

SPRS Series

Communication Manual MMD-SPRSC1-RS-V1.0_EN

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.

Autonics

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Preface

Thank you for purchasing Autonics products.

Be sure to read and follow the **Safety Precautions** thoroughly before use.

This manual contains information about the product and how to use it properly, so keep it in a place where users can easily find it.

Manual Guide

- Use the product after fully reading the contents of the manual.
- The manual explains the product functions in detail and does not guarantee the contents other than the manual.
- Any or all of the manual may not be edited or copied without permission.
- The manual is not provided with the product.
- Download and use from our website (www.autonics.com).
- The contents of the manual are subject to change without prior notice according to the improvement of the product's performance, and upgrade notices are provided through our website.
- We put a lot of effort to make the contents of the manual a little easier and more accurate. Nevertheless, if you have any corrections or questions, please feel free to comment through our website.

Common Symbols in the Manual



Failure to follow instructions may result in serious injury or death.



Failure to follow instructions may result in injury or product damage.



Supplementary explanation of the function



Example of that function



Important information about the feature

Chapter 1. Modbus RTU Protocol

Modbus is an industrial protocol developed in 1979 for serial communication between devices. Its functionality has gradually expanded to allow implementation in TCP/IP and UDP environments, and it is now widely used for simple, stable, and efficient communication in various network environments. This protocol has become the standard communication method in industrial automation systems, SCADA (Supervisory Control and Data Acquisition systems), and other industrial networks.

Modbus RTU transmits data in a continuous binary format, making it more efficient and faster than ASCII transmission. The frame structure does not clearly distinguish the start and end, but defines the start and end by leaving a silent interval (3.5 character times) between frames.



For more detailed information about Modbus protocol, refer to the documentation provided by the developer.

1.1. Function Code Frame Structure

1.1.1. 01 (0x01) Read Coil Status

Reads the ON/OFF status of output (0X reference, coil) in the slave device.

Request frame (master)

Frame element	Data size	Description
Slave address	1-byte	Address of the slave device
Function code	1-byte	0x01 (Read Coil Status)
Starting address	2-byte	Starting address of the coil to be read
Quantity of coils	2-byte	Number of coils
CRC check	2-byte	Adds a CRC-16 checksum at the end of the frame to verify data integrity.

Example of a request frame

Slave address	Function code	Starting address		Quantity of coils		CRC check	
1-byte	1-byte	High	Low	High	Low	Low	High
		1-byte	1-byte	1-byte	1-byte	1-byte	1-byte
CRC-16							

Response frame (slave)

Frame element	Data size	Description
Slave address	1-byte	Address of the slave device
Function code	1-byte	0x01 (Read Coil Status)
Byte count	1-byte	Number of bytes in the returned data
Coil status	N-byte	The status of the requested coils is represented. Each coil's status is represented by 1 bit, and 8 coil statuses are grouped into 1 byte. • N = number of coils / 8 • If the remainder is not zero when divided by 8: N = N + 1
CRC check	2-byte	Adds a CRC-16 checksum at the end of the frame to verify data integrity.

Example of a response frame

Slave address	Function code	Byte count	Coil status	CRC check	
1-byte	1-byte	1-byte	N × byte	Low	High
				1-byte	1-byte
CRC-16					

1.1.2. 02 (0x02) Read Input Status

Reads the ON/OFF status of input (1X reference) in the slave device.

Request frame (master)

Frame element	Data size	Description
Slave address	1-byte	Address of the slave device
Function code	1-byte	0x02 (Read Input Status)
Starting address	2-byte	Starting address of the input to be read
Quantity of inputs	2-byte	Number of inputs
CRC check	2-byte	Adds a CRC-16 checksum at the end of the frame to verify data integrity.

Example of a request frame

Slave address	Function code	Starting address		Quantity of inputs		CRC check	
1-byte	1-byte	High	Low	High	Low	Low	High
		1-byte	1-byte	1-byte	1-byte	1-byte	1-byte
CRC-16							

Response frame (slave)

Frame element	Data size	Description
Slave address	1-byte	Address of the slave device
Function code	1-byte	0x02 (Read Input Status)
Byte count	1-byte	Number of bytes in the returned data
Input status	N-byte	The status of the requested inputs is represented. Each input's status is represented by 1 bit, and 8 input statuses are grouped into 1 byte. • N = number of inputs / 8 • If the remainder is not zero when divided by 8: N = N + 1
CRC check	2-byte	Adds a CRC-16 checksum at the end of the frame to verify data integrity.

Example of a response frame

Slave address	Function code	Byte count	Input status	CRC check	
1-byte	1-byte	1-byte	N × byte	Low	High
				1-byte	1-byte
CRC-16					

1.1.3. 03 (0x03) Read Holding Registers

Reads the binary data of holding registers (4X reference) in the slave device.

Request frame (master)

Frame element	Data size	Description
Slave address	1-byte	Address of the slave device
Function code	1-byte	0x03 (Read Holding Registers)
Starting address	2-byte	Starting address of the first register to be read
Quantity of registers	2-byte	Number of registers
CRC check	2-byte	Adds a CRC-16 checksum at the end of the frame to verify data integrity.

Example of a request frame

Slave address	Function code	Starting address		Quantity of registers		CRC check	
1-byte	1-byte	High	Low	High	Low	Low	High
		1-byte	1-byte	1-byte	1-byte	1-byte	1-byte
CRC-16							

Response frame (slave)

Frame element	Data size	Description
Slave address	1-byte	Address of the slave device
Function code	1-byte	0x03 (Read Holding Registers)
Byte count	1-byte	Number of bytes in the returned data (Number of registers read × 2-byte)
Register value	N × 2-byte	The values of the requested registers are represented. Each register is represented by 2 bytes. • N is determined by the number of requested registers.
CRC check	2-byte	Adds a CRC-16 checksum at the end of the frame to verify data integrity.

Example of a response frame

Slave address	Function code	Byte count	Register value		CRC check	
1-byte	1-byte	1-byte	High	Low	Low	High
			1-byte	1-byte	1-byte	1-byte
CRC-16						

1.1.4. 04 (0x04) Read Input Registers

Reads the binary data of input registers (3X reference) in the slave device.

Request frame (master)

Frame element	Data size	Description
Slave address	1-byte	Address of the slave device
Function code	1-byte	0x04 (Read Input Registers)
Starting address	2-byte	Starting address of the first input register to be read
Quantity of input registers	2-byte	Number of input registers
CRC check	2-byte	Adds a CRC-16 checksum at the end of the frame to verify data integrity.

Example of a request frame

Slave address	Function code	Starting address		Quantity of input registers		CRC check	
1-byte	1-byte	High	Low	High	Low	Low	High
		1-byte	1-byte	1-byte	1-byte	1-byte	1-byte
CRC-16							

Response frame (slave)

Frame element	Data size	Description
Slave address	1-byte	Address of the slave device
Function code	1-byte	0x04 (Read Input Registers)
Byte count	1-byte	Number of bytes in the returned data (Number of registers read × 2-byte)
Register value	N × 2-byte	The values of the requested input registers are represented. Each register is represented by 2 bytes. • N is determined by the number of requested registers.
CRC check	2-byte	Adds a CRC-16 checksum at the end of the frame to verify data integrity.

Example of a response frame

Slave address	Function code	Byte count	Register value		CRC check	
1-byte	1-byte	1-byte	High	Low	Low	High
			1-byte	1-byte	1-byte	1-byte
CRC-16						

1.1.5. 05 (0x05) Force Single Coil

Forces a single coil (0X reference) to either ON (0xFF00) or OFF (0x0000) status in the slave device.

Request frame (master)

Frame element	Data size	Description
Slave address	1-byte	Address of the slave device
Function code	1-byte	0x05 (Force Single Coil)
Coil address	2-byte	Address of the coil to be forced
Force data	2-byte	Sets or resets the coil. (0xFF00 = ON, 0x0000 = OFF)
CRC check	2-byte	Adds a CRC-16 checksum at the end of the frame to verify data integrity.

Example of a request frame

Slave address	Function code	Coil address		Force data		CRC check	
1-byte	1-byte	High	Low	High	Low	Low	High
		1-byte	1-byte	1-byte	1-byte	1-byte	1-byte
CRC-16							

Response frame (slave)

Frame element	Data size	Description
Slave address	1-byte	Address of the slave device
Function code	1-byte	0x05 (Force Single Coil)
Coil address	2-byte	Address of the coil that was forced
Force data	2-byte	The status of the coil is represented. (0xFF00 = ON, 0x0000 = OFF)
CRC check	2-byte	Adds a CRC-16 checksum at the end of the frame to verify data integrity.

Example of a response frame

Slave address	Function code	Coil address		Force data		CRC check	
1-byte	1-byte	High	Low	High	Low	Low	High
		1-byte	1-byte	1-byte	1-byte	1-byte	1-byte
CRC-16							

1.1.6. 06 (0x06) Preset Single Register

Writes the binary data to a single holding register (4X reference) in the slave device.

Request frame (master)

Frame element	Data size	Description
Slave address	1-byte	Address of the slave device
Function code	1-byte	0x06 (Preset Single Register)
Register address	2-byte	Address of the register to be preset
Preset data	2-byte	Value to be preset
CRC check	2-byte	Adds a CRC-16 checksum at the end of the frame to verify data integrity.

Example of a request frame

Slave address	Function code	Register address		Preset data		CRC check	
1-byte	1-byte	High	Low	High	Low	Low	High
		1-byte	1-byte	1-byte	1-byte	1-byte	1-byte
CRC-16							

Response frame (slave)

Frame element	Data size	Description
Slave address	1-byte	Address of the slave device
Function code	1-byte	0x06 (Preset Single Register)
Register address	2-byte	Address of the register that was preset
Preset data	2-byte	Value preset to the register
CRC check	2-byte	Adds a CRC-16 checksum at the end of the frame to verify data integrity.

Example of a response frame

Slave address	Function code	Register address		Preset data		CRC check	
1-byte	1-byte	High	Low	High	Low	Low	High
		1-byte	1-byte	1-byte	1-byte	1-byte	1-byte
CRC-16							

1.1.7. 16 (0x10) Preset Multiple Registers

Writes the binary data continuously to multiple holding registers (4X reference) in the slave device.

Request frame (master)

Frame element	Data size	Description
Slave address	1-byte	Address of the slave device
Function code	1-byte	0x10 (Preset Multiple Registers)
Starting address	2-byte	Starting address of the first register to be preset
Quantity of registers	2-byte	Number of registers to be preset
Byte count	1-byte	Number of bytes for the register values to be preset (Number of registers to be preset $\times$ 2-byte)
Register values	$N \times 2$ -byte	The values of the registers to be preset are represented. • N is determined by the number of registers to be preset.
CRC check	2-byte	Adds a CRC-16 checksum at the end of the frame to verify data integrity.

Example of a request frame

Slave addr.	Func. code	Starting addr.		Quantity of registers		Byte count	Register values		CRC check	
1-byte	1-byte	High	Low	High	Low	1-byte	High	Low	Low	High
		1-byte	1-byte	1-byte	1-byte		1-byte	1-byte	1-byte	1-byte
CRC-16										

Response frame (slave)

Frame element	Data size	Description
Slave address	1-byte	Address of the slave device
Function code	1-byte	0x10 (Preset Multiple Registers)
Starting address	2-byte	Starting address of the first register that was preset
Quantity of registers	2-byte	Number of registers that were preset
CRC check	2-byte	Adds a CRC-16 checksum at the end of the frame to verify data integrity.

Example of a response frame

Slave address	Function code	Starting address		Quantity of registers		CRC check	
1-byte	1-byte	High	Low	High	Low	Low	High
		1-byte	1-byte	1-byte	1-byte	1-byte	1-byte
CRC-16							



Except when downloading parameters with predefined minimum, maximum, or default values based on the input specifications in the PC loader program, it is recommended to use Preset Single Register rather than Preset Multiple Registers when connecting to external devices such as PLCs or graphic panels.

1.2. Exception Handling

In case of a communication error, the slave device sets the highest bit of the received function code to 1 in its response. It then sends only the exception code, without including any data related to the original request.

Exception response frame

Slave address	Function code + 0x80	Exception code	CRC check
1-byte	1-byte	1-byte	2-byte
CRC-16			

Exception codes

Exception code	Code name	Description
01	ILLEGAL FUNCTION	If the command is not supported.
02	ILLEGAL DATA ADDRESS	If the requested data address is invalid. (e.g. The data address does not exist or the address range is incorrect.)
03	ILLEGAL DATA VALUE	If the requested data value is invalid. (e.g. The data value is out of the allowable range.)
04	SLAVE DEVICE FAILURE	If the parameter is locked, communication write is prohibited, or the command cannot be processed correctly.
06	SLAVE DEVICE BUSY	If the device is in a state where it cannot execute the requested command.

Chapter 2. Modbus Mapping Table

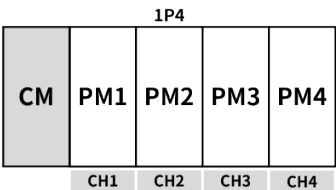
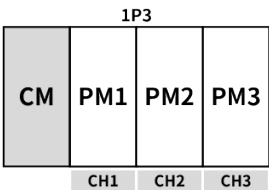
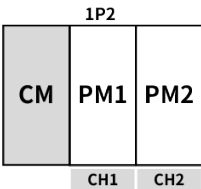
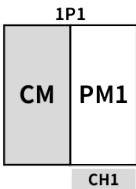
2.1. Wiring Mode

The channels assigned to the power module may vary depending on the module's wiring configuration.

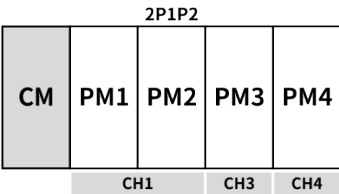
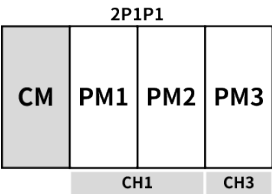
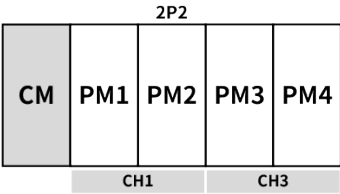
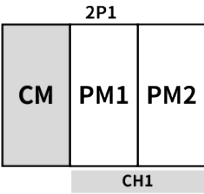
Refer to the wiring method for each phase to configure the channels and ensure the correct parameters are applied.

2.1.1. Module Wiring

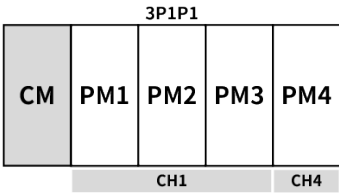
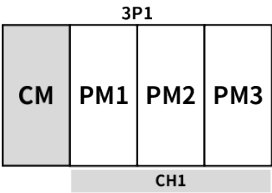
2.1.1.1. Single-phase



2.1.1.2. Single-phase dual



2.1.1.3. 3-phase



2.2. RS485 RO Modbus Mapping Table

2.2.1. Common [Func: 04, R / W: R]

PLC Addr.	NO (Addr.)	Parameter	Description	Default
30101	300101 (0064)	DeviceID_H	Unique ID	91
30102	300102 (0065)	DeviceID_L	Unique ID	00
30103	300103 (0066)	HWVersion	Unique ID	-
30104	300104 (0067)	FWVersion	Unique ID	-
30105	300105 (0068)	model name1	Unique ID	SP
30106	300106 (0069)	model name2	Unique ID	RS
30107	300107 (006A)	model name3	Unique ID	_C
30108	300108 (006B)	model name4	Unique ID	M_
30109	300109 (006C)	model name5		xx
30110	300110 (006D)	ReservedRO1	-	-
30111	300111 (006E)	ReservedRO2	-	-
30112	300112 (006F)	ReservedRO3	-	-
30113	300113 (0070)	ReservedRO4	-	-
30114	300114 (0071)	ReservedRO5	-	-
30115	300115 (0072)	Current_year	Current year	-
30116	300116 (0073)	Current_month	Current month	-
30117	300117 (0074)	Current_day	Current day	-
30118	300118 (0075)	Current_hour	Current hour	-
30119	300119 (0076)	Current_minute	Current minute	-
30120	300120 (0077)	sys_bit	• BIT0: RunStopFlag • BIT1: AutomanFlag • BIT2: IO_INPUT1 • BIT3: IO_INPUT2 • BIT4: IO_INPUT3 • BIT5: IO_INPUT4	-
30121	300121 (0078)	PmID_CH1	CH1 PM model ID	-
30122	300122 (0079)	PmID_CH2	CH2 PM model ID	-
30123	300123 (007A)	PmID_CH3	CH3 PM model ID	-
30124	300124 (007B)	PmID_CH4	CH4 PM model ID	-
30125	300125 (007C)	Pmfversion_CH1	CH1 PM firmware version	-

PLC Addr.	NO (Addr.)	Parameter	Description	Default
30126	300126 (007D)	Pmfwversion_CH2	CH2 PM firmware version	-
30127	300127 (007E)	Pmfwversion_CH3	CH3 PM firmware version	-
30128	300128 (007F)	Pmfwversion_CH4	CH4 PM firmware version	-

2.2.2. CH1 [Func: 04, R / W: R]

PLC Addr.	No (Addr.)	Parameter	Description	Weight	Unit
31001	301001 (03E8)	alm_L	• BIT0: Alm_OC • BIT1: Alm_OV • BIT2: Alm_HTBK • BIT3: Alm_UL • BIT4: Alm_SCR_Short • BIT5: Alm_FUSE • BIT6: Alm_Frqq • BIT7: Alm_DLF • BIT8: Alm_OTW • BIT9: Alm_OTP • BIT10: Alm_FAN • BIT11: Alm_LowInPower • BIT12: Alm_PowerModule	-	-
31002	301002 (03E9)	alm_H	-	-	-
31003	301003 (03EA)	Input_MV_cnt	Control input	x10	%
31004	301004 (03EB)	OUT_MV_cnt	Control output	x10	%
31005	301005 (03EC)	INVolt	Load input voltage	x10	V
31006	301006 (03ED)	OUTVolt	Load output voltage	x10	V
31007	301007 (03EE)	Current	Load current	x10	A
31008	301008 (03EF)	Watt	Load power	x10	KW
31009	301009 (03F0)	Resist	Load resistance	x10	ohm
31010	301010 (03F1)	SET_Frqq	Set frequency	x1	hz
31011	301011 (03F2)	CurrentFrqq	Current frequency	x1	hz
31012	301012 (03F3)	SilkTemp	Heat sink temp.	x1	°C
31013	301013 (03F4)	Integratedvoltage_L	Accumulated power LOW byte	x1	KWh
31014	301014 (03F5)	Integratedvoltage_H	Accumulated power HIGH byte	x1	KWh

PLC Addr.	No (Addr.)	Parameter	Description	Weight	Unit
31015	301015 (03F6)	diContInput	• BIT0: Current channel status run(1) / stop(0) • BIT1: Current channel status auto(0) / man(1) • BIT2: Current channel status Alarm reset active(1) / Alarm reset inactive(0)	-	-
31016	301016 (03F7)	ReservedRO2	-	-	-
31017	301017 (03F8)	ReservedRO3	-	-	-
31018	301018 (03F9)	ReservedRO4	-	-	-
31019	301019 (03FA)	ReservedRO5	-	-	-
31020	301020 (03FB)	ReservedRO6	-	-	-

2.2.3. CH2 [Func: 04, R / W: R]

PLC Addr.	No (Addr.)	Parameter	Description	Weight	Unit
31001	301001 (03E8)	alm_L	• BIT0: Alm_OC • BIT1: Alm_OV • BIT2: Alm_HTBK • BIT3: Alm_UL • BIT4: Alm_SCR_Short • BIT5: Alm_FUSE • BIT6: Alm_Frqq • BIT7: Alm_DLF • BIT8: Alm_OTW • BIT9: Alm_OTP • BIT10: Alm_FAN • BIT11: Alm_LowInPower • BIT12: Alm_PowerModule	-	-
31002	301002 (03E9)	alm_H	-	-	-
31003	301003 (03EA)	Input_MV_cnt	Control input	x10	%
31004	301004 (03EB)	OUT_MV_cnt	Control output	x10	%
31005	301005 (03EC)	INVolt	Load input voltage	x10	V
31006	301006 (03ED)	OUTVolt	Load output voltage	x10	V
31007	301007 (03EE)	Current	Load current	x10	A
31008	301008 (03EF)	Watt	Load power	x10	KW
31009	301009 (03F0)	Resist	Load resistance	x10	ohm
31010	301010 (03F1)	SET_Frqq	Set frequency	x1	hz
31011	301011 (03F2)	CurrentFrqq	Current frequency	x1	hz
31012	301012 (03F3)	SilkTemp	Heat sink temp.	x1	°C
31013	301013 (03F4)	Integratedvoltage_L	Accumulated power LOW byte	x1	KWh
31014	301014 (03F5)	Integratedvoltage_H	Accumulated power HIGH byte	x1	KWh

PLC Addr.	No (Addr.)	Parameter	Description	Weight	Unit
31015	301015 (03F6)	diContInput	• BIT0: Current channel status run(1) / stop(0) • BIT1: Current channel status auto(0) / man(1) • BIT2: Current channel status Alarm reset active(1) / Alarm reset inactive(0)	-	-
31016	301016 (03F7)	ReservedRO2	-	-	-
31017	301017 (03F8)	ReservedRO3	-	-	-
31018	301018 (03F9)	ReservedRO4	-	-	-
31019	301019 (03FA)	ReservedRO5	-	-	-
31020	301020 (03FB)	ReservedRO6	-	-	-

2.2.4. CH3 [Func: 04, R / W: R]

PLC Addr.	No (Addr.)	Parameter	Description	Weight	Unit
31001	301001 (03E8)	alm_L	• BIT0: Alm_OC • BIT1: Alm_OV • BIT2: Alm_HTBK • BIT3: Alm_UL • BIT4: Alm_SCR_Short • BIT5: Alm_FUSE • BIT6: Alm_Frqq • BIT7: Alm_DLF • BIT8: Alm_OTW • BIT9: Alm_OTP • BIT10: Alm_FAN • BIT11: Alm_LowInPower • BIT12: Alm_PowerModule	-	-
31002	301002 (03E9)	alm_H	-	-	-
31003	301003 (03EA)	Input_MV_cnt	Control input	x10	%
31004	301004 (03EB)	OUT_MV_cnt	Control output	x10	%
31005	301005 (03EC)	INVolt	Load input voltage	x10	V
31006	301006 (03ED)	OUTVolt	Load output voltage	x10	V
31007	301007 (03EE)	Current	Load current	x10	A
31008	301008 (03EF)	Watt	Load power	x10	KW
31009	301009 (03F0)	Resist	Load resistance	x10	ohm
31010	301010 (03F1)	SET_Frqq	Set frequency	x1	hz
31011	301011 (03F2)	CurrentFrqq	Current frequency	x1	hz
31012	301012 (03F3)	SilkTemp	Heat sink temp.	x1	°C
31013	301013 (03F4)	Integratedvoltage_L	Accumulated power LOW byte	x1	KWh
31014	301014 (03F5)	Integratedvoltage_H	Accumulated power HIGH byte	x1	KWh

PLC Addr.	No (Addr.)	Parameter	Description	Weight	Unit
31015	301015 (03F6)	diContInput	• BIT0: Current channel status run(1) / stop(0) • BIT1: Current channel status auto(0) / man(1) • BIT2: Current channel status Alarm reset active(1) / Alarm reset inactive(0)	-	-
31016	301016 (03F7)	ReservedRO2	-	-	-
31017	301017 (03F8)	ReservedRO3	-	-	-
31018	301018 (03F9)	ReservedRO4	-	-	-
31019	301019 (03FA)	ReservedRO5	-	-	-
31020	301020 (03FB)	ReservedRO6	-	-	-

2.2.5. CH4 [Func: 04, R / W: R]

PLC Addr.	No (Addr.)	Parameter	Description	Weight	Unit
31001	301001 (03E8)	alm_L	• BIT0: Alm_OC • BIT1: Alm_OV • BIT2: Alm_HTBK • BIT3: Alm_UL • BIT4: Alm_SCR_Short • BIT5: Alm_FUSE • BIT6: Alm_Frqq • BIT7: Alm_DLF • BIT8: Alm_OTW • BIT9: Alm_OTP • BIT10: Alm_FAN • BIT11: Alm_LowInPower • BIT12: Alm_PowerModule	-	-
31002	301002 (03E9)	alm_H	-	-	-
31003	301003 (03EA)	Input_MV_cnt	Control input	x10	%
31004	301004 (03EB)	OUT_MV_cnt	Control output	x10	%
31005	301005 (03EC)	INVolt	Load input voltage	x10	V
31006	301006 (03ED)	OUTVolt	Load output voltage	x10	V
31007	301007 (03EE)	Current	Load current	x10	A
31008	301008 (03EF)	Watt	Load power	x10	KW
31009	301009 (03F0)	Resist	Load resistance	x10	ohm
31010	301010 (03F1)	SET_Frqq	Set frequency	x1	hz
31011	301011 (03F2)	CurrentFrqq	Current frequency	x1	hz
31012	301012 (03F3)	SilkTemp	Heat sink temp.	x1	°C
31013	301013 (03F4)	Integratedvoltage_L	Accumulated power LOW byte	x1	KWh
31014	301014 (03F5)	Integratedvoltage_H	Accumulated power HIGH byte	x1	KWh

PLC Addr.	No (Addr.)	Parameter	Description	Weight	Unit
31015	301015 (03F6)	diContInput	• BIT0: Current channel status run(1) / stop(0) • BIT1: Current channel status auto(0) / man(1) • BIT2: Current channel status Alarm reset active(1) / Alarm reset inactive(0)	-	-
31016	301016 (03F7)	ReservedRO2	-	-	-
31017	301017 (03F8)	ReservedRO3	-	-	-
31018	301018 (03F9)	ReservedRO4	-	-	-
31019	301019 (03FA)	ReservedRO5	-	-	-
31020	301020 (03FB)	ReservedRO6	-	-	-

2.2.6. LOG 1 to 50 [Func: 04, R / W: R]

2.2.6.1. LOG 1

PLC Addr.	No (Addr.)	Parameter	Description
33001	303001 (0BB8)	use	Save status
33002	303002 (0BB9)	ConnectMode	Wiring mode at save
33003	303003 (0BBA)	Year	Year
33004	303004 (0BBB)	Month	Month
33005	303005 (0BBC)	Day	Day
33006	303006 (0BBE)	Hour	Hour
33007	303007 (0BBE)	Minute	Minute
33008	303008 (0BBF)	alm_L_CH1	• BIT0: Alm_OC • BIT1: Alm_OV • BIT2: Alm_HTBK • BIT3: Alm_UL • BIT4: Alm_SCR_Short • BIT5: Alm_FUSE • BIT6: Alm_Frqy • BIT7: Alm_DLF • BIT8: Alm_OTW • BIT9: Alm_OTP • BIT10: Alm_FAN • BIT11: Alm_LowInPower • BIT12: Alm_PowerModule
33009	303009 (0BC0)	alm_H_CH1	-

PLC Addr.	No (Addr.)	Parameter	Description
33010	303010 (0BC1)	alm_L_CH2	• BIT0: Alm_OC • BIT1: Alm_OV • BIT2: Alm_HTBK • BIT3: Alm_UL • BIT4: Alm_SCR_Short • BIT5: Alm_FUSE • BIT6: Alm_Frqq • BIT7: Alm_DLF • BIT8: Alm_OTW • BIT9: Alm_OTP • BIT10: Alm_FAN • BIT11: Alm_LowInPower • BIT12: Alm_PowerModule
33011	303011 (0BC2)	alm_H_CH2	-
33012	303012 (0BC3)	alm_L_CH3	• BIT0: Alm_OC • BIT1: Alm_OV • BIT2: Alm_HTBK • BIT3: Alm_UL • BIT4: Alm_SCR_Short • BIT5: Alm_FUSE • BIT6: Alm_Frqq • BIT7: Alm_DLF • BIT8: Alm_OTW • BIT9: Alm_OTP • BIT10: Alm_FAN • BIT11: Alm_LowInPower • BIT12: Alm_PowerModule
33013	303013 (0BC4)	alm_H_CH3	-

PLC Addr.	No (Addr.)	Parameter	Description
33014	303014 (0BC5)	alm_L_CH4	• BIT0: Alm_OC • BIT1: Alm_OV • BIT2: Alm_HTBK • BIT3: Alm_UL • BIT4: Alm_SCR_Short • BIT5: Alm_FUSE • BIT6: Alm_Frq • BIT7: Alm_DLF • BIT8: Alm_OTW • BIT9: Alm_OTP • BIT10: Alm_FAN • BIT11: Alm_LowInPower • BIT12: Alm_PowerModule
33015	303015 (0BC6)	alm_H_CH4	-
33016	303016 (0BC7)	Index_L	Save count LOW BYTE
33017	303017 (0BC8)	Index_H	Save count HIGH BYTE
33018	303018 (0BC9)	Save code	-

2.2.6.2. LOG 2 to LOG 50

LOG Number	PLC Addr.	No	Addr.	Parameter	Description
LOG 2	33019 to 33036	303019 to 303036	0BCA to 0BDB	Same as Log 1	
LOG 3	33037 to 33054	303037 to 303054	0BDC to 0BED	Same as Log 1	
LOG 4	33055 to 33072	303055 to 303072	0BEE to 0BFF	Same as Log 1	
LOG 5	33073 to 33090	303073 to 303090	0C00 to 0C11	Same as Log 1	
LOG 6	33091 to 33108	303091 to 303108	0C12 to 0C23	Same as Log 1	
LOG 7	33109 to 33126	303109 to 303126	0C24 to 0C35	Same as Log 1	
LOG 8	33127 to 33144	303127 to 303144	0C36 to 0C47	Same as Log 1	
LOG 9	33145 to 33162	303145 to 303162	0C48 to 0C59	Same as Log 1	
LOG 10	33163 to 33180	303163 to 303180	0C5A to 0C6B	Same as Log 1	
LOG 11	33181 to 33198	303181 to 303198	0C6C to 0C7D	Same as Log 1	
LOG 12	33199 to 33216	303199 to 303216	0C7E to 0C8F	Same as Log 1	
LOG 13	33217 to 33234	303217 to 303234	0C90 to 0CA1	Same as Log 1	
LOG 14	33235 to 33252	303235 to 303252	0CA2 to 0CB3	Same as Log 1	
LOG 15	33253 to 33270	303253 to 303270	0CB4 to 0CC5	Same as Log 1	
LOG 16	33271 to 33288	303271 to 303288	0CC6 to 0CD7	Same as Log 1	
LOG 17	33289 to 33306	303289 to 303306	0CD8 to 0CE9	Same as Log 1	
LOG 18	33307 to 33324	303307 to 303324	0CEA to 0CFB	Same as Log 1	
LOG 19	33325 to 33342	303325 to 303342	0CFC to 0D0D	Same as Log 1	
LOG 20	33343 to 33360	303343 to 303360	0D0E to 0D1F	Same as Log 1	
LOG 21	33361 to 33378	303361 to 303378	0D20 to 0D31	Same as Log 1	
LOG 22	33379 to 33396	303379 to 303396	0D32 to 0D43	Same as Log 1	
LOG 23	33397 to 33414	303397 to 303414	0D44 to 0D55	Same as Log 1	
LOG 24	33415 to 33432	303415 to 303432	0D56 to 0D67	Same as Log 1	
LOG 25	33433 to 33450	303433 to 303450	0D68 to 0D79	Same as Log 1	
LOG 26	33451 to 33468	303451 to 303468	0D7A to 0D8B	Same as Log 1	
LOG 27	33469 to 33486	303469 to 303486	0D8C to 0D9D	Same as Log 1	
LOG 28	33487 to 33504	303487 to 303504	0D9E to 0DAF	Same as Log 1	
LOG 29	33505 to 33522	303505 to 303522	0DB0 to 0DC1	Same as Log 1	
LOG 30	33523 to 33540	303523 to 303540	0DC2 to 0DD3	Same as Log 1	
LOG 31	33541 to 33558	303541 to 303558	0DD4 to 0DE5	Same as Log 1	
LOG 32	33559 to 33576	303559 to 303576	0DE6 to 0DF7	Same as Log 1	
LOG 33	33577 to 33594	303577 to 303594	0DF8 to 0E09	Same as Log 1	
LOG 34	33595 to 33612	303595 to 303612	0E0A to 0E1B	Same as Log 1	

LOG Number	PLC Addr.	No	Addr.	Parameter	Description
LOG 35	33613 to 33630	303613 to 303630	0E1C to 0E2D	Same as Log 1	
LOG 36	33631 to 33648	303631 to 303648	0E2E to 0E3F	Same as Log 1	
LOG 37	33649 to 33666	303649 to 303666	0E40 to 0E51	Same as Log 1	
LOG 38	33667 to 33684	303667 to 303684	0E52 to 0E63	Same as Log 1	
LOG 39	33685 to 33702	303685 to 303702	0E64 to 0E75	Same as Log 1	
LOG 40	33703 to 33720	303703 to 303720	0E76 to 0E87	Same as Log 1	
LOG 41	33721 to 33738	303721 to 303738	0E88 to 0E99	Same as Log 1	
LOG 42	33739 to 33756	303739 to 303756	0E9A to 0EAB	Same as Log 1	
LOG 43	33757 to 33774	303757 to 303774	0EAC to 0EBD	Same as Log 1	
LOG 44	33775 to 33792	303775 to 303792	0EBE to 0ECF	Same as Log 1	
LOG 45	33793 to 33810	303793 to 303810	0ED0 to 0EE1	Same as Log 1	
LOG 46	33811 to 33828	303811 to 303828	0EE2 to 0EF3	Same as Log 1	
LOG 47	33829 to 33846	303829 to 303846	0EF4 to 0F05	Same as Log 1	
LOG 48	33847 to 33864	303847 to 303864	0F06 to 0F17	Same as Log 1	
LOG 49	33865 to 33882	303865 to 303882	0F18 to 0F29	Same as Log 1	
LOG 50	33883 to 33900	303883 to 303900	0F2A to 0F3B	Same as Log 1	

2.3. RS485 RO Modbus Mapping Table

2.3.1. Control [Func: 03 / 06 / 16, R / W: R / W]

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
40001	400001 (0000)	RS485ch1MVCnt	1ch control input	0 to 1000	0	x10	%	N
40002	400002 (0001)	RS485ch2MVCnt	2ch control input	0 to 1000	0	x10	%	N
40003	400003 (0002)	RS485ch3MVCnt	3ch control input	0 to 1000	0	x10	%	N
40004	400004 (0003)	RS485ch4MVCnt	4ch control input	0 to 1000	0	x10	%	N
40005	400005 (0004)	ALMLogCleanStart	Alarm log reset command	1 input → Reset all ALMLog values → Reset to 0	0	x1	-	N
40006	400006 (0005)	TimeSetEnable	Time setting command	1 input → Current time setting → Reset to 0	0	x1	-	N
40007	400007 (0006)	DLFStart1	Partial heater break start command	1 input → Start scan for 1-channel partial heater break → Reset to 0	0	x1	-	N
40008	400008 (0007)	DLFStart2	Partial heater break start command	1 input → Start scan for 2-channel partial heater break → Reset to 0	0	x1	-	N
40009	400009 (0008)	DLFStart3	Partial heater break start command	1 input → Start scan for 3-channel partial heater break → Reset to 0	0	x1	-	N

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
40010	400010 (0009)	DLFStart4	Partial heater break start command	1 input → Start scan for 4-channel partial heater break → Reset to 0	0	x1	-	N

2.3.2. CH1 Setting [Func: 03 / 06 / 16, R / W: R / W]

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41001	401001 (03E8)	Input_Ch	Control input channel setting	• 0: Input_4_20mA_CH1 • 1: Input_4_20mA_CH2 • 2: Input_4_20mA_CH3 • 3: Input_4_20mA_CH4 • 4: Input_1_5V • 5: Input_0_5V • 6: Input_0_10V • 7: Input_EX_R • 8: Input_RS485 • 9: Input_Fieldbus	0	x1	-	Y
41002	401002 (03E9)	Load_Sel	Load type setting	• 0: LOAD_Resis • 1: LOAD_Trans	0	x1	-	Y
41003	401003 (03EA)	Control_Mode	Control method setting	• 0: OUT_MD_PHASE_N • 1: OUT_MD_CYCLE_N • 2: OUT_MD_CYCLE_D • 3: OUT_MD_FB_C • 4: OUT_MD_FB_V • 5: OUT_MD_FB_W • 6: OUT_MD_PDC	0	x1	-	Y
41004	401004 (03EB)	fb_Response_time	Feedback control speed adjustment	0 (Slow) to 100 (Fast)	100	x1	-	Y
41005	401005 (03EC)	v_fb_max	Max. feedback control value	100 to 1100 (100% output)	440	x10	%	Y
41006	401006 (03ED)	c_fb_max	Max. feedback control value	100 to 1100 (100% output)	1000	x10	%	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41007	401007 (03EE)	w_fb_max	Max. feedback control value	100 to 1100 (100% output)	1000	x10	%	Y
41008	401008 (03EF)	StartTime	Soft start value	0 to 9999	3	x1	s	Y
41009	401009 (03F0)	SoftUPTime	Soft up value	0 to 9999	3	x1	s	Y
41010	401010 (03F1)	SoftDownTime	Soft down value	0 to 9999	3	x1	s	Y
41011	401011 (03F2)	DLFLoadNum	No. of multi-loads input	2 to 6	2	x1	-	Y
41012	401012 (03F3)	DLFMaxOutputLimit	Set max. control input to scan	250 (25.0), 500 (50.0), 750 (75.0), 1000 (100.0)	1000	x10	%	Y
41014	401014 (03F5)	DLFTuningUp	Up Scan time setting	0 to 10	1	x1	-	Y
41015	401015 (03F6)	DLFTuningDown	Down Scan time setting	0 to 10	1	x1	-	Y
41016	401016 (03F7)	OutputMin	Min. control input	0 to 1000	0	x10	%	Y
41017	401017 (03F8)	OutputMax	Max. control input	0 to 1000	1000	x10	%	Y
41018	401018 (03F9)	CurrentLimit	Current limit value	100 to 1100	1100	x10	%	Y
41019	401019 (03FA)	PDCTotal	No. of PDC power modules	2 to 36	4	x1	-	Y
41020	401020 (03FB)	PDCid	PDC control power module ID	1 to 36	2	x1	-	Y
41021	401021 (03FC)	SlopeOutputRate	Input calibration slope	-999 to 999	0	x10	%	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41022	401022 (03FD)	OffsetOutputRate	Input calibration OFFSET	-999 to 999	0	x10	%	Y
41023	401023 (03FE)	OCAImEnable	Overcurrent alarm use	• 0: OFF • 1: ON	1	x1	-	Y
41024	401024 (03FF)	OCCurrent	Overcurrent alarm value	10 to 1100	1100	x10	%	Y
41025	401025 (0400)	OCDelayTime	Delay time of overcurrent alarm	3 to 600	5	x1	s	Y
41026	401026 (0401)	OCOUTStatus	Set output status of overcurrent alarm	0 to 1	0	x1	-	Y
41027	401027 (0402)	OCOutputStatus	Set output relay of overcurrent alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	0	x1	-	Y
41028	401028 (0403)	OCAutoRecovery	Overcurrent alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41029	401029 (0404)	OVAImEnable	Overvoltage alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41030	401030 (0405)	OVVolt	Overvoltage alarm value	200 to 5500	5500	x10	V	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41031	401031 (0406)	OVDelayTime	Delay time of overvoltage alarm	3 to 600	5	x1	s	Y
41032	401032 (0407)	OVOUSTS el	Set output status of overvoltage alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	x1	-	Y
41033	401033 (0408)	OVOutputSel	Overvoltage output relay setting	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	0	x1	-	Y
41034	401034 (0409)	OVAutoRecovery	Overvoltage alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41035	401035 (040A)	HTBKAlmEnable	Heater break alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41036	401036 (040B)	HTBKPer cent	Heater break alarm comparison value	50 to 1000	500	x10	%	Y
41037	401037 (040C)	HTBKLimitCurrent	Heater break alarm value	0 to 6600	0	x10	A	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41038	401038 (040D)	HTBKDelayTime	Delay time of heater break alarm	3 to 600	5	x1	s	Y
41039	401039 (040E)	HTBKOUTSTSel	Set output status of heater break alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	x1	-	Y
41040	401040 (040F)	HTBKOutputSel	Set output relay of heater break alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	0	x1	-	Y
41041	401041 (0410)	HTBKAutoRecovery	Heater break alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41042	401042 (0411)	SCRAlmEnable	SCR error alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41043	401043 (0412)	SCRPercent	SCR error alarm comparison value	0 to 1000	0	x10	%	Y
41044	401044 (0413)	SCRLimitCurrent	SCR error alarm value	0 to 6600	50	x10	A	Y
41045	401045 (0414)	SCRDelayTime	Delay time of SCRshort alarm	3 to 600	5	x1	s	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41046	401046 (0415)	SCROUTST Sel	Set output status of SCR error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	x1	-	Y
41047	401047 (0416)	SCROutput Sel	Set output relay of SCR error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	0	x1	-	Y
41048	401048 (0417)	SCRAutoRecovery	SCR error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41049	401049 (0418)	FuseAlmEnable	Fuse alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41050	401050 (0419)	FuseDelayTime	Delay time of fuse alarm	3 to 600	5	x1	s	Y
41051	401051 (041A)	FuseOUTST Sel	Set output status of fuse alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41052	401052 (041B)	FuseOutputSel	Set output relay of fuse alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	0	x1	-	Y
41053	401053 (041C)	FuseAutoRecovery	Fuse alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41054	401054 (041D)	FrqyAlmEnable	Frequency error alarm enable/disable	• 0: OFF • 1: ON	0	x1	-	Y
41055	401055 (041E)	FrqyDelayTime	Dealy time of Frequency error alarm	3 to 600	5	x1	s	Y
41056	401056 (041F)	FrqyOUTSTSel	Set output status of Frequency error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41057	401057 (0420)	FrqyOutputSel	Set output relay of Frequency error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	1	x1	-	Y
41058	401058 (0421)	FrqyAutoRecovery	Frequency error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41059	401059 (0422)	DLFAlmEnable	Partial heater break alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41060	401060 (0423)	DLFDeadZoneCurrent	Set output current of partial heater break alarm	1 to 200	3	x1	A	Y
41061	401061 (0424)	DLFDelayTime	Delay time of partial heater break alarm	3 to 600	5	x1	s	Y
41062	401062 (0425)	DLFOUTStatus	Set output status of partial heater break alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41063	401063 (0426)	DLFOutputSel	Set output relay of partial heater break alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	1	x1	-	Y
41064	401064 (0427)	DLFAutoRecovery	Partial heater break alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41065	401065 (0428)	OT_W_60_AImEnable	Temperature warning alarm enable/disable	• 0: OFF • 1: ON	0	x1	-	Y
41066	401066 (0429)	OT_W_60_Temp	Set detection temperature of temperature warning alarm	50 to 70	60	x1	°C	Y
41067	401067 (042A)	OT_W_60_DelayTime	Delay time of temperature warning alarm	3 to 600	5	x1	s	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41068	401068 (042B)	OT_W_60_OUTSTSel	Set output status of temperature warning alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	1	x1	-	Y
41069	401069 (042C)	OT_W_60_OutputSel	Set output relay of temperature warning alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	1	x1	-	Y
41070	401070 (042D)	OT_W_60_AutoRecovery	Temperature warning alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41071	401071 (042E)	OT_P_80_AlarmEnable	Temperature alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41072	401072 (042F)	OT_P_80_Temp	Set detection temperature of temperature alarm	70 to 90	80	x1	°C	Y
41073	401073 (0430)	OT_P_80_DelayTime	Delay time of temperature alarm	3 to 600	5	x1	s	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41074	401074 (0431)	OT_P_80_OTSTSel	Set output status of temperature alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	x1	-	Y
41075	401075 (0432)	OT_P_80_OutputSel	Set output relay of temperature alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	0	x1	-	Y
41076	401076 (0433)	OT_P_80_AutoRecovery	Temperature alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41077	401077 (0434)	FanAlmEnable	FAN error alarm enable/disable	• 0: OFF • 1: ON	0	x1	-	Y
41078	401078 (0435)	FanDelayTime	Delay time of FAN error alarm	3 to 600	5	x1	s	Y
41079	401079 (0436)	FanOUTSTS el	Set output status of FAN error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41080	401080 (0437)	FanOutputSel	Set output relay of FAN error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	1	x1	-	Y
41081	401081 (0438)	FanAutoRecovery	FAN error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41082	401082 (0439)	LowPowerAlarmEnable	Input low voltage alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41083	401083 (043A)	LowPowerLimitVolt	Input low voltage alarm value	500 to 5000	500	x10	V	Y
41084	401084 (043B)	LowPowerDelayTime	Delay time of Input low voltage alarm	3 to 600	5	x1	s	Y
41085	401085 (043C)	LowPowerOutputStatusSel	Set output status of Input low voltage alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41086	401086 (043D)	LowPowerOutputSel	Set output relay of Input low voltage alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	1	x1	-	Y
41087	401087 (043E)	LowPowerAutoRecovery	Input low voltage alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41088	401088 (043F)	PowerModuleAlarmEnable	Module connection error alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41089	401089 (0440)	PowerModuleDelayTime	Delay time of module connection error alarm	3 to 600	5	x1	s	Y
41090	401090 (0441)	PowerModuleOUTSTSel	Set output status of module connection error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41091	401091 (0442)	PowerModuleOutputSel	Set output relay of module connection error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	0	x1	-	Y
41092	401092 (0443)	PowerModuleAutoRecovery	Module connection error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41093	401093 (0444)	ULALmEnable	Load imbalance alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41094	401094 (0445)	ULLimitPercent	Imbalance rate of load imbalance alarm	50 to 1000	300	x10	%	Y
41095	401095 (0446)	ULDelayTime	Delay time of load imbalance alarm	3 to 600	5	x1	s	Y
41096	401096 (0447)	ULOUTSTSet	Set output status of load imbalance alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41097	401097 (0448)	ULOutputSel	Set output relay of load imbalance alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	1	x1	-	Y
41098	401098 (0449)	ULAutoRecovery	Load imbalance alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41099	401099 (044A)	P_Gain	P Gain setting	1 to 300	60	x1	-	Y
41100	401100 (044B)	I_Gain	I Gain setting	1 to 300	60	x1	-	Y
41102	401102 (044D)	DIInputConfig	DI-input Control method setting	• 0: No DI setting • 1: Used for DI RUN/STOP • 2: Used for DI AUTO/MAN • 3: Used for DI current ALM reset	1	x1	-	Y

2.3.3. CH2 Setting [Func: 03 / 06 / 16, R / W: R / W]

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41001	401001 (03E8)	Input_Ch	Control input channel setting	• 0: Input_4_20mA_CH1 • 1: Input_4_20mA_CH2 • 2: Input_4_20mA_CH3 • 3: Input_4_20mA_CH4 • 4: Input_1_5V • 5: Input_0_5V • 6: Input_0_10V • 7: Input_EX_R • 8: Input_RS485 • 9: Input_Fieldbus	0	x1	-	Y
41002	401002 (03E9)	Load_Sel	Load type setting	• 0: lOAD_Resis • 1: lOAD_Trans	0	x1	-	Y
41003	401003 (03EA)	Control_Mode	Control method setting	• 0: OUT_MD_PHASE_N • 1: OUT_MD_CYCLE_N • 2: OUT_MD_CYCLE_D • 3: OUT_MD_FB_C • 4: OUT_MD_FB_V • 5: OUT_MD_FB_W • 6: OUT_MD_PDC	0	x1	-	Y
41004	401004 (03EB)	fb_Response_time	Feedback control speed adjustment	0 (Slow) to 100 (Fast)	100	x1	-	Y
41005	401005 (03EC)	v_fb_max	Max. feedback control value	100 to 1100 (100% output)	440	x10	%	Y
41006	401006 (03ED)	c_fb_max	Max. feedback control value	100 to 1100 (100% output)	1000	x10	%	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41007	401007 (03EE)	w_fb_max	Max. feedback control value	100 to 1100 (100% output)	1000	x10	%	Y
41008	401008 (03EF)	StartTime	Soft start value	0 to 9999	3	x1	s	Y
41009	401009 (03F0)	SoftUPTime	Soft up value	0 to 9999	3	x1	s	Y
41010	401010 (03F1)	SoftDownTime	Soft down value	0 to 9999	3	x1	s	Y
41011	401011 (03F2)	DLFLoadNum	No. of multi-loads input	2 to 6	2	x1	-	Y
41012	401012 (03F3)	DLFMaxOutputLimit	Set max. control input to scan	250 (25.0), 500 (50.0), 750 (75.0), 1000 (100.0)	1000	x10	%	Y
41014	401014 (03F5)	DLFTuningUp	Up Scan time setting	0 to 10	1	x1	-	Y
41015	401015 (03F6)	DLFTuningDown	Down Scan time setting	0 to 10	1	x1	-	Y
41016	401016 (03F7)	OutputMin	Min. Control input	0 to 1000	0	x10	%	Y
41017	401017 (03F8)	OutputMax	Max. Control input	0 to 1000	1000	x10	%	Y
41018	401018 (03F9)	CurrentLimit	Current limit value	100 to 1100	1100	x10	%	Y
41019	401019 (03FA)	PDCTotal	No. of PDC power modules	2 to 36	4	x1	-	Y
41020	401020 (03FB)	PDCid	PDC control power modulesID	1 to 36	2	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41021	401021 (03FC)	SlopeOutputRate	Input calibration slope	-999 to 999	0	x10	%	Y
41022	401022 (03FD)	OffsetOutputRate	Input calibration OFFSET	-999 to 999	0	x10	%	Y
41023	401023 (03FE)	OCAImEnable	Overcurrent alarm use	• 0: OFF • 1: ON	1	x1	-	Y
41024	401024 (03FF)	OCCurrent	Overcurrent alarm value	10 to 1100	1100	x10	%	Y
41025	401025 (0400)	OCDelayTime	Delay time of overcurrent alarm	3 to 600	5	x1	s	Y
41026	401026 (0401)	OCOUTSTSel	Set output status of overcurrent alarm	0 to 1	0	x1	-	Y
41027	401027 (0402)	OCOutputSel	Set output relay of overcurrent alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	0	x1	-	Y
41028	401028 (0403)	OCAutoRecovery	Overcurrent alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41029	401029 (0404)	OVALmEnable	Overvoltage alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41030	401030 (0405)	OVVolt	Overvoltage alarm value	200 to 5500	5500	x10	V	Y
41031	401031 (0406)	OVDelayTime	Delay time of overvoltage alarm	3 to 600	5	x1	s	Y
41032	401032 (0407)	OVOUTSTSel	Set output status of overvoltage alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	x1	-	Y
41033	401033 (0408)	OVOutputSel	Overvoltage output relay setting	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	0	x1	-	Y
41034	401034 (0409)	OVAutoRecovery	Overvoltage alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41035	401035 (040A)	HTBKAlmEnable	Heater break alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41036	401036 (040B)	HTBKPerce nt	Heater break alarm comparison value	50 to 1000	500	x10	%	Y
41037	401037 (040C)	HTBKLimitC urrent	Heater break alarm value	0 to 6600	0	x10	A	Y
41038	401038 (040D)	HTBKDelay Time	Delay time of heater break alarm	3 to 600	5	x1	s	Y
41039	401039 (040E)	HTBKOUTS TSel	Set output status of heater break alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	x1	-	Y
41040	401040 (040F)	HTBKOutpu tSel	Set output relay of heater break alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	0	x1	-	Y
41041	401041 (0410)	HTBKAutoR ecovery	Heater break alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41042	401042 (0411)	SCRAlmEna ble	SCR error alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41043	401043 (0412)	SCRPercent	SCR error alarm comparison value	0 to 1000	0	x10	%	Y
41044	401044 (0413)	SCRLimitCurrent	SCR error alarm value	0 to 6600	50	x10	A	Y
41045	401045 (0414)	SCRDelayTime	Delay time of SCRshort alarm	3 to 600	5	x1	s	Y
41046	401046 (0415)	SCROUTSTSel	Set output status of SCR error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	x1	-	Y
41047	401047 (0416)	SCROutputSel	Set output relay of SCR error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	0	x1	-	Y
41048	401048 (0417)	SCRAutoRecovery	SCR error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41049	401049 (0418)	FuseAlmEnable	Fuse alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41050	401050 (0419)	FuseDelayTime	Delay time of fuse alarm	3 to 600	5	x1	s	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41051	401051 (041A)	FuseOUTST Sel	Set output status of fuse alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	x1	-	Y
41052	401052 (041B)	FuseOutput Sel	Set output relay of fuse alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	0	x1	-	Y
41053	401053 (041C)	FuseAutoRecovery	Fuse alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41054	401054 (041D)	FrqyAlmEnable	Frequency error alarm enable/disable	• 0: OFF • 1: ON	0	x1	-	Y
41055	401055 (041E)	FrqyDelayTime	Dealy time of Frequency error alarm	3 to 600	5	x1	s	Y
41056	401056 (041F)	FrqyOUTST Sel	Set output status of Frequency error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41057	401057 (0420)	FrqyOutputSel	Set output relay of Frequency error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	1	x1	-	Y
41058	401058 (0421)	FrqyAutoRecovery	Frequency error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41059	401059 (0422)	DLFAlmEnable	Partial heater break alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41060	401060 (0423)	DLFDeadZoneCurrent	Set output current of partial heater break alarm	1 to 200	3	x1	A	Y
41061	401061 (0424)	DLFDelayTime	Delay time of partial heater break alarm	3 to 600	5	x1	s	Y
41062	401062 (0425)	DLFOUTSTSel	Set output status of partial heater break alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41063	401063 (0426)	DLFOutputSel	Set output relay of partial heater break alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	1	x1	-	Y
41064	401064 (0427)	DLFAutoRecovery	Partial heater break alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41065	401065 (0428)	OT_W_60_AlmEnable	Temperature warning alarm enable/disable	• 0: OFF • 1: ON	0	x1	-	Y
41066	401066 (0429)	OT_W_60_Temp	Set detection temperature of temperature warning alarm	50 to 70	60	x1	°C	Y
41067	401067 (042A)	OT_W_60_DelayTime	Delay time of temperature warning alarm	3 to 600	5	x1	s	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41068	401068 (042B)	OT_W_60_OUTSTSel	Set output status of temperature warning alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	1	x1	-	Y
41069	401069 (042C)	OT_W_60_OutputSel	Set output relay of temperature warning alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	1	x1	-	Y
41070	401070 (042D)	OT_W_60_AutoRecovery	Temperature warning alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41071	401071 (042E)	OT_P_80_AlarmEnable	Temperature alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41072	401072 (042F)	OT_P_80_Temp	Set detection temperature of temperature alarm	70 to 90	80	x1	°C	Y
41073	401073 (0430)	OT_P_80_DelayTime	Delay time of temperature alarm	3 to 600	5	x1	s	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41074	401074 (0431)	OT_P_80_O UTSTSel	Set output status of temperature alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	x1	-	Y
41075	401075 (0432)	OT_P_80_O utputSel	Set output relay of temperature alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	0	x1	-	Y
41076	401076 (0433)	OT_P_80_A utoRecovery	Temperature alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41077	401077 (0434)	FanAlmEnable	FAN error alarm enable/disable	• 0: OFF • 1: ON	0	x1	-	Y
41078	401078 (0435)	FanDelayTime	Delay time of FAN error alarm	3 to 600	5	x1	s	Y
41079	401079 (0436)	FanOUTSTS el	Set output status of FAN error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41080	401080 (0437)	FanOutputSel	Set output relay of FAN error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	1	x1	-	Y
41081	401081 (0438)	FanAutoRecovery	FAN error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41082	401082 (0439)	LowPowerAlarmEnable	Input low voltage alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41083	401083 (043A)	LowPowerLimitVolt	Input low voltage alarm value	500 to 5000	500	x10	V	Y
41084	401084 (043B)	LowPowerDelayTime	Delay time of Input low voltage alarm	3 to 600	5	x1	s	Y
41085	401085 (043C)	LowPowerOutputSel	Set output status of Input low voltage alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41086	401086 (043D)	LowPowerOutputSel	Set output relay of Input low voltage alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	1	x1	-	Y
41087	401087 (043E)	LowPowerAutoRecovery	Input low voltage alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41088	401088 (043F)	PowerModuleAlmEnable	Module connection error alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41089	401089 (0440)	PowerModuleDelayTime	Delay time of module connection error alarm	3 to 600	5	x1	s	Y
41090	401090 (0441)	PowerModuleOUTSTSel	Set output status of module connection error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41091	401091 (0442)	PowerModuleOutputSel	Set output relay of module connection error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	0	x1	-	Y
41092	401092 (0443)	PowerModuleAutoRecovery	Module connection error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41093	401093 (0444)	ULALmEnable	Load imbalance alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41094	401094 (0445)	ULLimitPercent	Imbalance rate of load imbalance alarm	50 to 1000	300	x10	%	Y
41095	401095 (0446)	ULDelayTime	Delay time of load imbalance alarm	3 to 600	5	x1	s	Y
41096	401096 (0447)	ULOUTSTSel	Set output status of load imbalance alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41097	401097 (0448)	ULOutputSel	Set output relay of load imbalance alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	1	x1	-	Y
41098	401098 (0449)	ULAutoRecovery	Load imbalance alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41099	401099 (044A)	P_Gain	P Gain setting	1 to 300	60	x1	-	Y
41100	401100 (044B)	I_Gain	I Gain setting	1 to 300	60	x1	-	Y
41102	401102 (044D)	DIInputConfig	DI-input Control method setting	• 0: No DI setting • 1: Used for DI RUN/STOP • 2: Used for DI AUTO/MAN • 3: Used for DI current ALM reset	1	x1	-	Y

2.3.4. CH3 Setting [Func: 03 / 06 / 16, R / W: R / W]

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41001	401001 (03E8)	Input_Ch	Control input channel setting	• 0: Input_4_20mA_CH1 • 1: Input_4_20mA_CH2 • 2: Input_4_20mA_CH3 • 3: Input_4_20mA_CH4 • 4: Input_1_5V • 5: Input_0_5V • 6: Input_0_10V • 7: Input_EX_R • 8: Input_RS485 • 9: Input_Fieldbus	0	x1	-	Y
41002	401002 (03E9)	Load_Sel	Load type setting	• 0: LOAD_Resis • 1: LOAD_Trans	0	x1	-	Y
41003	401003 (03EA)	Control_Mode	Control method setting	• 0: OUT_MD_PHASE_N • 1: OUT_MD_CYCLE_N • 2: OUT_MD_CYCLE_D • 3: OUT_MD_FB_C • 4: OUT_MD_FB_V • 5: OUT_MD_FB_W • 6: OUT_MD_PDC	0	x1	-	Y
41004	401004 (03EB)	fb_Response_time	Feedback control speed adjustment	0 (Slow) to 100 (Fast)	100	x1	-	Y
41005	401005 (03EC)	v_fb_max	Max. feedback control value	100 to 1100 (100% output)	440	x10	%	Y
41006	401006 (03ED)	c_fb_max	Max. feedback control value	100 to 1100 (100% output)	1000	x10	%	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41007	401007 (03EE)	w_fb_max	Max. feedback control value	100 to 1100 (100% output)	1000	x10	%	Y
41008	401008 (03EF)	StartTime	Soft start value	0 to 9999	3	x1	s	Y
41009	401009 (03F0)	SoftUPTime	Soft up value	0 to 9999	3	x1	s	Y
41010	401010 (03F1)	SoftDownTime	Soft down value	0 to 9999	3	x1	s	Y
41011	401011 (03F2)	DLFLoadNum	No. of multi-loads input	2 to 6	2	x1	-	Y
41012	401012 (03F3)	DLFMaxOutputLimit	Set max. control input to scan	250 (25.0), 500 (50.0), 750 (75.0), 1000 (100.0)	1000	x10	%	Y
41014	401014 (03F5)	DLFTuningUp	Up Scan time setting	0 to 10	1	x1	-	Y
41015	401015 (03F6)	DLFTuningDown	Down Scan time setting	0 to 10	1	x1	-	Y
41016	401016 (03F7)	OutputMin	Min. control input	0 to 1000	0	x10	%	Y
41017	401017 (03F8)	OutputMax	Max. control input	0 to 1000	1000	x10	%	Y
41018	401018 (03F9)	CurrentLimit	Current limit value	100 to 1100	1100	x10	%	Y
41019	401019 (03FA)	PDCTotal	No. of PDC power modules	2 to 36	4	x1	-	Y
41020	401020 (03FB)	PDCid	PDC control power modulesID	1 to 36	2	x1	-	Y
41021	401021 (03FC)	SlopeOutputRate	Input calibration slope	-999 to 999	0	x10	%	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41022	401022 (03FD)	OffsetOutputRate	Input calibration OFFSET	-999 to 999	0	x10	%	Y
41023	401023 (03FE)	OCAImEnable	Overcurrent alarm use	• 0: OFF • 1: ON	1	x1	-	Y
41024	401024 (03FF)	OCCurrent	Overcurrent alarm value	10 to 1100	1100	x10	%	Y
41025	401025 (0400)	OCDelayTime	Delay time of overcurrent alarm	3 to 600	5	x1	s	Y
41026	401026 (0401)	OCOUTStatus	Set output status of overcurrent alarm	0 to 1	0	x1	-	Y
41027	401027 (0402)	OCOutputStatus	Set output relay of overcurrent alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	0	x1	-	Y
41028	401028 (0403)	OCAutoRecovery	Overcurrent alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41029	401029 (0404)	OVAImEnable	Overvoltage alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41030	401030 (0405)	OVVolt	Overvoltage alarm value	200 to 5500	5500	x10	V	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41031	401031 (0406)	OVDelayTime	Delay time of overvoltage alarm	3 to 600	5	x1	s	Y
41032	401032 (0407)	OVOUSTS el	Set output status of overvoltage alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	x1	-	Y
41033	401033 (0408)	OVOutputSel	Overvoltage output relay setting	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	0	x1	-	Y
41034	401034 (0409)	OVAutoRecovery	Overvoltage alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41035	401035 (040A)	HTBKAlmEnable	Heater break alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41036	401036 (040B)	HTBKPer cent	Heater break alarm comparison value	50 to 1000	500	x10	%	Y
41037	401037 (040C)	HTBKLimitCurrent	Heater break alarm value	0 to 6600	0	x10	A	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41038	401038 (040D)	HTBKDelayTime	Delay time of heater break alarm	3 to 600	5	x1	s	Y
41039	401039 (040E)	HTBKOUTSTSel	Set output status of heater break alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	x1	-	Y
41040	401040 (040F)	HTBKOutputSel	Set output relay of heater break alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	0	x1	-	Y
41041	401041 (0410)	HTBKAutoRecovery	Heater break alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41042	401042 (0411)	SCRAlmEnable	SCR error alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41043	401043 (0412)	SCRPercent	SCR error alarm comparison value	0 to 1000	0	x10	%	Y
41044	401044 (0413)	SCRLimitCurrent	SCR error alarm value	0 to 6600	50	x10	A	Y
41045	401045 (0414)	SCRDelayTime	Delay time of SCRshort alarm	3 to 600	5	x1	s	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41046	401046 (0415)	SCROUTST Sel	Set output status of SCR error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	x1	-	Y
41047	401047 (0416)	SCROutput Sel	Set output relay of SCR error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	0	x1	-	Y
41048	401048 (0417)	SCRAutoRecovery	SCR error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41049	401049 (0418)	FuseAlmEnable	Fuse alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41050	401050 (0419)	FuseDelayTime	Delay time of fuse alarm	3 to 600	5	x1	s	Y
41051	401051 (041A)	FuseOUTST Sel	Set output status of fuse alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41052	401052 (041B)	FuseOutputSel	Set output relay of fuse alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	0	x1	-	Y
41053	401053 (041C)	FuseAutoRecovery	Fuse alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41054	401054 (041D)	FrqyAlmEnable	Frequency error alarm enable/disable	• 0: OFF • 1: ON	0	x1	-	Y
41055	401055 (041E)	FrqyDelayTime	Dealy time of Frequency error alarm	3 to 600	5	x1	s	Y
41056	401056 (041F)	FrqyOUTSTSel	Set output status of Frequency error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41057	401057 (0420)	FrqyOutputSel	Set output relay of Frequency error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	1	x1	-	Y
41058	401058 (0421)	FrqyAutoRecovery	Frequency error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41059	401059 (0422)	DLFAlmEnable	Partial heater break alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41060	401060 (0423)	DLFDeadZoneCurrent	Set output current of partial heater break alarm	1 to 200	3	x1	A	Y
41061	401061 (0424)	DLFDelayTime	Delay time of partial heater break alarm	3 to 600	5	x1	s	Y
41062	401062 (0425)	DLFOUTSTSel	Set output status of partial heater break alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41063	401063 (0426)	DLFOutputSel	Set output relay of partial heater break alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	1	x1	-	Y
41064	401064 (0427)	DLFAutoRecovery	Partial heater break alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41065	401065 (0428)	OT_W_60_AImEnable	Temperature warning alarm enable/disable	• 0: OFF • 1: ON	0	x1	-	Y
41066	401066 (0429)	OT_W_60_Temp	Set detection temperature of temperature warning alarm	50 to 70	60	x1	°C	Y
41067	401067 (042A)	OT_W_60_DelayTime	Delay time of temperature warning alarm	3 to 600	5	x1	s	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41068	401068 (042B)	OT_W_60_OUTSTSel	Set output status of temperature warning alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	1	x1	-	Y
41069	401069 (042C)	OT_W_60_OutputSel	Set output relay of temperature warning alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	1	x1	-	Y
41070	401070 (042D)	OT_W_60_AutoRecovery	Temperature warning alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41071	401071 (042E)	OT_P_80_AlarmEnable	Temperature alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41072	401072 (042F)	OT_P_80_Temp	Set detection temperature of temperature alarm	70 to 90	80	x1	°C	Y
41073	401073 (0430)	OT_P_80_DelayTime	Delay time of temperature alarm	3 to 600	5	x1	s	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41074	401074 (0431)	OT_P_80_OTSTSel	Set output status of temperature alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	x1	-	Y
41075	401075 (0432)	OT_P_80_OutputSel	Set output relay of temperature alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	0	x1	-	Y
41076	401076 (0433)	OT_P_80_AutoRecovery	Temperature alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41077	401077 (0434)	FanAlmEnable	FAN error alarm enable/disable	• 0: OFF • 1: ON	0	x1	-	Y
41078	401078 (0435)	FanDelayTime	Delay time of FAN error alarm	3 to 600	5	x1	s	Y
41079	401079 (0436)	FanOUTSTS el	Set output status of FAN error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41080	401080 (0437)	FanOutputSel	Set output relay of FAN error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	1	x1	-	Y
41081	401081 (0438)	FanAutoRecovery	FAN error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41082	401082 (0439)	LowPowerAlarmEnable	Input low voltage alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41083	401083 (043A)	LowPowerLimitVolt	Input low voltage alarm value	500 to 5000	500	x10	V	Y
41084	401084 (043B)	LowPowerDelayTime	Delay time of Input low voltage alarm	3 to 600	5	x1	s	Y
41085	401085 (043C)	LowPowerOutputStatusSel	Set output status of Input low voltage alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41086	401086 (043D)	LowPowerOutputSel	Set output relay of Input low voltage alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	1	x1	-	Y
41087	401087 (043E)	LowPowerAutoRecovery	Input low voltage alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41088	401088 (043F)	PowerModuleAlarmEnable	Module connection error alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41089	401089 (0440)	PowerModuleDelayTime	Delay time of module connection error alarm	3 to 600	5	x1	s	Y
41090	401090 (0441)	PowerModuleOUTSTSel	Set output status of module connection error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41091	401091 (0442)	PowerModuleOutputSel	Set output relay of module connection error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	0	x1	-	Y
41092	401092 (0443)	PowerModuleAutoRecovery	Module connection error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41093	401093 (0444)	ULALmEnable	Load imbalance alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41094	401094 (0445)	ULLimitPercent	Imbalance rate of load imbalance alarm	50 to 1000	300	x10	%	Y
41095	401095 (0446)	ULDelayTime	Delay time of load imbalance alarm	3 to 600	5	x1	s	Y
41096	401096 (0447)	ULOUTSTSet	Set output status of load imbalance alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41097	401097 (0448)	ULOutputSel	Set output relay of load imbalance alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	1	x1	-	Y
41098	401098 (0449)	ULAutoRecovery	Load imbalance alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41099	401099 (044A)	P_Gain	P Gain setting	1 to 300	60	x1	-	Y
41100	401100 (044B)	I_Gain	I Gain setting	1 to 300	60	x1	-	Y
41102	401102 (044D)	DIInputConfig	DI-input Control method setting	• 0: No DI setting • 1: Used for DI RUN/STOP • 2: Used for DI AUTO/MAN • 3: Used for DI current ALM reset	1	x1	-	Y

2.3.5. CH4 Setting [Func: 03 / 06 / 16, R / W: R / W]

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41001	401001 (03E8)	Input_Ch	Control input channel setting	• 0: Input_4_20mA_CH1 • 1: Input_4_20mA_CH2 • 2: Input_4_20mA_CH3 • 3: Input_4_20mA_CH4 • 4: Input_1_5V • 5: Input_0_5V • 6: Input_0_10V • 7: Input_EX_R • 8: Input_RS485 b • 9: Input_Fieldbus	0	x1	-	Y
41002	401002 (03E9)	Load_Sel	Load type setting	• 0: lOAD_Resis • 1: lOAD_Trans	0	x1	-	Y
41003	401003 (03EA)	Control_Mode	Control method setting	• 0: OUT_MD_PHASE_N • 1: OUT_MD_CYCLE_N • 2: OUT_MD_CYCLE_D • 3: OUT_MD_FB_C • 4: OUT_MD_FB_V • 5: OUT_MD_FB_W • 6: OUT_MD_PDC	0	x1	-	Y
41004	401004 (03EB)	fb_Response_time	Feedback control speed adjustment	0 (Slow) to 100 (Fast)	100	x1	-	Y
41005	401005 (03EC)	v_fb_max	Max. feedback control value	100 to 1100 (100% output)	440	x10	%	Y
41006	401006 (03ED)	c_fb_max	Max. feedback control value	100 to 1100 (100% output)	1000	x10	%	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41007	401007 (03EE)	w_fb_max	Max. feedback control value	100 to 1100 (100% output)	1000	x10	%	Y
41008	401008 (03EF)	StartTime	Soft start value	0 to 9999	3	x1	s	Y
41009	401009 (03F0)	SoftUPTime	Soft up value	0 to 9999	3	x1	s	Y
41010	401010 (03F1)	SoftDownTime	Soft down value	0 to 9999	3	x1	s	Y
41011	401011 (03F2)	DLFLoadNum	No. of multi-loads input	2 to 6	2	x1	-	Y
41012	401012 (03F3)	DLFMaxOutputLimit	Set max. control input to scan	250 (25.0), 500 (50.0), 750 (75.0), 1000 (100.0)	1000	x10	%	Y
41014	401014 (03F5)	DLFTuningUp	Up Scan time setting	0 to 10	1	x1	-	Y
41015	401015 (03F6)	DLFTuningDown	Down Scan time setting	0 to 10	1	x1	-	Y
41016	401016 (03F7)	OutputMin	Min. control input	0 to 1000	0	x10	%	Y
41017	401017 (03F8)	OutputMax	Max. control input	0 to 1000	1000	x10	%	Y
41018	401018 (03F9)	CurrentLimit	Current limit value	100 to 1100	1100	x10	%	Y
41019	401019 (03FA)	PDCTotal	No. of PDC power modules	2 to 36	4	x1	-	Y
41020	401020 (03FB)	PDCid	PDC control power modulesID	1 to 36	2	x1	-	Y
41021	401021 (03FC)	SlopeOutputRate	Input calibration slope	-999 to 999	0	x10	%	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41022	401022 (03FD)	OffsetOutputRate	Input calibration OFFSET	-999 to 999	0	x10	%	Y
41023	401023 (03FE)	OCAImEnable	Overcurrent alarm use	• 0: OFF • 1: ON	1	x1	-	Y
41024	401024 (03FF)	OCCurrent	Overcurrent alarm value	10 to 1100	1100	x10	%	Y
41025	401025 (0400)	OCDelayTime	Delay time of overcurrent alarm	3 to 600	5	x1	s	Y
41026	401026 (0401)	OCOUTSTSel	Set output status of overcurrent alarm	0 to 1	0	x1	-	Y
41027	401027 (0402)	OCOutputSel	Set output relay of overcurrent alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	0	x1	-	Y
41028	401028 (0403)	OCAutoRecovery	Overcurrent alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41029	401029 (0404)	OVAImEnable	Overvoltage alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41030	401030 (0405)	OVVolt	Overvoltage alarm value	200 to 5500	5500	x10	V	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41031	401031 (0406)	OVDelayTime	Delay time of overvoltage alarm	3 to 600	5	x1	s	Y
41032	401032 (0407)	OVOUTSTSel	Set output status of overvoltage alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	x1	-	Y
41033	401033 (0408)	OVOutputSel	Overvoltage output relay setting	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	0	x1	-	Y
41034	401034 (0409)	OVAutoRecovery	Overvoltage alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41035	401035 (040A)	HTBKAlmEnable	Heater break alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41036	401036 (040B)	HTBKPerCent	Heater break alarm comparison value	50 to 1000	500	x10	%	Y
41037	401037 (040C)	HTBKLimitCurrent	Heater break alarm value	0 to 6600	0	x10	A	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41038	401038 (040D)	HTBKDelay Time	Delay time of heater break alarm	3 to 600	5	x1	s	Y
41039	401039 (040E)	HTBKOUTS TSel	Set output status of heater break alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	x1	-	Y
41040	401040 (040F)	HTBKOutputSel	Set output relay of heater break alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	0	x1	-	Y
41041	401041 (0410)	HTBKAutoRecovery	Heater break alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41042	401042 (0411)	SCRAlmEnable	SCR error alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41043	401043 (0412)	SCRPercent	SCR error alarm comparison value	0 to 1000	0	x10	%	Y
41044	401044 (0413)	SCRLimitCurrent	SCR error alarm value	0 to 6600	50	x10	A	Y
41045	401045 (0414)	SCRDelayTime	Delay time of SCRshort alarm	3 to 600	5	x1	s	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41046	401046 (0415)	SCROUTST Sel	Set output status of SCR error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	x1	-	Y
41047	401047 (0416)	SCROutput Sel	Set output relay of SCR error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	0	x1	-	Y
41048	401048 (0417)	SCRAutoRecovery	SCR error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41049	401049 (0418)	FuseAlmEnable	Fuse alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41050	401050 (0419)	FuseDelayTime	Delay time of fuse alarm	3 to 600	5	x1	s	Y
41051	401051 (041A)	FuseOUTST Sel	Set output status of fuse alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41052	401052 (041B)	FuseOutputSel	Set output relay of fuse alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	0	x1	-	Y
41053	401053 (041C)	FuseAutoRecovery	Fuse alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41054	401054 (041D)	FrqyAlmEnable	Frequency error alarm enable/disable	• 0: OFF • 1: ON	0	x1	-	Y
41055	401055 (041E)	FrqyDelayTime	Dealy time of Frequency error alarm	3 to 600	5	x1	s	Y
41056	401056 (041F)	FrqyOUTSTSel	Set output status of Frequency error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41057	401057 (0420)	FrqyOutputSel	Set output relay of Frequency error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	1	x1	-	Y
41058	401058 (0421)	FrqyAutoRecovery	Frequency error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41059	401059 (0422)	DLFAlmEnable	Partial heater break alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41060	401060 (0423)	DLFDeadZoneCurrent	Set output current of partial heater break alarm	1 to 200	3	x1	A	Y
41061	401061 (0424)	DLFDelayTime	Delay time of partial heater break alarm	3 to 600	5	x1	s	Y
41062	401062 (0425)	DLFOUTSTSel	Set output status of partial heater break alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41063	401063 (0426)	DLFOutputSel	Set output relay of partial heater break alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	1	x1	-	Y
41064	401064 (0427)	DLFAutoRecovery	Partial heater break alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41065	401065 (0428)	OT_W_60_AlmEnable	Temperature warning alarm enable/disable	• 0: OFF • 1: ON	0	x1	-	Y
41066	401066 (0429)	OT_W_60_Temp	Set detection temperature of temperature warning alarm	50 to 70	60	x1	°C	Y
41067	401067 (042A)	OT_W_60_DelayTime	Delay time of temperature warning alarm	3 to 600	5	x1	s	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41068	401068 (042B)	OT_W_60_OUTSTSel	Set output status of temperature warning alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	1	x1	-	Y
41069	401069 (042C)	OT_W_60_OutputSel	Set output relay of temperature warning alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	1	x1	-	Y
41070	401070 (042D)	OT_W_60_AutoRecovery	Temperature warning alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41071	401071 (042E)	OT_P_80_AlarmEnable	Temperature alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41072	401072 (042F)	OT_P_80_Temp	Set detection temperature of temperature alarm	70 to 90	80	x1	°C	Y
41073	401073 (0430)	OT_P_80_DelayTime	Delay time of temperature alarm	3 to 600	5	x1	s	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41074	401074 (0431)	OT_P_80_O UTSTSel	Set output status of temperature alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	x1	-	Y
41075	401075 (0432)	OT_P_80_O utputSel	Set output relay of temperature alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	0	x1	-	Y
41076	401076 (0433)	OT_P_80_A utoRecovery	Temperature alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41077	401077 (0434)	FanAlmEnable	FAN error alarm enable/disable	• 0: OFF • 1: ON	0	x1	-	Y
41078	401078 (0435)	FanDelayTime	Delay time of FAN error alarm	3 to 600	5	x1	s	Y
41079	401079 (0436)	FanOUTSTS el	Set output status of FAN error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41080	401080 (0437)	FanOutputSel	Set output relay of FAN error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	1	x1	-	Y
41081	401081 (0438)	FanAutoRecovery	FAN error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41082	401082 (0439)	LowPowerAlarmEnable	Input low voltage alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41083	401083 (043A)	LowPowerLimitVolt	Input low voltage alarm value	500 to 5000	500	x10	V	Y
41084	401084 (043B)	LowPowerDelayTime	Delay time of Input low voltage alarm	3 to 600	5	x1	s	Y
41085	401085 (043C)	LowPowerOutputSel	Set output status of Input low voltage alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41086	401086 (043D)	LowPowerOutputSel	Set output relay of Input low voltage alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	1	x1	-	Y
41087	401087 (043E)	LowPowerAutoRecovery	Input low voltage alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41088	401088 (043F)	PowerModuleAlarmEnable	Module connection error alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41089	401089 (0440)	PowerModuleDelayTime	Delay time of module connection error alarm	3 to 600	5	x1	s	Y
41090	401090 (0441)	PowerModuleOUTSTSel	Set output status of module connection error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41091	401091 (0442)	PowerModuleOutputSel	Set output relay of module connection error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	0	x1	-	Y
41092	401092 (0443)	PowerModuleAutoRecovery	Module connection error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41093	401093 (0444)	ULALmEnable	Load imbalance alarm enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41094	401094 (0445)	ULLimitPercent	Imbalance rate of load imbalance alarm	50 to 1000	300	x10	%	Y
41095	401095 (0446)	ULDelayTime	Delay time of load imbalance alarm	3 to 600	5	x1	s	Y
41096	401096 (0447)	ULOUTSTSel	Set output status of load imbalance alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41097	401097 (0448)	ULOutputSel	Set output relay of load imbalance alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	1	x1	-	Y
41098	401098 (0449)	ULAutoRecovery	Load imbalance alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	x1	-	Y
41099	401099 (044A)	P_Gain	P Gain setting	1 to 300	60	x1	-	Y
41100	401100 (044B)	I_Gain	I Gain setting	1 to 300	60	x1	-	Y
41102	401102 (044D)	DIInputConfig	DI-input Control method setting	• 0: No DI setting • 1: Used for DI RUN/STOP • 2: Used for DI AUTO/MAN • 3: Used for DI current ALM reset	1	x1	-	Y

2.3.6. Common [Func: 03 / 06 / 16, R / W: R / W]

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41441	401441 (05A0)	ConnectMode	Set wiring method	• 0: 1p1 • 1: 1p2 • 2: 1p3 • 3: 1p4 • 4: 2p1 • 5: 2p2 • 6: 2p1p1 • 7: 2p1p2 • 8: 3p1 • 9: 3p1p1	3	x1	-	Y
41442	401442 (05A1)	LockModeSel	LCD setting step Lock	• 0: NONE • 1: Lock1 • 2: Lock2	0	x1	-	Y
41443	401443 (05A2)	EX485ProtocolSel	Modbus protocol selection	• 0: RTU • 1: ASCII	0	x1	-	Y
41444	401444 (05A3)	EX485DeviceAddr	Device address	1 to 99	1	x1	-	Y
41445	401445 (05A4)	EX485DeviceBps	Comm. speed setting	• 24: 2400 • 48: 4800 • 96: 9600 • 144: 14400 • 192: 19200 • 384: 38400 • 576: 57600 • 1152: 115200	96	/100	BPS	Y
41446	401446 (05A5)	EX485DevicePbit	Parity bit setting	• 0: NONE • 1: EVEN • 2: ODD	0	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41447	401447 (05A6)	EX485DeviceSbit	Stop bit setting	• 1: STOPBIT(1) • 2: STOPBIT(2)	1	x1	-	Y
41448	401448 (05A7)	EX485DelayTime	Comm. delay time	0 to 9999	0	x1	ms	Y
41449	401449 (05A8)	EX485Copy	RS485 write enable/disable setting	• 0: OFF • 1: ON	1	x1	-	Y
41450	401450 (05A9)	DisplayLine1Sel	Line1 monitor	• 0: mv_out • 1: senser_in • 2: OUT_V • 3: IN_V • 4: Amp • 5: Watt • 6: i_Watt • 7: ohm • 8: Hz • 9: Control • 10: Connect • 11: input • 12: Temp • 13: pm_version • 14: pm_name	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41451	401451 (05AA)	DisplayLine 2Sel	Line2 monitor	• 0: CH1_Ctl_Output • 1: CH1_Ctl_Input • 2: CH1_U_vol • 3: CH1_i_vol • 4: CH1_U_amp • 5: CH1_U_wat • 6: CH1_U_res • 7: CH1_frqy • 8: CH1_Ctl_Mode • 9: CH1_tmp • 10: CH2_Ctl_Output • 11: CH2_Ctl_Input • 12: CH2_U_vol • 13: CH2_i_vol • 14: CH2_U_amp • 15: CH2_U_wat • 16: CH2_U_res • 17: CH2_frqy • 18: CH2_Ctl_Mode • 19: CH2_tmp • 20: CH3_Ctl_Output • 21: CH3_Ctl_Input • 22: CH3_U_vol • 23: CH3_i_vol • 24: CH3_U_amp • 25: CH3_U_wat • 26: CH3_U_res • 27: CH3_frqy	4	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41451	401451 (05AA)	DisplayLine 2Sel	Line2 monitor	• 28: CH3_Ctl_Mode • 29: CH3_tmp • 30: CH4_Ctl_Output • 31: CH4_Ctl_Input • 32: CH4_U_vol • 33: CH4_i_vol • 34: CH4_U_amp • 35: CH4_U_wat • 36: CH4_U_res • 37: CH4_frqy • 38: CH4_Ctl_Mode • 39: CH4_tmp	4	x1	-	Y
41452	401452 (05AB)	DisplayLine 3Sel	Line3 monitor	• 0: CH1_Ctl_Output • 1: CH1_Ctl_Input • 2: CH1_U_vol • 3: CH1_i_vol • 4: CH1_U_amp • 5: CH1_U_wat • 6: CH1_U_res • 7: CH1_frqy • 8: CH1_Ctl_Mode • 9: CH1_tmp • 10: CH2_Ctl_Output • 11: CH2_Ctl_Input • 12: CH2_U_vol • 13: CH2_i_vol • 14: CH2_U_amp • 15: CH2_U_wat	14	x1		Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41452	401452 (05AB)	DisplayLine3Sel	Line3 monitor	• 16: CH2_U_res • 17: CH2_frqy • 18: CH2_Ctl_Mode • 19: CH2_tmp • 20: CH3_Ctl_Output • 21: CH3_Ctl_Input • 22: CH3_U_vol • 23: CH3_i_vol • 24: CH3_U_amp • 25: CH3_U_wat • 26: CH3_U_res • 27: CH3_frqy • 28: CH3_Ctl_Mode • 29: CH3_tmp • 30: CH4_Ctl_Output • 31: CH4_Ctl_Input • 32: CH4_U_vol • 33: CH4_i_vol • 34: CH4_U_amp • 35: CH4_U_wat • 36: CH4_U_res • 37: CH4_frqy • 38: CH4_Ctl_Mode • 39: CH4_tmp	14	x1		Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41453	401453 (05AC)	DisplayLine4Sel	Line4 monitor	• 0: CH1_Ctl_Output • 1: CH1_Ctl_Input • 2: CH1_U_vol • 3: CH1_i_vol • 4: CH1_U_amp • 5: CH1_U_wat • 6: CH1_U_res • 7: CH1_frqy • 8: CH1_Ctl_Mode • 9: CH1_tmp • 10: CH2_Ctl_Output • 11: CH2_Ctl_Input • 12: CH2_U_vol • 13: CH2_i_vol • 14: CH2_U_amp • 15: CH2_U_wat • 16: CH2_U_res • 17: CH2_frqy • 18: CH2_Ctl_Mode • 19: CH2_tmp • 20: CH3_Ctl_Output • 21: CH3_Ctl_Input • 22: CH3_U_vol • 23: CH3_i_vol • 24: CH3_U_amp • 25: CH3_U_wat • 26: CH3_U_res • 27: CH3_frqy	24	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41453	401453 (05AC)	DisplayLine4Sel	Line4 monitor	• 28: CH3_Ctl_Mode • 29: CH3_tmp • 30: CH4_Ctl_Output • 31: CH4_Ctl_Input • 32: CH4_U_vol • 33: CH4_i_vol • 34: CH4_U_amp • 35: CH4_U_wat • 36: CH4_U_res • 37: CH4_frqy • 38: CH4_Ctl_Mode • 39: CH4_tmp	24	x1	-	Y
41454	401454 (05AD)	ALMSaveUseEnable	Alarm log use	• 0: OFF • 1: ON	0	x1	-	Y
41455	401455 (05AE)	config_year	Current year setting	2000 to 2100	25	x1	Year	Y
41456	401456 (05AF)	config_month	Current month setting	1 to 12	1	x1	Month	Y
41457	401457 (05B0)	config_day	Current day setting	1 to 31	1	x1	Day	Y
41458	401458 (05B1)	config_hour	Current hour setting	0 to 23	0	x1	Hour	Y
41459	401459 (05B2)	config_minute	Current minute setting	0 to 59	0	x1	Minute	Y
41460	401460 (05B3)	cclinkid	CCLINK ID	1 to 64	1	x1	-	Y

PLC Addr.	No (Addr.)	Parameter	Description	Set range	Default	Weight	Unit	Save
41462	401462 (05B5)	cclinkbaud	CCLINK Comm. speed setting	• 0: 156Kbps • 1: 625Kbps • 2: 2.5Mbps • 3: 5Mbps • 4: 10Mbps	0	x1	-	Y
41463	401463 (05B6)	WiringMode	3-phase wiring mode	• 0: star wiring • 1: Delta wiring	1	x1	-	Y

Chapter 3. EtherCAT Protocol

3.1. EtherCAT Communication Overview

3.1.1. EtherCAT Communication Interface

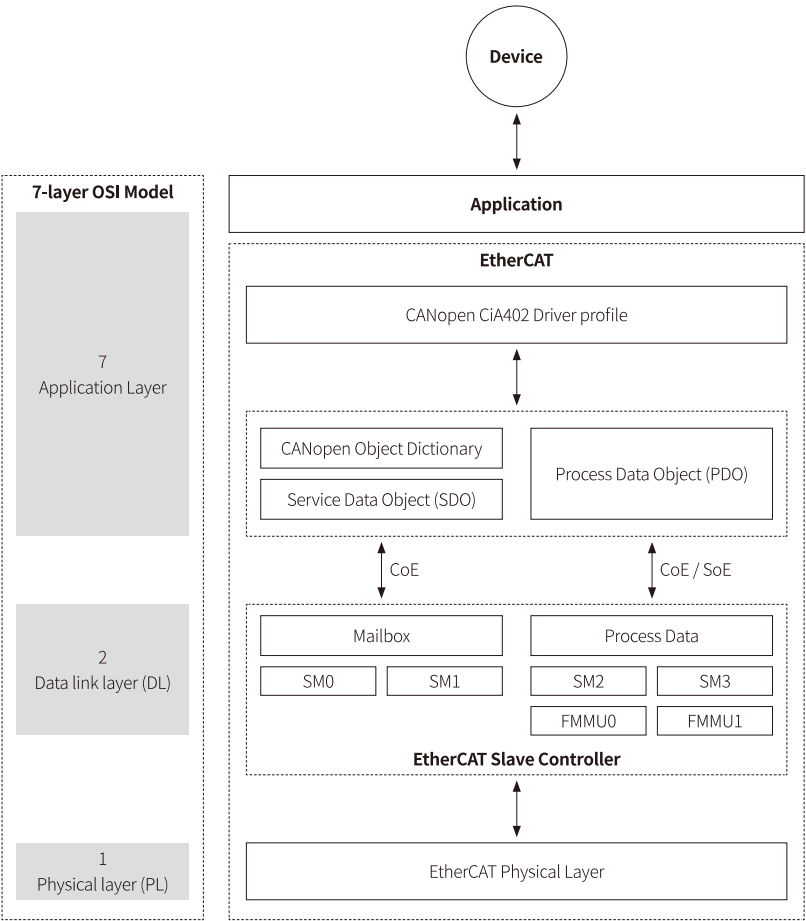
Communication method	EtherCAT
Physical layer / Protocol	100 BASE-TX / IEEE 802.3
Baudrate	10 / 100 Mbps
Comm. period (DC mode)	≥ 2 ms
Comm. port / connector	RJ45 $\times$ 2 (Shield confrontation) ECAT IN: EtherCAT input ECAT OUT: EtherCAT output
Topology	Daisy Chain (≤ 99 Node)
Process Data	Static PDO Mapping
Synd Manager	SM0: Mailbox input SM1: Mailbox output SM2: Process Data input SM3: Process Data output
Mailbox	SDO Mapping
Support protocol	CAN application protocol over EtherCAT
DC setting range	2 ms, 4 ms, 8 ms

3.2. EtherCAT Device Protocol

3.2.1. CANopen over EtherCAT (CoE)

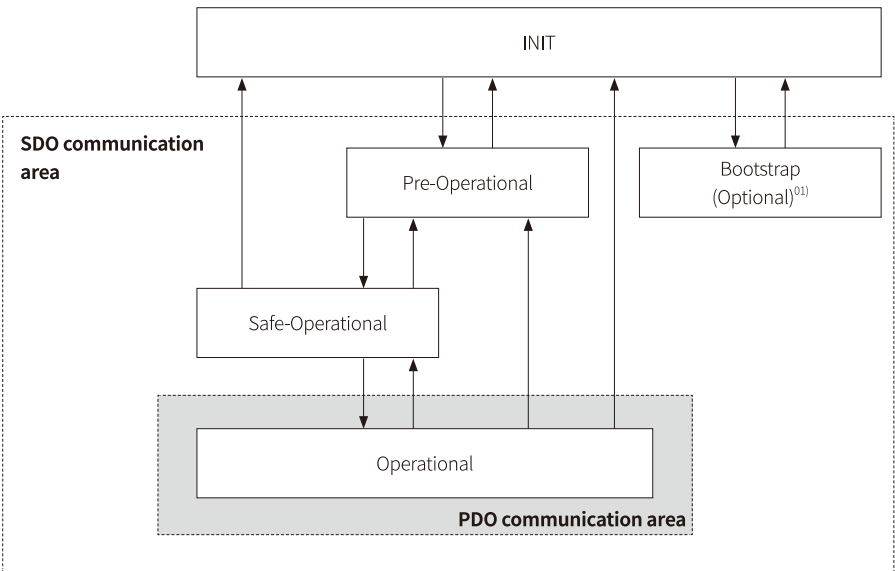
SPRS Series is a slave device that supports CANopen application protocol with built-in EtherCAT communication.

All objects of Slave device are defined in Object dictionary, and controlled in real time communication with Master and Slave through Buffered mode(PDO) and Mailbox mode(SDO) based on CAN communication protocol.



3.2.2. EtherCAT State Machine (ESM)

ESM is controlled by Master.



01) SPRS Series does not support Bootstrap.

ESM State	Status
Init (INIT)	Initialized state and comm. connection is not available.
Pre-Operational (Pre-OP)	After initializing, this state will turn into this and operate initial network setup. • SDO (Mailbox comm.) is only available.
Safe-Operational (Safe-OP)	Through TxPDO, the driver status is able to transferred to Master. • SDO (Mailbox comm.) and TxPDO (transmit) are available.
Operational (OP)	Through PDO comm., the command is able to received from Master to driver. • SDO (Mailbox comm.), TxPDO (transmit)and RxPDO (receive) are available.
Bootstrap (Boot)	Following state is mainly used for firmware upgrade. • SDO (Mailbox comm.) is only available.

3.2.3. SyncManager (SM)

In order to ensure the stability and consistency of data transmission between Master and Slave, the interrupt type channel is provided.

It is composed by Mater and able to configure communication mode and direction. It refers to specific memory buffer to exchange data, and SM accesses these memory buffers to exchange data.

SyncManager contains Mailbox mode and Buffered mode.

Channel	Operation mode	Start address	Descriptions
SM0	Receive Mailbox	0x1000	Mailbox dedicated input channel, Used for asynchronous data input.
SM1	Transmit Mailbox	0x1400	Mailbox dedicated output channel, Used for asynchronous data output.
SM2	Receive PDO	0x1800	PDO comm. mode dedicated input channel, Used for synchronous data input.
SM3	Transmit PDO	0x1C00	PDO comm. mode dedicated output channel, Used for synchronous data output.

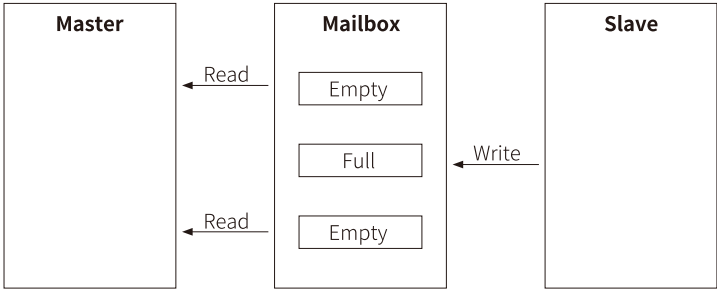
3.2.3.1. Mailbox Mode

Mailbox transmits/receives data only when either connection between Master and Slave is completed.

At first, the data is written to a buffer and saved in a buffer until the receive read the buffer.

There is no data loss due to Handshake mechanism is used.

It is asynchronous and is generally used for SDO communication.

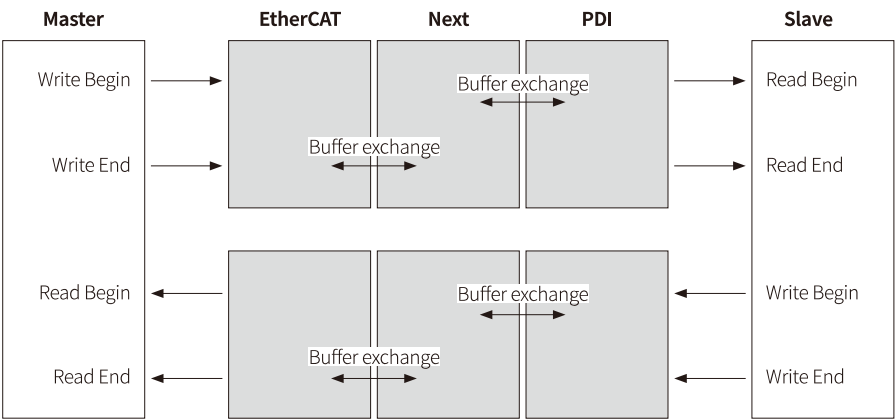


3.2.3.2. Buffered Mode

In Buffered mode, both Master and Slave can access the communication buffer at any time. The data transmit side can read the recently written buffer, and the data receive side can update the buffer value at all time.

If the writing speed from Master is faster than receiving buffer reading speed, the previous data will be dumped and writing is available immediately.

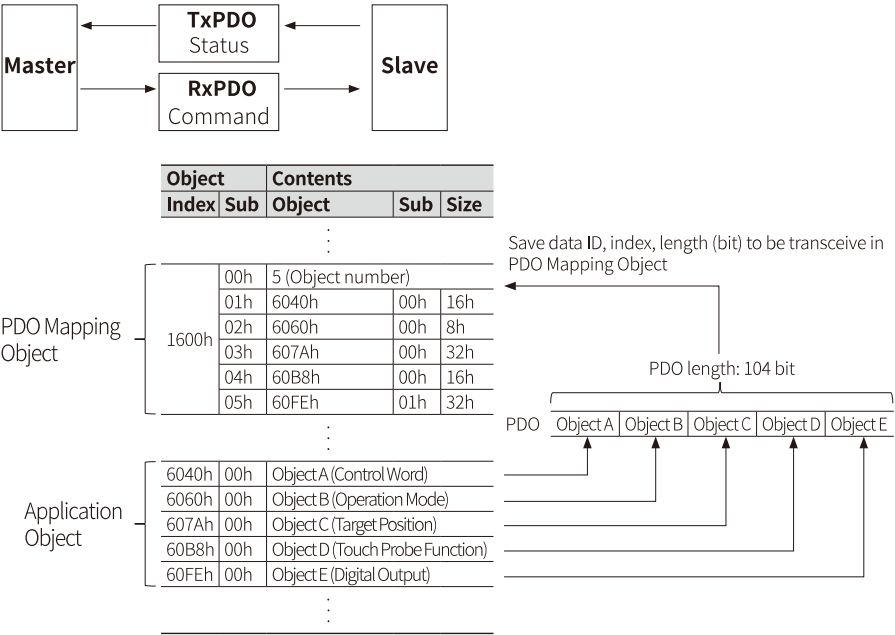
It is used for PDO communication that operates as a periodic signal.



3.2.4. Process Data Object (PDO)

Process Data Object (PDO) assigns Object and is used for real-time data transfer between Master and Slave.

PDO consists received RxPDO and transmit TxPDO. To mapping Object at the dedicated PDO to the assign data.



3.2.5. Service Data Object (SDO)

All objects defined in Object Dictionary are communicated asynchronously in Mailbox communication. It is used when the user sets a value for a specific object or monitors the status.

3.3. Communication Sync Mode

There are 3 communication sync mode.

Free-Run mode

Slave operates asynchronously by internal timer event independent of synchronization signal.

SM Event sync mode

Whenever RxPDO receive is completed from Master, SM event occurs.

Slave is synchronized on the corresponding signal. Jitter may take several μ s at the point of receive complete.

DC Event sync mode

Master and Slave operate in synchronized. At this point, jitter is available to real-time synchronous communication in several ns.

Communication cycle supports as 250 μ s, 500 μ s, 1 ms, 2 ms, 4 ms, 8 ms.

Chapter 4. EtherCAT Mapping Table

4.1. Process Data Object (PDO) [R / W: R]

4.1.1. SystemBit [Index: 6010h SystemBit]

Sub Index	Parameter	Description	Set range	BIT
0x01	RunStopFlag	RUN / STOP status	• 1: RUN • 0: STOP	1
0x02	AutomanFlag	AUTO / MAN status	• 1: MANU • 0: AUTO	1
0x03	IO_INPUT1	DI-1 status	• 1: ON • 0: OFF	1
0x04	IO_INPUT2	DI-2 status	• 1: ON • 0: OFF	1
0x05	IO_INPUT3	DI-3 status	• 1: ON • 0: OFF	1
0x06	IO_INPUT4	DI-4 status	• 1: ON • 0: OFF	1

4.1.2. Channel Input [Index: 6020h Channel_1_Input to 6050h Channel_4_Input]

Index List of Channel Input

No	Index
1	6020h Channel_1_Input
2	6030h Channel_2_Input
3	6040h Channel_3_Input
4	6050h Channel_4_Input

Details of Channel Input

Sub Index	Parameter	Description	Set range	BIT	Unit	Save
0x01	Alm_OC	Overcurrent alarm status	• 1: Alarm active • 0: Alarm inactive	1	-	N
0x02	Alm_OV	Overvoltage alarm status	• 1: Alarm active • 0: Alarm inactive	1	-	N
0x03	Alm_HTBK	Heater break alarm status	• 1: Alarm active • 0: Alarm inactive	1	-	N
0x04	Alm_UL	Load imbalance alarm status	• 1: Alarm active • 0: Alarm inactive	1	-	N
0x05	Alm_SCR_Short	SCR error alarm status	• 1: Alarm active • 0: Alarm inactive	1	-	N
0x06	Alm_FUSE	Fuse break alarm status	• 1: Alarm active • 0: Alarm inactive	1	-	N
0x07	Alm_Frqr	Frequency error alarm status	• 1: Alarm active • 0: Alarm inactive	1	-	N
0x08	Alm_DLF	Partial heater break alarm status	• 1: Alarm active • 0: Alarm inactive	1	-	N
0x09	Alm_OTW	Heatsink over heat alarm	• 1: OTW (Heatsink over heat alarm) active • 0: OTW (Heatsink over heat alarm) inactive	1	-	N

Sub Index	Parameter	Description	Set range	BIT	Unit	Save
0x0A	Alm_OTP	Heatsink over heat protection alarm status	• 1: OTP (heatsink over heat protection alarm) active • 0: OTP (heatsink over heat protection alarm) inactive	1	-	N
0x0B	Alm_FAN	FAN error alarm status	• 1: FAN (FAN error alarm) active • 0: FAN (FAN error alarm) inactive	1	-	N
0x0C	Alm_LowInPower	Input low voltage alarm status	• 1: Alarm active • 0: Alarm inactive	1	-	N
0x0D	Alm_PowerModule	Module connection error alarm status	• 1: Alarm active • 0: Alarm inactive	1	-	N
0x0E	DLF_CompleteFlag	Partial heater break alarm status	*1: Alarm active * 0: Alarm inactive	1	-	N
0x10	Input_MV_cnt	Input control value	-	16	%	N
0x11	OUT_MV_cnt	Output control value	-	16	%	N
0x12	INVolt	Load input voltage	-	16	V	N
0x13	OUTVolt	Load output voltage	-	16	V	N
0x14	Current	Load current	-	16	A	N
0x15	Watt	Load power	-	16	Kw	N
0x16	Resist	Load resistance	-	16	Ohm	N
0x17	SET_Frqr	Setting frequency	-	16	Hz	N
0x18	CurrentFrqr	Current frequency	-	16	Hz	N
0x19	SilkTemp	Heatsink temp.	-	16	°C	N
0x1A	Integratedvoltage_CH3	Accumulated power	-	32	kwh	N

4.1.3. Time [Index: 6060h Time]

Sub Index	Parameter	Description	BIT	Unit	Save
0x01	Year	Current year	16	Year	N
0x02	Month	Current month	16	Month	N
0x03	Day	Current day	16	Day	N
0x04	Hour	Current hour	16	Hour	N
0x05	Minute	Current minute	16	Minute	N

4.1.4. Channel output [Index: Channel_1_Output to Channel_4_Output]

Index	Sub Index	Parameter	Description	Set range	BIT	Unit	Save
7010h Channel_1_Output	0x01	CH1_Output_Value	CH1 output value	0 to 1000 (100.0)	16	%	N
7020h Channel_2_Output	0x01	CH2_Output_Value	CH2 output value	0 to 1000 (100.0)	16	%	N
7030h Channel_3_Output	0x01	CH3_Output_Value	CH3 output value	0 to 1000 (100.0)	16	%	N
7040h Channel_4_Output	0x01	CH4_Output_Value	CH4 output value	0 to 1000 (100.0)	16	%	N

4.2. Service Data Object (SDO) [R / W: R / W]

4.2.1. Status [Index: 8000h Device_State]

Sub Index	Parameter	Description	Set range	Save
0x01	InterComCont_CH1	No. of transmissions and receptions per second for power module CH1	-	Y
0x02	InterComCont_CH2	No. of transmissions and receptions per second for power module CH2	-	Y
0x03	InterComCont_CH3	No. of transmissions and receptions per second for power module CH3	-	Y
0x04	InterComCont_CH4	No. of transmissions and receptions per second for power module CH4	-	Y
0x05	DLFErrCode_CH1	Partial heater break alarm condition status	• 1: Alarm enabled status • 0: Alarm disabled status	Y
0x06	DLFErrCode_CH2	Partial heater break alarm condition status	• 1: Alarm enabled status • 0: Alarm disabled status	Y
0x07	DLFErrCode_CH3	Partial heater break alarm condition status	• 1: Alarm enabled status • 0: Alarm disabled status	Y

Sub Index	Parameter	Description	Set range	Save
0x08	DLFErrCode_CH4	Partial heater break alarm condition status	• 1: Alarm enabled status • 0: Alarm disabled status	Y

4.2.2. Control [Index: 8001h Device_Control_Config]

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x01	ConnectMode	Set wiring method	• 0: 1p1 • 1: 1p2 • 2: 1p3 • 3: 1p4 • 4: 2p1 • 5: 2p2 • 6: 2p1p1 • 7: 2p1p2 • 8: 3p1 • 9: 3p1p1	3	-	Y
0x02	LockModeSel	LCD setting step	• 0: NONE • 1: Lock1 • 2: Lock2	0	-	Y
0x03	EX485ProtocolSel	Modbus protocol selection	• 0: RTU • 1: ASCII	0	-	Y
0x05	EX485DeviceAddr	Device address	1 to 99	1	-	Y
0x06	EX485DeviceBps	Comm. speed setting	• 24 : 2400 • 48 : 4800 • 96 : 9600 • 144 : 14400 • 192 : 19200 • 384 : 38400 • 576 : 57600 • 1152 : 115200	96	BPS	Y
0x07	EX485DevicePbit	Parity bit setting	• 0: NONE • 1: EVEN • 2: ODD	0	-	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x08	EX485DeviceSbit	Stop bit setting	• 1: STOPBIT(1) • 2: STOPBIT(2)	1	-	Y
0x09	EX485DelayTime	Comm. delay time	0 to 9999	0	ms	Y
0x0A	EX485Copy	Parameter write enable/disable	• 0: OFF • 1: ON	1	-	Y
0x0C	DisplayLine1Sel	LINE1 monitor	• 0: mv_out: Output voltage • 1: senser_in: Sensor input • 2: OUT_V: Output voltage • 3: IN_V: Input voltage • 4: Amp: Current • 5: Watt: Power • 6: i_Watt: Power (current) • 7: ohm: Resistance • 8: Hz: Frequency • 9: Control: Control signal • 10: Connect: Connection status • 11: input: Input value • 12: Temp: Temperature • 13: pm_version: Firmware version • 14: pm_name: Firmware name	0	-	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x0D	DisplayLine2Sel	LINE2 monitor	• 0: CH1_Ctl_Output • 1: CH1_Ctl_Input • 2: CH1_U_vol • 3: CH1_i_vol • 4: CH1_U_amp • 5: CH1_U_wat • 6: CH1_U_res • 7: CH1_frqy • 8: CH1_Ctl_Mode • 9: CH1_tmp • 10: CH2_Ctl_Output • 11: CH2_Ctl_Input • 12: CH2_U_vol • 13: CH2_i_vol • 14: CH2_U_amp • 15: CH2_U_wat • 16: CH2_U_res • 17: CH2_frqy • 18: CH2_Ctl_Mode • 19: CH2_tmp • 20: CH3_Ctl_Output • 21: CH3_Ctl_Input • 22: CH3_U_vol • 23: CH3_i_vol • 24: CH3_U_amp • 25: CH3_U_wat • 26: CH3_U_res • 27: CH3_frqy • 28: CH3_Ctl_Mode	4	-	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x0D	DisplayLine2Sel	LINE2 monitor	• 29: CH3_tmp • 30: CH4_Ctl_Output • 31: CH4_Ctl_Input • 32: CH4_U_vol • 33: CH4_i_vol • 34: CH4_U_amp • 35: CH4_U_wat • 36: CH4_U_res • 37: CH4_frqy • 38: CH4_Ctl_Mode • 39: CH4_tmp	4	-	Y
0x0E	DisplayLine3Sel	LINE3 monitor	• 0: CH1_Ctl_Output • 1: CH1_Ctl_Input • 2: CH1_U_vol • 3: CH1_i_vol • 4: CH1_U_amp • 5: CH1_U_wat • 6: CH1_U_res • 7: CH1_frqy • 8: CH1_Ctl_Mode • 9: CH1_tmp • 10: CH2_Ctl_Output • 11: CH2_Ctl_Input • 12: CH2_U_vol • 13: CH2_i_vol • 14: CH2_U_amp • 15: CH2_U_wat • 16: CH2_U_res • 17: CH2_frqy	14	-	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x0E	DisplayLine3Sel	LINE3 monitor	• 18: CH2_Ctl_Mode • 19: CH2_tmp • 20: CH3_Ctl_Output • 21: CH3_Ctl_Input • 22: CH3_U_vol • 23: CH3_i_vol • 24: CH3_U_amp • 25: CH3_U_wat • 26: CH3_U_res • 27: CH3_frqy • 28: CH3_Ctl_Mode • 29: CH3_tmp • 30: CH4_Ctl_Output • 31: CH4_Ctl_Input • 32: CH4_U_vol • 33: CH4_i_vol • 34: CH4_U_amp • 35: CH4_U_wat • 36: CH4_U_res • 37: CH4_frqy • 38: CH4_Ctl_Mode • 39: CH4_tmp	14	-	Y
0x0F	DisplayLine4Sel	LINE4 monitor	• 0: CH1_Ctl_Output • 1: CH1_Ctl_Input • 2: CH1_U_vol • 3: CH1_i_vol • 4: CH1_U_amp • 5: CH1_U_wat • 6: CH1_U_res	24	-	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x0F	DisplayLine4Sel	LINE4 monitor	• 7: CH1_frqy • 8: CH1_Ctl_Mode • 9: CH1_tmp • 10: CH2_Ctl_Output • 11: CH2_Ctl_Input • 12: CH2_U_vol • 13: CH2_i_vol • 14: CH2_U_amp • 15: CH2_U_wat • 16: CH2_U_res • 17: CH2_frqy • 18: CH2_Ctl_Mode • 19: CH2_tmp • 20: CH3_Ctl_Output • 21: CH3_Ctl_Input • 22: CH3_U_vol • 23: CH3_i_vol • 24: CH3_U_amp • 25: CH3_U_wat • 26: CH3_U_res • 27: CH3_frqy • 28: CH3_Ctl_Mode • 29: CH3_tmp • 30: CH4_Ctl_Output • 31: CH4_Ctl_Input • 32: CH4_U_vol • 33: CH4_i_vol • 34: CH4_U_amp • 35: CH4_U_wat	24	-	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x0F	DisplayLine4Sel	LINE4 monitor	• 36: CH4_U_res • 37: CH4_frqy • 38: CH4_Ctl_Mode • 39: CH4_tmp	24	-	Y
0x10	ALMSaveUseEnable	Alarm log use	• 0: OFF • 1: ON	0	-	Y
0x12	config_year	Current year setting	2000 to 2100	25	Year	Y
0x13	config_month	Current month setting	1 to 12	1	Month	Y
0x14	config_day	Current day setting	1 to 31	1	Day	Y
0x15	config_hour	Current hour setting	0 to 23	0	Hour	Y
0x16	config_minute	Current minute setting	0 to 59	0	Minute	Y
0x17	TimeSetEnable	Time setting	0→1	0	-	Y
0x18	ALMSaveCleanStart	Alarm log reset setting	0→1	-	-	Y
0x19	DLFStart_CH1	CH1 partial heater break start	0→1	-	-	Y
0x1A	DLFStart_CH2	CH2 partial heater break start	0→1	-	-	Y
0x1B	DLFStart_CH3	CH3 partial heater break start	0→1	-	-	Y
0x1C	DLFStart_CH4	CH4 partial heater break start	0→1	-	-	Y
0x1D	WiringMode	3-phase wiring mode	• 0: Star wiring • 1: Delta wiring	1	-	Y

4.2.3. CH1 Setting [Index: 8002h CH1_Config]

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x01	Input_Ch	Control input channel setting	• 0: Input_4_20mA_CH1 • 1: Input_4_20mA_CH2 • 2: Input_4_20mA_CH3 • 3: Input_4_20mA_CH4 • 4: Input_1_5V • 5: Input_0_5V • 6: Input_0_10V • 7: Input_EX_R • 8: Input_RS485 • 9: Input_Fieldbus	1	-	Y
0x02	Load_Sel	Load type setting	• 0: ILOAD_Resis • 1: ILOAD_Trans	0	-	Y
0x04	Control_Mode	Control method setting	• 0: OUT_MD_PHASE_N • 1: OUT_MD_CYCLE_N • 2: OUT_MD_CYCLE_D • 3: OUT_MD_FB_C • 4: OUT_MD_FB_V • 5: OUT_MD_FB_W	0	-	Y
0x05	fb_Responsetime	Feedback control speed adjustment	0(Slow) to 100(Fast)	100	-	Y
0x06	v_fb_max	Feedback control max. value	100 to 1100 (100% output value)	440	%	Y
0x07	c_fb_max	Feedback control max. value	100 to 1100 (100% output value)	1000	%	Y
0x08	w_fb_max	Feedback control max. value	100 to 1100 (100% output value)	1000	%	Y
0x09	StartTime	Soft start value	0 to 9999	3	s	Y
0x0A	SoftUPTime	Soft up value	0 to 9999	3	s	Y
0x0B	SoftDownTime	Soft down value	0 to 9999	3	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x0C	DLFLoadNum	No. of multi-loads input	2 to 6	2	-	Y
0x0D	DLFMaxOutPutLimit	Set max. control input to scan	250 , 500 , 750 , 1000	1000	%	Y
0x0F	DLFTuningUp	Up Scan time setting	0 to 10	1	-	Y
0x10	DLFTuningDown	Down Scan time setting	0 to 10	1	-	Y
0x11	OutputMin	Min. control input	0 to 1000	0	%	Y
0x12	OutputMax	Max. control input	0 to 1000	1000	%	Y
0x13	CurrentLimit	Current limit value	100 to 1100	1100	%	Y
0x14	PDCTotal	No. of PDC power modules	2 to 36	4	-	Y
0x15	PDCid	PDC control power module ID	1 to 36	2	-	Y
0x16	SlopeOutputRate	Input calibration slope	-999 to 999	0	%	Y
0x17	OffsetOutputRate	Input calibration OFFSET	-999 to 999	0	%	Y
0x18	OCAImEnable	Overcurrent alarm use	• 0: OFF • 1: ON	1	-	Y
0x19	OCOUTSTSel	Check output status of overcurrent alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x1A	OCAutoRecovery	Overcurrent alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x1C	OCCurrent	Overcurrent alarm value	10 to 1100	1100	%	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x1D	OCDelayTime	Delay time of overcurrent alarm	3 to 600	5	s	Y
0x1E	OCOutputSel	Set output relay of overcurrent alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x1F	OValmEnable	Overvoltage alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x20	OVOUTSTSel	Check output status of overvoltage alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x21	OVAutoRecovery	Overvoltage alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x23	OVVolt	Overvoltage alarm value	200 to 5500	5500	V	Y
0x24	OVDelayTime	Delay time of overvoltage alarm	3 to 600	5	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x25	OVOutputSel	Set output relay of overvoltage alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x26	HTBKAlmEnable	Heater break alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x27	HTBKOUTSTSel	Check output status of heater break alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x28	HTBKAutoRecovery	Heater break alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x2A	HTBKPercent	Heater break alarm comparison value	Heater break alarm comparison value	500	%	Y
0x2B	HTBKLimitCurrent	Heater break alarm value	Heater break alarm value	0	A	Y
0x2C	HTBKDelayTime	Delay time of heater break alarm	Delay time	5	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x2D	HTBKOutputSel	Set output relay of heater break alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x2E	SCRAlmEnable	SCR error alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x2F	SCROUTSTSel	Check output status of SCR error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x30	SCRAutoRecovery	SCR error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x32	SCRPercent	SCR error alarm comparison value	0 to 1000	0	%	Y
0x33	SCRLimitCurrent	SCR error alarm value	0 to 6600	50	A	Y
0x34	SCRDelayTime	Delay time of SCR short alarm	3 to 600	5	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x35	SCROutputSel	Set output relay of SCR error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x36	FuseAlmEnable	Fuse alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x37	FuseOUTSTSel	Check output status of fuse alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x38	FuseAutoRecovery	Fuse alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x3A	FuseDelayTime	Delay time of fuse alarm	3 to 600	5	s	Y
0x3B	FuseOutputSel	Set output relay of fuse alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x3C	FrqyAlmEnable	Frequency error alarm enable/disable	• 0: OFF • 1: ON	0	-	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x3D	FrqyOUTSTSel	Check output status of frequency error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x3E	FrqyAutoRecovery	Frequency error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x40	FrqyDelayTime	Dealy time of Frequency error alarm	3 to 600	5	s	Y
0x41	FrqyOutputSel	Set output relay of Frequency error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x42	DLFAlmEnable	Partial heater break alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x43	DLFOUTSTSel	Check output status of partial heater break alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x44	DLFAutoRecovery	Partial heater break alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x46	DLFDeadZoneCurrent	Set current of partial heater break alarm	Set current of partial heater break alarm	3	A	Y
0x47	DLFDelayTime	Delay time	3 to 600	5	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x48	DLFOutputSel	Set output relay of partial heater break alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x49	OT_W_60_AlmEnable	Temperature warning alarm enable/disable	• 0: OFF • 1: ON	0	-	Y
0x4A	OT_W_60_Temp	Set detection temperature of temperature warning alarm	50 to 70	60	°C	Y
0x4B	OT_W_60_DelayTime	Delay time of temperature warning alarm	3 to 600	5	s	Y
0x4D	OT_W_60_OUTSTSel	Check output status of temperature warning alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x4E	OT_W_60_OutputSel	Set output relay of temperature warning alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x4F	OT_W_60_AutoRecovery	Temperature warning alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x50	OT_P_80_AlmEnable	Temperature alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x51	OT_P_80_Temp	Set detection temperature of temperature alarm	70 to 90	80	°C	Y
0x52	OT_P_80_DelayTime	Delay time of temperature warning alarm	3 to 600	5	s	Y
0x54	OT_P_80_OUTSTSel	Check output status of temperature alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x55	OT_P_80_OutputSel	Set output relay of temperature alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x56	OT_P_80_AutoRecovery	Temperature alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x57	FanAlmEnable	FAN error alarm enable/disable	• 0: OFF • 1: ON	0	-	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x58	FanOUTSTSel	Check output status of FAN error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x59	FanAutoRecovery	FAN error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x5B	FanDelayTime	Delay time of FAN error alarm	3 to 600	5	s	Y
0x5C	FanOutputSel	Delay time of FAN error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x5D	LowPowerAlmEnable	Input low voltage alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x5E	LowPowerOUTSTSel	Check output status of Input low voltage alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x5F	LowPowerAutoRecovery	Input low voltage alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x61	LowPowerLimitVoltage	Input low voltage alarm value	500 to 5000	500	V	Y
0x62	LowPowerDelayTime	Delay time of Input low voltage alarm	3 to 600	5	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x63	LowPowerOutputSel	Set output relay of Input low voltage alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x64	ModuleAlmEnable	Module connection error alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x65	ModuleOUTSTSel	Check output status of module connection error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x66	ModuleAutoRecovery	Module connection error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x68	ModuleDelayTime	Delay time of module connection error alarm	3 to 600	5	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x69	ModuleOutputSel	Set output relay of module connection error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x6A	ULAlmEnable	Load imbalance alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x6B	ULOUTSTSel	Check output status of load imbalance alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x6C	ULAutoRecovery	Load imbalance alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x6D	ULLimitPercent	Imbalance rate of load imbalance alarm	50 to 1000	300	%	Y
0x6F	ULDelayTime	Delay time of load imbalance alarm	3 to 600	5	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x70	ULOutputSel	Set output relay of load imbalance alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x71	p_gain	P Gain setting	1 to 300	60	-	Y
0x72	i_gain	I Gain setting	1 to 300	60	-	Y
0x73	DIInputConfig	DI-setting control method setting	• 0: No DI setting • 1: Used for DI RUN/STOP • 2: Used for DI AUTO/MAN • 3: Used for DI current ALM reset	1	-	Y

4.2.4. CH2 Setting [Index: 8003h CH2_Config]

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x01	Input_Ch	Control input channel setting	• 0: Input_4_20mA_CH1 • 1: Input_4_20mA_CH2 • 2: Input_4_20mA_CH3 • 3: Input_4_20mA_CH4 • 4: Input_1_5V • 5: Input_0_5V • 6: Input_0_10V • 7: Input_EX_R • 8: Input_RS485 • 9: Input_Fieldbus	1	-	Y
0x02	Load_Sel	Load type setting	• 0: ILOAD_Resis • 1: ILOAD_Trans	0	-	Y
0x04	Control_Mode	Control method setting	• 0: OUT_MD_PHASE_N • 1: OUT_MD_CYCLE_N • 2: OUT_MD_CYCLE_D • 3: OUT_MD_FB_C • 4: OUT_MD_FB_V • 5: OUT_MD_FB_W	0	-	Y
0x05	fb_Responsetime	Feedback control speed adjustment	0(Slow) to 100(Fast)	100	-	Y
0x06	v_fb_max	Feedback control max. value	100 to 1100 (100% output value)	440	%	Y
0x07	c_fb_max	Feedback control max. value	100 to 1100 (100% output value)	1000	%	Y
0x08	w_fb_max	Feedback control max. value	100 to 1100 (100% output value)	1000	%	Y
0x09	StartTime	Soft start value	0 to 9999	3	s	Y
0x0A	SoftUPTime	Soft up value	0 to 9999	3	s	Y
0x0B	SoftDownTime	Soft down value	0 to 9999	3	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x0C	DLFLoadNum	No. of multi-loads input	2 to 6	2	-	Y
0x0D	DLFMaxOutPutLimit	Set max. control input to scan	250 , 500 , 750 , 1000	1000	%	Y
0x0F	DLFTuningUp	Up Scan time setting	0 to 10	1	-	Y
0x10	DLFTuningDown	Down Scan time setting	0 to 10	1	-	Y
0x11	OutputMin	Min. control input	0 to 1000	0	%	Y
0x12	OutputMax	Max. control input	0 to 1000	1000	%	Y
0x13	CurrentLimit	Current limit value	100 to 1100	1100	%	Y
0x14	PDCTotal	No. of PDC power modules	2 to 36	4	-	Y
0x15	PDCid	PDC control power module ID	1 to 36	2	-	Y
0x16	SlopeOutputRate	Input calibration slope	-999 to 999	0	%	Y
0x17	OffsetOutputRate	Input calibration OFFSET	-999 to 999	0	%	Y
0x18	OCAImEnable	Overcurrent alarm use	• 0: OFF • 1: ON	1	-	Y
0x19	OCOUTSTSel	Check output status of overcurrent alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x1A	OCAutoRecovery	Overcurrent alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x1C	OCCurrent	Overcurrent alarm value	10 to 1100	1100	%	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x1D	OCDelayTime	Delay time of overcurrent alarm	3 to 600	5	s	Y
0x1E	OCOOutputSel	Set output relay of overcurrent alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x1F	OVALmEnable	Overvoltage alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x20	OVOUSTSTSel	Check output status of overvoltage alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x21	OVAutoRecovery	Overvoltage alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x23	OVVolt	Overvoltage alarm value	200 to 5500	5500	V	Y
0x24	OVDelayTime	Delay time of overvoltage alarm	3 to 600	5	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x25	OVOutputSel	Set output relay of overvoltage alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x26	HTBKAlmEnable	Heater break alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x27	HTBKOUTSTSel	Check output status of heater break alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x28	HTBKAutoRecovery	Heater break alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x2A	HTBKPercent	Heater break alarm comparison value	Heater break alarm comparison value	500	%	Y
0x2B	HTBKLimitCurrent	Heater break alarm value	Heater break alarm value	0	A	Y
0x2C	HTBKDelayTime	Delay time of heater break alarm	Delay time	5	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x2D	HTBKOutputSel	Set output relay of heater break alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x2E	SCRAlmEnable	SCR error alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x2F	SCROUTSTSel	Check output status of SCR error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x30	SCRAutoRecovery	SCR error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x32	SCRPercent	SCR error alarm comparison value	0 to 1000	0	%	Y
0x33	SCRLimitCurrent	SCR error alarm value	0 to 6600	50	A	Y
0x34	SCRDelayTime	Delay time of SCR short alarm	3 to 600	5	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x35	SCROutputSel	Set output relay of SCR error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x36	FuseAlmEnable	Fuse alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x37	FuseOUTSTSel	Check output status of fuse alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x38	FuseAutoRecovery	Fuse alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x3A	FuseDelayTime	Delay time of fuse alarm	3 to 600	5	s	Y
0x3B	FuseOutputSel	Set output relay of fuse alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x3C	FrqyAlmEnable	Frequency error alarm enable/disable	• 0: OFF • 1: ON	0	-	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x3D	FrqyOUTSTSel	Check output status of frequency error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x3E	FrqyAutoRecovery	Frequency error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x40	FrqyDelayTime	Dealy time of Frequency error alarm	3 to 600	5	s	Y
0x41	FrqyOutputSel	Set output relay of Frequency error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x42	DLFAlmEnable	Partial heater break alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x43	DLFOUTSTSel	Check output status of partial heater break alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x44	DLFAutoRecovery	Partial heater break alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x46	DLFDeadZoneCurrent	Set current of partial heater break alarm	Set current of partial heater break alarm	3	A	Y
0x47	DLFDelayTime	Delay time	3 to 600	5	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x48	DLFOutputSel	Set output relay of partial heater break alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x49	OT_W_60_AlmEnable	Temperature warning alarm enable/disable	• 0: OFF • 1: ON	0	-	Y
0x4A	OT_W_60_Temp	Set detection temperature of temperature warning alarm	50 to 70	60	°C	Y
0x4B	OT_W_60_DelayTime	Delay time of temperature warning alarm	3 to 600	5	s	Y
0x4D	OT_W_60_OUTSTSel	output status of temperature warning alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x4E	OT_W_60_OutputSel	Set output relay of temperature warning alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x4F	OT_W_60_AutoRecovery	Temperature warning alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x50	OT_P_80_AlmEnable	Temperature alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x51	OT_P_80_Temp	Set detection temperature of temperature alarm	70 to 90	80	°C	Y
0x52	OT_P_80_DelayTime	Delay time of temperature warning alarm	3 to 600	5	s	Y
0x54	OT_P_80_OUTSTSel	Check output status of temperature alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x55	OT_P_80_OutputSel	Set output relay of temperature alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x56	OT_P_80_AutoRecovery	Temperature alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x57	FanAlmEnable	FAN error alarm enable/disable	• 0: OFF • 1: ON	0	-	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x58	FanOUTSTSel	Check output status of FAN error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x59	FanAutoRecovery	FAN error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x5B	FanDelayTime	Delay time of FAN error alarm	3 to 600	5	s	Y
0x5C	FanOutputSel	Delay time of FAN error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x5D	LowPowerAlmEnable	Input low voltage alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x5E	LowPowerOUTSTSel	Check output status of Input low voltage alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x5F	LowPowerAutoRecovery	Input low voltage alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x61	LowPowerLimitVolt	Input low voltage alarm value	500 to 5000	500	V	Y
0x62	LowPowerDelayTime	Delay time of Input low voltage alarm	3 to 600	5	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x63	LowPowerOutputSel	Set output relay of Input low voltage alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x64	ModuleAlmEnable	Module connection error alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x65	ModuleOUTSTSel	Check output status of module connection error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x66	ModuleAutoRecovery	Module connection error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x68	ModuleDelayTime	Delay time of module connection error alarm	3 to 600	5	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x69	ModuleOutputSel	Set output relay of module connection error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x6A	ULAlmEnable	Load imbalance alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x6B	ULOUTSTSel	Check output status of load imbalance alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x6C	ULAutoRecovery	Load imbalance alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x6D	ULLimitPercent	Imbalance rate of load imbalance alarm	50 to 1000	300	%	Y
0x6F	ULDelayTime	Delay time of load imbalance alarm	3 to 600	5	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x70	ULOutputSel	Set output relay of load imbalance alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x71	p_gain	P Gain setting	1 to 300	60	-	Y
0x72	i_gain	I Gain setting	1 to 300	60	-	Y
0x73	DIInputConfig	DI-setting control method setting	• 0: No DI setting • 1: Used for DI RUN/STOP • 2: Used for DI AUTO/MAN • 3: Used for DI current ALM reset	1	-	Y

4.2.5. CH3 Setting [Index: 8004h CH3_Config]

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x01	Input_Ch	Control input channel setting	• 0: Input_4_20mA_CH1 • 1: Input_4_20mA_CH2 • 2: Input_4_20mA_CH3 • 3: Input_4_20mA_CH4 • 4: Input_1_5V • 5: Input_0_5V • 6: Input_0_10V • 7: Input_EX_R • 8: Input_RS485 • 9: Input_Fieldbus	1	-	Y
0x02	Load_Sel	Load type setting	• 0: ILOAD_Resis • 1: ILOAD_Trans	0	-	Y
0x04	Control_Mode	Control method setting	• 0: OUT_MD_PHASE_N • 1: OUT_MD_CYCLE_N • 2: OUT_MD_CYCLE_D • 3: OUT_MD_FB_C • 4: OUT_MD_FB_V • 5: OUT_MD_FB_W	0	-	Y
0x05	fb_Responsetime	Feedback control speed adjustment	0(Slow) to 100(Fast)	100	-	Y
0x06	v_fb_max	Feedback control max. value	100 to 1100 (100% output value)	440	%	Y
0x07	c_fb_max	Feedback control max. value	100 to 1100 (100% output value)	1000	%	Y
0x08	w_fb_max	Feedback control max. value	100 to 1100 (100% output value)	1000	%	Y
0x09	StartTime	Soft start value	0 to 9999	3	s	Y
0x0A	SoftUPTime	Soft up value	0 to 9999	3	s	Y
0x0B	SoftDownTime	Soft down value	0 to 9999	3	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x0C	DLFLoadNum	No. of multi-loads input	2 to 6	2	-	Y
0x0D	DLFMaxOutPutLimit	Set max. control input to scan	250 , 500 , 750 , 1000	1000	%	Y
0x0F	DLFTuningUp	Up Scan time setting	0 to 10	1	-	Y
0x10	DLFTuningDown	Down Scan time setting	0 to 10	1	-	Y
0x11	OutputMin	Min. control input	0 to 1000	0	%	Y
0x12	OutputMax	Max. control input	0 to 1000	1000	%	Y
0x13	CurrentLimit	Current limit value	100 to 1100	1100	%	Y
0x14	PDCTotal	No. of PDC power modules	2 to 36	4	-	Y
0x15	PDCid	PDC control power module ID	1 to 36	2	-	Y
0x16	SlopeOutputRate	Input calibration slope	-999 to 999	0	%	Y
0x17	OffsetOutputRate	Input calibration OFFSET	-999 to 999	0	%	Y
0x18	OCAImEnable	Overcurrent alarm use	• 0: OFF • 1: ON	1	-	Y
0x19	OCOUTSTSel	Check output status of overcurrent alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x1A	OCAutoRecovery	Overcurrent alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x1C	OCCurrent	Overcurrent alarm value	10 to 1100	1100	%	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x1D	OCDelayTime	Delay time of overcurrent alarm	3 to 600	5	s	Y
0x1E	OCOutputSel	Set output relay of overcurrent alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x1F	OValmEnable	Overvoltage alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x20	OVOUTSTSel	Check output status of overvoltage alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x21	OVAutoRecovery	Overvoltage alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x23	OVVOLT	Overvoltage alarm value	200 to 5500	5500	V	Y
0x24	OVDelayTime	Delay time of overvoltage alarm	3 to 600	5	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x25	OVOutputSel	Set output relay of overvoltage alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x26	HTBKAlmEnable	Heater break alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x27	HTBKOUTSTSel	Check output status of heater break alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x28	HTBKAutoRecovery	Heater break alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x2A	HTBKPercent	Heater break alarm comparison value	Heater break alarm comparison value	500	%	Y
0x2B	HTBKLimitCurrent	Heater break alarm value	Heater break alarm value	0	A	Y
0x2C	HTBKDelayTime	Delay time of heater break alarm	Delay time	5	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x2D	HTBKOutputSel	Set output relay of heater break alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x2E	SCRAlmEnable	SCR error alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x2F	SCROUTSTSel	Check output status of SCR error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x30	SCRAutoRecovery	SCR error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x32	SCRPercent	SCR error alarm comparison value	0 to 1000	0	%	Y
0x33	SCRLimitCurrent	SCR error alarm value	0 to 6600	50	A	Y
0x34	SCRDelayTime	Delay time of SCR short alarm	3 to 600	5	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x35	SCROutputSel	Set output relay of SCR error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x36	FuseAlmEnable	Fuse alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x37	FuseOUTSTSel	Check output status of fuse alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x38	FuseAutoRecovery	Fuse alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x3A	FuseDelayTime	Delay time of fuse alarm	3 to 600	5	s	Y
0x3B	FuseOutputSel	Set output relay of fuse alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x3C	FrqyAlmEnable	Frequency error alarm enable/disable	• 0: OFF • 1: ON	0	-	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x3D	FrqyOUTSTSel	Check output status of frequency error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x3E	FrqyAutoRecovery	Frequency error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x40	FrqyDelayTime	Dealy time of Frequency error alarm	3 to 600	5	s	Y
0x41	FrqyOutputSel	Set output relay of Frequency error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x42	DLFAImEnable	Partial heater break alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x43	DLFOUTSTSel	Check output status of partial heater break alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x44	DLFAutoRecovery	Partial heater break alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x46	DLFDeadZoneCurrent	Set current of partial heater break alarm	Set current of partial heater break alarm	3	A	Y
0x47	DLFDelayTime	Delay time	3 to 600	5	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x48	DLFOutputSel	Set output relay of partial heater break alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x49	OT_W_60_AlmEnable	Temperature warning alarm enable/disable	• 0: OFF • 1: ON	0	-	Y
0x4A	OT_W_60_Temp	Set detection temperature of temperature warning alarm	50 to 70	60	°C	Y
0x4B	OT_W_60_DelayTime	Delay time of temperature warning alarm	3 to 600	5	s	Y
0x4D	OT_W_60_OUTSTSel	Check output status of temperature warning alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x4E	OT_W_60_OutputSel	Set output relay of temperature warning alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x4F	OT_W_60_AutoRecovery	Temperature warning alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x50	OT_P_80_AlmEnable	Temperature alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x51	OT_P_80_Temp	Set detection temperature of temperature alarm	70 to 90	80	°C	Y
0x52	OT_P_80_DelayTime	Delay time of temperature warning alarm	3 to 600	5	s	Y
0x54	OT_P_80_OUTSTSEL	Check output status of temperature alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x55	OT_P_80_OutputSEL	Set output relay of temperature alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x56	OT_P_80_AutoRecovery	Temperature alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x57	FanAlmEnable	FAN error alarm enable/disable	• 0: OFF • 1: ON	0	-	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x58	FanOUTSTSel	Check output status of FAN error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x59	FanAutoRecovery	FAN error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x5B	FanDelayTime	Delay time of FAN error alarm	3 to 600	5	s	Y
0x5C	FanOutputSel	Delay time of FAN error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x5D	LowPowerAlmEnable	Input low voltage alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x5E	LowPowerOUTSTSel	Check output status of Input low voltage alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x5F	LowPowerAutoRecovery	Input low voltage alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x61	LowPowerLimitVoltage	Input low voltage alarm value	500 to 5000	500	V	Y
0x62	LowPowerDelayTime	Delay time of Input low voltage alarm	3 to 600	5	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x63	LowPowerOutput Sel	Set output relay of Input low voltage alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x64	ModuleAlmEnable	Module connection error alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x65	ModuleOUTSTSel	Check output status of module connection error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x66	ModuleAutoRecovery	Module connection error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x68	ModuleDelayTime	Delay time of module connection error alarm	3 to 600	5	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x69	ModuleOutputSel	Set output relay of module connection error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x6A	ULAlmEnable	Load imbalance alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x6B	ULOUTSTSel	Check output status of load imbalance alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x6C	ULAutoRecovery	Load imbalance alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x6D	ULLimitPercent	Imbalance rate of load imbalance alarm	50 to 1000	300	%	Y
0x6F	ULDelayTime	Delay time of load imbalance alarm	3 to 600	5	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x70	ULOutputSel	Set output relay of load imbalance alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x71	p_gain	P Gain setting	1 to 300	60	-	Y
0x72	i_gain	I Gain setting	1 to 300	60	-	Y
0x73	DIInputConfig	DI-setting control method setting	• 0: No DI setting • 1: Used for DI RUN/STOP • 2: Used for DI AUTO/MAN • 3: Used for DI current ALM reset	1	-	Y

4.2.6. CH4 Setting [Index: 8005h CH4_Config]

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x01	Input_Ch	Control input channel setting	• 0: Input_4_20mA_CH1 • 1: Input_4_20mA_CH2 • 2: Input_4_20mA_CH3 • 3: Input_4_20mA_CH4 • 4: Input_1_5V • 5: Input_0_5V • 6: Input_0_10V • 7: Input_EX_R • 8: Input_RS485 • 9: Input_Fieldbus	1	-	Y
0x02	Load_Sel	Load type setting	• 0: ILOAD_Resis • 1: ILOAD_Trans	0	-	Y
0x04	Control_Mode	Control method setting	• 0: OUT_MD_PHASE_N • 1: OUT_MD_CYCLE_N • 2: OUT_MD_CYCLE_D • 3: OUT_MD_FB_C • 4: OUT_MD_FB_V • 5: OUT_MD_FB_W	0	-	Y
0x05	fb_Responsetime	Feedback control speed adjustment	0(Slow) to 100(Fast)	100	-	Y
0x06	v_fb_max	Feedback control max. value	100 to 1100 (100% output value)	440	%	Y
0x07	c_fb_max	Feedback control max. value	100 to 1100 (100% output value)	1000	%	Y
0x08	w_fb_max	Feedback control max. value	100 to 1100 (100% output value)	1000	%	Y
0x09	StartTime	Soft start value	0 to 9999	3	s	Y
0x0A	SoftUPTime	Soft up value	0 to 9999	3	s	Y
0x0B	SoftDownTime	Soft down value	0 to 9999	3	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x0C	DLFLoadNum	No. of multi-loads input	2 to 6	2	-	Y
0x0D	DLFMaxOutPutLimit	Set max. control input to scan	250 , 500 , 750 , 1000	1000	%	Y
0x0F	DLFTuningUp	Up Scan time setting	0 to 10	1	-	Y
0x10	DLFTuningDown	Down Scan time setting	0 to 10	1	-	Y
0x11	OutputMin	Min. control input	0 to 1000	0	%	Y
0x12	OutputMax	Max. control input	0 to 1000	1000	%	Y
0x13	CurrentLimit	Current limit value	100 to 1100	1100	%	Y
0x14	PDCTotal	No. of PDC power modules	2 to 36	4	-	Y
0x15	PDCid	PDC control power module ID	1 to 36	2	-	Y
0x16	SlopeOutputRate	Input calibration slope	-999 to 999	0	%	Y
0x17	OffsetOutputRate	Input calibration OFFSET	-999 to 999	0	%	Y
0x18	OCAImEnable	Overcurrent alarm use	• 0: OFF • 1: ON	1	-	Y
0x19	OCOUTSTSel	Check output status of overcurrent alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x1A	OCAutoRecovery	Overcurrent alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x1C	OCCurrent	Overcurrent alarm value	10 to 1100	1100	%	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x1D	OCDelayTime	Delay time of overcurrent alarm	3 to 600	5	s	Y
0x1E	OCOOutputSel	Set output relay of overcurrent alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x1F	OVALmEnable	Overvoltage alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x20	OVOUSTSTSel	Check output status of overvoltage alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x21	OVAutoRecovery	Overvoltage alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x23	OVVolt	Overvoltage alarm value	200 to 5500	5500	V	Y
0x24	OVDelayTime	Delay time of overvoltage alarm	3 to 600	5	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x25	OVOOutputSel	Set output relay of overvoltage alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x26	HTBKAlmEnable	Heater break alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x27	HTBKOUTSTSel	Check output status of heater break alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x28	HTBKAutoRecovery	Heater break alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x2A	HTBKPercent	Heater break alarm comparison value	Heater break alarm comparison value	500	%	Y
0x2B	HTBKLimitCurrent	Heater break alarm value	Heater break alarm value	0	A	Y
0x2C	HTBKDelayTime	Delay time of heater break alarm	Delay time	5	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x2D	HTBKOutputSel	Set output relay of heater break alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x2E	SCRAlmEnable	SCR error alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x2F	SCROUTSTSel	Check output status of SCR error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x30	SCRAutoRecovery	SCR error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x32	SCRPercent	SCR error alarm comparison value	0 to 1000	0	%	Y
0x33	SCRLimitCurrent	SCR error alarm value	0 to 6600	50	A	Y
0x34	SCRDelayTime	Delay time of SCR short alarm	3 to 600	5	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x35	SCROutputSel	Set output relay of SCR error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x36	FuseAlmEnable	Fuse alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x37	FuseOUTSTSel	Check output status of fuse alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x38	FuseAutoRecovery	Fuse alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x3A	FuseDelayTime	Delay time of fuse alarm	3 to 600	5	s	Y
0x3B	FuseOutputSel	Set output relay of fuse alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x3C	FrqyAlmEnable	Frequency error alarm enable/disable	• 0: OFF • 1: ON	0	-	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x3D	FrqyOUTSTSel	Check output status of frequency error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x3E	FrqyAutoRecovery	Frequency error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x40	FrqyDelayTime	Dealy time of Frequency error alarm	3 to 600	5	s	Y
0x41	FrqyOutputSel	Set output relay of Frequency error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x42	DLFAlmEnable	Partial heater break alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x43	DLFOUTSTSel	Check output status of partial heater break alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x44	DLFAutoRecovery	Partial heater break alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x46	DLFDeadZoneCurrent	Set current of partial heater break alarm	Set current of partial heater break alarm	3	A	Y
0x47	DLFDelayTime	Delay time	3 to 600	5	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x48	DLFOutputSel	Set output relay of partial heater break alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x49	OT_W_60_AlmEnable	Temperature warning alarm enable/disable	• 0: OFF • 1: ON	0	-	Y
0x4A	OT_W_60_Temp	Set detection temperature of temperature warning alarm	50 to 70	60	°C	Y
0x4B	OT_W_60_DelayTime	Delay time of temperature warning alarm	3 to 600	5	s	Y
0x4D	OT_W_60_OUTSTSel	Check output status of temperature warning alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x4E	OT_W_60_OutputSel	Set output relay of temperature warning alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x4F	OT_W_60_AutoRecovery	Temperature warning alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x50	OT_P_80_AlmEnable	Temperature alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x51	OT_P_80_Temp	Set detection temperature of temperature alarm	70 to 90	80	°C	Y
0x52	OT_P_80_DelayTime	Delay time of temperature warning alarm	3 to 600	5	s	Y
0x54	OT_P_80_OUTSTSel	Check output status of temperature alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x55	OT_P_80_OutputSel	Set output relay of temperature alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x56	OT_P_80_AutoRecovery	Temperature alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x57	FanAlmEnable	FAN error alarm enable/disable	• 0: OFF • 1: ON	0	-	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x58	FanOUTSTSel	Check output status of FAN error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x59	FanAutoRecovery	FAN error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x5B	FanDelayTime	Delay time of FAN error alarm	3 to 600	5	s	Y
0x5C	FanOutputSel	Delay time of FAN error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x5D	LowPowerAlmEnable	Input low voltage alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x5E	LowPowerOUTSTSel	Check output status of Input low voltage alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x5F	LowPowerAutoRecovery	Input low voltage alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x61	LowPowerLimitVolt	Input low voltage alarm value	500 to 5000	500	V	Y
0x62	LowPowerDelayTime	Delay time of Input low voltage alarm	3 to 600	5	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x63	LowPowerOutputSel	Set output relay of Input low voltage alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x64	ModuleAlmEnable	Module connection error alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x65	ModuleOUTSTSel	Check output status of module connection error alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x66	ModuleAutoRecovery	Module connection error alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x68	ModuleDelayTime	Delay time of module connection error alarm	3 to 600	5	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x69	ModuleOutputSel	Set output relay of module connection error alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x6A	ULAlmEnable	Load imbalance alarm enable/disable	• 0: OFF • 1: ON	1	-	Y
0x6B	ULOUTSTSel	Check output status of load imbalance alarm	• 0: Stop output when alarm occurs • 1: Maintain output when alarm occurs	0	-	Y
0x6C	ULAutoRecovery	Load imbalance alarm auto-recovery enable/disable	• 0: OFF • 1: ON	1	-	Y
0x6D	ULLimitPercent	Imbalance rate of load imbalance alarm	50 to 1000	300	%	Y
0x6F	ULDelayTime	Delay time of load imbalance alarm	3 to 600	5	s	Y

Sub Index	Parameter	Description	Set range	Default	Unit	Save
0x70	ULOutputSel	Set output relay of load imbalance alarm	• 0: AL1 • 1: AL2 • 2: AL3 • 3: AL4 • 4: AL5 • 5: AL6 • 6: AL7 • 7: AL8 • 8: Not_Connected	2	-	Y
0x71	p_gain	P Gain setting	1 to 300	60	-	Y
0x72	i_gain	I Gain setting	1 to 300	60	-	Y
0x73	DIInputConfig	DI-input Control method setting	• 0: No DI setting • 1: Used for DI RUN/STOP • 2: Used for DI AUTO/MAN • 3: Used for DI current ALM reset	1	-	Y

4.2.7. Alarm Save [Index: 8006h Save_ALM1 to 8037h Save_ALM50]

Index List of Alarm Save

No	Index	No	Index
1	8006h Save_ALM1	26	801Fh Save_ALM26
2	8007h Save_ALM2	27	8020h Save_ALM27
3	8008h Save_ALM3	28	8021h Save_ALM28
4	8009h Save_ALM4	29	8022h Save_ALM29
5	800Ah Save_ALM5	30	8023h Save_ALM30
6	800Bh Save_ALM6	31	8024h Save_ALM31
7	800Ch Save_ALM7	32	8025h Save_ALM32
8	800Dh Save_ALM8	33	8026h Save_ALM33
9	800Eh Save_ALM9	34	8027h Save_ALM34
10	800Fh Save_ALM10	35	8028h Save_ALM35
11	8010h Save_ALM11	36	8029h Save_ALM36
12	8011h Save_ALM12	37	802Ah Save_ALM37
13	8012h Save_ALM13	38	802Bh Save_ALM38
14	8013h Save_ALM14	39	802Ch Save_ALM39
15	8014h Save_ALM15	40	802Dh Save_ALM40
16	8015h Save_ALM16	41	802Eh Save_ALM41
17	8016h Save_ALM17	42	802Fh Save_ALM42
18	8017h Save_ALM18	43	8030h Save_ALM43
19	8018h Save_ALM19	44	8031h Save_ALM44
20	8019h Save_ALM20	45	8032h Save_ALM45
21	801Ah Save_ALM21	46	8033h Save_ALM46
22	801Bh Save_ALM22	47	8034h Save_ALM47
23	801Ch Save_ALM23	48	8035h Save_ALM48
24	801Dh Save_ALM24	49	8036h Save_ALM49
25	801Eh Save_ALM25	50	8037h Save_ALM50

Details of Alarm Save

Sub Index	Parameter	Description	Set range	Unit	Save
0x01	ConnectMode	ConnectMode selection when saving alarm log	-	-	Y
0x02	Year	Year when saving alarm log	2000 to 2100	Year	Y
0x03	Month	Month when saving alarm log	1 to 12	Month	Y
0x04	Day	Day when saving alarm log	1 to 31	Day	Y
0x05	Hour	Hour when saving alarm log	1 to 23	Hour	Y
0x06	Minute	Minute when saving alarm log	1 to 59	Minute	Y
0x07	AlramBitstructDB_CH1	Warning status of CH1 when saving alarm log	• BIT0: Alm_OC • BIT1: Alm_OV • BIT2: Alm_HTBK • BIT3: Alm_UL • BIT4: Alm_SCR_Short • BIT5: Alm_FUSE • BIT6: Alm_Frqy • BIT7: Alm_DLF • BIT8: Alm_OTW • BIT9: Alm_OTP • BIT10: Alm_FAN • BIT11: Alm_LowInPower • BIT12: Alm_PowerModule	-	Y

Sub Index	Parameter	Description	Set range	Unit	Save
0x08	AlramBitstructDB_CH2	Warning status of CH2 when saving alarm log	• BIT0: Alm_OC • BIT1: Alm_OV • BIT2: Alm_HTBK • BIT3: Alm_UL • BIT4: Alm_SCR_Short • BIT5: Alm_FUSE • BIT6: Alm_Frqq • BIT7: Alm_DLF • BIT8: Alm_OTW • BIT9: Alm_OTP • BIT10: Alm_FAN • BIT11: Alm_LowInPower • BIT12: Alm_PowerModule	-	Y
0x09	AlramBitstructDB_CH3	Warning status of CH3 when saving alarm log	• BIT0: Alm_OC • BIT1: Alm_OV • BIT2: Alm_HTBK • BIT3: Alm_UL • BIT4: Alm_SCR_Short • BIT5: Alm_FUSE • BIT6: Alm_Frqq • BIT7: Alm_DLF • BIT8: Alm_OTW • BIT9: Alm_OTP • BIT10: Alm_FAN • BIT11: Alm_LowInPower • BIT12: Alm_PowerModule	-	Y

Sub Index	Parameter	Description	Set range	Unit	Save
0x0A	AlramBitstructDB_CH4	Warning status of CH4 when saving alarm log	• BIT0: Alm_OC • BIT1: Alm_OV • BIT2: Alm_HTBK • BIT3: Alm_UL • BIT4: Alm_SCR_Short • BIT5: Alm_FUSE • BIT6: Alm_Frqy • BIT7: Alm_DLF • BIT8: Alm_OTW • BIT9: Alm_OTP • BIT10: Alm_FAN • BIT11: Alm_LowInPower • BIT12: Alm_PowerModule	-	Y

Chapter 5. CC-Link Protocol

5.1. CC-Link Communication Overview

CC-Link is an industrial network based on RS485 topology. As one of the high-speed and real-time fieldbus systems, it supports a maximum communication speed of 10 Mbps with a transmission distance of up to 100 meters and can accommodate up to 64 stations.

By using CC-Link, the system can be simplified, leading to cost reduction of connected devices through decreased wiring. It also contributes significantly to shortening installation time and improving maintenance efficiency.

It enables flexible compatibility with an expanding range of multi-vendor environments.

Installing the WYFS06TM noise filter from WOONYOUNG on the input power supply (+24Vdc) of the SPRS-CM-CL model meets CLPA certification requirements.

5.2. Communication Specification

Item		Specification
Communication standard		CC-Link Ver.2.00
Station type		Remote Device station
Connection cable		CC-Link dedicated Cable
Comm. speed	Speed	156k, 625k, 2.5M, 5M, 10M [bps]
	Setting	Using LCD and KEY
Station number	Number	01 to 64
	Setting	Using LCD and KEY
Number of occupied stations	Occupied	2 stations occupied
Max. transmit distance		Depend on comm. speed
Remote I/O		2 stations occupied: RYn/RXn 64 points each
Remote Register		2 stations occupied: RWrn/RWwn 8 points each
Command code		Point table read/write, Parameter read/write, Read-only, Control input read/write, Read each channel alarm status, Read each channel contact (DI)

Chapter 6. CC-Link Mapping Table

6.1. Remote Input / Output (RX / RY)

6.1.1. RX (S → M)

Status	Signal	Description
RXn0	RunStopFlag	0: Stop / 1: Run
RXn1	AutomanFlag	0: Auto / 1: Man
RXn2	IO_INPUT1	0: OFF / 1: ON
RXn3	IO_INPUT2	0: OFF / 1: ON
RXn4	IO_INPUT3	0: OFF / 1: ON
RXn5	IO_INPUT4	0: OFF / 1: ON
RXn6	Relay1 status	0: OFF / 1: ON
RXn7	Relay2 status	0: OFF / 1: ON
RXn8	Relay3 status	0: OFF / 1: ON
RXn9	Relay4 status	0: OFF / 1: ON
RXnA	Relay5 status	0: OFF / 1: ON
RXnB	Relay6 status	0: OFF / 1: ON
RXnC	Relay7 status	0: OFF / 1: ON
RXnD	Relay8 status	0: OFF / 1: ON
RX(n+2)E	ReadError	Indirect addressing read status
RX(n+2)F	WriteError	Indirect addressing write status

6.1.1.1. RY (M → S)

Status	Signal	Description
RY(n+2)E	ReadRequest	Indirect addressing read request
RY(n+2)F	WriteRequest	Indirect addressing write request

6.2. Remote Write / Read Word (RWw / RWr)

6.2.1. RWw (M → S)

Status	Signal	Description
RWwm+0	MV_CH1	Control input of CH1
RWwm+1	MV_CH2	Control input of CH2
RWwm+2	MV_CH3	Control input of CH3
RWwm+3	MV_CH4	Control input of CH4
RWwm+4	SpecialRegRAddr	Data read address (30001 to 50000)
RWwm+5	SpecialRegWAddr	Data write address (40001 to 50000)
RWwm+6	reserved	-
RWwm+7	writeData	Write data

6.2.2. Read / Write Example

Refer to the mapping Table in 2.2, “RS485 RO Modbus Mapping Table” to check the parameter value to be applied.

Parameter Example

PLC Addr.	No (Addr.)	Parameter	Description	Set range
41441	401441 (05A0)	ConnectMode	Wiring method setting	• 0: 1p1 • 1: 1p2 • 2: 1p3 • 3: 1p4 • 4: 2p1 • 5: 2p2 • 6: 2p1p1 • 7: 2p1p2 • 8: 3p1 • 9: 3p1p1

6.2.2.1. Read

The current value of ConnectMode (41441) in SPRS is read into readData.

Step	Procedure	Description
1	Input the 41441 into SpecialRegRAddr Set ReadRequest to 0	SpecialRegRAddr: 41441 (address input) ReadRequest: 0 (reset)
2	Set ReadRequest to 1	ReadRequest:1 (activate)
3	Check if ReadError is 0 Set ReadRequest to 0 Read the current value into readData	Check if ReadError is 0, Read the current value into readData ReadRequest: 0 (reset)

6.2.2.2. Write

Change the ConnectMode (41441) in SPRS to ConnectMode_1p1.

Step	Procedure	Description
1	Input the 41441 into SpecialRegWAddr Set writeData to 0 Set WriteRequest to 0	SpecialRegWAddr: 41441 (address input) writeData: 0 (ConnectMode_1p1) WriteRequest: 0 (reset)
2	Set WriteRequest to 1	WriteRequest:1 (activate)
3	Check if WriteError is 0 Set WriteRequest to 0	Check if WriteError is 0, Normal operation without errors WriteRequest: 0 (reset)

6.2.2.3. RWr (S → M)

Status	Signal	Description
RWrn+0	CH1 alarm	• Bit 0 → 1: OC alarm active , 0: OC alarm inactive • Bit 1 → 1: OV alarm active , 0: OV alarm inactive • Bit 2 → 1: Heater break alarm active , 0: Heater break alarm inactive • Bit 3 → 1: Load imbalance alarm active , 0: Load imbalance alarm inactive → for 3-phase usage • Bit 4 → 1: SCR error alarm active , 0: SCR error alarm inactive • Bit 5 → 1: FUSE break alarm active , 0: FUSE break alarm inactive • Bit 6 → 1: Frequency error alarm active , 0: Frequency error alarm inactive • Bit 7 → 1: Partial heater break alarm active , 0: Partial heater break alarm inactive • Bit 8 → 1: Heat sink overheat warning alarm active , 0: Heat sink overheat warning alarm inactive • Bit 9 → 1: Heat sink overheat protection alarm active , 0: Heat sink overheat protection alarm inactive • Bit 10 → 1: FAN error alarm active , 0: FAN error alarm inactive • Bit 11 → 1: Input low voltage alarm active , 0: Input low voltage alarm inactive • Bit 12 → 1: Module connection error alarm active , 0: Module connection error alarm inactive • Bit 13 to Bit 15 → Reserved

Status	Signal	Description
RWrn+1	CH2 alarm	• Bit 0 → 1: OC alarm active , 0: OC alarm inactive • Bit 1 → 1: OV alarm active , 0: OV alarm inactive • Bit 2 → 1: Heater break alarm active , 0: Heater break alarm inactive • Bit 3 → 1: Load imbalance alarm active , 0: Load imbalance alarm inactive → for 3-phase usage • Bit 4 → 1: SCR error alarm active , 0: SCR error alarm inactive • Bit 5 → 1: FUSE break alarm active , 0: FUSE break alarm inactive • Bit 6 → 1: Frequency error alarm active , 0: Frequency error alarm inactive • Bit 7 → 1: Partial heater break alarm active , 0: Partial heater break alarm inactive • Bit 8 → 1: Heat sink overheat warning alarm active , 0: Heat sink overheat warning alarm inactive • Bit 9 → 1: Heat sink overheat protection alarm active , 0: Heat sink overheat protection alarm inactive • Bit 10 → 1: FAN error alarm active , 0: FAN error alarm inactive • Bit 11 → 1: Input low voltage alarm active , 0: Input low voltage alarm inactive • Bit 12 → 1: Module connection error alarm active , 0: Module connection error alarm inactive • Bit 13 to Bit 15 → Reserved

Status	Signal	Description
RWrn+2	CH3 alarm	• Bit 0 → 1: OC alarm active , 0: OC alarm inactive • Bit 1 → 1: OV alarm active , 0: OV alarm inactive • Bit 2 → 1: Heater break alarm active , 0: Heater break alarm inactive • Bit 3 → 1: Load imbalance alarm active , 0: Load imbalance alarm inactive → for 3-phase usage • Bit 4 → 1: SCR error alarm active , 0: SCR error alarm inactive • Bit 5 → 1: FUSE break alarm active , 0: FUSE break alarm inactive • Bit 6 → 1: Frequency error alarm active , 0: Frequency error alarm inactive • Bit 7 → 1: Partial heater break alarm active , 0: Partial heater break alarm inactive • Bit 8 → 1: Heat sink overheat warning alarm active , 0: Heat sink overheat warning alarm inactive • Bit 9 → 1: Heat sink overheat protection alarm active , 0: Heat sink overheat protection alarm inactive • Bit 10 → 1: FAN error alarm active , 0: FAN error alarm inactive • Bit 11 → 1: Input low voltage alarm active , 0: Input low voltage alarm inactive • Bit 12 → 1: Module connection error alarm active , 0: Module connection error alarm inactive • Bit 13 to Bit 15 → Reserved

Status	Signal	Description
RWrn+3	CH4 alarm	• Bit 0 → 1: OC alarm active , 0: OC alarm inactive • Bit 1 → 1: OV alarm active , 0: OV alarm inactive • Bit 2 → 1: Heater break alarm active , 0: Heater break alarm inactive • Bit 3 → 1: Load imbalance alarm active , 0: Load imbalance alarm inactive → for 3-phase usage • Bit 4 → 1: SCR error alarm active , 0: SCR error alarm inactive • Bit 5 → 1: FUSE break alarm active , 0: FUSE break alarm inactive • Bit 6 → 1: Frequency error alarm active , 0: Frequency error alarm inactive • Bit 7 → 1: Partial heater break alarm active , 0: Partial heater break alarm inactive • Bit 8 → 1: Heat sink overheat warning alarm active , 0: Heat sink overheat warning alarm inactive • Bit 9 → 1: Heat sink overheat protection alarm active , 0: Heat sink overheat protection alarm inactive • Bit 10 → 1: FAN error alarm active , 0: FAN error alarm inactive • Bit 11 → 1: Input low voltage alarm active , 0: Input low voltage alarm inactive • Bit 12 → 1: Module connection error alarm active , 0: Module connection error alarm inactive • Bit 13 to Bit 15 → Reserved
RWrn+4	reserved	-
RWrn+5	reserved	-
RWrn+6	reserved	-
RWrn+7	readData	Read data

Chapter 7. PROFINET Protocol

7.1. PROFINET Communication Overview

The PROFINET protocol is designed to collect and control device data via Industrial Ethernet. It is available to exchange the data in a short moment of 1 ms or less in industrial sites and monitor the diagnostic status in a parallel process based on TCP/IP communication. It also enables data-intensive applications from simple control tasks to demanding motion control.

The SPRS series supports PROFINET, enabling integration with the upper-level controller for monitoring power input, warning status, and other I/O values.

The SPRS series generates input/output processes and provides control and monitoring functions based on the PROFINET protocol.

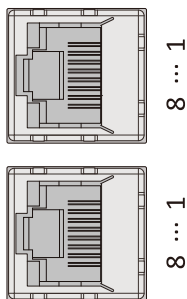
7.2. PROFINET Communication Connector



- Be sure to use the connector and cable approved by the PROFIBUS & PROFINET International (PI) Associations. Otherwise, use an Ethernet connector and cable that meets the specifications of at least category 5e.
- Be sure not to exceed the cable length of 100 meters.

The RJ45 connector is used for PROFINET communication connection.
For more information on the pin assignment, refer to the table below.

▼ LINK1



▲ LINK2

Pin no.	Color of conductor based on T568A	Signal	Description
1	Green/White	TD +	Transmit Data +
2	Green	TD -	Transmit Data -
3	Orange/White	RD +	Receive Data +
6	Orange	RD -	Receive Data -

Chapter 8. PROFINET Mapping Table

8.1. Input

8.1.1. Common

Type	Name	Size (Variable)	Description	Bit offset
System Bits	RunStopFlag	BIT (BOOL)	0: STOP / 1: RUN	4.0
	AutomanFlag	BIT (BOOL)	0: AUTO / 1: MANU	4.1
	IO_INPUT1	BIT (BOOL)	0: OFF / 1: ON	4.2
	IO_INPUT2	BIT (BOOL)	0: OFF / 1: ON	4.3
	IO_INPUT3	BIT (BOOL)	0: OFF / 1: ON	4.4
	IO_INPUT4	BIT (BOOL)	0: OFF / 1: ON	4.5
Read HS	Read_Error	BIT (BOOL)	Indirect addressing read status	7.6
	Write_Error	BIT (BOOL)	Indirect addressing write status	7.7
Read Data	Read Data	UINT (16bit)	Read data	8.0

8.1.2. CH1

Type	Name	Size (Variable)	Description	Bit offset
Alarm	Alm_OC	BIT (BOOL)	* 0: Overcurrent alarm inactive * 1: Overcurrent alarm active	10.0
	Alm_OV	BIT (BOOL)	* 0: Overvoltage alarm inactive * 1: Overvoltage alarm active	10.1
	Alm_HTBK	BIT (BOOL)	* 0: Heater break alarm inactive * 1: Heater break alarm active	10.2
	Alm_UL	BIT (BOOL)	* 0: Load imbalance alarm inactive * 1: Load imbalance alarm active	10.3
	Alm_SCR_Short	BIT (BOOL)	* 0: SCR error alarm inactive * 1: SCR error alarm active	10.4
	Alm_FUSE	BIT (BOOL)	* 0: FUSE break alarm inactive * 1: FUSE break alarm active	10.5
	Alm_Frqy	BIT (BOOL)	* 0: Frequency error alarm inactive * 1: Frequency error alarm active	10.6
	Alm_DLF	BIT (BOOL)	* 0: Partial heater break alarm inactive * 1: Partial heater break alarm active	10.7
	Alm_OTW	BIT (BOOL)	* 0: OTW (Heatsink over heat alarm) inactive * 1: OTW (Heatsink over heat alarm) active	11.0
	Alm_OTP	BIT (BOOL)	* 0: OTP (Heatsink over heat protection alarm) inactive * 1: OTP (Heatsink over heat protection alarm) active	11.1
	Alm_FAN	BIT (BOOL)	* 0: FAN (FAN error alarm) inactive * 1: FAN (FAN error alarm) active	11.2
	Alm_LowInPower	BIT (BOOL)	* 0: Input low voltage alarm inactive * 1: Input low voltage alarm active	11.3
	Alm_PowerModule	BIT (BOOL)	* 0: Module connection error alarm inactive * 1: Module connection error alarm active	11.4
	DLF_Complete Flag	BIT (BOOL)	* 0: Module connection error alarm inactive * 1: Module connection error alarm active	11.5
	reserved	BIT (BOOL)	-	11.6
Input_MV_CNT	Input_MV_CNT	UINT(16bit)	Input control value	14.0

Type	Name	Size (Variable)	Description	Bit offset
OUT_MV_CNT	OUT_MV_CNT	UINT(16bit)	Output control value	16.0
INVolt	INVolt	UINT(16bit)	Load input voltage	18.0
OUTVolt	OUTVolt	UINT(16bit)	Load output voltage	20.0
Current	Current	UINT(16bit)	Load current	22.0
Watt	Watt	UINT(16bit)	Load power	24.0
Resist	Resist	UINT(16bit)	Load resistance	26.0
SET_Frqr	SET_Frqr	UINT(16bit)	Setting frequency	28.0
CurrentFrqr	CurrentFrqr	UINT(16bit)	Current frequency	30.0
SilkTemp	SilkTemp	INT(16bit)	Heatsink temperature	32.0
Integratedvoltage_CH1	Integratedvoltage_CH1	UDINT(32bit)	Accumulated power	34.0

8.1.3. CH2

Type	Name	Size (Variable)	Description	Bit offset
Alarm	Alm_OC	BIT (BOOL)	* 0: Overcurrent alarm inactive * 1: Overcurrent alarm active	50.0
	Alm_OV	BIT (BOOL)	* 0: Overvoltage alarm inactive * 1: Overvoltage alarm active	50.1
	Alm_HTBK	BIT (BOOL)	* 0: Heater break alarm inactive * 1: Heater break alarm active	50.2
	Alm_UL	BIT (BOOL)	* 0: Load imbalance alarm inactive * 1: Load imbalance alarm active	50.3
	Alm_SCR_Short	BIT (BOOL)	* 0: SCR error alarm inactive * 1: SCR error alarm active	50.4
	Alm_FUSE	BIT (BOOL)	* 0: FUSE break alarm inactive * 1: FUSE break alarm active	50.5
	Alm_Frqy	BIT (BOOL)	* 0: Frequency error alarm inactive * 1: Frequency error alarm active	50.6
	Alm_DLF	BIT (BOOL)	* 0: Partial heater break alarm inactive * 1: Partial heater break alarm active	50.7
	Alm_OTW	BIT (BOOL)	* 0: OTW (Heatsink over heat alarm) inactive * 1: OTW (Heatsink over heat alarm) active	51.0
	Alm_OTP	BIT (BOOL)	* 0: OTP (Heatsink over heat protection alarm) inactive * 1: OTP (Heatsink over heat protection alarm) active	51.1
	Alm_FAN	BIT (BOOL)	* 0: FAN (FAN error alarm) inactive * 1: FAN (FAN error alarm) active	51.2
	Alm_LowInPower	BIT (BOOL)	* 0: Input low voltage alarm inactive * 1: Input low voltage alarm active	51.3
	Alm_PowerModule	BIT (BOOL)	* 0: Module connection error alarm inactive * 1: Module connection error alarm active	51.4
	DLF_Complete Flag	BIT (BOOL)	* 0: Module connection error alarm inactive * 1: Module connection error alarm active	51.5
	reserved	BIT (BOOL)	-	51.6
Input_MV_CNT	Input_MV_CNT	UINT(16bit)	Input control value	54.0

Type	Name	Size (Variable)	Description	Bit offset
OUT_MV_CNT	OUT_MV_CNT	UINT(16bit)	Output control value	56.0
INVolt	INVolt	UINT(16bit)	Load input voltage	58.0
OUTVolt	OUTVolt	UINT(16bit)	Load output voltage	60.0
Current	Current	UINT(16bit)	Load current	62.0
Watt	Watt	UINT(16bit)	Load power	64.0
Resist	Resist	UINT(16bit)	Load resistance	66.0
SET_Frqr	SET_Frqr	UINT(16bit)	Setting frequency	68.0
CurrentFrqr	CurrentFrqr	UINT(16bit)	Current frequency	70.0
SilkTemp	SilkTemp	INT(16bit)	Heatsink temperature	72.0
Integratedvoltage_CH2	Integratedvoltage_CH2	UDINT(32bit)	Accumulated power	74.0

8.1.4. CH3

Type	Name	Size (Variable)	Description	Bit offset
Alarm	Alm_OC	BIT (BOOL)	* 0: Overcurrent alarm inactive * 1: Overcurrent alarm active	90.0
	Alm_OV	BIT (BOOL)	* 0: Overvoltage alarm inactive * 1: Overvoltage alarm active	90.1
	Alm_HTBK	BIT (BOOL)	* 0: Heater break alarm inactive * 1: Heater break alarm active	90.2
	Alm_UL	BIT (BOOL)	* 0: Load imbalance alarm inactive * 1: Load imbalance alarm active	90.3
	Alm_SCR_Short	BIT (BOOL)	* 0: SCR error alarm inactive * 1: SCR error alarm active	90.4
	Alm_FUSE	BIT (BOOL)	* 0: FUSE break alarm inactive * 1: FUSE break alarm active	90.5
	Alm_Frqy	BIT (BOOL)	* 0: Frequency error alarm inactive * 1: Frequency error alarm active	90.6
	Alm_DLF	BIT (BOOL)	* 0: Partial heater break alarm inactive * 1: Partial heater break alarm active	90.7
	Alm_OTW	BIT (BOOL)	* 0: OTW (Heatsink over heat alarm) inactive * 1: OTW (Heatsink over heat alarm) active	91.0
	Alm_OTP	BIT (BOOL)	* 0: OTP (Heatsink over heat protection alarm) inactive * 1: OTP (Heatsink over heat protection alarm) active	91.1
	Alm_FAN	BIT (BOOL)	* 0: FAN (FAN error alarm) inactive * 1: FAN (FAN error alarm) active	91.2
	Alm_LowInPower	BIT (BOOL)	* 0: Input low voltage alarm inactive * 1: Input low voltage alarm active	91.3
	Alm_PowerModule	BIT (BOOL)	* 0: Module connection error alarm inactive * 1: Module connection error alarm active	91.4
	DLF_Complete Flag	BIT (BOOL)	* 0: Module connection error alarm inactive * 1: Module connection error alarm active	91.5
	reserved	BIT (BOOL)	-	91.6
Input_MV_CNT	Input_MV_CNT	UINT(16bit)	Input control value	94.0

Type	Name	Size (Variable)	Description	Bit offset
OUT_MV_CNT	OUT_MV_CNT	UINT(16bit)	Output control value	96.0
INVolt	INVolt	UINT(16bit)	Load input voltage	98.0
OUTVolt	OUTVolt	UINT(16bit)	Load output voltage	100.0
Current	Current	UINT(16bit)	Load current	102.0
Watt	Watt	UINT(16bit)	Load power	104.0
Resist	Resist	UINT(16bit)	Load resistance	106.0
SET_Frqr	SET_Frqr	UINT(16bit)	Setting frequency	108.0
CurrentFrqr	CurrentFrqr	UINT(16bit)	Current frequency	110.0
SilkTemp	SilkTemp	INT(16bit)	Heatsink temperature	112.0
Integratedvoltage_CH3	Integratedvoltage_CH3	UDINT(32bit)	Accumulated power	114.0

8.1.5. CH4

Type	Name	Size (Variable)	Description	Bit offset
Alarm	Alm_OC	BIT (BOOL)	* 0: Overcurrent alarm inactive * 1: Overcurrent alarm active	130.0
	Alm_OV	BIT (BOOL)	* 0: Overvoltage alarm inactive * 1: Overvoltage alarm active	130.1
	Alm_HTBK	BIT (BOOL)	* 0: Heater break alarm inactive * 1: Heater break alarm active	130.2
	Alm_UL	BIT (BOOL)	* 0: Load imbalance alarm inactive * 1: Load imbalance alarm active	130.3
	Alm_SCR_Short	BIT (BOOL)	* 0: SCR error alarm inactive * 1: SCR error alarm active	130.4
	Alm_FUSE	BIT (BOOL)	* 0: FUSE break alarm inactive * 1: FUSE break alarm active	130.5
	Alm_Frqy	BIT (BOOL)	* 0: Frequency error alarm inactive * 1: Frequency error alarm active	130.6
	Alm_DLF	BIT (BOOL)	* 0: Partial heater break alarm inactive * 1: Partial heater break alarm active	130.7
	Alm_OTW	BIT (BOOL)	* 0: OTW (Heatsink over heat alarm) inactive * 1: OTW (Heatsink over heat alarm) active	131.0
	Alm_OTP	BIT (BOOL)	* 0: OTP (Heatsink over heat protection alarm) inactive * 1: OTP (Heatsink over heat protection alarm) active	131.1
	Alm_FAN	BIT (BOOL)	* 0: FAN (FAN error alarm) inactive * 1: FAN (FAN error alarm) active	131.2
	Alm_LowInPower	BIT (BOOL)	* 0: Input low voltage alarm inactive * 1: Input low voltage alarm active	131.3
	Alm_PowerModule	BIT (BOOL)	* 0: Module connection error alarm inactive * 1: Module connection error alarm active	131.4
	DLF_Complete Flag	BIT (BOOL)	* 0: Module connection error alarm inactive * 1: Module connection error alarm active	131.5
	reserved	BIT (BOOL)	-	131.6
Input_MV_CNT	Input_MV_CNT	UINT(16bit)	Input control value	134.0

Type	Name	Size (Variable)	Description	Bit offset
OUT_MV_CNT	OUT_MV_CNT	UINT(16bit)	Output control value	136.0
INVolt	INVolt	UINT(16bit)	Load input voltage	138.0
OUTVolt	OUTVolt	UINT(16bit)	Load output voltage	140.0
Current	Current	UINT(16bit)	Load current	142.0
Watt	Watt	UINT(16bit)	Load power	144.0
Resist	Resist	UINT(16bit)	Load resistance	146.0
SET_Frqr	SET_Frqr	UINT(16bit)	Setting frequency	148.0
CurrentFrqr	CurrentFrqr	UINT(16bit)	Current frequency	150.0
SilkTemp	SilkTemp	INT(16bit)	Heatsink temperature	152.0
Integratedvoltage_CH4	Integratedvoltage_CH4	UDINT(32bit)	Accumulated power	154.0

8.1.6. Current Time

Name	Size (Variable)	Description	Bit offset
Year	UINT(16bit)	Year	170.0
Month	UINT(16bit)	Month	172.0
Day	UINT(16bit)	Day	174.0
Hour	UINT(16bit)	Hour	176.0
Minute	UINT(16bit)	Minute	178.0

8.2. Output

8.2.1. Common

Type	Name	Size (Variable)	Description	Bit offset
Write HS	Read_Request	BIT (BOOL)	Indirect addressing read request	3.6
	Write_Request	BIT (BOOL)	Indirect addressing write request	3.7
Read Address	Read Address	UINT (16bit)	Data read address (30001 to 50000)	4.0
Write Address	Write Address	UINT (16bit)	Data write address (40001 to 50000)	6.0
Write Data	Write Data	UINT (16bit)	Write data	8.0

8.2.2. CH1 to CH4

Type	Size (Variable)	Description	Bit offset
CH1_Output_Value	UINT (16bit)	Control input of CH1	10.0
CH2_Output_Value	UINT (16bit)	Control input of CH2	12.0
CH3_Output_Value	UINT (16bit)	Control input of CH3	14.0
CH4_Output_Value	UINT (16bit)	Control input of CH4	16.0

8.2.3. Read / Write Example

Refer to the mapping Table in 2.2, “RS485 RO Modbus Mapping Table” to check the parameter value to be applied.

Parameter Example

PLC Addr.	No (Addr.)	Parameter	Description	Set range
41441	401441 (05A0)	ConnectMode	Wiring method setting	• 0: 1p1 • 1: 1p2 • 2: 1p3 • 3: 1p4 • 4: 2p1 • 5: 2p2 • 6: 2p1p1 • 7: 2p1p2 • 8: 3p1 • 9: 3p1p1

8.2.3.1. Read

The current value of ConnectMode (41441) in SPRS is read into readData.

Step	Procedure	Description
1	Input the 41441 into SpecialRegRAddr Set ReadRequest to 0	SpecialRegRAddr: 41441 (address input) ReadRequest: 0 (reset)
2	Set ReadRequest to 1	ReadRequest:1 (activate)
3	Check if ReadError is 0 Set ReadRequest to 0 Read the current value into readData	Check if ReadError is 0, Read the current value into readData ReadRequest: 0 (reset)

8.2.3.2. Write

Change the ConnectMode (41441) in SPRS to ConnectMode_1p1.

Step	Procedure	Description
1	Input the 41441 into SpecialRegWAddr Set writeData to 0 Set WriteRequest to 0	SpecialRegWAddr: 41441 (address input) writeData: 0 (ConnectMode_1p1) WriteRequest: 0 (reset)
2	Set WriteRequest to 1	WriteRequest:1 (activate)
3	Check if WriteError is 0 Set WriteRequest to 0	Check if WriteError is 0, Normal operation without errors WriteRequest: 0 (reset)

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