HITACHI
Inspire the Next

SJ-MB Modbus/RTU Communications Option Board Instruction Manual

- SJ300 Series
- L300P Series

NOTE: REFER ALSO TO SJ300 or L300P SERIES INSTRUCTION MANUAL

Manual Number: HAL1052
September 2007

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

Hitachi America, Ltd.

NOTES:

Table of Contents

NOTES:

Chapter 1 – General Description

The SJ-MB option board is a Modbus/RTU communication interface for the Hitachi SJ300 and L300P series of AC Variable Frequency Inverters. The board can be installed in either of the two available option slots in the inverter.

The SJ-MB uses the open MODBUS/RTU communication protocol. It utilizes a serial RS485 physical interface with a maximum 57600 Baud data rate. Even though the board uses the MODBUS/RTU protocol, this does not mean that all MODBUS services and functions are supported. Detailed description of the available functionality is provided in Chapter 4 of this manual. The board will act as a MODBUS/RTU slave that can be read from and written to over a serial RS485 network from a MODBUS/RTU master device. It will not initiate communication with other devices on the network. It will only respond to requests from a master device. The SJ-MB will allow a user to control the operation of the inverter, monitor its operation, and modify parameters.

Before using this product, please read this manual and the relevant inverter manual, and be sure to follow all safety precautions noted therein. After unpacking the SJ-MB board, carefully inspect it for any defect or damage, and be sure all parts are present.

> Carton Contents
>
> (1) SJ-MB Modbus Communication Interface Board
> (2) Screws to secure board to inverter case (M3 x 8mm)
> (1) CD-ROM containing this manual (pdf)

WARRANTY

The warranty period under normal installation and handling conditions shall be eighteen (18) months from the date of purchase, or twelve (12) months from the date of installation, whichever occurs first. The warranty shall cover repair or replacement, at Hitachi's sole discretion, of the SJ-MB Option board.

Service in the following cases, even within the warranty period, shall be to the customers account:

1. Malfunction or damage caused by misuse, modification or unauthorized repair.
2. Malfunction or damage caused by mishandling, dropping, etc., after delivery.
3. Malfunction or damage caused by fire, earthquake, flood, lightning, abnormal input voltage, contamination, or other natural disasters.

If service is required for the product at your worksite, all expenses associated with field repair are the purchaser's responsibility. This warranty only covers service at Hitachi designated service facilities.

If making a warranty claims in reference to the above, please contact the distributor from whom you purchased the SJ-MB, and provide the model number, purchase date, installation date, and description of damage or missing components.

SAFETY PRECAUTIONS

HIGH VOLTAGE: This symbol indicates high voltage. It calls your attention to items or operations that could be dangerous to you and other persons operating this equipment. Read the message and follow the instructions carefully.

WARNING: Indicates a potentially hazardous situation that, if not avoided, can result in serious injury or death.

CAUTION: Indicates a potentially hazardous situation that, if not avoided, can result in minor to moderate injury, or serious damage to the product. The situation described in the CAUTION may, if not avoided, lead to serious results. Important safety measures are described in CAUTION (as well as WARNING), so be sure to observe them.

HIGH VOLTAGE: Motor control equipment and electronic controllers are connected to hazardous line voltages. When servicing drives and electronic controllers, there may be exposed components with housings or protrusions at or above line potential. Extreme care should be taken to protect against shock. Stand on an insulating pad and make it a habit to use only one hand when checking components. Always work with another person in case an emergency occurs. Disconnect power before checking controllers or performing maintenance. Be sure equipment is properly grounded. Wear safety glasses whenever working on electronic controllers or rotating machinery.

WARNING: This equipment should be installed, adjusted, and serviced by qualified electrical maintenance personnel familiar with the construction and operation of the equipment and the hazards involved. Failure to observe this precaution could result in bodily injury.

WARNING: HAZARD OF ELECTRICAL SHOCK. DISCONNECT INCOMING POWER BEFORE WORKING ON THIS CONTROL.

WARNING: Wait at least five (5) minutes after turning OFF the input power supply before performing maintenance or an inspection. Otherwise, there is the danger of electric shock.

WARNING: Do not install or remove the SJ-MB Modbus option board while the inverter is energized. Otherwise there is the danger of electric shock and/or injury due to unexpected inverter operation.

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

CAUTION: Be sure to secure the SJ-MB option board with the supplied mounting screws. Make sure all connections are made securely; otherwise there is danger of a loose connection and unpredictable operation.

CAUTION: Alarm connection may contain hazardous live voltage even when inverter is disconnected. When removing the front cover for maintenance or inspection, confirm that incoming power for alarm connection is completely disconnected.

CAUTION: Be sure not to touch the surface or terminals of the SJ-MB Modbus option board while the inverter is energized; otherwise there is the danger of electric shock.

CAUTION: The software lock modes described in the SJ300 inverter manual are NOT supported via the SJ-MB option board. This means that network commands can bypass any software lock settings configured via the inverter keypad. It is therefore incumbent on the user to make sure no safety lockouts are violated through network commands.

CAUTION: When configuring parameters with the standard keypad, the inverter checks for and inhibits invalid parameter combinations when the STR key is pressed. The SJ-MB bypasses this check, so it is incumbent on the user to make sure invalid configuration parameters or combinations are not sent through network commands. Otherwise undesirable inverter behavior may occur.

CAUTION: Certain parameter data ranges vary depending on model and capacity. The SJ-MB does NOT check to make sure these data are within range. Thus it is incumbent on the user to make sure data for these parameters is within range for the specific model and rating. These parameters are noted in the parameter tables in the Appendix. Otherwise undesirable inverter behavior may occur.

INVERTER COMPATIBILITY

The inverter firmware revision number is embedded within the inverter Manufacturing Number, which can be found on the product nameplate. The SJ-MB Modbus Interface option board is compatible only with SJ300 and L300P series inverters with Revision Numbers HIGHER than those shown below.

XX**8K**T XXXXX XXXXX – for SJ300-xxxXFU 0.4 kW (0.5 hp) to 55 kW (75 hp), or L300P-xxxXFU or L300P-xxxXBRM 1.5 kW (2 hp) to 75 kW (100 hp)

XX**EM**T XXXXX XXXXX – for SJ300-xxxXFU 75kW (100 hp) to 150 kW (200 hp), or L300P-xxxXFU or L300P-xxxXBRM 90 kW
(125 hp) to 132 kW (175 hp)

Note: All inverters in the model number series **L300P-xxxXFU2** are compatible with the SJ-MB, regardless of revision number. All SJ300 and L300P models manufactured in 2004 or later are compatible as well.

NOTES:

Chapter 2 – Installation and Wiring

Orientation to Product Features

Figure 2-1 below shows the physical layout of the SJ-MB Modbus option board. In particular, note the location of status LEDs and DIP-switches.
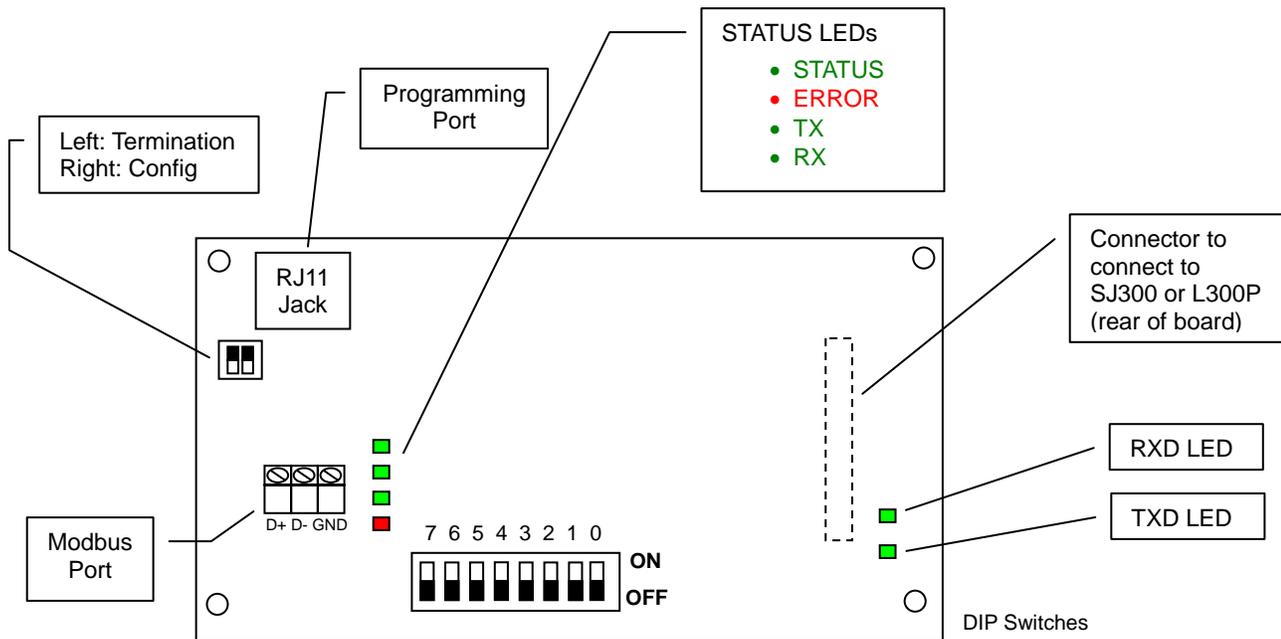
Figure 2-1
SJ-MB Layout

Installing the Option Board

Power down the inverter and wait at least five minutes before moving to the next step. Open and remove the lower terminal cover. Confirm that the red CHARGE LED is extinguished and that the DC bus is fully discharged before proceeding further, otherwise there is the danger of electric shock. Then remove keypad from the inverter. You can now remove the upper front cover to expose the two option ports inside.

Figure 2-2 on the next page shows how to install the option board to option port 1 or 2 of the inverter. There are four holes on the corners of the option board. Align the board with the port connector in the proper orientation (to the left, when facing the inverter as show). Then align the top two holes with the two screw holes, and the bottom two holes with the two guide posts. Insert the board fully into the connector. Secure the board with the two M3 screws supplied.

Option board

Guide posts for
option board positioning

Option port 1

Option port 2

Screw holes for securing the option board
(M3 screws x 2)
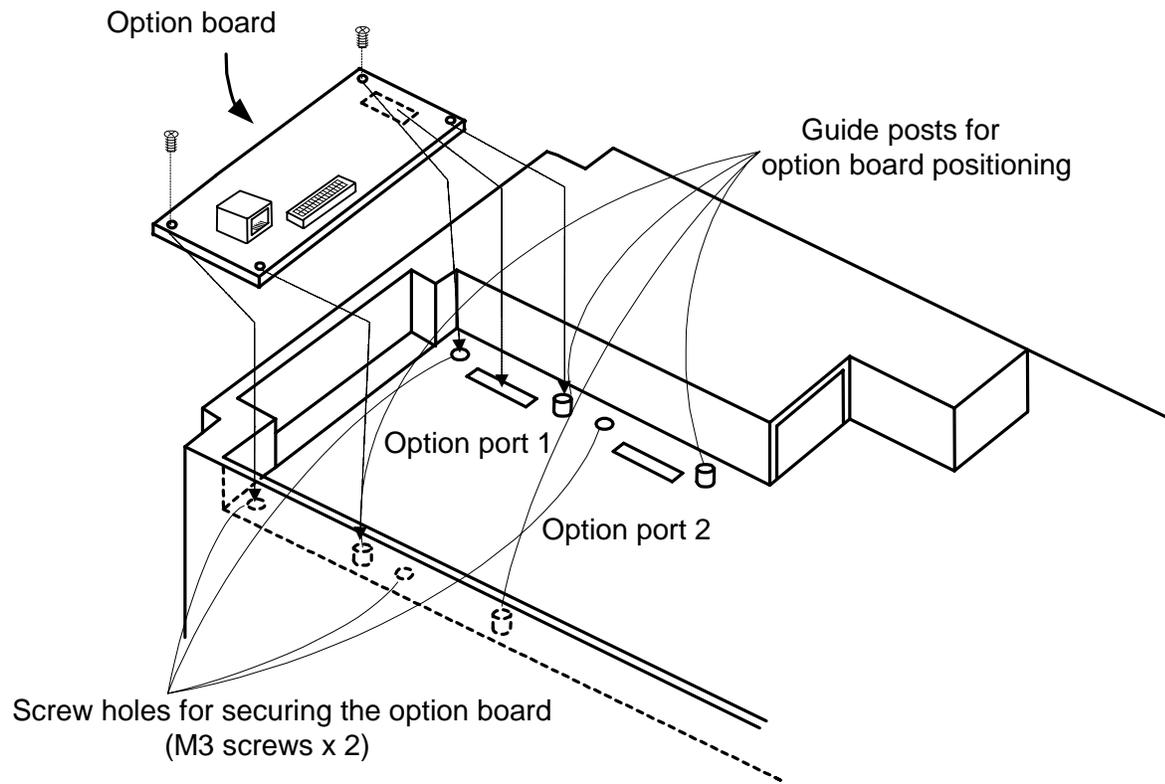
Figure 2-2
Installation of SJ-MB

User Interface

The SJ-MB has six LEDs to convey module status and activity.

Four LEDs next to the Modbus port connector:

- **STATUS** (GREEN) – This LED will be ON whenever the SJ-MB is receiving proper power from the inverter and the self diagnostics have shown the board to be functioning normally.

- **ERROR (RED) –** This LED will be ON if the SJ-MB has failed due to a hardware watchdog timeout, or the Modbus communications has been absent for the software watchdog timeout period.

- **MB TX –** This LED is ON when the SJ-MB is transmitting Modbus data over the network.

- **MB RX –** This LED is ON when the SJ-MB is receiving Modbus data over the network.

Two LEDs near the right edge of the board:

- **TXD –** This LED indicates communication from the SJ-MB to the inverter through the option port.

- **RXD –** This LED indicates communication to the SJ-MB from the inverter through the option port.

(These two LEDs may appear blinking or may appear steady ON due to the high blink rate.)

NOTES:

Chapter 3 – Configuration

Configuration of the SJ-MB Board

Ensure that the SJ-MB is properly installed as described in Chapter 2.

There are two DIP-switch banks on the SJ-MB board (see Figure 2-1). The eight-position bank is not used; however ensure that all switches are in the OFF position.

On the two-position DIP-switch bank, the left switch (bit 1) of controls whether a termination resistor is connected across the D+ and D- data terminals. This switch should be in the OFF position, unless this SJ-MB board is the last device in the Modbus/RTU network. In this case, move this switch to the on position to provide proper network termination resistance. The right switch SHOULD NOT be used. It is for factory use only, and should be in the OFF position for normal operation.

Make sure that all wiring is secure in the inverter, and that the power connections are free and clear. Be sure to separate power wiring from control wiring. If they have to cross, be sure that they cross at a right angle to minimize the possibility of interference. Power up the inverter, and observe the LEDs on the SJ-MB board. The STATUS LED should be illuminated, and the RX and TX LEDs should blink when Modbus data is being passed. The red ERROR LED should NOT be illuminated. Also, the RXD and TXD LEDs should be blinking (may appear as though ON continuously, due to high blink rate). See Chapter 4 for detailed description of LED functions. If the LED conditions are not correct, proceed to Chapter 5 for Troubleshooting. If you power up the inverter before powering up the PC, an error code may appear. After powering up the PC and properly connecting the cable, you should be able to clear the error with the STOP/RESET key on the inverter keypad.

If the LEDs are correct, continue with the configuration.

Configuring Parameters that Control the SJ-MB

Using either the keypad, or the ProDrive Programming Software, you will need to configure the communication settings for the SJ-MB board. Refer to the following table.

Function Code	Name	Description	Run Mode Edit Lo Hi	Defaults			Setting for Modbus Control via SJ-MB
				–FE (EU)	–FU (US)	–FR (Jpn)	
C070	Data Command Method	Four options; select codes: **02** Digital Operator **03** RS485 port **04** Expansion board 1 **05** Expansion board 2	✘ ✘	02	02	02	02

C071	Comm. Speed Selection	Five options; select codes: **02** Test **03** 2400 bps **04** 4800 bps **05** 9600 bps **06** 19200 bps	✘ ✔	04	04	04	**To Match Master Device**
C072	Node Allocation	Set the desired address of the inverter on the Modbus/RTU network. Range is 1 to 32.	✘ ✔	1	1	1	**As required**
C073	Comm. Data Length Selection	Two options, select codes: **07** 7-bit data **08** 8-bit data	✘ ✔	7	7	7	**To Match Master Device**
C074	Comm. Parity Selection	Three options, select codes: **00** No parity **01** Even parity **02** Odd parity	✘ ✔	00	00	00	**To Match Master Device**
C075	Comm. Stop Bit Selection	Two options, select codes: **01** 1 stop bit **02** 2 stop bits	✘ ✔	1	1	1	**To Match Master Device**
C078	Comm. Wait Time	Time the board waits after receiving a message before it transmits data. Range is 0.0 to 1000 ms	✘ ✔	0.0	0.0	0.0	**As required**

Chapter 4 – Operation

Setting Up the Inverter for Modbus Network Operation

Once the SJ-MB board has been properly configured and connected to a network as described in Chapter 3, it is capable of reading data from and writing data to the inverter. However if it is desired to have either the RUN command and/or the speed reference come from the Ethernet master, you must change two inverter parameters as shown in the following table.

Function Code	Name	Description	Run Mode Edit Lo Hi	Defaults –FE (EU)	Defaults –FU (US)	Defaults –FR (Jpn)	Setting for Modbus Control
A001	Frequency Source Setting	Six options; select codes: **00** Keypad potentiometer **01**Control terminal **02** Function F001 setting **03** RS485 serial command **04** Expansion board 1 **05** Expansion board 2	✕ ✕	01	01	02	02
A002	Run command source setting	Five options; select codes: **01** Input terminal [FW] or [RV] (assignable) **02** Run key on keypad, or digital operator **03** RS485 serial command **04** Start/Stop, expansion card #1 **05** Start/Stop, expansion card #2	✕ ✕	01	01	02	02

Supported MODBUS Functions

The SJ-MB is implemented with the MODBUS/RTU communication protocol. It supports the following MODBUS functions:

- 1 - MODBUS_READ_COILS (up to 32 at a time)

- 3 - MODBUS_READ_MULTIPLE_REGS (Up to 4 at a time)

- 5 - MODBUS_WRITE_COIL

- 6 - MODBUS_WRITE_SINGLE_REGISTER

- 8 - MODBUS_LOOPBACK_TEST

- 15 - MODBUS_FORCE_MULTIPLE_COILS (up to 32 at a time)

- 16 - MODBUS_WRITE_MULTIPLE_REGS (up to 4 at a time)

Additional MODBUS/RTU protocol details, including specifications, application information, implementation guides, and other resources are available from the web site www.modbus.org.

NOTES:

Chapter 5 – Troubleshooting

In general, the first step to troubleshooting should be to inspect the status LEDs on the SJ-MB board, in addition to the inverter operator/keypad display. These will give valuable clues to the nature of the problem.

In addition, the inverter operator/keypad will provide diagnostic information for certain types of errors. Error codes for the option boards will have the format of:

E6X.X for a board installed in option slot 1, or *E7X.X* for a board installed in option slot 2. The number to the right of the decimal point indicates the drive status at the time of trip, as follows:

EXX.0	At reset	*EXX.1*	At stop	*EXX.2*	During deceleration
EXX.3	At constant speed	*EXX.4*	During acceleration	*EXX.5*	f0 Stop
EXX.6	At starting	*EXX.7*	During DC injection braking	*EXX.8*	During overload restriction

The digit immediately to the left of the decimal point has the following meaning:

Code	Trip Name	Cause	Check	Remedy
EX0.X	Modbus Communication Error	Defective connection	Connectors (plugs & jacks), cable	Replace or repair; press STOP/RESET on inverter keypad
		PC not powered up or not connected to inverter	That PC is powered on and connected	Press STOP/RESET on inverter keypad
		Network configuration error	Verify proper Modbus setup of SJ-MB and master device	Reconfigure incorrect settings.
EX9.X	Internal Communication Error (between SJ-MB and inverter)	Option board ajar or loose	Verify board is properly seated in connector	Remove and reseat board
		Board lockup	Check status LEDs	Press STOP/RESET key on inverter or cycle power
		Board defective	Check status LEDs	Replace SJ-MB
8888	Inverter Mismatch (blinking display as shown)	Inverter firmware version not compatible with SJ-MB option board	Inverter Manufacturing Number for version (see Page 7)	Replace Inverter with later version

NOTES:

Appendix – Parameter List

The following lists include the combined parameter sets of both the L300P series and SJ300 series of inverters. Therefore, all parameters listed are not available on both series. Please refer to the instruction manual for the inverter you have to determine the list of available parameters. Then you can find the parameter on these lists and determine proper addressing for Modbus/RTU.

Coil List

Coil No.	Item	R/W	Setting
0001h	Operation command	R/W	1: Run, 0: Stop (valid when A002 = 02)
0002h	Rotation direction command	R/W	1: Reverse, 0: Forward (valid when A002 = 02)
0003h	External trip (EXT)	R/W	1: Trip
0004h	Trip reset (RS)	R/W	1: Reset
0007h	Intelligent input terminal [1]	R/W	1: ON, 0: OFF (*1)
0008h	Intelligent input terminal [2]	R/W	1: ON, 0: OFF (*1)
0009h	Intelligent input terminal [3]	R/W	1: ON, 0: OFF (*1)
000Ah	Intelligent input terminal [4]	R/W	1: ON, 0: OFF (*1)
000Bh	Intelligent input terminal [5]	R/W	1: ON, 0: OFF (*1)
000Ch	Intelligent input terminal [6]	R/W	1: ON, 0: OFF (*1)
000Dh	Intelligent input terminal [7]	R/W	1: ON, 0: OFF (*1)
000Eh	Intelligent input terminal [8]	R/W	1: ON, 0: OFF (*1)
000Fh	Operation status	R	1: Run, 0: Stop (interlocked to "d003")
0010h	Rotation direction	R	1: Reverse rotation, 0: Forward rotation (interlocked to "d003")
0013h	RUN (running)	R	1: Tripped, 0: Normal
0014h	FA1 (constant-speed reached)	R	1: ON, 0: OFF
0015h	FA2 (set frequency overreached)	R	1: ON, 0: OFF
0016h	OL (overload notice advance signal (1))	R	1: ON, 0: OFF
0017h	OD (output deviation for PID control)	R	1: ON, 0: OFF
0018h	AL (alarm signal)	R	1: ON, 0: OFF
0019h	FA3 (set frequency reached)	R	1: ON, 0: OFF
001Ah	OTQ (over-torque)	R	1: ON, 0: OFF
001Bh	IP (instantaneous power failure)	R	1: ON, 0: OFF
001Ch	UV (under voltage)	R	1: ON, 0: OFF
001Dh	TRQ (torque limited)	R	1: ON, 0: OFF
001Eh	RNT (operation time over)	R	1: ON, 0: OFF
001Fh	ONT (plug-in time over)	R	1: ON, 0: OFF
0020h	THM (thermal alarm signal)	R	1: ON, 0: OFF
0026h	BRK (brake release)	R	1: ON, 0: OFF
0027h	BER (brake error)	R	1: ON, 0: OFF
0028h	ZS (0 Hz detection signal)	R	1: ON, 0: OFF
0029h	DSE (speed deviation maximum)	R	1: ON, 0: OFF
002Ah	POK (positioning completed)	R	1: ON, 0: OFF

002Bh	FA4 (set frequency overreached 2)	R	1: ON, 0: OFF
002Ch	FA5 (set frequency reached 2)	R	1: ON, 0: OFF
002Dh	OL2 (overload notice advance signal (2))	R	1: ON, 0: OFF
0032h	FBV (PID feedback comparison)	R	1: ON, 0: OFF
0033h	NDc (communication line disconnection)	R	1: ON, 0: OFF
0034h	LOG1 (logical operation result 1)	R	1: ON, 0: OFF
0035h	LOG2 (logical operation result 2)	R	1: ON, 0: OFF
0036h	LOG3 (logical operation result 3)	R	1: ON, 0: OFF
0037h	LOG4 (logical operation result 4)	R	1: ON, 0: OFF
0038h	LOG5 (logical operation result 5)	R	1: ON, 0: OFF
0039h	LOG6 (logical operation result 6)	R	1: ON, 0: OFF
003Ah	WAC (capacitor life warning)	R	1: ON, 0: OFF
003Bh	WAF (cooling-fan speed drop)	R	1: ON, 0: OFF
003Ch	FR (starting contact signal)	R	1: ON, 0: OFF
003Dh	OHF (heat sink overheat warning)	R	1: ON, 0: OFF
003Eh	LOC (low-current indication signal)	R	1: ON, 0: OFF
003Fh	M01 (general output 1)	R	1: ON, 0: OFF
0040h	M02 (general output 2)	R	1: ON, 0: OFF
0041h	M03 (general output 3)	R	1: ON, 0: OFF
0042h	M04 (general output 4)	R	1: ON, 0: OFF
0043h	M05 (general output 5)	R	1: ON, 0: OFF
0044h	M06 (general output 6)	R	1: ON, 0: OFF
0046h	FWR (forward rotation)	R	1: ON, 0: OFF
0047h	RVR (reverse rotation)	R	1: ON, 0: OFF
0048h	MJA (major failure)	R	1: ON, 0: OFF
0049h	Data writing in progress	R	1: Writing in progress, 0: Normal status
004Ah	CRC error	R	1: Error detected, 0: No error (*2)
004Bh	Overrun	R	1: Error detected, 0: No error (*2)
004Ch	Framing error	R	1: Error detected, 0: No error (*2)
004Dh	Parity error	R	1: Error detected, 0: No error (*2)
004Eh	Sum check error	R	1: Error detected, 0: No error (*2)

*1 Normally, this coil is turned on when the corresponding intelligent input terminal on the control circuit terminal block is turned on or the coil itself is set to on. In this regard, the operation of the intelligent input terminal has priority over the operation of the coil. If disconnection of the communication line has disabled the master system from turning off the coil, turn the corresponding intelligent input terminal on the control circuit block on and off. This operation turns off the coil.

*2 Communication error data is retained until an error reset command is input (can be reset during inverter operation.)

Register List

Dec	Hex	Description	Inverter Parameter
1	0x1	Set frequency (Hz) / PID Setpoint (%) [MSW]	F1
2	0x2	Set frequency (Hz) / PID Setpoint (%) [LSW]	F1
3	0x3	Status of Inverter [BYTE 3]	R1
4	0x4	Status of Inverter [BYTE 2]	R1
5	0x5	Status of Inverter [BYTE 1]	R1
17	0x11	Accumulated number of Trip(error)	D80
18	0x12	Factor and Status of Trip1 [MSW]	D81
19	0x13	Factor and Status of Trip1 [LSW]	D81
20	0x14	Frequency of Trip1 [MSW]	
21	0x15	Frequency of Trip1 [LSW]	
22	0x16	Output current of Trip1	
23	0x17	PN voltage (DC voltage) of Trip1	
24	0x18	Accumulated time during running of Trip1 [MSW]	
25	0x19	Accumulated time during running of Trip1 [LSW]	
26	0x1A	Accumulated time during power ON of Trip1 [MSW]	
27	0x1B	Accumulated time during power ON of Trip1 [LSW]	
28	0x1C	Factor and Status of Trip2 [MSW]	D82
29	0x1D	Factor and Status of Trip2 [LSW]	D82
30	0x1E	Frequency of Trip2 [MSW]	
31	0x1F	Frequency of Trip2 [LSW]	
32	0x20	Output current of Trip2	
33	0x21	PN voltage (DC voltage) of Trip2	
34	0x22	Accumulated time during running of Trip2 [MSW]	
35	0x23	Accumulated time during running of Trip2 [LSW]	
36	0x24	Accumulated time during power ON of Trip2 [MSW]	
37	0x25	Accumulated time during power ON of Trip2 [LSW]	
38	0x26	Factor and Status of Trip3 [MSW]	D83
39	0x27	Factor and Status of Trip3 [LSW]	D83
40	0x28	Frequency of Trip3 [MSW]	
41	0x29	Frequency of Trip3 [LSW]	
42	0x2A	Output current of Trip3	
43	0x2B	PN voltage (DC voltage) of Trip3	
44	0x2C	Accumulated time during running of Trip3 [MSW]	
45	0x2D	Accumulated time during running of Trip3 [LSW]	
46	0x2E	Accumulated time during power ON of Trip3 [MSW]	
47	0x2F	Accumulated time during power ON of Trip3 [LSW]	
48	0x30	Factor and Status of Trip4 [MSW]	D84
49	0x31	Factor and Status of Trip4 [LSW]	D84
50	0x32	Frequency of Trip4 [MSW]	
51	0x33	Frequency of Trip4 [LSW]	
52	0x34	Output current of Trip4	
53	0x35	PN voltage (DC voltage) of Trip4	
54	0x36	Accumulated time during running of Trip4 [MSW]	
55	0x37	Accumulated time during running of Trip4 [LSW]	
56	0x38	Accumulated time during power ON of Trip4 [MSW]	

57	0x39	Accumulated time during power ON of Trip4 [LSW]	
58	0x3A	Factor and Status of Trip5 [MSW]	D85
59	0x3B	Factor and Status of Trip5 [LSW]	D85
60	0x3C	Frequency of Trip5 [MSW]	
61	0x3D	Frequency of Trip5 [LSW]	
62	0x3E	Output current of Trip5	
63	0x3F	PN voltage (DC voltage) of Trip5	
64	0x40	Accumulated time during running of Trip5 [MSW]	
65	0x41	Accumulated time during running of Trip5 [LSW]	
66	0x42	Accumulated time during power ON of Trip5 [MSW]	
67	0x43	Accumulated time during power ON of Trip5 [LSW]	
68	0x44	Factor and Status of Trip6 [MSW]	D86
69	0x45	Factor and Status of Trip6 [LSW]	D86
70	0x46	Frequency of Trip6 [MSW]	
71	0x47	Frequency of Trip6 [LSW]	
72	0x48	Output current of Trip6	
73	0x49	PN voltage (DC voltage) of Trip6	
74	0x4A	Accumulated time during running of Trip6 [MSW]	
75	0x4B	Accumulated time during running of Trip6 [LSW]	
76	0x4C	Accumulated time during power ON of Trip6 [MSW]	
77	0x4D	Accumulated time during power ON of Trip6 [LSW]	
2304	0x900	Writing to EEPROM	
4097	0x1001	Output frequency [MSW]	D1
4098	0x1002	Output frequency [LSW]	D1
4099	0x1003	Output current	D2
4100	0x1004	Direction of present running	D3
4101	0x1005	Feedback data of PID control [MSW]	D4
4102	0x1006	Feedback data of PID control [LSW]	D4
4103	0x1007	Status of Input terminal	D5
4104	0x1008	Status of output terminal	D6
4105	0x1009	Value of conversion of frequency [MSW]	D7
4106	0x100A	Value of conversion of frequency [LSW]	D7
4112	0x1010	Output Torque	D12
4113	0x1011	Output voltage	D13
4114	0x1012	Input electric power	D14
4117	0x1015	Accumulated time during running [MSW]	D16
4118	0x1016	Accumulated time during running [LSW]	D16
4119	0x1017	Accumulated time during Power ON [MSW]	D17
4120	0x1018	Accumulated time during Power ON [LSW]	D17
4134	0x1026	DC Voltage	D102
4135	0x1027	On time of BRD running	D103
4136	0x1028	Used rate of electronics thermal protection	D104
4355	0x1103	1st Acceleration time 1 [MSW]	F2
4356	0x1104	1st Acceleration time 1 [LSW]	F2
4357	0x1105	1st Deceleration time 1 [MSW]	F3

4358	0x1106	1st Deceleration time 1 [LSW]	F3
4359	0x1107	Selection of running direction for DIG-OPE	F4
4609	0x1201	Selection of frequency command destination	A1
4610	0x1202	Selection of running command destination	A2
4611	0x1203	1st Base frequency	A3
4612	0x1204	1st Maximum frequency	A4
4613	0x1205	Selection of AT function	A5
4614	0x1206	Selection of O2 terminal function	A6
4619	0x120B	Start frequency of .O. terminal [MSW]	A11
4620	0x120C	Start frequency of .O. terminal [LSW]	A11
4621	0x120D	End frequency of .O. terminal [MSW]	A12
4622	0x120E	End frequency of .O. terminal [LSW]	A12
4623	0x120F	Starting rate of O terminal	A13
4624	0x1210	End rate of O terminal	A14
4625	0x1211	Selection of starting function of O terminal	A15
4626	0x1212	Sampling number of fetching data from .O.	A16
4629	0x1215	Selection of Multispeed method	A19
4630	0x1216	1st setting Multispeed frequency 0 [MSW]	A20
4631	0x1217	1st setting Multispeed frequency 0 [LSW]	A20
4632	0x1218	Multispeed frequency 1 [MSW]	A21
4633	0x1219	Multispeed frequency 1 [LSW]	A21
4634	0x121A	Multispeed frequency 2 [MSW]	A22
4635	0x121B	Multispeed frequency 2 [LSW]	A22
4636	0x121C	Multispeed frequency 3 [MSW]	A23
4637	0x121D	Multispeed frequency 3 [LSW]	A23
4638	0x121E	Multispeed frequency 4 [MSW]	A24
4639	0x121F	Multispeed frequency 4 [LSW]	A24
4640	0x1220	Multispeed frequency 5 [MSW]	A25
4641	0x1221	Multispeed frequency 5 [LSW]	A25
4642	0x1222	Multispeed frequency 6 [MSW]	A26
4643	0x1223	Multispeed frequency 6 [LSW]	A26
4644	0x1224	Multispeed frequency 7 [MSW]	A27
4645	0x1225	Multispeed frequency 7 [LSW]	A27
4646	0x1226	Multispeed frequency 8 [MSW]	A28
4647	0x1227	Multispeed frequency 8 [LSW]	A28
4648	0x1228	Multispeed frequency 9 [MSW]	A29
4649	0x1229	Multispeed frequency 9 [LSW]	A29
4650	0x122A	Multispeed frequency 10 [MSW]	A30
4651	0x122B	Multispeed frequency 10 [LSW]	A30
4652	0x122C	Multispeed frequency 11 [MSW]	A31
4653	0x122D	Multispeed frequency 11 [LSW]	A31
4654	0x122E	Multispeed frequency 12 [MSW]	A32
4655	0x122F	Multispeed frequency 12 [LSW]	A32
4656	0x1230	Multispeed frequency 13 [MSW]	A33
4657	0x1231	Multispeed frequency 13 [LSW]	A33
4658	0x1232	Multispeed frequency 14 [MSW]	A34
4659	0x1233	Multispeed frequency 14 [LSW]	A34
4660	0x1234	Multispeed frequency 15 [MSW]	A35

4725	0x1275	1st Acceleration time 2 [LSW]	A92
4726	0x1276	1st Deceleration time 2 [MSW]	A93
4727	0x1277	1st Deceleration time 2 [LSW]	A93
4728	0x1278	Selection of 1st 2-stage accel/decel Method	A94
4729	0x1279	1st Frequency of 2-stage acceleration [MSW]	A95
4730	0x127A	1st Frequency of 2-stage acceleration [LSW]	A95
4731	0x127B	1st Frequency of 2-stage deceleration [MSW]	A96
4732	0x127C	1st Frequency of 2-stage deceleration [LSW]	A96
4733	0x127D	Selection of acceleration pattern	A97
4734	0x127E	Selection of deceleration pattern	A98
4737	0x1281	Start frequency of .OI. terminal [MSW]	A101
4738	0x1282	Start frequency of .OI. terminal [LSW]	A101
4739	0x1283	End frequency of .OI. terminal [MSW]	A102
4740	0x1284	End frequency of .OI. terminal [LSW]	A102
4741	0x1285	Starting rate of OI terminal	A103
4742	0x1286	End rate of OI terminal	A104
4743	0x1287	Selection of starting function of OI terminal	A105
4749	0x128D	Start frequency of .O2. terminal [MSW]	A111
4750	0x128E	Start frequency of .O2. terminal [LSW]	A111
4751	0x128F	End frequency of .O2. terminal [MSW]	A112
4752	0x1290	End frequency of .O2. terminal [LSW]	A112
4753	0x1291	Starting rate of O2 terminal	A113
4754	0x1292	End rate of O2 terminal	A114
4773	0x12A5	Curve constant of acceleration	A131
4774	0x12A6	Curve constant of deceleration	A132
4865	0x1301	Selection of retry method	B1
4866	0x1302	Acceptable time for Instantaneous power failure	B2
4867	0x1303	Waiting time of retry	B3
4868	0x1304	Selection of method(action) at instantaneous power and under voltage	B4
4869	0x1305	Retry number of instantaneous power and under voltage	B5
4870	0x1306	Selection of fail phase function	B6
4871	0x1307	Frequency of frequency matching [MSW]	B7
4872	0x1308	Frequency of frequency matching [LSW]	B7
4877	0x130D	Level of 1st Electronic thermal protection	B12
4878	0x130E	Selection of characteristic of 1st electronic thermal protection	B13
4880	0x1310	Free electronic thermal frequency 1	B15
4881	0x1311	Free electronic thermal current 1	B16
4882	0x1312	Free electronic thermal frequency 2	B17
4883	0x1313	Free electronic thermal current 2	B18
4884	0x1314	Free electronic thermal frequency 3	B19
4885	0x1315	Free electronic thermal current 3	B20
4886	0x1316	Selection of method of overload restriction1	B21
4887	0x1317	Level of Overload restriction 1	B22

4888	0x1318	Constant value of Overload restriction 1	B23
4889	0x1319	Selection of method of overload restriction 2	B24
4890	0x131A	Level of Overload restriction 2	B25
4891	0x131B	Constant value of Overload restriction 2	B26
4896	0x1320	Selection of method of Software lock	B31
4899	0x1323	Display time of warning [MSW]	B34
4900	0x1324	Display time of warning [LSW]	B34
4901	0x1325	Selection of running direction limitation	B35
4902	0x1326	Selection of method of reducing voltage start	B36
4903	0x1327	Selection of Display	B37
4906	0x132A	Selection of method of Torque limiter	B40
4907	0x132B	Level of torque limiter in forward and drive (1st quadrant)	B41
4908	0x132C	Level of torque limiter in reverse and regenerative (2nd quadrant)	B42
4909	0x132D	Level of torque limiter in reverse and drive (3rd quadrant)	B43
4910	0x132E	Level of torque limiter in forward and regenerative (4th quadrant)	B44
4911	0x132F	Selection of LAD stop by torque	B45
4912	0x1330	Selection of preventive of reverse running	B46
4916	0x1334	Selection of Non stop operation at instantaneous power failure	B50
4917	0x1335	Starting voltage of Nonstop operation for Instantaneous power failure	B51
4918	0x1336	Starting voltage of OV-LAD stop at Nonstop operation for Instantaneous power failure	B52
4919	0x1337	Deceleration time of Non-stop operation at Instantaneous power failure [MSW]	B53
4920	0x1338	Deceleration time of Non-stop operation at Instantaneous power failure [LSW]	B53
4921	0x1339	Frequency width of starting deceleration at Nonstop operation for Instantaneous power failure	B54
4949	0x1355	Minimum frequency	B82
4950	0x1356	Carrier frequency(PWM frequency	B83
4951	0x1357	Selection of Initialization	B84
4952	0x1358	Selection of initialized data	B85
4953	0x1359	Coefficient of converting frequency	B86
4954	0x135A	Selection of .STOP. key function	B87
4955	0x135B	Selection free run function	B88
4957	0x135D	Usage rate of BRD	B90
4958	0x135E	Selection of action at stop	B91
4959	0x135F	Selection of action of cooling fan	B92
4962	0x1362	Selection of BRD function	B95
4963	0x1363	On level of BRD	B96
4965	0x1365	Selection of Thermister function	B98
4966	0x1366	Level of Thermister error	B99
4967	0x1367	Free V/F control frequency 1	B100
4968	0x1368	Free V/F control voltage 1	B101
4969	0x1369	Free V/F control frequency 2	B102
4970	0x136A	Free V/F control voltage 2	B103

4971	0x136B	Free V/F control frequency 3	B104
4972	0x136C	Free V/F control voltage 3	B105
4973	0x136D	Free V/F control frequency 4	B106
4974	0x136E	Free V/F control voltage 4	B107
4975	0x136F	Free V/F control frequency 5	B108
4976	0x1370	Free V/F control voltage 5	B109
4977	0x1371	Free V/F control frequency 6	B110
4978	0x1372	Free V/F control voltage 6	B111
4979	0x1373	Free V/F control frequency 7	B112
4980	0x1374	Free V/F control voltage 7	B113
4987	0x137B	Selection of external braking function	B120
4988	0x137C	Waiting time for establishing external braking condition	B121
4989	0x137D	Waiting time for acceleration at external braking	B122
4990	0x137E	Waiting time for stop at external braking	B123
4991	0x137F	Waiting time for confirmation signal at external braking	B124
4992	0x1380	Release frequency of external braking	B125
4993	0x1381	Release current of external braking	B126
5121	0x1401	Selection of function in Intelligent input 1	C1
5122	0x1402	Selection of function in Intelligent input 2	C2
5123	0x1403	Selection of function in Intelligent input 3	C3
5124	0x1404	Selection of function in Intelligent input 4	C4
5125	0x1405	Selection of function in Intelligent input 5	C5
5126	0x1406	Selection of function in Intelligent input 6	C6
5127	0x1407	Selection of function in Intelligent input 7	C7
5128	0x1408	Selection of function in Intelligent input 8	C8
5131	0x140B	Selection of a(NO) or b(NC) contact in Intelligent input 1	C11
5132	0x140C	Selection of a(NO) or b(NC) contact in Intelligent input 2	C12
5133	0x140D	Selection of a(NO) or b(NC) contact in Intelligent input 3	C13
5134	0x140E	Selection of a(NO) or b(NC) contact in Intelligent input 4	C14
5135	0x140F	Selection of a(NO) or b(NC) contact in Intelligent input 5	C15
5136	0x1410	Selection of a(NO) or b(NC) contact in Intelligent input 6	C16
5137	0x1411	Selection of a(NO) or b(NC) contact in Intelligent input 7	C17
5138	0x1412	Selection of a(NO) or b(NC) contact in Intelligent input 8	C18
5139	0x1413	Selection of a(NO) or b(NC) contact in FW input	C19
5141	0x1415	Selection of function in Intelligent output 11	C21
5142	0x1416	Selection of function in Intelligent output 12	C22
5143	0x1417	Selection of function in Intelligent output 13	C23
5144	0x1418	Selection of function in Intelligent output 14	C24
5145	0x1419	Selection of function in Intelligent output 15	C25
5146	0x141A	Selection of function in Alarm relay output	C26
5147	0x141B	Selection of FM function	C27
5148	0x141C	Selection of AM function	C28
5149	0x141D	Selection of AMI function	C29
5151	0x141F	Selection of a(NO) or b(NC) contact in Intelligent output 11	C31
5152	0x1420	Selection of a(NO) or b(NC) contact in Intelligent output 12	C32
5153	0x1421	Selection of a(NO) or b(NC) contact in Intelligent output 13	C33

5154	0x1422	Selection of a(NO) or b(NC) contact in Intelligent output 14	C34
5155	0x1423	Selection of a(NO) or b(NC) contact in Intelligent output 15	C35
5156	0x1424	Selection of a(NO) or b(NC) contact in Alarm relay output	C36
5160	0x1428	Selection of output mode of overload warning signal	C40
5161	0x1429	Level1 of overload restriction warning	C41
5162	0x142A	Arrival frequency at acceleration1 [MSW]	C42
5163	0x142B	Arrival frequency at acceleration1 [LSW]	C42
5164	0x142C	Arrival frequency at deceleration1 [MSW]	C43
5165	0x142D	Arrival frequency at deceleration1 [LSW]	C43
5166	0x142E	Level over acceptable deviation of PID control	C44
5167	0x142F	Arrival frequency at acceleration2 [MSW]	C45
5168	0x1430	Arrival frequency at acceleration2 [LSW]	C45
5169	0x1431	Arrival frequency at deceleration2 [MSW]	C46
5170	0x1432	Arrival frequency at deceleration2 [LSW]	C46
5179	0x143B	Level of over torque in forward and drive (1st quadrant)	C55
5180	0x143C	Level of over torque in reverse and regenerative (2nd quadrant)	C56
5181	0x143D	Level of over torque in reverse and drive (3rd quadrant)	C57
5182	0x143E	Level of over torque in forward and regenerative (4th quadrant)	C58
5185	0x1441	Warning Level of electronic thermal protection	C61
5186	0x1442	Selection of Alarm code	C62
5187	0x1443	Level f detecting Zero speed	C63
5195	0x144B	Selection of communication speed for RS485	C71
5196	0x144C	Selection of Inverter address for RS 485	C72
5197	0x144D	Selection of bit length of data for RS485	C73
5198	0x144E	Selection of parity (odd or even) for RS485	C74
5199	0x144F	Selection of stop bit for RS485	C75
5202	0x1452	Waiting time of communication start	C78
5205	0x1455	Adjustment of .O. terminal	C81
5206	0x1456	Adjustment of .OI. terminal	C82
5207	0x1457	Adjustment of .O2. terminal	C83
5209	0x1459	Adjusting value of Thermister	C85
5215	0x145F	Selection of Debug mode method	C91
5225	0x1469	Selection of UP/DOWN function	C101
5226	0x146A	Selection of RESET function	C102
5227	0x146B	Selection of frequency matching function at RESET	C103
5229	0x146D	Adjustment of FM(digital monitor)	B81
5230	0x146E	Adjustment of AM(analog monitor)	B80
5231	0x146F	Adjustment of AMI output	C87
5233	0x1471	Adjustment of offset of AM	C86
5234	0x1472	Adjustment of Offset of AMI output	C88

5235	0x1473	Level2 of overload restriction warning	C111
5245	0x147D	Adjustment of Zero of .O. terminal	C121
5246	0x147E	Adjustment of Zero of .OI. terminal	C122
5247	0x147F	Adjustment of Zero of .O2. terminal	C123
5377	0x1501	Selection of Auto-tuning presence	H1
5378	0x1502	Selection of Motor constant for 1st motor	H2
5379	0x1503	Selection of Motor capacity for 1st motor	H3
5380	0x1504	Selection of Motor poles for 1st motor	H4
5381	0x1505	1st Speed response gain [MSW]	H5
5382	0x1506	1st Speed response gain [LSW]	H5
5383	0x1507	1st Stability gain	H6
5397	0x1515	1st Primary resistor R1 of motor [MSW]	H20
5398	0x1516	1st Primary resistor R1 of motor [LSW]	H20
5399	0x1517	1st Secondary resistor R2 of motor [MSW]	H21
5400	0x1518	1st Secondary resistor R2 of motor [LSW]	H21
5401	0x1519	1st Inductance L of motor [MSW]	H22
5402	0x151A	1st Inductance L of motor [LSW]	H22
5403	0x151B	1st No load current Io of motor [MSW]	H23
5404	0x151C	1st No load current Io of motor [LSW]	H23
5405	0x151D	1st Inertia J of motor [MSW]	H24
5406	0x151E	1st Inertia J of motor [LSW]	H24
5412	0x1524	1st Primary resistor R1 of motor (Auto) [MSW]	H30
5413	0x1525	1st Primary resistor R1 of motor (Auto) [LSW]	H30
5414	0x1526	1st Secondary resistor R2 of motor (Auto) [MSW]	H31
5415	0x1527	1st Secondary resistor R2 of motor (Auto) [LSW]	H31
5416	0x1528	1st Inductance L of motor (Auto) [MSW]	H32
5417	0x1529	1st Inductance L of motor (Auto) [LSW]	H32
5418	0x152A	1st No load current Io of motor (Auto) [MSW]	H33
5419	0x152B	1st No load current Io of motor (Auto) [LSW]	H33
5420	0x152C	1st Inertia J of motor (Auto) [MSW]	H34
5421	0x152D	1st Inertia J of motor (Auto) [LSW]	H34
5437	0x153D	1st Proportional gain of speed control(PI control)	H50
5438	0x153E	1st Integral gain of speed control(PI control)	H51
5439	0x153F	1st Proportional gain of speed control(P control)	H52
5447	0x1547	1st Limiter of 0Hz control	H60
5457	0x1551	PI Proportion gain Change	H70
5458	0x1552	PI Integral gain Change	H71
5459	0x1553	P Proportion gain Change	H72
5633	0x1601	Selection of action at option1 error	P1
5634	0x1602	Selection of action at option2 error	P2
5643	0x160B	Pulse number of the encoder	P11

5644	0x160C	Selection of Control Mode	P12
5645	0x160D	Selection of method of Pulse lines input	P13
5646	0x160E	Stop position at Orientation mode	P14
5647	0x160F	Speed at Orientation mode	P15
5648	0x1610	Set of Orientation direction	P16
5649	0x1611	Defining Area of completion of Orientation mode	P17
5650	0x1612	Delay time of completion Orientation mode	P18
5651	0x1613	Selection of location of electric gear	P19
5652	0x1614	The numerator of electric gear	P20
5653	0x1615	The denominator of electric gear	P21
5654	0x1616	Feed forward gain of position control	P22
5655	0x1617	Loop gain of position control	P23
5657	0x1619	Selection of Available of compensation of secondary resistor	P25
5658	0x161A	Level of detecting over speed	P26
5659	0x161B	Value of detecting over deviation	P27
5663	0x161F	Acc/Dec input mode selection	P31
5664	0x1620	Stop position setting input mode selection	P32
5678	0x162E	Timer setting of communication timeout Whilst running (SJ-DN)	P44
5679	0x162F	Inverter action When communication error (SJ-DN)	P45
5680	0x1630	Polled I/O OUTPUT Instance number (SJ-DN)	P46
5681	0x1631	Polled I/O INPUT Instance number (SJ-DN)	P47
5682	0x1632	Inverter action when Idle mode detected (SJ-DN)	P48
5683	0x1633	Motor poles setting for revolutions per minute (SJ-DN)	P49
8451	0x2103	2nd Acceleration time 1 [MSW]	F202
8452	0x2104	2nd Acceleration time 1 [LSW]	F202
8453	0x2105	2nd Deceleration time 1 [MSW]	F203
8454	0x2106	2nd Deceleration time 1 [LSW]	F203
8707	0x2203	2nd Base frequency	A203
8708	0x2204	2nd Maximum frequency	A204
8726	0x2216	2nd setting Multispeed frequency 0 [MSW]	A220
8727	0x2217	2nd setting Multispeed frequency 0 [LSW]	A220
8763	0x223B	Selection of 2nd Torque boost Method	A241
8764	0x223C	Value of 2nd Manual torque boost	A242
8765	0x223D	2nd Break point of manual torque boost	A243
8766	0x223E	Selection of 2nd Control method	A244
8783	0x224F	2nd Upper limiter frequency [MSW]	A261
8784	0x2250	2nd Upper limiter frequency [LSW]	A261
8785	0x2251	2nd Lower limiter frequency [MSW]	A262
8786	0x2252	2nd Lower limiter frequency [LSW]	A262

8815	0x226F	2nd Acceleration time 2 [MSW]	A292
8816	0x2270	2nd Acceleration time 2 [LSW]	A292
8817	0x2271	2nd Deceleration time 2 [MSW]	A293
8818	0x2272	2nd Deceleration time 2 [LSW]	A293
8819	0x2273	Selection of 2nd 2-stage accel/decel Method	A294
8820	0x2274	2nd Frequency of 2-stage acceleration [MSW]	A295
8821	0x2275	2nd Frequency of 2-stage acceleration [LSW]	A295
8822	0x2276	2nd Frequency of 2-stage deceleration [MSW]	A296
8823	0x2277	2nd Frequency of 2-stage deceleration [LSW]	A296
8972	0x230C	Level of 2nd Electronic thermal protection	B212
8973	0x230D	Selection of characteristic of 2nd electronic thermal protection	B213
9474	0x2502	Selection of Motor constant for 2nd motor	H202
9475	0x2503	Selection of Motor capacity for 2nd motor	H203
9476	0x2504	Selection of Motor poles for 2nd motor	H204
9477	0x2505	2nd Speed response gain [MSW]	H205
9478	0x2506	2nd Speed response gain [LSW]	H205
9479	0x2507	2nd Stability gain	H206
9493	0x2515	2nd Primary resistor R1 of motor [MSW]	H220
9494	0x2516	2nd Primary resistor R1 of motor [LSW]	H220
9495	0x2517	2nd Secondary resistor R2 of motor [MSW]	H221
9496	0x2518	2nd Secondary resistor R2 of motor [LSW]	H221
9497	0x2519	2nd Inductance L of motor [MSW]	H222
9498	0x251A	2nd Inductance L of motor [LSW]	H222
9499	0x251B	2nd No load current Io of motor [MSW]	H223
9500	0x251C	2nd No load current Io of motor [LSW]	H223
9501	0x251D	2nd Inertia J of motor [MSW]	H224
9502	0x251E	2nd Inertia J of motor [LSW]	H224
9508	0x2524	2nd Primary resistor R1 of motor (Auto) [MSW]	H230
9509	0x2525	2nd Primary resistor R1 of motor (Auto) [LSW]	H230
9510	0x2526	2nd Secondary resistor R2 of motor (Auto) [MSW]	H231
9511	0x2527	2nd Secondary resistor R2 of motor (Auto) [LSW]	H231
9512	0x2528	2nd Inductance L of motor (Auto) [MSW]	H232
9513	0x2529	2nd Inductance L of motor (Auto) [LSW]	H232
9514	0x252A	2nd No load current Io of motor (Auto) [MSW]	H233
9515	0x252B	2nd No load current Io of motor (Auto) [LSW]	H233
9516	0x252C	2nd Inertia J of motor (Auto) [MSW]	H234
9517	0x252D	2nd Inertia J of motor (Auto) [LSW]	H234
9533	0x253D	2nd Proportional gain of speed control(PI control)	H250
9534	0x253E	2nd Integral gain of speed control(PI control)	H251
9535	0x253F	2nd Proportional gain of speed control(P control)	H252
9543	0x2547	2nd Limiter of 0Hz control	H260
12547	0x3103	3rd Acceleration time 1 [MSW]	F302
12548	0x3104	3rd Acceleration time 1 [LSW]	F302
12549	0x3105	3rd Deceleration time 1 [MSW]	F303

12550	0x3106	3rd Deceleration time 1 [LSW]	F303
12803	0x3203	3rd Base frequency	A303
12804	0x3204	3rd Maximum frequency	A304
12822	0x3216	3rd setting Multispeed frequency 0 [MSW]	A320
12823	0x3217	3rd setting Multispeed frequency 0 [LSW]	A320
12860	0x323C	Value of 3rd Manual torque boost	A342
12861	0x323D	3rd Break point of manual torque boost	A343
12862	0x323E	Selection of 3rd Control method	A344
12909	0x326D	3rd Acceleration time 2 [MSW]	A392
12910	0x326E	3rd Acceleration time 2 [LSW]	A392
12911	0x326F	3rd Deceleration time 2 [MSW]	A393
12912	0x3270	3rd Deceleration time 2 [LSW]	A393
13068	0x330C	Level of 3rd Electronic thermal protection	B312
13069	0x330D	Selection of characteristic of 3rd electronic thermal protection	B313
13575	0x3507	3rd Stability gain	H306

Index

T

Troubleshooting · 17
TXD LED · 11

W

Warranty · 5
Wiring · 9

NOTES:

HITACHI
Inspire the Next

Hitachi America, Ltd.
Tarrytown, NY 10591
© 2007

www.hitachi.us/inverters

September 2007   HAL1052