

MODBUS-RTU Option Board for SV-iS5 Series



Read this manual carefully before using the PROFIBUS-DP Option board and follow the instructions exactly.

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

Thank you for purchase of LS Modbus-RTU 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.

Read the message and follow the instructions carefully.



Identifies shock hazards

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

- Keep this manual at handy for quick reference.



CAUTION

- **Do not touch the CMOS components unless the board is grounded.**
ESD can cause break down of CMOS components.
- **Do not change the communication cable with the inverter power is turned on.**
Otherwise, there is a danger of connecting error and damage to the board.
- **Make sure to precisely insert the connector of inverter and option board**
Otherwise, there is a danger of connecting error and damage to the board.
- **Check the parameter unit when setting the parameters.**
Otherwise, there is a danger of connecting error and damage to the board.

1. INTRODUCTION

By using a MODBUS-RTU Option board, SV-iS5 inverter can be connected to a MODBUS-RTU network.

1.1. When you use the MODBUS-RTU Option Card ...

Inverter can be controlled and monitored by the sequence program of the PLC or other master module. The card provides a terminal block for an RS-485 interface. Up to 32 drives or other Modbus slave devices may be connected in a multi-drop fashion on the RS-485 Modbus network and may be monitored or controlled by a single PLC or PC.

1.1.1 Interfacing type of RTU Reference:

- Allows the drive to communicate with any other computers.
- Allows connection of up to 31 drives with multi-drop link system.
- Ensure noise-resistant interface.

Users can use any kind of RS232-485 converters. However a converter that has built-in 'automatic RTS control' is highly recommended. The specifications of converters depend on the manufacturers. Refer to the converter manual for detailed converter specifications.

1.1.2 Before Installation

Before installation and operation, this manual should be read thoroughly. If not, it can cause personal injury or damage other equipment.

2. SPECIFICATION

2.1. Performance specification

Items		Specifications
Communication method		RS485
Transmission form		Bus method Multi-drop Link System
Applicable inverter		IS5 series drive
Number of drives		Maximum 31 drives connectable
Transmission distance		Max. 1200m (Less than 700 m recommended)
Converter		RS232-485, Use PC with RS232 card embedded

2.2. Hardware Specifications

Items		Specifications
Installation		CN2 connector on the inverter control board
Power Supply	Control B/D	From inverter power supply
	Comm. B/D	From control board (insulated)

2.3. Communication Specification

Items	Specifications
Communication speed	1200 /2400/4800/9600/19200 bps Selectable
Control procedure	Asynchronous communication system
Communication system	Half duplex system
Character system	Binary (8 bit)
Start/Stop bit	1 bit
Error check (CRC16)	2 byte
Parity check	None

3. PRODUCT DETAIL

3.1. Layout and detail

Name	Description		
Connector	CN2, Connector to inverter main PCB		
Signal connection terminal	Communication signal connection terminal	P	485 signal - high
		N	485 signal – low
		G	485 Ground
		S	Shield
		T1	Short T1 and T2 to connect a termination resistor
		T2	

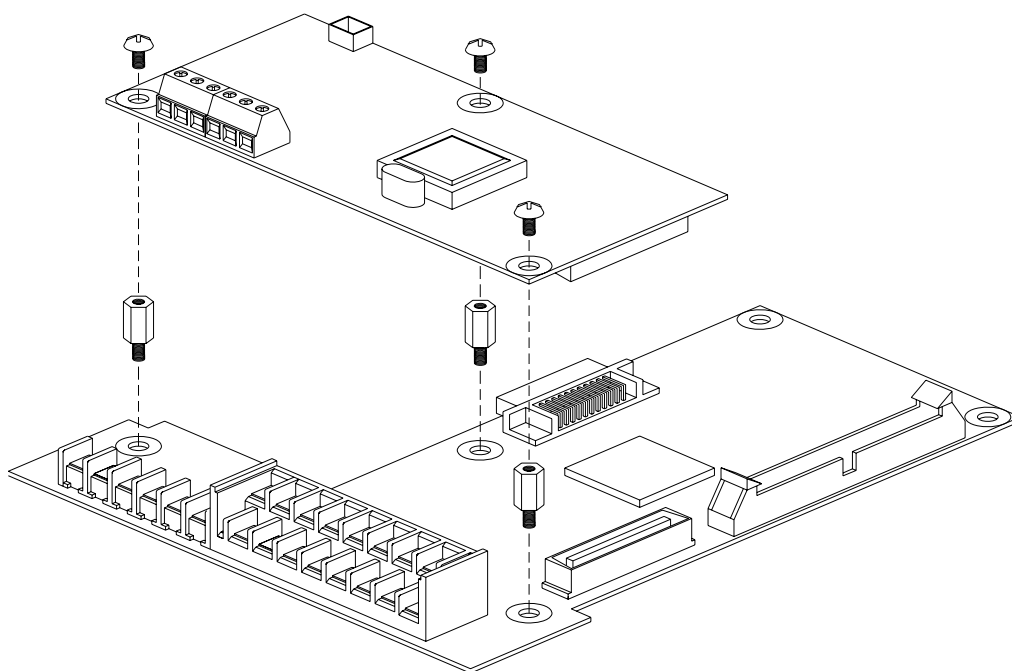


Figure 1. Layout

3.2. Status LED

CPU LED	Indicates normal operation of the board when blinking once per second.	
RXD LED	Receiving 485 signal	
TXD LED	Responding to 485 signal	
ERR LED	On and Off intermittently	Wrong DATA received (Normal operating)
	Blinking with CPU LED at the same time	DPRAM communication fault
	Blinking with CPU LED in an opposite way	Network Connection TimeOut <I/O-49> elapsed

4. INSTALLATION

1. Connect the option board to the inverter control board using each connector on the board (See the Figure 1).
2. Double check the board is firmly installed to the board and then apply the inverter power.
3. When power ON, CPU LED is blinking per second after all LEDs blink one after another.
4. If "CPU LED" is not blinking, turn off the inverter power swiftly (if not, inverter and the board may get damaged.) and check for the proper installation of the board. If the problem persists, contact LS distributor.
5. Check ModBus-RTU is displayed in <COM-01>.
6. Set the parameters as below when the above steps are all done.

Parameter code	Display	Setting Value
< COM-01 >	Opt B/D	MODBUS displayed automatically
< COM-02 >	Opt mode	Set the Command controlled via communication
< I/O- 46 >	Inv. number	1~31 (Verify the assigned number is not duplicated)
< I/O- 47 >	Baud-rate	9600 bps (Factory default)
< I/O- 48 >	Lost command (Note1)	User setting
< I/O- 49>	TimeOut (Note 1)	0.1 sec (Factory default)

Note 1) it is used for Emergency Stop when communication between inverter and master is not done properly. It is activated when communication is not done even once for the set time. It means remote controlling of inverter is not done. Set this value for safety

7. Turn off the inverter power for the connection of the Converter when step 6 is finished.
8. if the inverter is to be placed at the end of the network trunk line, install a jumper at JP1 on the Modbus card to enable the termination resistor.

5. TROUBLE SHOOTING

If communications cannot be established with the drive, there are four LEDs on the Modbus card to aid in troubleshooting. The CPU LED should blink once per second to indicate that the modbus card is interfacing with the inverter main PCB properly. The RXD LED should blink each time a properly formed Modbus message is received that is addressed to the inverter. The RXD LED will not blink when messages are received that are addressed to other inverters or devices. The TXD LED should blink each time the inverter responds to a Modbus message. The ERR LED indicates either an invalid request was received or there is a problem with the Modbus card itself. The ERR LED should never light.

5.1.1. CPU LED

State	Indicates	Corrective measures
Blinking	Card is installed properly and working normally	
Off	Card is not installed properly	Verify that the card is installed properly
	Inverter is not operating normally	Verify that the inverter has power

5.1.2. RXD and TXD LEDs

State	Indicates	Corrective measures
Blinking	Card is functioning normally and receiving and sending messages	
Off	Incorrect Modbus connection to the card	Verify that the Low signal is connected to terminal N and the High signal is connected to terminal P
	Master is not polling	Verify that the master (PLC or PC) is polling the inverter.
	Incorrect baud rate setting	Verify that the baud rate (I/O47) is set to match the baud rate of the inverter.
	Incorrect byte format	The inverter communicates using 8 data bits, 1 stop bit and no parity bits. Verify that the master is set to the same.

5.1.3. ERR LED

State	Indicates	Corrective measures
On/off from time to time	The card is receiving invalid data such as noise.	Normal
Blinking with CPU LED at the same time	Trouble with the Modbus card	Cycle the Inverter power. If the problem persists, contact LS
Blinking after CPU LED one after another	Network communication is not done during TimeOut (I/O 49) setting.	Verify that the master is specifying valid register addresses and valid data.
Off	The card is functioning normally and receiving and sending messages	

*See COM group for Frequency/Run command setting.

2 PARAMETER CODE (HEX)

<Common> Area accessible regardless of inverter models (Note 3)

Parameter Address	Parameter Name	Unit	Read/Write	Data Value (Hex)
0x0000	Drive model	-	R	4: SV-iS5
0x0001	Drive 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	Drive Input Voltage	-	R	0: 220V 1: 440V
0x0003	S/W Version	-	R	0100: Ver. 1.00, 0101: Ver 1.01
0x0005	Frequency Reference	0.01Hz	R/W	
0x0006	Run Command	-	R/W	Bit 0: Stop Bit 1: Forward Run Bit 2: Reverse Run Bit 3: Fault Reset Bit 4: Emergency Stop
0x0007	Acceleration Time	0.1 sec	R/W	
0x0008	Deceleration Time	0.1 sec	R/W	
0x0009	Output Current	0.1 A	R	
0x000A	Output Frequency	0.01 Hz	R	
0x000B	Output Voltage	0.1 V	R	
0x000C	DC Link Voltage	0.1 V	R	
0x000D	Output Power	0.1 kW	R	
0x000E	Sequence Monitor	-	R	BIT 0 : Stop BIT 1 : Forward Run BIT 2 : Reverse Run BIT 3 : Fault (Trip) BIT 4 : Accelerating BIT 5 : Decelerating BIT 6 : Output Frequency Arrival

Parameter Address	Parameter Name	Unit	Read/Write	Data Value (Hex)
				BIT 7 : DC Braking BIT 8 : Stopping BIT 9 :Not Available BIT 10 : BrakeOpen BIT11: Forward Run Command BIT 12 : Reverse Run Command
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:PO Bit,14:IOLT, Bit15:LV
0x0010	Input Terminal Status	-	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 Status	-	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) The changed value in Common affects the current setting but returns to the previous setting when power is cycled or Inverter is reset. However, changing value is immediately reflected in other parameter groups even in the case of Reset or Power On/Off.

< DRV Group >

Address	NO.	Description	Default	Maximum	Minimum	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	

Address	NO.	Description	Default	Maximum	Minimum	Unit
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	Maximum	Minimum	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

Address	NO.	Description	Default	Maximum	Minimum	Unit
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	%
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	Maximum	Minimum	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

Address	NO.	Description	Default	Maximum	Minimum	Unit
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	($\frac{1}{4}$)	1000	0	0.01Hz
5321	FU2 #33	Rated-Curr	($\frac{1}{4}$)	2000	10	0.1A
5322	FU2 #34	Noload-Curr	($\frac{1}{4}$)	2000	5	0.1A
5323	FU2 #35	Motor Volt	($\frac{1}{4}$)	460	180	V
5324	FU2 #36	Efficiency	($\frac{1}{4}$)	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	($\frac{1}{4}$)	9999	0	0.001ohm
532A	FU2 #42	Lsigma	($\frac{1}{4}$)	9999	0	0.001mH
532B	FU2 #43	Ls	($\frac{1}{4}$)	9999	0	0.001mH
532C	FU2 #44	Tr	($\frac{1}{4}$)	5000	25	0.1msec
532D	FU2 #45	SL P-gain	1000	32767	0	
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	

Address	NO.	Description	Default	Maximum	Minimum	Unit
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 Cont	%
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) Value depends on motor capacity.

< I/O Group >

Address	NO.	Description	Default	Maximum	Minimum	Unit
5401	I/O #01	V1 filter	10	9999	0	ms

Address	NO.	Description	Default	Maximum	Minimum	Unit
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
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

Address	NO.	Description	Default	Maximum	Minimum	Unit
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 to know specific parameter addresses for Auto Sequence Operation, please contact LS local distributors.

< EXT Group >

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

Note) Inverter Station # and Baud rate Setting: I/O-46, 47

- COM-01 [Opt B/D]

Indicates Option boards installed. This value is automatically set when the boards are installed.

- COM-02 [Opt Mode]

Determines whether Run/Stop/Reference Frequency is set via Communication.

Value	Display	Description
0	None	Disabled
1	Command	Run/Stop setting via Communication ¹
2	Freq	Frequency setting via Communication ²
3	Cmd + Freq	Run/Stop/Reference Frequency via Communication

- COM-03 [Opt Version]

Displays version of Option Board.

< APP Group >

Address	NO.	Description	Default	Maximum	Minimum	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

¹ Run/Stop Setting Address - Use 0x0006 in Common

² Freq Setting Address - Use 0x0005 in Common

Address	NO.	Description	Default	Maximum	Minimum	Unit
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%



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