Hitachi Inverter

SJ-DN2 (DeviceNet Option)

INSTRUCTION MANUAL

Table of Contents

   Thank you for purchase of "HITACHI INVERTER". This manual explains about treatment of "SJ-DN2 (DeviceNet Option)". By reading this manual and an instruction manual of inverter use practically for installation, maintenance, and inspection. After reading this manual, keep it handy for future reference.
   Make sure to reach this manual to the end user.

After reading this manual, keep it handy for future reference.

NT212AX

HITACHI

- Request -

Thank you for purchase of "SJ-DN2 (DeviceNet Option)".

This instruction manual explains about treatment and maintenance of "SJ-DN2". Before using the product, carefully read this manual with the instruction manual of inverter, and keeps it handy for quick reference of operator and maintenance inspector. Before installing, operating, maintenance and inspection, read this manual carefully and follow the instructions exactly.

Always keep various kinds of specifications mentioned in this manual and use exactly. And make sure to prevent trouble by correct inspection and maintenance. Make sure to reach this manual to the end user.

- About treatment of this manual -

    (1)Please consent that mentioned items of this manual may be changed without permission.

    (2)Keep this manual carefully not lose because it can not be reissued.

    (3)All right reserved.

    (4)Contents in this manual is written to make assurance doubly sure, but please contact if you have
       some doubts about spelling mistakes, omitted word etc.

    (5)Please agree that there is no responsibility for effects resulted, in spite of contents above mentioned.

- About trademark -

    (1)DeviceNet is the trademark of Open DeviceNet Vendor Association, Inc.

- About EDS file -

    In case that SJ-DN2 is configured to network systems, it is possible to need the EDS file.

    (EDS: Electronic Data Sheet)

    (NOTE): Please use the corresponding EDS file after confirmed the inverter series because SJ700 and
    SJ300/L300P have their own EDS file.

    EDS file can be downloaded from the home page as below.

    http://www.hitachi-ies.co.jp   or   http://www.odva.org

Revision History Table

No.	Revision contents	The date of issued	Manual No.
1.	Initial release of Manual	Mar. 2009	NT212X
2.		May 2009	NT212AX

Except for this table, revised only spelling mistakes omitted words, and error writings without notice.

SAFETY PRECAUTIONS

Carefully read this manual and all of the warning labels attached to the inverter before installing, operating, maintaining, inspecting. Safety precautions are classified into "Warning" and "Caution" in this manual.

| $\langle ! \rangle$ WARNING | Indicates a potentially hazardous situation which, if not avoided, can result in serious injury or death. |

| $\triangle$ CAUTION | Indicates a potentially hazardous situation which, if not avoided, can result in minor to moderate injury, or serous damage to the product |

The situation described in $\boxed{\triangle \text{CAUTION}}$ may, if not avoided, lead to serious results. Important safety measures are described in CAUTION (as well as WARNING) so be sure observe them.

Notes are described in this manual in "(Note)". Carefully read the contents and follow them exactly.

⚠CAUTION

In all the illustrations in this manual, covers and safely device are occasionally removed to describe the details. When the product is operated, make sure that the covers and safety devices are placed as they were specified originally and operate it according to the instruction manual.

⚠ WARNING

Wiring:
 Wiring work shall be carried out by electrical experts.
   Otherwise, there is a danger of electric shock, fire and/or damage of product.
 Implement wiring after checking that the power supply is off.
   Otherwise, there is a danger of electric shock and/or fire.

Operating:
 Be sure not to touch the surface or the terminal of option board while energizing.
   Otherwise, there is a danger of electric shock and/or fire.
 Be sure not to remove the DeviceNet option printed board while operating.
   Otherwise, there is a danger of electric shock and/or fire.

Maintenance, Inspection and Part Replacement:
 Wait at least 10 minutes after turning off the input power supply before performing maintenance and inspection.
  (Confirm the charge lamp on the inverter is off, checks direct current voltage between P-N terminals and confirm it is less than 45V)
   Otherwise, there is a danger of electric shock.
 Make sure that only qualified persons will perform maintenance, inspection, and part replacement
  (Before starting the work, remove metallic objects from your person (wristwatch, bracelet, etc.).
   Be sure to use tools protected with insulation.)
   Otherwise, there is a danger of electric shock and/or injury.

Note:
 Never modify the unit.
   Otherwise, there is a danger of electric shock and/or injury.

⚠ CAUTION

Installation:
 Be sure not to let the foreign matter enter such as wire clippings, spatter from welding, metal shaving, dust etc.
   Otherwise, there is a danger of fire.
 Be sure to fix inverter to option printed board with an attached fixed screw.
   Otherwise, there is a danger of connecting error.
 Be sure to fasten the screws connecting signal wire in side of option printed board. Check for any loosening of screw.
   Otherwise, there is a danger of connecting error.

Wiring:
 Be sure to fasten the screws not to loose.
   Otherwise, there is a danger of connecting error.

Operation:
 Check rotary direction, abnormal motor noise and vibrations during operating.
   Otherwise, there is a danger of injury to personnel and/or machine breakage

1.1 Inspection upon Unpacking

Make sure to treat the product carefully not to give shock and vibration while unpacking. Check that the product is the one you ordered, no defect, and that there is no damage during transportation.

(Contents of packing)

(1) SJ-DN2(DeviceNet option printed board): 1 pc
(2) Instruction manual: 1 copy
(3) DeviceNet connector: 1 pc
(4) Screws fixed printed board (M3 times 8 mm): 2 pcs

If you discover any problem, contact your sales agent immediately.

1.2 Inquiry of the product and warranty for the product

1.2.1 Require while inquiring

If inquiry of breakage, question, damage etc. is needed, please tell the following information to the supplier you ordered or the nearest Hitachi Distributor.

(1) Type(SJ-DN2)
(2) Manufacturing number (Item of label, that labeled surface of printed board. SJ-DN2 XXX)
(3) Date of purchasing
(4) Contents of inquiry

　　　Damage parts and its condition etc.
　　　Question parts and their contents etc.

In order to shorten impossible working time, standing spare unit is recommended.

1.2.2 Warranty of the product

This product is guaranteed to last for one year after purchase. But, the next case is toll repair, even if within warranty period.

(1) In case caused by operating mistake, and incorrect repair and modification.
(2) Trouble caused by reasons except the shipped product.
(3) In case of using in range over the value of specification.
(4) In case caused by natural calamity, disaster, and secondary disaster.

Warranty mentioned here means warranty for shipped product itself. Damage caused by trouble of shipped product is not guaranteed.

[Replacement]

Any inspection and replacement after the expiration of warranty period (one-year) shall be charged to the purchaser. And also any inspection and replacement which are not covered in warranty mentioned above, even if it is within warranty period, it shall be charged to the purchaser. If you require the replacement, please contact your Hitachi distributor.

1.3 Outline of product

SJ-DN2 is DeviceNet communication board for SJ700/SJ300/L300P series inverter.
SJ-DN2 conforms to open field Network DeviceNet and it activates as slave function (Group 2 only server).
SJ-DN2 also conforms ODVA's certification.

(SJ-DN2 has been tested by ODVA's authorized Independent Test Lab and found to comply with ODVA Conformance Test (Composite Test Revision)20.)

The following functions are available via DeviceNet communication function by installing SJ-DN2 to SJ700/SJ300/L300P series.

   Polled Input/Output message connection
     This command can exchange the master's I/O data for the slave (Inverter)'s I/O data.
       Output data (from master to SJ-DN2):
         Run/Stop, reference frequency, Acceleration time, Deceleration time, Fault reset etc.
       Input data (from SJ-DN2 to master):
         Inverter status, output frequency, output current, trip history etc.
   Explicit message connection
     This function can read and write (configure) the inverter's parameters data when it is necessary.

SJ-DN2 can be used for all the models of SJ700/SJ300/L300P series.
(Note): RS485 communication function and Modbus communication function are disabled by installing SJ-DN2 to the inverter.

1.4 Appearance and Names of Parts

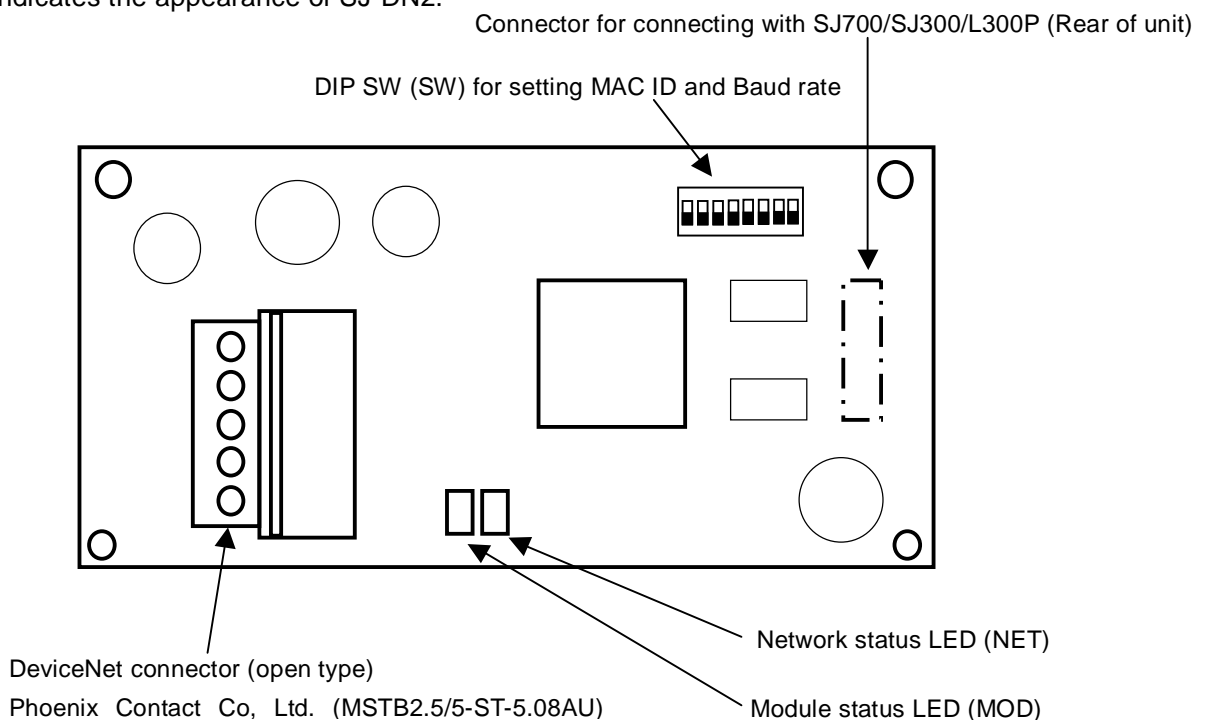Figure 1-1 indicates the appearance of SJ-DN2.

Connector for connecting with SJ700/SJ300/L300P (Rear of unit)

DIP SW (SW) for setting MAC ID and Baud rate

Network status LED (NET)

DeviceNet connector (open type)
Phoenix Contact Co, Ltd. (MSTB2.5/5-ST-5.08AU)

Module status LED (MOD)

Figure 1-1 Appearance of SJ-DN2

1.5 DeviceNet Version Supported

1.5.1 SJ300/L300P Series

SJ-DN2 can be used for the following production number(MFG No) of SJ300/L300P series.

After Manufacturing number : XX8KXXXXXXXXXXXX   SJ300-0.4-55kW / L300P-11-75kW supported

XXEMXXXXXXXXXXXX   SJ300-75-132kW / L300P-90-132kW supported

(Note) Production number (MFG No) is written in specifications label on main body of SJ300/L300P series. Refer to figure 1-2, figure 1-3.
(Figure1-2,1-3 are the example of SJ300 series. L300P series are the same manner as SJ300 series.)
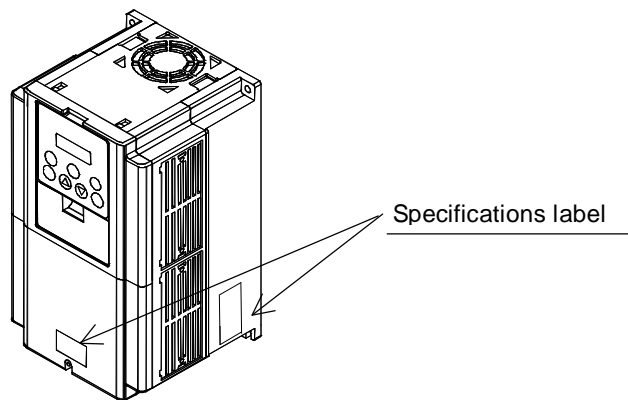

Figure 1-2 Position of specifications label

Figure 1-3 Contents of specifications label

1.5.2 SJ700 Series

It is possible to use all the SJ700 Series for SJ-DN2.

1.6 Production specification

Basically, the environmental specification of the SJ-DN2 is in accordance with SJ700/SJ300/L300P series inverter. Please refer to the instruction manual of SJ700/SJ300/L300P series.

2.1 Mounting method of option board

Figure 2-1 describes how to mount the option board to the option port 1 or 2.

There are four holes on the option board, match the two of them with the screw holes on the option port 1 or 2. and mount the other two holes with the guide posts which are located on the option port 1 and 2. To avoid connection failure, secure the option board with screws after connection.
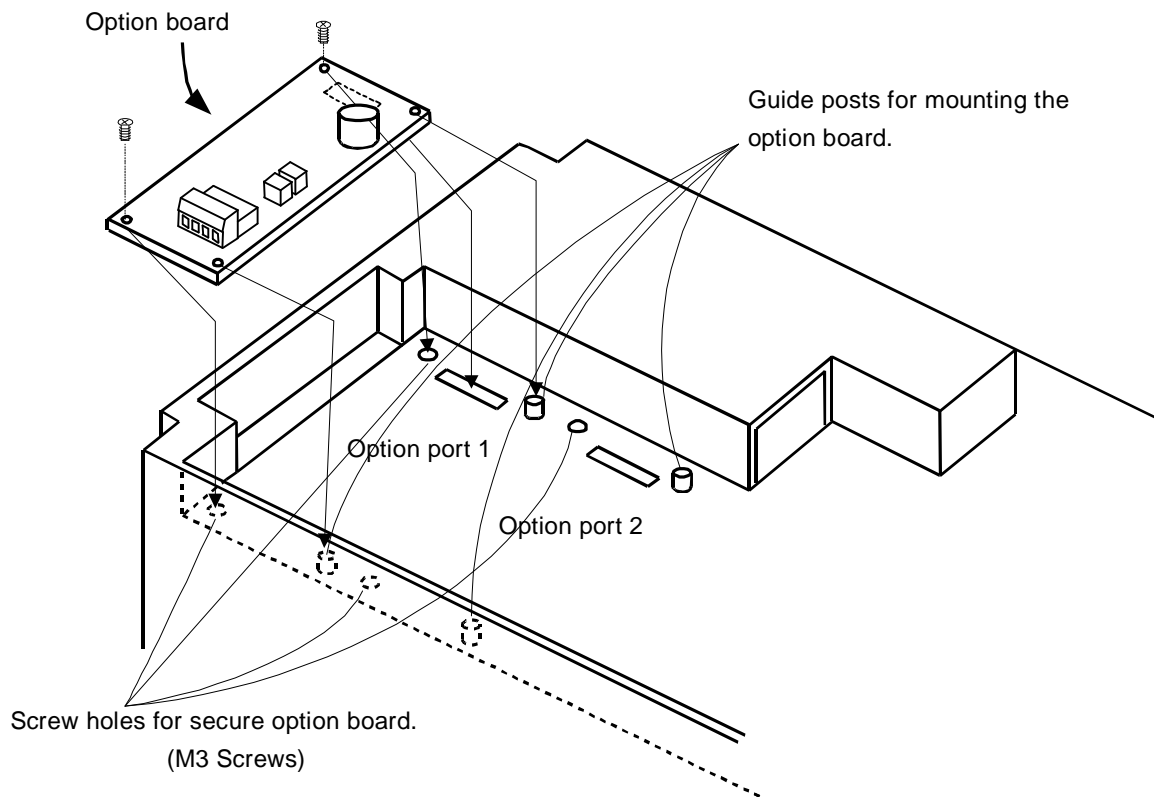

Option board

Guide posts for mounting the option board.

Option port 1

Option port 2

Screw holes for secure option board.
(M3 Screws)

Figure 2-1 Installation of option board

3.1 Connection for DeviceNet connector

SJ-DN2 has a Pluggable open connector (Male contacts), and a Network connector (Female contacts) attached. The inverter and attached connector have a seal which is color coordinated to correspond to the DeviceNet cable. Ensure the cable and contact are wired in the same color cable.
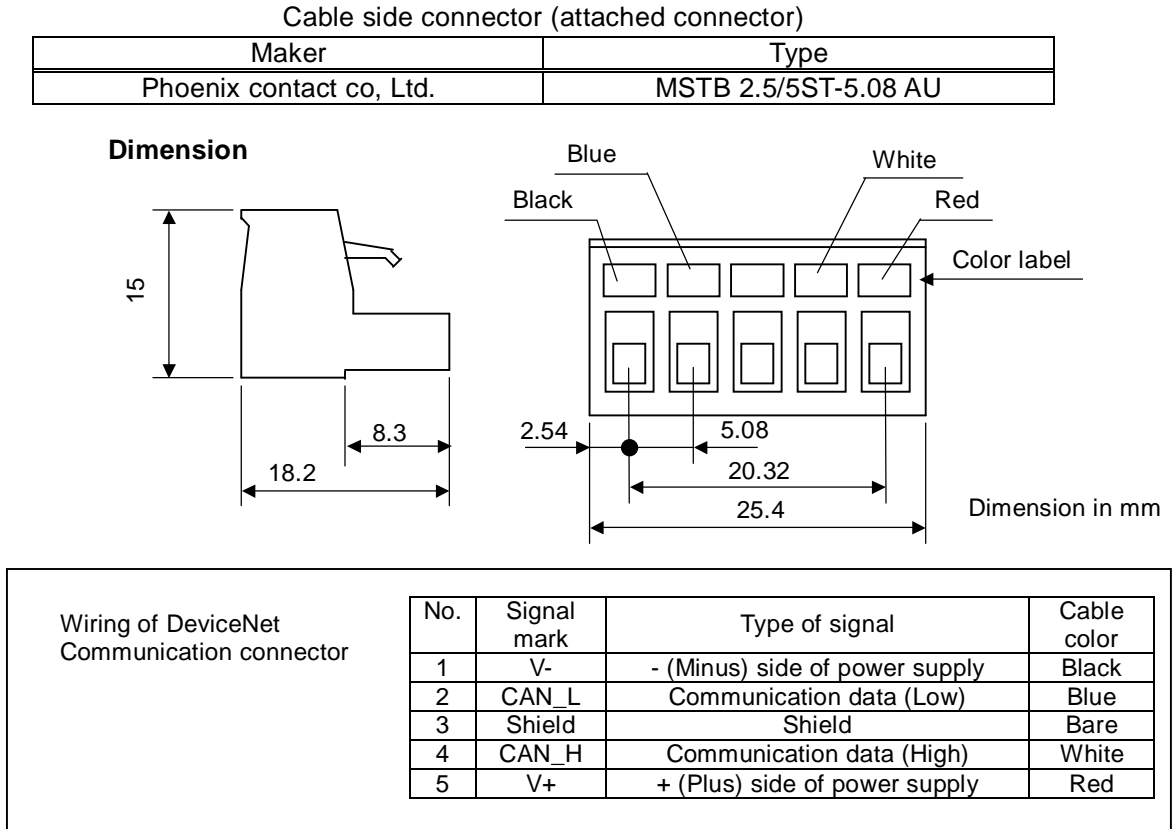
Cable side connector (attached connector)

Maker	Type
Phoenix contact co, Ltd.	MSTB 2.5/5ST-5.08 AU

Dimension

Dimension in mm

Wiring of DeviceNet Communication connector	No.	Signal mark	Type of signal	Cable color
	1	V-	- (Minus) side of power supply	Black
	2	CAN_L	Communication data (Low)	Blue
	3	Shield	Shield	Bare
	4	CAN_H	Communication data (High)	White
	5	V+	+ (Plus) side of power supply	Red

Figure 3-1 Connector specification

3.2 Communication cable for DeviceNet

Use the connector which conforms to DeviceNet specification or five conductor cable and also make sure that cable, connector and Network distance conform to DeviceNet specification as below.

Baud rate(kbps)	Maximum Trunk line length(m) (Or Maximum system length(m))	Drop line	
		Maximum length(m)	Maximum total length(m)
125	500	6	156
250	250		78
500	100		39

3.3 Wiring note

1. Installing the cable to Network connector must be done after checking the power supply off.
2. Wiring should not have bare cables exposed between connector contacts.
3. Network cables should be fixed without tension. Cables fixed under tension have potential of causing a communication fault by removing a connector.
4. Provide a communication power source (DC24V).
5. The terminating resistor is not built-in in the unit. Please provide it.
6. Ensure external emergency stop measures are taken to stop the inverter, in the event of a network fault.
    (a) Remove the Power supply of the Inverter when the network master detects a communication fault.
    (b) When the master detects a communication fault, turn on the intelligent input terminal which would be allocated (FRS), (RS) and/or (EXT) function.
    (c) Setting command P045.
   Regarding this setting, the inverter is tripped, deceleration or free run stop when it detects a communication fault by itself. (Factory initialization of command P045 is trip after deceleration stop (code: 01).) See "4.2 Setting of the Inverter" and "4.3 Explanation of additional parameters" about explanation of P045 (Inverter action when communication error).
7. Basic components for construction of DeviceNet application system are shown as bellow.
   Refer to the master's description manuals when DeviceNet Network system comes into operation.
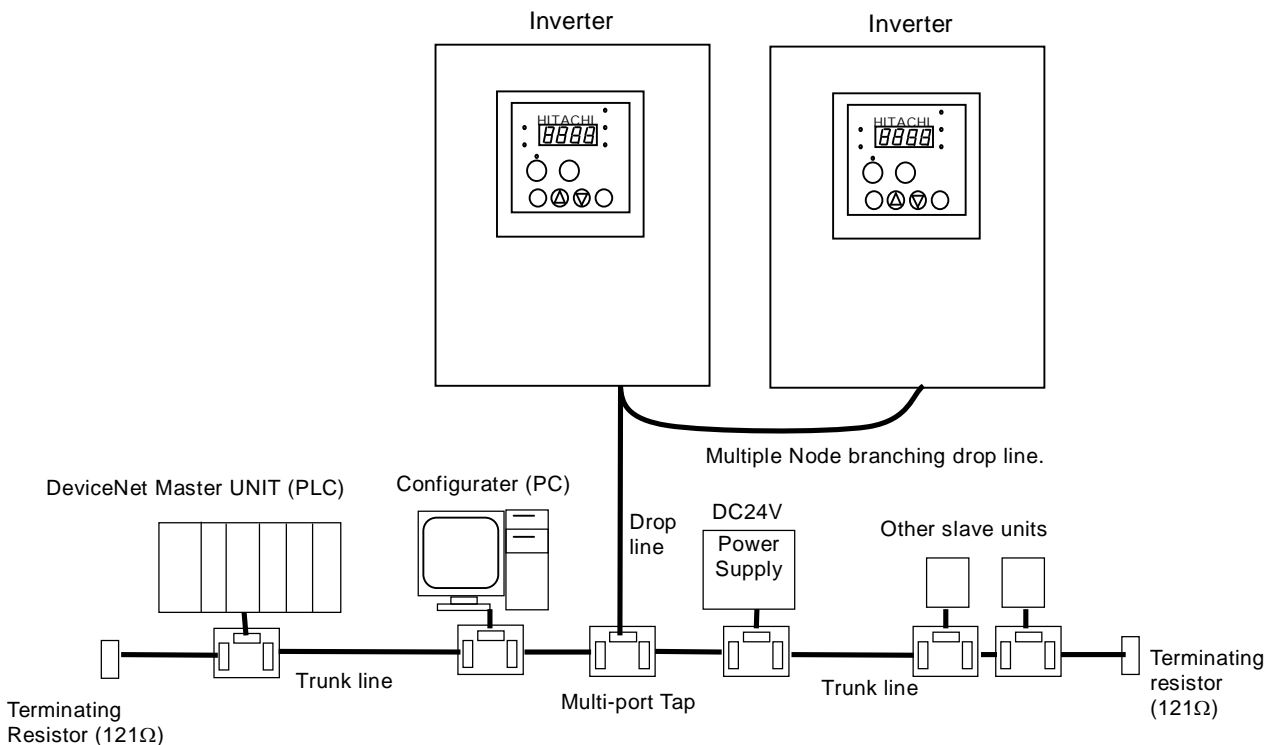

Figure 3-2 Example of components for construction of DeviceNet application

4.1 Setting methods of Baud rate and MAC ID

Follow the procedure as below to set Baud rate in DeviceNet and MAC ID, reset the power supply after changing the setting (setting will be reflected after resetting power supply.). Initialization Baud rate: 125kbps, Initialization MAC ID: 0.

4.1.1 Setting method of Baud rate

The table below is the setting method of Baud rate (Front view of the option board.).

(↑,↓ indicate direction for switch of Dip switch)

Baud rate	125kbps	250kbps	500kbps
Dip switch Setting	DR — ON / ▉↓ ▉↓ / OFF / DR1 DR0	DR — ON / ▉↓ ☐↑ / OFF / DR1 DR0	DR — ON / ☐↑ ▉↓ / OFF / DR1 DR0

(Note) Do not switch on DR1 and DR0 at the same time.

4.1.2 Setting method of MAC ID

The table as below is the setting method of MAC ID (Front view of the option board).

MAC ID	Dip switch setting
── MAC ID ── 1 ▉ ☐ ▉ ☐ ▉ ☐ 0 NA32 NA16 NA8 NA4 NA2 NA1	Figure left describes the direction of Dip switches. See below. Bottom: 0 Upper: 1 Bit increases from right to left switches. Therefore, figure left becomes formula as below. $\underline{1}\cdot2^5 +\underline{0}\cdot2^4 +\underline{1}\cdot2^3 +\underline{0}\cdot2^2 +\underline{0}\cdot2^1 +\underline{1}\cdot2 =29(Hex)=41(dec)$ NA32 NA16 NA8 NA4 NA2 NA1

4.2 Setting of the Inverter

The following table describes setting items which relates SJ700/SJ300/L300P series Inverters with SJ-DN2. To set appropriate settings, refer to inverter instruction manual "chapter 3 Operation", "chapter 4 Explanation of function" and this manual.

Code	Function	Range of data	Initial data	Setting on run	Change mode on run	Setting
P044	DeviceNet communication watchdog timer	0.00 to 99.99(sec) setting resolution 10nsec Case of set to 0.00, this func. Is disable.	1.00	impossible	impossible	
P045	Inverter action on communication error	00(trip)/01(trip after deceleration stop)/ 02(ignore)/03(free run)/ 04(deceleration stop)	01	impossible	impossible	
P046	Polled I/O OUTPUT Instance number	20, 21, 100	21	impossible	impossible	Set data when it is need.
P047	Polled I/O INPUT Instance number	70, 71, 101	71	impossible	impossible	
P048	Inverter action on Idle mode	00(trip)/01(trip after deceleration stop)/ 02(ignore)/03(free run)/ 04(deceleration stop)	01	impossible	impossible	
P049	Motor poles setting for revolutions per minute	0 to 38 Only even number is possible to set. set to 0:setting and monitoring by [Hz] except for 0:setting and monitoring by [min^{-1}]	0	impossible	impossible	

4.3 Explanation of additional parameters

The following information provides the explanation of additional parameters which are necessary to be used for SJ-DN2.

4.3.1 P044 (DeviceNet communication watchdog timer)

Set the allowable time that is an interval of polled I/O from DeviceNet master when the inverter is running. When the timeout occurs, the inverter's behavior is as set in command P045.

4.3.2 P045 (Inverter action on communication error)

This command decides what action occurs when a communication fault is detected on the network or P044 timeout occurs at the inverter while controlled from DeviceNet.
When set to 0.00, this function is disable.

4.3.3 P046 (Polled I/O OUTPUT Instance number)

This command is instance number of assembly object Polled I/O output. Set the parameter to comply with table below. (Combination table for P046, P047).

4.3.4 P047 (Polled I/O INPUT Instance number)

This command is instance number of assembly object Polled I/O input. Set the parameter to comply with table below. (Combination table for P046, P047).

4.3.5 P048 (Inverter action on Idle mode)

This command decides what action occurs when on Idle mode is detected on the network. Inverter can start to operate after behavior below.
At the time of set to 00, 01:After Idle mode released and fault reset, inputs stop command and run command.
At the time of set to 02   : After Idle mode released.
At the time of set to 03, 04: After Idle mode released, inputs stop command and run command.

4.3.6 P049 (Motor poles setting for revolutions per minute)

Set the Motor poles for AC Drive device profile.
0 to 38 (even number value only)
Set to 0 when frequency setting (Hz).
Set to 2 to 38 when revolution speed setting (min^{-1}).

(Combination table for P046 and P047)

		P047		
		70	71	101
P046	20	○	-	-
	21	-	○	-
	100	-	-	○

○   : combine.

-   : Do not combine.

(Note) Do not combine P046 with P047 except for combination table above, otherwise data may not be set correctly or may not be displayed correctly.

5.1 Operate with Frequency command [Hz]

The following information indicates the explanation of the inverter control data at P046: 100 and P047: 101.
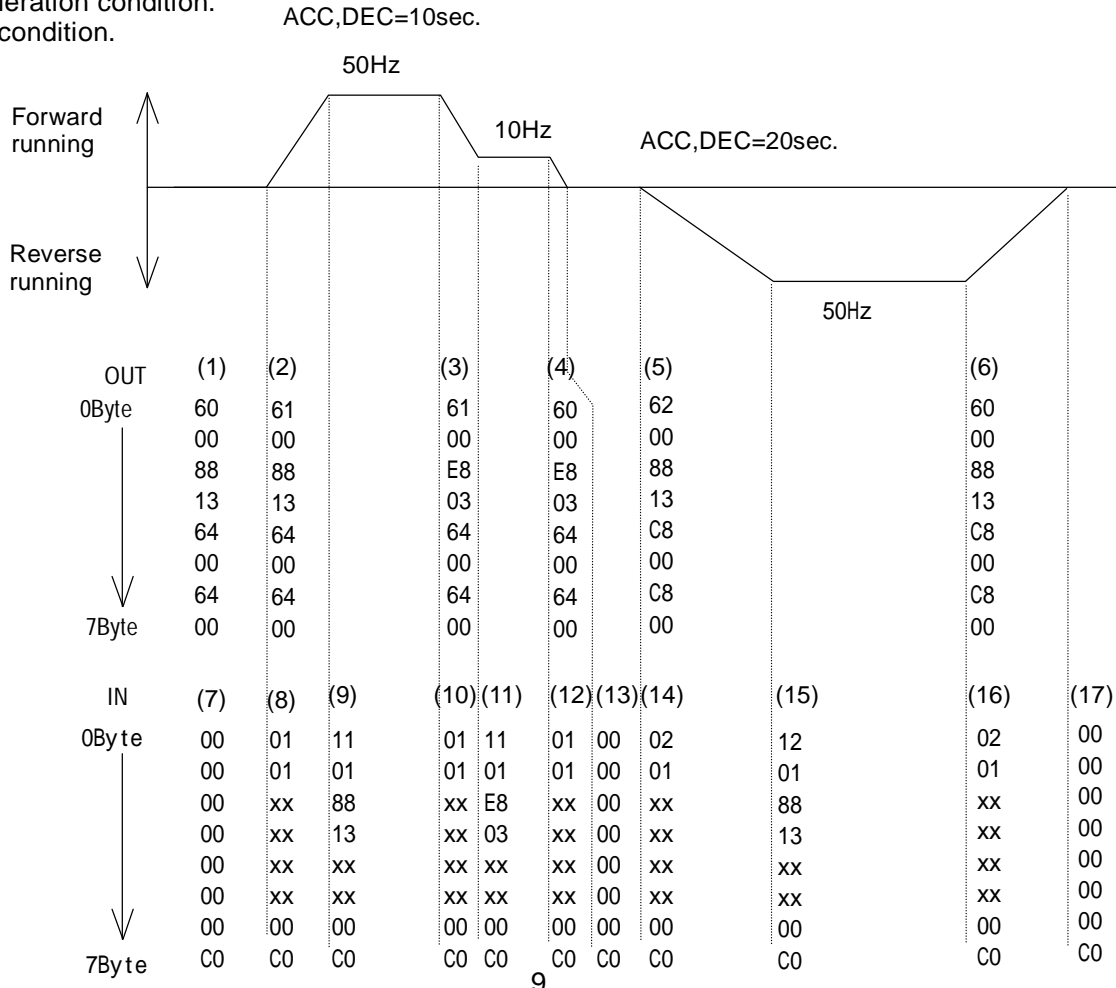See Chapter 6 about explanation of Polled I/O message.

Explanation on each data frame
 [Output data frame]
(1) Stop command. Set frequency: 50Hz (1388hex), Acceleration: 10sec.(0064hex) and Deceleration: 10sec.
   (0064hex). Both Frequency source and Run command source set from DeviceNet.
(2) Forward running command.
(3) Change frequency setting: 10Hz(03E8hex).
(4) Stop command
(5) Reverse running command. Set Frequency: 50Hz(1388hex), Acceleration: 20sec.(00C8hex) and
   Deceleration: 20sec.(00C8hex).
(6) Stop command

 [Input data frame]
(7) Stop condition
(8) While the inverter is in the forward run condition and accelerating, "XX" represents frequency and current.
(9) Constant speed condition. Frequency arrives at 50Hz.
(10) Deceleration condition.
(11) Constant speed condition. Frequency arrives at 10Hz.
(12) Deceleration condition.
(13) Stop condition.
(14) The inverter is in the reverse run condition and accelerating.
(15) Constant speed condition. Frequency arrives at 50Hz.
(16) Deceleration condition.
(17) Stop condition.

OUT	(1)	(2)	(3)	(4)	(5)	(6)
0Byte	60	61	61	60	62	60
	00	00	00	00	00	00
	88	88	E8	E8	88	88
	13	13	03	03	13	13
	64	64	64	64	C8	C8
	00	00	00	00	00	00
	64	64	64	64	C8	C8
7Byte	00	00	00	00	00	00

IN	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
0Byte	00	01	11	01	11	01	00	02	12	02	00
	00	01	01	01	01	01	00	01	01	01	00
	00	xx	88	xx	E8	xx	00	xx	88	xx	00
	00	xx	13	xx	03	xx	00	xx	13	xx	00
	00	xx	xx	xx	xx	xx	00	xx	xx	xx	00
	00	xx	xx	xx	xx	xx	00	xx	xx	xx	00
	00	00	00	00	00	00	00	00	00	00	00
7Byte	00	00	00	00	00	00	00	00	00	00	00

5.2 Operate with Rotational speed command [min^{-1}]

Following information indicate the example of the inverter control data at P046: 21, P047: 71 and P049: 4. See Chapter 6 about explanation of Polled I/O message.
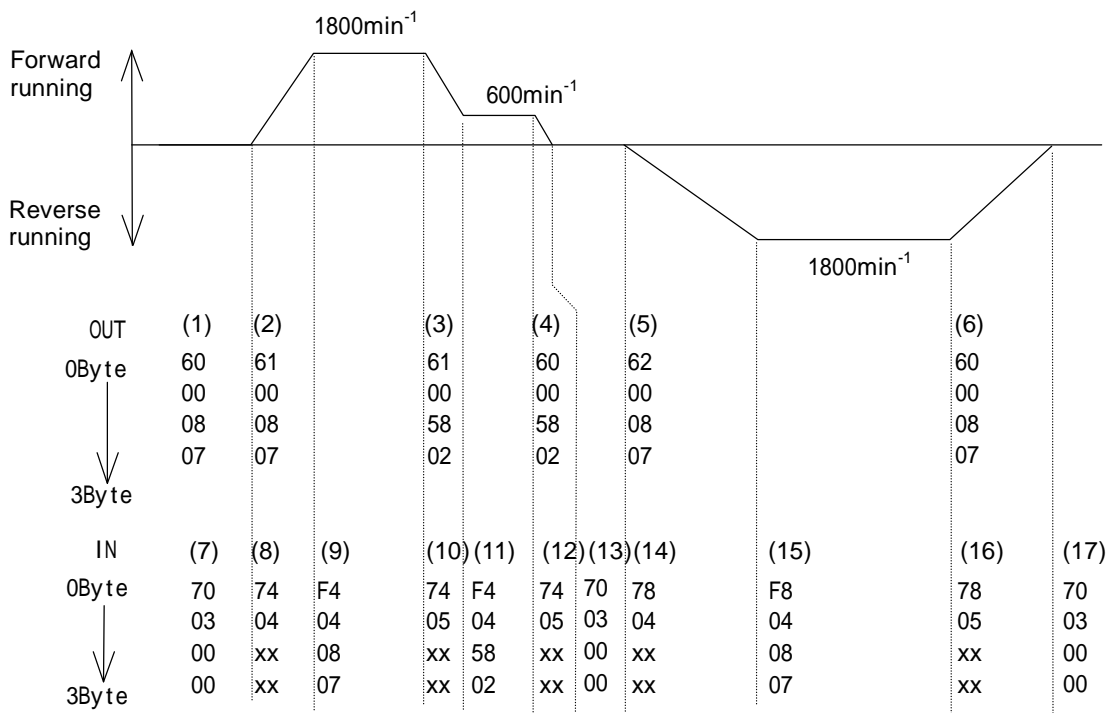
Explanation on each data frame.

 [Output frame]

(1) Stop command. Set rotational speed:1800min^{-1}(0708hex). Acceleration / Deceleration command are dependant on the inverter setting. Both rotational speed and run command set from DeviceNet.

(2) Forward running command.

(3) Change rotational speed command: 600min^{-1} (0258hex).

(4) Stop command.

(5) Reverse running command. Set rotational speed:1800min^{-1} (0708hex).

(6) Stop command.

 [Input frame]

(7) Stop condition

(8) While the inverter is forward run condition and accelerating, "XX" represents rotational speed.

(9) Constant speed condition. Revolutions arrive at 1800min^{-1}.

(10) Deceleration condition.

(11) Constant speed run condition. Revolutions arrive at 600min^{-1}.

(12) Deceleration condition.

(13) Stop condition.

(14) The inverter is in the reverse run condition and accelerating.

(15) Constant speed condition. Revolutions arrive at 1800min^{-1}.

(16) Deceleration condition.

(17) Stop condition.

OUT	(1)	(2)	(3)	(4)	(5)	(6)
0Byte	60	61	61	60	62	60
	00	00	00	00	00	00
	08	08	58	58	08	08
3Byte	07	07	02	02	07	07

IN	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
0Byte	70	74	F4	74	F4	74	70	78	F8	78	70
	03	04	04	05	04	05	03	04	04	05	03
	00	xx	08	xx	58	xx	00	xx	08	xx	00
3Byte	00	xx	07	xx	02	xx	00	xx	07	xx	00

6.1 Feature of DeviceNet communication function

SJ-DN2 conforms to open field Network DeviceNet and activates as slave function (Group 2 only server). There are two methods to communicate with the master, one is polled I/O message communication and the other is explicit message communication. Also SJ-DN2 corresponds to the AC Drive profile.

6.2 Basic DeviceNet specification

The table as below describes the basic DeviceNet specification of this product.

Items	Specification
Protocol	CIP Volume I –Release3.4 CIP Volume III-Release1.5 DeviceNet Adaptation
Support communication speed	125kbps(500m)/250kbps(250m)/500kbps(100m)
Maximum number of connection Node	64 Nodes (Maximum number of Node for slaves are 63 Nodes)
Support connection	Explicit Message Polled Input/Output Message
Data length	Explicit Message (Each of Data has different length which are dependant on data.)
	Polled Input/Output Message 4 Bytes / 8 Bytes
Type of device	Group2 Only Server (Predefined Master/Slave Connection Set)
Device profile	AC Drive

List of object for mounting in SJ-DN2 is shown as below.

Name of objects	Class ID	Instance ID	Contents
Identity	01	1	Information for distinguishing Device type, Serial number and Vendor ID etc.
Message Router	02	1	This Router gives Explicit message to appropriate object.
DeviceNet	03	1	It controls Physical connection for DeviceNet
Assembly	04	20,21,100	It controls Polled I/O Output Message.
		70,71,101	It controls Polled I/O Input Message.
Connection	05	1,2	It controls Connection.
Motor Data	40	1	It controls the motor connected to the inverter.
Control Supervisor	41	1	It controls control information of the inverter.
AC/DC Drive	42	1	It controls operational information of the inverter.
Inverter parameter	100 - 107, 109, 110	1,2,3	It controls inverter parameter. See Appendix about details of Inverter parameter.

6.3 Details of Polled I/O communication

6.3.1 Basic I/O instance
This I/O instance is standard I/O instance, which is defined by AC drive profile in DeviceNet.

Master to SJ-DN2: Instance20 (P046: 20)

Byte	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
0	-	-	-	-	-	Fault Reset	-	Run Fwd
1	-							
2	Speed Reference (Low Byte)							
3	Speed Reference (High Byte)							

Data	Contents
Run Fwd	The inverter is running forward. 0:Stop 1:Run
Fault Reset	When the bit is set to "1", the trip states can be cancelled 0:- 1:Fault reset
Speed Reference	It indicates speed command of the inverter. [P049:Except for 0] Rotational speed setting: Speed Reference(min^{-1}) / 2^{SS} SS: Speed scale Range of setting:0-24000(min^{-1}) (Resolution: 1min^{-1}) Magnification: 1 time e.g.) When the order of speed setting is 1800 min^{-1}, (Speed scale:0) Speed Reference=1800/2^{0} =1800=0708(Hex) [P049:0] Operational frequency setting (Resolution: 0.01Hz). Range of setting:0.00 to 400.00(Hz) Magnification: 100 time

SJ-DN2 to Master: Instance70 (P047: 70)

Byte	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
0	-	-	-	-	-	Running 1	-	Faulted
1	-							
2	Speed Actual (Low Byte)							
3	Speed Actual (High Byte)							

Data	Contents
Faulted	It indicates the inverter is in a fault detecting state. 0:Normal 1:During detecting fault state
Running 1	It indicates inverter's running state. 0:Stop/During Reverse run 1:During Forward Run
Speed Actual	It indicates inverter speed. [P049:Except for 0] Rotational speed monitor: Speed Actual(min^{-1}) / 2^{SS} SS: Speed scale Range of monitor:0-24000(min^{-1}) (Resolution: 1min^{-1}) Magnification: 1 time e.g.) When Speed Actual is 03E8(Hex) (Speed scale:0) Speed Actual=03E8(Hex)/2^{0} =1000/2^{0} =1000(min^{-1}) [P049:0] Current frequency display (Resolution: 0.01Hz). Range of monitor:0.00 to 400.00(Hz) Magnification: 100 time

6.3.2 Expansive I/O Instance

This I/O instance is standard I/O instance, which is defined by AC drive profile in DeviceNet.

Master to SJ-DN2: Instance21 (P046: 21)

Byte	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
0	-	NetRef	NetCtrl	-	-	Fault Reset	Run Rev	Run Fwd
1	-							
2	Speed Reference (Low Byte)							
3	Speed Reference (High Byte)							

Data	Contents
Run Fwd	The inverter is running forward. 0:Stop 1:Run forward
Run Rev	The inverter is running reverse. 0:Stop 1:Run reverse
Fault Reset	When the Bit is set to "1", the trip states can be cancelled. 0:- 1:Fault reset
NetCtrl	It indicates method of operation command. 0:Method of operation command, which is selected at operation command selection(A002). 1:Method of Operation command from DeviceNet is valid.
NetRef	It indicates method of frequency command. 0:Method of frequency command, which is selected at frequency command selection(A001). 1:Method of frequency command from DeviceNet is valid.
Speed Reference	It indicates speed command of the inverter. [P049:Except for 0] Rotational speed setting: Speed Reference(min^{-1}) / 2^{SS} SS: Speed scale Range of setting:0-24000(min^{-1}) (Resolution: 1 min^{-1}) Magnification: 1 time e.g.) When the order of speed setting is 1800 min^{-1}, (Speed scale:0) Speed Reference=1800/2^0 =1800=0708(Hex) [P049:0] Operational frequency setting (Resolution: 0.01Hz). Range of setting:0.00 to 400.00(Hz) Magnification: 100 time

(Note) When set both Run Fwd and Run Rev to 1, the inverter executes the command, which is inputted first.

SJ-DN2 to Master: Instance71 (P047: 71)

Byte	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
0	At Reference	Ref From Net	Ctrl From Net	Ready	Running2 (Rev)	Running1 (Fwd)	Warning	Faulted
1	Drive Status							
2	Speed Actual (Low Byte)							
3	Speed Actual (High Byte)							

Data	Contents
Faulted	It indicates the inverter is in a fault detecting state. 0:Normal 1:During detecting fault state
Warning	It indicates the inverter is in a warning detecting state. 0:Normal 1:During detecting warning (When there is contradiction on the inverter setting.).
Running1(Fwd)	It indicates inverter's running condition. 0:Stop / During reverse run 1:During forward run
Running2(Rev)	It indicates inverter's running condition. 0:Stop / During forward run 1:During reverse run
Ready	It indicates the inverter ready for drive. 0:Except Drive status: 3,4,5. 1:Complete ready to drive (Drive Status: 3,4,5).
Ctrl From Net	It indicates selection state for inputting the inverter operational command 0:Operation command selection(A002) is valid to set. 1:Operation command from DeviceNet is valid.
Ref From Net	It indicates selection state for inputting the inverter frequency command. 0:Frequency command selection(A001) is valid to set. 1:Frequency command from DeviceNet is valid.
At Reference	It indicates arrival frequency detecting state for the inverter. 0:During stop / During accelerate or decelerate 1:Arrival frequency
Drive Status	It indicates inverter status. 1:Startup (Only R_0-T_0 power supply is ON) 2:Not Ready (Just after turn on power supply) 3:Ready (Able to activate the inverter) 4:Enabled (Inverter is running by run command) 5:Stopping (Inverter is decelerating by stop command) 6:Fault Stop (Inverter is decelerating because trip is detected) 7:Faulted (Trip condition)
Speed Actual	It shows inverter speed. [P49:Except for 0] Rotational speed monitor: Speed Actual(min^{-1}) / 2^{SS} SS: Speed scale Range of monitor:0-24000(min^{-1}) (Resolution: 1min^{-1}) Magnification: 1 time e.g.) When Speed Actual is 03E8(Hex) (Speed scale:0) Speed Actual=03E8(Hex)/2^0 =1000/2^0 =1000(min^{-1}) [P049:0] Current frequency display (Resolution: 0.01Hz). Range of monitor:0.00 to 400.00(Hz) Magnification: 100 time

6.3.3 Hitachi inverter I/O Instance

This I/O instance is able to control the operation control, which is necessary to Hitachi inverters.

Master to SJ-DN2: Instance100 (P046: 10)

Byte	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
0	-	NetRef	NetCtrl	-	Free run stop	Fault Reset	Run Rev	Run Fwd
1	-							
2	Speed Reference (Low Byte)							
3	Speed Reference (High Byte)							
4	Acceleration time (Low Byte)							
5	Acceleration time (High Byte)							
6	Deceleration time (Low Byte)							
7	Deceleration time (High Byte)							

Data	Contents
Run Fwd	The inverter is running forward run. 0:Stop 1:Run forward
Run Rev	The inverter is running reverse run. 0:Stop 1:Run reverse
Fault Reset	When the Bit is set to "1", the trip states can be cancelled. 0:- 1:Fault reset Case of the inverter is not in trip condition, when the Bit is set to "1", the inverter will stop the motor.
Free run stop	When the Bit is set to "1", the inverter stops output and the motor enters the free run mode. 0:- 1:Free run stop
NetCtrl	It indicates setting for method of operational command. 0:Method of operation command, which is selected at operation command selection (A002). 1:Method of Operation command from DeviceNet is valid.
NetRef	It indicates setting for method of frequency command. 0:Method of Frequency command, which is selected at frequency command selection(A001) and setting at Acc / Dec time(F002, F003). 1:Method of frequency and Acc / Dec time command from DeviceNet is valid.
Speed Reference	It indicates setting for output frequency of the inverter. Range of setting:0.00 to 400.00(Hz), Resolution: 0.01(Hz), Magnification:100 times, Transmit data:0 to 9C4O(Hex)
Acceleration time / Deceleration time	It indicates setting for Acc/Dec time of the inverter. Range of setting:0.1 to 3600.0(sec), Resolution:0.1(sec), Magnification:10 times Transmit data:1 to 8CA0(Hex) If Acceleration / Deceleration time has not been set by DeviceNet, the inverter will use the settings in command F002 / F003.

(Note) When set both Run Fwd and Run Rev to 1, the inverter executes as stop command.

SJ-DN2 to Master: Instance101 (P047: 101)

Byte	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
0	Input Terminal 3 State	Input Terminal 2 State	Input Terminal 1 State	At Reference	-	Faulted	Running2 (Rev)	Running1 (Fwd)
1	Drive Status							
2	Speed Actual (Low Byte)							
3	Speed Actual (High Byte)							
4	Output current (Low Byte)							
5	Output current (High Byte)							
6	Trip cause							
7	Ref From Net	Ctrl From Net	Forward Terminal state	Input Terminal 8 State	Input Terminal 7 State	Input Terminal 6 State	Input Terminal 5 State	Input Terminal 4 State

Data	Contents
Running1(Fwd)	It indicates inverter's running condition. 0:Stop / During reverse run 1:During forward run
Running2(Rev)	It indicates inverter's running condition. 0:Stop / During forward run 1:During reverse run
Faulted	It indicates the inverter is in a fault detecting state. 0:Normal 1:During detecting fault state
At Reference	It indicates arrival frequency detecting state for the inverter. 0:During stop / During accelerate or decelerate 1:Arrival frequency
Input Terminal 1 State	0: (opened) 1: Input terminal 1 and common are closed.
Input Terminal 2 State	0: (opened) 1: Input terminal 2 and common are closed.
Input Terminal 3 State	0: (opened) 1: Input terminal 3 and common are closed.
Input Terminal 4 State	0: (opened) 1: Input terminal 4 and common are closed.
Input Terminal 5 State	0: (opened) 1: Input terminal 5 and common are closed.
Input Terminal 6 State	0: (opened) 1: Input terminal 6 and common are closed.
Input Terminal 7 State	0: (opened) 1: Input terminal 7 and common are closed.
Input Terminal 8 State	0: (opened) 1: Input terminal 8 and common are closed.
Forward Terminal State	0: (opened) 1: Forward terminal (FW) and common are closed.

Drive Status	It indicates the inverter condition.
	00:The inverter is stopping.
	01:The inverter is running.
	02:The inverter is in jogging mode.
	03:The inverter's output is stopped and the motor is free running (coasting).
	04:The inverter is executing DC braking.
	    This includes the DC braking wait time.
	05:The inverter is trying to restart with frequency matching.
	    Command b001 is set to "3".
	06:Stop output at instantaneous power failure.
	07:The inverter is trying to restart with frequency matching.
	    Command b001 is set to "2".
	08:The inverter is waiting before it runs on motor again to restart with
	    frequency matching (by setting b001, b088, C103).
	    This waiting time is as setting value command b003.
	10:The inverter is in a trip condition.
	11:The inverter is in under-voltage condition.

Speed Actual	It indicates the inverter's output frequency monitor. Monitor range:0.00 to 400.00(Hz), Resolution: 0.01(Hz), Magnification:100 times, Receiving data:0 to 9C4O(Hex)

Data	Contents
Output current	It indicates the inverter's output current monitor. Monitor range:0 to 6553.5A, Magnification:10 times, Receiving data:0 to FFFF(Hex)
Trip cause	Following codes are latest trip history. 00:No trip 01:Over current protection (at constant speed) 02:Over current protection (at deceleration) 03:Over current protection (at acceleration) 04:Over current protection (at the other) 05:Over load protection 06:Dynamic break resistor protection 07:Over voltage protection 08:EEPROM error 09:Under voltage 10:CT error 11:CPU error 12:External trip 13:USP error 14:Ground fault protection 15:Input over voltage protection 16:Instantaneous power failure protection 20:Temperature error due to low cooling-fan speed 21:Abnormal temperature 23:Gate array error 24:Phase-failure 25:Main circuit error 30:IGBT error 35:Thermistor error 36:Abnormal break 37:Emergency Stop 38:Low-speed overload protection 41:Modbus communication error 60 to 69:Option error 1 70 to 79:Option error 2
Ctrl From Net	It indicates selection state for inputting the inverter operational command 0:Operation command selection(A002) is valid to set. 1:Operation command from DeviceNet is valid.
Ref From Net	It indicates selection state for inputting the inverter frequency command. 0:Frequency command selection(A001), Acceleration time setting (F002) and Deceleration time setting (F003) are valid to set. 1:Frequency command from DeviceNet is valid.

6.4 Detail of DeviceNet profile

6.4.1 Overall Specification

General Device data	DeviceNet specification	CIP Volume I –Release3.4 CIP Volume III-Release1.5 DeviceNet Adaptation	
	Vendor name	Hitachi Industrial Equipment Systems Co., Ltd.	1112
	DeviceNet profile name	Slave AC Drive	Profile No=2
	Product Catalog NO.	-	-
	Product revision	1.1 (SJ300/L300P) / 2.1 (SJ700)	
	Operation power source	DC11V to 24V	
Physical Conformance Data	Network power consumption	50mA	
	Type of connector	Open connector	
	Isolated physical layer	Yes	
	Support LED	Module status(MOD), Network status(NET)	
	Setting of MAC ID	Set at Dip SW.	
	Default MAC ID	0	
	Communication Baud rate setting	Set at Dip SW.	
	Communication Baud rate supported	125kbps/250kbps/500kbps	
Communication Data	Device Network behavior	Group 2 only server	
	UCMM support	No	
	Support connection	Explicit Message Polled Input/Output Message	
	Fragmented Explicit messaging Supported	Yes	

6.4.2 Identity Object (ID=1 Hex)

	Attribute		ID	Access rule	Type of data	Initial data	
						SJ300/L300P	SJ700
Instance0	Not supported		-	-	-	-	
Instance1	Vendor ID		1	Get	UINT	1112	
	Device Type		2	Get	UINT	02(AC Drive)	
	Product Code		3	Get	UINT	0703(Hex)	0704(Hex)
	Revision	Major	4	Get	USINT	1	2
		Minor			USINT	1	1
	Status		5	Get	WORD	0	
	Serial Number		6	Get	UDINT	Factory initial	
	Product Name		7	Get	STRING	SJ-DN OPTION	SJ-DN2

Support service (Common service)

Service	Service code	Note
Get_Attribute_Single	H'0E	
Reset	H'05	00:Reset 01:User initialize with History clear
NOP	H'17	

6.4.3 DeviceNet Object (ID=3 Hex)

	Attribute		ID	Access rule	Type of data	Initial data
Instance0	Revision		1	Get	UINT	2
Instance1	MAC ID		1	Get	USITT	0
	Baud Rate		2	Get	USINT	125kbps
	BOI		3	Get/Set	BOOL	0
	BusOff Counter		4	Get/Set	USINT	0
	Allocation Information	Choice Byte	5	Get	BYTE	-
		Master's MAC ID			USINT	-
	MAC ID Switch Changed		6	Get	BOOL	0
	Baud Rate Switch Changed		7	Get	BOOL	0
	MAC ID Switch Value		8	Get	USINT	0
	Baud Rate Switch Value		9	Get	USINT	125kbps

Supported service

Service name	Code	Remarks
Get_Attribute_Single	H'0E	
Set_Attribute_Single	H'10	
Allocate_M/S_Connection_Set	H'4B	
Release_M/S_Connection_Set	H'4C	

6.4.4 Assembly Object (ID=4 Hex)

	Attribute	ID	Access rule	Type of data	Initial data
Instance0	Not supported	-	-	-	-
Instance20	DATA	3	Get/Set	4 Bytes	-
Instance21	DATA	3	Get/Set	4 Bytes	-
Instance70	DATA	3	Get	4 Bytes	-
Instance71	DATA	3	Get	4 Bytes	-
Instance100	DATA	3	Get/Set	8 Bytes	-
Instance101	DATA	3	Get	8 Bytes	-

Supported service

Service name	Code	Remarks
Get_Attribute_Single	H'0E	
Set_Attribute_Single	H'10	

6.4.5 Connection Object (ID=5 Hex)

	Attribute	ID	Access rule	Data type	Initial data
Instance0	Not supported	-	-	-	-
Instance1	state	1	Get	USINT	-
	instance_type	2	Get	USINT	00
	transportClass_triger	3	Get	BYTE	H'83
	prod_conn_id	4	Get	UINT	-
	coms_conn_id	5	Get	UINT	-
	initial_comm_characteristice	6	Get	BYTE	H'21
	prod_conn_size	7	Get	UINT	H'24
	coms_conn_size	8	Get	UINT	H'24
	expected_packet_rate	9	Get/Set	UINT	H'09C4
	watchdog_timeout_action	12	Get	USINT	1
	prod_conn_path_length	13	Get	UINT	0
	prod_conn_path	14	Get	UINT order	-
	coms_conn_path_length	15	Get	UINT	0
	coms_conn_path	16	Get	UINT order	-
Instance2	state	1	Get	USINT	-
	instance_type	2	Get	USINT	01
	transportClass_triger	3	Get	BYTE	H'82
	prod_conn_id	4	Get	UINT	-
	coms_conn_id	5	Get	UINT	-
	initial_comm_characteristice	6	Get	BYTE	01
	prod_conn_size	7	Get/Set	UINT	H'04
	coms_conn_size	8	Get	UINT	H'04
	expected_packet_rate	9	Get/Set	UINT	H'0000
	watchdog_timeout_action	12	Get	USINT	0
	prod_conn_path_length	13	Get	UINT	3
	prod_conn_path	14	Get	UINT order	H'623437
	coms_conn_path_length	15	Get	UINT	3
	coms_conn_path	16	Get	UINT order	H'623135

Supported service

Service name	Code	Remarks
Reset	H'05	
Get_Attribute_Single	H'0E	
Set_Attribute_Single	H'10	

6.4.6 Motor Date Object (ID=28 Hex)

	Attribute	ID	Access rule	Data type	Initial data
Instance0	Revision	1	Get	WORD	0001
Instance1	MotorType	3	Get	BYTE	07
	RatedCurrent	6	Get/Set	WORD	b012 setting
	RatedVoltage	7	Get/Set	WORD	A082 setting
	PoleCount	12	Get/Set	WORD	P049 setting

Supported service

Service name	Code	Remarks
Get_Attribute_Single	H'0E	
Set_Attribute_Single	H'10	

6.4.7 Control Supervisor Object (ID=29 Hex)

	Attribute	ID	Access rule	Data type	Initial data
Instance0	Revision	1	Get	WORD	0001
Instance1	Run1	3	Get/Set	BYTE	00
	Run2	4	Get/Set	BYTE	00
	NetCtrl	5	Get/Set	BYTE	00
	State	6	Get	BYTE	03
	Running1	7	Get	BYTE	00
	Running2	8	Get	BYTE	00
	Ready	9	Get	BYTE	01
	Faulted	10	Get	BYTE	00
	Warning	11	Get	BYTE	00
	FaultRst	12	Get/Set	BYTE	00
	FaultCode	13	Get	WORD	0000
	CtrlFromNet	15	Get	BYTE	00
	DNFaultMode	16	Get	BYTE	00 (P045 setting)
	ForceFautl/Trip	17	Get/Set	BYTE	00
	ForceStatus	18	Get	BYTE	00

Supported service

| Service name	Code	Remarks
Get_Attribute_Single	H'0E	
Set_Attribute_Single	H'10	

6.4.8 AC/DC Drive Object (ID=2A Hex)

	Attribute	ID	Access rule	Data type	Initial data
Instance0	Revision	1	Get	WORD	0001
Instance1	AtReference	3	Get	BYTE	00
	NetRef	4	Get/Set	BYTE	00
	NetCtrl	5	Get	BYTE	00
	DriveMode	6	Get	BYTE	01
	SpeedActual	7	Get	WORD	0001
	SpeedRef	8	Get/Set	WORD	F001 setting
	CurrentActual	9	Get	WORD	0000
	CurrentLimit	10	Get/Set	WORD	0000
	TorqueActual	11	Get	WORD	0000
	PowerActual	15	Get	WORD	0000
	InputVoltage	16	Get	WORD	0000
	OutputVoltage	17	Get	WORD	0000
	AccelTime	18	Get/Set	WORD	F002 setting
	DecelTime	19	Get/Set	WORD	F003 setting
	LowSpdLimit	20	Get/Set	WORD	A062 setting
	HightSpdLimit	21	Get/Set	WORD	A004 setting
	SpeedScale	22	Get/Set	BYTE	0
	CurrentScale	23	Get/Set	BYTE	0
	TorqueScale	24	Get/Set	BYTE	0
	PowerScale	26	Get/Set	BYTE	0
	VoltageScale	27	Get/Set	BYTE	0
	TimeScale	28	Get/Set	BYTE	0
	RefFromNet	29	Get	BYTE	00

Supported service

Servicxe name	Code	Remaraks
Get_Attribute_Single	H'0E	
Set_Attribute_Single	H'10	

7.1 Trip display

When the inverter is in a tripped state, the inverter displays an error code (See table below). The trip history monitor (d081 to d086) also displays the same error code as the inverter.

Trip code   Inverter's running condition of trip detected
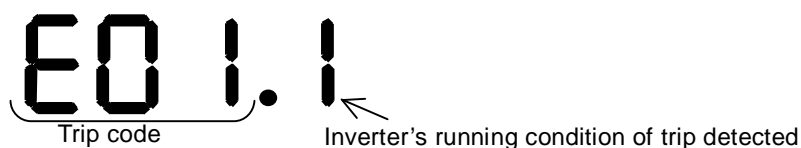
7.2 Protection function list

The table below describes an error code for protecting the inverter and the motor.
Error Display in the table below, X is 6 (Error for option port 1) or 7 (Error for option port 2).

No.	Function	Error Display	Action
1	DeviceNet communication error	EX0	This error is displayed, disconnection occurs when BusOff or timeout is occurred, while the inverter is operating with DeviceNet. (Trip is caused by P045 and P048 setting)
2	Duplicate MACID	EX1	This error indicates that component have the same MADID, which exist on the same network.
3	External trip	EX2	This error is displayed, when Fault / Trip is set to 1 toward control supervisor object data: Instance 1, Attribute 17.
4	Inverter communication error	EX9	This error is displayed, when communication timeout occurs between the inverter and the option board.

With regard to the other errors except table above, refer to Inverter instruction manual.

7.3 Countermeasure for a trip state

The table below only corresponds to additional trip codes, with regard to the other countermeasures refer to Inverter instruction manual.

Trip code	Name of trip	Cause	Conformation	Countermeasure
EX0	DeviceNet Communication error	Baud rate is different.	Check Baud rate	Install correct Baud rate and then reset the power supply.
		Wiring distance does not match with Baud rate	Check the wiring distance	Adjust the setting to the matching Baud rate. Adjust Wiring distance.
		Defective connector for signal cable causes connection fail.	Check the area of connection	Improve the connection and then reset the power supply.
		Terminating resistor is not connected.	Check the connection	Connect the terminating Resistor and then reset the power supply
		Network power supply is not connected. Network power supply is out of regulation.	Check the Network power Supply voltage (DC11 to 24V)	Connect Network power supply and then reset the power supply.
EX1	Duplicate MACID	Components have the same MACID, which are connected on the same network.	Check the all MACID and also check the component which has the same MACID	Set MACID and then reset the power supply.
EX2	External Trip	Class: 29Hex Instance: 1 Attribute: 17	Check as mentioned left	Set Fault/ trip to 0 toward class: 29Hex, Instance: 1 and Attribute: 17.
EX9	Inverter communication error	Option board is removed.	Check as mentioned left	Mount the option board again and then secure it with screws.

7.4 LED display and Countermeasure

Following states are indicated by module LED and Network LED.

MOD (Module status) LED: It indicates Inverter condition.

NET (Network status) LED: It indicates Network condition.

LED	Color	Explanation	Countermeasure
MOD	Green lamp is ON	The inverter is in normal condition	-
	Green lamp goes ON and OFF	The inverter is in standby condition.	-
	Red lamp is ON	An abnormality occurred which is impossible to restore. But except status below. User initializing with b084 set to 01, 02.	Need to fix the inverter.
	Red lamp goes ON and OFF.	The recoverable state occurred	
		The inverter is in TRIP condition.	Refer to inverter instruction manual.
		User Initialization according to the setting of Parameter b084 (In this case, the inverter is not in TRIP condition, but Red lamp)	After the initialization, reset the inverter power.
		Dip SW changed when ON-Line state	- In case that SW changing is invalid, please return to the previous value. - In case that SW changing is valid, please Power Reset.
	OFF	Power off	-
NET	Green lamp is ON	Online state and Connection are established.	-
	Green lamp goes ON and OFF	Online state and Connection are not established.	-
	Red lamp is ON	Network abnormality (Duplicate MACID, Detect Bus-Off etc.)	Check the followings Duplicate MACID. Communication speed. Cable disconnection. Connection's fail for connector. Connection for terminating resistor. Length of cable
	Red lamp goes ON and OFF.	Timeout communication	Check the followings Communication speed. Cable disconnection. Connection's fail for connector. Connection for terminating resistor. Length of cable.
	OFF	Power off / DeviceNet offline	-

7.5 Other notes

In the case, SJ-DN2 is installed to the SJ300/L300P series Inverter and the inverter's setting is as below. When the trip occurs in running status from DeviceNet control, the behavior of the inverter will be as following by MFG No.

<div align="center">Operating mode select (A002) setting: 02(REM)</div>

(1) before MFG NO. : XXEGXXXXXXXXXXXX
The Inverter will be automatically reset from fault status when it occurs trip while driving from DeviceNet command. Case of the inverter drives again, please reset run command again after release run command.

(2) MFG No. : XXEGXXXXXXXXXXXX and after
The Inverter will be trip status. Case of the inverter drives again, please reset the run command again after removing trip cause.

SJ300/L300P Parameter Object List

(1) Inverter Data monitor/Basic Data Setting object. Class ID=100

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnification	Access rule	Command
Inverter Mode (Param16)	1	100	1	00(SJ300)/01(L300P)/02(SJH300)	1	Get	-
Rated Power (Param14)	1	101	1	00(0.20)/01(0.40)/02(0.75)/ 03(1.50)/04(2.20)/05(3.70)/ 06(5.50)/07(7.50)/08(11.0)/ 09(15.0)/10(18.5)/10(22.0)/ 12(30.0)/13(37.0)/14(45.0)/ 15(55.0)/16(75.0)/17(90.0)/ 18(110.0)/19(132.0)	1	Get	-
Rated Voltage (Param15)	1	102	1	00(200V)/01(400V)/02(600V)	1	Get	-
Output Frequency (Param1)	1	104	4	0.00 to 400.00(Hz)	100	Get	d001
Output Current (Param2)	1	105	2	0.0 to 999.9(A)	10	Get	d002
Direction (Param3)	1	106	1	01(Forward)/00(Stopped)/ 02(Reverse)	1	Get	d003
PID Feedback (Param4)	1	107	4	0.00 to 999.00(%)	100	Get	d004
Dig In Status (Param5)	1	108	2	Bit8 : Forward Bit7 : Dig input 8 Bit6 : Dig input 7 Bit5 : Dig input 6 Bit4 : Dig input 5 Bit3 : Dig input 4 Bit2 : Dig input 3 Bit1 : Dig input 2 Bit0 : Dig input 1 Close: 1, Open : 0	1	Get	d005
Dig Out Status (Param6)	1	109	2	Bit5 : Alarm Bit4 : Dig output 15 Bit3 : Dig output 14 Bit2 : Dig output 13 Bit1 : Dig output 12 Bit0 : Dig output 11 Close: 1, Open : 0	1	Get	d006
Freq-conversion (Param7)	1	110	4	0.00 to 3996.00	100	Get	d007
Torque (Param8)	1	111	2	-300 to +300(%)	1	Get	d012
Output Voltage (Param9)	1	112	2	0.0 to 600.0(V)	10	Get	d013
Input Elect-Pow (Param10)	1	113	2	0.0 to 999.9(kW)	10	Get	d014
Elapsed Run time (Param11)	1	115	4	0 to 999999(hr)	1	Get	d016
Power ON time (Param12)	1	116	4	0 to 999999(hr)	1	Get	d017
DC Voltage (Param13)	1	118	2	0.0 to 999.9(V)	10	Get	-
Trip Count (Param17)	1	121	2	0 to 65530	1	Get	d080
Trip 1 Cause (Param18)	1	122	4	E01.X to E79.X (E??:Trip cause, X:running condition) See 6.3.3 Hitachi inverter I/O Instance(Instance 101)	1	Get	d081
Trip 1 frequency (Param19)	1	123	4	0.00 to 400.00(Hz)	100	Get	d081
Trip 1 Current (Param20)	1	124	2	0.0 to 999.9(A)	10	Get	d081
Trip 1 DC Voltage (Param21)	1	125	2	0.0 to 600.0(V)	10	Get	d081
Trip 1 RUN time (Param22)	1	126	4	0 to 999999(hr)	1	Get	d081
Trip 1 P-ON time (Param23)	1	127	4	0 to 999999(hr)	1	Get	d081
Trip 2 Cause (Param24)	1	128	4	E01.X to E79.X (E??:Trip cause, X:running condition) See 6.3.3 Hitachi inverter I/O Instance(Instance 101)	1	Get	d082
Trip 2 frequency (Param25)	1	129	4	0.00 to 400.00(Hz)	100	Get	d082
Trip 2 Current (Param26)	1	130	2	0.0 to 999.9(A)	10	Get	d082
Trip 2 DC Voltage (Param27)	1	131	2	0.0 to 600.0(V)	10	Get	d082
Trip 2 RUN time (Param28)	1	132	4	0 to 999999(hr)	1	Get	d082
Trip 2 P-ON time (Param29)	1	133	4	0 to 999999(hr)	1	Get	d082
Trip 3 Cause (Param30)	1	134	4	E01.X to E79.X (E??:Trip cause, X:running condition) See 6.3.3 Hitachi inverter I/O Instance(Instance 101)	1	Get	d083
Trip 3 frequency (Param31)	1	135	4	0.00 to 400.00(Hz)	100	Get	d083
Trip 3 Current (Param32)	1	136	2	0.0 to 999.9(A)	10	Get	d083
Trip 3 DC Voltage (Param33)	1	137	2	0.0 to 600.0(V)	10	Get	d083
Trip 3 RUN time (Param34)	1	138	4	0 to 999999(hr)	1	Get	d083
Trip 3 P-ON time (Param35)	1	139	4	0 to 999999(hr)	1	Get	d083
Trip 4 Cause (Param36)	1	140	4	E01.X to E79.X (E??:Trip cause, X:running condition) See 6.3.3 Hitachi inverter I/O Instance(Instance 101)	1	Get	d084
Trip 4 frequency (Param37)	1	141	4	0.00 to 400.00(Hz)	100	Get	d084
Trip 4 Current (Param38)	1	142	2	0.0 to 999.9(A)	10	Get	d084
Trip 4 DC Voltage (Param39)	1	143	2	0.0 to 600.0(V)	10	Get	d084

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnification	Access rule	Command
Trip 4 RUN time (Param40)	1	144	4	0 to 999999(hr)	1	Get	d084
Trip 4 P-ON time (Param41)	1	145	4	0 to 999999(hr)	1	Get	d084
Trip 5 Cause (Param42)	1	146	4	E01.X to E79.X (E??:Trip cause, X:running condition) See 6.3.3 Hitachi inverter I/O Instance(Instance 101)	1	Get	d085
Trip 5 frequency (Param43)	1	147	4	0.00 to 400.00(Hz)	100	Get	d085
Trip 5 Current (Param44)	1	148	2	0.0 to 999.9(A)	10	Get	d085
Trip 5 DC Voltage (Param45)	1	149	2	0.0 to 600.0(V)	10	Get	d085
Trip 5 RUN time (Param46)	1	150	4	0 to 999999(hr)	1	Get	d085
Trip 5 P-ON time (Param47)	1	151	4	0 to 999999(hr)	1	Get	d085
Trip 6 Cause (Param48)	1	152	4	E01.X to E79.X (E??:Trip cause, X:running condition) See 6.3.3 Hitachi inverter I/O Instance(Instance 101)	1	Get	d086
Trip 6 frequency (Param49)	1	153	4	0.00 to 400.00(Hz)	100	Get	d086
Trip 6 Current (Param50)	1	154	2	0.0 to 999.9(A)	10	Get	d086
Trip 6 DC Voltage (Param51)	1	155	2	0.0 to 600.0(V)	10	Get	d086
Trip 6 RUN time (Param52)	1	156	4	0 to 999999(hr)	1	Get	d086
Trip 6 P-ON time 6(Param53)	1	157	4	0 to 999999(hr)	1	Get	d086
Warning Monitor (Param54)	1	158	1	00 (No Warning) 01(W001) 02(W002) 03(W004) 04(W005) 05(W006) 06(W009) 07(W201) 08(W202) 09(W204) 10(W205) 11(W206) 12(W209) 13(W304) 14(W305) 15(W306) 16(W309) 17(W012) 18(W015) 19(W016) 21(W212) 22(W215) 23(W216) 24(W219) 25(W021) 26(W025) 27(W026) 28(W029) 29(W221) 30(W225) 31(W226) 32(W229) 33(W031) 34(W231) 35(W032) 36(W232) 37(W035) 38(W235) 39(W335) 40(W036) 41(W037) 42(W085) 43(W285) 44(W385) 45(W086) 46(W091) 47(W291) 48(W092) 49(W292) 50(W095) 51(W295) 52(W395) 53(W096) 54(W110) 55(W120)	1	Get	d090
Frequency Setting (Param60)	1	159	4	0.00 to 400.00(Hz)	100	Get/Set	F001
Accel Time 1 (Param61)	1	160	4	0.01 to 3600.00(s)	100	Get/Set	F002
2nd Accel Time 1 (Param337)	2	160	4	0.01 to 3600.00(s)	100	Get/Set	F202
3rd Accel Time 1 (Param372)	3	160	4	0.01 to 3600.00(s)	100	Get/Set	F302
Decel Time 1(Param62)	1	161	4	0.01 to 3600.00(s)	100	Get/Set	F003
2nd Decel Time 1(Param338)	2	161	4	0.01 to 3600.00(s)	100	Get/Set	F203
3rd Decel Time 1 (Param373)	3	161	4	0.01 to 3600.00(s)	100	Get/Set	F303
Direction Setting (Param63)	1	162	1	00(Forward)/01(Reverse)	1	Get/Set	F004

Support service

Service name	Code
Get_Attribute_Single	H'0E
Set_Attribute_Single	H'10

(2) Extend Group A object Class ID=101

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnification	Access rule	Command
Freq-Setting Sel (Param64)	1	101	1	00(Volume)/01(Terminal)/ 02(Operator)/03(RS485)/ 04(Option1)/05(Option2)	1	Get/Set	A001
Operating Mode Sel (Param65)	1	102	1	01(Terminal)/02(Operator)/ 03(RS485)/04(Option1)/ 05(Option2)	1	Get/Set	A002
Base Frequency (Param56)	1	103	2	30 to 400(Hz)	1	Get/Set	A003
2nd Base Frequency (Param334)	2	103	2	30 to 400(Hz)	1	Get/Set	A203
3rd Base Frequency (Param371)	3	103	2	30 to 400(Hz)	1	Get/Set	A303
Max Frequency (Param55)	1	104	2	30 to 400(Hz)	1	Get/Set	A004
2ndMaxFrequency (Param333)	2	104	2	30 to 400(Hz)	1	Get/Set	A204
3rd Max Frequency (Param370)	3	104	2	30 to 400(Hz)	1	Get/Set	A304
AT Function Sel (Param66)	1	105	1	00(O/OI)/01(O/O2)	1	Get/Set	A005

APPENDIX PARAMETER OBJECT LISTS

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnifi-cation	Access rule	Com-mand
O2 Function Sel (Param67)	1	106	1	00(Invalid)/01(O/OI-no reverse)/02(O/OI-reverse)	1	Get/Set	A006
O Start Freq Set (Param68)	1	111	4	0.00 to 400.00(Hz)	100	Get/Set	A011
O End Freq Set (Param69)	1	112	4	0.00 to 400.00(Hz)	100	Get/Set	A012
O Start Rate (Param70)	1	113	1	0 to 100(%)	1	Get/Set	A013
O End Rate (Param71)	1	114	1	0 to 100(%)	1	Get/Set	A014
O Start Mode Sel (Param72)	1	115	1	00(Set frequency)/01(0Hz)	1	Get/Set	A015
Analog Sampling (Param73)	1	116	1	1 to 30	1	Get/Set	A016
Multi-Speed Mode (Param74)	1	119	1	00(Binary)/01(Bit)	1	Get/Set	A019
Multi-Speed 0 (Param75)	1	120	4	0.00 to 400.00(Hz)	100	Get/Set	A020
2nd Multi-Speed0 (Param339)	2	120	4	0.00 to 400.00(Hz)	100	Get/Set	A220
3rd Multi-Speed0 (Param374)	3	120	4	0.00 to 400.00(Hz)	100	Get/Set	A320
Multi-Speed 1 (Param76)	1	121	4	0.00 to 400.00(Hz)	100	Get/Set	A021
Multi-Speed 2 (Param77)	1	122	4	0.00 to 400.00(Hz)	100	Get/Set	A022
Multi-Speed 3 (Param78)	1	123	4	0.00 to 400.00(Hz)	100	Get/Set	A023
Multi-Speed 4 (Param79)	1	124	4	0.00 to 400.00(Hz)	100	Get/Set	A024
Multi-Speed 5 (Param80)	1	125	4	0.00 to 400.00(Hz)	100	Get/Set	A025
Multi-Speed 6 (Param81)	1	126	4	0.00 to 400.00(Hz)	100	Get/Set	A026
Multi-Speed 7 (Param82)	1	127	4	0.00 to 400.00(Hz)	100	Get/Set	A027
Multi-Speed 8 (Param83)	1	128	4	0.00 to 400.00(Hz)	100	Get/Set	A028
Multi-Speed 9 (Param84)	1	129	4	0.00 to 400.00(Hz)	100	Get/Set	A029
Multi-Speed 10 (Param85)	1	130	4	0.00 to 400.00(Hz)	100	Get/Set	A030
Multi-Speed 11 (Param86)	1	131	4	0.00 to 400.00(Hz)	100	Get/Set	A031
Multi-Speed 12 (Param87)	1	132	4	0.00 to 400.00(Hz)	100	Get/Set	A032
Multi-Speed 13 (Param88)	1	133	4	0.00 to 400.00(Hz)	100	Get/Set	A033
Multi-Speed 14 (Param89)	1	134	4	0.00 to 400.00(Hz)	100	Get/Set	A034
Multi-Speed 15 (Param90)	1	135	4	0.00 to 400.00(Hz)	100	Get/Set	A035
JoggingFrequency (Param91)	1	138	2	0.00 to 9.99(Hz)	100	Get/Set	A038
Jog StopMode Sel (Param92)	1	139	1	00(Free run)/01(Deceleration)/02(DC Braking)/03(R-Free run)/04(R-Deceleration)/05(R-DC Braking)	1	Get/Set	A039
Torque Boost Sel (Param93)	1	141	1	00(Manual)/01(Automatic)	1	Get/Set	A041
2ndTrq-Boost Sel (Param340)	2	141	1	00(Manual)/01(Automatic)	1	Get/Set	A241
TorqueBoostValue (Param94)	1	142	1	0.0 to 20.0(%)	10	Get/Set	A042
2ndTrqBoostValue (Param341)	2	142	1	0.0 to 20.0(%)	10	Get/Set	A242
3rdTrqBoostValue (Param375)	3	142	1	0.0 to 20.0(%)	10	Get/Set	A342
TorqueBoostPoint (Param95)	1	143	2	0.0 to 50.0(%)	10	Get/Set	A043
2ndTrqBoostPoint (Param342)	2	143	2	0.0 to 50.0(%)	10	Get/Set	A243
3rdTrqBoostPoint (Param376)	3	143	2	0.0 to 50.0(%)	10	Get/Set	A343
Control Select (Param96)	1	144	1	00(Constant torque)/01(Reduced torque)/02(Free setting V/f)/03(SLV control)/04(0Hz-SLV control)/05(Sensoring vector control)	1	Get/Set	A044
2ndControlSelect (Param343)	2	144	1	00(Constant torque)/01(Reduced torque)/02(Free setting V/f)/03(SLV control)/04(0Hz-SLV control)	1	Get/Set	A244
3rdControlSelect (Param377)	3	144	1	00(Constant torque)/01(Reduced torque)/02(Free setting V/f)	1	Get/Set	A344
Out-Voltage Gain (Param97)	1	145	1	20 to 100	1	Get/Set	A045
DC Brake Enable (Param98)	1	151	1	00(invalid)/01(Valid)	1	Get/Set	A051
DC Br Start Freq (Param99)	1	152	2	0.00 to 60.00(Hz)	100	Get/Set	A052
DC Br Wait Time (Param100)	1	153	1	0.0 to 5.0(s)	10	Get/Set	A053
DC Brake Power (Param101)	1	154	1	0 to 100(%) (~55KW) 0 to 80(%) (75~132KW)	1	Get/Set	A054
DC Brake Time (Param102)	1	155	2	0.0 to 60.0(s)	10	Get/Set	A055
DC Brake ModeSel (Param103)	1	156	1	00(Edge)/01(Level)	1	Get/Set	A056
DCBrPowerAtStart (Param104)	1	157	1	0 to 100(%) (~55KW) 0 to 80(%) (75~132KW)	1	Get/Set	A057
DCBrTime AtStart (Param105)	1	158	2	0.0 to 60.0(s)	10	Get/Set	A058
DCBr CarrierFreq (Param106)	1	159	1	0.5 to 15.0(kHz) (~55KW) 0.5 to 10.0(kHz) (75~132KW)	10	Get/Set	A059
Upper Freq Limit (Param59)	1	161	4	0.00 to 400.00(Hz)	100	Get/Set	A061
2ndUpperFRQLimit (Param336)	2	161	4	0.00 to 400.00(Hz)	100	Get/Set	A261
Lower Freq Limit (Param58)	1	162	4	0.00 to 400.00(Hz)	100	Get/Set	A062
2ndLowerFRQLimit (Param335)	2	162	4	0.00 to 400.00(Hz)	100	Get/Set	A262

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnification	Access rule	Command
Jump Frequency 1 (Param107)	1	163	4	0.00 to 400.00(Hz)	100	Get/Set	A063
Jump Freq Width 1 (Param108)	1	164	2	0.00 to 10.00(Hz)	100	Get/Set	A064
Jump Frequency 2 (Param109)	1	165	4	0.00 to 400.00(Hz)	100	Get/Set	A065
Jump Freq Width 2 (Param110)	1	166	2	0.00 to 10.00(Hz)	100	Get/Set	A066
Jump Frequency 3 (Param111)	1	167	4	0.00 to 400.00(Hz)	100	Get/Set	A067
Jump Freq Width 3 (Param112)	1	168	2	0.00 to 10.00(Hz)	100	Get/Set	A068
Accel Stop Freq (Param113)	1	169	4	0.00 to 400.00(Hz)	100	Get/Set	A069
Accel Stop Time (Param114)	1	170	2	0.0 to 60.0(s)	10	Get/Set	A070
PID Enable (Param115)	1	171	1	00(Invalid)/01(Valid)	1	Get/Set	A071
PID-P Gain (Param116)	1	172	1	0.2 to 5	1	Get/Set	A072
PID-I Gain (Param117)	1	173	2	0.0 to 3600.0(s)	10	Get/Set	A073
PID-D Gain (Param118)	1	174	2	0.00 to 100.00(s)	100	Get/Set	A074
PID Scale (Param119)	1	175	2	0.01 to 99.99(%)	100	Get/Set	A075
PID Feedback Sel (Param120)	1	176	1	00(OI)/01(O)	1	Get/Set	A076
AVR Selection (Param121)	1	181	1	00(ON)/01(OFF)/ 02(OFF on decel)	1	Get/Set	A081
MotorVoltage Sel (Param122)	1	182	1	00(200)/01(215)/02(220)/03(230)/ 04(240)/05(380)/06(400)/07(415)/ 08(440)/09(460)/10(480)/11(575)/ 12(600)	1	Get/Set	A082
OperationModeSel (Param123)	1	185	1	00(Normal)/01(Energy saving)/ 02(Fuzzy)	1	Get/Set	A085
EnergySavingResp (Param124)	1	186	2	0.0 to 100.0(s)	10	Get/Set	A086
Accel Time 2 (Param125)	1	192	4	0.01 to 3600.00(s)	100	Get/Set	A092
2nd Accel Time 2 (Param344)	2	192	4	0.01 to 3600.00(s)	100	Get/Set	A292
3rd Accel Time 2 (Param378)	3	192	4	0.01 to 3600.00(s)	100	Get/Set	A392
Decel Time 2 (Param126)	1	193	4	0.01 to 3600.00(s)	100	Get/Set	A093
2nd Decel Time 2 (Param345)	2	193	4	0.01 to 3600.00(s)	100	Get/Set	A293
3rd Decel Time 2 (Param379)	3	193	4	0.01 to 3600.00(s)	100	Get/Set	A393
Accel/Decel2 Sel (Param127)	1	194	1	00(Terminal)/01(Frequency)	1	Get/Set	A094
2nd Acc/Dec2 Sel (Param346)	2	194	1	00(Terminal)/01(Frequency)	1	Get/Set	A294
Accel2 StartFreq (Param128)	1	195	4	0.00 to 400.00(Hz)	100	Get/Set	A095
2ndAcc2StartFreq (Param347)	2	195	4	0.00 to 400.00(Hz)	100	Get/Set	A295
Decel2 StartFreq (Param129)	1	196	4	0.00 to 400.00(Hz)	100	Get/Set	A096
2ndDec2StartFreq (Param348)	2	196	4	0.00 to 400.00(Hz)	100	Get/Set	A296
AccelPattern Sel (Param130)	1	197	1	00(Straight line)/01(S Curve)/ 02(U Curve)/03(Reverse U Curve)	1	Get/Set	A097
DecelPattern Sel (Param131)	1	198	1	00(Straight line)/01(S Curve)/ 02(U Curve)/03(Reverse U Curve)	1	Get/Set	A098

Support service

Service name	Code
Get_Attribute_Single	H'0E
Set_Attribute_Single	H'10

(3) Extend Group A object Class ID=102

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnification	Access rule	Command
OI StartFreq Set (Param132)	1	101	4	0.00 to 400.00(Hz)	100	Get/Set	A101
OI End Freq Set (Param133)	1	102	4	0.00 to 400.00(Hz)	100	Get/Set	A102
OI Start Rate (Param134)	1	103	1	0 to 100(%)	1	Get/Set	A103
OI End Rate (Param135)	1	104	1	0 to 100(%)	1	Get/Set	A104
OI StartMode Sel (Param136)	1	105	1	00(Set Frequency)/01(0Hz)	1	Get/Set	A105
O2 StartFreq Set (Param137)	1	111	4	-400.00 to 400.00(Hz)	100	Get/Set	A111
O2 End Freq Set (Param138)	1	112	4	-400.00 to 400.00(Hz)	100	Get/Set	A112
O2 Start Rate (Param139)	1	113	1	-100 to 100(%)	1	Get/Set	A113
O2 End Rate (Param140)	1	114	1	-100 to 100(%)	1	Get/Set	A114
AccCurveSwelling (Param141)	1	131	1	01(small swelling) to 10(large swelling)	1	Get/Set	A131
DecCurveSwelling (Param142)	1	132	1	01(small swelling) to 10(large swelling)	1	Get/Set	A132

Support service

Service name	Code
Get_Attribute_Single	H'0E
Set_Attribute_Single	H'10

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(4) Extend Group B object Class ID=103

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnifi-cation	Access rule	Com mand
Restart Mode Sel (Param143)	1	101	1	00(Trip)/01(0Hz Start)/ 02(Synchronize)/ 03(Sync& Stop& Trip)	1	Get/Set	b001
Allowable UVTime (Param144)	1	102	1	0.3 to 1.0(s)	10	Get/Set	b002
Restart WaitTime (Param145)	1	103	2	0.3 to 100.0(s)	10	Get/Set	b003
IP/UVTrip AtStop (Param146)	1	104	1	00(Invalid)/01(Valid)/ 02(Invalid on stop)	1	Get/Set	b004
IP/UVRestartTime(Param147)	1	105	1	00(16 times)/01(Free)	1	Get/Set	b005
Open-phaseSelect (Param148)	1	106	1	00(Invalid)/01(Valid)	1	Get/Set	b006
FreqSet To Match (Param149)	1	107	4	0.00 to 400.00(Hz)	100	Get/Set	b007
E-Thermal Level (Param150)	1	112	2	20 to 120(%)(constant current)	1	Get/Set	b012
2nd E-ThermalLvl (Param349)	2	112	2	20 to 120(%)(constant current)	1	Get/Set	b212
3rd E-ThermalLvl (Param380)	3	112	2	20 to 120(%)(constant current)	1	Get/Set	b312
E-ThermalCharSel (Param151)	1	113	1	00(Reduced torque)/ 01(Constant torque)/ 02(Free setting)	1	Get/Set	b013
2ndEThermCharSel (Param350)	2	113	1	00(Reduced torque)/ 01(Constant torque)/ 02(Free setting)	1	Get/Set	b213
3rdEThermCharSel (Param381)	3	113	1	00(Reduced torque)/ 01(Constant torque)/ 02(Free setting)	1	Get/Set	b313
E-Thermal Freq 1 (Param152)	1	115	2	0 to 400(Hz)	1	Get/Set	b015
E-Thermal Cur 1 (Param153)	1	116	2	0.0 to 999.9(A)	10	Get/Set	b016
E-Thermal Freq 2 (Param154)	1	117	2	0 to 400(Hz)	1	Get/Set	b017
E-Thermal Cur 2 (Param155)	1	118	2	0.0 to 999.9(A)	10	Get/Set	b018
E-Thermal Freq 3 (Param156)	1	119	2	0 to 400(Hz)	1	Get/Set	b019
E-Thermal Cur 3 (Param157)	1	120	2	0.0 to 999.9(A)	10	Get/Set	b020
OL Limit Enable (Param158)	1	121	1	00(Inactive)/01(Inactive at dec 1)/ 02(Active at const 1)/ 03(Inactive at dec 2)	1	Get/Set	b021
OL Limit Level (Param159)	1	122	2	50 to 200(%) (~55KW) 50 to 180(%) (75~132KW)	1	Get/Set	b022
OL Limit Const (Param160)	1	123	2	0.1 to 30.00	100	Get/Set	b023
OL Limit Enable2 (Param161)	1	124	1	00(Inactive)/01(Inactive at dec 1)/ 02(Active at const 1)/ 03(Inactive at dec 2)	1	Get/Set	b024
OL Limit Level 2 (Param162)	1	125	2	50 to 200(%) (~55KW) 50 to 180(%) (75~132KW)	1	Get/Set	b025
OL Limit Const 2 (Param163)	1	126	2	0.1 to 30.00	100	Get/Set	b026
SoftLock ModeSel (Param383)	1	131	1	00(SFT - All param)/ 01(SFT - Only freq)/ 02(All param)/03(Only freq)/ 10(Change mode on run)	1	Get/Set	b031
Run/P-ONTime Lvl (Param164)	1	134	2	0 to 65535(hr)	1	Get/Set	b034
FW/RV Restrict (Param165)	1	135	1	00(FW/RV Enable)/ 01(Forward only)/02(Reverse only)	1	Get/Set	b035
ReducedV TimeSel (Param166)	1	136	1	00 to 06	1	Get/Set	b036
Display Select (Param167)	1	137	1	00(All Display)/ 01(Each Func Display)/ 02(User setting)	1	Get/Set	b037
TorqueLimit Mode (Param168)	1	140	1	00(4 Quadrant mode)/ 01(Terminal)/02(Analog input)/ 03(Option1)/04(Option2)	1	Get/Set	b040
TorqueLimit Lvl1 (Param169)	1	141	1	0 to 200(%)/255 (~55KW) 0 to 180(%)/255 (75~132KW)	1	Get/Set	b041
TorqueLimit Lvl2 (Param170)	1	142	1	0 to 200(%)/255 (~55KW) 0 to 180(%)/255 (75~132KW)	1	Get/Set	b042
TorqueLimit Lvl3 (Param171)	1	143	1	0 to 200(%)/255 (~55KW) 0 to 180(%)/255 (75~132KW)	1	Get/Set	b043
TorqueLimit Lvl4 (Param172)	1	144	1	0 to 200(%)/255 (~55KW) 0 to 180(%)/255 (75~132KW)	1	Get/Set	b044
Torq LADSTOP Sel (Param173)	1	145	1	00(Invalid)/01(Valid)	1	Get/Set	b045
RV-RunPreventSel (Param174)	1	146	1	00(Invalid)/01(Valid)	1	Get/Set	b046
IPNonStopModeSel (Param175)	1	150	1	00(Invalid)/01(Valid)	1	Get/Set	b050
IPNonStopStart-V (Param176)	1	151	2	0.0 to 999.9(V)	10	Get/Set	b051
IP OV-LADSTOPlvl (Param177)	1	152	2	0.0 to 999.9(V)	10	Get/Set	b052
IPNonStopDecTime(Param178)	1	153	4	0.01 to 3600.00(s)	100	Get/Set	b053
IP StartDec-Freq (Param179)	1	154	2	0.00 to 10.00(Hz)	100	Get/Set	b054
AM Adjustment (Param180)	1	180	1	0 to 255	1	Get/Set	b080

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Function	Inst	Attr	Size	Monitoring/Setting Range	Magnification	Access rule	Command
FM Adjustment (Param181)	1	181	1	0 to 255	1	Get/Set	b081
Start Frequency (Param57)	1	182	2	0.1 to 9.99(Hz)	100	Get/Set	b082
CarrierFrequency (Param182)	1	183	1	0.5 to 15.0(kHz) (~55KW) 0.5 to 10.0(kHz) (75~132KW)	10	Get/Set	b083
Initialize Mode (Param183)	1	184	1	00(Trip history)/01(Data)/ 02(Trip history & Data)	1	Get/Set	b084
Initial Data Sel (Param184)	1	185	1	00(Japan)/01(Europe)/02(USA)	1	Get/Set	b085
Freq CovertScale (Param185)	1	186	2	0.1 to 99.9	10	Get/Set	b086
Stop Key enable (Param186)	1	187	1	00(Invalid)/01(Valid)	1	Get/Set	b087
FRS Cancel Sel (Param187)	1	188	1	00(0Hz start)/01(Synchronize start)	1	Get/Set	b088
BRD Using Rate (Param188)	1	190	2	0.0 to 100.0(%)	10	Get/Set	b090
Stop Mode Select (Param189)	1	191	1	00(Deceleration)/01(Free run)	1	Get/Set	b091
CoolingFunContrl (Param190)	1	192	1	00(Always ON)/01(ON During Run)	1	Get/Set	b092
BRD Mode Select (Param191)	1	195	1	00(Invalid)/01(Invalid during stop)/ 02(Valid)	1	Get/Set	b095
BRD ON Level (Param192)	1	196	2	330 to 380(V)/660 to 760(V)	1	Get/Set	b096
Thermistor Sel (Param193)	1	198	1	00(Invalid)/01(PTC Enable)/ 02(NTC Enable)	1	Get/Set	b098
ThermistorErrLvl (Param194)	1	199	2	0 to 9999(Ω)	1	Get/Set	b099

Support service

Service name	Code
Get_Attribute_Single	H'0E
Set_Attribute_Single	H'10

(5) Extend Group B object Class ID=104

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnification	Access rule	Command
Free V/f Freq 1(Param195)	1	100	2	0 to 400(Hz)	1	Get/Set	b100
Free V/f Volt 1(Param196)	1	101	2	0.0 to 800.0(V)	10	Get/Set	b101
Free V/f Freq 2 (Param197)	1	102	2	0 to 400(Hz)	1	Get/Set	b102
Free V/f Volt 2 (Param198)	1	103	2	0.0 to 800.0(V)	10	Get/Set	b103
Free V/f Freq 3(Param199)	1	104	2	0 to 400(Hz)	1	Get/Set	b104
Free V/f Volt 3 (Param200)	1	105	2	0.0 to 800.0(V)	10	Get/Set	b105
Free V/f Freq 4(Param201)	1	106	2	0 to 400(Hz)	1	Get/Set	b106
Free V/f Volt 4 (Param202)	1	107	2	0.0 to 800.0(V)	10	Get/Set	b107
Free V/f Freq 5 (Param203)	1	108	2	0 to 400(Hz)	1	Get/Set	b108
Free V/f Volt 5 (Param204)	1	109	2	0.0 to 800.0(V)	10	Get/Set	b109
Free V/f Freq 6(Param205)	1	110	2	0 to 400(Hz)	1	Get/Set	b110
Free V/f Volt 6 (Param206)	1	111	2	0.0 to 800.0(V)	10	Get/Set	b111
Free V/f Freq 7 (Param207)	1	112	2	0 to 400(Hz)	1	Get/Set	b112
Free V/f Volt 7 (Param208)	1	113	2	0.0 to 800.0(V)	10	Get/Set	b113
BrakeControlMode (Param209)	1	120	1	00(Invalid)/01(Valid)	1	Get/Set	b120
Brake Start Wait (Param210)	1	121	2	0.00 to 5.00(s)	100	Get/Set	b121
Brake Accel Wait (Param211)	1	122	2	0.00 to 5.00(s)	100	Get/Set	b122
Brake Stop Wait (Param212)	1	123	2	0.00 to 5.00(s)	100	Get/Set	b123
BrakeConformWait (Param213)	1	124	2	0.00 to 5.00(s)	100	Get/Set	b124
Releasing Freq (Param214)	1	125	2	0.00 to 400.00(Hz)	100	Get/Set	b125
ReleasingCurrent (Param215)	1	126	2	0 to 200(%) (constant current)	1	Get/Set	b126

Support service

Service name	Code
Get_Attribute_Single	H'0E
Set_Attribute_Single	H'10

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(6) Extend Group C object Class ID=105

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnification	Access rule	Command
Digital Input 1 (Param216)	1	101	1	01(RV)/02(CF1)/03(CF2)/04(CF3)/ 05(CF4)/06(JG)/07(DB)/08(SET)/ 09(2CH)/11(FRS)/12(EXT)/ 13(USP)/14(CS)/15(SFT)/16(AT)/ 17(SET3)/18(RS)/20(STA)/ 21(STP)/22(F/R)/23(PID)/ 24(PIDC)/26(CAS)/27(UP)/ 28(DWN)/29(UDC)/31(OPE)/ 32(SF1)/33(SF2)/34(SF3)/35(SF4)/ 36(SF5)/37(SF6)/38(SF7)/ 39(OLR)/40(TL)/41(TRQ1)/ 42(TRQ2)/43(PPI)/44(BOK)/ 45(ORT)/46(LAC)/47(PCLR)/ 48(STAT)/255(NO)	1	Get/Set	C001
Digital Input 2 (Param217)	1	102	1	Same above	1	Get/Set	C002
Digital Input 3 (Param218)	1	103	1	Same above	1	Get/Set	C003
Digital Input 4 (Param219)	1	104	1	Same above	1	Get/Set	C004
Digital Input 5 (Param220)	1	105	1	Same above	1	Get/Set	C005
Digital Input 6 (Param221)	1	106	1	Same above	1	Get/Set	C006
Digital Input 7 (Param222)	1	107	1	Same above	1	Get/Set	C007
Digital Input 8 (Param223)	1	108	1	Same above	1	Get/Set	C008
Dig Input1 NO/NC (Param224)	1	111	1	00(NO)/01(NC)	1	Get/Set	C011
Dig Input2 NO/NC (Param225)	1	112	1	00(NO)/01(NC)	1	Get/Set	C012
Dig Input3 NO/NC (Param226)	1	113	1	00(NO)/01(NC)	1	Get/Set	C013
Dig Input4 NO/NC (Param227)	1	114	1	00(NO)/01(NC)	1	Get/Set	C014
Dig Input5 NO/NC (Param228)	1	115	1	00(NO)/01(NC)	1	Get/Set	C015
Dig Input6 NO/NC (Param229)	1	116	1	00(NO)/01(NC)	1	Get/Set	C016
Dig Input7 NO/NC (Param230)	1	117	1	00(NO)/01(NC)	1	Get/Set	C017
Dig Input8 NO/NC (Param231)	1	118	1	00(NO)/01(NC)	1	Get/Set	C018
FW NO/NC (Param232)	1	119	1	00(NO)/01(NC)	1	Get/Set	C019
Dig Output11 (Param233)	1	121	1	00(RUN)/01(FA1)/02(FA2)/03(OL)/ 04(OD)/05(AL)/06(FA3)/07(OTQ)/ 08(IP)/09(UV)/10(TRQ)/11(RNT)/ 12(ONT)/13(THM)/19(BRK)/ 20(BER)/21(ZS)/22(DSE)/23(POK)/ 24(FA4)/25(FA5)/26(OL2) (Intelligent output terminal 11 to 13 or 11 to 14 becomes AC0 to AC2 or AC0 to AC3 (Can:Alarm cord output)forcibly when alarm cord output is selected in C062)	1	Get/Set	C021
Dig Output12 (Param234)	1	122	1	Same above	1	Get/Set	C022
Dig Output13 (Param235)	1	123	1	Same above	1	Get/Set	C023
Dig Output14 (Param236)	1	124	1	Same above	1	Get/Set	C024
Dig Output15 (Param237)	1	125	1	Same above	1	Get/Set	C025
AlarmRerayOutput (Param238)	1	126	1	Same above	1	Get/Set	C026
FM Mode Select (Param239)	1	127	1	00(Output Frequency)/ 01(Output Current)/ 02(Output Torque)/ 03(Digital Outp-frq)/ 04(Output Voltage)/ 05(Input Power)/ 06(Therm Load Rate)/ 07LAD frequency)/	1	Get/Set	C027
AM Mode Select (Param240)	1	128	1	00(Output Frequency)/ 01(Output Current)/ 02(Output Torque)/ 04(Output Voltage)/ 05(Input Power)/ 06(Therm Load Rate)/ 07LAD frequency)/	1	Get/Set	C028
AMI Mode Select (Param241)	1	129	1	00(Output Frequency)/ 01(Output Current)/ 02(Output Torque)/ 04(Output Voltage)/ 05(Input Power)/ 06(Therm Load Rate)/ 07LAD frequency)/	1	Get/Set	C029
Dig Out11 NO/NC (Param242)	1	131	1	00(NO)/01(NC)	1	Get/Set	C031
Dig Out12 NO/NC (Param243)	1	132	1	00(NO)/01(NC)	1	Get/Set	C032

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnifi-cation	Access rule	Com mand
Dig Out13 NO/NC (Param244)	1	133	1	00(NO)/01(NC)	1	Get/Set	C033
Dig Out14 NO/NC (Param245)	1	134	1	00(NO)/01(NC)	1	Get/Set	C034
Dig Out15 NO/NC (Param246)	1	135	1	00(NO)/01(NC)	1	Get/Set	C035
AlarmReray NO/NC (Param247)	1	136	1	00(NO)/01(NC)	1	Get/Set	C036
OLAlarmSignalSel (Param248)	1	140	1	00(Valid)/01(Valid at const)	1	Get/Set	C040
OL Alarm Level 1 (Param249)	1	141	2	0 to 200(%) (constant current)	1	Get/Set	C041
ArrivalFreq Acc1 (Param250)	1	142	4	0.00 to 400.00(Hz)	100	Get/Set	C042
ArrivalFreq Dec1(Param251)	1	143	4	0.00 to 400.00(Hz)	100	Get/Set	C043
PID DeviationLvl (Param252)	1	144	2	0.0 to 100.0(%)	10	Get/Set	C044
ArrivalFreq Acc2 (Param253)	1	145	4	0.00 to 400.00(Hz)	100	Get/Set	C045
ArrivalFreq Dec2 (Param254)	1	146	4	0.00 to 400.00(Hz)	100	Get/Set	C046
OV-TRQ FW-V (Param255)	1	155	1	0 to 200(%) (~55KW) 0 to 180(%) (75~132KW)	1	Get/Set	C055
OV-TRQ RV-R (Param256)	1	156	1	0 to 200(%) (~55KW) 0 to 180(%) (75~132KW)	1	Get/Set	C056
OV-TRQ RV-V (Param257)	1	157	1	0 to 200(%) (~55KW) 0 to 180(%) (75~132KW)	1	Get/Set	C057
OV-TRQ FW-R (Param258)	1	158	1	0 to 200(%) (~55KW) 0 to 180(%) (75~132KW)	1	Get/Set	C058
Thermal Warn Lvl (Param259)	1	161	2	0 to 100(%)	1	Get/Set	C061
AlarmMode Select (Param260)	1	162	1	00(Invalid)/01(3bit)/02(4bit)	1	Get/Set	C062
ZERO Speed Level (Param261)	1	163	2	0.00 to 100.00(Hz)	100	Get/Set	C063
Data Command Sel (Param262)	1	170	1	02(Operator)/03(RS485)/ 04(Option 1)/05(Option 2)	1	Get/Set	C070
CommSpeed Select (Param263)	1	171	1	02(loop back)/ 03(2400bps)/04(4800bps)/ 05(9600bps)/06(19200bps)	1	Get/Set	C071
Comm ID Select (Param264)	1	172	1	1 to 32	1	Get/Set	C072
CommBitLengthSel (Param265)	1	173	1	7(7bit)/8(8bit)	1	Get/Set	C073
CommParitySelect (Param266)	1	174	1	00(No Parity)/01(Even Parity)/ 02(Odd Parity)	1	Get/Set	C074
Comm StopBit Sel (Param267)	1	175	1	1(1bit)/2(2bit)	1	Get/Set	C075
Comm Wait Time (Param268)	1	178	2	0 to 1000(ms)	1	Get/Set	C078
O Adjustment (Param269)	1	181	2	0 to 65535	1	Get/Set	C081
OI Adjustment (Param270)	1	182	2	0 to 65535	1	Get/Set	C082
O2 Adjustment (Param271)	1	183	2	0 to 65535	1	Get/Set	C083
Therm-Adjustment (Param272)	1	185	2	0.0 to 1000.0	10	Get/Set	C085
AM Offset Adjust (Param273)	1	186	1	0.0 to 10.0(V)	10	Get/Set	C086
AMI Adjustment (Param274)	1	187	1	0 to 255(%)	1	Get/Set	C087
AMI OffsetAdjust (Param275)	1	188	1	0.0 to 20.0(mA)	10	Get/Set	C088

Support service

Service name	Code
Get_Attribute_Single	H'0E
Set_Attribute_Single	H'10

(7) Extend Group C object Class ID=106

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnifi-cation	Access rule	Com-mand
UP/DWN Selection (Param276)	1	101	1	00(Not keep)/01(Keep)	1	Get/Set	C101
Reset Selection (Param277)	1	102	1	00(Reset at close)/ 01(Reset at open)/ 02(Only trip clear)	1	Get/Set	C102
Reset f MacthSel (Param278)	1	103	1	00(0Hz start)/01(Synchronize)	1	Get/Set	C103
OL Alarm Level 2 (Param279)	1	111	2	0 to 200(%) (constant current)	1	Get/Set	C111
O ZeroAdjustment (Param280)	1	121	2	0 to 65535	1	Get/Set	C121
OIZeroAdjustment (Param281)	1	122	2	0 to 65535	1	Get/Set	C122
O2ZeroAdjustment (Param282)	1	123	2	0 to 65535	1	Get/Set	C123

Support service

Service name	Code
Get_Attribute_Single	H'0E
Set_Attribute_Single	H'10

(8) Extend Group H object Class ID=107

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnifi-cation	Access rule	Command
AutotuningSelect (Param283)	1	101	1	00(Invalid)/01(Valid(not rotate))/02(Valid(rotate))	1	Get/Set	H001
Motor Constant (Param284)	1	102	1	00(Standard Motor)/01(Offline Auto)/02(Online Auto)	1	Get/Set	H002
2nd Motor Constant (Param351)	2	102	1	00(Standard Motor)/01(Offline Auto)/02(Online Auto)	1	Get/Set	H202
Allowable Motor (Param285)	1	103	1	Available setting range for EC: 00(0.20)/01(0.37)/03(0.55)/ 04(0.75)/05(1.10)/06(1.50)/ 07(2.20)/08(3.00)/10(4.00)/ 11(5.50)/12(7.50)/13(11.0)/ 14(15.0)/15(18.5)/16(22.0)/ 17(30.0)/18(37.0)/19(45.0)/ 20(55.0)/21(75.0)/22(90.00)/ 23(110.0)/24(132.0)/25(150.0)/ 26(160.0) Available setting range for USA: 00(0.20)/02(0.40)/04(0.75)/ 06(1.50)/07(2.20)/09(3.70)/ 11(5.50)/12(7.50)/13(11.0)/ 14(15.0)/15(18.5)/16(22.0)/ 17(30.0)/18(37.0)/19(45.0)/ 20(55.0)/21(75.0)/22(90.00)/ 23(110.0)/24(132.0)/25(150.0)/ 26(160.0)	1	Get/Set	H003
2nd Allowable Motor (Param352)	2	103	1	Same above	1	Get/Set	H203
MotorPole Select (Param286)	1	104	1	0(2P)/1(4P)/2(6P)/3(8P)	1	Get/Set	H004
2nd MotorPole Select(Param353)	2	104	1	0(2P)/1(4P)/2(6P)/3(8P)	1	Get/Set	H204
Speed Response (Param287)	1	105	2	0.001 to 65.535	1000	Get/Set	H005
2nd Speed Response(Param354)	2	105	2	0.001 to 65.535	1000	Get/Set	H205
StabilizedFactor (Param288)	1	106	2	0 to 255	1	Get/Set	H006
2nd StabilizedFactor (Param355)	2	106	2	0 to 255	1	Get/Set	H206
3rd StabilizedFactor (Param382)	3	106	2	0 to 255	1	Get/Set	H306
Motor-Const R1 (Param289)	1	120	4	0.000 to 65.530(Ω)	1000	Get/Set	H020
2nd Motor-Const R1 (Param356)	2	120	4	0.000 to 65.530(Ω)	1000	Get/Set	H220
Motor-Const R2 (Param290)	1	121	4	0.000 to 65.530(Ω)	1000	Get/Set	H021
2nd Motor-Const R2 (Param357)	2	121	4	0.000 to 65.530(Ω))	1000	Get/Set	H221
Motor-Const L (Param291)	1	122	4	0.00 to 655.30(mH)	100	Get/Set	H022
2nd Motor-Const L (Param358)	2	122	4	0.00 to 655.30(mH)	100	Get/Set	H222
Motor-Const I0 (Param292)	1	123	4	0.00 to 655.30(A)	100	Get/Set	H023
2nd Motor-Const I0 (Param359)	2	123	4	0.00 to 655.30(A)	100	Get/Set	H223
Motor-Const J (Param293)	1	124	4	0.001 to 9999(kgm^2)	1000	Get/Set	H024
2nd Motor-Const J (Param360)	2	124	4	0.001 to 9999(kgm^2)	1000	Get/Set	H224
Motor-Auto R1 (Param294)	1	130	4	0.000 to 65.530(Ω)	1000	Get/Set	H030
2nd Motor-Auto R1 (Param361)	2	130	4	0.000 to 65.530(Ω)	1000	Get/Set	H230
Motor-Auto R2 (Param295)	1	131	4	0.000 to 65.530(Ω)	1000	Get/Set	H031
2nd Motor-Auto R2 (Param362)	2	131	4	0.000 to 65.530(Ω)	1000	Get/Set	H231
Motor-Auto L (Param296)	1	132	4	0.00 to 655.30(mH)	100	Get/Set	H032
2nd Motor-Auto L (Param363)	2	132	4	0.00 to 655.30(mH)	100	Get/Set	H232
Motor-Auto I0 (Param297)	1	133	4	0.00 to 655.30(A)	100	Get/Set	H033
2nd Motor-Auto I0 (Param364)	2	133	4	0.00 to 655.30(A)	100	Get/Set	H233
Motor-Auto J (Param298)	1	134	4	0.001 to 9999(kgm^2)	1000	Get/Set	H034
2nd Motor-Auto J (Param365)	2	134	4	0.001 to 9999(kgm^2)	1000	Get/Set	H234
PIProportionGain (Param299)	1	150	2	0.0 to 1000(%)	10	Get/Set	H050
2nd PIProportionGain(Param366)	2	150	2	0.0 to 1000(%)	10	Get/Set	H250
PI Integrat-Gain (Param300)	1	151	2	0.0 to 1000(%)	10	Get/Set	H051
2nd PI Integrat-Gain (Param367)	2	151	2	0.0 to 1000(%)	10	Get/Set	H251
P ProportionGain (Param301)	1	152	2	0.01 to 10.00	100	Get/Set	H052
2nd P ProportionGain(Param368)	2	152	2	0.01 to 10.00	100	Get/Set	H252
0Hz-SLV Limit (Param302)	1	160	2	0.0 to 100(%)	10	Get/Set	H060
2nd 0Hz-SLV Limit (Param369)	2	160	2	0.0 to 100(%)	10	Get/Set	H260
PIProport-Gain2 (Param303)	1	170	2	0.0 to 1000(%)	10	Get/Set	H070
PIIntegrat-Gain2 (Param304)	1	171	2	0.0 to 1000(%)	10	Get/Set	H071
P Proport-Gain2 (Param305)	1	172	2	0.00 to 10.00	100	Get/Set	H072

Support service

Service name	Code
Get_Attribute_Single	H'0E
Set_Attribute_Single	H'10

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(9) Extend Group P object Class ID=109

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnifi-cation	Access rule	Com mand
OP1 OpeSel OnErr (Param306)	1	101	1	00(Trip)/01(Run)	1	Get/Set	P001
OP2 OpeSel OnErr (Param307)	1	102	1	00(Trip)/01(Run)	1	Get/Set	P002
FeedbackOPenable (Param308)	1	110	1	00(Invalid)/01(Valid)	1	Get/Set	P010
Encoder Pulse No (Param309)	1	111	2	128 to 65000	1	Get/Set	P011
Control Mode Sel (Param310)	1	112	1	00(ASR mode)/01(APR mode)	1	Get/Set	P012
Pulse Train Mode (Param311)	1	113	1	00(Mode 0)/01(Mode 1)/ 02(Mode 2)	1	Get/Set	P013
Orient-Stop Pos (Param312)	1	114	2	0 to 4095	1	Get/Set	P014
Orient-Speed Set (Param313)	1	115	2	0.00 to 120(Hz)	100	Get/Set	P015
Orient-Direction (Param314)	1	116	1	00(Forward)/01(Reverse)	1	Get/Set	P016
Orient-CompRange (Param315)	1	117	2	0 to 10000	1	Get/Set	P017
Orient-CompDelay (Param316)	1	118	2	0.00 to 9.99(s)	100	Get/Set	P018
Elect-GearPosSel (Param317)	1	119	1	00(Feedback)/01(Reference)	1	Get/Set	P019
Elect-Gear Num (Param318)	1	120	2	1 to 9999	1	Get/Set	P020
Elect-Gear Dnom (Param319)	1	121	2	1 to 9999	1	Get/Set	P021
Feed-ForwardGain (Param320)	1	122	2	0.00 to 655.35	100	Get/Set	P022
Pos-CtrlLoopGain (Param321)	1	123	2	0.00 to 100	100	Get/Set	P023
Compensation R2 (Param322)	1	125	1	00(Invalid)/01(Valid)	1	Get/Set	P025
Over Speed Level (Param323)	1	126	2	0.0 to 150(%)	10	Get/Set	P026
SpeedErDetectLvl (Param324)	1	127	2	0.00 to 120(Hz)	100	Get/Set	P027
DGInp-SelAcc/Dec (Param325)	1	131	1	00(Operator)/01(Option 1)/ 02(Option 2)	1	Get/Set	P031
OrientPosInp-Sel (Param326)	1	132	1	00(Operator)/01(Option 1)/ 02(Option 2)	1	Get/Set	P032
CommErrTime (Param327)	1	144	2	0.00 to 99.99(s)	100	Get/Set	P044
CommTimOutAction (Param328)	1	145	1	00(Trip)/01(Dec and trip)/ 02(Hold last)/03(Free run stop)/ 04(Deceleration stop)	1	Get/Set	P045
Output Assembly (Param329)	1	146	1	20,21,100	1	Get/Set	P046
Input Assembly(Param330)	1	147	1	70,71,101	1	Get/Set	P047
Idle Mode Action (Param331)	1	148	1	00(Trip)/01(Dec and trip)/ 02(Hold last)/03(Free run stop)/ 04(Deceleration stop)	1	Get/Set	P048
Rpm chg Pole sel (Param332)	1	149	1	0,2,4,6,8,10,12,14,16,18,20,22,24, 26,28,30,32,34,36,38	1	Get/Set	P049

Support service

Service name	Code
Get_Attribute_Single	H'0E
Set_Attribute_Single	H'10

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SJ700 Parameter Object List

(1) Inverter Data monitor/Basic Data Setting object. Class ID=100

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnifi-cation	Access rule	Com-mand
Inverter Mode (Param16)	1	100	1	00(SJ700)	1	Get	-
Rated Power (Param14)	1	101	1	00(0.20)/01(0.40)/02(0.75)/ 03(1.50)/04(2.20)/05(3.70)/ 06(5.50)/07(7.50)/08(11.0)/ 09(15.0)/10(18.5)/11(22.0)/ 12(30.0)/13(37.0)/14(45.0)/ 15(55.0)/16(75.0)/17(90.0)/ 18(110.0)/19(132.0)	1	Get	-
Rated Voltage (Param15)	1	102	1	00(200V)/01(400V)	1	Get	-
Output Frequency (Param1)	1	104	4	0.00 to 400.00(Hz)	100	Get	d001
Output Current (Param2)	1	105	2	0.0 to 6553.5(A)	10	Get	d002
Direction (Param3)	1	106	1	01(Forward)/00(Stopped)/ 02(Reverse)	1	Get	d003
PID Feedback (Param4)	1	107	4	0.00 to 9999.00	100	Get	d004
Dig In Status (Param5)	1	108	2	Bit8 : Forward Bit7 : Dig input 8 Bit6 : Dig input 7 Bit5 : Dig input 6 Bit4 : Dig input 5 Bit3 : Dig input 4 Bit2 : Dig input 3 Bit1 : Dig input 2 Bit0 : Dig input 1 Close: 1, Open : 0	1	Get	d005
Dig Out Status (Param6)	1	109	2	Bit5 : Alarm Bit4 : Dig output 15 Bit3 : Dig output 14 Bit2 : Dig output 13 Bit1 : Dig output 12 Bit0 : Dig output 11 Close: 1, Open : 0	1	Get	d006
Freq-conversion (Param7)	1	110	4	0.00 to 3996.00	100	Get	d007
Actual-frequency monitoring(Param377)	1	163	4	-400.00 to 400.00(Hz)	100	Get	d008
Torque command monitoring (Param378)	1	164	2	0 to 200(%)	1	Get	d009
Torque bias monitoring (Param379)	1	165	2	-200 to +200(%)	1	Get	d010
Torque (Param8)	1	111	2	-200 to +200(%)	1	Get	d012
Output Voltage (Param9)	1	112	2	0.0 to 600.0(V)	10	Get	d013
Input Elect-Pow (Param10)	1	113	2	0.0 to 999.9(kW)	10	Get	d014
Cumulative power monitoring (Param380)	1	114	4	0.00 to 999999.90	100	Get	d015
Elapsed Run time (Param11)	1	115	4	0 to 999999(hr)	1	Get	d016
Power ON time (Param12)	1	116	4	0 to 999999(hr)	1	Get	d017
Heat sink temperature monitoring (Param381)	1	117	2	-20.0 to 200.0( )	100	Get	d018
Motor temperature monitoring (Param382)	1	119	2	-20.0 to 200.0( )	100	Get	d019
Life-check monitoring (Param383)	1	166	1	Bit 1: Capacitor on main circuit board Bit 2: Cooling-fan speed drop	100	Get	d022
user monitor 0 (Param384)	1	169	4	-2147483647 to +2147483647	100	Get	d025
user monitor 1 (Param385)	1	170	4	-2147483647 to +2147483647	100	Get	d026
user monitor 2 (Param386)	1	171	4	-2147483647 to +2147483647	100	Get	d027
Pulse counter monitor (Param387)	1	172	4	0 to 2147483647	100	Get	d028
Position command monitor (Param388)	1	173	4	-1073741823 to +1073741823 (pls)	100	Get	d029
Position feedback monitor (Param389)	1	174	4	-1073741823 to +1073741823 (pls)	100	Get	d030
Trip Counter (Param17)	1	121	2	0 to 65535	1	Get	d080
Trip 1 Cause (Param18)	1	122	4	E01.X to E79.X (E??:Trip cause, X:running condition) See 6.3.3 Hitachi inverter I/O Instance(Instance 101)	1	Get	d081
Trip 1 frequency (Param19)	1	123	4	0.00 to 400.00(Hz)	100	Get	d081

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnification	Access rule	Command
Trip 1 Current (Param20)	1	124	2	0.0 to 999.9(A)	10	Get	d081
Trip 1 DC Voltage (Param21)	1	125	2	0.0 to 600.0(V)	10	Get	d081
Trip 1 RUN time (Param22)	1	126	4	0 to 999999(hr)	1	Get	d081
Trip 1 P-ON time (Param23)	1	127	4	0 to 999999(hr)	1	Get	d081
Trip 2 Cause (Param24)	1	128	4	E01.X to E79.X (E??:Trip cause, X:running condition) See 6.3.3 Hitachi inverter I/O Instance(Instance 101)	1	Get	d082
Trip 2 frequency (Param25)	1	129	4	0.00 to 400.00(Hz)	100	Get	d082
Trip 2 Current (Param26)	1	130	2	0.0 to 999.9(A)	10	Get	d082
Trip 2 DC Voltage (Param27)	1	131	2	0.0 to 600.0(V)	10	Get	d082
Trip 2 RUN time (Param28)	1	132	4	0 to 999999(hr)	1	Get	d082
Trip 2 P-ON time (Param29)	1	133	4	0 to 999999(hr)	1	Get	d082
Trip 3 Cause (Param30)	1	134	4	E01.X to E79.X (E??:Trip cause, X:running condition) See 6.3.3 Hitachi inverter I/O Instance(Instance 101)	1	Get	d083
Trip 3 frequency (Param31)	1	135	4	0.00 to 400.00(Hz)	100	Get	d083
Trip 3 Current (Param32)	1	136	2	0.0 to 999.9(A)	10	Get	d083
Trip 3 DC Voltage (Param33)	1	137	2	0.0 to 600.0(V)	10	Get	d083
Trip 3 RUN time (Param34)	1	138	4	0 to 999999(hr)	1	Get	d083
Trip 3 P-ON time (Param35)	1	139	4	0 to 999999(hr)	1	Get	d083
Trip 4 Cause (Param36)	1	140	4	E01.X to E79.X (E??:Trip cause, X:running condition) See 6.3.3 Hitachi inverter I/O Instance(Instance 101)	1	Get	d084
Trip 4 frequency (Param37)	1	141	4	0.00 to 400.00(Hz)	100	Get	d084
Trip 4 Current (Param38)	1	142	2	0.0 to 999.9(A)	10	Get	d084
Trip 4 DC Voltage (Param39)	1	143	2	0.0 to 600.0(V)	10	Get	d084
Trip 4 RUN time (Param40)	1	144	4	0 to 999999(hr)	1	Get	d084
Trip 4 P-ON time (Param41)	1	145	4	0 to 999999(hr)	1	Get	d084
Trip 5 Cause (Param42)	1	146	4	E01.X to E79.X (E??:Trip cause, X:running condition) See 6.3.3 Hitachi inverter I/O Instance(Instance 101)	1	Get	d085
Trip 5 frequency (Param43)	1	147	4	0.00 to 400.00(Hz)	100	Get	d085
Trip 5 Current (Param44)	1	148	2	0.0 to 999.9(A)	10	Get	d085
Trip 5 DC Voltage (Param45)	1	149	2	0.0 to 600.0(V)	10	Get	d085
Trip 5 RUN time (Param46)	1	150	4	0 to 999999(hr)	1	Get	d085
Trip 5 P-ON time (Param47)	1	151	4	0 to 999999(hr)	1	Get	d085
Trip 6 Cause (Param48)	1	152	4	E01.X to E79.X (E??:Trip cause, X:running condition) See 6.3.3 Hitachi inverter I/O Instance(Instance 101)	1	Get	d086
Trip 6 frequency (Param49)	1	153	4	0.00 to 400.00(Hz)	100	Get	d086
Trip 6 Current (Param50)	1	154	2	0.0 to 999.9(A)	10	Get	d086
Trip 6 DC Voltage (Param51)	1	155	2	0.0 to 600.0(V)	10	Get	d086
Trip 6 RUN time (Param52)	1	156	4	0 to 999999(hr)	1	Get	d086
Trip 6 P-ON time 6(Param53)	1	157	4	0 to 999999(hr)	1	Get	d086
Warning Monitor (Param54)	1	158	1	00 (No Warning) 01(W001) 02(W002) 03(W004) 04(W005) 05(W006) 06(W009) 07(W201) 08(W202) 09(W204) 10(W205) 11(W206) 12(W209) 13(W304) 14(W305) 15(W306) 16(W309) 17(W012) 18(W015) 19(W016) 20(W019) 21(W212) 22(W215) 23(W216) 24(W219) 25(W021) 26(W025) 27(W026) 28(W029) 29(W221) 30(W225) 31(W226) 32(W229) 33(W031) 34(W231) 35(W032) 36(W232) 37(W035) 38(W235) 39(W335) 40(W036) 41(W037) 42(W085) 43(W285) 44(W385) 45(W086) 46(W091) 47(W291) 48(W092) 49(W292) 50(W095) 51(W295) 52(W395) 53(W096) 54(W110) 55(W120)	1	Get	d090
DC Voltage (Param13)	1	118	2	0.0 to 999.9(V)	10	Get	d102

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnifi-cation	Access rule	Com-mand
BRD load factor monitoring (Param390)	1	175	2	0.0 to 100.0(%)	10	Get	d103
Electronic thermal overload monitoring (Param391)	1	176	2	0.0 to 100.0(%)	10	Get	d104
Frequency Setting (Param60)	1	159	4	0.00 to 400.00(Hz)	100	Get/Set	F001
Accel Time 1 (Param61)	1	160	4	0.01 to 3600.00(s)	100	Get/Set	F002
2nd Accel Time 1 (Param330)	2	160	4	0.01 to 3600.00(s)	100	Get/Set	F202
3rd Accel Time 1 (Param365)	3	160	4	0.01 to 3600.00(s)	100	Get/Set	F302
Decel Time 1(Param62)	1	161	4	0.01 to 3600.00(s)	100	Get/Set	F003
2nd Decel Time 1(Param331)	2	161	4	0.01 to 3600.00(s)	100	Get/Set	F203
3rd Decel Time 1 (Param366)	3	161	4	0.01 to 3600.00(s)	100	Get/Set	F303
Direction Setting (Param63)	1	162	1	00(Forward)/01(Reverse)	1	Get/Set	F004

Support service

Service name	Code
Get_Attribute_Single	H'0E
Set_Attribute_Single	H'10

(2) Extend Group A object Class ID=101

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnifi-cation	Access rule	Com-mand
Freq-Setting Sel (Param64)	1	101	1	00(Volume)/01(Terminal)/ 02(Operator)/03(RS485)/ 04(Option1)/05(Option2)/ 06(Pulse-string input)/ 07(Easy Sequence)/ 10(Operation Function result)	1	Get/Set	A001
Operating Mode Sel (Param65)	1	102	1	01(Terminal)/02(Operator)/ 03(RS485)/04(Option1)/ 05(Option2)	1	Get/Set	A002
Base Frequency (Param56)	1	103	2	30 to "Max Frequency" (Hz)	1	Get/Set	A003
2nd Base Frequency (Param327)	2	103	2	30 to "2nd Max Frequency" (Hz)	1	Get/Set	A203
3rd Base Frequency (Param364)	3	103	2	30 to "3rd Max Frequency" (Hz)	1	Get/Set	A303
Max Frequency (Param55)	1	104	2	30 to 400(Hz)	1	Get/Set	A004
2nd Max Frequency (Param326)	2	104	2	30 to 400(Hz)	1	Get/Set	A204
3rd Max Frequency (Param363)	3	104	2	30 to 400(Hz)	1	Get/Set	A304
AT Function Sel (Param66)	1	105	1	00(O/OI)/01(O/O2)/03(OI/VR)/ 04(O2/VR)	1	Get/Set	A005
O2 Function Sel (Param67)	1	106	1	00(Invalid)/01(O/OI-no reverse)/ 02(O/OI-reverse)/03(02Invalid)	1	Get/Set	A006
O Start Freq Set (Param68)	1	111	4	0.00 to 400.00(Hz)	100	Get/Set	A011
O End Freq Set (Param69)	1	112	4	0.00 to 400.00(Hz)	100	Get/Set	A012
O Start Rate (Param70)	1	113	1	0 to "O End Rate" (%)	1	Get/Set	A013
O End Rate (Param71)	1	114	1	"O Start Rate" to 100(%)	1	Get/Set	A014
O Start Mode Sel (Param72)	1	115	1	00(Set frequency)/01(0Hz)	1	Get/Set	A015
Analog Sampling (Param73)	1	116	1	1 to 31	1	Get/Set	A016
Easy sequence function selection (Param392)	1	117	1	00(Invalid)/01(Valid)	1	Get/Set	A017
Multi-Speed Mode (Param74)	1	119	1	00(Binary)/01(Bit)	1	Get/Set	A019
Multi-Speed 0 (Param75)	1	120	4	0.00, "Start Frequency" to "Max Frequency"(Hz)	100	Get/Set	A020
2nd Multi-Speed0 (Param332)	2	120	4	0.00, "Start Frequency" to "2nd Max Frequency"(Hz)	100	Get/Set	A220
3rd Multi-Speed0 (Param367)	3	120	4	0.00, "Start Frequency" to "3rd Max Frequency"(Hz)	100	Get/Set	A320
Multi-Speed 1 (Param76)	1	121	4	0.00, "Start Frequency" to "n-th Max Frequency"(Hz)	100	Get/Set	A021
Multi-Speed 2 (Param77)	1	122	4	0.00, "Start Frequency" to "n-th Max Frequency"(Hz)	100	Get/Set	A022
Multi-Speed 3 (Param78)	1	123	4	0.00, "Start Frequency" to "n-th Max Frequency"(Hz)	100	Get/Set	A023
Multi-Speed 4 (Param79)	1	124	4	0.00, "Start Frequency" to "n-th Max Frequency"(Hz)	100	Get/Set	A024
Multi-Speed 5 (Param80)	1	125	4	0.00, "Start Frequency" to "n-th Max Frequency"(Hz)	100	Get/Set	A025
Multi-Speed 6 (Param81)	1	126	4	0.00, "Start Frequency" to "n-th Max Frequency"(Hz)	100	Get/Set	A026

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnification	Access rule	Command
Multi-Speed 7 (Param82)	1	127	4	0.00, "Start Frequency" to "n-th Max Frequency"(Hz)	100	Get/Set	A027
Multi-Speed 8 (Param83)	1	128	4	0.00, "Start Frequency" to "n-th Max Frequency"(Hz)	100	Get/Set	A028
Multi-Speed 9 (Param84)	1	129	4	0.00, "Start Frequency" to "n-th Max Frequency"(Hz)	100	Get/Set	A029
Multi-Speed 10 (Param85)	1	130	4	0.00, "Start Frequency" to "n-th Max Frequency"(Hz)	100	Get/Set	A030
Multi-Speed 11 (Param86)	1	131	4	0.00, "Start Frequency" to "n-th Max Frequency"(Hz)	100	Get/Set	A031
Multi-Speed 12 (Param87)	1	132	4	0.00, "Start Frequency" to "n-th Max Frequency"(Hz)	100	Get/Set	A032
Multi-Speed 13 (Param88)	1	133	4	0.00, "Start Frequency" to "n-th Max Frequency"(Hz)	100	Get/Set	A033
Multi-Speed 14 (Param89)	1	134	4	0.00, "Start Frequency" to "n-th Max Frequency"(Hz)	100	Get/Set	A034
Multi-Speed 15 (Param90)	1	135	4	0.00, "Start Frequency" to "n-th Max Frequency"(Hz)	100	Get/Set	A035
Jogging Frequency (Param91)	1	138	2	"Start Frequency" to 9.99(Hz)	100	Get/Set	A038
Jog StopMode Sel (Param92)	1	139	1	00(Free run)/01(Deceleration)/ 02(DC Braking)/03(R-Free run)/ 04(R-Deceleration)/ 05(R-DC Braking)	1	Get/Set	A039
Torque Boost Sel (Param93)	1	141	1	00(Manual)/01(Automatic)	1	Get/Set	A041
2ndTrq-Boost Sel (Param333)	2	141	1	00(Manual)/01(Automatic)	1	Get/Set	A241
TorqueBoostValue (Param94)	1	142	1	0.0 to 20.0(%)	10	Get/Set	A042
2ndTrqBoostValue (Param334)	2	142	1	0.0 to 20.0(%)	10	Get/Set	A242
3rdTrqBoostValue (Param368)	3	142	1	0.0 to 20.0(%)	10	Get/Set	A342
TorqueBoostPoint (Param95)	1	143	2	0.0 to 50.0(%)	10	Get/Set	A043
2ndTrqBoostPoint (Param335)	2	143	2	0.0 to 50.0(%)	10	Get/Set	A243
3rdTrqBoostPoint (Param369)	3	143	2	0.0 to 50.0(%)	10	Get/Set	A343
Control Select (Param96)	1	144	1	00(Constant torque)/01(Reduced torque)/02(Free setting V/f)/03(SLV control)/04(0Hz-SLV control)/ 05(Sensoring vector control)	1	Get/Set	A044
2ndControlSelect (Param336)	2	144	1	00(Constant torque)/ 01(Reduced torque)/ 02(Free setting V/f)/ 03(SLV control)/ 04(0Hz-SLV control)	1	Get/Set	A244
3rdControlSelect (Param370)	3	144	1	00(Constant torque)/ 01(Reduced torque)	1	Get/Set	A344
Out-Voltage Gain (Param97)	1	145	1	20 to 100 (%)	1	Get/Set	A045
Voltage compensation gain setting for automatic torque boost, 1st motor (Param393)	1	146	2	0 to 255	1	Get/Set	A046
Voltage compensation gain setting for automatic torque boost, 2nd motor (Param394)	2	146	2	0 to 255	1	Get/Set	A246
Slippage compensation gain setting for automatic torque boost, 1st motor (Param395)	1	147	2	0 to 255	1	Get/Set	A047
Slippage compensation gain setting for automatic torque boost, 2nd motor (Param396)	2	147	2	0 to 255	1	Get/Set	A247
DC Brake Enable (Param98)	1	151	1	00(Invalid)/01(Valid)/ 02(Set Frequency Only)	1	Get/Set	A051
DC Br Start Freq (Param99)	1	152	2	0.00 to 400.00(Hz)	100	Get/Set	A052
DC Br Wait Time (Param100)	1	153	1	0.0 to 5.0(s)	10	Get/Set	A053
DC Brake Power (Param101)	1	154	1	0 to 100(%) (~55KW) 0 to 80(%) (75~132KW)	1	Get/Set	A054
DC Brake Time (Param102)	1	155	2	0.0 to 60.0(s)	10	Get/Set	A055
DC Brake ModeSel (Param103)	1	156	1	00(Edge)/01(Level)	1	Get/Set	A056
DCBrPowerAtStart (Param104)	1	157	1	0 to 100(%) (~55KW) 0 to 80(%) (75~132KW)	1	Get/Set	A057
DCBrTime AtStart (Param105)	1	158	2	0.0 to 60.0(s)	10	Get/Set	A058
DCBr CarrierFreq (Param106)	1	159	1	0.5 to 15.0(kHz) (~55KW) 0.5 to 10.0(kHz) (75~132KW)	10	Get/Set	A059
Upper Freq Limit (Param59)	1	161	4	0.00, "Lower Freq Limit" to "Max Frequency"(Hz)	100	Get/Set	A061
2ndUpperFRQLimit (Param329)	2	161	4	0.00, "2ndLowerFRQLimit" to "2nd Max Frequency" (Hz)	100	Get/Set	A261

APPENDIX　PARAMETER OBJECT LISTS

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnifi-cation	Access rule	Com-mand
Lower Freq Limit (Param58)	1	162	4	0.00,"Start Frequency" to "Upper Freq Limit" (Hz)	100	Get/Set	A062
2ndLowerFRQLimit (Param328)	2	162	4	0.00,"Start Frequency" to "2ndUpper Freq Limit" (Hz)	100	Get/Set	A262
Jump Frequency 1 (Param107)	1	163	4	0.00 to 400.00(Hz)	100	Get/Set	A063
Jump Freq Width 1 (Param108)	1	164	2	0.00 to 10.00(Hz)	100	Get/Set	A064
Jump Frequency 2 (Param109)	1	165	4	0.00 to 400.00(Hz)	100	Get/Set	A065
Jump Freq Width 2 (Param110)	1	166	2	0.00 to 10.00(Hz)	100	Get/Set	A066
Jump Frequency 3 (Param111)	1	167	4	0.00 to 400.00(Hz)	100	Get/Set	A067
Jump Freq Width 3 (Param112)	1	168	2	0.00 to 10.00(Hz)	100	Get/Set	A068
Accel Stop Freq (Param113)	1	169	4	0.00 to 400.00(Hz)	100	Get/Set	A069
Accel Stop Time (Param114)	1	170	2	0.0 to 60.0(s)	10	Get/Set	A070
PID Enable (Param115)	1	171	1	00(Invalid)/01(Valid)/ 02(Enabling Inverter-data Output)	1	Get/Set	A071
PID-P Gain (Param116)	1	172	1	0.2 to 5.0	1	Get/Set	A072
PID-I Gain (Param117)	1	173	2	0.0 to 3600.0(s)	10	Get/Set	A073
PID-D Gain (Param118)	1	174	2	0.00 to 100.00(s)	100	Get/Set	A074
PID Scale (Param119)	1	175	2	0.01 to 99.99(%)	100	Get/Set	A075
PID Feedback Sel (Param120)	1	176	1	00(OI)/01(O)/ 02(External Communication)/ 03(Pulse-String Frequency input)/10(Operation Result Output)	1	Get/Set	A076
Reverse PID (Param397)	1	177	1	00(OFF)/01(ON)	1	Get/Set	A077
PID output limiter (Param398)	1	178	2	0.0 to 100.0(%)	10	Get/Set	A078
PID feed forward selection (Param399)	1	179	1	00(Invalid)/01(0)/02(01)/03(02)	1	Get/Set	A079
AVR Selection (Param121)	1	181	1	00(ON)/01(OFF)/02(OFF on decel)	1	Get/Set	A081
MotorVoltage Sel (Param122)	1	182	1	00(200)/01(215)/02(220)/03(230)/ 04(240)/05(380)/06(400)/07(415)/ 08(440)/09(460)/10(480)/11(575)/ 12(600)	1	Get/Set	A082
OperationModeSel (Param123)	1	185	1	00(Normal)/01(Energy saving)/ 02(Fuzzy)	1	Get/Set	A085
EnergySavingResp (Param124)	1	186	2	0.0 to 100.0(s)	10	Get/Set	A086
Accel Time 2 (Param125)	1	192	4	0.01 to 3600.00(s)	100	Get/Set	A092
2nd Accel Time 2 (Param327)	2	192	4	0.01 to 3600.00(s)	100	Get/Set	A292
3rd Accel Time 2 (Param371)	3	192	4	0.01 to 3600.00(s)	100	Get/Set	A392
Decel Time 2 (Param126)	1	193	4	0.01 to 3600.00(s)	100	Get/Set	A093
2nd Decel Time 2 (Param338)	2	193	4	0.01 to 3600.00(s)	100	Get/Set	A293
3rd Decel Time 2 (Param372)	3	193	4	0.01 to 3600.00(s)	100	Get/Set	A393
Accel/Decel2 Sel (Param127)	1	194	1	00(Terminal)/01(Frequency)/ 02(Only Reverse)	1	Get/Set	A094
2nd Acc/Dec2 Sel (Param339)	2	194	1	00(Terminal)/01(Frequency)/ 02(Only Reverse)	1	Get/Set	A294
Accel2 StartFreq (Param128)	1	195	4	0.00 to 400.00(Hz)	100	Get/Set	A095
2ndAcc2StartFreq (Param340)	2	195	4	0.00 to 400.00(Hz)	100	Get/Set	A295
Decel2 StartFreq (Param129)	1	196	4	0.00 to 400.00(Hz)	100	Get/Set	A096
2ndDec2StartFreq (Param341)	2	196	4	0.00 to 400.00(Hz)	100	Get/Set	A296
AccelPattern Sel (Param130)	1	197	1	00(Straight line)/01(S Curve)/ 02(U Curve)/03(Reverse U Curve)/ 04(EL-S)	1	Get/Set	A097
DecelPattern Sel (Param131)	1	198	1	00(Straight line)/01(S Curve)/ 02(U Curve)/03(Reverse U Curve)/ 04(EL-S)	1	Get/Set	A098

Support service

Service name	Code
Get_Attribute_Single	H'0E
Set_Attribute_Single	H'10

(2) Extend Group A object Class ID=102

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnifi-cation	Access rule	Com-mand
OI StartFreq Set (Param132)	1	101	4	0.00 to 400.00(Hz)	100	Get/Set	A101
OI End Freq Set (Param133)	1	102	4	0.00 to 400.00(Hz)	100	Get/Set	A102
OI Start Rate (Param134)	1	103	1	0 to "OI End Rate" (%)	1	Get/Set	A103
OI End Rate (Param135)	1	104	1	"OI Start Rate" to 100(%)	1	Get/Set	A104

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnification	Access rule	Command
OI StartMode Sel (Param136)	1	105	1	00(Set Frequency)/01(0Hz)	1	Get/Set	A105
O2 StartFreq Set (Param137)	1	111	4	-400.00 to 400.00(Hz)	100	Get/Set	A111
O2 End Freq Set (Param138)	1	112	4	-400.00 to 400.00(Hz)	100	Get/Set	A112
O2 Start Rate (Param139)	1	113	1	-100 to "O2 End Rate" (%)	1	Get/Set	A113
O2 End Rate (Param140)	1	114	1	"O2 Start Rate" to 100(%)	1	Get/Set	A114
AccCurveSwelling (Param141)	1	131	1	01(small swelling) to 10(large swelling)	1	Get/Set	A131
DecCurveSwelling (Param142)	1	132	1	01(small swelling) to 10(large swelling)	1	Get/Set	A132
Operation-target frequency selection 1 (Param400)	1	141	1	00(Digital Operator)/ 01(Keypad Potentiometer)/ 02(Input via O)/ 03(Input via OI)/ 04(External Communication)/ 05(Option1)/06(Option 2)/ 07(Pulse-String Frequency input)	1	Get/Set	A141
Operation-target frequency selection 2 (Param401)	1	142	1	00(Digital Operator)/ 01(Keypad Potentiometer)/ 02(Input via O)/ 03(Input via OI)/ 04(External Communication)/ 05(Option 1)/06(Option 2)/ 07(Pulse-String Frequency Input)	1	Get/Set	A142
Operator selection (Param402)	1	143	1	00(Addition A141+A142)/ 01(Subtraction A141-A142)/ 02(Multiplication A141× A142)	1	Get/Set	A143
Frequency to be added (Param403)	1	145	4	0.00 to 400.00(Hz)	1	Get/Set	A145
Sign of the frequency to be added (Param404)	1	146	1	00(Forward)/01(Reverse)	1	Get/Set	A146
EL-S curve acceleration/deceleration ratio 1 (Param405)	1	150	1	0 to 50(%)	1	Get/Set	A150
EL-S curve acceleration/deceleration ratio 2 (Param406)	1	151	1	0 to 50(%)	1	Get/Set	A151
EL-S curve deceleration/deceleration ratio 1 (Param407)	1	152	1	0 to 50(%)	1	Get/Set	A152
EL-S curve deceleration/deceleration ratio 2 (Param408)	1	153	1	0 to 50(%)	1	Get/Set	A153

Support service

Service name	Code
Get_Attribute_Single	H'0E
Set_Attribute_Single	H'10

(3) Extend Group B object Class ID=103

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnification	Access rule	Command
Restart Mode Sel (Param143)	1	101	1	00(Trip)/01(0Hz Start)/ 02(Synchronize)/ 03(Sync& Stop& Trip)/ 04(Restarting with active Matching Frequency)	1	Get/Set	b001
Allowable UVTime (Param144)	1	102	1	0.3 to 25.0(s)	10	Get/Set	b002
Restart WaitTime (Param145)	1	103	2	0.3 to 100.0(s)	10	Get/Set	b003
IP/UVTrip AtStop (Param146)	1	104	1	00(Invalid)/01(Valid)/ 02(Invalid on stop)	1	Get/Set	b004
IP/UVRestartTime(Param147)	1	105	1	00(16 times)/01(Free)	1	Get/Set	b005
Open-phaseSelect (Param148)	1	106	1	00(Invalid)/01(Valid)	1	Get/Set	b006
FreqSet To Match (Param149)	1	107	4	0.00 to 400.00(Hz)	100	Get/Set	b007

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnification	Access rule	Command
Selection of retry after tripping (Param409)	1	108	1	00(Tripping)/01(Starting with 0 Hz)/ 02(Starting with matching frequency)/ 03(Tripping after deceleration and stopping with matching frequency)/ 04(Restarting with active matching frequency)	1	Get/Set	b008
Selection of retry count after over-voltage (Param410)	1	109	1	00(16 times)/01(Unlimited)	1	Get/Set	b009
Selection of retry count after over-voltage or over current (Param411)	1	110	1	1 to 3(times)	1	Get/Set	b010
Retry wait time after tripping (Param412)	1	111	2	0.3 to 100.0(s)	10	Get/Set	b011
E-Thermal Level (Param150)	1	112	2	20 to 100(%)(constant current 1%)	1	Get/Set	b012
2nd E-ThermalLvl (Param342)	2	112	2	20 to 100(%)(constant current 1%)	1	Get/Set	b212
3rd E-ThermalLvl (Param373)	3	112	2	20 to 100(%)(constant current 1%)	1	Get/Set	b312
E-ThermalCharSel (Param151)	1	113	1	00(Reduced torque)/ 01(Constant torque)/ 02(Free setting)	1	Get/Set	b013
2ndEThermCharSel (Param343)	2	113	1	00(Reduced torque)/ 01(Constant torque)/ 02(Free setting)	1	Get/Set	b213
3rdEThermCharSel (Param374)	3	113	1	00(Reduced torque)/ 01(Constant torque)/ 02(Free setting)	1	Get/Set	b313
E-Thermal Freq 1 (Param152)	1	115	2	0 to 400(Hz)	1	Get/Set	b015
E-Thermal Cur 1 (Param153)	1	116	2	0.0 to 999.9(A)	10	Get/Set	b016
E-Thermal Freq 2 (Param154)	1	117	2	0 to 400(Hz)	1	Get/Set	b017
E-Thermal Cur 2 (Param155)	1	118	2	0.0 to 999.9(A)	10	Get/Set	b018
E-Thermal Freq 3 (Param156)	1	119	2	0 to 400(Hz)	1	Get/Set	b019
E-Thermal Cur 3 (Param157)	1	120	2	0.0 to 999.9(A)	10	Get/Set	b020
OL Limit Enable (Param158)	1	121	1	00(Inactive)/01(Inactive at dec 1)/ 02(Active at const 1)/ 03(Inactive at dec 2)	1	Get/Set	b021
OL Limit Level (Param159)	1	122	2	20 to 200(%) (~55KW) 20 to 180(%) (75~132KW) (constant current 1%)	1	Get/Set	b022
OL Limit Const (Param160)	1	123	2	0.10 to 30.00	100	Get/Set	b023
OL Limit Enable2 (Param161)	1	124	1	00(Inactive)/01(Inactive at dec 1)/ 02(Active at const 1)/ 03(Inactive at dec 2)	1	Get/Set	b024
OL Limit Level 2 (Param162)	1	125	2	20 to 200(%) (~55KW) 20 to 180(%) (75~132KW) (constant current 1%)	1	Get/Set	b025
OL Limit Const 2 (Param163)	1	126	2	0.1 to 30.00	100	Get/Set	b026
Over-current suppression enable (Param413)	1	127	1	00(Invalid)/01(Valid)	1	Get/Set	b027
Active frequency matching, scan start frequency (Param414)	1	128	2	20.0 to 200.0(%) (~55KW) 20.0 to 180.0(%) (75~132KW)	10	Get/Set	b028
Active frequency matching, scan-time constant (Param415)	1	129	2	0.10 to 30.00(s)	100	Get/Set	b029
Active frequency matching, restart frequency select (Param416)	1	130	1	00(Frequency at the last shutoff)/ 01(Maximum Frequency)/ 02(Set Frequency)	1	Get/Set	b030
SoftLock ModeSel (Param376)	1	131	1	00(SFT - All param)/ 01(SFT - Only freq)/ 02(All param)/03(Only freq)/ 10(Change mode on run)	1	Get/Set	b031
Run/P-ONTime Lvl (Param164)	1	134	2	0 to 65535(hr)	1	Get/Set	b034
FW/RV Restrict (Param165)	1	135	1	00(FW/RV Enable)/ 01(Forward only)/02(Reverse only)	1	Get/Set	b035
ReducedV TimeSel (Param166)	1	136	1	00 to 255	1	Get/Set	b036

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnifi-cation	Access rule	Com mand
Display Select (Param167)	1	137	1	00(All Display)/ 01(Each Func Display)/ 02(User setting)/ 03(Data comparison display)/04(basic display)	1	Get/Set	b037
Initial-screen selection (Param417)	1	138	1	00(Screen displayed when the STR key was pressed last)/ 01(d001)/02(d002) / 03(d003) / 04(d007) / 05(F001)	1	Get/Set	b038
Automatic user-parameter setting function enable (Param418)	1	139	1	00(Invalid)/01(Valid)	1	Get/Set	b039
TorqueLimit Mode (Param168)	1	140	1	00(4 Quadrant mode)/ 01(Terminal)/02(Analog input)/ 03(Option1)/04(Option2)	1	Get/Set	b040
TorqueLimit Lvl1 (Param169)	1	141	1	0 to 200(%),255 (~55KW) 0 to 180(%),255 (75~132KW)	1	Get/Set	b041
TorqueLimit Lvl2 (Param170)	1	142	1	0 to 200(%),255 (~55KW) 0 to 180(%),255 (75~132KW)	1	Get/Set	b042
TorqueLimit Lvl3 (Param171)	1	143	1	0 to 200(%),255 (~55KW) 0 to 180(%),255 (75~132KW)	1	Get/Set	b043
TorqueLimit Lvl4 (Param172)	1	144	1	0 to 200(%),255 (~55KW) 0 to 180(%),255 (75~132KW)	1	Get/Set	b044
Torq LADSTOP Sel (Param173)	1	145	1	00(Invalid)/01(Valid)	1	Get/Set	b045
RV-RunPreventSel (Param174)	1	146	1	00(Invalid)/01(Valid)	1	Get/Set	b046
IPNonStopModeSel (Param175)	1	150	1	00(Invalid)/01(Valid)/ 02(DC Voltage Constant Control, With Resume)/ 03(Without Resume)	1	Get/Set	b050
IPNonStopStart-V (Param176)	1	151	2	0.0 to 999.9(V)	10	Get/Set	b051
IP OV-LADSTOPLvl (Param177)	1	152	2	0.0 to 999.9(V)	10	Get/Set	b052
IPNonStopDecTime (Param178)	1	153	4	0.01 to 3600.00(s)	100	Get/Set	b053
IP StartDec-Freq (Param179)	1	154	2	0.00 to 10.00(Hz)	100	Get/Set	b054
Max-limit level of O (Param419)	1	160	1	0. to 100. (%)	1	Get/Set	b060
Min-limit level of O (Param420)	1	161	1	0. to 100. (%)	1	Get/Set	b061
Hysteresis width of O (Param421)	1	162	1	0. to 100. (%)	1	Get/Set	b062
Max-limit level of OI (Param422)	1	163	1	0. to 100. (%)	1	Get/Set	b063
Min-limit level of OI (Param423)	1	164	1	0. to 100. (%)	1	Get/Set	b064
Hysteresis width of OI (Param424)	1	165	1	0. to 100. (%)	1	Get/Set	b065
Max-limit level of O2 (Param425)	1	166	1	0. to 100. (%)	1	Get/Set	b066
Min-limit level of O2 (Param426)	1	167	1	0. to 100. (%)	1	Get/Set	b067
Hysteresis width of O2 (Param427)	1	168	1	0. to 100. (%)	1	Get/Set	b068
Operation level at O disconnection (Param428)	1	170	1	0 to 100(%)/no	1	Get/Set	b070
Operation level at OI disconnection (Param429)	1	171	1	0 to 100(%)/no	1	Get/Set	b071
Operation level at O2 disconnection (Param430)	1	172	1	-100 to 100(%)/no	1	Get/Set	b072
Cumulative input power data clearance (Param431)	1	178	1	00(OFF)/01(ON)	1	Get/Set	b078
Cumulative input power display gain setting (Param432)	1	179	2	1 to 1000	1	Get/Set	b079
Start Frequency (Param57)	1	182	2	0.1 to 9.99(Hz)	100	Get/Set	b082
CarrierFrequency (Param180)	1	183	1	0.5 to 15.0(kHz) (~55KW) 0.5 to 10.0(kHz) (75~132KW)	10	Get/Set	b083
Initialize Mode (Param181)	1	184	1	00(Trip history)/01(Data)/ 02(Trip history & Data)	1	Get/Set	b084
Initial Data Sel (Param182)	1	185	1	00(Japan)/01(Europe)/02(USA)	1	Get/Set	b085
Freq CovertScale (Param183)	1	186	2	0.1 to 99.9	10	Get/Set	b086

APPENDIX   PARAMETER OBJECT LISTS

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnifi-cation	Access rule	Com mand
Stop Key enable (Param184)	1	187	1	00(Invalid)/01(Valid)/02(Disabling Only the Function to Stop)	1	Get/Set	b087
FRS Cancel Sel (Param185)	1	188	1	00(0Hz start)/01(Synchronize start)/02(Restarting with active Matching Frequency)	1	Get/Set	b088
Automatic carrier frequency reduction (Param433)	1	189	1	00(OFF)/01(N)	1	Get/Set	b089
BRD Using Rate (Param186)	1	190	2	0.0 to 100.0(%)	10	Get/Set	b090
Stop Mode Select (Param187)	1	191	1	00(Deceleration)/01(Free run)	1	Get/Set	b091
CoolingFanControl (Param188)	1	192	1	00(Always ON)/01(ON During Run)	1	Get/Set	b092
BRD Mode Select (Param189)	1	195	1	00(Invalid)/01(Invalid during stop)/02(Valid)	1	Get/Set	b095
BRD ON Level (Param190)	1	196	2	330 to 380(V)/660 to 760(V)	1	Get/Set	b096
Thermistor Sel (Param191)	1	198	1	00(Invalid)/01(PTC Enable)/02(NTC Enable)	1	Get/Set	b098
ThermistorErrLvl (Param192)	1	199	2	0 to 9999(Ω)	1	Get/Set	b099

Support service

Service name	Code
Get_Attribute_Single	H'0E
Set_Attribute_Single	H'10

(4) Extend Group B object Class ID=104

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnifi-cation	Access rule	Com-mand
Free V/f Freq 1(Param193)	1	100	2	0 to Free V/f Freq 2 (Hz)	1	Get/Set	b100
Free V/f Volt 1(Param194)	1	101	2	0.0 to 800.0(V)	10	Get/Set	b101
Free V/f Freq 2 (Param195)	1	102	2	0 to Free V/f Freq 3 (Hz)	1	Get/Set	b102
Free V/f Volt 2 (Param196)	1	103	2	0.0 to 800.0(V)	10	Get/Set	b103
Free V/f Freq 3(Param197)	1	104	2	0 to Free V/f Freq 4 (Hz)	1	Get/Set	b104
Free V/f Volt 3 (Param198)	1	105	2	0.0 to 800.0(V)	10	Get/Set	b105
Free V/f Freq 4(Param199)	1	106	2	0 to Free V/f Freq 5 (Hz)	1	Get/Set	b106
Free V/f Volt 4 (Param200)	1	107	2	0.0 to 800.0(V)	10	Get/Set	b107
Free V/f Freq 5 (Param201)	1	108	2	0 to Free V/f Freq 6 (Hz)	1	Get/Set	b108
Free V/f Volt 5 (Param202)	1	109	2	0.0 to 800.0(V)	10	Get/Set	b109
Free V/f Freq 6(Param203)	1	110	2	0 to Free V/f Freq 7 (Hz)	1	Get/Set	b110
Free V/f Volt 6 (Param204)	1	111	2	0.0 to 800.0(V)	10	Get/Set	b111
Free V/f Freq 7 (Param205)	1	112	2	0 to 400(Hz)	1	Get/Set	b112
Free V/f Volt 7 (Param206)	1	113	2	0.0 to 800.0(V)	10	Get/Set	b113
BrakeControlMode (Param207)	1	120	1	00(Invalid)/01(Valid)	1	Get/Set	b120
Brake Start Wait (Param208)	1	121	2	0.00 to 5.00(s)	100	Get/Set	b121
Brake Accel Wait (Param209)	1	122	2	0.00 to 5.00(s)	100	Get/Set	b122
Brake Stop Wait (Param210)	1	123	2	0.00 to 5.00(s)	100	Get/Set	b123
BrakeConfirmWait (Param211)	1	124	2	0.00 to 5.00(s)	100	Get/Set	b124
Releasing Freq (Param212)	1	125	2	0.00 to 400.00(Hz)	100	Get/Set	b125
ReleasingCurrent (Param213)	1	126	2	0 to 200(%) (~55KW) 0 to 180(%) (75~132KW) (constant current 1%)	1	Get/Set	b126
Braking frequency (Param434)	1	127	2	0.00 to 400.00(Hz)	100	Get/Set	b127
Over-voltage suppression enable (Param435)	1	130	1	00(OFF)/ 01(Controlled Deceleration)/ 02(Enabling Acceleration)	1	Get/Set	b130
Over-voltage suppression level (Param436)	1	131	2	200V 330. to 390.(V) 400V 660. to 780.(V)	1	Get/Set	b131
Acceleration and deceleration rate at over-voltage suppression (Param437)	1	132	2	0.10 to 30.00(s)	100	Get/Set	b132

Support service

Service name	Code
Get_Attribute_Single	H'0E
Set_Attribute_Single	H'10

(5) Extend Group C object Class ID=105

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnification	Access rule	Command
Digital Input 1 (Param214)	1	101	1	01(RV)/02(CF1)/03(CF2)/ 04(CF3)/05(CF4)/06(JG)/07(DB)/ 08(SET)/ 09(2CH)/11(FRS)/ 12(EXT)/13(USP)/14(CS)/15(SFT)/ 16(AT)/17(SET3)/18(RS)/20(STA)/ 21(STP)/22(F/R)/23(PID)/ 24(PIDC)/26(CAS)/27(UP)/ 28(DWN)/29(DWN)/31(OPE)/ 32(SF1)/33(SF2)/34(SF3)/35(SF4)/ 36(SF5)/37(SF6)/38(SF7)/ 39(OLR)/40(TL)/41(TRQ1)/ 42(TRQ2)/43(PPI)/44(BOK)/ 45(ORT)/46(LAC)/47(PCLR)/ 48(STAT)/50(ADD)/51(F-TM)/ 52(ATR)/53(KHC)/54(SON)/ 55(FOC)/56(MI1)/57(MI2)/58(MI3)/ 59(MI4)/60(MI5)/61(MI6)/62(MI7)/ 63(MI8)/64(EMR)/65(AHD)/ 66(CP1)/67(CP2)/68(CP3)/ 69(ORL)/70(ORG)/71(FOT)/ 72(ROT)/73(SPD)/74(PCNT)/ 75(PCC)/255(NO) Note:64 is GET only.	1	Get/Set	C001
Digital Input 2 (Param215)	1	102	1	Same above	1	Get/Set	C002
Digital Input 3 (Param216)	1	103	1	Same above	1	Get/Set	C003
Digital Input 4 (Param217)	1	104	1	Same above	1	Get/Set	C004
Digital Input 5 (Param218)	1	105	1	Same above	1	Get/Set	C005
Digital Input 6 (Param219)	1	106	1	Same above	1	Get/Set	C006
Digital Input 7 (Param220)	1	107	1	Same above	1	Get/Set	C007
Digital Input 8 (Param221)	1	108	1	Same above	1	Get/Set	C008
Dig Input1 NO/NC (Param222)	1	111	1	00(NO)/01(NC)	1	Get/Set	C011
Dig Input2 NO/NC (Param223)	1	112	1	00(NO)/01(NC)	1	Get/Set	C012
Dig Input3 NO/NC (Param224)	1	113	1	00(NO)/01(NC)	1	Get/Set	C013
Dig Input4 NO/NC (Param225)	1	114	1	00(NO)/01(NC)	1	Get/Set	C014
Dig Input5 NO/NC (Param226)	1	115	1	00(NO)/01(NC)	1	Get/Set	C015
Dig Input6 NO/NC (Param227)	1	116	1	00(NO)/01(NC)	1	Get/Set	C016
Dig Input7 NO/NC (Param228)	1	117	1	00(NO)/01(NC)	1	Get/Set	C017
Dig Input8 NO/NC (Param229)	1	118	1	00(NO)/01(NC)	1	Get/Set	C018
FW NO/NC (Param230)	1	119	1	00(NO)/01(NC)	1	Get/Set	C019
Dig Output11 (Param231)	1	121	1	00(RUN)/01(FA1)/02(FA2)/03(OL)/ 04(OD)/05(AL)/06(FA3)/07(OTQ)/ 08(IP)/09(UV)/10(TRQ)/11(RNT)/ 12(ONT)/13(THM)/19(BRK)/ 20(BER)/21(ZS)/22(DSE)/23(POK)/ 24(FA4)/25(FA5)/26(OL2)/27(Odc)/ 28(OIDc)/29(O2Dc)/31(FBV)/ 32(NDc)/33(LOG1)/34(LOG2)/ 35(LOG3)/36(LOG4)/37(LOG5)/ 38(LOG6)/39(WAC)/40(WAF)/ 41(FR)/42(OHF)/43(LOC)/44(M01)/ 45(M02)/46(M03)/47(M04)/ 48(M05)/49(M06)/50(IRDY)/ 51(FWR)/52(RVR)/53(MJA)/ 54(WCO)/55(WCOI)/56(WCO2)	1	Get/Set	C021
Dig Output12 (Param232)	1	122	1	Same above	1	Get/Set	C022
Dig Output13 (Param233)	1	123	1	Same above	1	Get/Set	C023
Dig Output14 (Param234)	1	124	1	Same above	1	Get/Set	C024
Dig Output15 (Param235)	1	125	1	Same above	1	Get/Set	C025
AlarmRerayOutput (Param236)	1	126	1	Same above	1	Get/Set	C026
FM Mode Select (Param237)	1	127	1	00(Output Frequency)/ 01(Output Current)/ 02(Output Torque)/ 03(Digital Outp-frq)/ 04(Output Voltage)/ 05(Input Power)/ 06(Therm Load Rate)/ 07LAD frequency)/ 08(Digital Current Monitoring)/ 09(Motor Temperature)/ 10(Heat Sink Temperature)/ 12(General-purpose Output YA0)	1	Get/Set	C027

APPENDIX PARAMETER OBJECT LISTS

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnification	Access rule	Command
AM Mode Select (Param238)	1	128	1	00(Output Frequency)/ 01(Output Current)/ 02(Output Torque)/ 04(Output Voltage)/ 05(Input Power)/ 06(Therm Load Rate)/ 07(LAD frequency)/09(Motor Temperature)/10(Heat Sink Temperature)/11(Output Torque [signed value])/13(General-purpose Output YA1)	1	Get/Set	C028
AMI Mode Select (Param239)	1	129	1	00(Output Frequency)/ 01(Output Current)/ 02(Output Torque)/ 04(Output Voltage)/ 05(Input Power)/ 06(Therm Load Rate)/ 07(LAD frequency)/09(Motor Temperature)/10(Heat Sink Temperature)/14(General-purpose Output YA2)	1	Get/Set	C029
Digital current monitor reference value (Param438)	1	130	2	20.0 to 200.0 (%)	10	Get/Set	C030
Dig Out11 NO/NC (Param240)	1	131	1	00(NO)/01(NC)	1	Get/Set	C031
Dig Out12 NO/NC (Param241)	1	132	1	00(NO)/01(NC)	1	Get/Set	C032
Dig Out13 NO/NC (Param242)	1	133	1	00(NO)/01(NC)	1	Get/Set	C033
Dig Out14 NO/NC (Param243)	1	134	1	00(NO)/01(NC)	1	Get/Set	C034
Dig Out15 NO/NC (Param244)	1	135	1	00(NO)/01(NC)	1	Get/Set	C035
AlarmReray NO/NC (Param245)	1	136	1	00(NO)/01(NC)	1	Get/Set	C036
Low-current indication signal output mode selection (Param439)	1	138	1	00 (output during acceleration/deceleration and constant-speed operation)/ 01 (output only during constant-speed operation)	1	Get/Set	C038
Low-current indication signal detection level (Param440)	1	139	2	0.0 to 200.0(%) (~55KW) 0.0 to 180.0(%) (75~132KW)	10	Get/Set	C039
OLAlarmSignalSel (Param246)	1	140	1	00(Valid)/01(Valid at const)	1	Get/Set	C040
OL Alarm Level 1 (Param247)	1	141	2	0 to 200(%) (~55KW) 0 to 180(%) (75~132KW) (constant current 1%)	1	Get/Set	C041
ArrivalFreq Acc1 (Param248)	1	142	4	0.00 to 400.00(Hz)	100	Get/Set	C042
ArrivalFreq Dec1(Param249)	1	143	4	0.00 to 400.00(Hz)	100	Get/Set	C043
PID DeviationLvl (Param250)	1	144	2	0.0 to 100.0(%)	10	Get/Set	C044
ArrivalFreq Acc2 (Param251)	1	145	4	0.00 to 400.00(Hz)	100	Get/Set	C045
ArrivalFreq Dec2 (Param252)	1	146	4	0.00 to 400.00(Hz)	100	Get/Set	C046
Max PID feedback data (Param441)	1	152	2	0.0 to 100.0(%)	10	Get/Set	C052
Min PID feedback data (Param442)	1	153	2	0.0 to 100.0(%)	10	Get/Set	C053
OV-TRQ FW-V (Param253)	1	155	1	0 to 200(%) (~55KW) 0 to 180(%) (75~132KW) (constant current 1%)	1	Get/Set	C055
OV-TRQ RV-R (Param254)	1	156	1	0 to 200(%) (~55KW) 0 to 180(%) (75~132KW) (constant current 1%)	1	Get/Set	C056
OV-TRQ RV-V (Param255)	1	157	1	0 to 200(%) (~55KW) 0 to 180(%) (75~132KW) (constant current 1%)	1	Get/Set	C057
OV-TRQ FW-R (Param256)	1	158	1	0 to 200(%) (~55KW) 0 to 180(%) (75~132KW) (constant current 1%)	1	Get/Set	C058
Thermal Warn Lvl (Param257)	1	161	2	0 to 100(%)	1	Get/Set	C061
AlarmMode Select (Param258)	1	162	1	00(Invalid)/01(3bit)/02(4bit)	1	Get/Set	C062
ZERO Speed Level (Param259)	1	163	2	0.00 to 100.00(Hz)	100	Get/Set	C063
CommSpeed Select (Param260)	1	171	1	02(loop back)/ 03(2400bps)/04(4800bps)/ 05(9600bps)/06(19200bps)	1	Get/Set	C071
Comm ID Select (Param261)	1	172	1	1 to 32	1	Get/Set	C072
CommBitLengthSel (Param262)	1	173	1	7(7bit)/8(8bit)	1	Get/Set	C073
CommParitySelect (Param263)	1	174	1	00(No Parity)/01(Even Parity)/ 02(Odd Parity)	1	Get/Set	C074
Comm StopBit Sel (Param264)	1	175	1	1(1bit)/2(2bit)	1	Get/Set	C075

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnifi-cation	Access rule	Command
Communication timeout limit before tripping (Param443)	1	177	2	0.00 to 99.99(s)	100	Get/Set	C077
Comm Wait Time (Param265)	1	178	2	0 to 1000(ms)	1	Get/Set	C078
Communication mode selection (Param444)	1	179	1	00(ASCII)/01(Modbus-RTU)	1	Get/Set	C079
O Adjustment (Param266)	1	181	2	0 to 65535	1	Get/Set	C081
OI Adjustment (Param267)	1	182	2	0 to 65535	1	Get/Set	C082
O2 Adjustment (Param268)	1	183	2	0 to 65535	1	Get/Set	C083
Therm-Adjustment (Param269)	1	185	2	0.0 to 1000.0	10	Get/Set	C085

Support service

Service name	Code
Get_Attribute_Single	H'0E
Set_Attribute_Single	H'10

(6) Extend Group C object Class ID=106

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnifi-cation	Access rule	Com-mand
UP/DWN Selection (Param270)	1	101	1	00(Not keep)/01(Keep)	1	Get/Set	C101
Reset Selection (Param271)	1	102	1	00(Reset at close)/ 01(Reset at open)/ 02(Only trip clear)/03(Only Trip Reset)	1	Get/Set	C102
Reset f MacthSel (Param272)	1	103	1	00(0Hz start)/ 01(Synchronize)/02(Restarting with Active Matching Frequency)	1	Get/Set	C103
FM gain adjustment (Param446)	1	105	2	50 to 200(%)	1	Get/Set	C105
AM gain adjustment (Param447)	1	106	2	50 to 200(%)	1	Get/Set	C106
AMI gain adjustment (Param448)	1	107	2	50 to 200(%)	1	Get/Set	C107
AM bias adjustment (Param449)	1	109	1	0 to 100(%)	1	Get/Set	C109
AMI bias adjustment (Param450)	1	110	1	0 to 100(%)	1	Get/Set	C110
OL Alarm Level 2 (Param273)	1	111	2	0 to 200(%) (~55KW) 0 to 180(%) (75~132KW) (constant current 1%)	1	Get/Set	C111
O Zero Adjustment (Param274)	1	121	2	0 to 65535	1	Get/Set	C121
OI Zero Adjustment (Param275)	1	122	2	0 to 65535	1	Get/Set	C122
O2 Zero Adjustment (Param276)	1	123	2	0 to 65535	1	Get/Set	C123
Output 11 on-delay time (Param451)	1	130	2	0.0 to 100.0(s)	10	Get/Set	C130
Output 11 off-delay time (Param452)	1	131	2	0.0 to 100.0(s)	10	Get/Set	C131
Output 12 on-delay time (Param453)	1	132	2	0.0 to 100.0(s)	10	Get/Set	C132
Output 12 off-delay time (Param454)	1	133	2	0.0 to 100.0(s)	10	Get/Set	C133
Output 13 on-delay time (Param455)	1	134	2	0.0 to 100.0(s)	10	Get/Set	C134
Output 13 off-delay time (Param456)	1	135	2	0.0 to 100.0(s)	10	Get/Set	C135
Output 14 on-delay time (Param457)	1	136	2	0.0 to 100.0(s)	10	Get/Set	C136
Output 14 off-delay time (Param458)	1	137	2	0.0 to 100.0(s)	10	Get/Set	C137
Output 15 on-delay time (Param459)	1	138	2	0.0 to 100.0(s)	10	Get/Set	C138
Output 15 off-delay time (Param460)	1	139	2	0.0 to 100.0(s)	10	Get/Set	C139
Output 16 on-delay time (Param461)	1	140	2	0.0 to 100.0(s)	10	Get/Set	C140

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnifi- cation	Access rule	Com- mand
Output 16 off-delay time (Param462)	1	141	2	0.0 to 100.0(s)	10	Get/Set	C141
Logical output signal 1 selection 1 (Param463)	1	142	1	Same as the settings of C021 to C026 (except those of LOG1 to LOG6)	1	Get/Set	C142
Logical output signal 1 selection 2 (Param464)	1	143	1	Same as the settings of C021 to C026 (except those of LOG1 to LOG6)	1	Get/Set	C143
Logical output signal 1 operator selection (Param465)	1	144	1	00(AND)/01(OR)/02(XOR)	1	Get/Set	C144
Logical output signal 2 selection 1 (Param466)	1	145	1	Same as the settings of C021 to C026 (except those of LOG1 to LOG6)	1	Get/Set	C145
Logical output signal 2 selection 2 (Param467)	1	146	1	Same as the settings of C021 to C026 (except those of LOG1 to LOG6)	1	Get/Set	C146
Logical output signal 2 operator selection (Param468)	1	147	1	00(AND)/01(OR)/02(XOR)	1	Get/Set	C147
Logical output signal 3 selection 1 (Param469)	1	148	1	Same as the settings of C021 to C026 (except those of LOG1 to LOG6)	1	Get/Set	C148
Logical output signal 3 selection 2 (Param470)	1	149	1	Same as the settings of C021 to C026 (except those of LOG1 to LOG6)	1	Get/Set	C149
Logical output signal 3 operator selection (Param471)	1	150	1	00(AND)/01(OR)/02(XOR)	1	Get/Set	C150
Logical output signal 4 selection 1 (Param472)	1	151	1	Same as the settings of C021 to C026 (except those of LOG1 to LOG6)	1	Get/Set	C151
Logical output signal 4 selection 2 (Param473)	1	152	1	Same as the settings of C021 to C026 (except those of LOG1 to LOG6)	1	Get/Set	C152
Logical output signal 4 operator selection (Param474)	1	153	1	00(AND)/01(OR)/02(XOR)	1	Get/Set	C153
Logical output signal 5 selection 1 (Param475)	1	154	1	Same as the settings of C021 to C026 (except those of LOG1 to LOG6)	1	Get/Set	C154
Logical output signal 5 selection 2 (Param476)	1	155	1	Same as the settings of C021 to C026 (except those of LOG1 to LOG6)	1	Get/Set	C155
Logical output signal 5 operator selection (Param477)	1	156	1	00(AND)/01(OR)/02(XOR)	1	Get/Set	C156
Logical output signal 6 selection 1 (Param478)	1	157	1	Same as the settings of C021 to C026 (except those of LOG1 to LOG6)	1	Get/Set	C157
Logical output signal 6 selection 2 (Param479)	1	158	1	Same as the settings of C021 to C026 (except those of LOG1 to LOG6)	1	Get/Set	C158
Logical output signal 6 operator selection (Param480)	1	159	1	00(AND)/01(OR)/02(XOR)	1	Get/Set	C159
Input terminal response time setting 1(Param481)	1	160	1	0 to 200(× 2ms)	1	Get/Set	C160
Input terminal response time setting 2(Param482)	1	161	1	0 to 200(× 2ms)	1	Get/Set	C161

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnification	Access rule	Command
Input terminal response time setting 3(Param483)	1	162	1	0 to 200(× 2ms)	1	Get/Set	C162
Input terminal response time setting 4(Param484)	1	163	1	0 to 200(× 2ms)	1	Get/Set	C163
Input terminal response time setting 5(Param485)	1	164	1	0 to 200(× 2ms)	1	Get/Set	C164
Input terminal response time setting 6(Param486)	1	165	1	0 to 200(× 2ms)	1	Get/Set	C165
Input terminal response time setting 7(Param487)	1	166	1	0 to 200(× 2ms)	1	Get/Set	C166
Input terminal response time setting 8(Param488)	1	167	1	0 to 200(× 2ms)	1	Get/Set	C167
Input terminal response time setting FW(Param489)	1	168	1	0 to 200(× 2ms)	1	Get/Set	C168
Multistage speed/position determination time (Param490)	1	169	1	0 to 200(× 10ms)	1	Get/Set	C169

Support service

Service name	Code
Get_Attribute_Single	H'0E
Set_Attribute_Single	H'10

(7) Extend Group H object Class ID=107

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnification	Access rule	Command
AutotuningSelect (Param277)	1	101	1	00(Invalid)/01(Valid(not rotate))/02(Valid(rotate))	1	Get/Set	H001
Motor Constant (Param278)	1	102	1	00(Standard Motor)/01(Offline Auto)/02(Online Auto)	1	Get/Set	H002
2nd Motor Constant (Param344)	2	102	1	00(Standard Motor)/01(Offline Auto)/02(Online Auto)	1	Get/Set	H202
Allowable Motor (Param279)	1	103	1	Available setting range for EC: 00(0.20)/01(0.37)/03(0.55)/04(0.75)/05(1.10)/06(1.50)/07(2.20)/08(3.00)/10(4.00)/11(5.50)/12(7.50)/13(11.0)/14(15.0)/15(18.5)/16(22.0)/17(30.0)/18(37.0)/19(45.0)/20(55.0)/21(75.0)/22(90.00)/23(110.0)/24(132.0)/25(150.0)/26(160.0) Available setting range for USA: 00(0.20)/02(0.40)/04(0.75)/06(1.50)/07(2.20)/09(3.70)/11(5.50)/12(7.50)/13(11.0)/14(15.0)/15(18.5)/16(22.0)/17(30.0)/18(37.0)/19(45.0)/20(55.0)/21(75.0)/22(90.00)/23(110.0)/24(132.0)/25(150.0)/26(160.0)	1	Get/Set	H003
2nd Allowable Motor (Param345)	2	103	1	Same above	1	Get/Set	H203
MotorPole Select (Param280)	1	104	1	0(2P)/1(4P)/2(6P)/3(8P)/4(10P)	1	Get/Set	H004
2nd MotorPole Select(Param346)	2	104	1	0(2P)/1(4P)/2(6P)/3(8P)/4(10P)	1	Get/Set	H204
Speed Response (Param281)	1	105	2	0.001 to 65.535	1000	Get/Set	H005
2nd Speed Response(Param347)	2	105	2	0.001 to 65.535	1000	Get/Set	H205
StabilizedFactor (Param282)	1	106	2	0 to 255	1	Get/Set	H006
2nd StabilizedFactor (Param348)	2	106	2	0 to 255	1	Get/Set	H206
3rd StabilizedFactor (Param375)	3	106	2	0 to 255	1	Get/Set	H306
Motor-Const R1 (Param283)	1	120	4	0.001 to 65.530(Ω)	1000	Get/Set	H020
2nd Motor-Const R1 (Param349)	2	120	4	0.001 to 65.530(Ω)	1000	Get/Set	H220
Motor-Const R2 (Param284)	1	121	4	0.001 to 65.530(Ω)	1000	Get/Set	H021
2nd Motor-Const R2 (Param350)	2	121	4	0.001 to 65.530(Ω)	1000	Get/Set	H221
Motor-Const L (Param285)	1	122	4	0.01 to 655.30(mH)	100	Get/Set	H022

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Function	Inst	Attr	Size	Monitoring/Setting Range	Magnifi-cation	Access rule	Command
2nd Motor-Const L (Param351)	2	122	4	0.01 to 655.30(mH)	100	Get/Set	H222
Motor-Const I0 (Param286)	1	123	4	0.01 to 655.30(A)	100	Get/Set	H023
2nd Motor-Const I0 (Param352)	2	123	4	0.01 to 655.30(A)	100	Get/Set	H223
Motor-Const J (Param287)	1	124	4	0.001 to 9999.000(kgm^2)	1000	Get/Set	H024
2nd Motor-Const J (Param353)	2	124	4	0.001 to 9999.000(kgm^2)	1000	Get/Set	H224
Motor-Auto R1 (Param288)	1	130	4	0.001 to 65.530(Ω)	1000	Get/Set	H030
2nd Motor-Auto R1 (Param354)	2	130	4	0.001 to 65.530(Ω)	1000	Get/Set	H230
Motor-Auto R2 (Param289)	1	131	4	0.001 to 65.530(Ω)	1000	Get/Set	H031
2nd Motor-Auto R2 (Param355)	2	131	4	0.001 to 65.530(Ω)	1000	Get/Set	H231
Motor-Auto L (Param290)	1	132	4	0.01 to 655.30(mH)	100	Get/Set	H032
2nd Motor-Auto L (Param356)	2	132	4	0.01 to 655.30(mH)	100	Get/Set	H232
Motor-Auto I0 (Param291)	1	133	4	0.01 to 655.30(A)	100	Get/Set	H033
2nd Motor-Auto I0 (Param357)	2	133	4	0.01 to 655.30(A)	100	Get/Set	H233
Motor-Auto J (Param292)	1	134	4	0.001 to 9999.000(kgm^2)	1000	Get/Set	H034
2nd Motor-Auto J (Param358)	2	134	4	0.001 to 9999.000(kgm^2)	1000	Get/Set	H234
PIProportionGain (Param293)	1	150	2	0.0 to 1000.0(%)	10	Get/Set	H050
2nd PIProportionGain(Param359)	2	150	2	0.0 to 1000.0(%)	10	Get/Set	H250
PI Integrat-Gain (Param294)	1	151	2	0.0 to 1000.0(%)	10	Get/Set	H051
2nd PI Integrat-Gain (Param360)	2	151	2	0.0 to 1000.0(%)	10	Get/Set	H251
P ProportionGain (Param295)	1	152	2	0.01 to 10.00	100	Get/Set	H052
2nd P ProportionGain(Param361)	2	152	2	0.01 to 10.00	100	Get/Set	H252
0Hz-SLV Limit (Param296)	1	160	2	0.0 to 100.0(%)	10	Get/Set	H060
2nd 0Hz-SLV Limit (Param362)	2	160	2	0.0 to 100.0(%)	10	Get/Set	H260
Zero LV starting boost current for 1st motor (Param491)	1	161	2	0 to 50	1	Get/Set	H061
Zero LV starting boost current for 2nd motor (Param492)	2	161	2	0 to 50	1	Get/Set	H261
PIProport-Gain2 (Param297)	1	170	2	0.0 to 1000.0(%)	10	Get/Set	H070
PIIntegrat-Gain2 (Param298)	1	171	2	0.0 to 1000.0(%)	10	Get/Set	H071
P Proport-Gain2 (Param299)	1	172	2	0.00 to 10.00	100	Get/Set	H072
Gain switching time (Param493)	1	173	2	0 to 9999(ms)	1	Get/Set	H073

Support service

Service name	Code
Get_Attribute_Single	H'0E
Set_Attribute_Single	H'10

(8) Extend Group P object Class ID=109

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnifi-cation	Access rule	Command
OP1 OpeSel OnErr (Param300)	1	101	1	00(Trip)/01(Run)	1	Get/Set	P001
OP2 OpeSel OnErr (Param301)	1	102	1	00(Trip)/01(Run)	1	Get/Set	P002
Encoder Pulse No (Param302)	1	111	2	128 to 65535	1	Get/Set	P011
Control Mode Sel (Param303)	1	112	1	00(ASR mode)/01(APR mode)/02(APR2 mode)/ 03(HAPR mode)	1	Get/Set	P012
Pulse Train Mode (Param304)	1	113	1	00(Mode 0)/01(Mode 1)/ 02(Mode 2)	1	Get/Set	P013
Orient-Stop Pos (Param305)	1	114	2	0 to 4095	1	Get/Set	P014
Orient-Speed Set (Param306)	1	115	2	"Start Frequency" to "Max Frequency" (Hz) (up to 120Hz)	100	Get/Set	P015
Orient-Direction (Param307)	1	116	1	00(Forward)/01(Reverse)	1	Get/Set	P016
Orient-CompRange (Param308)	1	117	2	0 to 10000	1	Get/Set	P017
Orient-CompDelay (Param309)	1	118	2	0.00 to 9.99(s)	100	Get/Set	P018
Elect-GearPosSel (Param310)	1	119	1	00(Feedback)/01(Reference)	1	Get/Set	P019
Elect-Gear Num (Param311)	1	120	2	1 to 9999	1	Get/Set	P020
Elect-Gear Dnom (Param312)	1	121	2	1 to 9999	1	Get/Set	P021
Feed-ForwardGain (Param313)	1	122	2	0.00 to 655.35	100	Get/Set	P022
Pos-CtrlLoopGain (Param314)	1	123	2	0.00 to 100.00	100	Get/Set	P023
Position bias setting (Param494)	1	124	2	-2048 to 2048	1	Get/Set	P024
Compensation R2 (Param315)	1	125	1	00(Invalid)/01(Valid)	1	Get/Set	P025
Over Speed Level (Param316)	1	126	2	0.0 to 150(%)	10	Get/Set	P026
SpeedErDetectLvl (Param317)	1	127	2	0.00 to 120.00(Hz)	100	Get/Set	P027
Numberator for motor gear ratio (Param495)	1	128	2	1 to 9999	1	Get/Set	P028
Denominator of motor gear ratio (Param496)	1	129	2	1 to 9999	1	Get/Set	P029

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnification	Access rule	Command
DGInp-SelAcc/Dec (Param318)	1	131	1	00(Operator)/01(Option 1)/ 02(Option 2)/03(Eszq)	1	Get/Set	P031
OrientPosInp-Sel (Param319)	1	132	1	00(Operator)/01(Option 1)/ 02(Option 2)/03(Ezsq)	1	Get/Set	P032
Torque command input selection (Param497)	1	133	1	00(O Terminal)/ 01(OI Terminal)/02(O2 Terminal)/ 03(Operator)	1	Get/Set	P033
Toque command setting (Param498)	1	134	1	0 to 200(%) (~55KW) 0 to 180(%) (75~132KW) (constant current 1%)	1	Get/Set	P034
Polarity selection at the toque command input via O2 terminal (Param499)	1	135	1	00(as indicated by the sign)/ 01(depending on the operation direction)	1	Get/Set	P035
Toque bias mode (Param500)	1	136	1	00(Disable)/01(Operator)/02(Input via O2 Terminal)	1	Get/Set	P036
Toque bias value (Param501)	1	137	2	-200 to 200(%) (~55KW) -180 to 180(%) (75~132KW) (constant current 1%)	1	Get/Set	P037
Toque bias polarity selection (Param502)	1	138	1	00(as indicated by the sign)/ 01(depending on the operation direction)	1	Get/Set	P038
Speed limit for totoque-controlled operation(FW) (Param503)	1	139	4	0.00 to "Max Frequency"(Hz)	100	Get/Set	P039
Speed limit for totoque-controlled operation(RV) (Param504)	1	140	4	0.00 to "Max Frequency"(Hz)	100	Get/Set	P040
CommErrTime (Param320)	1	144	2	0.00 to 99.99(s)	100	Get/Set	P044
CommTimOutAction (Param321)	1	145	1	00(Trip)/01(Dec and trip)/ 02(Hold last)/03(Free run stop)/ 04(Deceleration stop)	1	Get/Set	P045
Output Assembly (Param322)	1	146	1	20,21,100	1	Get/Set	P046
Input Assembly(Param323)	1	147	1	70,71,101	1	Get/Set	P047
Idle Mode Action (Param324)	1	148	1	00(Trip)/01(Dec and trip)/ 02(Hold last)/03(Free run stop)/ 04(Deceleration stop)	1	Get/Set	P048
Rpm chg Pole sel (Param325)	1	149	1	0,2,4,6,8,10,12,14,16,18,20,22,24, 26,28,30,32,34,36,38	1	Get/Set	P049
Pulse-string frequency scale (Param505)	1	155	2	1.0 to 50.0(kHz)	10	Get/Set	P055
Time constant of pulse-string frequency filter (Param506)	1	156	1	0.01 to 2.00(s)	100	Get/Set	P056
Pulse-string frequency bias (Param507)	1	157	1	-100 to 100(%)	1	Get/Set	P057
Pulse-string frequency limit (Param508)	1	158	1	0 to 100(%)	1	Get/Set	P058
Multistage position setting 0(Param509)	1	160	4	Position setting range reverse side to forward side	1	Get/Set	P060
Multistage position setting 1(Param510)	1	161	4	Position setting range reverse side to forward side	1	Get/Set	P061
Multistage position setting 2(Param511)	1	162	4	Position setting range reverse side to forward side	1	Get/Set	P062
Multistage position setting 3(Param512)	1	163	4	Position setting range reverse side to forward side	1	Get/Set	P063
Multistage position setting 4(Param513)	1	164	4	Position setting range reverse side to forward side	1	Get/Set	P064
Multistage position setting 5(Param514)	1	165	4	Position setting range reverse side to forward side	1	Get/Set	P065
Multistage position setting 6(Param515)	1	166	4	Position setting range reverse side to forward side	1	Get/Set	P066

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Function	Inst	Attr	Size	Monitoring/Setting Range	Magnifi-cation	Access rule	Com mand
Multistage position setting 7(Param516)	1	167	4	Position setting range reverse side to forward side	1	Get/Set	P067
Zero-return mode selection (Param517)	1	168	1	00(Low)/01(High1)/02(High2)	1	Get/Set	P068
Zero-return direction selection (Param518)	1	169	1	00(FW)/01(RV)	1	Get/Set	P069
Low-speed zero-return frequency (Param519)	1	170	2	0.00 to 10.00(Hz)	100	Get/Set	P070
High-speed zero-return frequency (Param520)	1	171	2	0.00 to "Max Frequency"(Hz)	100	Get/Set	P071
Position range specification(FW) (Param521)	1	172	4	0 to +268435455　(P012=APR2)/ 0 to +1073741823 (P012=HAPR)	1	Get/Set	P072
Position range specification(RV) (Param522)	1	173	4	-268435455 to 0　(P012=APR2)/ -1073741823 to 0 (P012=HAPR)	1	Get/Set	P073

Support service

Service name	Code
Get_Attribute_Single	H'0E
Set_Attribute_Single	H'10

(9) Extend Group P object Class ID=110

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnifi-cation	Access rule	Com mand
Easy sequence user parameter U(00) (Param523)	1	100	2	0 to 65535	1	Get/Set	P100
Easy sequence user parameter U(01) (Param524)	1	101	2	0 to 65535	1	Get/Set	P101
Easy sequence user parameter U(02) (Param525)	1	102	2	0 to 65535	1	Get/Set	P102
Easy sequence user parameter U(03) (Param526)	1	103	2	0 to 65535	1	Get/Set	P103
Easy sequence user parameter U(04) (Param527)	1	104	2	0 to 65535	1	Get/Set	P104
Easy sequence user parameter U(05) (Param528)	1	105	2	0 to 65535	1	Get/Set	P105
Easy sequence user parameter U(06) (Param529)	1	106	2	0 to 65535	1	Get/Set	P106
Easy sequence user parameter U(07) (Param530)	1	107	2	0 to 65535	1	Get/Set	P107
Easy sequence user parameter U(08) (Param531)	1	108	2	0 to 65535	1	Get/Set	P108
Easy sequence user parameter U(09) (Param532)	1	109	2	0 to 65535	1	Get/Set	P109
Easy sequence user parameter U(10) (Param533)	1	110	2	0 to 65535	1	Get/Set	P110
Easy sequence user parameter U(11) (Param534)	1	111	2	0 to 65535	1	Get/Set	P111
Easy sequence user parameter U(12) (Param535)	1	112	2	0 to 65535	1	Get/Set	P112
Easy sequence user parameter U(13) (Param536)	1	113	2	0 to 65535	1	Get/Set	P113
Easy sequence user parameter U(14) (Param537)	1	114	2	0 to 65535	1	Get/Set	P114
Easy sequence user parameter U(15) (Param538)	1	115	2	0 to 65535	1	Get/Set	P115

Function	Inst	Attr	Size	Monitoring/Setting Range	Magnifi-cation	Access rule	Command
Easy sequence user parameter U(16) (Param539)	1	116	2	0 to 65535	1	Get/Set	P116
Easy sequence user parameter U(17) (Param540)	1	117	2	0 to 65535	1	Get/Set	P117
Easy sequence user parameter U(18) (Param541)	1	118	2	0 to 65535	1	Get/Set	P118
Easy sequence user parameter U(19) (Param542)	1	119	2	0 to 65535	1	Get/Set	P119
Easy sequence user parameter U(20) (Param543)	1	120	2	0 to 65535	1	Get/Set	P120
Easy sequence user parameter U(21) (Param544)	1	121	2	0 to 65535	1	Get/Set	P121
Easy sequence user parameter U(22) (Param545)	1	122	2	0 to 65535	1	Get/Set	P122
Easy sequence user parameter U(23) (Param546)	1	123	2	0 to 65535	1	Get/Set	P123
Easy sequence user parameter U(24) (Param547)	1	124	2	0 to 65535	1	Get/Set	P124
Easy sequence user parameter U(25) (Param548)	1	125	2	0 to 65535	1	Get/Set	P125
Easy sequence user parameter U(26) (Param549)	1	126	2	0 to 65535	1	Get/Set	P126
Easy sequence user parameter U(27) (Param550)	1	127	2	0 to 65535	1	Get/Set	P127
Easy sequence user parameter U(28) (Param551)	1	128	2	0 to 65535	1	Get/Set	P128
Easy sequence user parameter U(29) (Param552)	1	129	2	0 to 65535	1	Get/Set	P129
Easy sequence user parameter U(30) (Param553)	1	130	2	0 to 65535	1	Get/Set	P130
Easy sequence user parameter U(31) (Param554)	1	131	2	0 to 65535	1	Get/Set	P131

Support service

Service name	Code
Get_Attribute_Single	H'0E
Set_Attribute_Single	H'10