YASKAWA Electric Corporation Machine Controller MP900 Series Serial Driver

Supported version TOP

TOP Design Studio V1.0 or higher



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We would like to thank our customers for using M2I's "Touch Operation Panel (M2I TOP) Series". Read this manual and familiarize yourself with the connection method and procedures of the "TOP and external device".

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Describes how to set up communication for external devices.

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Describes the cable specifications required for connection.

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Refer to this section to check the addresses which can communicate with an external device.



1. System configuration

The system configuration of TOP and "YASKAWA Electric Corporation – MP900 Series Serial" is as follows.

Series	СРИ	Link I/F	Communication method	System setting	Cable
MP900	MP920	PORT1, PORT2 on the CPU unit	RS-232C	<u>3. TOP</u> communication	
		CN1, CN2 on "217IF"	RS-232C	<u>setting</u> <u>4. External device</u> setting	5.1. Cable table 1
			RS-422 (4 wire)	<u>3. TOP</u> communication	
		CN3 on "217IF"	RS-485 (2 wire)	setting 4. External device setting	5.2. Cable table 2
	MP930	PORT1, PORT2 on the CPU unit	RS-232C	<u>3. TOP</u> communication <u>setting</u> <u>4. External device</u> <u>setting</u>	5.1. Cable table 1
	PC 01 MP940 PC 01	PORT1 on the CPU unit	RS-232C	<u>3. TOP</u>	
		PORT2	RS-422 (4 wire)	<u>setting</u>	5.3. Cable table 3
		on the CPU unit	RS-485 (2 wire)	setting	



2. External device selection

■ Select a TOP model and a port, and then select an external device.

PLC select [C	ОМ1]				
Filter : [All]			~	Search ·	
Lucer L [Cuil]				I I I I I I I I I I I I I I I I I I I	Model 🔿 Vendor
Vendor		Model			
M2I Corporation	^	8	Mp900		
MITSUBISHI Electric Co	rporation	8	Mp2000		
OMRON Industrial Auto	mation				
LS Industrial Systems					
MODBUS Organization					
SIEMENS AG.					
Rockwell Automation					
GE Earlie Automation					
DANASONIC Electric W	orke				
MARKANIA CLARKER	or no				
YASKAWA Electric Corp	oration				
YOKOGAWA Electric Co	rporation				
Schneider Electric Indus	stries				
KDT Systems					
RS Automation	~	·			
PLC Setting[Mp9	00]				
Alias Name	: PLC1				
	L				
Interface	: Serial		\sim		
Interface Protocol	: Serial : MEMOBUS RT	υ	~	(Comm Manual
Interface Protocol String Save Mode	: Serial : MEMOBUS RT : First LH HL	U Cha	✓✓Inge	(Comm Manual
Interface Protocol String Save Mode	: Serial : MEMOBUS RT : First LH HL	U Cha	v v	(Comm Manual
Interface Protocol String Save Mode Use Redundan Operate Condition :	: Serial : MEMOBUS RT : First LH HL CY ND ~	U Cha	v v inge	(Comm Manual
Interface Protocol String Save Mode	: Serial : MEMOBUS RT : First LH HL CY ND TimeOut Condition	U Cha	v inge (Second)	(Comm Manual
Interface Protocol String Save Mode	: Serial : MEMOBUS RT : First LH HL CY ND COND Condition	U Cha	v v inge ↓ (Second)		Comm Manual
Interface Protocol String Save Mode	: Serial : MEMOBUS RT : First LH HL CY ND TimeOut Condition	U Cha	v v (Second)		Comm Manual
Interface Protocol String Save Mode	Serial MEMOBUS RT First LH HL CY ND TimeOut Condition 300	U Cha	v v v (Second)		Comm Manual
Interface Protocol String Save Mode	Serial MEMOBUS RT First LH HL CY TimeOut Condition 300	Cha	v v mge (Second)		Comm Manual
Interface Protocol String Save Mode	: Serial : MEMOBUS RT : First LH HL CY ND 1 TimeOut 1 Condition 300 5 5 \$	Cha	✓ ✓ ✓ (Second)		Comm Manual
Interface Protocol String Save Mode	: Serial : MEMOBUS RT : First LH HL CY Condition 300 5 5 1 1	U Cha	v v nge (Second)		Comm Manual
Interface Protocol String Save Mode	: Serial : MEMOBUS RT : First LH HL CY TimeOut Condition 300 5 1 T	U Cha 5 : 1 msec 1 msec 1 msec	v nge (Second)		Comm Manual
Interface Protocol String Save Mode	i Serial i MeMOBUS RT i First LH HL Condition 300 C 5 C 1 C	U Cha	(Second)		Comm Manual
Interface Protocol String Save Mode	: Serial : MEMOBUS RT : First LH HL CY ND ~ 1 TimeOut 300 \$ 5 \$ 1 \$	U Cha 5 msec	(Second)		Comm Manual
Interface Protocol String Save Mode Operate Condition : Change Condition : Primary Option Timeout Send Wait Retry Slave Address No	i Serial i MEMOBUS RT i First LH HL CY 1 TimeOut 300 5 5 1 1 ¢	U Cha	(Second)		Comm Manual
Interface Protocol String Save Mode	i Serial i MEMOBUS RT i First LH HL CY ND Condition 300 5 5 1 1 ¢	U Cha	(Second)		Comm Manual

Settings		Contents				
ТОР	Model	Check the TOP display and process to select the touch model.				
External device	Vendor	Select the vendor of the external device to be connected to TOP. Please select "YASKAWA Electric Corporation".				
	PLC	Select an external device to con	nect to TOP.		Protocol	
		Mp900	Serial		Set Users	
		Supported Protocol				
MEMOBUS ASCII MEMO Please check the system configuration in Chapter 1 to connect is a model whose system can be configured.		MEMOBUS RTU	J			
		Please check the system config connect is a model whose syste	juration in Chapt m can be configi	ter 1 to see if t ured.	he external device you want to	



3. TOP communication setting

The communication can be set in TOP Design Studio or TOP main menu. The communication should be set in the same way as that of the external device.

3.1 Communication setting in TOP Design Studio

(1) Communication interface setting

- [Project > Project properties > TOP settings] → [Project option > Check "Use HMI settings" > Edit > Serial]
 - Set the TOP communication interface in TOP Design Studio.



Items		ТОР	External device	Remarks	
Signal Level (port)	RS-232C	RS-422		RS-232C	
			KS-400	RS-422/485	
Baud Rate					
Data Bit	8				
Stop Bit	1				
Parity Bit	Even				

* The above settings are examples recommended by the company.

Items	Description
Signal Level	Select the serial communication method between the TOP and an external device.
Baud Rate	Select the serial communication speed between the TOP and an external device.
Data Bit	Select the serial communication data bit between the TOP and an external device.
Stop Bit	Select the serial communication stop bit between the TOP and an external device.
Parity Bit	Select the serial communication parity bit check method between the TOP and an external device.



(2) Communication option setting

- [Project > Project properties > PLC settings > COM > "PLC1 : Mp900"]
 - Set the options of the communication driver of MP900 Series Serial in TOP Design Studio.

Project Option		×
Change HMI[H] Change PLC[C] 🔀 Delete PLC[D]		
PIC Setting MP000 SYS: RD150X Allas Name: [RLC1 PridBus (0) Allas Name: Setial PridBus (0) RFID (0) COMI (1) COMI (1) COMI (0) Ethernet (0) Wireleas (0) Use Redundancy UBBDevice (0) Condition Ethernet (0) Wireleas (0) UBBDevice (0) Condition Primary Option Timeout Send Wait meec Send Wait meec Send Wait meec Send Wait meec Slave Address No 1		mm Manual
	Apply	Close

Items	Settings	Remarks
Interface	Select "Serial".	Refer to "2. External
Protocol	Select the serial communication protocol between the TOP and an external device.	device selection".
TimeOut (ms)	Set the time for the TOP to wait for a response from an external device.	
SendWait (ms)	Set the waiting time between TOP's receiving a response from an external device	
	and sending the next command request.	
Slave Address No	Enter the prefix number of an external device (Slave).	



3.2. Communication setting in TOP

* This is a setting method when "Use HMI Setup" in the setting items in "3.1 TOP Design Studio" is not checked.

■ Touch the top of the TOP screen and drag it down. Touch "EXIT" in the pop-up window to go to the main screen.



(1) Communication interface setting

■ [Main screen > Control panel > Serial]



Items	ТОР			External device	Remarks
Signal Level (port)	DC 222C	RS-422	DC 405	RS-232C	
	RS-232C		KS-485	RS-422/485	
Baud Rate		19200			
Data Bit		8			
Stop Bit		1			
Parity Bit		Even			

* The above settings are setting examples recommended by the company.

Items	Description
Signal Level	Select the serial communication method between the TOP and an external device.
Baud Rate	Select the serial communication speed between the TOP and an external device.
Data Bit	Select the serial communication data bit between the TOP and an external device.
Stop Bit	Select the serial communication stop bit between the TOP and an external device.
Parity Bit	Select the serial communication parity bit check method between the TOP and an external device.



(2) Communication option setting

■ [Main screen > Control panel > PLC]

				-	
	ð (1001	PLC		×
Bun	🔯 System	Driver(COM1)	PLC1(Mp900) -		
		Interface Protocol	Serial MEMOBUS BTU	 ▼ ▼ 	
M	PLC	Timeout	300 🗣 msec		
VNC Viewer	\sim	Send Wait Potry	0 🖨 msec		
	Ethernet	Slave Adc			
Screen shot	inti ^r				
	Diagnostic				
	[System]	Diagnostic		qqA	ly Cancel
s	Settings				Remarks

Items	Settings	Remarks
Interface	Select "Serial".	Refer to "2. External
Protocol	Select the serial communication protocol between the TOP and an external device.	device selection".
TimeOut (ms)	Set the time for the TOP to wait for a response from an external device.	
SendWait (ms)	Set the waiting time between TOP's receiving a response from an external device	
	and sending the next command request.	
Slave Address No	Enter the prefix number of an external device (Slave).	



3.3 Communication diagnostics

■ Check the interface setting status between the TOP and an external device.

- Touch the top of the TOP screen and drag it down. Touch "EXIT" in the pop-up window to go to the main screen.
- Check if the COM port settings you want to use in [Control Panel > Serial] are the same as those of the external device.
- Diagnosis of whether the port communication is normal or not
- Touch "Communication diagnostics" in [Control Panel > PLC].
- The Diagnostics dialog box pops up on the screen and determines the diagnostic status.

ОК	Communication setting normal
Time Out Error	Communication setting abnormal
	- Check the cable, TOP, and external device setting status. (Reference: Communication diagnostics sheet)

Communication diagnostics sheet

- If there is a problem with the communication connection with an external terminal, please check the settings in the sheet below.

Items	Contents		Check		Remarks		
System	How to connect the sys	stem	OK	NG	1 Cretem configuration		
configuration	Connection cable name	5	OK	NG	<u>1. system configuration</u>		
TOP	Version information		OK	NG			
	Port in use		OK	NG			
	Driver name		OK	NG			
	Other detailed settings		ОК	NG			
	Relative prefix	Project setting	OK	NG			
		Communication		NC	2. External device selection		
		diagnostics	ŬK	NG	3. Communication setting		
	Serial Parameter	Transmission	OK	NC			
		Speed	ÜK	NG			
		Data Bit	OK	NG			
		Stop Bit	OK	NG			
		Parity Bit	OK	NG			
External device	CPU name	CPU name					
	Communication port na	ОК	NG				
	Protocol (mode)	Protocol (mode)					
	Setup Prefix	Setup Prefix					
	Other detailed settings		OK	NG	4 Estemplishes anthree		
	Serial Parameter	Transmission	OK	NC	4. External device setting		
		Speed	ŬK	NG			
		Data Bit	OK	NG			
		Stop Bit	OK	NG			
		Parity Bit	OK	NG			
	Check address range				6. Supported addresses		
			OK	NG	(For details, please refer to the PLC		
					vendor's manual.)		



4. External device setting

Set as below using "MP Series" Ladder Software "MPE720". For more detailed setting method than that described in this example, refer to the PLC user manual.



– In case of setting "Automatically Reception" of "Procedure II" to "Enable" in the setting procedure below, it is possible to connect without "Procedure III".

- The example of "Procedure III: Ladder Program" is an example of communication setting for one port on the external device side. In case of simultaneous communication of multiple ports, a separate ladder program is required. Please contact the manufactorer for details.

■ Operation I : "PC and PLC connection method" : set communications as follows(Operation II, Operation III), but before connect PC and PLC.

1. Run "Communication Manager" program.

(Path : Start \rightarrow Program \rightarrow "YE_Applications" \rightarrow "Communication Manager")

2. Run "Logical Port Setting" to set the port type and details.

(Path : File \rightarrow Setting...)

3. After PC and PLC are connected, save, and follow below operation.

■ Operation II : "MPE720" Create Project : (root) > [Group Folder] > [Order Folder] > [Controller Folder] Register

1. To register the device you want to use in "MPE720", follow "[Group Folder] > [Order Folder] > [Controller Folder]" path.

(Caution) In the "MPE720" left project window, Right–Click, and follow the parent path through the [New] entry.

2.Register the Controller Type for the device you wish to use in the Controller Configuration window, which appears when registering a new [Controller Folder]

3. Double-click the newly registered [Controller Folder] to bring up the [Log on to the controller] window and enter "User Name" and "Password" to form project folders as shown on the left.



Operation III : "Communication Setting" : [Engineering Manager] – [Module Configuration] window

Double-click [Definition Folder] – [Module Configuration] to display the [Engineering Manager] – [Module Configuration] window.
 Register the [Module Type] of the corresponding [Rack] – [Slot] position in the [Module Configuration] window.
 Double-click the corresponding [Slot] area to display the setting window. Matters to be set are as follows.

CIR#01 CIR#02 CIR#03

Transmission Protocol	MEMOBUS	5 🗸	
Master/Slave	Slave	•	
Device Address	1 : ()	vlaster=0,Slave	=1-63)
Serial I/F	R\$-232	•	
Transmission Mode	RTU	•	
Data Length	8Bit	•	
Parity	even	•	
Stop Bit	1Stop	•	
Baud Rate	19.2K	•	
Sending	 Disable 		
	🔿 Enable		(1 - 100ms)
Automatically Reception	 Disable 	🔿 Enable	
Slave I/F Register Settings		Head RE G	WD Size
Readout of Imput Relay		IW0000	5120
Readout of Input Register		IW0000	5120
Readout / Write-in of Coil		MW00000	32768
Readout / Write-in of Hold I	Register	MW00000	32768
Write - in width of Coil/Hold	Register LO	MW00000	,
	HI	MW32767	

Items	Settings	Remarks
Transmission Protocol	MEMOBUS	Fixed
Master/Slave	Slave	Fixed
Device Address	1	Set Users
Serial I/F	RS-232	User setting *Note 1)
Transmission Mode	RTU	User setting *Note 2)
Data Length	8Bit	Set Users
Parity	even	Set Users
Stop Bit	1Stop	Set Users
Baud Rate	19.2K	Set Users
Sending	Disable	Set Users
Automatically Reception	Disable	User setting *Note 3)
Slave I/F Register Settings		Set Users

*Note 1) Select the communication method of the external device (RS-232C/RS-422/RS-485).

*Note 2) Select the communication mode (ASCII/RTU) you want to use.

***Note 3)** When setting Disable, you must register a separate Ladder Software.

If enabled, a separate Ladder Software is not required. However, the communication speed may be slow.



■ **Operation IV** : Ladder Program : MSG-RCV function

7. Register the [MSG–RCV] function ([Instruction Pallete] menu – [System] tab) on the [Ladder Works] Software. Refer to the example below. For more detailed setting method, refer to the Ladder Software manual.





5. Cable table

This chapter introduces a cable diagram for normal communication between the TOP and the corresponding device. (The cable diagram described in this chapter may differ from the recommendations of "YASKAWA Electric Corporation".)

5.1. Cable table 1

■ RS-232C [MP920/930 CPU embedded PORT1, PORT2] (1 : 1 connection)

	-						
CC	M			External device			
Pin	Signal	Pin	Cable connection	Pin	Signal	Pin	
arrangement*Note 1)	name	number		number	name	arrangement*Note 1)	
1 5	CD	1		1	FG	1 5	
$(\circ \circ)$	RD	2		2	SD	$\left(\circ \circ \right)$	
	SD	3		3	RD		
6 9	DTR	4	• • • • • • • • • • • • • • • • • • •	4	RS	6 9	
Based on	SG	5		5	CS	Based on	
communication	DSR	6		6	N/C	communication	
cable connector	RTS	7		7	SG	cable connector	
front,	СТС				NUC	front,	
D-SUB 9 Pin male	CIS	8		8	N/C	D-SUB 9 Pin male	
(male, convex)		9		9	N/C	(male, convex)	

*Note 1) The pin arrangement is as seen from the connecting side of the cable connection connector.

■ RS-232C [CN1, CN2 on 2171F] (1 : 1 connection)

CC	M				Externa	l device
Pin	Signal	Pin	Cable connection	Pin	Signal	Pin
arrangement*Note 1)	name	number		number	name	arrangement*Note 1)
1 5	CD	1		1	FG	1 5
$(\circ \circ)$	RD	2		2	SD	0 0
	SD	3		3	RD	
6 9 Based on	DTR	4	•	4	RS	6 9 Based on
communication	SG	5		5	CS	communication
cable connector	DSR	6		6	DR	cable connector
front	RTS	7		7	SG	front
D-SUB 9 Pin male	CTS	8		8	N/C	D-SUB 9 Pin male
(male, convex)		9	•	9	ER	(male, convex)

*Note 1) The pin arrangement is as seen from the connecting side of the cable connection connector.



5.2. Cable table 2

■ RS-422 [CN3 on 2171F] (1 : 1 connection)

COM					External device		
Pin	Signal	Pin	Cable connection	Pin	Signal	Pin	
arrangement*Note 1)	name	number		number	name	arrangement*Note 1)	
1 5	RDA	1		1	RX–		
$(\circ \circ)$		2		2	RX+		
		3		3	SH	Based on	
6 9 Paced on	RDB	4	┝━╇	4	RXR	communication	
communication		5	• • •	5	TXR	cable connector	
cable connector	SDA	6		. 6	TX–	front,	
front		7	•	7	TX+	MR–8 (Plug)	
D-SUB 9 Pin male		8		8	N/C		
(male, convex)	SDB	9					

*Note 1) The pin arrangement is as seen from the connecting side of the cable connection connector.

■ RS-485 [CN3 on 2171F] (1 : 1 connection)

COM			Exte	External device		
Pin	Signal	Pin	Cable connection Pin Signa	Pin		
arrangement*Note 1)	name	number	number name	arrangement*Note 1)		
1 5	RDA	1 ·	—• • 1 RX-			
$\left(\circ \circ \right)$		2	2 RX+			
		3	3 SH	Based on		
Based on	RDB	4	• • 4 RXR	communication		
		5	5 TXR	cable connector		
cable connector	SDA	6	67.	front,		
front		7	• 7 TX+	MR–8 (Plug)		
D-SUB 9 Pin male		8	8 N/C			
(male, convex)	SDB	9				

*Note 1) The pin arrangement is as seen from the connecting side of the cable connection connector.

■ RS-485 [CN3 on 2171F] (1 : 1 connection)

COM				Externa	l device
Din arrangement	Signal	Cable connection	Pin	Signal	Pin
Pin anangement	name		number	name	arrangement*Note 1)
	+ ·	• • • • • • • • • • • • • • • • • • •	- 1	RX–	
		• • • • • • • • • • • • • • • • • • •	· 2	RX+	
0	SG		3	SH	Based on
20 3 . SG			· 4	RXR	communication
201 -			5	TXR	cable connector
101 +		•	6	TX–	front,
0		•	7	TX+	MR–8 (Plug)
			8	N/C	
				•	

*Note 1) The pin arrangement is as seen from the connecting side of the cable connection connector.





TOP	Cable connection and signal	External device	Cable connection and signal	External device
Signal name	direction	Signal name	direction	Signal name
RDA		SDA		SDA
RDB		SDB		SDB
SDA		RDA		RDA
SDB		RDB		RDB
SG		SG		SG

RS-485 1 : N connection - Refer to 1:1 connection to connect in the following method.





5.3 Cable table 3

■ RS-232C [MP940 CPU embedded PORT1] (1 : 1 connection)

СОМ				External device			
Pin	Signal	Pin	Cable connection	Pin	Signal	Pin	
arrangement*Note 1)	name	number		number	name	arrangement*Note 1)	
15	CD	1		1	TXD		
$(\circ \circ)$	RD	2		3	RXD		
	SD	3	•	6	CTS	Based on	
6 9 Based on	DTR	4	•	12	RTS	communication	
	SG	5		14	GND	cable connector	
cable connector	DSR	6				front,	
front	RTS	7				MR–8 (Plug)	
D-SUB 9 Pin male	CTS	8					
(male, convex)		9					

*Note 1) The pin arrangement is as seen from the connecting side of the cable connection connector.

■ RS-422 [MP940 CPU embedded PORT2] (1 : 1 connection)

COM				External device			
Pin	Signal	Pin	Cable connection	Pin	Signal	Pin	
arrangement*Note 1)	name	number		number	name	arrangement*Note 1)	
1 5	RDA	1		- 1	TX+		
$(\circ \circ)$		2	•	2	TX–		
		3		- 3	RX+	Based on	
Based on	RDB	4		- 4	RX–	communication	
		5		. 7	RXR	cable connector	
cable connector	SDA	6		- 11	TXR	front,	
front.		7		14	GND	MR–14 (Plug)	
D-SUB 9 Pin male		8					
(male, convex)	SDB	9					

*Note 1) The pin arrangement is as seen from the connecting side of the cable connection connector.

■ RS-485 [MP940 CPU embedded PORT2] (1 : 1 connection)

СОМ				External device		
Pin	Signal	Pin	Cable connection	Pin	Signal	Pin
arrangement*Note 1)	name	number		number	name	arrangement*Note 1)
1 5	RDA	1 .	↓ •	• 1	TX+	
$(\circ \circ)$		2] •	2	TX–	
		3] • • • • •	3	RX+	Based on
6 9 Paced on	RDB	4.	<mark>┤┼╺╷╴──┥</mark> │┍─	4	RX–	communication
communication		5		6	RX–	cable connector
cable connector	SDA	6	┠╺┥╎╴	8	TX+	front,
front		7] •	. 9	TX–	MR–14 (Plug)
D-SUB 9 Pin male		8		10	RX+	
(male, convex)	SDB	9	}€	14	GND	

*Note 1) The pin arrangement is as seen from the connecting side of the cable connection connector.



■ RS-485 [MP940 CPU embedded PORT2] (1 : 1 connection)

СОМ			External device			
Din arrangement	Signal	Cable connection	Pin	Signal	Pin	
Pin arrangement	name		number	name	arrangement*Note 1)	
	+		1	TX+		
O G G G G G G G G G G G G G H H H H H H	-		2	TX–		
	SG	P	3	RX+	Based on	
		 	4	RX–	communication	
			6	RX–	cable connector	
		•	8	TX+	front,	
		•	9	TX–	MR–8 (Plug)	
			10	RX+		
			14	GND		

*Note 1) The pin arrangement is as seen from the connecting side of the cable connection connector.

RS-422 1 : N connectio	n - Refer to 1:1 co	nnection to connect	in the following method.
------------------------	---------------------	---------------------	--------------------------

TOP	Cable connection and signal	External device	Cable connection and signal	External device
Signal name	direction	Signal name	direction	Signal name
RDA		SDA		SDA
RDB		SDB		SDB
SDA		RDA		RDA
SDB		RDB		RDB
SG		SG		SG

RS-485 1 : N connection - Refer to 1:1 connection to connect in the following method.

TOP	Cable connection and signal	External device		Cable connection and signal		External device	
Signal name	direction	Signal name		direction		Signal name	
RDA	•	1	TX+			1	TX+
RDB		2	TX–			2	TX–
SDA	•	6	RX-			6	RX–
SDB ·	├ ──●	10	RX+			10	RX+
SG		14	GND			14	GND
							(0) 0 0

(Caution) For 1:N connection, short the pin arrangement of (1) and (2) items out of 14 pins for terminating devices. (1) 4–7–9 (2) 3–8



6. Supported addresses

The devices available in TOP are as follows:

The device range (address) may differ depending on the CPU module series/type. The TOP series supports the maximum address range used by the external device series. Please refer to each CPU module user manual and be take caution to not deviate from the address range supported by the device you want to use.

Device		Bit Address	Word Address	32bit	Remarks
MB	Coil	MB000000 ~ MB65535F	MB00000 ~ MB65535	L/H	
IB	Discrete Input	IB00000 ~ IBFFFFF	IB0000 ~ IBFFFF		*Note 1)
IW	Input register	-	IW0000 ~ IWFFFF		*Note 1)
MW	Holding Register	-	MW00000 ~ MW65535		

*Note 1) Cannot be written