

User Manual

Fieldbus Net Option Board SV-iS5 Series



- * Use this board after read Safety Instruction of this manual carefully before using and follow the instructions exactly.
- * Please hand this user manual to end user and trouble shooting manager
- * After read this manual, keep it at handy for future reference.

LS Industrial Systems

Thank you for purchase of LS Fieldbus Net Option Board!

SAFETY PRECAUTIONS

- Always follow safety precautions to prevent accidents and potential hazards from occurring.
- Safety precautions are classified into “WARNING” and “CAUTION” in this manual.



WARNING

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



CAUTION

Indicates a potentially hazardous situation which, if not avoided, can result in minor to moderate injury, or serious damage to the product.

- Throughout this manual we use the following two illustrations to make you aware of safety considerations:



Identifies potential hazards under certain conditions.

Read the message and follow the instructions carefully.



Identifies shock hazards under certain conditions.

Particular attention should be directed because dangerous voltage may be present.

- Keep this manual at handy for quick reference.



CAUTION

- **Be sure to take ESD (Electrostatic Discharge) protection measures when you touch the board.**
Otherwise, the option board may get damaged due to static charges.
- **Implement wiring change on the Option Board after checking that the power supply is off.**
Otherwise, there is a danger of connecting error and damage to the board.
- **Be sure to fix inverter to option board tightly.**
Otherwise, there is a danger of connecting error and damage to the board.
- **Be sure to install a termination resistor (120ohm, 1/4W) at the end of the network.**
- **Be sure to check parameter unit when setting parameters.**
Otherwise, there is a danger of connecting error.

CHAPTER 1 - INTRODUCTION

Fieldbus Net (Fnet) board provides control and monitoring of iS5 series inverter for GLOFA PLC via high-speed serial communication. The communication protocol is programmed with GLOFA PLC.

1.1. Benefits of Using Fnet Board

- Inverter can be controlled and monitored by PLC sequence program or any Master Module.
- Multiple inverters can be connected to one communication cable with simple and easy installation, dramatically saving wiring, maintenance cost and time.
- Compatible with PC System, PLC and any controllers is available, making Factory Automation more easily.

1.2. Contents Included

Fnet option consists 1 Fnet board, 2 connectors, 3 supporters, and manual.

CHAPTER 2 - CONFIGURATION AND INSTALLATION

2.1 Configuration

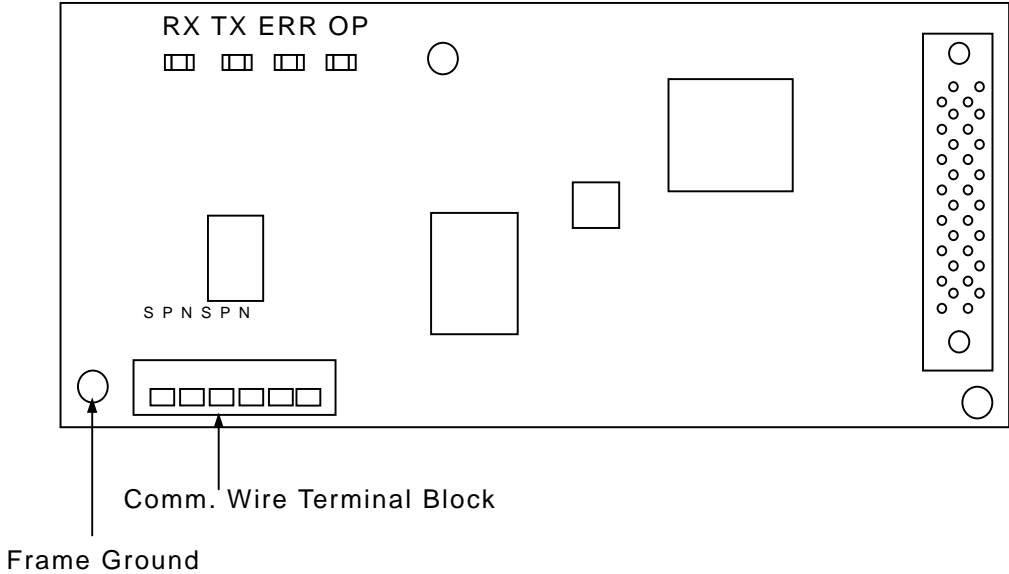


Figure 1. Board Configuration

2.1.1. Comm. Wire terminal block

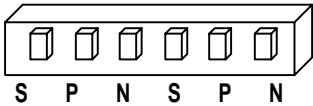


Figure 2. Comm. Wire Terminal Block

S	P	N
Shield	Comm. Signal Wiring (P)	Comm. Signal Wiring (N)

- * Two sets of “S”, “P”, “N” signal is connected in parallel respectively.
- * Connect terminal resistor at the last connected inverter between terminal P and N. (refer to Figure 6.)

2.1.2. Frame ground

Frame Ground is connected to the ground of inverter. In case of inverter body is grounded on the earth, shield cable can be connected with frame ground.

2.1.3. Display LED

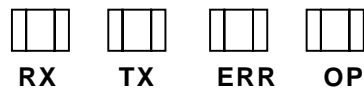


Figure 3. Display LED

<Status Display LED>

OP LED	Flickering by every 1 sec. when option board is normal.	
RXD LED	ON during signal receiving	
TXD LED	ON during signal transmitting	
ERR LED	Flickering periodically	Wrong data receiving
	Flickering with same cycle with OP LED	DPRAM comm. error
	Flickering with reverse cycle with OP LED	Network connection TimeOut

2.2. Installing on the Inverter Board

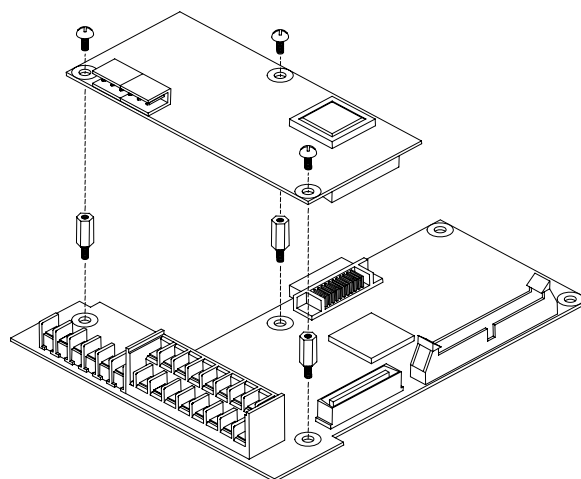


Figure 4. Installing Fnet board on Inverter board

CHAPTER 3 - SYSTEM CONFIGURATION

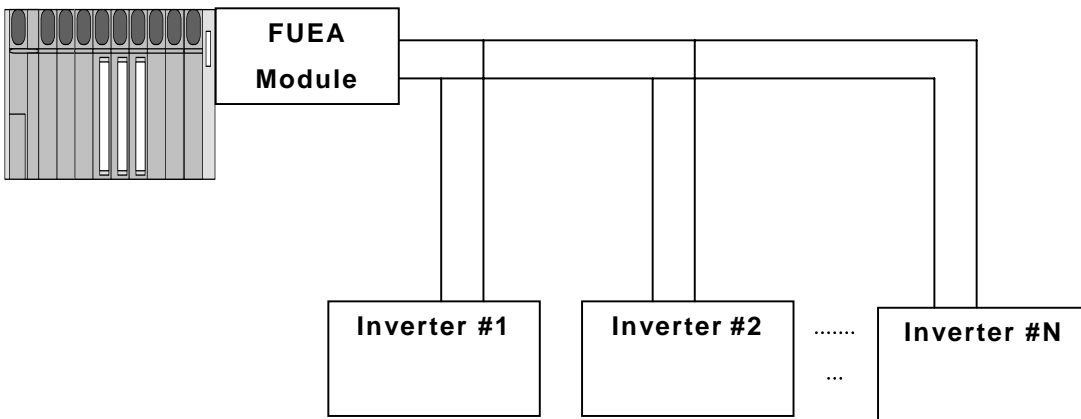


Figure 5. Example of System Configuration

3.1. Connecting between PLC (FUEA) and Inverter (iS5)

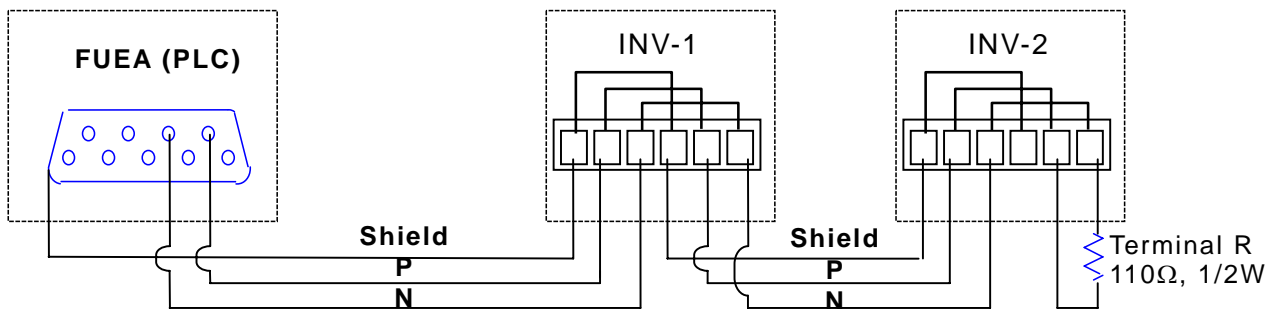


Figure 6. Wiring

CHAPTER 4 - COMMUNICATION SPECIFICATION

Speed	1 Mbps
Method	Manchester Biphase-L, Frame Synchronous method
Comm. Cable	Twisted Pair Shielded Cable, Dedicated cable Cable type: LIREV-AMESB 1ϕ (PC 717 6705), Manufacturer: LG Cable
Node	Max. 64 per line
Length	Max. 750 m
Frame Format	Field Bus(IEC TC65 / SC65C / WG6 65C 90.8)

CHAPTER 5 - OPERATING

5.1. Power On Test

Turn on the inverter power after installing the option board, and then inverter perform Power On test.

5.2. Setting Inverter Parameter

Set inverter parameters described below using keypad.

5.2.1. Checking option board [COM group/code# 01: PLC-GF]

This parameter checks the option board installed on inverter board. This code must display "PLC-GF".

5.2.2. Setting inverter number [COM group/code# 17: 0 ~ 63]

This parameter sets the station number of inverter. Inverter number must match the station number set in PLC. Setting a same number at more than one inverter cause communication error.

COM ▶ Station ID
17 1

5.2.3. Setting option mode [COM group/code# 02]

Set the mode of Fnet board.

COM ▶ Opt mode
02 None

- **None**

Inverter is controlled by keypad or control terminal instead Fnet board.

- **Command**

Inverter takes just run commands of Forward Run, Reverse Run, and Stop from the Fnet board.

- **Freq**

Inverter takes just frequency command from the Fnet board.

- **Cmd + Freq**

Inverter takes all commands from the Fnet board.

5.2.4. Setting lost command [I/O group/code# 48]

This parameter set the actions of inverter ahead when the communication is disconnected (timeout) by some reasons such like DPRAM error, cable cutting.

I/O ▶ Lost command
48 None

<In case of “timeout” error >

None: Inverter keeps the command that just have before the disconnection of communication.

FreeRun: Inverter stops with FreeRun (Coast to stop).

Stop: Inverter stops with the deceleration ramp set at FU1 # 06.

5.2.5. Setting timeOut [I/O group/code# 49]

This Parameter sets the time that inverter decides disconnection of communication.

Inverter takes actions of Lost Command after this set time.

I/O ▶	Time out
49	1.0 sec

Default value is 1 second.

5.2.6. Precautions

- If the Lost Command(I/O #48) is set at “None”, inverter keeps running depends on the status of comm. Disconnection. Set the Lost Command parameter must be set except for special case.
- Time out must be longer than communication cycle between PLC and inverter.
- Inverter station address must be different with the address of the device in a same network.

CHAPTER 6 - TROUBLESHOOTING

This chapter explains all of error contents which may occurs during system management, cause detection, and how to take action. If error occurred in communication module, error contents are displayed through LED of communication module.

LED	LED State	Checkup	Way of check up
OP LED	Not flickering	1. No applying Power supply 2. Abnormal CPU operation 3. LED fault	1. Check the connection with the inverter or power supply of inverter. 2,3. Repair or replacement.
ERR LED	Lighting periodically	Comm. frame fault by electric noise	Check the comm. cable whether there is a noise factor.
	Flickering conversely to OP cycle	Fnet comm. error	Check the connecting of communication cable. Check the PLC communication state (Enable state).
	Flickering same cycle as OP	DPRAM error	Check the connection with the inverter or power supply of inverter. Repair or replacement.
TXD, RXD LED	Flickering with 500ms when TXD, RXD LED is turn off.	Abnormal communication	Check the connecting of communication cable. Check the PLC communication state (Enable state).
	Flickering with 500ms when TXD and RXD LED are turned on.	Wrong comm. setting during normal comm.	Check the setting of inverter station address.
	Motor is not operated when RXD and TXD LED are turned off and OP LED is flickering with 1 sec.	Normal state	Check the No. 51 Opt mode of EXT Group set.

Parameter Code (Parameter address have a hex. value.)

<Common Area> : Parameter in command area can be used regardless of inverter model. (note3)

Address	Description	Unit	R/W	Data
0x0000	Inverter model	-	R	4: SV-iS5
0x0001	Inverter capacity	-	R	0: 0.75 1:1.5 2:2.2 3: 3.7 4: 5.5 5: 7.5 6: 11 7: 15 8: 18.5 9: 22 A: 30 B:37 C:45 D: 55 E: 75 F: 90 10: 110 11: 132 12: 160 13: 200 14:220 15:280 16:375 (Unit : kW)
0x0002	Inverter input volt.	-	R	0: 220V class 1: 440V class
0x0003	Version	-	R	0100: Ver. 1.00, 0101: Ver 1.01
0x0005	Freq. command	0.01Hz	R/W	
0x0006	Run command	-	R/W	Bit 0: Stop Bit 1: FWD run Bit 2: REV run Bit 3: Fault reset Bit 4: Emergency stop
0x0007	Acc. time	0.1 sec	R/W	
0x0008	Dec. time	0.1 sec	R/W	
0x0009	Output current	0.1 A	R	
0x000A	Output freq.	0.01 Hz	R	
0x000B	Output volt.	0.1 V	R	
0x000C	DC Link volt.	0.1 V	R	
0x000D	Output power	0.1 kW	R	
0x000E	Run state	-	R	Bit 0:Stop, Bit 1: FWD run Bit 2:REV run, Bit 3:Fault(Trip) Bit 4:Accelerating, Bit 5:Decelerating Bit 6:Speed reaching, Bit 7:DC Braking Bit 8: during stop, Bit 9: N/A, Bit10: Open brake Bit 11: FWD direction command, Bit 12: REV direction command, Bit13: Rem. Run/Stop Bit14: Rem. Freq. Cmd
0x000F	Trip information	-	R	Bit 0:OCT1, Bit 1: OV, Bit 2: EXT-A Bit 3: BX, Bit 4:OCT2, Bit 5: GF, Bit 6: OH, Bit 7: ETH, Bit 8: OLT, Bit 9: HW-diag,Bit10:EXT-B, Bit11:FO, Bit12:OPT,Bit13:POBit, 14:IOLT, Bit15:LV

Address	Description	Unit	R/W	Data
0x0010	Input terminal information	-	R	Bit 0: P1, Bit 1: P2, Bit 2: P3 Bit 3: P4, Bit 4: P5, Bit 5: P6, Bit 6: RST, Bit 7: BX, Bit 8: JOG, Bit 9: FX, Bit 10: RX
0x0011	Output terminal information	-	R	Bit 0: Q1 (OC1) , Bit 1: Q2 (OC2) Bit 2: Q3 (OC3), Bit 3: AUX Bit 4: 30AC
0x0012	V1	-	R	0 – FFC0
0x0013	V2	-	R	0 – FFC0
0x0014	I	-	R	0 – FFC0
0x0015	RPM	-	R	

(^{note}3) Data does not save in case data is revised by common area parameter. Namely, data will be applied in current status but data will be reset to previous value before revised value by common area parameter in case of inverter reset or power Off/On. The data changed by each group parameter (not changed by common area parameter) will be applied in case of inverter reset or power Off/On.

< DRV Group >

Address	NO.	Description	Default	Max.	Min.	Unit
5100	DRV#00	Cmd. freq	0	MaxFreq	0	0.01Hz
5101	DRV#01	Acc. Time	100	6000	0	0.1sec
5102	DRV#02	Dec. Time	200	6000	0	0.1sec
5103	DRV#03	Drive mode	1	2	0	
5104	DRV#04	Freq. mode	0	4	0	
5105	DRV#05	Step freq - 1	1000	MaxFreq	startFreq	0.01Hz
5106	DRV#06	Step freq - 2	2000	MaxFreq	startFreq	0.01Hz
5107	DRV#07	Step freq - 3	3000	MaxFreq	startFreq	0.01Hz
5108	DRV#08	Current	-	-	-	0.1A
5109	DRV#09	Speed	-	-	-	1rpm
510A	DRV#10	DC Link Voltage		-	-	V
5110	DRV#16	Hz/Rpm Disp	*	-	-	Hz/Rpm

<FU1 Group>

Address	NO.	Description	Default	Max.	Min.	Unit
5203	FU1 #03	Run prohibit	0	2	0	
5205	FU1 #05	Acc. pattern	0	4	0	
5206	FU1 #06	Dec. pattern	0	4	0	
5207	FU1 #07	Stop mode	0	2	0	
5208	FU1 #08	DcBr freq.	500	6000	startFreq	0.01Hz
5209	FU1 #09	DcBlk time	10	6000	0	0.01sec
520A	FU1 #10	DcBr value	50	200	0	%
520B	FU1 #11	DcBr time	10	600	0	0.1sec
520C	FU1 #12	DcSt value	50	200	0	%
520D	FU1 #13	DcSt time	0	600	0	0.1sec
520E	FU1 #14	PreExTime	10	600	0	0.1sec
520F	FU1 #15	Hold time	1000	10000	0	1msec
5210	FU1 #16	Flux Force	1000	5000	1000	0.1%
5214	FU1 #20	Max freq.	6000	40000	4000	0.01Hz
5215	FU1 #21	Base freq.	6000	maxFreq	3000	0.01Hz
5216	FU1 #22	Start freq.	50	6000	1	0.01Hz
5217	FU1 #23	Freq limit	0	1	0	
5218	FU1 #24	F-limit Lo.	50	highFreq	startFreq	0.01Hz
5219	FU1 #25	F-limit Hi.	6000	maxFreq	lowFreq	0.01Hz
521A	FU1 #26	Torque boost	0	1	0	
521B	FU1 #27	Fwd boost	20	150	0	0.1%
521C	FU1 #28	Rev boost	20	150	0	0.1%
521D	FU1 #29	V/F pattern	0	2	0	
521E	FU1 #30	User freq. 1	1500	maxFreq	0	0.01Hz
521F	FU1 #31	User volt. 1	25	100	0	%
5220	FU1 #32	User freq. 2	3000	maxFreq	0	0.01Hz
5221	FU1 #33	User volt. 2	50	100	0	%
5222	FU1 #34	User freq. 3	4500	maxFreq	0	0.01Hz
5223	FU1 #35	User volt. 3	75	100	0	%
5224	FU1 #36	User freq. 4	6000	maxFreq	0	0.01Hz
5225	FU1 #37	User volt. 4	100	100	0	%
5226	FU1 #38	Volt control	1000	1100	400	0.1%
5227	FU1 #39	Energy save	0	30	0	%
5232	FU1 #50	ETH select	0	1	0	
5233	FU1 #51	ETH 1min	180	200	ETH Cont	%
5234	FU1 #52	ETH Cont	100	150	50	%

Address	NO.	Description	Default	Max.	Min.	Unit
521C	FU1 #28	Rev boost	20	150	0	0.1%
521D	FU1 #29	V/F pattern	0	2	0	
521E	FU1 #30	User freq. 1	1500	maxFreq	0	0.01Hz
521F	FU1 #31	User volt. 1	25	100	0	%
5220	FU1 #32	User freq. 2	3000	maxFreq	0	0.01Hz
5221	FU1 #33	User volt. 2	50	100	0	%
5222	FU1 #34	User freq. 3	4500	maxFreq	0	0.01Hz
5223	FU1 #35	User volt. 3	75	100	0	%
5224	FU1 #36	User freq. 4	6000	maxFreq	0	0.01Hz
5225	FU1 #37	User volt. 4	100	100	0	%
5226	FU1 #38	Volt control	1000	1100	400	0.1%
5227	FU1 #39	Energy save	0	30	0	%
5232	FU1 #50	ETH select	0	1	0	
5233	FU1 #51	ETH 1min	180	200	ETH Cont	%
5234	FU1 #52	ETH Cont	100	150	50	%
5235	FU1 #53	Motor type	0	1	0	
5236	FU1 #54	OL level	150	150	30	%
5237	FU1 #55	OL time	100	300	0	0.1sec
5238	FU1 #56	OLT select	1	1	0	
5239	FU1 #57	OLT level	180	200	30	%
523A	FU1 #58	OLT time	600	600	0	0.1sec
523B	FU1 #59	Stall prev.	0	7	0	
523C	FU1 #60	Stall level	180	250	30	%

< FU2 Group >

Address	NO.	Description	Default	Max.	Min.	Unit
5307	FU2 #07	Dwell freq	500	maxFreq	StartFreq	0.01Hz
5308	FU1 #08	Dwell time	0	100	0	0.1sec
530A	FU2 #10	Jump freq	0	1	0	
530B	FU2 #11	jump lo 1	1000	jump Hi 1	StartFreq	0.01Hz
530C	FU2#12	jump Hi 1	1500	maxFreq	jump Lo 1	0.01Hz
530D	FU2 #13	jump lo 2	2000	jump Hi 2	StartFreq	0.01Hz
530E	FU2 #14	jump Hi 2	2500	maxFreq	jump Lo 2	0.01Hz
530F	FU2 #15	jump lo 3	3000	jump Hi 3	startFreq	0.01Hz
5310	FU2 #16	jump Hi 3	3500	maxFreq	jump Lo 3	0.01Hz
5311	FU2 #17	Start Curve	40	100	1	%
5312	FU2 #18	End Curve	40	100	1	%
5313	FU2 #19	Trip select	0	3	0	BIT
5314	FU2 #20	Power-on run	0	1	0	
5315	FU2 #21	RST restart	0	1	0	
5316	FU2 #22	Speed Search	0	15	0	BIT
5317	FU2 #23	SS Sup-Curr	100	200	80	
5318	FU2 #24	SS P-gain	100	9999	0	
5319	FU2 #25	SS I-gain	1000	9999	0	
531A	FU2 #26	Retry number	0	10	0	
531B	FU2 #27	Retry delay	10	600	0	0.1sec
531C	FU2 #28	SS blk time	10	600	0	0.1sec
531E	FU2#30	Motor select	0	9	0	
531F	FU2#31	Pole number	4	12	2	
5320	FU2 #32	Rated-Slip	(^{note} 4)	1000	0	0.01Hz
5321	FU2 #33	Rated-Curr	(^{note} 4)	2000	10	0.1A
5322	FU2 #34	Noload-Curr	(^{note} 4)	2000	5	0.1A
5323	FU2 #35	Motor Volt	(^{note} 4)	460	180	V
5324	FU2 #36	Efficiency	(^{note} 4)	100	70	%
5325	FU2 #37	Inertia rate	0	1	0	
5326	FU2 #38	Carrier freq	50	150	10	0.1kHz
5327	FU2 #39	Control mode	0	5	0	
5328	FU2 #40	Auto tuning	0	1	0	
5329	FU2 #41	Rs	(^{note} 4)	9999	0	0.001ohm
532A	FU2 #42	Lsigma	(^{note} 4)	9999	0	0.001mH
532B	FU2 #43	Ls	(^{note} 4)	9999	0	0.001mH
532C	FU2 #44	Tr	(^{note} 4)	5000	25	0.1msec
532D	FU2 #45	SL P-gain	1000	32767	0	

Address	NO.	Description	Default	Max.	Min.	Unit
532E	FU2 #46	SL I-gain	100	32767	0	
532F	FU2 #47	proc PI mode	0	1	0	
5330	FU2 #48	PID F-gain	0	9999	0	0.1%
5331	FU2 #49	Aux Ref Mode	0	5	0	
5332	FU2 #50	PID Out Dir	1	1	0	
5333	FU2 #51	PID F/B	0	2	0	
5334	FU2 #52	PID P-gain	3000	9999	0	0.1%
5335	FU2 #53	PID I-time	300	320	0	0.1sec
5336	FU2 #54	PID D-time	0	9999	0	0.1msec
5337	FU2 #55	PID limit-H	6000	maxFreq	0	0.01Hz
5338	FU2 #56	PID limit-L	0	maxFreq	0	0.01Hz
5339	FU2 #57	PID Out Inv	0	1	0	
533A	FU2 #58	PID OutScale	1000	9999	1	0.1%
533B	FU2 #59	PID P2-gian	1000	9999	0	0.1%
533C	FU2 #60	P-gain Scale	1000	1000	0	0.1%
5345	FU2 #69	Acc/Dec ch F	0	maxFreq	0	0.01Hz
5346	FU2 #70	Acc/Dec freq	0	1	0	
5347	FU2 #71	Time scale	1	2	0	
5348	FU2 #72	PowerOn disp	0	12	0	
5349	FU2 #73	User disp	0	2	0	
534A	FU2 #74	RPM factor	100	1000	1	%
534B	FU2 #75	DB mode	1	2	0	
534C	FU2 #76	DB %ED	10	30	0	%
5351	FU2 #81	2nd Acc time	50	6000	0	0.1sec
5352	FU2 #82	2nd Dec time	100	6000	0	0.1sec
5353	FU2 #83	2nd BaseFreq	6000	maxFreq	3000	0.01Hz
5357	FU2 #87	2nd Stall	150	150	30	%
5354	FU2 #84	2nd V/F	0	2	0	
5355	FU2 #85	2nd F-boost	20	150	0	0.1%
5356	FU2 #86	2nd R-boost	20	150	0	0.1%
5357	FU2 #87	2nd Stall	150	150	30	%
5358	FU2 #88	2nd ETH 1min	150	200	2nd ETH Con	%
5359	FU2 #89	2nd ETH Cont.	100	2nd ETH 1min	50	%
535A	FU2 #90	2nd R-Curr	36	2000	10	0.1A
535D	FU2 #93	Para. Init	0	8	0	

(^{note}4,5,6,7) It is changed by motor capacity.

< I/O Group >

Address	NO.	Description	Default	Max.	Min.	Unit
5401	I/O #01	V1 filter	10	9999	0	ms
5402	I/O #02	V1 volt x1	0	V1 vort x2	0	0.01V
5403	I/O #03	V1 freq y1 / V1 % y1	0 0	MaxFreq 1500	0 0	0.01Hz 0.1%
5404	I/O #04	V1 volt x2	1000	1000	V1 volt x1	0.01V
5405	I/O #05	V1 freq y2 / V1 % y2	6000 1500	MaxFreq 1500	0 0	0.01Hz 0.1%
5406	I/O #06	I filter	10	9999	0	ms
5407	I/O #07	I curr x1	400	I curr x2	0	0.01mA
5408	I/O #08	I freq y1	0	maxFreq	0	0.01Hz
5409	I/O #09	I curr x2	2000	2000	I curr x1	0.01mA
540A	I/O #10	I freq y2	6000	maxFreq	0	0.01Hz
540B	I/O #11	Wire broken	0	2	0	
540C	I/O #12	P1 define	0	42	0	
540D	I/O #13	P2 define	1	42	0	
540E	I/O #14	P3 define	2	42	0	
5411	I/O #17	Ti Filt Num	15	50	2	
5414	I/O #20	Jog freq	1000	MaxFreq	startFreq	0.01Hz
5415	I/O #21	Step freq - 4	4000	MaxFreq	startFreq	0.01Hz
5416	I/O #22	Step freq - 5	5000	MaxFreq	startFreq	0.01Hz
5417	I/O #23	Step freq - 6	4000	MaxFreq	startFreq	0.01Hz
5418	I/O #24	Step freq - 7	3000	MaxFreq	startFreq	0.01Hz
5419	I/O #25	Acc time- 1	200	6000	0	0.1sec
541A	I/O #26	Dec time - 1	200	6000	0	0.1sec
541B	I/O #27	Acc time - 2	300	6000	0	0.1sec
541C	I/O #28	Dec time - 2	300	6000	0	0.1sec
541D	I/O #29	Acc time - 3	400	6000	0	0.1sec
541E	I/O #30	Dec time - 3	400	6000	0	0.1sec
541F	I/O #31	Acc time - 4	500	6000	0	0.1sec
5420	I/O #32	Dec time - 4	500	6000	0	0.1sec
5421	I/O #33	Acc time - 5	400	6000	0	0.1sec
5422	I/O #34	Dec time - 5	400	6000	0	0.1sec
5423	I/O #35	Acc time - 6	300	6000	0	0.1sec
5424	I/O #36	Dec time - 6	300	6000	0	0.1sec
5425	I/O #37	Acc time - 7	200	6000	0	0.1sec

Address	NO.	Description	Default	Max.	Min.	Unit
5426	I/O #38	Dec time – 7	200	6000	0	0.1sec
5428	I/O #40	FM mode	0	4	0	
5429	I/O #41	FM adjust	100	200	10	%
542A	I/O #42	FDT freq	3000	maxFreq	0	0.01Hz
542B	I/O #43	FDT band	1000	maxFreq	0	0.01Hz
542C	I/O #44	Aux mode	12	25	0	
542D	I/O #45	Relay mode	2	7	0	BIT3
542E	I/O #46	Inv No.	1	31	1	
542F	I/O #47	Baud rate	3	4	0	
5430	I/O #48	Lost command	0	2	0	
5431	I/O #49	Time out	10	1200	1	0.1sec

< Note >

* If you need the parameter in Auto area, please ask to service center or sales representative.

< EXT Group >

Address	NO.	Description	Default	Max.	Min.	Unit
5501	EXT #01	Sub B/D	0	8	0	
5502	EXT #02	P4 define	3	42	0	
5503	EXT #03	P5 define	4	42	0	
5504	EXT #04	P6 define	5	42	0	
5505	EXT #05	V2 mode	0	2	0	
5506	EXT #06	V2 filter	10	9999	0	msec
5507	EXT #07	V2 volt x1	0	V2 volt x2	0	0.01V
5508	EXT #08	V2 freq y1	0	maxFreq	0	0.01Hz
5509	EXT #09	V2 volt x2	1000	1000	V2 volt x1	0.01V
550A	EXT #10	V2 freq y2	6000	maxFreq	0	0.01Hz
550C	EXT #12	F mode	0	2	0	
550F	EXT #15	F pulse set	0	2	0	
5510	EXT #16	F pulse num	1024	4096	360	
5511	EXT #17	F filter	10	9999	0	msec
5512	EXT #18	F pulse x1	0	F pulse x2	0	0.1kHz
5513	EXT #19	F freq y1	0	maxFreq	0	0.01Hz
5514	EXT #20	F pulse x2	100	1000	F pulse x1	0.1kHz
5515	EXT #21	F freq y2	6000	maxFreq	0	0.01Hz
5516	EXT #22	PG P-gain	3000	9999	0	
5517	EXT #23	PG I-gain	50	9999	0	
5518	EXT #24	PG Slip Freq	100	200	0	%
5519	EXT #25	ASR P-Gain	1000	5000	100	0.1%
551A	EXT #26	ASR I-Gain	200	9999	10	msec
551B	EXT #27	Trq + Limit	180	200	0	%
551C	EXT #28	Trq - Limit	180	200	0	%
551E	EXT #30	Q1 define	0	23	0	
551F	EXT #31	Q2 define	1	23	0	
5520	EXT #32	Q3 define	2	23	0	
5522	EXT #34	LM mode	1	3	0	
5523	EXT #35	LM adjust	100	200	10	%
5528	EXT #40	AM1 mode	0	3	0	
5529	EXT #41	AM1 adjust	100	200	10	%
552A	EXT #42	AM2 mode	3	3	0	
552B	EXT #43	AM2 adjust	100	200	10	%

< COM Group >

Address	NO.	Description	Default	Max.	Min.	Unit
5601	COM #01	Opt B/D				
5602	COM #02	Opt mode	0	3	0	
5603	COM #03	Opt version	1.00			

* Inverter station address and communication speed set in I/O-46,47.

COM-01 [Opt B/D]

- Indicates the installed option board type.
- This value is displayed automatically after option board installation.

COM-02 [Opt Mode]

- Decides the setting of Run/Frequency command through the communication by option board.

Set value	Display	Function description
0	None	None
1	Command	Run command by option board,
2	Freq	Frequency command by option board.
3	Cmd + Freq	Run/Freq. command by option board.

Common area Ox0005 address is used to frequency command by option board.

Common area Ox0006 address is used to frequency command by option board.

COM-03 [Opt Version]

- Displays the version of communication option board.

< APP Group >

Address	NO.	Description	Default	Max.	Min.	Unit
5701	APP #01	APP mode	0	3	0	
5702	APP #02	Trv. Amp[%]	0	200	0	0.1%
5703	APP #03	Trv. Scr	0	500	0	0.1%
5704	APP #04	Trv Acc Time	20	6000	1	0.1sec
5705	APP #05	Trv Dec Time	30	6000	1	0.1sec
5706	APP #06	Trv Off Hi	0	200	0	0.1%
5707	APP #07	Trv Off Lo	0	200	0	0.1%
5708	APP #08	Aux Mot Run	0	4	0	
5709	APP #09	Starting Aux	1	4	1	
570A	APP #10	Auto Op Time	0	5940	0	
570B	APP #11	Start freq1	4999	maxFreq	0	0.01Hz
570C	APP #12	Start freq2	4999	maxFreq	0	0.01Hz
570D	APP #13	Start freq3	4999	maxFreq	0	0.01Hz
570E	APP #14	Start freq4	4999	maxFreq	0	0.01Hz
570F	APP #15	Stop freq1	1500	maxFreq	0	0.01Hz
5710	APP #16	Stop freq2	1500	maxFreq	0	0.01Hz
5711	APP #17	Stop freq3	1500	maxFreq	0	0.01Hz
5712	APP #18	Stop freq4	1500	maxFreq	0	0.01Hz
5713	APP #19	Aux start DT	600	9999	0	0.1sec
5714	APP #20	Aux stop DT	600	9999	0	0.1sec
5715	APP #21	Nbr Aux'	4	4	0	
5716	APP #22	Regul Bypass	0	1	0	
5717	APP #23	Sleep Delay	600	9999	0	0.1sec
5718	APP #24	Sleep Freq	19	maxFreq	0	0.01Hz
5719	APP #25	WakeUp level	35	100	0	1%
571A	APP #26	AutoCh_Mode	1	2	0	
571B	APP #27	AutoEx intv	4320	5940	0	0.1sec
571C	APP #28	AutoEx level	20	100	0	1%
571D	APP #29	Inter-lock	0	1	0	
571E	APP #30	ActualF/P	*	100	0	%
571F	APP #31	Actual B/kPa	*	65472	0	Bar/Pa
5720	APP #32	Scale Disp	1000	50000	0	
5721	APP #33	Draw mode	0	3	0	
5722	APP #34	DrawPerc	100	150	0	1%