

User Manual for Communication

Power Controllers

SPR Series

Thank you for purchasing an Autonics product.
This user manual contains information about the product and its proper use,
and should be kept in a place where it will be easy to access.

Preface

Thank you for purchasing an Autonics product.

Please familiarize yourself with the information contained in the Safety Considerations section before using this product.

This user manual contains information about the product and its proper use, and should be kept in a place where it will be easy to access.

User Manual Guide





- Please familiarize yourself with the information in this manual before using the product.
- This manual provides detailed information on the product's features. It does not offer any guarantee concerning matters beyond the scope of this manual.
- This manual may not be edited or reproduced in either part or whole without permission.
- A user manual is not provided as part of the product package.
Visit our web site (www.autonics.com) to download a copy.
- The manual's content may vary depending on changes to the product's software and other unforeseen developments within Autonics, and is subject to change without prior notice.
Upgrade notice is provided through out homepage.
- We contrived to describe this manual more easily and correctly. However, if there are any corrections or questions, please notify us these on our homepage.

Communication Protocol

SPR Series is accepted to Modbus RTU Protocol.


Users should be aware that it does not support a broadcast command.


User Manual Symbols

Symbol	Description
 Note	Supplementary information for a particular feature.
 Warning	Failure to follow instructions can result in serious injury or death.
 Caution	Failure to follow instructions can lead to a minor injury or product damage.
 Ex.	An example of the concerned feature's use.
※1	Annotation mark.

Safety Considerations

- Following these safety considerations will ensure the safe and proper use of the product and help prevent accidents, as well as minimizing possible hazards.
- Safety considerations are categorized as Warnings and Cautions, as defined below:

 Warning	Warning	Failure to follow the instructions may lead to a serious injury or accident.
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 Caution	Caution	Failure to follow the instructions may lead to a minor injury or accident.
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Warning

- Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)
Failure to follow this instruction may result in fire, personal injury, or economic loss.
- Install on the device panel, and ground to the heat sink or bracket separately.
Failure to follow this instruction may result in electric shock or fire.
- Do not connect, repair, or inspect the unit while connected to a power source.
Failure to follow this instruction may result in electric shock or fire.
- Check 'Connections' before wiring.
Failure to follow this instruction may result in fire.
- Do not disassemble or modify the unit.
Failure to follow this instruction may result in electric shock or fire.



Caution

- Use the unit within the rated specifications.
Failure to follow this instruction may result in fire or product damage.
- Use dry cloth to clean the unit, and do not use water or organic solvent.
Failure to follow this instruction may result in electric shock or fire.
- Do not use the unit in the place where flammable/explosive/corrosive gas, humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.
Failure to follow this instruction may result in fire or explosion.
- Keep metal chip, dust, and wire residue from flowing into the unit.
Failure to follow this instruction may result in fire or product damage.
- Since leakage current still flows right after turning off the power or in the output OFF status, do not touch the load terminal.
Failure to follow this instruction may result in electric shock.

The specifications of communication manual are subject to change and some models may be discontinued without notice.

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1 Modbus RTU Protocol

1.1 Read coil status (Func 01–01H)

Read output (0X reference, Coil) ON/OFF status in the slave device.

(1) Query (Master)

Slave address	Function	Starting address		No. of points		Error check (CRC16)	
		High	Low	High	Low	Low	High
1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte

←————— CRC16 —————→

(2) Response (Slave)

Slave address	Function	Byte count	Data	Data	Data	Error check (CRC16)	
						Low	High
1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte

←————— CRC16 —————→

If read the 10 output status (ON: 1, OFF: 0) within coil 000001 (0000 H) to 000010 (0009 H) on Slave (Address 17) from Master.

- Query (Master)

Slave address	Function	Starting address		No. of points		Error check (CRC16)	
		High	Low	High	Low	Low	High
11 H	01 H	00 H	00 H	00 H	0A H	## H	## H

If the values range from coil 000008 (0007 H) to 000001 (0000 H) on the Slave are “ON-ON-OFF-OFF-ON-ON-OFF-ON”, and the values from 000010 (0009 H) to 000009 (0008 H) are respectively “OFF-ON”.

- Response (Slave)

Slave address	Function	Byte count	Data (000008 to 000001)	Data (000010 to 000009)	Error check (CRC16)	
					Low	High
11 H	01 H	02 H	CD H	01 H	## H	## H

1.2 Read input status (Func 02–02H)

Read Input ON/OFF status (1X reference) in Slave device.

(1) Query (Master)

Slave address	Function	Starting address		No. of points		Error check (CRC16)	
		High	Low	High	Low	Low	High
1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte

←———— CRC16 —————→

(2) Response (Slave)

Slave address	Function	Byte count	Data	Data	Data	Error check (CRC16)	
						Low	High
1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte

←———— CRC16 —————→

If read the 10 input status (ON: 1, OFF: 0) within range 100001 (0000 H) to 100010 (0009 H) in the Slave (Address 17) from the Master.

- Query (Master)

Slave address	Function	Starting address		No. of points		Error check (CRC16)	
		High	Low	High	Low	Low	High
11 H	02 H	00 H	00 H	00 H	0A H	## H	## H

If the values range 100008 (0007 H) to 100001 (0000 H) on Slave are “ON-ON-OFF-OFF-ON-ON-OFF-ON”, and the values of 100010 (0009 H) and 100009 (0008 H) are respectively “OFF-ON”.

- Response (Slave)

Slave address	Function	Byte count	Data (100008 to 100001)	Data (100010 to 100009)	Error check (CRC16)	
					Low	High
11 H	02 H	02 H	CD H	01 H	## H	## H

1.3 Read holding registers (Func 03–03H)

Read the Binary data of Holding Registers (4X reference) in Slave device.

(1) Query (Master)

Slave address	Function	Starting address		No. of points		Error check (CRC16)	
		High	Low	High	Low	Low	High
1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte

← CRC16 →

(2) Response (Slave)

Slave address	Function	Byte count	Data		Data		Data		Error check (CRC16)	
			High	Low	High	Low	High	Low	Low	High
1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte

← CRC16 →

If read the 2 values from Holding Register 40001 (0000 H) to 40002 (0001 H), in Slave (Address 17) from the Master.

- Query (Master)

Slave address	Function	Starting address		No. of points		Error check (CRC16)	
		High	Low	High	Low	Low	High
11 H	03 H	00 H	00 H	00 H	02 H	## H	## H

If the value of 40001 (0000 H) on Slave is “555 (22B H)” and the value of 40002 (0001 H) is “100 (64 H)”.

- Response (Slave)

Slave address	Function	Byte count	Data		Data		Error check (CRC16)	
			High	Low	High	Low	Low	High
11 H	03 H	04 H	02 H	2B H	00 H	64 H	## H	## H

1.4 Read input registers (Func 04–04H)

Read the Binary data of Input Registers (3X reference) in Slave device.

(1) Query (Master)

Slave address	Function	Starting address		No. of points		Error check (CRC16)	
		High	Low	High	Low	Low	High
1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte

← CRC16 →

(2) Response (Slave)

Slave address	Function	Byte count	Data		Data		Data		Error check (CRC16)	
			High	Low	High	Low	High	Low	Low	High
1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte

← CRC16 →

If read the 2 values within the range from Input Register 300001 (0000 H) to 300002 (0001 H) on Slave (Address 17) from Master.

- Query (Master)

Slave address	Function	Starting address		No. of points		Error check (CRC16)	
		High	Low	High	Low	Low	High
11 H	04 H	00 H	00 H	00 H	02 H	## H	## H

If the values of 300001 (0000 H) and 300002 (0001 H) on Slave are respectively “10 (A H)” and “20 (14 H)”.

- Response (Slave)

Slave address	Function	Byte count	Data		Data		Error check (CRC16)	
			High	Low	High	Low	Low	High
11 H	04 H	04 H	00 H	0A H	00 H	14 H	## H	## H

1.5 Force single coil (Func 05–05H)

Turns ON (FF00 H) or OFF (0000 H) of single coil (0X reference) status within slave device.

(1) Query (Master)

Slave address	Function	Starting address		Preset data		Error check (CRC16)	
		High	Low	High	Low	Low	High
1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte
← CRC16 →							

(2) Response (Slave)

Slave address	Function	Starting address		Preset data		Error check (CRC16)	
		High	Low	High	Low	Low	High
1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte
← CRC16 →							

If Coil 000001 (0000 H) turns ON of Slave (Address 17) from Master.

▪ Query (Master)

Slave address	Function	Starting address		Preset data		Error check (CRC16)	
		High	Low	High	Low	Low	High
11 H	05 H	00 H	00 H	FFH	00 H	## H	## H

▪ Response (Slave)

Slave address	Function	Starting address		Preset data		Error check (CRC16)	
		High	Low	High	Low	Low	High
11 H	05 H	00 H	00 H	FF H	00 H	## H	## H

1.6 Preset single register (Func 06–06H)

Read the Binary data of single Holding Register (4X reference) in Slave device.

(1) Query (Master)

Slave address	Function	Starting address		Preset data		Error check (CRC16)	
		High	Low	High	Low	Low	High
1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte

← CRC16 →

(2) Response (Slave)

Slave address	Function	Starting address		Preset data		Error check (CRC16)	
		High	Low	High	Low	Low	High
1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte

← CRC16 →

If write “10(A H)” to Holding Register 40001(0000 H) on Slave(Address 17) from Master.

- Query (Master)

Slave address	Function	Starting address		Preset data		Error check (CRC16)	
		High	Low	High	Low	Low	High
11 H	06 H	00 H	00 H	00 H	0A H	## H	## H

- Response (Slave)

Slave address	Function	Starting address		Preset data		Error check (CRC16)	
		High	Low	High	Low	Low	High
11 H	06 H	00 H	00 H	00 H	0A H	## H	## H

1.7 Preset multiple registers (Func 16–10H)

Write the Binary data of Holding Registers (4X reference) consecutively in Slave device.

(1) Query (Master)

Slave Address	Function	Starting Address		No. of register		Byte count	Data		Data		Error check (CRC16)	
		High	Low	High	Low		High	Low	High	Low	Low	High
1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte

← CRC16 →

(2) Response (Slave)

Slave address	Function	Starting address		No. of register		Error check(CRC16)	
		High	Low	High	Low	Low	High
1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte	1Byte

← CRC16 →

If write "10 (A H)" in common to the range of Holding Register 400001 (0000 H) to 400002 (0001 H) on Slave (Address 17) from Master.

- Query (Master)

Slave address	Function	Starting Address		No. of register		Byte count	Data		Data		Error check (CRC16)	
		High	Low	High	Low		High	Low	Low	High		
11 H	10 H	00 H	00 H	00 H	02 H	04 H	00 H	0A H	00 H	0A H	## H	## H

- Response (Slave)

Slave address	Function	Starting address		No. of register		Error check (CRC16)	
		High	Low	High	Low	Low	High
11 H	10 H	00 H	00 H	00 H	02 H	## H	## H

Please use the Single Register Write function rather than Multi Register Write function if you use the slave (device) connecting with external devices such as PLC, Graphic Panel, except in the case of download that presets the minimum/maximum or basic value of parameter by Input specifications in PC Loader Program

1.8 Exception response-error code

If occurs an error, send a response command and transmit each Exception Code after set(1) the highest-level bit of received command (Function).

Slave address	Function +80 H	Exception code	Error check (CRC16)	
			Low	High
1Byte	1Byte	1Byte	1Byte	1Byte
← CRC16 →				

- ILLEGAL FUNCTION (Exception Code: 01 H): A command that is not supported
- ILLEGAL DATA ADDRESS (Exception Code: 02 H)
: Starting address of queried data is inconsistent with transmittable address from the device.
- ILLEGAL DATA VALUE (Exception Code: 03 H)
: Numbers of queried data are inconsistent with the numbers of transmittable (transferable) data from the device.
- SLAVE DEVICE FAILURE (Exception Code: 04 H)
: Not properly completed the queried command (order).

Read the output status of non-existing coil 001001 (03E8 H) [ON: 1, OFF: 0] on Slave (Address 17) from Master.

- Query (Master)

Slave address	Function	Starting address		No. of points		Error check (CRC16)	
		High	Low	High	Low	Low	High
11 H	01 H	03 H	E8 H	00 H	01 H	## H	## H

- Response (Slave)

Slave address	Function +80 H	Exception Code	Error check (CRC16)	
			Low	High
11 H	81 H	02 H	## H	## H

2 Modbus Mapping Table

2.1 Read coil status/Force single coil

No(Address)	Func	R/W	Parameter	Description	Setting Range	Unit	Factory Default	Note
000001 to 000050	01/05	R/W	Reserved					

2.2 Read input status

No(Address)	Func	R/W	Parameter	Description	Setting Range	Unit	Factory Default	Note
100001 (0000)	02	R	RUN lamp	Operation indicator	0: OFF 1 : ON	-	-	
100002 (0001)	02	R	MAN lamp	Manual control indicator	0: OFF 1 : ON	-	-	
100003 (0002)	02	R	ALM lamp	Alarm output indicator	0: OFF 1 : ON	-	-	
100004 (0003)	02	R	OUT lamp	Control output indicator	0: OFF 1 : ON	-	-	
100005 (0004)	02	R	V lamp	Unit indicator	0: OFF 1 : ON	-	-	
100006 (0005)	02	R	A lamp	Unit indicator	0: OFF 1 : ON	-	-	
100007 (0006)	02	R	DI-1 input	DI-1 input status	0: OFF 1 : ON	-	-	
100008 (0007)	02	R	DI-2 input	DI-2 input status	0: OFF 1 : ON	-	-	
100009 (0008)	02	R	DI-3 input	DI-3 input status	0: OFF 1 : ON	-	-	
100010 to 100050	02	R	Reserved					

2.3 Read input registers

2.3.1 SPR1 Series

No(Address)	Func	R/W	Parameter	Description	Setting Range	Unit	Factory Default	Note
300001 to 300100	04	R	Reserved					
300101 (0064)	04	R	-	Product number H	-	-	0	Dedicated model number
300102 (0065)	04	R	-	Product number L	-	-	0	
300103 (0066)	04	R	-	Hardware version	-	-	0	
300104 (0067)	04	R	-	Software version	-	-	0	
300105 (0068)	04	R	-	Model 1	-	-	"SP"	Item
300106 (0069)	04	R	-	Model 2	-	-	"R1"	Control phase (single-phase)
300107 (006A)	04	R	-	Model 3	-1 / -2 / -3 / -4	-	"-2"	Rated load voltage
300108 (006B)	04	R	-	Model 4	025/035/050/070/100/150, N / T	-	"02"	Rated load current
300109 (006C)	04	R	-	Model 5	N / T	-	"5N"	Option output
300110 (006D)	04	R	-	Model 6	N / F, N / F	-	"NN"	Feedback control, fuse
300111 (006E)	04	R	-	Reserved	-	-	-	
300112 (006F)	04	R	-	Reserved	-	-	-	
300113 (0070)	04	R	-	Reserved	-	-	-	
300114 (0071)	04	R	-	Reserved	-	-	-	
300115 (0072)	04	R	-	Reserved	-	-	-	
300116 (0073)	04	R	-	Reserved	-	-	-	
300117 (0074)	04	R	-	Reserved	-	-	-	
300118 (0075)	04	R	-	Coil Status Start Address	-	-	0000	
300119 (0076)	04	R	-	Coil Status Quantity	-	-	0	
300120 (0077)	04	R	-	Input Status Start Address	-	-	0000	
300121 (0078)	04	R	-	Input Status Quantity	-	-	0	
300122 (0079)	04	R	-	Holding Register Start Address	-	-	0000	
300123 (007A)	04	R	-	Holding Register Quantity	-	-	0	
300124 (007B)	04	R	-	Input Register Start Address	-	-	0000	
300125 (007C)	04	R	-	Input Register Quantity	-	-	0	
300126~300200	04	R	Reserved					
301001 (03E8)	04	R	I_n	Control input	0 to 100	%	-	
301002 (03E9)	04	R	U	Load voltage	0 to rated load voltage	V	-	
301003 (03EA)	04	R	I	Load current	0 to rated load current	A	-	
301004 (03EB)	04	R	P	Load power	0 to rated load power	kW	-	
301005 (03EC)	04	R	R	Load resistance	0 to 100	%	-	
301006 (03ED)	04	R	T	Heatsink temperature	0 to 100	°C	-	
301007 (03EE)	04	R	F	Power supply frequency	0.0 to 99.9	Hz	-	
301008 (03EF) ^{*1}	04	R	RUN lamp	Operation indicator	0: OFF 1: ON	-	-	Bit 0
			MAN lamp	Manual control indicator	0: OFF 1: ON	-	-	Bit 1
			ALM lamp	Alarm output indicator	0: OFF 1: ON	-	-	Bit 2

No(Address)	Func	R/W	Parameter	Description	Setting Range	Unit	Factory Default	Note
			OUT lamp	Control output indicator	0: OFF 1 : ON	-	-	Bit 3
			V lamp	Unit indicator	0: OFF 1 : ON	-	-	Bit 4
			A lamp	Unit indicator	0: OFF 1 : ON	-	-	Bit 5
			RUN D/I	RUN contact input status	0: OFF 1 : ON	-	-	Bit 6
			AUTO D/I	AUTO contact input status	0: OFF 1 : ON	-	-	Bit 7
			RESET D/I	RESET contact input status	0: OFF 1 : ON	-	-	Bit 8
301009 (03F0) ^{*2}	04	R	Fuse Alarm	Fuse break alarm	0: OFF 1 : ON	-	-	Bit 0
			Over Curr Alarm	Overcurrent alarm	0: OFF 1 : ON	-	-	Bit 1
			Over Volt Alarm	Overvoltage alarm	0: OFF 1 : ON	-	-	Bit 2
			Heat Sink Alarm	Heatsink overheat alarm	0: OFF 1 : ON	-	-	Bit 3
			SCR Alarm	SCR error alarm	0: OFF 1 : ON	-	-	Bit 4
			Heater Break Alarm	Heater break alarm	0: OFF 1 : ON	-	-	Bit 5

※1. 301008 (03EF) address data organization

Bit F	Bit E	Bit D	Bit C	Bit B	Bit A	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
-	-	-	-	-	-	-	RESET input	AUTO input	RUN input	A indicator	V indicator	OUT indicator	ALM indicator	MAN indicator	RUN indicator
0	0	0	0	0	0	0	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1
1Byte								1Byte							

※2. 301009 (03F0) address data organization

Bit F	Bit E	Bit D	Bit C	Bit B	Bit A	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
-	-	-	-	-	-	-	-	-	-	Heater break	SCR error	Heatsink overheat	Over-voltage	Over-current	Fuse break
0	0	0	0	0	0	0	0	0	0	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1	0 / 1
1Byte								1Byte							

2.3.2 SPR3 Series

No(Address)	Func	R/W	Parameter	Description	Setting Range	Unit	Factory Default	Note
300001 to 300100	04	R	Reserved					
300101 (0064)	04	R	-	Product number H	-	-	0	Dedicated model number
300102 (0065)	04	R	-	Product number L	-	-	0	
300103 (0066)	04	R	-	Hardware version	-	-	0	
300104 (0067)	04	R	-	Software version	-	-	0	
300105 (0068)	04	R	-	Model 1	-	-	"SP"	Item
300106 (0069)	04	R	-	Model 2	-	-	"R3"	Control phase (3-phase)
300107 (006A)	04	R	-	Model 3	-1 / -2 / -3 / -4	-	"-2"	Rated load voltage
300108 (006B)	04	R	-	Model 4	025/035/050/070/100/150,	-	"02"	Rated load current
300109 (006C)	04	R	-	Model 5	N / T	-	"5N"	Option output
300110 (006D)	04	R	-	Model 6	N / F, N / F	-	"NN"	Feedback control, fuse
300111 (006E)	04	R	-	Reserved	-	-	-	
300112 (006F)	04	R	-	Reserved	-	-	-	
300113 (0070)	04	R	-	Reserved	-	-	-	
300114 (0071)	04	R	-	Reserved	-	-	-	
300115 (0072)	04	R	-	Reserved	-	-	-	
300116 (0073)	04	R	-	Reserved	-	-	-	
300117 (0074)	04	R	-	Reserved	-	-	-	
300118 (0075)	04	R	-	Coil Status Start Address	-	-	0000	
300119 (0076)	04	R	-	Coil Status Quantity	-	-	0	
300120 (0077)	04	R	-	Input Status Start Address	-	-	0000	
300121 (0078)	04	R	-	Input Status Quantity	-	-	0	
300122 (0079)	04	R	-	Holding Register Start Address	-	-	0000	
300123 (007A)	04	R	-	Holding Register Quantity	-	-	0	
300124 (007B)	04	R	-	Input Register Start Address	-	-	0000	
300125 (007C)	04	R	-	Input Register Quantity	-	-	0	
300126~300200	04	R	Reserved					
301001 (03E8)	04	R	I_n	Control input	0 to 100	%	-	
301002 (03E9)	04	R	$U-U$	Load voltage between U-V line	0 to rated load voltage	V	-	
301003 (03EA)	04	R	$U-W$	Load voltage between V-W line	0 to rated load voltage	V	-	
301004 (03EB)	04	R	$W-U$	Load voltage between W-V line	0 to rated load voltage	V	-	
301005 (03EC)	04	R	$U-R$	U-phase load current	0 to rated load current	A	-	
301006 (03ED)	04	R	$U-R$	V-phase load current	0 to rated load current	A	-	
301007 (03EE)	04	R	$W-R$	W-phase load current	0 to rated load current	A	-	
301008 (03FF)	04	R	$L-W$	Load power	0 to rated load power	kW	-	
301009 (03F0)	04	R	$L-r$	Load resistance	0 to 100	%	-	
301010 (03F1)	04	R	$EE\bar{n}$	Heatsink temperature	0 to 100	°C	-	

No(Address)	Func	R/W	Parameter	Description	Setting Range	Unit	Factory Default	Note
301011 (03F2)	04	R	F_{r9}	Power supply frequency	0.0 to 99.9	Hz	-	
301012 (03F3) ^{※1}	04	R	RUN LAMP	Operation indicator	0: OFF 1: ON	-	-	Bit 0
			MAN LAMP	Manual control indicator	0: OFF 1: ON	-	-	Bit 1
			ALM LAMP	Alarm output indicator	0: OFF 1: ON	-	-	Bit 2
			OUT LAMP	Control output indicator	0: OFF 1: ON	-	-	Bit 3
			V LAMP	Unit indicator	0: OFF 1: ON	-	-	Bit 4
			A LAMP	Unit indicator	0: OFF 1: ON	-	-	Bit 5
			RUN D/I	RUN contact input status	0: OFF 1: ON	-	-	Bit 6
			AUTO D/I	AUTO contact input status	0: OFF 1: ON	-	-	Bit 7
301013 (03F4) ^{※2}	04	R	RESET D/I	RESET contact input status	0: OFF 1: ON	-	-	Bit 8
			Fuse Alarm	Fuse break alarm	0: OFF 1: ON	-	-	Bit 0
			Over Curr Alarm	Overcurrent alarm	0: OFF 1: ON	-	-	Bit 1
			Over Volt Alarm	Overvoltage alarm	0: OFF 1: ON	-	-	Bit 2
			Heat Sink Alarm	Heatsink overheat alarm	0: OFF 1: ON	-	-	Bit 3
			SCR Alarm	SCR error alarm	0: OFF 1: ON	-	-	Bit 4
Heater Break Alarm	Heater break alarm	0: OFF 1: ON	-	-	Bit 5			

※1. 301012 (03F3) address data organization

Bit F	Bit E	Bit D	Bit C	Bit B	Bit A	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
-	-	-	-	-	-	-	RESET input	AUTO input	RUN input	A indicator	V indicator	OUT indicator	ALM indicator	MAN indicator	RUN indicator
0	0	0	0	0	0	0	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1
1Byte								1Byte							

※2. 301013 (03F4) address data organization

Bit F	Bit E	Bit D	Bit C	Bit B	Bit A	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
-	-	-	-	-	-	-	-	-	-	Heater break	SCR error	Heatsink overheat	Over-voltage	Over-current	Fuse break
0	0	0	0	0	0	0	0	0	0	0/1	0/1	0/1	0/1	0/1	0/1
1Byte								1Byte							

2.4 Read holding registers (Func 03) / Preset single register (Func 06) / Preset multiple registers (Func 16)

2.4.1 Parameter 1 group

No(Address)	Func	R/W	Parameter	Description	Setting Range	Unit	Factory Default	Note
400001 (0000)	03/06/16	R/W	S-t	SOFT START time	0 to 100 : 0 to 100	sec	3	
400002 (0001)	03/06/16	R/W	U-t	SOFT UP time	0 to 100 : 0 to 100	sec	3	
400003 (0002)	03/06/16	R/W	d-t	SOFT DOWN time	0 to 100 : 0 to 100	sec	3	
400004 (0003)	03/06/16	R/W	L-L	Output low-limit value	0 to 100 : 0 to 100	%	0	
400005 (0004)	03/06/16	R/W	H-L	Output high-limit value	0 to 100 : 0 to 100	%	100	
400006 (0005)	03/06/16	R/W	S-LP	Output slope	0 to 100 : 0 to 100	%	100	
400007 to 400050	03/06/16	R/W	Reserved					

2.4.2 Parameter 2 group

No(Address)	Func	R/W	Parameter	Description	Setting Range	Unit	Factory Default	Note
400051 (0032)	03/06/16	R/W	inb	Control input	420 / 1-5 / 5 12 / onF / C-on	-	420	
400052 (0033)	03/06/16	R/W	C-n	Control method	PR / U-F / C-F / U-F / F-C / U-C / onF	-	PR	SPR1 (single-phase)
					PR / U-F / C-F / U-F / F-C / onF	-	PR	SPR3 (3-phase)
400053 (0034)	03/06/16	R/W	nAn	Output limit adjuster (inside/outside)	1-r / E-r / E-i	-	1-r	
400054 (0035)	03/06/16	R/W	inb	Input correction	-99 to 99 : -99 to 99	%	0.0	
400055 (0036)	03/06/16	R/W	SPn	Input slope correction	-99 to 99 : -99 to 99	%	0.0	
400056 (0037)	03/06/16	R/W	di S	Front display	in / L-u / L-R / L-u	-	in	SPR1 (single-phase)
					in / U-u / U-u / U-U / U-R / U-R / U-R / L-u	-	in	SPR3 (3-phase)
400057 (0038)	03/06/16	R/W	oCu	Overcurrent alarm value	0 to 120 : 0 to 120	%	120	
400058 (0039)	03/06/16	R/W	oCt	Overcurrent alarm delay time	0 to 100 : 0 to 100	sec	5	
400059 (003A)	03/06/16	R/W	ouu	Overvoltage alarm value	0 to 120 : 0 to 120	%	120	
400060 (003B)	03/06/16	R/W	out	Overvoltage alarm delay time	0 to 100 : 0 to 100	sec	5	
400061 (003C)	03/06/16	R/W	F-L	Full load auto recognition	oFF / on	-	oFF	
400062 (003D)	03/06/16	R/W	Hbu	Heater break alarm value	OFF, 10 to 100 : oFF, 10 to 100	%	10	
400063 (003E)	03/06/16	R/W	Adr	Communication address	1 to 99 : 0 1 to 99	-	0 1	
400064 (003F)	03/06/16	R/W	bPS	Communication speed	24 / 48 / 96 / 192 / 384	-	96	
400065 (0040)	03/06/16	R/W	Prb	Communication parity bit	non / EvE / odd	-	non	
400066 (0041)	03/06/16	R/W	StP	Communication stop bit	1 / 2	-	2	
400067 (0042)	03/06/16	R/W	ru.t	Communication response waiting time	5 to 99 : 5 to 99	ms	20	
400068 (0043)	03/06/16	R/W	Cnu	Communication write	En.R / dS.R	-	En.R	
400069 (0044)	03/06/16	R/W	LoC	Lock	oFF / LC / LC2	-	oFF	
400070 (0045)	03/06/16	R/W	ini	Parameter reset	no / YES	-	no	
400071 to 400100	03/06/16	R/W	Reserved					

2.4.3 Communication control input

No(Address)	Func	R/W	Parameter	Description	Setting Range	Unit	Factory Default	Note
400101 (0064)	03/06/16	R/W	Communication Input	Communication control input	0 to 100	%	0	Initialized when resupplying power

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* Dimensions or specifications on this manual are subject to change and some models may be discontinued without notice.

MCY-SPRC1-V3.1-1903US