

Before using the product,

thank you for choosing our product, RS485 option board.

SAFETY INSTRUCTIONS

- Safety Instructions should always be observed in order to prevent accident or risk with the safe and proper use the product.
- Instructions are separated into "Warning" and "Caution", and the meaning of the terms is as follows;



Warning

This symbol indicates the possibility of serious injury or death if some applicable instruction is violated



Caution

This symbol indicates the possibility of slight injury or damage to products if some applicable instruction is violated

- The marks displayed on the product and in the user's manual have the following meanings.



Be careful! Danger may be expected.



Be careful! Electric shock may occur.

- The user's manual even after read should be kept available and accessible to any user of the product
- This instruction manual should be observed in order to fully and safely use the functions of SV-iS5/IH series.



Warning

- **Be cautious of dealing devices, CMOS of option board.**
Otherwise, it may cause malfunction due to static electricity
- **To change the connection such as communication signal line when the power is not allowed.**
Otherwise, it may cause communication error or malfunction.
- **Be sure whether the body of inverter and the connector of option board are exactly connected together.**
Otherwise, it may cause communication error or malfunction.
- **Check parameter unite when setting parameter.**
Otherwise, it may cause communication error.

1. Instruction

This user's manual describes specifications, installation and program of the serial communication card of the SV-iS5/IH Inverter in communication with the personal PC or FA PC. The communication card of SV-iS5/IH Inverter is designed to operate and monitor SV-iS5/IH Inverter from the remote site, by using personal PC, FA PC or other equipment.

1.1. The merits of the communication card

It can be applicable to factory automation, because inverter can be operated and monitored by the user's program.

* Possible to change or monitor the parameter by PC (Etc: frequency order, operation suspension and etc.)

* Interface according to RS485 Standard.

- ① Possible to communicate with other computers.
- ② Possible to control up to 31 inverters by one computer simultaneously due to multidrop link system.
- ③ Interface with reduced noise environment.

Inverter can communicate with the computer equipped with RS232 card through RS232-485 Converter which is on sale. Depending on manufacturers, the specifications and performance of a converter are various, but the basis function of a converter is not different. For more information of converter, please refer to the instruction manual of the manufacturer.

Before installing and operating the product

1.2. Before installing and operating the product

* Please, read this instruction manual thoroughly before using the product. Failure to follow this instruction manual may result in personal injury or damage to other equipment.

2. Specifications

2.1. Performance Specifications

Items	Specifications
Communication method	RS485 (RS232-485 Converter)
Transmission form	Bus method, Multidrop Link System
Applicable inverter	SV-iS5/IH series
Converter	Converter equipped with RS232
Number of drives	Maximum 31 drivers connection
Transmission distance	Max. 1200m(권장 700m 이내)

2.2. Hardware Specifications

Items	Specifications	
Installation	Use option 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 Specifications

Items	Specifications
Communication speed	19200/9600/4800/2400/1200 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

Items	Description		
Connector	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	

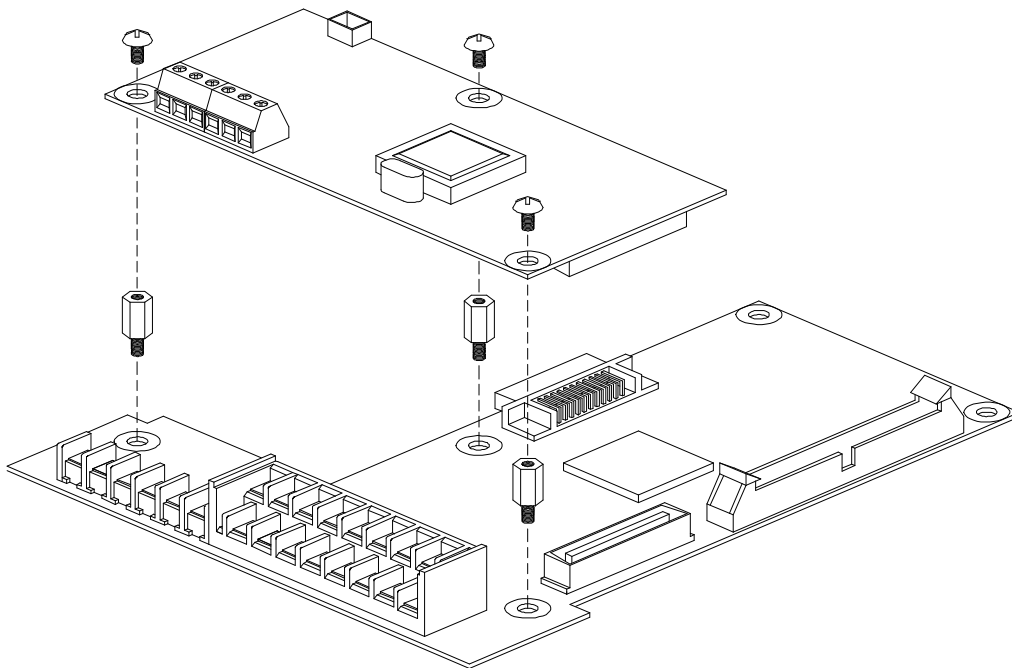


Figure 1-1. How to install RS485 option card (SV-iS5)

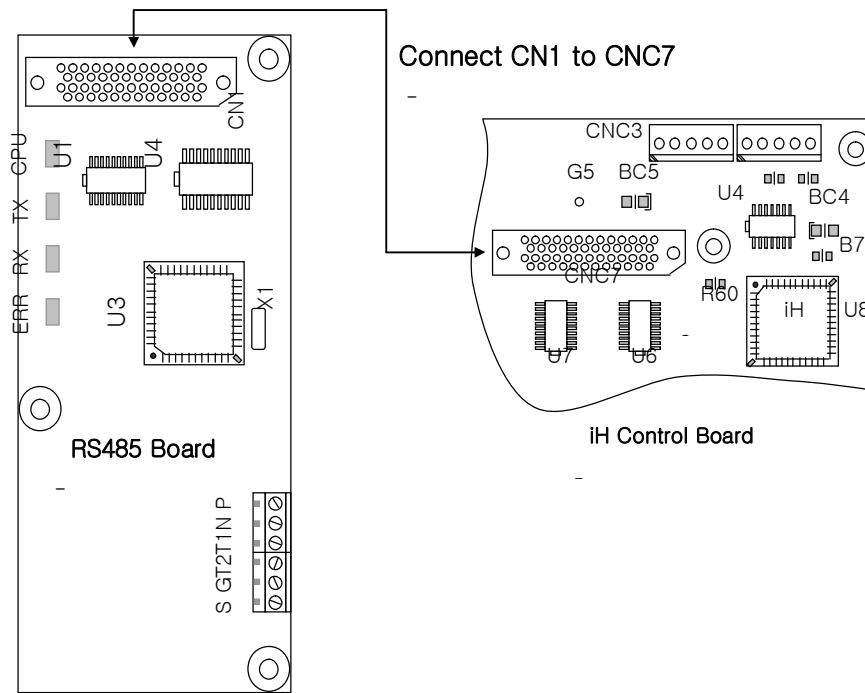


Figure 1-2. How to install RS485 option card (SV-IH)

< LED Status >

CPU LED	Indicates normal operation of the option board	
RXD LED	Receiving 485 signal	
TXD LED	Responding 485 signal	
ERR LED	On and Off intermittently	ERR LED
	Blinking with CPU LED at the same time	
	Blinking with Cpu LED in an opposite way	

4. Installation

4.1 Communication card installation

- ① Connect the inverter connector for ModBus-RTU communication card to the option connector in the inverter control board. (See the figure.1).
- ② Recheck the communication card in the right position, and then turn on the inverter power.
- ③ When power on, CPU LED is blinking per one second after all LEDs blink one after the other.
- ④ Check that the CPU LED is blinking. If not, turn off the inverter power immediately and check whether the communication card is in the right position.
(Note: If CPU LED is not blinking and the inverter keeps turning on this state for a long time, the inverter and communication card may get damaged.)
* If CPU LED in the right position is not blinking, contact LS distributor.
- ⑤ Check that RS485 is displayed in < COM-01 >.
- ⑥ Set the parameters as below when above steps are well done.

1. How to set SV-IS5

Parameter code	Display	Setting value
< COM-01 >	Opt B/D	Show automatically RS485
< COM-02 >	Opt mode	Set the command to control by 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(Note 1)	User default
< I/O- 49 >	Time.Out(Note 1)	0.1 sec (Factory default)

Note.1) It is used for emergency stop, when the communication between inverter and master is not done properly. It is activated when communication is not done even once for the set time. It indicates the inverter is not controlled by remote. Set this value for safety.

2. How to set SV-IH

Parameter code	Display	Setting value
< FUN-01 >	Freq. set	Set "Remote"
< FUN-02 >	Run/stop set	Set "Remote"
< I/O- 50 >	Inv. number	1~31 (Verify the assigned number is not duplicated)
< I/O- 51 >	Baud-rate	9600 bps (Factory default)
< I/O- 52 >	Comm.timeout (note.1)	10.0(Factory default)

Note.1) It is used for emergency stop, when the communication between inverter and master is not done properly. It is activated when communication is not done even once for the set time. It indicates the inverter is not controlled by remote. Set this value for safety. If the value of Comm. Timeout is set as "0", the inverter operates normally without stopping even if the network is cut off.

- ⑦ Turn off the inverter power for the connection of the converter when installing the communication card and setting the parameter are finished.
- ⑧ If the inverter is to be placed at the end of the network trunk line, install a jumper on the option card to enable the termination resistor. (See the figure.3).

4.2. Installing RS232-485 Converter

The installation methods of the converter depends on the manufacturer. Refer to the converter manual for the detailed converter information.

4.3 Connection with PC, converter and communication card

4.3.1 System Configuration

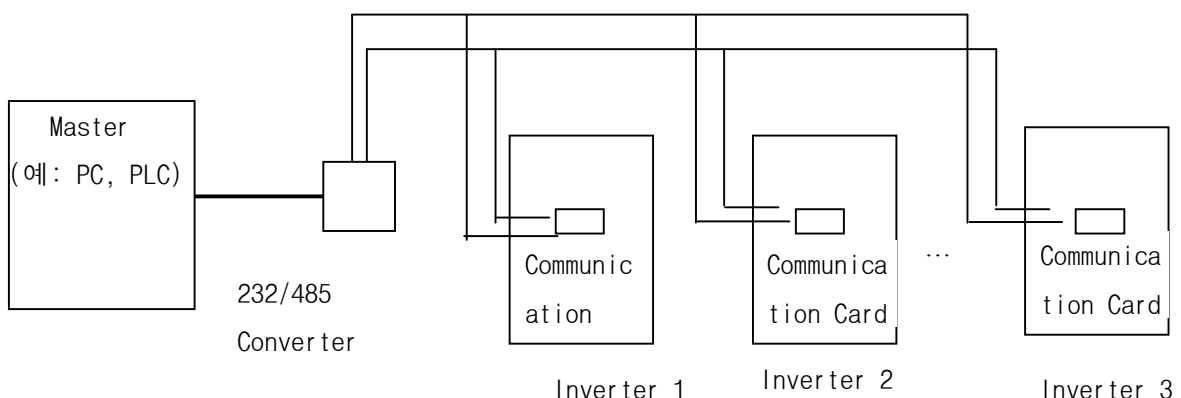


Figure 2. Communication system configuration

Note) Maximum up to 31 inverters connectable

Note) Transmission distance is Max. 1200m, but it is recommended less than 700m for the safe communication.

4.3.2 Configuration of communication terminal

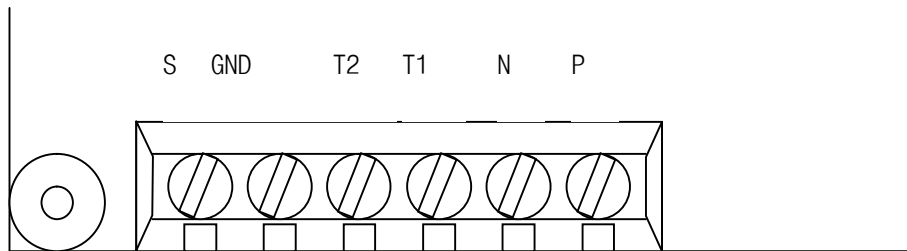


Figure 3. Configuration of Communication Terminal

Pin #	S	GND	T1	T2	N	P
Description	shield	Ground	Termination		신호선	

S: Use only one point in the whole network lines for grounding.

Connect to the screw next to the shield terminal when grounding through the inverter.

GND: Ground of 485 communication terminal.

T1, T2: If the option card is installed within the inverter which is to be placed at the end of the network trunk line, short terminals T1 and T2. This allows the internal termination resistor to be connected.

5 Communication Protocol

- Use RS485 protocol (for LS only). RS485 protocol is Open Protocol. For more information, contact LS distributor.
- Computer or other host acts as Master while inverters act as slaves. The inverter responds to Read/Write command from Master.

5.3 Function Code

Function Code	Name
'R'	Read the parameter
'W'	Write the parameter
'X'	Request for monitoring
'Y'	Action for monitoring

(Note : Only used capital letter(ASCII CODE))

5.4 Broadcast Funtion

- The broadcast function is used when Command is given instructions to all inverters connected to network.
- In case of giving instructions through address #255, all inverters respond.

5.5 Error Code

Error code	Display	Description
ILLEGAL FUNCTION	IF	When the command received cannot be executed in the option card. It means that there is no corresponding command.
ILLEGAL DATA ADDRESS	IA	When parameter address received is invalid. When monitor is executed without Monitor Register.
ILLEGAL DATA VALUE	ID	When the data received is invalid.
WRITE MODE ERROR	WM	In case of Read Only or Write Disabled during operation.
FRAME ERROR	FE	When the frame size, internal Num or Sum is incorrect.
TIME OUT ERROR	TO	When DPRAM communication is not working within a certain time.
DPRAM OFF LINE	DO	When DPRAM is Off Line.
INVALID ID NUMBER	IN	When Inverter Number is incorrect.
UNDEFINED CONDITION	UC	Except for the above cases.

5.6 BaudRate

1200, 2400, 4800, 9600, 19200bps (default value: 9600bps)

6 Trouble Shooting

Refer to this chapter when occurring problem in communication with computer while using this option card.

- CPU LED malfunction

Expected state	The inverter is not working normally or the inverter and the option card are not connected properly.
Corrective measures	1. 1. Verify the power is applied to the inverter. 2. 2. Verify the option card is installed properly within the inverter when the inverter is working normally.

- TXD LED or RXD LED malfunction

Check Points	Corrective Measures
Is the power applied to the converter?	Apply power to the converter.
Is the connection between the converter and computer correct?	Refer to the converter manual
Is the communication card installed within the inverter properly?	Refer to "4. Installation".
Does Master start the communication?	Start the communication.
Is the communication speed setting of	Refer to "4. Installation".

the inverter correct?	
Is the data format of User program correct?	Modify User program (Note.2)
Is the connection between the converter and the option card correct?	Refer to "4. Installation".

Note.2) "User program" means User-made S/W for PC.

- ERR LED is working.

State	Corrective measures
Blinking intermittently	In case that the option card is receiving wrong data due to Noise or other causes. It is a normal operation.
Blinking oppositely to CPU LED	Network is not communicated during TimeOut(I/O 49) setting. Check the state of Master.
Blinking simultaneously CPU LED	In case of occurring the communication trouble between the option card and the inverter. Turn on and off the inverter. If this problem continues, contact LS distributor.

* Refer to "COM" group in the manual for Frequency and Run command given by the option card.

7 Parameter codes (All parameter address represents by Hex value)

<Common area>: "Common area" means address value used commonly regardless of inverter models. (Note.3)

Address	Parameter	Unit	R/W	Data value
0x0000	Inverter model	-	R	4: SV-iS5 3:SV-IH
0x0001	Inverter capacity	-	R	SV-iS5 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) SV-IH A: 30 B: 37 C: 45 D: 55 E: 75 F: 90 10: 110 11: 132 12: 160 14: 220 (unit:KW)
0x0002	Inverter-input voltage	-	R	0: 220V class 1: 440V class
0x0003	S/W Version	-	R	SV-iS5 0100: Ver. 1.00, 0101: Ver 1.01 SV-iH 0200 :ver. 2.00, 0201: ver 2.01
0x0005	Freq. command	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	SV-iS5 Bit 0:Stop, Bit 1:Forward run Bit 2:Reverse run Bit 3:Fault(Trip) Bit 4:Accelerating Bit 5:Decelerating Bit 6:Speed arrival Bit 7:DC Braking, Bit 8:Stopping Bit 9: Not used, Bit10: Opening break Bit 11: Forward run command, Bit 12: Reverse run command, Bit13: Rem. Run/Stop Bit14: Rem. Freq. Cmd SV-iH Bit 0:Stop, Bit 1:Forward run Bit 2:Reverse run Bit 3:Fault(Trip) Bit 4:Accelerating Bit 5:Decelerating Bit 6:Speed arrival Bit 7:DC Braking, Bit 8:Stopping Bit13: Rem. Run/Stop Bit14: Rem. Freq. Cmd
0x000F	Trip information	-	R	SV-iS5 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 SV-iH Bit 0: OC Bit 1: OV Bit 2:EXT Bit 3: BX Bit 4:LV Bit 5:FUSE OPEN Bit 6: GF Bit 7: OH Bit 8: ETH Bit 9:OLT Bit 10: MCF Bit 12: SCT Bit 15: IOLT
0x0010	Input terminal status	-	R	SV-iS5 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 SV-iH Bit 0: FX Bit 1:RX Bit 2:BX Bit 3: RST Bit 8: P1 Bit 9: P2 Bit 10: P3 Bit 11: P4 Bit 12: P5 Bit 13: P6

0x0011	Output terminal status	-	R	Bit 0: Q1 (OC1) , Bit 1: Q2 (OC2) Bit 2: Q3 (OC3) SV-iS5 Bit 3: AUX Bit 4: 30AC SV-iH Bit 3: AUX1 Bit 4: AUX2
0x0012	V1	-	R	SV-iS5 0 - FFC0 SV-iH 0-FFFF
0x0013	V2	-	R	SV-iS5 0 - FFC0 SV-iH 0-FFFF
0x0014	I	-	R	SV-iS5 0 - FFC0 SV-iH 0- FFFF
0x0015	RPM	-	R	

(Note.3) In case of changing a data by Common area parameter, the data is not saved. The changed value in Common can be affected in the present state, but the data returns to the previous setting value when turning on/off or resetting the inverter.
In case of changing a data by other parameter group, the changed data is available even when turning on/off or resetting the inverter.

SV-iS5

< 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	
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

Address	NO.	Description	Default	Maximum	Minimum	Unit
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	%
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

Address	NO.	Description	Default	Maximum	Minimum	Unit
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	(± 4)	1000	0	0.01Hz
5321	FU2 #33	Rated-Curr	(± 4)	2000	10	0.1A
5322	FU2 #34	Noload-Curr	(± 4)	2000	5	0.1A
5323	FU2 #35	Motor Volt	(± 4)	460	180	V
5324	FU2 #36	Efficiency	(± 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	(± 4)	9999	0	0.001ohm
532A	FU2 #42	Lsigma	(± 4)	9999	0	0.001mH
532B	FU2 #43	Ls	(± 4)	9999	0	0.001mH
532C	FU2 #44	Tr	(± 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	
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%

Address	NO.	Description	Default	Maximum	Minimum	Unit
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) this changes, depending motor capacity.

< I/O group >

Address	NO.	Description	Default	Maximum	Minimum	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

Address	NO.	Description	Default	Maximum	Minimum	Unit
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
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 >

- A customer who needs parameter addresses on Auto영 area can contact us.

< 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	%

Address	NO.	Description	Default	Maximum	Minimum	Unit
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			
5604	COM #04	D-in mode	0	6	0	
5605	COM #05	Digital Ftr	15	50	2	
560A	COM #10	MAC ID	63	63	0	
560B	COM #11	Baud rate	0	2	0	
560C	COM #12	Out instance	0	3	0	
560D	COM #13	In instance	0	3	0	
5611	COM #17	Station ID	1	63	0	
5614	COM #20	Profi MAC ID	1	127	1	
561E	COM #30	Output Num	3	8	0	
561F	COM #31	Output 1	10	22527	0	
5620	COM #32	Output 2	14	22527	0	
5621	COM #33	Output 3	15	22527	0	
5622	COM #34	Output 4	0	22527	0	
5623	COM #35	Output 5	0	22527	0	
5624	COM #36	Output 6	0	22527	0	
5625	COM #37	Output 7	0	22527	0	
5626	COM #38	Output 8	0	22527	0	
5628	COM #40	Input Num	2	8	0	
5629	COM #41	Input 1	5	22527	0	
562A	COM #42	Input 2	6	22527	0	
562B	COM #43	Input 3	0	22527	0	
562C	COM #44	Input 4	0	22527	0	
562D	COM #45	Input 5	0	22527	0	
562E	COM #46	Input 6	0	22527	0	
562F	COM #47	Input 7	0	22527	0	
5630	COM #48	Input 8	0	22527	0	
5634	COM #52	Modbus Mode	0	0	0	

* The address and communication speed of Inverter can be set from I/O-46,47.

COM-01 [Opt B/D]

- describes the type of option board installed.
- is automatically shown when installing option board.

COM-02 [Opt Mode]

- decides whether Run/Freq. commands by option are set or not through communication

Setting Value	Display	Description
0	None	does not give any command
1	Command	gives Run command by option
2	Freq	gives Freq. command by option
3	Cmd + Freq	gives Run/Freq. commands by option

Freq. command by option uses 0x0005 Address of common area

Run command by option uses 0x0006 Address of common area

COM-03 [Opt Version]

- describes the 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
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%

SV-iH

< DRV group >

Address	NO.	Description	Default	Maximum	Minimum	Unit
4001	DRV#01	Acc. time	300	60000	0	0.1sec
4002	DRV#02	Dec. time	600	60000	0	0.1sec
4003	DRV#03	Current	0	1	0	0.1 A
4004	DRV#04	Speed	0	1	0	1 rpm
4005	DRV#05	Power	0	5000	0	0.1kW

< FUN group >

Address	NO.	Description	Default	Maximum	Minimum	Unit
4101	FU1 #01	Freq. Set	0	2	0	
4102	FU1 #02	Run/stop set	0	3	0	
4103	FU1 #03	Run prohibit	0	2	0	
4104	FU1 #04	Freq. Max	6000	40000	4000	0.01Hz
4105	FU1 #05	Freq. base	6000	Freq. max	4000	0.01Hz
4106	FU1 #06	Freq. start	50	500	50	0.01Hz
4107	FU1 #07	Hold time	0	100	0	0.1sec
4108	FU1 #08	V/F pattern	0	3	0	
4109	FU1 #09	Fwd boost	2	20	0	1 %
410A	FU1 #10	Rev boost	2	20	0	1 %
410B	FU1 #11	Acc. pattern	0	2	0	
410C	FU1 #12	Dec. pattern	0	2	0	
410D	FU1 #13	Volt control	100	110	40	1 %
410E	FU1 #14	Energy save	100	100	70	1 %
410F	FU1 #15	Stop mode	0	2	0	
4110	FU1 #16	User-1f	1000	User-2f	0	0.01Hz
4111	FU1 #17	User-1v	15	User-2v	0	1 %
4112	FU1 #18	User-2f	3000	Freq. max	User-1f	0.01Hz
4113	FU1 #19	User-2v	50	100	User-1v	1 %
4114	FU1 #20	V-I mode	0	3	0	
4115	FU1 #21	Filter gain	25	100	1	1 %
4116	FU1 #22	Analog gain	1000	2500	500	0.1 %
4117	FU1 #23	Analog bias	1000	2000	0	0.1 %
4118	FU1 #24	Analog dir	0	1	0	
4119	FU1 #25	Freq. limit	0	1	0	
411A	FU1 #26	F-limit high	6000	Freq. max	F_limit low	0.01Hz
411B	FU1 #27	F-limit low	0	F-limit high	0	0.01Hz
411C	FU1 #28	Freq. jump	0	1	0	
411D	FU1 #29	Freq-jump 1f	1000	Freq. max	0	0.01Hz
411E	FU1 #30	Freq-jump 2f	2000	Freq. max	0	0.01Hz
411F	FU1 #31	Freq-jump 3f	3000	Freq. max	0	0.01Hz
4120	FU1 #32	Freq. band	500	3000	0	0.01Hz
4121	FU1 #33	DC-br freq.	50	6000	0	0.01Hz
4122	FU1 #34	DC-br block	20	50	5	0.1sec
4123	FU1 #35	DC-br time	5	250	1	0.1sec
4124	FU1 #36	DC-br value	1	20	1	1 %
4125	FU1 #37	Slip compen.	0	1	0	
4126	FU1 #38	Rated slip	0	500	0	0.01Hz
4127	FU1 #39	M-rated cur.	1	9990	1	0.1 A
4128	FU1 #40	No-load cur.	1	3000	1	0.1 A
4129	FU1 #41	Inv capacity	0	15	0	
412A	FU1 #42	Retry number	0	10	0	
412B	FU1 #43	Retry time	10	100	0	0.1sec
412C	FU1 #44	Relay mode	0	3	0	
412D	FU1 #45	Stall mode	0	7	0	
412E	FU1 #46	Stall level	150	150	30	1 %

412F	FU1 #47	OL level	150	150	30	1 %
4130	FU1 #48	OL time	100	300	10	0.1sec
4131	FU1 #49	OC lim. level	160	200	30	1 %
4132	FU1 #50	OC lim. time	600	600	0	0.1sec
4133	FU1 #51	ETH select	0	1	0	
4134	FU1 #52	ETH level	150	150	110	1 %
4135	FU1 #53	Motor type	0	1	0	
4136	FU1 #54	Pole number	4	12	2	
4137	FU1 #55	IPF select	0	1	0	
4138	FU1 #56	SS acc. time	50	6000	1	0.1sec
4139	FU1 #57	SS dec. time	100	6000	1	0.1sec
413A	FU1 #58	SS gain	100	200	0	1 %
413B	FU1 #59	RST-restart	0	1	0	
413C	FU1 #60	Power on st	0	1	0	
413D	FU1 #61	Carrier freq	6	Carrier_max	2	1 kHz
413E	FU1 #62	PI-control	0	1	0	
413F	FU1 #63	P-gain	10	30000	1	
4140	FU1 #64	I-gain	50	30000	1	
4141	FU1 #65	PI-fb select	0	2	0	
4142	FU1 #66	PI-fb flt G.	25	100	1	1 %
4143	FU1 #67	PI-fb gain	1000	2500	500	0.1 %
4144	FU1 #68	PI-fb bias	1000	2000	0	0.1 %
4145	FU1 #69	PI-fb dir	0	1	0	
4146	FU1 #70	I_term scale	100	100	1	1 %
4147	FU1 #71	PI error invert	0	1	0	
4148	FU1 #72	Regul bypass	0	1	0	
415E	FU1 #94	CT/VT	0	1	0	

< I/O group >

Address	NO.	Description	Default	Maximum	Minimum	Unit
4201	I/O #01	P1 input	0	14	0	
4202	I/O #02	P2 input	1	14	0	
4203	I/O #03	P3 input	2	14	0	
4204	I/O #04	P4 input	3	14	0	
4205	I/O #05	P5 input	4	14	0	
4206	I/O #06	P6 input	5	14	0	
4207	I/O #07	OC1 output	11	12	0	
4208	I/O #08	OC2 output	12	12	0	
4209	I/O #09	OC3 output	13	12	0	
420A	I/O #10	AUX1 output	10	12	0	
420B	I/O #11	AUX2 output	10	12	0	
420C	I/O #12	Jog freq.	3000	Freq. max	0	0.01 Hz
420D	I/O #13	Step freq-1	1000	Freq. max	0	0.01 Hz
420E	I/O #14	Step freq-2	2000	Freq. max	0	0.01 Hz
420F	I/O #15	Step freq-3	3000	Freq. max	0	0.01 Hz
4210	I/O #16	Step freq-4	4000	Freq. max	0	0.01 Hz
4211	I/O #17	Step freq-5	5000	Freq. max	0	0.01 Hz
4212	I/O #18	Step freq-6	4600	Freq. max	0	0.01 Hz
4213	I/O #19	Step freq-7	3700	Freq. max	0	0.01 Hz
4214	I/O #20	Acc time-1	10	60000	0	0.01 Hz
4215	I/O #21	Dec time-1	10	60000	0	0.01 Hz
4216	I/O #22	Acc time-2	20	60000	0	0.01 Hz
4217	I/O #23	Dec time-2	20	60000	0	0.01 Hz
4218	I/O #24	Acc time-3	30	60000	0	0.01 Hz
4219	I/O #25	Dec time-3	30	60000	0	0.01 Hz
421A	I/O #26	Acc time-4	40	60000	0	0.01 Hz
421B	I/O #27	Dec time-4	40	60000	0	0.01 Hz
421C	I/O #28	Acc time-5	50	60000	0	0.01 Hz
421D	I/O #29	Dec time-5	50	60000	0	0.01 Hz

421E	I/O #30	Acc time-6	60	60000	0	0.01 Hz
421F	I/O #31	Dec time-6	60	60000	0	0.01 Hz
4220	I/O #32	Acc time-7	70	60000	0	0.01 Hz
4221	I/O #33	Dec time-7	70	60000	0	0.01 Hz
4222	I/O #34	LM meter	0	1	0	
4223	I/O #35	LM adj.	100	120	0	1 %
4224	I/O #36	FM adj.	100	120	0	1 %
4225	I/O #37	Io adj	100	120	0	1 %
4226	I/O #38	FST-freq.	50	Freq. max	50	0.01 Hz
4227	I/O #39	FDT-freq.	6000	Freq. max	50	0.01 Hz
4228	I/O #40	FDT-band	100	3000	0	0.01 Hz
4229	I/O #41	Mul. factor	100	999	0	
422A	I/O #42	Div. factor	100	999	1	
4232	I/O #50	Inv. Number	1	31	1	
4233	I/O #51	Baud-rate	3	4	0	
4234	I/O #52	Comm. timeout	10	600	0	0.1 sec
423A	I/O #58	DI mode	1	2	0	
423B	I/O #59	DA mode	0	2	0	
423C	I/O #60	DA adj.	100	120	80	1 %
423D	I/O #61	FN : St. ID	1	63	1	
423E	I/O #62	DN : MAC ID	1	63	0	
423F	I/O #63	DN : BaudRate	0	2	0	
4240	I/O #64	DN : Out Inst	0	3	0	
4241	I/O #65	DN : In Inst	0	3	0	