation excessive level		
AH-73	0x31E5	0xA715	PID1 feedback comparison signal OFF level		
AH-74	0x31E6	0xA716	PID1 feedback comparison signal ON level		
AH-75	0x31E7	0xA717	PID soft-start function selection	0~1	1
AH-76	0x31E8	0xA718	PID soft-start target level	0~10000	0.01%

Func. code	Command code		Function name	Setting items	Data resolution unit	
	Read	Write				
AH-78 (AH-79)	0x31EA 0x31EB	0xA71A 0xA71B	Acceleration time for PID soft-start (High) (Low)	0~360000	0.01s	
AH-80	0x31EC	0xA71C	PID soft-start time	0~10000		
AH-81	0x31ED	0xA71D	PID start abnormal judgment implement selection	0~2	1	
AH-82	0x31EE	0xA71E	PID start abnormal judgment level	0~10000	0.01%	
AH-85	0x31F1	0xA721	PID sleep condition selection	0~2	1	
AH-86	0x31F2	0xA722	PID sleep start level	0~59000	0.01Hz	
AH-87	0x31F3	0xA723	PID sleep operation time	0~10000	0.01s	
AH-88	0x31F4	0xA724	Boost selection prior to PID sleep	0~1	1	
AH-89	0x31F5	0xA725	Boost time prior to PID sleep	0~10000	0.01s	
AH-90	0x31F6	0xA726	Boost amount prior to PID sleep		0.01%	
AH-91	0x31F7	0xA727	Minimum operation time prior to PID sleep		0.01s	
AH-92	0x31F8	0xA728	PID sleep status minimum retaining time			
AH-93	0x31F9	0xA729	PID wake condition selection	1~3	1	
AH-94	0x31FA	0xA72A	PID wake start level	0~10000	0.01%	
AH-95	0x31FB	0xA72B	PID wake operation time		0.01s	
AH-96	0x31FC	0xA72C	PID wake start deviation amount		0.01%	
AJ-01	0x3201	0xA731	PID2 selection	0~2	1	
AJ-02	0x3202	0xA732	PID2 deviation minus	0~1		
AJ-03	0x3203	0xA733	PID2 unit selection (PID2)	0~58		
AJ-04	0x3204	0xA734	PID2 scale adjustment (0%)	-10000~10000		
AJ-05	0x3205	0xA735	PID2 scale adjustment (100%)			
AJ-06	0x3206	0xA736	PID2 scale adjustment (decimal point)	0~4		
AJ-07	0x3207	0xA737	PID2 target value input destination selection	0~15		
AJ-10 (AJ-11)	0x320A 0x320B	0xA73A 0xA73B	PID2 target value set value (High) (Low)	-10000~10000	Per AJ-06 setting	
AJ-12	0x320C	0xA73C	PID2 feedback data input destination selection	0~13	1	
AJ-13	0x320D	0xA73D	PID2 proportional gain	0~1000	0.1	
AJ-14	0x320E	0xA73E	PID2 integral gain	0~36000	0.1s	
AJ-15	0x320F	0xA73F	PID2 differential gain	0~10000	0.01s	
AJ-16	0x3210	0xA740	PID2 changeable range		0.01%	
AJ-17	0x3211	0xA741	PID2 deviation excessive level			
AJ-18	0x3212	0xA742	PID2 feedback comparison signal OFF level			
AJ-19	0x3213	0xA743	PID2 feedback comparison signal ON level			
AJ-21	0x3215	0xA745	PID3 selection	0~2	1	
AJ-22	0x3216	0xA746	PID3 deviation minus	0~1		
AJ-23	0x3217	0xA747	PID3 unit selection (PID3)	0~58		
AJ-24	0x3218	0xA748	PID3 scale adjustment (0%)	-10000~10000		
AJ-25	0x3219	0xA749	PID3 scale adjustment (100%)			
AJ-26	0x321A	0xA74A	PID3 scale adjustment (decimal point)	0~4		
AJ-27	0x321B	0xA74B	PID3 target value input destination selection	0~13		
AJ-30 (AJ-31)	0x321E 0x321F	0xA74E 0xA74F	PID3 target value setting (High) (Low)	-10000~10000	Per AJ-26 setting	
AJ-32	0x3220	0xA750	PID3 feedback data input destination selection	0~13	1	
AJ-33	0x3221	0xA751	PID3 proportional gain	0~1000	0.1	
AJ-34	0x3222	0xA752	PID3 integral gain	0~36000	0.1s	
AJ-35	0x3223	0xA753	PID3 differential gain	0~10000	0.01s	
AJ-36	0x3224	0xA754	PID3 changeable range		0.01%	
AJ-37	0x3225	0xA755	PID3 deviation excessive level			
AJ-38	0x3226	0xA756	PID3 feedback comparison signal OFF level			
AJ-39	0x3227	0xA757	PID3 feedback comparison signal ON level			
AJ-41	0x3229	0xA759	PID4 selection	0~2	1	
AJ-42	0x322A	0xA75A	PID4 deviation minus	0~1		
AJ-43	0x322B	0xA75B	PID4 unit selection (PID4)	0~58		
AJ-44	0x322C	0xA75C	PID4 scale adjustment (0%)	-10000~10000		
AJ-45	0x322D	0xA75D	PID4 scale adjustment (100%)			
AJ-46	0x322E	0xA75E	PID4 scale adjustment (decimal point)	0~4		
AJ-47	0x322F	0xA75F	PID4 target value input destination selection	0~13		

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
AJ-50 (AJ-51)	0x3232 0x3233	0xA762 0xA763	PID4 target value setting (High) (Low)	-10000~10000	Per AJ-46 setting
AJ-52	0x3234	0xA764	PID4 feedback data input destination selection	0~13	1
AJ-53	0x3235	0xA765	PID4 proportional gain	0~1000	0.1
AJ-54	0x3236	0xA766	PID4 integral gain	0~36000	0.1s
AJ-55	0x3237	0xA767	PID4 differential gain	0~10000	0.01s
AJ-56	0x3238	0xA768	PID4 changeable range		0.01%
AJ-57	0x3239	0xA769	PID4 deviation excessive level		
AJ-58	0x323A	0xA76A	PID4 feedback comparison signal OFF level		
AJ-59	0x323B	0xA76B	PID4 feedback comparison signal ON level		

12.2.4 Code-b

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
bA101	0x32C9	0xA7F9	First frequency upper limit selection	0~13	1
bA102	0x32CA	0xA7FA	First frequency upper limiter	0~59000	0.01Hz
bA103	0x32CB	0xA7FB	First frequency lower limiter		
bA110	0x32D2	0xA802	First torque limit selection	0~11	1
bA111	0x32D3	0xA803	First torque limit parameter mode selection	0~1	
bA112	0x32D4	0xA804	First torque limit 1 (Four quadrant normal powered)	0~5000	0.10%
bA113	0x32D5	0xA805	First torque limit 2 (Four quadrant reverse regenerative)		
bA114	0x32D6	0xA806	First torque limit 3 (Four quadrant reverse powered)		
bA115	0x32D7	0xA807	First torque limit 4 (Four quadrant normal regenerative)		
bA116	0x32D8	0xA808	First torque LAD stop selection	0~1	1
bA120	0x32DC	0xA80C	First overcurrent suppression selection		
bA121	0x32DD	0xA80D	First overcurrent suppression level	(0 to 2.50) x Inverter rated current	0.1A
bA122	0x32DE	0xA80E	First stall prevention 1 selection		
bA123	0x32DF	0xA80F	First stall prevention level 1	(0.20 to 2.50) x Inverter rated current	0.1A
bA124 (bA125)	0x32E0 0x32E1	0xA810 0xA811	First stall prevention 1 operation time (High) (Low)		
bA126	0x32E2	0xA812	First stall prevention 2 selection	10~360000	0.01s
bA127	0x32E3	0xA813	First stall prevention level 2	0~3	1
bA128 (bA129)	0x32E4 0x32E5	0xA814 0xA815	First stall prevention 2 operation time (High) (Low)		
bA-30	0x32E6	0xA816	Instantaneous power failure non-stop selection	10~360000	0.01s
bA-31	0x32E7	0xA817	Instantaneous power failure non-stop function starting voltage	0~3	1
bA-32	0x32E8	0xA818	Instantaneous power failure non-stop target level		
bA-34 (bA-35)	0x32EA 0x32EB	0xA81A 0xA81B	Instantaneous power failure non-stop deceleration time (High) (Low)	200V class: 0~4100 400V class: 0~8200	0.1Vdc
bA-36	0x32EC	0xA81C	Instantaneous power failure non-stop deceleration starting range		
bA-37	0x32ED	0xA81D	Instantaneous power failure non-stop constant DC voltage control P gain	0~1000	0.01Hz
bA-38	0x32EE	0xA81E	Instantaneous power failure non-stop constant DC voltage control I gain	0~500	0.01
bA140	0x32F0	0xA820	First overvoltage suppression function selection	0~15000	0.01s
bA141	0x32F1	0xA821	First overvoltage suppression level setting	200V class: 3300~4000 400V class: 6600~8000	0.1Vdc
bA142 (bA143)	0x32F2 0x32F3	0xA822 0xA823	First overvoltage suppression operating time (High) (Low)		
bA144	0x32F4	0xA824	First constant DC voltage control P gain	0~60000	0.01s
bA145	0x32F5	0xA825	First constant DC voltage control I gain	0~15000	0.01s
bA146	0x32F6	0xA826	First over-excitation function selection (V/f)	0~4	1

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
bA147	0x32F7	0xA827	First over-excitation output filter time constant (V/f)	0~100	0.01s
bA148	0x32F8	0xA828	First over-excitation voltage gain (V/f)	50~400	1%
bA149	0x32F9	0xA829	First over-excitation suppression level setting (V/f)	200V class: 3300~4000 400V class: 6600~8000	0.1Vdc
bA-60	0x3304	0xA834	DBTR use rate	0~1000 (linked with bA-63)	0.10%
bA-61	0x3305	0xA835	DBTR selection	0~2	1
bA-62	0x3306	0xA836	DBTR ON level	200V class: 3300~4000 400V class: 6600~8000	0.1Vdc
bA-63	0x3307	0xA837	DBTR resistance	From the minimum resistance to 600.0	0.1Ω
ba-70	0x330E	0xA83E	Cooling fan operation selection	0~2	
ba-71	0x330F	0xA83F	Selection of cumulative cooling fan operating time clearance	0~1	1
ba201	0x59D9	0xCF09	Second frequency upper limit selection	0~13	
ba202	0x59DA	0xCF0A	Second frequency upper limiter	0~59000	0.01Hz
ba203	0x59DB	0xCF0B	Second frequency lower limiter		
ba210	0x59E2	0xCF12	Second torque limit selection	0~11	
ba211	0x59E3	0xCF13	Second torque limit parameter mode selection	0~1	1
ba212	0x59E4	0xCF14	Second torque limit 1 (Four quadrant normal powered)	0~5000	0.10%
ba213	0x59E5	0xCF15	Second torque limit 2 (Four quadrant reverse regenerative)		
ba214	0x59E6	0xCF16	Second torque limit 3 (Four quadrant reverse powered)		
ba215	0x59E7	0xCF17	Second torque limit 4 (Four quadrant normal regenerative)		
ba216	0x59E8	0xCF18	Second torque LAD stop selection	0~1	1
ba220	0x59EC	0xCF1C	Second overcurrent suppression selection		
ba221	0x59ED	0xCF1D	Second overcurrent suppression level	(0 to 2.50) x Inverter rated current	0.1A
ba222	0x59EE	0xCF1E	Second stall prevention 1 selection	0 ~ 3	1
ba223	0x59EF	0xCF1F	Second stall prevention level 1	(0.20 to 2.50) x Inverter rated current	0.1A
ba224	0x59F0	0xCF20	Second stall prevention 1 operation time (High) (ba225) 0x59F1 0xCF21 (Low)	10~360000	0.01s
ba226	0x59F2	0xCF22	Second stall prevention 2 selection	0~3	1
ba227	0x59F3	0xCF23	Second stall prevention level 2	(0.20 to 2.50) x Inverter rated current	0.1A
ba228	0x59F4	0xCF24	Second stall prevention 2 operation time (High) (ba229) 0x59F5 0xCF25 (Low)	10~360000	0.01s
ba240	0x5A00	0xCF30	Second overvoltage suppression function selection	0~3	1
ba241	0x5A01	0xCF31	Second overvoltage suppression level setting	200V class: 3300~4000 400V class: 6600~8000	0.1Vdc
ba242	0x5A02	0xCF32	Second overvoltage suppression operating time (High) (ba243) 0x5A03 0xCF33 (Low)	0~360000	0.01s
ba244	0x5A04	0xCF34	Second constant DC voltage control P gain	0~500	0.01
ba245	0x5A05	0xCF35	Second constant DC voltage control I gain	0~15000	0.01s
ba246	0x5A06	0xCF36	Second over-excitation function selection (V/f)	0~4	1
ba247	0x5A07	0xCF37	Second over-excitation output filter time constant (V/f)	0~100	0.01s
ba248	0x5A08	0xCF38	Second over-excitation voltage gain (V/f)	50~400	1%
ba249	0x5A09	0xCF39	Second over-excitation suppression level setting (V/f)	200V class: 3300~4000 400V class: 6600~8000	0.1Vdc
bb101	0x332D	0xA85D	First carrier frequency	5 to 160 (varies depending on selection of capacity and load rating)	0.1kHz
bb102	0x332E	0xA85E	First sprinkle carrier pattern selection	0~3	
bb103	0x332F	0xA85F	First automatic carrier frequency reduction selection	0~2	1
bb-10	0x3336	0xA866	Auto-reset selection		
bb-11	0x3337	0xA867	Alarm output selection when the auto-reset is enabled	0~1	
bb-12	0x3338	0xA868	Automatic resetting stand-by time	0~600	1s
bb-13	0x3339	0xA869	Automatic resetting count setting	0~10	
bb-20	0x3340	0xA870	Instantaneous power failure retry count selection	0~16 / 255	1

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
bb-21	0x3341	0xA871	Undervoltage retry count selection	0~16 / 255	1
bb-22	0x3342	0xA872	Overcurrent retry count selection	0~5	
bb-23	0x3343	0xA873	Overtension retry count selection		
bb-24	0x3344	0xA874	Selection of instantaneous power failure/undervoltage retry	0~4	
bb-25	0x3345	0xA875	Allowable instantaneous power failure time	3~250	0.1s
bb-26	0x3346	0xA876	Retry wait time after instantaneous power failure/undervoltage	3~1000	
bb-27	0x3347	0xA877	Instantaneous power failure/undervoltage tripping selection during stop	0~2	1
bb-28	0x3348	0xA878	Overcurrent trip/retry selection	0~4	
bb-29	0x3349	0xA879	Retry wait time after overcurrent	3~1000	0.1s
bb-30	0x334A	0xA87A	Overtension trip/retry selection	0~4	1
bb-31	0x334B	0xA87B	Retry wait time after overtension	3~1000	0.1s
bb-40	0x3354	0xA884	Restart after free-run release	0~3	1
bb-41	0x3355	0xA885	Restart after reset release		
bb-42	0x3356	0xA886	Speed frequency matching lower limit frequency setting	0~59000	0.01Hz
bb-43	0x3357	0xA887	Restarting level of frequency acquisition	(0.20 to 2.50) x Inverter rated current	0.1A
bb-44	0x3358	0xA888	Constant (speed) for frequency acquisition restarting	10~3000	0.01s
bb-45	0x3359	0xA889	Constant (voltage) for frequency acquisition restarting		
bb-46	0x335A	0xA88A	Overcurrent suppression level for frequency acquisition restart	(0 to 2.50) x Inverter rated current	0.1A
bb-47	0x335B	0xA88B	Start speed selection for frequency acquisition restart	0~2	1
bb-50	0x335E	0xA88E	Frequency matching filter gain	0~1000	1%
bb160	0x3368	0xA898	First overcurrent detection level	Depend on the Inverter	0.1A
bb-61	0x3369	0xA899	Incoming overtension selection	0~1	1
bb-62	0x336A	0xA89A	Incoming overtension level selection	200V class: 3000~4100 400V class: 6000~8200	0.1Vdc
bb-64	0x336C	0xA89C	Ground fault detection selection	0~1	1
bb-65	0x336D	0xA89D	Input phase loss selection		
bb-66	0x336E	0xA89E	Output phase loss selection		
bb-67	0x336F	0xA89F	Output phase loss detection sensitivity	1~100	1%
bb-70	0x3372	0xA8A2	Thermistor error level	0~10000	1Ω
bb-80	0x337C	0xA8AC	Over-speed error detection level	0~1500	0.10%
bb-81	0x337D	0xA8AD	Over-speed error detection time	0~50	0.1s
bb-82	0x337E	0xA8AE	Operation for speed deviation error	0~1	1
bb-83	0x337F	0xA8AF	Speed deviation error detection level	0~1000	0.10%
bb-84	0x3380	0xA8B0	Speed deviation error detection time	0~50	0.1s
bb-85	0x3381	0xA8B1	Behavior when the position deviation is abnormal	0~1	1
bb-86	0x3382	0xA8B2	Abnormal position deviation detection level	0~65535 (x 100pls)	1 (x 100pls)
bb-87	0x3383	0xA8B3	Abnormal position deviation time	0~50	0.1s
bb201	0x5A3D	0xCF6D	Second carrier frequency	5 to 160 (varies depending on selection of capacity and load rating)	0.1kHz
bb202	0x5A3E	0xCF6E	Second sprinkle carrier pattern selection	0~3	1
bb203	0x5A3F	0xCF6F	Second automatic carrier frequency reduction selection	0~2	
bb260	0x5A78	0xCFA8	Second overcurrent detection level	Depend on the Inverter	0.1A
bC110	0x339A	0xA8CA	First electronic thermal level	(0 to 3.00) x Inverter rated current	
bC111	0x339B	0xA8CB	First electronic thermal characteristics selection	0~2	1
bC112	0x339C	0xA8CC	First electronic thermal subtraction function selection	0~1	
bC113	0x339D	0xA8CD	First electronic thermal subtraction time	1~1000	1s
bC-14	0x339E	0xA8CE	Electronic thermal counter memory at power-off	0~1	1
bC120	0x33A4	0xA8D4	First free electronic thermal frequency 1	0~59000 (bC122)	0.01Hz
bC121	0x33A5	0xA8D5	First free electronic thermal current 1	(0 to 3.00) x Inverter rated current	0.1A
bC122	0x33A6	0xA8D6	First free electronic thermal frequency 2	0~59000 (bC120~bC124)	0.01Hz

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
bC123	0x33A7	0xA8D7	First free electronic thermal current 2	(0 to 3.00) x Inverter rated current	0.1A
bC124	0x33A8	0xA8D8	First free electronic thermal frequency 3	0 (bC122) ~ 59000	0.01Hz
bC125	0x33A9	0xA8D9	First free electronic thermal current 3	(0 to 3.00) x Inverter rated current	0.1A
bC210	0x5AAA	0xCFDA	Second electronic thermal level		
bC211	0x5AAB	0xCFDB	Second electronic thermal characteristics selection	0~2	1
bC212	0x5AAC	0xCFDC	Second electronic thermal subtraction function selection	0~1	
bC213	0x5AAD	0xCFDD	Second electronic thermal subtraction time	1~1000	1s
bC220	0x5AB4	0xCFE4	Second free electronic thermal frequency 1	0~59000 (bC222)	0.01Hz
bC221	0x5AB5	0xCFE5	Second free electronic thermal current 1	(0 to 3.00) x Inverter rated current	0.1A
bC222	0x5AB6	0xCFE6	Second free electronic thermal frequency 2	0~59000 (bC220~bC224)	0.01Hz
bC223	0x5AB7	0xCFE7	Second free electronic thermal current 2	(0 to 3.00) x Inverter rated current	0.1A
bC224	0x5AB8	0xCFE8	Second free electronic thermal frequency 3	0 (bC222) ~ 59000	0.01Hz
bC225	0x5AB9	0xCFE9	Second free electronic thermal current 3	(0 to 3.00) x Inverter rated current	0.1A
bd-01	0x33F5	0xA925	STO input indication selection	0~2	1
bd-02	0x33F6	0xA926	STO allowable input switch time	0~6000	0.01s
bd-03	0x33F7	0xA927	STO indication selection within allowable input time	0~1	1
bd-04	0x33F8	0xA928	STO operation selection after allowable input time	0~2	

12.2.5 Code-C

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
CA-01	0x36B1	0xABE1	Selection of input terminal [FR]	0~110	1
CA-02	0x36B2	0xABE2	Selection of input terminal [RR]		
CA-03	0x36B3	0xABE3	Selection of input terminal [DFL]		
CA-04	0x36B4	0xABE4	Selection of input terminal [DFM]		
CA-05	0x36B5	0xABE5	Selection of input terminal [AUT]		
CA-06	0x36B6	0xABE6	Selection of input terminal [MBS]		
CA-07	0x36B7	0xABE7	Selection of input terminal [JOG]		
CA-08	0x36B8	0xABE8	Selection of input terminal [ES]		
CA-09	0x36B9	0xABE9	Selection of input terminal [RST]		
CA-10	0x36BA	0xABEA	Selection of input terminal [DFH]		
CA-11	0x36BB	0xABEB	Selection of input terminal [DHH]		
CA-21	0x36C5	0xAFB5	Selection of Input terminal [FR] a/b (NO/NC)	0 ~ 1	1ms
CA-22	0x36C6	0xAFB6	Selection of Input terminal [RR] a/b (NO/NC)		
CA-23	0x36C7	0xAFB7	Selection of Input terminal [DFL] a/b (NO/NC)		
CA-24	0x36C8	0xAFB8	Selection of Input terminal [DFM] a/b (NO/NC)		
CA-25	0x36C9	0xAFB9	Selection of Input terminal [AUT] a/b (NO/NC)		
CA-26	0x36CA	0xABFA	Selection of Input terminal [MBS] a/b (NO/NC)		
CA-27	0x36CB	0xABFB	Selection of Input terminal [JOG] a/b (NO/NC)		
CA-28	0x36CC	0xABFC	Selection of Input terminal [ES] a/b (NO/NC)		
CA-29	0x36CD	0xABFD	Selection of Input terminal [RST] a/b (NO/NC)		
CA-30	0x36CE	0xABFE	Selection of Input terminal [DFH] a/b (NO/NC)		
CA-31	0x36CF	0xABFF	Selection of Input terminal [DHH] a/b (NO/NC)		
CA-41	0x36D9	0xAC09	Input terminal [FR] response time	0 ~ 400	1ms
CA-42	0x36DA	0xAC0A	Input terminal [RR] response time		
CA-43	0x36DB	0xAC0B	Input terminal [DFL] response time		
CA-44	0x36DC	0xAC0C	Input terminal [DFM] response time		
CA-45	0x36DD	0xAC0D	Input terminal [AUT] response time		
CA-46	0x36DE	0xAC0E	Input terminal [MBS] response time		
CA-47	0x36DF	0xAC0F	Input terminal [JOG] response time		
CA-48	0x36E0	0xAC10	Input terminal [ES] response time		

Func. code	Command code		Function name	Setting items	Data resolution unit	
	Read	Write				
CA-49	0x36E1	0xAC11	Input terminal [RST] response time	0~400	1ms	
CA-50	0x36E2	0xAC12	Input terminal [DFH] response time			
CA-51	0x36E3	0xAC13	Input terminal [DHH] response time			
CA-55	0x36E7	0xAC17	Multi-step input determination time	0~2000		
CA-60	0x36EC	0xAC1C	UP/DWN overwriting target selection	0~1	1	
CA-61	0x36ED	0xAC1D	UP/DWN memory selection			
CA-62	0x36EE	0xAC1E	UP/DWN UDC terminal mode selection			
CA-64 (CA-65)	0x36F0 0x36F1	0xAC20 0xAC21	Acceleration time for UP/DWN functions (High) (Low)	0 ~ 360000	0.01s	
CA-66 (CA-67)	0x36F2 0x36F3	0xAC22 0xAC23	Deceleration time for UP/DWN functions (High) (Low)			
CA-70	0x36F6	0xAC26	Speed command selection with [F-OP] enabled.	1~16	1	
CA-71	0x36F7	0xAC27	Operation command selection with [F-OP] enabled.	0~6		
CA-72	0x36F8	0xAC28	Reset selection	0~3		
CA-81	0x3701	0xAC31	Encoder constant set-up	32~65535	1pls	
CA-82	0x3702	0xAC32	Encoder phase sequence selection	0~1	1	
CA-83	0x3703	0xAC33	Motor gear ratio's numerator	1~10000		
CA-84	0x3704	0xAC34	Motor gear ratio's denominator			
CA-90	0x370A	0xAC3A	Pulse train input (internal) detection target selection	0~3	1	
CA-91	0x370B	0xAC3B	Pulse train input (internal) mode selection	0~2		
CA-92	0x370C	0xAC3C	Pulse train frequency scale	5~3200	0.01kHz	
CA-93	0x370D	0xAC3D	Pulse train frequency filter time constant	1~200	0.01s	
CA-94	0x370E	0xAC3E	Pulse train frequency bias amount	-1000~1000 0~1000	0.10%	
CA-95	0x370F	0xAC3F	Pulse train frequency detection upper limit			
CA-96	0x3710	0xAC40	Pulse train frequency detection lower level			
CA-97	0x3711	0xAC41	Pulse count compare-match output ON level	0~65535	1	
CA-98	0x3712	0xAC42	Pulse count compare-match output OFF level			
CA-99	0x3713	0xAC43	Maximum value for pulse count compare-match output			
Cb-01	0x3715	0xAC45	[VRF] terminal input filter time constant	1~500	1ms	
Cb-03	0x3717	0xAC47	[VRF] terminal start amount	0~10000	0.01%	
Cb-04	0x3718	0xAC48	[VRF] terminal end amount			
Cb-05	0x3719	0xAC49	[VRF] terminal start ratio	0~1000 (Cb-06) (Cb-05) 0~1000	0.10%	
Cb-06	0x371A	0xAC4A	[VRF] terminal end ratio			
Cb-07	0x371B	0xAC4B	[VRF] terminal start selection	0~1	1	
Cb-11	0x371F	0xAC4F	[IRF] terminal input filter time constant	1~500	1ms	
Cb-13	0x3721	0xAC51	[IRF] terminal start amount	0~10000	0.01%	
Cb-14	0x3722	0xAC52	[IRF] terminal end amount			
Cb-15	0x3723	0xAC53	[IRF] terminal start ratio	0~1000 (Cb-16) (Cb-15) 0~1000	0.10%	
Cb-16	0x3724	0xAC54	[IRF] terminal end ratio			
Cb-17	0x3725	0xAC55	[IRF] terminal start selection	0~1	1	
Cb-21	0x3729	0xAC59	[VF2] terminal input filter time constant	1~500	1ms	
Cb-22	0x372A	0xAC5A	[VF2] terminal selection	0~2	1	
Cb-23	0x372B	0xAC5B	[VF2] terminal start amount	-10000~10000	0.01%	
Cb-24	0x372C	0xAC5C	[VF2] terminal end amount			
Cb-25	0x372D	0xAC5D	[VF2] terminal start ratio	-1000~1000 (Cb-26) (Cb-25)-1000~1000	0.10%	
Cb-26	0x372E	0xAC5E	[VF2] terminal end ratio			
Cb-30	0x3732	0xAC62	[VRF] voltage/current bias adjustment	-10000~10000	0.01%	
Cb-31	0x3733	0xAC63	[VRF] voltage/current adjustment gain	0~20000		
Cb-32	0x3734	0xAC64	[IRF] voltage/current bias adjustment	-10000~10000		
Cb-33	0x3735	0xAC65	[IRF] voltage/current adjustment gain	0~20000		
Cb-34	0x3736	0xAC66	[VF2] voltage bias adjustment	-10000~10000		
Cb-35	0x3737	0xAC67	[VF2] voltage adjustment gain	0~20000		
Cb-40	0x373C	0xAC6C	Thermistor selection	0~2	1	
Cb-41	0x373D	0xAC6D	Thermistor [TH+/TH-] adjustment	0~10000	0.1	
Cb-51 to Cb-57	0x3747 to 0x374D	0xAC77 to 0xAC7D	Reserved	-	-	

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
CC-01	0x3779	0xACA9	Selection of output terminal [UPF]	0~93	1
CC-02	0x377A	0xACAA	Selection of output terminal [DRV]		
CC-03	0x377B	0xACAB	Selection of output terminal [X1]		
CC-04	0x377C	0xACAC	Selection of output terminal [X2]		
CC-05	0x377D	0xACAD	Selection of output terminal [X3]		
CC-06	0x377E	0xACAE	Selection of relay output terminal [RL]		
CC-07	0x377F	0xACAF	Selection of relay output terminal [FL]		
CC-11	0x3783	0xACB3	Selection of output terminal [UPF] a/b (NO/NC)		
CC-12	0x3784	0xACB4	Selection of output terminal [DRV] a/b (NO/NC)		
CC-13	0x3785	0xACB5	Selection of output terminal [X1] a/b (NO/NC)		
CC-14	0x3786	0xACB6	Selection of output terminal [X2] a/b (NO/NC)		
CC-15	0x3787	0xACB7	Selection of output terminal [X3] a/b (NO/NC)		
CC-16	0x3788	0xACB8	Selection of output terminal [RL] a/b (NO/NC)		
CC-17	0x3789	0xACB9	Selection of output terminal [FL] a/b (NO/NC)		
CC-20	0x378C	0xACBC	Output terminal [UPF] on-delay time	0~10000	0.01s
CC-21	0x378D	0xACBD	Output terminal [UPF] off-delay time		
CC-22	0x378E	0xACBE	Output terminal [DRV] on-delay time		
CC-23	0x378F	0xACBF	Output terminal [DRV] off-delay time		
CC-24	0x3790	0xACC0	Output terminal [X1] on-delay time		
CC-25	0x3791	0xACC1	Output terminal [X1] off-delay time		
CC-26	0x3792	0xACC2	Output terminal [X2] on-delay time		
CC-27	0x3793	0xACC3	Output terminal [X2] off-delay time		
CC-28	0x3794	0xACC4	Output terminal [X3] on-delay time		
CC-29	0x3795	0xACC5	Output terminal [X3] off-delay time		
CC-30	0x3796	0xACC6	Output terminal [RL] on-delay time		
CC-31	0x3797	0xACC7	Output terminal [RL] off-delay time		
CC-32	0x3798	0xACC8	Output terminal [FL] on-delay time		
CC-33	0x3799	0xACC9	Output terminal [FL] off-delay time		
CC-40	0x37A0	0xACD0	Logical calculation output signal LOG1 selection 1	0~93	1
CC-41	0x37A1	0xACD1	Logical calculation output signal LOG1 selection 2		
CC-42	0x37A2	0xACD2	Logical calculation output signal LOG1 operator selection		
CC-43	0x37A3	0xACD3	Logical calculation output signal LOG2 selection 1		
CC-44	0x37A4	0xACD4	Logical calculation output signal LOG2 selection 2		
CC-45	0x37A5	0xACD5	Logical calculation output signal LOG2 operator selection		
CC-46	0x37A6	0xACD6	Logical calculation output signal LOG3 selection 1		
CC-47	0x37A7	0xACD7	Logical calculation output signal LOG3 selection 2		
CC-48	0x37A8	0xACD8	Logical calculation output signal LOG3 operator selection		
CC-49	0x37A9	0xACD9	Logical calculation output signal LOG4 selection 1		
CC-50	0x37AA	0xACDA	Logical calculation output signal LOG4 selection 2		
CC-51	0x37AB	0xACDB	Logical calculation output signal LOG4 operator selection		
CC-52	0x37AC	0xACDC	Logical calculation output signal LOG5 selection 1		
CC-53	0x37AD	0xACDD	Logical calculation output signal LOG5 selection 2		
CC-54	0x37AE	0xACDE	Logical calculation output signal LOG5 operator selection		
CC-55	0x37AF	0xACDF	Logical calculation output signal LOG6 selection 1	0~93	1
CC-56	0x37B0	0xACE0	Logical calculation output signal LOG6 selection 2		
CC-57	0x37B1	0xACE1	Logical calculation output signal LOG6 operator selection		
CC-58	0x37B2	0xACE2	Logical calculation output signal LOG7 selection 1		
CC-59	0x37B3	0xACE3	Logical calculation output signal LOG7 selection 2	0~93	1
CC-60	0x37B4	0xACE4	Logical calculation output signal LOG7 operator selection		
Cd-01	0x37DD	0xAD0D	[FRQ] terminal output form selection		
Cd-02	0x37DE	0xAD0E	[FRQ] terminal standard frequency (for PWM output)	0 ~ 3600	1Hz
Cd-03	0x37DF	0xAD0F	[FRQ] terminal output selection	0 to 65535 register No. of d, F codes	1
Cd-04	0x37E0	0xAD10	[AMV] terminal output selection		
Cd-05	0x37E1	0xAD11	[AMI] terminal output selection		
Cd-10	0x37E6	0xAD16	Analog monitor adjustment mode selection	0~1	
Cd-11	0x37E7	0xAD17	[FRQ] output filter time constant	1~500	1ms
Cd-12	0x37E8	0xAD18	[FRQ] output data type selection	0~1	1
Cd-13	0x37E9	0xAD19	[FRQ] bias adjustment	-1000~1000	0.10%

Func. code	Command code		Function name	Setting items	Data resolution unit	
	Read	Write				
Cd-14	0x37EA	0xAD1A	[FRQ] gain adjustment	-10000~10000	0.10%	
Cd-15	0x37EB	0xAD1B	[FRQ] output level in the adjustment mode	-1000~1000		
Cd-21	0x37F1	0xAD21	[AMV] output filter time constant	1~500	1ms	
Cd-22	0x37F2	0xAD22	[AMV] output data type selection	0~1	1	
Cd-23	0x37F3	0xAD23	[AMV] bias adjustment (common to voltage/current)	-1000~1000	0.10%	
Cd-24	0x37F4	0xAD24	[AMV] gain adjustment (common to voltage/current)	-10000~10000		
Cd-25	0x37F5	0xAD25	[AMV] output level in the adjustment mode	-1000~1000		
Cd-31	0x37FB	0xAD2B	[AMI] output filter time constant	1~500	1ms	
Cd-32	0x37FC	0xAD2C	[AMI] output data type selection	0~1	1	
Cd-33	0x37FD	0xAD2D	[AMI] bias adjustment (common to voltage/current)	-1000~1000	0.10%	
Cd-34	0x37FE	0xAD2E	[AMI] gain adjustment (common to voltage/current)	-10000~10000		
Cd-35	0x37FF	0xAD2F	[AMI] output level in the adjustment mode	-1000~1000		
CE101	0x3841	0xAD71	First low current signal output mode selection	0~1	1	
CE102	0x3842	0xAD72	First low current detection level 1	(0 to 2.00) x Inverter rated current	0.1A	
CE103	0x3843	0xAD73	First low current detection level 2			
CE105	0x3845	0xAD75	First overload prewarning signal output mode selection	0~1	1	
CE106	0x3846	0xAD76	First overload prewarning level 1	(0 to 2.00) x Inverter rated current	0.1A	
CE107	0x3847	0xAD77	First overload prewarning level 2			
CE-10	0x384A	0xAD7A	Acceleration reaching frequency 1	0~59000	0.01Hz	
CE-11	0x384B	0xAD7B	Deceleration reaching frequency 1			
CE-12	0x384C	0xAD7C	Acceleration reaching frequency 2			
CE-13	0x384D	0xAD7D	Deceleration reaching frequency 2			
CE120	0x3854	0xAD84	First over torque level (normal powered)	0~5000	0.10%	
CE121	0x3855	0xAD85	First over torque level (reverse regenerative)			
CE122	0x3856	0xAD86	First over torque level (reverse powered)			
CE123	0x3857	0xAD87	First over torque level (normal regenerative)			
CE-30	0x385E	0xAD8E	Electronic thermal warning level (Motor)	0~10000	0.01%	
CE-31	0x385F	0xAD8F	Electronic thermal warning level (Inverter)			
CE-33	0x3861	0xAD91	Zero-speed detection value level	0~200	0.01Hz	
CE-34	0x3862	0xAD92	Cooling fin heating prewarning level			
CE-36	0x3864	0xAD94	RUN time/power supply ON time level (High) (Low)	0~100000	1hr	
(CE-37)	0x3865	0xAD95				
CE-40	0x3868	0xAD98	Window comparator [VRF] upper limit level	0~100	1%	
CE-41	0x3869	0xAD99	Window comparator [VRF] lower limit level			
CE-42	0x386A	0xAD9A	Window comparator [VRF] hysteresis range	0~10		
CE-43	0x386B	0xAD9B	Window comparator [IRF] upper limit level	0~100		
CE-44	0x386C	0xAD9C	Window comparator [IRF] lower limit level			
CE-45	0x386D	0xAD9D	Window comparator [IRF] hysteresis range	0~10		
CE-46	0x386E	0xAD9E	Window comparator [VF2] upper limit level	-100~100		
CE-47	0x386F	0xAD9F	Window comparator [VF2] lower limit level			
CE-48	0x3870	0xADA0	Window comparator [VF2] hysteresis range	0~10		
CE-50	0x3872	0xADA2	[VRF] operation level at disconnection	0~100		
CE-51	0x3873	0xADA3	[VRF] operation level selection at disconnection	0~2	1	
CE-52	0x3874	0xADA4	[IRF] operation level at disconnection	0~100	1%	
CE-53	0x3875	0xADA5	[IRF] operation level selection at disconnection	0~2		
CE-54	0x3876	0xADA6	[VF2] operation level at disconnection	-100~100	1%	
CE-55	0x3877	0xADA7	[VF2] operation level selection at disconnection	0~2		
CE201	0x5F51	0xD481	Second low current signal output mode selection	0~1	0.1A	
CE202	0x5F52	0xD482	Second low current detection level 1	(0 to 2.00) x Inverter rated current		
CE203	0x5F53	0xD483	Second low current detection level 2			
CE205	0x5F55	0xD485	Second overload prewarning signal output mode selection	0~1	1	
CE206	0x5F56	0xD486	Second overload prewarning level 1	(0 to 2.00) x Inverter rated current	0.1A	
CE207	0x5F57	0xD487	Second overload prewarning level 2			
CE220	0x5F64	0xD494	Second over torque level (normal powered)	0~5000	0.10%	
CE221	0x5F65	0xD495	Second over torque level (reverse regenerative)			
CE222	0x5F66	0xD496	Second over torque level (reverse powered)			
CE223	0x5F67	0xD497	Second over torque level (normal regenerative)			

Func. code	Command code		Function name	Setting items	Data resolution unit	
	Read	Write				
CF-01	0x38A5	0xADD5	Communication transmission speed selection (baudrate selection)	3~10	1	
CF-02	0x38A6	0xADD6	Communication station number selection	1~247		
CF-03	0x38A7	0xADD7	Communication parity selection	0~2		
CF-04	0x38A8	0xADD8	Communication stop bit selection	1~2		
CF-05	0x38A9	0xADD9	Communication error selection	0~4		
CF-06	0x38AA	0xADDA	Communication timeout time	0~10000	0.01s	
CF-07	0x38AB	0xADDB	Communication waiting time	0~1000		
CF-08	0x38AC	0xADDC	Communication method selection	1~3		
CF-11	0x38AF	0xADD芬	Resister data A,V% conversion function	0~1		
CF-20	0x38B8	0xADE8	EzCOM start INV station number	1~8		
CF-21	0x38B9	0xADE9	EzCOM end INV station number			
CF-22	0x38BA	0xADEA	EzCOM start selection	0~1		
CF-23	0x38BB	0xADEB	Number of EzCOM data	1~5		
CF-24	0x38BC	0xADEC	EzCOM transmission destination station number 1	1~247		
CF-25	0x38BD	0xADED	EzCOM transmission destination register 1	0~65535	1	
CF-26	0x38BE	0xADEE	EzCOM transmission source register 1			
CF-27	0x38BF	0xADEF	EzCOM transmission destination station number 2	1~247		
CF-28	0x38C0	0xAFD0	EzCOM transmission destination register 2	0~65535		
CF-29	0x38C1	0xAFD1	EzCOM transmission source register 2			
CF-30	0x38C2	0xAFD2	EzCOM transmission destination station number 3	1~247		
CF-31	0x38C3	0xAFD3	EzCOM transmission destination register 3	0~65535		
CF-32	0x38C4	0xAFD4	EzCOM transmission source register 3			
CF-33	0x38C5	0xAFD5	EzCOM transmission destination station number 4	1~247		
CF-34	0x38C6	0xAFD6	EzCOM transmission destination register 4	0~65535		
CF-35	0x38C7	0xAFD7	EzCOM transmission source register 4			
CF-36	0x38C8	0xAFD8	EzCOM transmission destination station number 5	1~247		
CF-37	0x38C9	0xAFD9	EzCOM transmission destination register 5	0~65535		
CF-38	0x38CA	0xADFA	EzCOM transmission source register 5			
CF-50	0x38D6	0xAE06	USB station number selection	1~247		

12.2.6 Code-H

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
HA-01	0x3A99	0xAF9	Auto-tuning selection	0~3	1
HA-02	0x3A9A	0xAFCA	Operation command for auto-tuning	0~1	
HA-03	0x3A9B	0xAFCB	Online tuning selection		
HA110	0x3AA2	0xAFD2	First stability constant	0~1000	1%
HA112	0x3AA4	0xAFD4	First stabilization ramp function end ratio	0~100	
HA113	0x3AA5	0xAFD5	First stabilization ramp function start ratio		
HA115	0x3AA7	0xAFD7	First speed response	0~1000	
HA120	0x3AAC	0xAFDC	First gain switch selection	0~1	1
HA121	0x3AAD	0xAFDD	First gain switch selection	0~10000	1ms
HA122	0x3AAE	0xAFDE	First gain switch intermediate speed 1	0~59000	0.01Hz
HA123	0x3AAF	0xAFDF	First gain switch intermediate speed 2		
HA124	0x3AB0	0xAFEO	First gain mapping maximum speed		
HA125	0x3AB1	0xAFE1	First gain mapping P gain 1		
HA126	0x3AB2	0xAFE2	First gain mapping I gain 1	0~10000	0.10%
HA127	0x3AB3	0xAFE3	First gain mapping P control P gain 1		
HA128	0x3AB4	0xAFE4	First gain mapping P gain 2		
HA129	0x3AB5	0xAFE5	First gain mapping I gain 2		
HA130	0x3AB6	0xAFE6	First gain mapping P control P gain 2		
HA131	0x3AB7	0xAFE7	First gain mapping P gain 3		
HA132	0x3AB8	0xAFE8	First gain mapping I gain 3		
HA133	0x3AB9	0xAFE9	First gain mapping P gain 4		
HA134	0x3ABA	0xAFEA	First gain mapping I gain 4		

Func. code	Command code		Function name	Setting items	Data resolution unit		
	Read	Write					
HA210	0x61B2	0xD6E2	Second stability constant (V/f, A.bst)	0~1000	1%		
HA212	0x61B4	0xD6E4	Second stabilization ramp function end ratio	0~100			
HA213	0x61B5	0xD6E5	Second stabilization ramp function start ratio	0~1000			
HA215	0x61B7	0xD6E7	Second speed response	0~1			
HA220	0x61BC	0xD6EC	Second gain switch selection	0~10000			
HA221	0x61BD	0xD6ED	Second gain switch time	0~10000			
HA222	0x61BE	0xD6EE	Second gain switch intermediate speed 1	0~59000			
HA223	0x61BF	0xD6EF	Second gain switch intermediate speed 2	0~59000			
HA224	0x61C0	0xD6F0	Second gain mapping maximum speed	0~10000			
HA225	0x61C1	0xD6F1	Second gain mapping P gain 1	0~10000			
HA226	0x61C2	0xD6F2	Second gain mapping I gain 1	0~10000			
HA227	0x61C3	0xD6F3	Second gain mapping P control P gain 1	0~10000	0.10%		
HA228	0x61C4	0xD6F4	Second gain mapping P gain 2	0~10000			
HA229	0x61C5	0xD6F5	Second gain mapping I gain 2	0~10000			
HA230	0x61C6	0xD6F6	Second gain mapping P control P gain 2	0~10000			
HA231	0x61C7	0xD6F7	Second gain mapping P gain 3	0~10000			
HA232	0x61C8	0xD6F8	Second gain mapping I gain 3	0~10000			
HA233	0x61C9	0xD6F9	Second gain mapping P gain 4	0~10000			
HA234	0x61CA	0xD6FA	Second gain mapping I gain 4	0~10000			
Hb101	0x3AFD	0xB02D	First IM motor setting	00~03	1		
Hb102	0x3AFE	0xB02E	First IM motor capacity selection	1~16000	0.01kW		
Hb103	0x3AFF	0xB02F	Selection of number of first IM motor poles	0~23	1		
Hb104	0x3B00	0xB030	First IM base frequency	1000~59000	0.01Hz		
Hb105	0x3B01	0xB031	First IM maximum frequency	1~1000			
Hb106	0x3B02	0xB032	First IM motor's rated voltage	1~1000			
Hb108	0x3B04	0xB034	First IM motor's rated current (High) (Low)	1~1000000			
(Hb109)	0x3B05	0xB035		0.01A			
Hb110	0x3B06	0xB036	First IM motor constant R1 (High) (Low)	1~10000000000	0.000001 Ω		
(Hb111)	0x3B07	0xB037					
Hb112	0x3B08	0xB038	First IM motor constant R2 (High) (Low)				
(Hb113)	0x3B09	0xB039					
Hb114	0x3B0A	0xB03A	First IM motor constant L (High) (Low)		0.000001 mH		
(Hb115)	0x3B0B	0xB03B					
Hb116	0x3B0C	0xB03C	First IM motor constant Io (High) (Low)	1~1000000	0.01A		
(Hb117)	0x3B0D	0xB03D		1~10000000000	0.00001 kg·m ²		
Hb118	0x3B0E	0xB03E	First IM motor constant J (High) (Low)	1~10000000000			
(Hb119)	0x3B0F	0xB03F		10~1000	0.01Hz		
Hb130	0x3B1A	0xB04A	First minimum frequency (V/f, A.bst, IM-SLV)	0~2000	1ms		
Hb131	0x3B1B	0xB04B	First reduced voltage start time (V/f)	0~500	0.10%		
Hb140	0x3B24	0xB054	First manual torque boost operation mode selection	0~3			
Hb141	0x3B25	0xB055	First amount of manual torque boost (V/f)	0~200			
Hb142	0x3B26	0xB056	First manual torque boost break point (V/f)	0~500			
Hb145	0x3B29	0xB059	First energy-saving operation selection (V/f)	0~1			
Hb146	0x3B2A	0xB05A	First energy-saving response/accuracy adjustment (V/f)	0~100			
Hb150	0x3B2E	0xB05E	First free V/f frequency 1	0~59000 (Hb152)			
Hb151	0x3B2F	0xB05F	First free V/f voltage 1	0~10000			
Hb152	0x3B30	0xB060	First free V/f frequency 2	0~59000 (Hb150)~(Hb154)			
Hb153	0x3B31	0xB061	First free V/f voltage 2	0~10000	0.1V		
Hb154	0x3B32	0xB062	First free V/f frequency 3	0~59000 (Hb152)~(Hb156)	0.01Hz		
Hb155	0x3B33	0xB063	First free V/f voltage 3	0~10000	0.1V		
Hb156	0x3B34	0xB064	First free V/f frequency 4	0~59000 (Hb154)~(Hb158)	0.01Hz		
Hb157	0x3B35	0xB065	First free V/f voltage 4	0~10000	0.1V		
Hb158	0x3B36	0xB066	First free V/f frequency 5	0~59000 (Hb156)~(Hb160)	0.01Hz		
Hb159	0x3B37	0xB067	First free V/f voltage 5	0~10000	0.1V		

Func. code	Command code		Function name	Setting items	Data resolution unit		
	Read	Write					
Hb160	0x3B38	0xB068	First free V/f frequency 6	0~59000 (Hb158)~(Hb162)	0.01Hz		
Hb161	0x3B39	0xB069	First free V/f voltage 6	0~10000	0.1V		
Hb162	0x3B3A	0xB06A	First free V/f frequency 7	0~59000 (Hb160)~(Hb104)	0.01Hz		
Hb163	0x3B3B	0xB06B	First free V/f voltage 7	0~10000	0.1V		
Hb170	0x3B42	0xB072	First slip compensation P gain with sensor (V/f, A.bst)	0~1000	1%		
Hb171	0x3B43	0xB073	First slip compensation I gain with sensor (V/f, A.bst)				
Hb180	0x3B4C	0xB07C	First output voltage gain (V/f)	0~255			
Hb201	0x620D	0xD73D	Second IM motor setting	00~03	1		
Hb202	0x620E	0xD73E	Second IM motor capacity selection	1~16000	0.01kW		
Hb203	0x620F	0xD73F	Selection of number of second IM motor poles	0~23	1		
Hb204	0x6210	0xD740	Second IM base frequency	1000~59000	0.01Hz		
Hb205	0x6211	0xD741	Second IM maximum frequency				
Hb206	0x6212	0xD742	Second IM motor's rated voltage	1~1000	1V		
Hb208 (Hb209)	0x6214	0xD744	Second IM motor's rated current (High) (Low)	1~1000000	0.01A		
	0x6215	0xD745					
Hb210 (Hb211)	0x6216	0xD746	Second IM motor constant R1 (High) (Low)	1~1000000000	0.000001 Ω		
	0x6217	0xD747					
Hb212 (Hb213)	0x6218	0xD748	Second IM motor constant R2 (High) (Low)				
	0x6219	0xD749					
Hb214 (Hb215)	0x621A	0xD74A	Second IM motor constant L (High) (Low)		0.000001 mH		
	0x621B	0xD74B					
Hb216 (Hb217)	0x621C	0xD74C	Second IM motor constant Io (High) (Low)	1~1000000	0.01A		
	0x621D	0xD74D					
Hb218 (Hb219)	0x621E	0xD74E	Second IM motor constant J (High) (Low)	1~1000000000	0.00001k g·m²		
	0x621F	0xD74F					
Hb230	0x622A	0xD75A	Second minimum frequency (V/f, A.bst, IM-SLV)	10~1000	0.01Hz		
Hb231	0x622B	0xD75B	Second reduced voltage start time (V/f)	0~2000	1ms		
Hb240	0x6234	0xD764	Second manual torque boost operation mode selection	0~3	1		
Hb241	0x6235	0xD765	Second amount of manual torque boost (V/f)	0~200	0.10%		
Hb242	0x6236	0xD766	Second manual torque boost break point (V/f)	0~500			
Hb245	0x6239	0xD769	Second energy-saving operation selection (V/f)	0~1	1		
Hb246	0x623A	0xD76A	Second energy-saving response/accuracy adjustment (V/f)	0~100	1%		
Hb250	0x623E	0xD76E	Second free V/f frequency 1	0~59000 (Hb252)	0.01Hz		
Hb251	0x623F	0xD76F	Second free V/f voltage 1	0~10000	0.1V		
Hb252	0x6240	0xD770	Second free V/f frequency 2	0~59000 (Hb250)~(Hb254)	0.01Hz		
Hb253	0x6241	0xD771	Second free V/f voltage 2	0~10000	0.1V		
Hb254	0x6242	0xD772	Second free V/f frequency 3	0~59000 (Hb252)~(Hb256)	0.01Hz		
Hb255	0x6243	0xD773	Second free V/f voltage 3	0~10000	0.1V		
Hb256	0x6244	0xD774	Second free V/f frequency 4	0~59000 (Hb254)~(Hb258)	0.01Hz		
Hb257	0x6245	0xD775	Second free V/f voltage 4	0~10000	0.1V		
Hb258	0x6246	0xD776	Second free V/f frequency 5	0~59000 (Hb256)~(Hb260)	0.01Hz		
Hb259	0x6247	0xD777	Second free V/f voltage 5	0~10000	0.1V		
Hb260	0x6248	0xD778	Second free V/f frequency 6	0~59000 (Hb258)~(Hb262)	0.01Hz		
Hb261	0x6249	0xD779	Second free V/f voltage 6	0~10000	0.1V		
Hb262	0x624A	0xD77A	Second free V/f frequency 7	0~59000 (Hb260)~(Hb204)	0.01Hz		
Hb263	0x624B	0xD77B	Second free V/f voltage 7	0~10000	0.1V		
Hb270	0x6252	0xD782	Second slip compensation P gain with sensor (V/f, A.bst)	0~1000	1%		
Hb271	0x6253	0xD783	Second slip compensation I gain with sensor (V/f, A.bst)				
Hb280	0x625C	0xD78C	Second output voltage gain (V/f)	0~255			
HC101	0x3B61	0xB091	First automatic torque boost voltage compensation gain				

Func. code	Command code		Function name	Setting items	Data resolution unit		
	Read	Write					
HC102	0x3B62	0xB092	First automatic torque boost slip compensation gain	0~255	1%		
HC110	0x3B6A	0xB09A	First zero-speed range limiter (IM-0Hz-SLV)	0~100			
HC111	0x3B6B	0xB09B	First amount of boost at the start (IM-SLV)	0~50			
HC112	0x3B6C	0xB09C	First amount of boost at the start (IM-0Hz-SLV)				
HC113	0x3B6D	0xB09D	First selection of whether a secondary-resistance correction is to be conducted (IM-SLV, IM-0Hz-SLV, IM-CLV)	0~1	1		
HC114	0x3B6E	0xB09E	First selection of reversal prevention (IM-SLV, IM-0Hz-SLV, IM-CLV)				
HC120	0x3B74	0xB0A4	First time constant for torque current command filter (IM-SLV, IM-0Hz-SLV, IM-CLV, SM-CLV)	0~100	1ms		
HC121	0x3B75	0xB0A5	First speed feed forward compensation adjustment gain (IM-SLV, M-0Hz-SLV, IM-CLV, SM-CLV)	0~1000	1%		
HC137	0x3B85	0xB0B5	First flux setting level	0.0~100.0	0.1%		
HC140	0x3B88	0xB0B8	First forcing lebel	0~1000	1%		
HC141	0x3B89	0xB0B9	First modulation threshhold 1	0~133			
HC142	0x3B8A	0xB0BA	First modulation threshhold 2				
HC201	0x6271	0xD7A1	Second automatic torque boost voltage compensation gain	0~255			
HC202	0x6272	0xD7A2	Second automatic torque boost slip compensation gain				
HC210	0x627A	0xD7AA	Second zero-speed range limiter (IM-0Hz-SLV)	0~100	1%		
HC211	0x627B	0xD7AB	Second amount of boost at the start (IM-SLV)	0~50			
HC212	0x627C	0xD7AC	Second amount of boost at the start (IM-0Hz-SLV)				
HC213	0x627D	0xD7AD	Second selection of whether a secondary-resistance correction is to be conducted (IM-SLV, IM-0Hz-SLV, IM-CLV)	0~1	1		
HC214	0x627E	0xD7AE	Second selection of reversal prevention (IM-SLV, IM-0Hz-SLV, IM-CLV)				
HC220	0x6284	0xD7B4	Second time constant for torque current command filter (IM-SLV, IM-0Hz-SLV, IM-CLV, SM-CLV)	0~100	1ms		
HC221	0x6285	0xD7B5	Second speed feed forward compensation adjustment gain (IM-SLV, IM-0Hz-SLV, IM-CLV, SM-CLV)	0~1000	1%		
HC237	0x6295	0xD7C5	Second flux setting level	0.0~100.0	0.1%		
HC240	0x6298	0xD7C8	Second forcing lebel	0~1000	1%		
HC241	0x6299	0xD7C9	Second modulation threshhold 1	0~133			
HC242	0x629A	0xD7CA	Second modulation threshhold 2				
Hd102	0x3BC6	0xB0F6	First SM (PMM) motor capacity selection	1~16000	0.01kW		
Hd103	0x3BC7	0xB0F7	First selection of number of SM (PMM) motor poles	0~23	1		
Hd104	0x3BC8	0xB0F8	First SM (PMM) base frequency	1000~59000	0.01Hz		
Hd105	0x3BC9	0xB0F9	First SM (PMM) maximum frequency				
Hd106	0x3BCA	0xB0FA	First SM (PMM) motor's rated voltage	1~1000	1V		
Hd108	0x3BCC	0xB0FC	First SM (PMM) motor's rated current (High) (Low)	1~1000000	0.01A		
(Hd109)	0x3BCD	0xB0FD					
Hd110	0x3BCE	0xB0FE	First SM (PMM) motor's constant R (High) (Low)	1~10000000000	0.000001 Ω		
(Hd111)	0x3BCF	0xB0FF					
Hd112	0x3BD0	0xB100	First SM (PMM) motor's constant Ld (High) (Low)		0.000001 mH		
(Hd113)	0x3BD1	0xB101					
Hd114	0x3BD2	0xB102	First SM (PMM) motor's constant Lq (High) (Low)	1~1000000	0.1 mVs/rad		
(Hd115)	0x3BD3	0xB103					
Hd116	0x3BD4	0xB104	First SM (PMM) motor's constant Ke (High) (Low)				
(Hd117)	0x3BD5	0xB105					
Hd118	0x3BD6	0xB106	First SM (PMM) motor's constant J (High) (Low)	1~10000000000	0.00001 kg·m ²		
(Hd119)	0x3BD7	0xB107					
Hd130	0x3BE2	0xB112	First SM minimum frequency (switch) (SM-SLV, SM-IVMS)	0~50	1%		
Hd131	0x3BE3	0xB113	First SM no-load current (SM-SLV, SM-IVMS)	0~100			
Hd132	0x3BE4	0xB114	First SM start method selection(SM-SLV, SM-IVMS, SM-CLV)	0~1			
Hd133	0x3BE5	0xB115	First SM initial position estimation zero-V stand-by times (SM-SLV, SM-IVMS, SM-CLV)	0~255	1		
Hd134	0x3BE6	0xB116	First SM initial position estimation detection stand-by times (SM-SLV, SM-IVMS, SM-CLV)				
Hd135	0x3BE7	0xB117	First SM initial position estimation detection times (SM-SLV, SM-IVMS, SM-CLV)	0~255	1		

Func. code	Command code		Function name	Setting items	Data resolution unit	
	Read	Write				
Hd136	0x3BE8	0xB118	First SM initial position estimation voltage gain (SM-SLV, SM-IVMS, SM-CLV)	0~200	1%	
Hd137	0x3BE9	0xB119	First SM initial position estimation magnetic-pole position offset (SM-SLV, SM-IVMS, SM-CLV)	0~359	1deg	
Hd-41	0x3BED	0xB11D	IVMS carrier frequency *	5~160	0.1kHz	
Hd-42	0x3BEE	0xB11E	Filter gain of IVMS detection current *	0~1000	1	
Hd-43	0x3BEF	0xB11F	Open-phase voltage detection gain selection *	0~3		
Hd-44	0x3BF0	0xB120	Selection of open-phase switch threshold correction *	0~1		
Hd-45	0x3BF1	0xB121	Speed control P gain *	0~1000		
Hd-46	0x3BF2	0xB122	Speed control I gain *	0~10000		
Hd-47	0x3BF3	0xB123	Waiting time for open-phase switching *	0~1000		
Hd-48	0x3BF4	0xB124	Restriction on the rotation-direction determination *	0~1		
Hd-49	0x3BF5	0xB125	Adjustment of the timing for detecting the open-phase voltage *	0~1000		
Hd-50	0x3BF6	0xB126	Minimum pulse width adjustment *	0~255		
Hd-51	0x3BF7	0xB127	Current limit of IVMS threshold *	0~255		
Hd-52	0x3BF8	0xB128	IVMS threshold gain *	0~50		
Hd-58	0x3BFE	0xB12E	IVMS carrier-frequency switching start/finish point *	0~1000000000	1%	
Hd202	0x62D6	0xD806	Second SM (PMM) motor capacity selection	1~16000	0.01kW	
Hd203	0x62D7	0xD807	Second selection of number of SM (PMM) motor poles	0~23	1	
Hd204	0x62D8	0xD808	Second SM (PMM) base frequency	1000~59000	0.01Hz	
Hd205	0x62D9	0xD809	Second SM (PMM) maximum frequency	1~1000	1V	
Hd206	0x62DA	0xD80A	Second SM (PMM) motor's rated voltage	1~1000	1V	
Hd208	0x62DC	0xD80C	Second SM (PMM) motor's rated current (High) (Low)	1~1000000000	0.01A	
(Hd209)	0x62DD	0xD80D				
Hd210	0x62DE	0xD80E	Second SM (PMM) motor's constant R (High) (Low)	1~1000000000000	0.000001 Ω	
(Hd211)	0x62DF	0xD80F				
Hd212	0x62E0	0xD810	Second SM (PMM) motor's constant Ld (High) (Low)		0.000001 mH	
(Hd213)	0x62E1	0xD811				
Hd214	0x62E2	0xD812	Second SM (PMM) motor's constant Lq (High) (Low)		0.000001 mH	
(Hd215)	0x62E3	0xD813				
Hd216	0x62E4	0xD814	Second SM (PMM) motor's constant Ke (High) (Low)	1~1000000000	0.1 mVs/rad	
(Hd217)	0x62E5	0xD815				
Hd218	0x62E6	0xD816	Second SM (PMM) motor's constant J (High) (Low)	1~1000000000000	0.00001 kg·m²	
(Hd219)	0x62E7	0xD817				
Hd230	0x62F2	0xD822	Second SM minimum frequency (switch) (SM-SLV, SM-IVMS)	0~50	1%	
Hd231	0x62F3	0xD823	Second SM no-load current (SM-SLV, SM-IVMS)	0~100		
Hd232	0x62F4	0xD824	First SM start method selection(SM-SLV, SM-IVMS, SM-CLV)	0~1		
Hd233	0x62F5	0xD825	Second SM initial position estimation zero-V stand-by times (SM-SLV, SM-IVMS, SM-CLV)	0~255	1	
Hd234	0x62F6	0xD826	Second SM initial position estimation detection stand-by times (SM-SLV, SM-IVMS, SM-CLV)			
Hd235	0x62F7	0xD827	Second SM initial position estimation detection times (SM-SLV, SM-IVMS, SM-CLV)			
Hd236	0x62F8	0xD828	Second SM initial position estimation voltage gain (SM-SLV, SM-IVMS, SM-CLV)	0~200	1%	
Hd237	0x62F9	0xD829	Second SM initial position estimation magnetic-pole position offset (SM-SLV, SM-IVMS, SM-CLV)	0~359	1deg	

* Hd-41 to 58 are reserved parameters.

12.2.7 Code-o

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
oA-10	0x3E8A	0xB3BA	Operation selection when option error occurs (SLOT-1)	0~1	1
oA-11	0x3E8B	0xB3BB	Communication monitoring timer setting	0~10000	0.01s
oA-12	0x3E8C	0xB3BC	Operation setting at the time of communication error	0~4	
oA-13	0x3E8D	0xB3BD	Selection of operation command behavior at start of option (SLOT-1)	0~1	1
oA-20	0x3E94	0xB3C4	Operation selection when option error occurs (SLOT-2)		
oA-21	0x3E95	0xB3C5	Communication monitoring timer setting	0~10000	0.01s
oA-22	0x3E96	0xB3C6	Operation setting at the time of communication error	0~4	
oA-23	0x3E97	0xB3C7	Selection of operation command behavior at start of option (SLOT-2)	0~1	1
oA-30	0x3E9E	0xB3CE	Operation selection when option error occurs (SLOT-3)		
oA-31	0x3E9F	0xB3CF	Communication monitoring timer setting	0~10000	0.01s
oA-32	0x3EA0	0xB3D0	Operation setting at the time of communication error	0~4	1
oA-33	0x3EA1	0xB3D1	Selection of operation command behavior at start of option (SLOT-3)	0~1	1
ob-01	0x3EE5	0xB415	Encoder constant set-up (option)	32~65535	1pls
ob-02	0x3EE6	0xB416	Encoder phase sequence selection (option)	0~1	
ob-03	0x3EE7	0xB417	Motor gear ratio's numerator (option)	1~10000	
ob-04	0x3EE8	0xB418	Motor gear ratio's denominator (option)	1~10000	1
ob-10	0x3EEE	0xB41E	Pulse train input SA/SB (option) detection target selection	0~1	
ob-11	0x3EEF	0xB41F	Pulse train input SA/SB (option) mode selection	0~2	
ob-12	0x3EF0	0xB420	Pulse train frequency scale (option)	5~20000	0.01kHz
ob-13	0x3EF1	0xB421	Pulse train frequency filter time constant (option)	1~200	0.01s
ob-14	0x3EF2	0xB422	Pulse train frequency bias amount (option)	-1000~1000	
ob-15	0x3EF3	0xB423	Pulse train frequency detection upper limit (option)	0~1000	0.10%
ob-16	0x3EF4	0xB424	Pulse train frequency detection lower level (option)		
oC-01 to oC-28	0x3F49 to 0x3F64	0xB479 to 0xB494	Reserved	-	-
oE-01	0x4011	0xB541	[Ai4] terminal input filter time constant	1~500	1ms
oE-03	0x4013	0xB543	[Ai4] terminal start amount	0~10000	0.01%
oE-04	0x4014	0xB544	[Ai4] terminal end amount		
oE-05	0x4015	0xB545	[Ai4] terminal start ratio	0~1000 (oE-06) (oE-05) 0~1000	0.10%
oE-06	0x4016	0xB546	[Ai4] terminal end ratio		
oE-07	0x4017	0xB547	[Ai4] terminal start selection	0~1	1
oE-11	0x401B	0xB54B	[Ai5] terminal input filter time constant	1~500	1ms
oE-13	0x401D	0xB54D	[Ai5] terminal start amount	0~10000	0.01%
oE-14	0x401E	0xB54E	[Ai5] terminal end amount		
oE-15	0x401F	0xB54F	[Ai5] terminal start ratio	0~1000 (oE-16) (oE-15) 0~1000	0.10%
oE-16	0x4020	0xB550	[Ai5] terminal end ratio		
oE-17	0x4021	0xB551	[Ai5] terminal start selection	0~1	1
oE-21	0x4025	0xB555	[Ai6] terminal input filter time constant	1~500	1ms
oE-23	0x4027	0xB557	[Ai6] terminal start amount	-10000~10000	0.01%
oE-24	0x4028	0xB558	[Ai6] terminal end amount		
oE-25	0x4029	0xB559	[Ai6] terminal start ratio	-1000~1000 (oE-26) (oE-25) -1000~1000	0.10%
oE-26	0x402A	0xB55A	[Ai6] terminal end ratio		
oE-28	0x402C	0xB55C	[Ai4] voltage/current bias adjustment	-10000~10000	
oE-29	0x402D	0xB55D	[Ai4] voltage/current adjustment gain	0~20000	
oE-30	0x402E	0xB55E	[Ai5] voltage/current bias adjustment	-10000~10000	
oE-31	0x402F	0xB55F	[Ai5] voltage/current adjustment gain	0~20000	
oE-32	0x4030	0xB560	[Ai6] voltage bias adjustment	-10000~10000	
oE-33	0x4031	0xB561	[Ai6] voltage adjustment gain	0~20000	
oE-35	0x4033	0xB563	Window comparator [Ai4] upper limit level	0~100	1%
oE-36	0x4034	0xB564	Window comparator [Ai4] lower limit level		
oE-37	0x4035	0xB565	Window comparator [Ai4] hysteresis range	0~10	

Func. code	Command code		Function name	Setting items	Data resolution unit	
	Read	Write				
oE-38	0x4036	0xB566	Window comparator [Ai5] upper limit level	0~100 0~10 -100~100 0~10 0~100 0~2 0~100 0~2 -100~100	1%	
oE-39	0x4037	0xB567	Window comparator [Ai5] lower limit level			
oE-40	0x4038	0xB568	Window comparator [Ai5] hysteresis range			
oE-41	0x4039	0xB569	Window comparator [Ai6] upper limit level			
oE-42	0x403A	0xB56A	Window comparator [Ai6] lower limit level			
oE-43	0x403B	0xB56B	Window comparator [Ai6] hysteresis range			
oE-44	0x403C	0xB56C	[AI4] operation level at disconnection			
oE-45	0x403D	0xB56D	[AI4] operation level selection at disconnection			
oE-46	0x403E	0xB56E	[AI5] operation level at disconnection			
oE-47	0x403F	0xB56F	[AI5] operation level selection at disconnection	0~2	1	
oE-48	0x4040	0xB570	[AI6] operation level at disconnection	-100~100	1%	
oE-49	0x4041	0xB571	[AI6] operation level selection at disconnection	0~2	1	
oE-50	0x4042	0xB572	[Ao3] terminal output selection	0 to 65535 (register No.)		
oE-51	0x4043	0xB573	[Ao4] terminal output selection			
oE-52	0x4044	0xB574	[Ao5] terminal output selection			
oE-56	0x4048	0xB578	[Ao3] output filter time constant	1~500	1ms	
oE-57	0x4049	0xB579	[Ao3] terminal sign selection	0~1	1	
oE-58	0x404A	0xB57A	[Ao3] bias adjustment (voltage/current)	-1000~1000	0.10%	
oE-59	0x404B	0xB57B	[Ao3] gain adjustment (voltage/current)	-10000~10000		
oE-60	0x404C	0xB57C	[Ao3] output level in the adjustment mode	-1000~1000		
oE-61	0x404D	0xB57D	[Ao4] output filter time constant	1~500	1ms	
oE-62	0x404E	0xB57E	[Ao4] output data type selection	0~1	1	
oE-63	0x404F	0xB57F	[Ao4] bias adjustment (voltage/current)	-1000~1000	0.10%	
oE-64	0x4050	0xB580	[Ao4] gain adjustment (voltage/current)	-10000~10000		
oE-65	0x4051	0xB581	[Ao4] output level in the adjustment mode	-1000~1000		
oE-66	0x4052	0xB582	[Ao5] output filter time constant	1~500	1ms	
oE-67	0x4053	0xB583	[Ao5] output data type selection	0~1	1	
oE-68	0x4054	0xB584	[Ao5] bias adjustment (voltage)	-1000~1000	0.10%	
oE-69	0x4055	0xB585	[Ao5] gain adjustment (voltage)	-10000~10000		
oE-70	0x4056	0xB586	[Ao5] output level in the adjustment mode	-1000~1000		
oH-01	0x413D	0xB66D	IP address selection (P1-EN)	0~1	1	
oH-02	0x413E	0xB66E	Transmission speed (port 1) (P1-EN)	0~4		
oH-03	0x413F	0xB66F	Transmission speed (port 2) (P1-EN)			
oH-04	0x4140	0xB670	Ethernet communication timeout (P1-EN)	1~65535	1 (x 10ms)	
oH-05	0x4141	0xB671	Modbus TCP port number (IPv4)	502, 1024~65535	1	
oH-06	0x4142	0xB672	Modbus TCP port number (IPv6)			
oH-20	0x4150	0xB680	Profibus Node address	0~125		
oH-21	0x4151	0xB681	Profibus Clear Mode selection	0~1		
oH-22	0x4152	0xB682	Profibus Map selection	0~2		
oH-23	0x4153	0xB683	Selection of setting from the Profibus master	0~1		
oH-24	0x4154	0xB684	Selection of setpoint telegram/Actual value telegram Gr (P1-PB)	0~2		
oH-30	0x415A	0xB68A	IP address selection (P1-PN)	0~1		
oH-31	0x415B	0xB68B	Transmission speed (port 1) (P1-PN)	0~4		
oH-32	0x415C	0xB68C	Transmission speed (port 2) (P1-PN)			
oH-33	0x415D	0xB68D	Ethernet communication timeout (P1-PN)	1~65535	1 (x 10ms)	
oH-34	0x415E	0xB68E	Selection of setpoint telegram/Actual value telegram Gr (P1-PN)	0~2	1	
oJ-01	0x41A1	0xB6D1	Gr.A flexible command registration writing register 1	0~65535		
oJ-02	0x41A2	0xB6D2	Gr.A flexible command registration writing register 2			
oJ-03	0x41A3	0xB6D3	Gr.A flexible command registration writing register 3			
oJ-04	0x41A4	0xB6D4	Gr.A flexible command registration writing register 4			
oJ-05	0x41A5	0xB6D5	Gr.A flexible command registration writing register 5			
oJ-06	0x41A6	0xB6D6	Gr.A flexible command registration writing register 6			
oJ-07	0x41A7	0xB6D7	Gr.A flexible command registration writing register 7			
oJ-08	0x41A8	0xB6D8	Gr.A flexible command registration writing register 8			
oJ-09	0x41A9	0xB6D9	Gr.A flexible command registration writing register 9			

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
oJ-10	0x41AA	0xB6DA	Gr.A flexible command registration writing register 10		
oJ-11	0x41AB	0xB6DB	Gr.A flexible command registration reading register 1		
oJ-12	0x41AC	0xB6DC	Gr.A flexible command registration reading register 2		
oJ-13	0x41AD	0xB6DD	Gr.A flexible command registration reading register 3		
oJ-14	0x41AE	0xB6DE	Gr.A flexible command registration reading register 4		
oJ-15	0x41AF	0xB6DF	Gr.A flexible command registration reading register 5		
oJ-16	0x41B0	0xB6E0	Gr.A flexible command registration reading register 6		
oJ-17	0x41B1	0xB6E1	Gr.A flexible command registration reading register 7		
oJ-18	0x41B2	0xB6E2	Gr.A flexible command registration reading register 8		
oJ-19	0x41B3	0xB6E3	Gr.A flexible command registration reading register 9		
oJ-20	0x41B4	0xB6E4	Gr.A flexible command registration reading register 10		
oJ-21	0x41B5	0xB6E5	Gr.B flexible command registration writing register 1		
oJ-22	0x41B6	0xB6E6	Gr.B flexible command registration writing register 2		
oJ-23	0x41B7	0xB6E7	Gr.B flexible command registration writing register 3		
oJ-24	0x41B8	0xB6E8	Gr.B flexible command registration writing register 4		
oJ-25	0x41B9	0xB6E9	Gr.B flexible command registration writing register 5		
oJ-26	0x41BA	0xB6EA	Gr.B flexible command registration writing register 6		
oJ-27	0x41BB	0xB6EB	Gr.B flexible command registration writing register 7		
oJ-28	0x41BC	0xB6EC	Gr.B flexible command registration writing register 8		
oJ-29	0x41BD	0xB6ED	Gr.B flexible command registration writing register 9		
oJ-30	0x41BE	0xB6EE	Gr.B flexible command registration writing register 10		
oJ-31	0x41BF	0xB6EF	Gr.B flexible command registration reading register 1		
oJ-32	0x41C0	0xB6F0	Gr.B flexible command registration reading register 2		
oJ-33	0x41C1	0xB6F1	Gr.B flexible command registration reading register 3		
oJ-34	0x41C2	0xB6F2	Gr.B flexible command registration reading register 4		
oJ-35	0x41C3	0xB6F3	Gr.B flexible command registration reading register 5		
oJ-36	0x41C4	0xB6F4	Gr.B flexible command registration reading register 6		
oJ-37	0x41C5	0xB6F5	Gr.B flexible command registration reading register 7		
oJ-38	0x41C6	0xB6F6	Gr.B flexible command registration reading register 8		
oJ-39	0x41C7	0xB6F7	Gr.B flexible command registration reading register 9		
oJ-40	0x41C8	0xB6F8	Gr.B flexible command registration reading register 10		
oJ-41	0x41C9	0xB6F9	Gr.C flexible command registration writing register 1		
oJ-42	0x41CA	0xB6FA	Gr.C flexible command registration writing register 2		
oJ-43	0x41CB	0xB6FB	Gr.C flexible command registration writing register 3		
oJ-44	0x41CC	0xB6FC	Gr.C flexible command registration writing register 4		
oJ-45	0x41CD	0xB6FD	Gr.C flexible command registration writing register 5		
oJ-46	0x41CE	0xB6FE	Gr.C flexible command registration writing register 6		
oJ-47	0x41CF	0xB6FF	Gr.C flexible command registration writing register 7		
oJ-48	0x41D0	0xB700	Gr.C flexible command registration writing register 8		
oJ-49	0x41D1	0xB701	Gr.C flexible command registration writing register 9		
oJ-50	0x41D2	0xB702	Gr.C flexible command registration writing register 10		
oJ-51	0x41D3	0xB703	Gr.C flexible command registration reading register 1		
oJ-52	0x41D4	0xB704	Gr.C flexible command registration reading register 2		
oJ-53	0x41D5	0xB705	Gr.C flexible command registration reading register 3		
oJ-54	0x41D6	0xB706	Gr.C flexible command registration reading register 4		
oJ-55	0x41D7	0xB707	Gr.C flexible command registration reading register 5		
oJ-56	0x41D8	0xB708	Gr.C flexible command registration reading register 6		
oJ-57	0x41D9	0xB709	Gr.C flexible command registration reading register 7		
oJ-58	0x41DA	0xB70A	Gr.C flexible command registration reading register 8		
oJ-59	0x41DB	0xB70B	Gr.C flexible command registration reading register 9		
oJ-60	0x41DC	0xB70C	Gr.C flexible command registration reading register 10		
oL-01	0x4205	0xB735	Gr.1 IPv4 IP address (1)		
oL-02	0x4206	0xB736	Gr.1 IPv4 IP address (2)		
oL-03	0x4207	0xB737	Gr.1 IPv4 IP address (3)		
oL-04	0x4208	0xB738	Gr.1 IPv4 IP address (4)		
oL-05	0x4209	0xB739	Gr.1 IPv4 subnet mask (1)		
oL-06	0x420A	0xB73A	Gr.1 IPv4 subnet mask (2)		
oL-07	0x420B	0xB73B	Gr.1 IPv4 subnet mask (3)		

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
oL-08	0x420C	0xB73C	Gr.1 IPv4 subnet mask (4)	0 ~ 255	
oL-09	0x420D	0xB73D	Gr.1 IPv4 default gateway (1)		
oL-10	0x420E	0xB73E	Gr.1 IPv4 default gateway (2)		
oL-11	0x420F	0xB73F	Gr.1 IPv4 default gateway (3)		
oL-12	0x4210	0xB740	Gr.1 IPv4 default gateway (4)		
oL-20	0x4218	0xB748	Gr.1 IPv6 IP address (1)		
oL-21	0x4219	0xB749	Gr.1 IPv6 IP address (2)		
oL-22	0x421A	0xB74A	Gr.1 IPv6 IP address (3)		
oL-23	0x421B	0xB74B	Gr.1 IPv6 IP address (4)	0 ~ 65535	
oL-24	0x421C	0xB74C	Gr.1 IPv6 IP address (5)		
oL-25	0x421D	0xB74D	Gr.1 IPv6 IP address (6)		
oL-26	0x421E	0xB74E	Gr.1 IPv6 IP address (7)		
oL-27	0x421F	0xB74F	Gr.1 IPv6 IP address (8)		
oL-28	0x4220	0xB750	Gr.1 IPv6 subnet prefix	0 ~ 127	
oL-29	0x4221	0xB751	Gr.1 IPv6 default gateway (1)	0 ~ 65535	
oL-30	0x4222	0xB752	Gr.1 IPv6 default gateway (2)		
oL-31	0x4223	0xB753	Gr.1 IPv6 default gateway (3)		
oL-32	0x4224	0xB754	Gr.1 IPv6 default gateway (4)		
oL-33	0x4225	0xB755	Gr.1 IPv6 default gateway (5)		
oL-34	0x4226	0xB756	Gr.1 IPv6 default gateway (6)		
oL-35	0x4227	0xB757	Gr.1 IPv6 default gateway (7)		
oL-36	0x4228	0xB758	Gr.1 IPv6 default gateway (8)		
oL-40	0x422C	0xB75C	Gr.2 IPv4 IP address (1)	0 ~ 255	
oL-41	0x422D	0xB75D	Gr.2 IPv4 IP address (2)		
oL-42	0x422E	0xB75E	Gr.2 IPv4 IP address (3)		
oL-43	0x422F	0xB75F	Gr.2 IPv4 IP address (4)		
oL-44	0x4230	0xB760	Gr.2 IPv4 subnet mask (1)		
oL-45	0x4231	0xB761	Gr.2 IPv4 subnet mask (2)		
oL-46	0x4232	0xB762	Gr.2 IPv4 subnet mask (3)		
oL-47	0x4233	0xB763	Gr.2 IPv4 subnet mask (4)		
oL-48	0x4234	0xB764	Gr.2 IPv4 default gateway (1)	0 ~ 65535	
oL-49	0x4235	0xB765	Gr.2 IPv4 default gateway (2)		
oL-50	0x4236	0xB766	Gr.2 IPv4 default gateway (3)		
oL-51	0x4237	0xB767	Gr.2 IPv4 default gateway (4)		
oL-60	0x4240	0xB770	Gr.2 IPv6 IP address (1)		
oL-61	0x4241	0xB771	Gr.2 IPv6 IP address (2)		
oL-62	0x4242	0xB772	Gr.2 IPv6 IP address (3)		
oL-63	0x4243	0xB773	Gr.2 IPv6 IP address (4)		
oL-64	0x4244	0xB774	Gr.2 IPv6 IP address (5)	0 ~ 65535	
oL-65	0x4245	0xB775	Gr.2 IPv6 IP address (6)		
oL-66	0x4246	0xB776	Gr.2 IPv6 IP address (7)		
oL-67	0x4247	0xB777	Gr.2 IPv6 IP address (8)		
oL-68	0x4248	0xB778	Gr.2 IPv6 subnet prefix	0 ~ 127	
oL-69	0x4249	0xB779	Gr.2 IPv6 default gateway (1)	0 ~ 65535	
oL-70	0x424A	0xB77A	Gr.2 IPv6 default gateway (2)		
oL-71	0x424B	0xB77B	Gr.2 IPv6 default gateway (3)		
oL-72	0x424C	0xB77C	Gr.2 IPv6 default gateway (4)		
oL-73	0x424D	0xB77D	Gr.2 IPv6 default gateway (5)		
oL-74	0x424E	0xB77E	Gr.2 IPv6 default gateway (6)		
oL-75	0x424F	0xB77F	Gr.2 IPv6 default gateway (7)		
oL-76	0x4250	0xB780	Gr.2 IPv6 default gateway (8)		

12.2.8 Code-P

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
PA-01	0x4269	0xB799	Em-Force mode selection	0~1	1
PA-02	0x426A	0xB79A	Em-Force mode frequency setting	0~59000	0.01Hz
PA-03	0x426B	0xB79B	Rotation direction command in the Em-Force mode	0~1	1
PA-04	0x426C	0xB79C	Commercial power supply bypass function selection		
PA-05	0x426D	0xB79D	Bypass function delay time	0~10000	0.1s
PA-20	0x427C	0xB7AC	Simulation mode selection	0~1	1
PA-21	0x427D	0xB7AD	Selection of error code for alarm test	0~255	
PA-22	0x427E	0xB7AE	Output current monitor optional output selection	0~7	
PA-23	0x427F	0xB7AF	Output current monitor optional setting value	(0 to 3.00) x Inverter rated current	0.1A
PA-24	0x4280	0xB7B0	P-N voltage monitor optional output selection	0 ~ 7	1
PA-25	0x4281	0xB7B1	P-N voltage monitor optional setting value	200Vclass:0~4500 400Vclass:0~9000	0.1Vdc
PA-26	0x4282	0xB7B2	Output voltage monitor optional output selection	0~7	1
PA-27	0x4283	0xB7B3	Output voltage monitor optional setting value	200Vclass:0~3000 400Vclass:0~6000	0.1V
PA-28	0x4284	0xB7B4	Output torque monitor optional output selection	0~7	1
PA-29	0x4285	0xB7B5	Output torque monitor optional setting value	-5000~5000	0.10%
PA-30	0x4286	0xB7B6	Frequency adjustment optional output selection	0~7	1
PA-31	0x4287	0xB7B7	Frequency matching frequency optional setting value	0~59000	0.01Hz

12.2.9 Code-U

Func. code	Command code		Function name	Setting items	Data resolution unit	
	Read	Write				
UA-10	0x465A	0xBB8A	Display selection	0~4	1	
UA-12	0x465C	0xBB8C	Clearing of integrated input power	0~1		
UA-13	0x465D	0xBB8D	Integrated input power display gain	1~1000		
UA-14	0x465E	0xBB8E	Clearing of integrated output power	0~1		
UA-15	0x465F	0xBB8F	Integrated output power display gain	1~1000		
UA-16	0x4660	0xBB90	Soft-lock selection	0~1		
UA-17	0x4661	0xBB91	Soft-lock target selection			
UA-18	0x4662	0xBB92	Data R/W selection			
UA-19	0x4663	0xBB93	Battery level warning selection	0~2		
UA-20	0x4664	0xBB94	Operation selection at disconnection of operator keypad	0~4		
UA-21	0x4665	0xBB95	Second setting parameter display selection	0~1		
UA-22	0x4666	0xBB96	Option parameter display selection (when full display is selected)			
UA-30	0x466E	0xBB9E	User parameter auto setting selection			
UA-31	0x466F	0xBB9F	User parameter 1 selection	0 to 65535 (register No.)		
UA-32	0x4670	0xBBAA	User parameter 2 selection			
UA-33	0x4671	0xBBAB	User parameter 3 selection			
UA-34	0x4672	0xBBAC	User parameter 4 selection			
UA-35	0x4673	0xBBAD	User parameter 5 selection			
UA-36	0x4674	0xBBAE	User parameter 6 selection			
UA-37	0x4675	0xBBAF	User parameter 7 selection			
UA-38	0x4676	0xBBB0	User parameter 8 selection			
UA-39	0x4677	0xBBB1	User parameter 9 selection			
UA-40	0x4678	0xBBB2	User parameter 10 selection			
UA-41	0x4679	0xBBB3	User parameter 11 selection			
UA-42	0x467A	0xBBB4	User parameter 12 selection			
UA-43	0x467B	0xBBB5	User parameter 13 selection			
UA-44	0x467C	0xBBB6	User parameter 14 selection			

Func. code	Command code		Function name	Setting items	Data resolution unit	
	Read	Write				
UA-45	0x467D	0xBBAD	User parameter 15 selection	0 to 65535 (register No.)	1	
UA-46	0x467E	0xBBAE	User parameter 16 selection			
UA-47	0x467F	0xBBAF	User parameter 17 selection			
UA-48	0x4680	0xBBB0	User parameter 18 selection			
UA-49	0x4681	0xBBB1	User parameter 19 selection			
UA-50	0x4682	0xBBB2	User parameter 20 selection			
UA-51	0x4683	0xBBB3	User parameter 21 selection			
UA-52	0x4684	0xBBB4	User parameter 22 selection			
UA-53	0x4685	0xBBB5	User parameter 23 selection			
UA-54	0x4686	0xBBB6	User parameter 24 selection			
UA-55	0x4687	0xBBB7	User parameter 25 selection			
UA-56	0x4688	0xBBB8	User parameter 26 selection			
UA-57	0x4689	0xBBB9	User parameter 27 selection			
UA-58	0x468A	0xBBBA	User parameter 28 selection			
UA-59	0x468B	0xBBBB	User parameter 29 selection			
UA-60	0x468C	0xBBBC	User parameter 30 selection			
UA-61	0x468D	0xBBBD	User parameter 31 selection			
UA-62	0x468E	0xBBBE	User parameter 32 selection			
UA-90 to UA-94	0x46AA to 0x46AE	0xBBDA to 0xBBDE	Reserved	-	-	
Ub-01	0x46B5	0xBBE5	Selection of initialization	0~8	0 to 65535 register No. of d, F codes	
Ub-02	0x46B6	0xBBE6	Selection of initial values	0~3		
Ub-03	0x46B7	0xBBE7	Load type selection	0~2		
Ub-05	0x46B9	0xBBE9	Initialization start selection	0~1		
UC-01	0x4719	0xBC49	Debug mode selection	0~3		
Ud-01	0x477D	0xBCAD	Trace function selection	0~1		
Ud-02	0x477E	0xBCAE	Trace start			
Ud-03	0x477F	0xBCAF	Selection of the number of trace data	0~8		
Ud-04	0x4780	0xBCB0	Trace signal number selection			
Ud-10	0x4786	0xBCB6	Trace data -0 selection	0 to 65535 register No. of d, F codes	1	
Ud-11	0x4787	0xBCB7	Trace data -1 selection			
Ud-12	0x4788	0xBCB8	Trace data -2 selection			
Ud-13	0x4789	0xBCB9	Trace data -3 selection			
Ud-14	0x478A	0xBCBA	Trace data -4 selection			
Ud-15	0x478B	0xBCBB	Trace data -5 selection			
Ud-16	0x478C	0xBCBC	Trace data -6 selection			
Ud-17	0x478D	0xBCBD	Trace data -7 selection			
Ud-20	0x4790	0xBCC0	Trace signal -0 I/O selection	0~1		
Ud-21	0x4791	0xBCC1	Trace signal -0 input terminal selection	0~110		
Ud-22	0x4792	0xBCC2	Trace signal -0 output terminal selection	0~93		
Ud-23	0x4793	0xBCC3	Trace signal -1 I/O selection	0~1		
Ud-24	0x4794	0xBCC4	Trace signal -1 input terminal selection	0~110		
Ud-25	0x4795	0xBCC5	Trace signal -1 output terminal selection	0~93		
Ud-26	0x4796	0xBCC6	Trace signal -2 I/O selection	0~1		
Ud-27	0x4797	0xBCC7	Trace signal -2 input terminal selection	0~110		
Ud-28	0x4798	0xBCC8	Trace signal -2 output terminal selection	0~93		
Ud-29	0x4799	0xBCC9	Trace signal -3 I/O selection	0~1		
Ud-30	0x479A	0xBCCA	Trace signal -3 input terminal selection	0~110		
Ud-31	0x479B	0xBCCB	Trace signal -3 output terminal selection	0~93		
Ud-32	0x479C	0xBCCC	Trace signal -4 I/O selection	0~1		
Ud-33	0x479D	0xBCCD	Trace signal -4 input terminal selection	0~110		
Ud-34	0x479E	0xBCCE	Trace signal -4 output terminal selection	0~93		
Ud-35	0x479F	0xBCCF	Trace signal -5 I/O selection	0~1		
Ud-36	0x47A0	0xBCD0	Trace signal -5 input terminal selection	0~110		
Ud-37	0x47A1	0xBCD1	Trace signal -5 output terminal selection	0~93		
Ud-38	0x47A2	0xBCD2	Trace signal -6 I/O selection	0~1		
Ud-39	0x47A3	0xBCD3	Trace signal -6 input terminal selection	0~110		

Func. code	Command code		Function name	Setting items	Data resolution unit
	Read	Write			
Ud-40	0x47A4	0xBCD4	Trace signal -6 output terminal selection	0~93	1
Ud-41	0x47A5	0xBCD5	Trace signal -7 I/O selection	0~1	
Ud-42	0x47A6	0xBCD6	Trace signal -7 input terminal selection	0~110	
Ud-43	0x47A7	0xBCD7	Trace signal -7 output terminal selection	0~93	
Ud-50	0x47AE	0xBCDE	Trace trigger 1 selection	0~16	
Ud-51	0x47AF	0xBCDF	Selection of trigger 1 operation at trace data trigger	0~1	
Ud-52	0x47B0	0xBCE0	Trigger 1 level at trace data trigger	0~100	1%
Ud-53	0x47B1	0xBCE1	Selection of trigger 1 operation at trace signal trigger	0~1	
Ud-54	0x47B2	0xBCE2	Trace trigger 2 selection	0~16	
Ud-55	0x47B3	0xBCE3	Selection of trigger 2 operation at trace data trigger	0~1	
Ud-56	0x47B4	0xBCE4	Trigger 2 level at trace data trigger	0~100	1%
Ud-57	0x47B5	0xBCE5	Selection of trigger 2 operation at trace signal trigger	0~1	1
Ud-58	0x47B6	0xBCE6	Trigger condition selection	0~3	
Ud-59	0x47B7	0xBCE7	Trigger point setting	0~100	
Ud-60	0x47B8	0xBCE8	Sampling time setting	1~10	0 ~ 65535
UE-01	0x47E1	0xBD11	EzSQ execution interval	0~1	
UE-02	0x47E2	0xBD12	EzSQ function selection	0~2	
UE-10	0x47EA	0xBD1A	EzSQ user parameter U (00)		
UE-11	0x47EB	0xBD1B	EzSQ user parameter U (01)		
UE-12	0x47EC	0xBD1C	EzSQ user parameter U (02)		
UE-13	0x47ED	0xBD1D	EzSQ user parameter U (03)		
UE-14	0x47EE	0xBD1E	EzSQ user parameter U (04)		
UE-15	0x47EF	0xBD1F	EzSQ user parameter U (05)		
UE-16	0x47F0	0xBD20	EzSQ user parameter U (06)		
UE-17	0x47F1	0xBD21	EzSQ user parameter U (07)		
UE-18	0x47F2	0xBD22	EzSQ user parameter U (08)		
UE-19	0x47F3	0xBD23	EzSQ user parameter U (09)		
UE-20	0x47F4	0xBD24	EzSQ user parameter U (10)		
UE-21	0x47F5	0xBD25	EzSQ user parameter U (11)		
UE-22	0x47F6	0xBD26	EzSQ user parameter U (12)		
UE-23	0x47F7	0xBD27	EzSQ user parameter U (13)		
UE-24	0x47F8	0xBD28	EzSQ user parameter U (14)		
UE-25	0x47F9	0xBD29	EzSQ user parameter U (15)		
UE-26	0x47FA	0xBD2A	EzSQ user parameter U (16)		
UE-27	0x47FB	0xBD2B	EzSQ user parameter U (17)		
UE-28	0x47FC	0xBD2C	EzSQ user parameter U (18)		
UE-29	0x47FD	0xBD2D	EzSQ user parameter U (19)		
UE-30	0x47FE	0xBD2E	EzSQ user parameter U (20)		
UE-31	0x47FF	0xBD2F	EzSQ user parameter U (21)		
UE-32	0x4800	0xBD30	EzSQ user parameter U (22)		1
UE-33	0x4801	0xBD31	EzSQ user parameter U (23)		
UE-34	0x4802	0xBD32	EzSQ user parameter U (24)		
UE-35	0x4803	0xBD33	EzSQ user parameter U (25)		
UE-36	0x4804	0xBD34	EzSQ user parameter U (26)		
UE-37	0x4805	0xBD35	EzSQ user parameter U (27)		
UE-38	0x4806	0xBD36	EzSQ user parameter U (28)		
UE-39	0x4807	0xBD37	EzSQ user parameter U (29)		
UE-40	0x4808	0xBD38	EzSQ user parameter U (30)		
UE-41	0x4809	0xBD39	EzSQ user parameter U (31)		
UE-42	0x480A	0xBD3A	EzSQ user parameter U (32)		
UE-43	0x480B	0xBD3B	EzSQ user parameter U (33)		
UE-44	0x480C	0xBD3C	EzSQ user parameter U (34)		
UE-45	0x480D	0xBD3D	EzSQ user parameter U (35)		
UE-46	0x480E	0xBD3E	EzSQ user parameter U (36)		
UE-47	0x480F	0xBD3F	EzSQ user parameter U (37)		
UE-48	0x4810	0xBD40	EzSQ user parameter U (38)		
UE-49	0x4811	0xBD41	EzSQ user parameter U (39)		
UE-50	0x4812	0xBD42	EzSQ user parameter U (40)		

Func. code	Command code		Function name	Setting items	Data resolution unit		
	Read	Write					
UE-51	0x4813	0xBD43	EzSQ user parameter U (41)	0 ~ 65535	1		
UE-52	0x4814	0xBD44	EzSQ user parameter U (42)				
UE-53	0x4815	0xBD45	EzSQ user parameter U (43)				
UE-54	0x4816	0xBD46	EzSQ user parameter U (44)				
UE-55	0x4817	0xBD47	EzSQ user parameter U (45)				
UE-56	0x4818	0xBD48	EzSQ user parameter U (46)				
UE-57	0x4819	0xBD49	EzSQ user parameter U (47)				
UE-58	0x481A	0xBD4A	EzSQ user parameter U (48)				
UE-59	0x481B	0xBD4B	EzSQ user parameter U (49)				
UE-60	0x481C	0xBD4C	EzSQ user parameter U (50)				
UE-61	0x481D	0xBD4D	EzSQ user parameter U (51)				
UE-62	0x481E	0xBD4E	EzSQ user parameter U (52)				
UE-63	0x481F	0xBD4F	EzSQ user parameter U (53)				
UE-64	0x4820	0xBD50	EzSQ user parameter U (54)				
UE-65	0x4821	0xBD51	EzSQ user parameter U (55)				
UE-66	0x4822	0xBD52	EzSQ user parameter U (56)				
UE-67	0x4823	0xBD53	EzSQ user parameter U (57)				
UE-68	0x4824	0xBD54	EzSQ user parameter U (58)				
UE-69	0x4825	0xBD55	EzSQ user parameter U (59)				
UE-70	0x4826	0xBD56	EzSQ user parameter U (60)				
UE-71	0x4827	0xBD57	EzSQ user parameter U (61)				
UE-72	0x4828	0xBD58	EzSQ user parameter U (62)				
UE-73	0x4829	0xBD59	EzSQ user parameter U (63)				
UF-02	0x4846	0xBD76	EzSQ user parameter UL (00) (High) (Low)	-2147483647~ 2147483647	1		
(UF-03)	0x4847	0xBD77					
UF-04	0x4848	0xBD78	EzSQ user parameter UL (01) (High) (Low)				
(UF-05)	0x4849	0xBD79					
UF-06	0x484A	0xBD7A	EzSQ user parameter UL (02) (High) (Low)				
(UF-07)	0x484B	0xBD7B					
UF-08	0x484C	0xBD7C	EzSQ user parameter UL (03) (High) (Low)				
(UF-09)	0x484D	0xBD7D					
UF-10	0x484E	0xBD7E	EzSQ user parameter UL (04) (High) (Low)				
(UF-11)	0x484F	0xBD7F					
UF-12	0x4850	0xBD80	EzSQ user parameter UL (05) (High) (Low)				
(UF-13)	0x4851	0xBD81					
UF-14	0x4852	0xBD82	EzSQ user parameter UL (06) (High) (Low)				
(UF-15)	0x4853	0xBD83					
UF-16	0x4854	0xBD84	EzSQ user parameter UL (07) (High) (Low)				
(UF-17)	0x4855	0xBD85					
UF-18	0x4856	0xBD86	EzSQ user parameter UL (08) (High) (Low)				
(UF-19)	0x4857	0xBD87					
UF-20	0x4858	0xBD88	EzSQ user parameter UL (09) (High) (Low)				
(UF-21)	0x4859	0xBD89					
UF-22	0x485A	0xBD8A	EzSQ user parameter UL (10) (High) (Low)				
(UF-23)	0x485B	0xBD8B					
UF-24	0x485C	0xBD8C	EzSQ user parameter UL (11) (High) (Low)				
(UF-25)	0x485D	0xBD8D					
UF-26	0x485E	0xBD8E	EzSQ user parameter UL (12) (High) (Low)				
(UF-27)	0x485F	0xBD8F					
UF-28	0x4860	0xBD90	EzSQ user parameter UL (13) (High) (Low)				
(UF-29)	0x4861	0xBD91					
UF-30	0x4862	0xBD92	EzSQ user parameter UL (14) (High) (Low)				
(UF-31)	0x4863	0xBD93					
UF-32	0x4864	0xBD94	EzSQ user parameter UL (15) (High) (Low)				
(UF-33)	0x4865	0xBD95					

12.2.10 Others

Func. code	Command code		Function name	Setting items	Data resolution unit		
	Read	Write					
-	-	0x9858	ENTER instruction (Writing to Data Flash)		01: writing all parameters		
	-	0x985A	1 register writing mode		01: enabled		
	-	0x9862	Motor constant recalculation (motor constant standard data not to be developed)				
	0x2906	0x9E36	RS485 Set frequency (Signed) (Common to main speed and auxiliary speed)		-59000 to + 59000 (setting range is not the same with Ver1.xx.)		
	0x2907	0x9E37					
	0x291E	0x9E4E	RS485 Torque command		-5000~5000		
	0x2922	0x9E52	RS485 Torque bias				
	0x2926	0x9E56	RS485 Torque control speed limit value (for normal rotation)		0~59000		
	0x2927	0x9E57	RS485 Torque control speed limit value (for reverse rotation)				
	0x2932	0x9E62	RS485 PID target value		-10000~10000		
	0x2933	0x9E63					
	0x293A	0x9E6A	RS485 PID feedback data				
	0x293B	0x9E6B					
	0x2946	0x9E76	RS485 Torque limit		0~5000		
	0x3EB5	0xB3E5	Output terminal function option output (OPO output)		0~0x7F		
	0x3EBC	0xB3EC	Coil data 0 (coil No. 0001h - 000Fh)		0~0xFFFF		
	0x3EBD	0xB3ED	Coil data 1 (coil No. 0010h - 001Fh)				
	0x3EBE	0xB3EE	Coil data 2 (coil No. 0020h - 002Fh)				
	0x3EBF	0xB3EF	Coil data 3 (coil No. 0030h - 003Fh)				
	0x3EC0	0xB3F0	Coil data 4 (coil No. 0040h - 004Fh)				

Warranty

Warranty

Warranty period	The warranty shall be 18 months from date of shipment or 12 months after initial operation, whichever is shorter.
Warranty condition	In the event that any problem or damage to the Product arises during the "Warranty Period" from defects in the Product whenever the Product is properly installed and combined with the Buyer's equipment or machines maintained as specified in the maintenance manual, and properly operated under the conditions described in the catalog or as otherwise agreed upon in writing between the Seller and Buyer or its customers; the Seller will provide, at its sole discretion, appropriate repair or replacement of the Product without charge at a designated facility, except as stipulated in the "Warranty Exclusions" as described below. However, if the Product is installed or integrated into the Buyer's equipment or machines, the Seller shall not reimburse the cost of: removal or re-installation of the Product or other incidental costs related thereto, any lost opportunity, any profit loss or other incidental or consequential losses or damages incurred by the Buyer or its customers.
Warranty exclusion	Not notwithstanding the above warranty, the warranty as set forth herein shall not apply to any problem or damage to the Product that is caused by: 1. Installation, connection, combination or integration of the Product in or to the other equipment or machine that rendered by any person or entity other than the Seller. 2. Insufficient maintenance or improper operation by the Buyer or its customers such that the Product is not maintained in accordance with the maintenance manual provided or designated by the Seller; 3. Improper use or operation of the Product by the Buyer or its customers that is not informed to the Seller, including, without limitation, the Buyer's or its customers' operation of the Product not in conformity with the specifications; 4. Any problem or damage on any equipment or machine to which the Product is installed, connected or combined or any specifications particular to the buyer or its customers; 5. Any changes, modifications, improvements or alterations to the Product or those functions that are rendered on the Product by any person or entity other than the Seller; 6. Any parts in the Product that are supplied or designated by the Buyer or its customers; 7. Earthquake, fire, flood, salt air, gas, lightning, acts of God or any other reasons beyond the control of the Seller; 8. Normal wear and tear, or deterioration of the Product's parts, such as the cooling fan bearings; 9. Any other troubles, problems or damage to the Product that are not attributable to the Seller.
Others	The Seller will not be responsibility for the installation and removal of the inverter. Any inverter transportation cost shall be born by both Seller and Buyer.

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No.DM3411E-1.0

EA10 Printed 2020.03