Make Life Easy

User Manual for Communication

Fiber Optic Amplifier Communication Converter

BFC Series

MSB-BFCC1-V1.4-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.

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Preface

Thank you for purchasing an Autonics product.

Please store this manual in a place where user can find easily, because it contains the guidance for the product and how to correctly use it.

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User Manual Guide

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

- Please familiarize yourself with the information in this manual before using the product.
- This manual provides detailed information on the product's features. It does not offer any guarantee concerning matters beyond the scope of this manual.
- This manual may not be edited or reproduced in either part or whole without permission.
- A user manual is not provided as part of the product package.
  Please visit www.autonics.com to download a copy.
- The manual's content may vary depending on changes to the product's software and other unforeseen developments within Autonics, therefore, the contents of this manual is subject to change without prior notice.
- We manage to describe this manual more easily and accurately. Nevertheless, if you have any questions or corrections, please leave comments on our website.

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User Manual Symbols

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

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Safety Precautions

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

⚠ Warning	**Warning**	Cases that may cause serious injury or fatal accident if instructions are not followed.
⚠ Caution	**Caution**	Cases that may cause minor injury or product damage if instructions are not followed.

⚠ Warning

- In case of using this unit with machinery(Nuclear power control, medical equipment, vehicle, train, airplane, combustion apparatus, entertainment or safety device etc.), it is required to install fail-safe device, or contact us for information required.
  It may cause a fire, human injury or property loss.
- Do not disassemble or modify this unit. Please contact us when required.
  It may give an electric shock and cause a fire.

⚠ Caution

- This unit shall not be used outdoors.
  It might shorten the life cycle of the product or give an electric shock. Use this product indoors only. Do not use the product outdoors or at locations subject to the temperature or humidity of outdoors.(Example: rain, dirty, frost, sunlight, condensation, etc.)
- Do not use this unit where inflammable or explosive gas exists.
  It may cause a fire or explosion.
- Please observe the rated specifications.
  It may damage or shorten the life cycle of the product.
- Do not use this unit beyond rated power and do not supply AC power to a DC power type product.
  It may cause a damage to the product.
- Please check the polarity of power and wrong wiring.
  It may cause a damage to the product.
- Do not use this unit where there is vibration or a chance of impact.
  It may cause a damage to the product.
- When cleaning the unit, do not use water or an oil-based detergent.
  It may cause a fire, give an electric shock or damage to the product.

※ The specifications and dimensions of this manual are subject to change without any notice.

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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.

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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					

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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					

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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						

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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						

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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							

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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							

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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 × 2-byte)
Register values	N × 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.

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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.

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2 Modbus Mapping Table

2.1 Read Input Status(0X02)

NO.	FUNC	R/W	ITEM	DETAILS
100001(0000)	02	R/W	CH1 OUT LED Status	“0” : OFF “1” : ON
100002(0001)	02	R/W	CH2 OUT LED Status	“0” : OFF “1” : ON
100003(0002)	02	R/W	CH3 OUT LED Status	“0” : OFF “1” : ON
100004(0003)	02	R/W	CH4 OUT LED Status	“0” : OFF “1” : ON
100005(0004)	02	R/W	CH5 OUT LED Status	“0” : OFF “1” : ON
100006(0005)	02	R/W	CH6 OUT LED Status	“0” : OFF “1” : ON
100007(0006)	02	R/W	CH7 OUT LED Status	“0” : OFF “1” : ON
100008(0007)	02	R/W	CH8 OUT LED Status	“0” : OFF “1” : ON
100009(0008)	02	R/W	CH9 OUT LED Status	“0” : OFF “1” : ON
100010(0009)	02	R/W	CH10 OUT LED Status	“0” : OFF “1” : ON
100011(000A)	02	R/W	CH11 OUT LED Status	“0” : OFF “1” : ON
100012(000B)	02	R/W	CH12 OUT LED Status	“0” : OFF “1” : ON
100013(000C)	02	R/W	CH13 OUT LED Status	“0” : OFF “1” : ON
100014(000D)	02	R/W	CH14 OUT LED Status	“0” : OFF “1” : ON
100015(000E)	02	R/W	CH15 OUT LED Status	“0” : OFF “1” : ON
100016(000F)	02	R/W	CH16 OUT LED Status	“0” : OFF “1” : ON
100017(0010)	02	R/W	CH17 OUT LED Status	“0” : OFF “1” : ON
100018(0011)	02	R/W	CH18 OUT LED Status	“0” : OFF “1” : ON
100019(0012)	02	R/W	CH19 OUT LED Status	“0” : OFF “1” : ON
100020(0013)	02	R/W	CH20 OUT LED Status	“0” : OFF “1” : ON
100021(0014)	02	R/W	CH21 OUT LED Status	“0” : OFF “1” : ON
100022(0015)	02	R/W	CH22 OUT LED Status	“0” : OFF “1” : ON
100023(0016)	02	R/W	CH23 OUT LED Status	“0” : OFF “1” : ON
100024(0017)	02	R/W	CH24 OUT LED Status	“0” : OFF “1” : ON
100025(0018)	02	R/W	CH25 OUT LED Status	“0” : OFF “1” : ON
100026(0019)	02	R/W	CH26 OUT LED Status	“0” : OFF “1” : ON
100027(001A)	02	R/W	CH27 OUT LED Status	“0” : OFF “1” : ON
100028(001B)	02	R/W	CH28 OUT LED Status	“0” : OFF “1” : ON
100029(001C)	02	R/W	CH29 OUT LED Status	“0” : OFF “1” : ON
100030(001D)	02	R/W	CH30 OUT LED Status	“0” : OFF “1” : ON
100031(001E)	02	R/W	CH31 OUT LED Status	“0” : OFF “1” : ON
100032(001F)	02	R/W	CH32 OUT LED Status	“0” : OFF “1” : ON

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2.2 Read Input Register(Func: 0X04)

NO.	FUNC	R/W	ITEM	DETAILS
			Reserved	
300101(0064)	04	R	Product Serial No. H	-
300102(0065)	04	R	Product Serial No. L	-
300103(0066)	04	R	Hardware Version	10
300104(0067)	04	R	Software Version	10
300105(0068)	04	R	Model Name 1	“BF”
300106(0069)	04	R	Model Name 2	“C “
300107(006A)	04	R	Model Name 3	
300108(006B)	04	R	Model Name 4	
300109(006C)	04	R	Model Name 5	
300110(006D)	04	R	Model Name 6	
300111(006E)	04	R	Model Name 7	
300112(006F)	04	R	Model Name 8	
300113(0070)	04	R	Model Name 9	
300114(0071)	04	R	Model Name 10	
			Reserved	
300118(0075)	04	R	COIL START ADDRESS	0
300119(0076)	04	R	COIL QUANTITY	3
300120(0077)	04	R	INPUT START ADDRESS	0
300121(0078)	04	R	INPUT QUANTITY	0
300122(0079)	04	R	HOLDING REG START ADDRESS	0
300123(007A)	04	R	HOLDING REG QUANTITY	0
300124(007B)	04	R	INPUT REG START ADDRESS	0
300125(007C)	04	R	INPUT REG QUANTITY	4
			Reserved	

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2.3 Read Input Register(Present Value List)

NO.	FUNC	R/W	ITEM	DETAILS
300201(00C8)	04	R	CH1 Present Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300202(00C9)	04	R	CH2 Present Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300203(00CA)	04	R	CH3 Present Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 - LONG: Indicates 0 to 9999
300204(00CB)	04	R	CH4 Present Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300205(00CC)	04	R	CH5 Present Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300206(00CD)	04	R	CH6 Present Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300207(00CE)	04	R	CH7 Present Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300208(00CF)	04	R	CH8 Present Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300209(00D0)	04	R	CH9 Present Value dSPF: Indicates 0 to	Indicates incident light level in the decimal system

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NO.	FUNC	R/W	ITEM	DETAILS
			4000/9999	-UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300210(00D1)	04	R	CH10 Present Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300211(00D2)	04	R	CH11 Present Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300212(00D3)	04	R	CH12 Present Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300213(00D4)	04	R	CH13 Present Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300214(00D5)	04	R	CH14 Present Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300215(00D6)	04	R	CH15 Present Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300216(00D7)	04	R	CH16 Present Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300217(00D8)	04	R	CH17 Present Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300218(00D9)	04	R	CH18 Present Value dSPF: Indicates 0 to	Indicates incident light level in the decimal system

NO.	FUNC	R/W	ITEM	DETAILS
			4000/9999	-UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300219(00DA)	04	R	CH19 Present Value d5PF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300220(00DB)	04	R	CH20 Present Value d5PF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300221(00DC)	04	R	CH21 Present Value d5PF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300222(00DD)	04	R	CH22 Present Value d5PF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300223(00DE)	04	R	CH23 Present Value d5PF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300224(00DF)	04	R	CH24 Present Value d5PF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300225(00E0)	04	R	CH25 Present Value d5PF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300226(00E1)	04	R	CH26 Present Value d5PF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300227(00E2)	04	R	CH27 Present Value d5PF: Indicates 0 to	Indicates incident light level in the decimal system

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NO.	FUNC	R/W	ITEM	DETAILS
			4000/9999	-UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300228(00E3)	04	R	CH28 Present Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300229(00E4)	04	R	CH29 Present Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300230(00E5)	04	R	CH30 Present Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300231(00E6)	04	R	CH31 Present Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300232(00E7)	04	R	CH32 Present Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
			Reserved	
300251(00FA)	04	R	The Number of Added Channels	The Last Amplifier Unit NO.
			Reserved	

※When communicates Master unit, BFC checks the number of added channels. If the number is over 32, the over channels are as illegal address.

2.4 Read Input Register(Set Value List)

NO.	FUNC	R/W	ITEM	DETAILS
300301(012C)	04	R	CH1 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300302(012D)	04	R	CH2 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300303(012E)	04	R	CH3 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300304(012F)	04	R	CH4 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300305(0130)	04	R	CH5 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300306(0131)	04	R	CH6 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300307(0132)	04	R	CH7 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300308(0133)	04	R	CH8 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300309(0134)	04	R	CH9 Setting Value dSPF: Indicates 0 to	Indicates incident light level in the decimal system

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NO.	FUNC	R/W	ITEM	DETAILS
			4000/9999	-UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300310(0135)	04	R	CH10 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300311(0136)	04	R	CH11 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300312(0137)	04	R	CH12 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300313(0138)	04	R	CH13 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300314(0139)	04	R	CH14 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300315(013A)	04	R	CH15 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300316(013B)	04	R	CH16 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300317(013C)	04	R	CH17 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300318(013D)	04	R	CH18 Setting Value dSPF: Indicates 0 to	Indicates incident light level in the decimal system

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NO.	FUNC	R/W	ITEM	DETAILS
			4000/9999	-UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300319(013E)	04	R	CH19 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300320(013F)	04	R	CH20 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300321(0140)	04	R	CH21 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300322(0141)	04	R	CH22 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300323(0142)	04	R	CH23 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300324(0143)	04	R	CH24 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300325(0144)	04	R	CH25 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300326(0145)	04	R	CH26 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300327(0146)	04	R	CH27 Setting Value dSPF: Indicates 0 to	Indicates incident light level in the decimal system

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NO.	FUNC	R/W	ITEM	DETAILS
			4000/9999	-UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300328(0147)	04	R	CH28 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300329(0148)	04	R	CH29 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300330(0149)	04	R	CH30 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300331(014A)	04	R	CH31 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
300332(014B)	04	R	CH32 Setting Value dSPF: Indicates 0 to 4000/9999	Indicates incident light level in the decimal system -UFAST, FAST, STD: Indicates 0 to 4000 -LONG: Indicates 0 to 9999
			Reserved	

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2.5 Read Input Register(LED Status List)

NO.	FUNC	R/W	ITEM	DETAILS
300401(0190)	04	R	CH1 Output LED Status	Front part Output LED status (Dual, Single)
300402(0191)	04	R	CH2 Output LED Status	Front part Output LED status (Dual, Single)
300403(0192)	04	R	CH3 Output LED Status	Front part Output LED status (Dual, Single)
300404(0193)	04	R	CH4 Output LED Status	Front part Output LED status (Dual, Single)
300405(0194)	04	R	CH5 Output LED Status	Front part Output LED status (Dual, Single)
300406(0195)	04	R	CH6 Output LED Status	Front part Output LED status (Dual, Single)
300407(0196)	04	R	CH7 Output LED Status	Front part Output LED status (Dual, Single)
300408(0197)	04	R	CH8 Output LED Status	Front part Output LED status (Dual, Single)
300409(0198)	04	R	CH9 Output LED Status	Front part Output LED status (Dual, Single)
300410(0199)	04	R	CH10 Output LED Status	Front part Output LED status (Dual, Single)
300411(019A)	04	R	CH11 Output LED Status	Front part Output LED status (Dual, Single)
300412(019B)	04	R	CH12 Output LED Status	Front part Output LED status (Dual, Single)
300413(019C)	04	R	CH13 Output LED Status	Front part Output LED status (Dual, Single)
300414(019D)	04	R	CH14 Output LED Status	Front part Output LED status (Dual, Single)
300415(019E)	04	R	CH15 Output LED Status	Front part Output LED status (Dual, Single)
300416(019F)	04	R	CH16 Output LED Status	Front part Output LED status (Dual, Single)
300417(01A0)	04	R	CH17 Output LED Status	Front part Output LED status (Dual, Single)
300418(01A1)	04	R	CH18 Output LED Status	Front part Output LED status (Dual, Single)
300419(01A2)	04	R	CH19 Output LED Status	Front part Output LED status (Dual, Single)
300420(01A3)	04	R	CH20 Output LED Status	Front part Output LED status (Dual, Single)
300421(01A4)	04	R	CH21 Output LED Status	Front part Output LED status (Dual, Single)
300422(01A5)	04	R	CH22 Output LED Status	Front part Output LED status (Dual, Single)
300423(01A6)	04	R	CH23 Output LED Status	Front part Output LED status (Dual, Single)
300424(01A7)	04	R	CH24 Output LED Status	Front part Output LED status (Dual, Single)
300425(01A8)	04	R	CH25 Output LED Status	Front part Output LED status (Dual, Single)
300426(01A9)	04	R	CH26 Output LED Status	Front part Output LED status (Dual, Single)
300427(01AA)	04	R	CH27 Output LED Status	Front part Output LED status (Dual, Single)
300428(01AB)	04	R	CH28 Output LED Status	Front part Output LED status (Dual, Single)
300429(01AC)	04	R	CH29 Output LED Status	Front part Output LED status (Dual, Single)
300430(01AD)	04	R	CH30 Output LED Status	Front part Output LED status (Dual, Single)
300431(01AE)	04	R	CH31 Output LED Status	Front part Output LED status (Dual, Single)
300432(01AF)	04	R	CH32 Output LED Status	Front part Output LED status (Dual, Single)
			Reserved	

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2.6 Read Input Register(HI Peak Value List by Channel)

NO.	FUNC	R/W	ITEM	DETAILS
300501(01F4)	04	R	CH1 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300502(01F5)	04	R	CH2 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300503(01F6)	04	R	CH3 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300504(01F7)	04	R	CH4 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300505(01F8)	04	R	CH5 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300506(01F9)	04	R	CH6 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300507(01FA)	04	R	CH7 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300508(01FB)	04	R	CH8 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300509(01FC)	04	R	CH9 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300510(01FD)	04	R	CH10 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300511(01FE)	04	R	CH11 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300512(01FF)	04	R	CH12 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300513(0200)	04	R	CH13 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300514(0201)	04	R	CH14 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300515(0202)	04	R	CH15 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300516(0203)	04	R	CH16 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300517(0204)	04	R	CH17 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]

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NO.	FUNC	R/W	ITEM	DETAILS
300518(0205)	04	R	CH18 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300519(0206)	04	R	CH19 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300520(0207)	04	R	CH20 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300521(0208)	04	R	CH21 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300522(0209)	04	R	CH22 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300523(020A)	04	R	CH23 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300524(020B)	04	R	CH24 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300525(020C)	04	R	CH25 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300526(020D)	04	R	CH26 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300527(020E)	04	R	CH27 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300528(020F)	04	R	CH28 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300529(0210)	04	R	CH29 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300530(0211)	04	R	CH30 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300531(0212)	04	R	CH31 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]
300532(0213)	04	R	CH32 HI Peak Value	Indicates high peak value in decimal system [Output of max. incident light level]

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2.7 Read Input Register(LO Peak Value List by Channel)

NO.	FUNC	R/W	ITEM	DETAILS
300551(0226)	04	R	CH1 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300552(0227)	04	R	CH2 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300553(0228)	04	R	CH3 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300554(0229)	04	R	CH4 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300555(022A)	04	R	CH5 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300556(022B)	04	R	CH6 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300557(022C)	04	R	CH7 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300558(022D)	04	R	CH8 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300559(022E)	04	R	CH9 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300560(022F)	04	R	CH10 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300561(0230)	04	R	CH11 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300562(0231)	04	R	CH12 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300563(0232)	04	R	CH13 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300564(0233)	04	R	CH14 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300565(0234)	04	R	CH15 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300566(0235)	04	R	CH16 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300567(0236)	04	R	CH17 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]

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NO.	FUNC	R/W	ITEM	DETAILS
300568(0237)	04	R	CH18 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300569(0238)	04	R	CH19 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300570(0239)	04	R	CH20 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300571(023A)	04	R	CH21 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300572(023B)	04	R	CH22 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300573(023C)	04	R	CH23 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300574(023D)	04	R	CH24 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300575(023E)	04	R	CH25 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300576(023F)	04	R	CH26 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300577(0240)	04	R	CH27 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300578(0241)	04	R	CH28 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300579(0242)	04	R	CH29 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300580(0243)	04	R	CH30 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300581(0244)	04	R	CH31 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
300582(0245)	04	R	CH32 LO Peak Value	Indicates low peak value in decimal system [Output of min. incident light level]
			Reserved	

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2.8 Read Input Register(Recognized Model List by Channel)

NO.	FUNC	R/W	ITEM	DETAILS
300601(0258)	04	R	CH1 Product type	Dual: 0, Single: 1, None Display: 2
300602(0259)	04	R	CH2 Product type	Dual: 0, Single: 1, None Display: 2
300603(025A)	04	R	CH3 Product type	Dual: 0, Single: 1, None Display: 2
300604(025B)	04	R	CH4 Product type	Dual: 0, Single: 1, None Display: 2
300605(025C)	04	R	CH5 Product type	Dual: 0, Single: 1, None Display: 2
300606(025D)	04	R	CH6 Product type	Dual: 0, Single: 1, None Display: 2
300607(025E)	04	R	CH7 Product type	Dual: 0, Single: 1, None Display: 2
300608(025F)	04	R	CH8 Product type	Dual: 0, Single: 1, None Display: 2
300609(0260)	04	R	CH9 Product type	Dual: 0, Single: 1, None Display: 2
300610(0261)	04	R	CH10 Product type	Dual: 0, Single: 1, None Display: 2
300611(0262)	04	R	CH11 Product type	Dual: 0, Single: 1, None Display: 2
300612(0263)	04	R	CH12 Product type	Dual: 0, Single: 1, None Display: 2
300613(0264)	04	R	CH13 Product type	Dual: 0, Single: 1, None Display: 2
300614(0265)	04	R	CH14 Product type	Dual: 0, Single: 1, None Display: 2
300615(0266)	04	R	CH15 Product type	Dual: 0, Single: 1, None Display: 2
300616(0267)	04	R	CH16 Product type	Dual: 0, Single: 1, None Display: 2
300617(0268)	04	R	CH17 Product type	Dual: 0, Single: 1, None Display: 2
300618(0269)	04	R	CH18 Product type	Dual: 0, Single: 1, None Display: 2
300619(026A)	04	R	CH19 Product type	Dual: 0, Single: 1, None Display: 2
300620(026B)	04	R	CH20 Product type	Dual: 0, Single: 1, None Display: 2
300621(026C)	04	R	CH21 Product type	Dual: 0, Single: 1, None Display: 2
300622(026D)	04	R	CH22 Product type	Dual: 0, Single: 1, None Display: 2
300623(026E)	04	R	CH23 Product type	Dual: 0, Single: 1, None Display: 2
300624(026F)	04	R	CH24 Product type	Dual: 0, Single: 1, None Display: 2
300625(0270)	04	R	CH25 Product type	Dual: 0, Single: 1, None Display: 2
300626(0271)	04	R	CH26 Product type	Dual: 0, Single: 1, None Display: 2
300627(0272)	04	R	CH27 Product type	Dual: 0, Single: 1, None Display: 2
300628(0273)	04	R	CH28 Product type	Dual: 0, Single: 1, None Display: 2
300629(0274)	04	R	CH29 Product type	Dual: 0, Single: 1, None Display: 2
300630(0275)	04	R	CH30 Product type	Dual: 0, Single: 1, None Display: 2
300631(0276)	04	R	CH31 Product type	Dual: 0, Single: 1, None Display: 2
300632(0277)	04	R	CH32 Product type	Dual: 0, Single: 1, None Display: 2
			Reserved	

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2.9 Read Input Register(ERROR List by Channel)

NO.	FUNC	R/W	ITEM	DETAILS
300701(02BC)	04	R	CH1 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300702(02BD)	04	R	CH2 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300703(02BE)	04	R	CH3 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300704(02BF)	04	R	CH4 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300705(02C0)	04	R	CH5 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300706(02C1)	04	R	CH6 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300707(02C2)	04	R	CH7 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300708(02C3)	04	R	CH8 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300709(02C4)	04	R	CH9 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300710(02C5)	04	R	CH10 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300711(02C6)	04	R	CH11 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300712(02C7)	04	R	CH12 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300713(02C8)	04	R	CH13 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300714(02C9)	04	R	CH14 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300715(02CA)	04	R	CH15 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300716(02CB)	04	R	CH16 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300717(02CC)	04	R	CH17 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300718(02CD)	04	R	CH18 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300719(02CE)	04	R	CH19 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300720(02CF)	04	R	CH20 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300721(02D0)	04	R	CH21 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300722(02D1)	04	R	CH22 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300723(02D2)	04	R	CH23 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300724(02D3)	04	R	CH24 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300725(02D4)	04	R	CH25 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300726(02D5)	04	R	CH26 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300727(02D6)	04	R	CH27 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300728(02D7)	04	R	CH28 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300729(02D8)	04	R	CH29 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300730(02D9)	04	R	CH30 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300731(02DA)	04	R	CH31 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
300732(02DB)	04	R	CH32 ERROR	ErrL:0, Err:1, ErA:2, Erb:3, nonE:4
			Reserved	

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2.10 Read Holding Register& Preset Single Register & Write Multiple Register(Func:03/06/16)

2.10.1 Parameter Map List

NO.	FUNC	R/W	ITEM	DETAILS
CH1 – Program Group				
400001(0000)	03/06/16	R/W	SV	Indicates incident light level in the decimal system -UFST /FST/STD: Indicates 10 to 3980 -LONG: Indicates 5 to 9980
400002(0001)	03/06/16	R/W	HI Peak Value	Clear high peak value
400003(0002)	03/06/16	R/W	Lo Peak Value	Clear low peak value
400004(0003)	03/06/16	R/W	rSP [Response Speed Setting] ①UFSt: 0 ②FSt: 1 ③Std: 2 ④LonG: 3	Response speed setting ①Ultra fast, ②Fast ③Standard, ④Long distance
400005(0004)	03/06/16	R/W	dSPF [Display Function] ①4000: 0 ②999P: 1	①Display standard (4000) for incident light level/setting value ②Display percentage (999P) for incident light level/setting value
400006(0005)	03/06/16	R/W	dIr [Direction] ① 1234 hh.: 0 ② hE2I : 1	Display direction ①Standard display, ②Reversed display
400007(0006)	03/06/16	R/W	tmod [TIMER Setting] ①oFF: 0 ②ond: 1 ③oFd: 2 ④SHot: 3	Timer operation mode ①Timer OFF, ②On delay timer ③Off delay timer, ④One-shot timer
400008(0007)	03/06/16	R/W	tIME [TIME] 0 to 5000 [Min.: 1 ms]	Time setting (in the decimal point) 0 to 5000 ms [Min.: 1 ms]
400009(0008)	03/06/16	R/W	SEnS [Sensitivity Setting] ①AUto: 0 ② 1Pnt: 1 ③2Pnt: 2 ④PSto: 3	Teaching sensitivity setting ①Auto-tuning, ②One-point setting ③Two-point setting, ④Positioning
400010(0009)	03/06/16	R/W	ESAu [Energy Saving Setting] ①nor: 0 ②SAu: 1 ③2SAu: 2	Energy saving setting mode ①Normal, ②Energy saving mode 1 ③Energy saving mode 2
400011(000A)	03/06/16	R/W	Ldon [Light/Dark On Setting] ①L-on: 0 ②d-on: 1	Operation mode ①Light On, ② Dark On
400012(000B)	03/06/16	R/W	Comm [Communication Write] ①EnA: 0 ②dI SA: 1	Communication write ①Enable, ②Disable
400013(000C)	03/06/16	R/W	LoCK [Lock Setting]	Lock setting

NO.	FUNC	R/W	ITEM	DETAILS
			①oFF: 0 ② LoC 1: 1 ③ LoC2: 2	①Unlock, ②Lock 1, ③Lock 2
			Reserved	
CH1 – Data Bank Group				
400021(0014)	03/06	R/W	LoAd [Data Bank Load] ①bAE0 ②bAE 1 ③bAE2	Loading set data Bank
400022(0015)	03/06	R/W	SAvE [Data Bank Save] ①bAE0 ②bAE 1 ③bAE2	Saving setting status of amplifier unit on data Bank
400023(0016)	03/06	R/W	CoPY [Data Bank Copy] ①S--n	Copying data Bank between amplifier units or communication converter units (Not available individual copy)
400024(0017)	03/06	R/W	LdAL [Data Bank Load All] ①bAE0 ②bAE 1 ③bAE2	Loading Bank of each amplifier unit connected communication converter unit
400025(0018)	03/06	R/W	SvAL [Data Bank Load Save] ①bAE0 ②bAE 1 ③bAE2	Saving selected group Bank of amplifier unit connected communication converter unit
400026(0019)	03/06	R/W	tCH 1 : ALL [Teaching All] ①no ②YES	Teaching all sensitivity setting of amplifier unit connectes communication converter unit
400027(001A)	03/06	R/W	Init [Initialize] ①no ② YES	Initializes parameters
			Reserved	

※For single display type, it processes as an error that if previous set value is not equal during write instruction.

※CH2 to 31 increase address by the 100.

NO.	FUNC	R/W	ITEM	DETAILS
CH2 – Program Group				
400101(0064)	03/06/16	R/W	SV	Indicates incident light level in the decimal system -UFST /FST/STD: Indicates 10 to 3980 -LONG: Indicates 5 to 9980
400102(0065)	03/06/16	R/W	HI Peak Value	Clear high peak value
400103(0066)	03/06/16	R/W	Lo Peak Value	Clear low peak value

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NO.	FUNC	R/W	ITEM	DETAILS
400104(0067)	03/06/16	R/W	rSP [Response Speed Setting] ①UFSt: 0 ②FSt: 1 ③Std: 2 ④LonG: 3	Response speed setting ①Ultra fast, ②Fast ③Standard, ④Long distance
400105(0068)	03/06/16	R/W	dSPF [Display Function] ①4000: 0 ②999P: 1	①Display standard (4000) for incident light level/setting value ②Display percentage (999P) for incident light level/setting value
400106(0069)	03/06/16	R/W	dIr [Direction] ① 1234 hh.: 0 ② hE2I : 1	Display direction ①Standard display, ②Reversed display
400107(006A)	03/06/16	R/W	tmod [TIMER Setting] ①oFF: 0 ②ond: 1 ③oFd: 2 ④SHot: 3	Timer operation mode ①Timer OFF, ②On delay timer ③Off delay timer, ④One-shot timer
400108(006B)	03/06/16	R/W	tIME [TIME] 0 to 5000 [Min.: 1 ms]	Time setting (in the decimal system) 0 to 5000 ms [Min.: 1 ms]
400109(006C)	03/06/16	R/W	SEnS [Sensitivity Setting] ①AUto: 0 ② 1Pnt: 1 ③2Pnt: 2 ④PSto: 3	Teaching sensitivity setting ①Auto-tuning , ②One-point setting ③Two-point setting, ④Positioning
400110(006D)	03/06/16	R/W	ESAu [Energy Saving Setting] ①nor: 0 ②SAu: 1 ③2SAu: 2	Energy saving setting mode ①Normal, ②Energy saving mode 1 ③Energy saving mode 2
400111(006E)	03/06/16	R/W	Ldon [Light/Dark On Setting] ①L-on: 0 ②d-on: 1	Operation mode ①Light On, ② Dark On
400112(006F)	03/06/16	R/W	Comm [Communication Write] ①EnA: 0 ②dI SA: 1	Communication write ①Enable, ②Disable
400113(0070)	03/06/16	R/W	LoCK [Lock Setting] ①oFF: 0 ② LoC 1: 1 ③ LoC2: 2	Lock setting ①Unlock, ②Lock 1, ③Lock 2
			Reserved	
CH2 – Data Bank Group				
400121(0078)	03/06	R/W	LoAd [Data Bank Load] ①bAt0 ②bAt 1 ③bAt2	Loading set data Bank
400122(0079)	03/06	R/W	SAuE [Data Bank Save] ①bAt0 ②bAt 1 ③bAt2	Saving setting status of amplifier unit on data Bank
400123(007A)	03/06	R/W	CoPY [Data Bank Copy] ①5--m	Copying data Bank between amplifier units or communication converter units (Not available individual copy)
400124(007B)	03/06	R/W	LdAL [Data Bank Load All]	Loading Bank of each amplifier unit

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NO.	FUNC	R/W	ITEM	DETAILS
			①bAU0 ②bAU1 ③bAU2	connected communication converter unit
400125(007C)	03/06	R/W	SvAL [Data Bank Load Save] ①bAU0 ②bAU1 ③bAU2	Saving selected group Bank of amplifier unit connected communication converter unit
400126(007D)	03/06	R/W	tCH1 : ALL [Teaching All] ①no ②YES	Teaching all sensitivity setting of amplifier unit connected communication converter unit
400127(007E)	03/06	R/W	Init [Initialize] ①no ② YES	Initializes parameters
			Reserved	

NO.	FUNC	R/W	ITEM	DETAILS
CH31 – Program Group				
403101(0C1C)	03/06/16	R/W	SV	Indicates incident light level in the decimal system -UFST /FST/STD: 10 to 3980 -LONG: Indicates 5 to 9980
403102(0C1D)	03/06/16	R/W	HI Peak Value	Clear high peak value
403103(0C1E)	03/06/16	R/W	Lo Peak Value	Clear low peak value
403104(0C1F)	03/06/16	R/W	rSP [Response Speed Setting] ①UFSt: 0 ②FSt: 1 ③Std: 2 ④LonG: 3	Response speed setting ①Ultra fast, ②Fast ③Standard, ④Long distance
403105(0C20)	03/06/16	R/W	dSPF [Display Function] ①4000: 0 ②999P: 1	①Display standard (4000) for incident light level/setting value ②Display percentage (999P) for incident light level/setting value
403106(0C21)	03/06/16	R/W	dIr [Direction] ① 1234 hh.: 0 ② hE2I : 1	Display direction ①Standard display, ②Reversed display
403107(0C22)	03/06/16	R/W	tmod [TIMER Setting] ①oFF: 0 ②ond: 1 ③oFd: 2 ④SHot: 3	Timer operation mode ①Timer OFF, ②On delay timer ③Off delay timer, ④One-shot timer
403108(0C23)	03/06/16	R/W	tIME [TIME] 0 to 5000 [Min.: 1 ms]	Time setting (in the decimal system) 0 to 5000 ms [Min.: 1 ms]
403109(0C24)	03/06/16	R/W	SEnS [Sensitivity Setting] ①AUto: 0 ② 1Pnt: 1 ③2Pnt: 2 ④PSto: 3	Teaching sensitivity setting ①Auto-tuning, ②One-point setting ③Two-point setting, ④Positioning

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NO.	FUNC	R/W	ITEM	DETAILS
403110(0C25)	03/06/16	R/W	ESAu [Energy Saving Setting] ①nor: 0 ②SAu: 1 ③2SAu: 2	Energy saving setting ①Normal, ②Energy saving setting 1 ③Energy saving setting 2
403111(0C26)	03/06/16	R/W	Ldon [Light/Dark On Setting] ①L-on: 0 ②d-on: 1	Operation mode ①Light On, ② Dark On
403112(0C27)	03/06/16	R/W	Conn [Communication Write] ①EnA: 0 ②dI SA: 1	Communication write ①Enable, ②Disable
403113(0C28)	03/06/16	R/W	LoCK [Lock Setting] ①oFF: 0 ② LoC I: 1 ③ LoC2: 2	Lock setting ①Unlock, ②Lock 1, ③Lock 2
			Reserved	
CH31 – Data Bank Group				
403121(0C30)	03/06	R/W	LoAd [Data Bank Load] ①bAK0 ②bAK I ③bAK2	Loading set data Bank
403122(0C31)	03/06	R/W	SAuE [Data Bank Save] ①bAK0 ②bAK I ③bAK2	Saving setting status of amplifier unit on data Bank
403123(0C32)	03/06	R/W	CoPY [Data Bank Copy] ①S--n	Copying data Bank between amplifier units or communication converter units (Not available individual copy)
403124(0C33)	03/06	R/W	LdAL [Data Bank Load All] ①bAK0 ②bAK I ③bAK2	Loading Bank of each amplifier unit connected communication converter unit
403125(0C34)	03/06	R/W	SuAL [Data Bank Load Save] ①bAK0 ②bAK I ③bAK2	Saving selected group Bank of amplifier unit connected communication converter unit
403126(0C35)	03/06	R/W	tCH I : ALL [Teaching All] ①no ②YES	Teaching all sensitivity setting of amplifier unit connected communication converter unit
403127(0C36)	03/06	R/W	I nI t [Initialize] ①no ② YES	Initializes parameters
			Reserved	

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2.10.2 Parameter Mapping Table

NO.	FUNC	R/W	ITEM	DETAILS
CH1 – Data Bank				
400031(001E)	03/06/16	R/W	bAn0 => rSPd : Std	Response speed setting of Bank 0
400032(001F)	03/06/16	R/W	bAn0 => dSPF :4000	Display function setting of Bank 0
400033(0020)	03/06/16	R/W	bAn0 => dIr : 1234	Display direction setting of Bank 0
400034(0021)	03/06/16	R/W	bAn0 => tmod : oFF	Timer operation mode setting of Bank 0
400035(0022)	03/06/16	R/W	bAn0 => tIME :2000	Time setting of Bank 0
400036(0023)	03/06/16	R/W	bAn0 => SEnS :AUto	Teaching sensitivity setting of Bank 0
400037(0024)	03/06/16	R/W	bAn0 => ESAu : nor	Energy saving setting of Bank 0
400038(0025)	03/06/16	R/W	bAn0 => Ldon :L-on	Operation mode setting of Bank 0
400039(0026)	03/06/16	R/W	bAn0 => Comm :EnA	Communication write setting of Bank 0
400040(0027)	03/06/16	R/W	bAn0 => LoCK : oFF	Lock setting of Bank 0
400041(0028)	03/06/16	R/W	bAn0 => SEt :2000	SV setting of Bank 0
			Reserved	
400051(0032)	03/06/16	R/W	bAn1 => rSPd : Std	Response speed setting of Bank 1
400052(0033)	03/06/16	R/W	bAn1 => dSPF :4000	Display function setting of Bank 1
400053(0034)	03/06/16	R/W	bAn1 => dIr : 1234	Display direction setting of Bank 1
400054(0035)	03/06/16	R/W	bAn1 => tmod : oFF	Timer operation mode setting of Bank 1
400055(0036)	03/06/16	R/W	bAn1 => tIME :2000	Time setting of Bank 1
400056(0037)	03/06/16	R/W	bAn1 => SEnS :AUto	Teaching sensitivity setting of Bank 1
400057(0038)	03/06/16	R/W	bAn1 => ESAu : nor	Energy saving setting of Bank 1
400058(0039)	03/06/16	R/W	bAn1 => Ldon :L-on	Operation mode setting of Bank 1
400059(003A)	03/06/16	R/W	bAn1 => Comm :EnA	Communication write setting of Bank 1
400060(003B)	03/06/16	R/W	bAn1 => LoCK : oFF	Lock setting of Bank 1
400061(003C)	03/06/16	R/W	bAn1 => SEt :2000	SV setting of Bank 1
			Reserved	
400071(0046)	03/06/16	R/W	bAn2 => rSPd : Std	Response speed setting of Bank 2
400072(0047)	03/06/16	R/W	bAn2 => dSPF :4000	Display function setting of Bank 2
400073(0048)	03/06/16	R/W	bAn2 => dIr : 1234	Display direction setting of Bank 2
400074(0049)	03/06/16	R/W	bAn2 => tmod : oFF	Timer operation mode setting of Bank 2
400075(004A)	03/06/16	R/W	bAn2 => tIME :2000	Time setting of Bank 2
400076(004B)	03/06/16	R/W	bAn2 => SEnS :AUto	Teaching sensitivity setting of Bank 2

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NO.	FUNC	R/W	ITEM	DETAILS
400077(004C)	03/06/16	R/W	bAU2 => ESAu : nor	Energy saving setting of Bank 2
400078(004D)	03/06/16	R/W	bAU2 => Ldon : L-on	Operation mode setting of Bank 2
400079(004E)	03/06/16	R/W	bAU2 => Conn : EnA	Communication write setting of Bank 2
400080(004F)	03/06/16	R/W	bAU2 => LoCU : oFF	Lock setting of Bank 2
400081(0050)	03/06/16	R/W	bAU2 => SEt : 2000	SV setting of Bank 2
			Reserved	

※For single type, it processes all parameters related Bank as “0XFFFF.”

※Error process

- For reading parameter of one channel

- It processes as Slave Device Busy(0x06) when it is over response waiting time..

- For reading parameter of more than two channels

- It processes related parameters as “30000” when over I2C communication response waiting time.

- It processes related parameter as “30001” when it is CRC error of I2C communication.

※Address of Channel 2 to 31 is increased by the 100 unit.

NO.	FUNC	R/W	ITEM	DETAILS
CH2 – Data Bank				
400131(0082)	03/06/16	R/W	bAU0 => rSPd : Std	Response speed setting of Bank 0
400132(0083)	03/06/16	R/W	bAU0 => dSPF : 4000	Display function setting of Bank 0
400133(0084)	03/06/16	R/W	bAU0 => dIr : 1234	Display direction setting of Bank 0
400134(0085)	03/06/16	R/W	bAU0 => tnod : oFF	Timer operation mode setting of Bank 0
400135(0086)	03/06/16	R/W	bAU0 => tIME : 2000	Time setting of Bank 0
400136(0087)	03/06/16	R/W	bAU0 => SEnS : AUto	Teaching sensitivity setting of Bank 0
400137(0088)	03/06/16	R/W	bAU0 => ESAu : nor	Energy saving setting of Bank 0
400138(0089)	03/06/16	R/W	bAU0 => Ldon : L-on	Operation mode setting of Bank 0
400139(008A)	03/06/16	R/W	bAU0 => Conn : EnA	Communication write setting of Bank 0
400140(008B)	03/06/16	R/W	bAU0 => LoCU : oFF	Lock setting of Bank 0
400141(008C)	03/06/16	R/W	bAU0 => SEt : 2000	SV setting of Bank 0
			Reserved	
400151(0096)	03/06/16	R/W	bAU1 => rSPd : Std	Response speed setting of Bank 1
400152(0097)	03/06/16	R/W	bAU1 => dSPF : 4000	Display function setting of Bank 1
400153(0098)	03/06/16	R/W	bAU1 => dIr : 1234	Display direction setting of Bank 1
400154(0099)	03/06/16	R/W	bAU1 => tnod : oFF	Timer operation mode setting of Bank 1
400155(009A)	03/06/16	R/W	bAU1 => tIME : 2000	Time setting of Bank 1

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NO.	FUNC	R/W	ITEM	DETAILS
400156(009B)	03/06/16	R/W	bAt1 => SEnS : AUto	Teaching sensitivity setting of Bank 1
400157(009C)	03/06/16	R/W	bAt1 => ESAu : nor	Energy saving setting of Bank 1
400158(009D)	03/06/16	R/W	bAt1 => Ldon : L-on	Operation mode setting of Bank 1
400159(009E)	03/06/16	R/W	bAt1 => Conn : EnA	Communication write setting of Bank 1
400160(009F)	03/06/16	R/W	bAt1 => LoCt : oFF	Lock setting of Bank 1
400161(00A0)	03/06/16	R/W	bAt1 => SEt : 2000	SV setting of Bank 1
			Reserved	
400171(00AA)	03/06/16	R/W	bAt2 => rSPd : Std	Response speed setting of Bank 2
400172(00AB)	03/06/16	R/W	bAt2 => dSPF : 4000	Display function setting of Bank 2
400173(00AC)	03/06/16	R/W	bAt2 => dIr : 1234	Display direction setting of Bank 2
400174(00AD)	03/06/16	R/W	bAt2 => tmod : oFF	Timer operation mode setting of Bank 2
400175(00AE)	03/06/16	R/W	bAt2 => tIME : 2000	Time setting of Bank 2
400176(00AF)	03/06/16	R/W	bAt2 => SEnS : AUto	Teaching sensitivity setting of Bank 2
400177(00B0)	03/06/16	R/W	bAt2 => ESAu : nor	Energy saving setting of Bank 2
400178(00B1)	03/06/16	R/W	bAt2 => Ldon : L-on	Operation mode setting of Bank 2
400179(00B2)	03/06/16	R/W	bAt2 => Conn : EnA	Communication write setting of Bank 2
400180(00B3)	03/06/16	R/W	bAt2 => LoCt : oFF	Lock setting of Bank 2
400181(00B4)	03/06/16	R/W	bAt2 => SEt : 2000	SV setting of Bank 2
			Reserved	

NO.	FUNC	R/W	ITEM	DETAILS
CH31 – Data Bank				
403131(0C3A)	03/06/16	R/W	bAt0 => rSPd : Std	Response speed setting of Bank 0
403132(0C3B)	03/06/16	R/W	bAt0 => dSPF : 4000	Display function setting of Bank 0
403133(0C3C)	03/06/16	R/W	bAt0 => dIr : 1234	Display direction setting of Bank 0
403134(0C3D)	03/06/16	R/W	bAt0 => tmod : oFF	Timer operation mode setting of Bank 0
403135(0C3E)	03/06/16	R/W	bAt0 => tIME : 2000	Time setting of Bank 0
403136(0C3F)	03/06/16	R/W	bAt0 => SEnS : AUto	Teaching sensitivity setting of Bank 0
403137(0C40)	03/06/16	R/W	bAt0 => ESAu : nor	Energy saving setting of Bank 0
403138(0C41)	03/06/16	R/W	bAt0 => Ldon : L-on	Operation mode setting of Bank 0
403139(0C42)	03/06/16	R	bAt0 => CH : 1	Read set channel of Bank 0
403140(0C43)	03/06/16	R/W	bAt0 => Conn : EnA	Communication write setting of Bank 0
403141(0C44)	03/06/16	R/W	bAt0 => LoCt : oFF	Lock setting of Bank 0
403142(0C45)	03/06/16	R/W	bAt0 => SEt : 2000	SV setting of Bank 0

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NO.	FUNC	R/W	ITEM	DETAILS
			Reserved	
403151(0C4E)	03/06/16	R/W	bAn1 => rSPd : Std	Response speed setting of Bank 1
403152(0C4F)	03/06/16	R/W	bAn1 => dSPF :4000	Display function setting of Bank 1
403153(0C50)	03/06/16	R/W	bAn1 => dIr : 1234	Display direction setting of Bank 1
403154(0C51)	03/06/16	R/W	bAn1 => tmod : oFF	Timer operation mode setting of Bank 1
403155(0C52)	03/06/16	R/W	bAn1 => tIME :2000	Time setting of Bank 1
403156(0C53)	03/06/16	R/W	bAn1 => SEnS :AUto	Teaching sensitivity setting of Bank 1
403157(0C54)	03/06/16	R/W	bAn1 => ESAu : nor	Energy saving setting of Bank 1
403158(0C55)	03/06/16	R/W	bAn1 => Ldon :L-on	Operation mode setting of Bank 1
403159(0C56)	03/06/16	R	bAn1 => CH : 1	Read set channel of Bank 1
403160(0C57)	03/06/16	R/W	bAn1 => Comm :EnA	Communication write setting of Bank 1
403161(0C58)	03/06/16	R/W	bAn1 => LoCK : oFF	Lock setting of Bank 1
403162(0C59)	03/06/16	R/W	bAn1 => SEt :2000	SV setting of Bank 1
			Reserved	
403171(0C62)	03/06/16	R/W	bAn2 => rSPd : Std	Response speed setting of Bank 2
403172(0C63)	03/06/16	R/W	bAn2 => dSPF :4000	Display function setting of Bank 2
403173(0C64)	03/06/16	R/W	bAn2 => dIr : 1234	Display direction setting of Bank 2
403174(0C65)	03/06/16	R/W	bAn2 => tmod : oFF	Timer operation mode setting of Bank 2
403175(0C66)	03/06/16	R/W	bAn2 => tIME :2000	Time setting of Bank 2
403176(0C67)	03/06/16	R/W	bAn2 => SEnS :AUto	Teaching sensitivity setting of Bank 2
403177(0C68)	03/06/16	R/W	bAn2 => ESAu : nor	Energy saving setting of Bank
403178(0C69)	03/06/16	R/W	bAn2 => Ldon :L-on	Operation mode setting of Bank
403179(0C6A)	03/06/16	R	bAn2 => CH : 1	Read set channel of Bank 2
403180(0C6B)	03/06/16	R/W	bAn2 => Comm :EnA	Communication write setting of Bank 2
403181(0C6C)	03/06/16	R/W	bAn2 => LoCK : oFF	Lock setting of Bank 2
403182(0C6D)	03/06/16	R/W	bAn2 => SEt :2000	SV setting of Bank 2
			Reserved	

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2.11 Exception process

There are exception processes as below when communicating between amplifier unit and communication converter unit or between communication converter unit and Master.

- It processes as busy when amplifier unit connected communication converter unit is set parameter.
  (Select disable communication)
- It processes as busy when amplifier unit connected communication converter unit is set teaching sensitivity.
  (Select disable communication)
- It processes as busy when communication converter unit communicating Master is changing parameter settings.
- Group teaching [tCHI]
- Loading data Bank [LoAd]
- Saving data Bank [SAvE]
- Copying group data bank [CoPY]

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