HAWE Hydraulik SE

: PLVC Series

Supported version TOP Design Studio v1..4.0 or higher

CONTENTS

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".

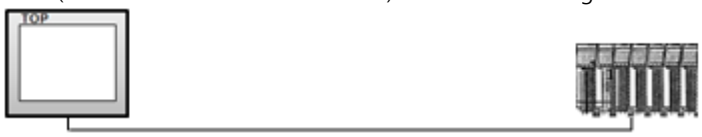
1. System configuration

The system configuration of TOP and "plvc" is as follows:

Series	CPU	Link I/F	Communication method	System setting	Cable
PLVC Series		CPU Direct	RS–232C	3.1 Settings example 1 (Page 4)	5.1. Cable table 1 (Page 9)
			RS–422 (4 wire)	3.2 Settings example 2 (Page 5)	5.1. Cable table 1 Page 10

■ Connection configuration

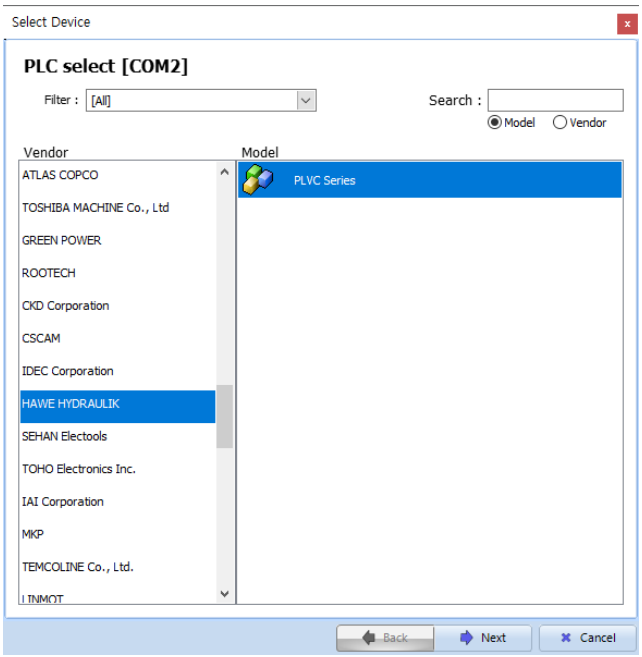
• 1:1 (one TOP and one external device) connection – configuration which is possible in RS232C/422/485 communication.

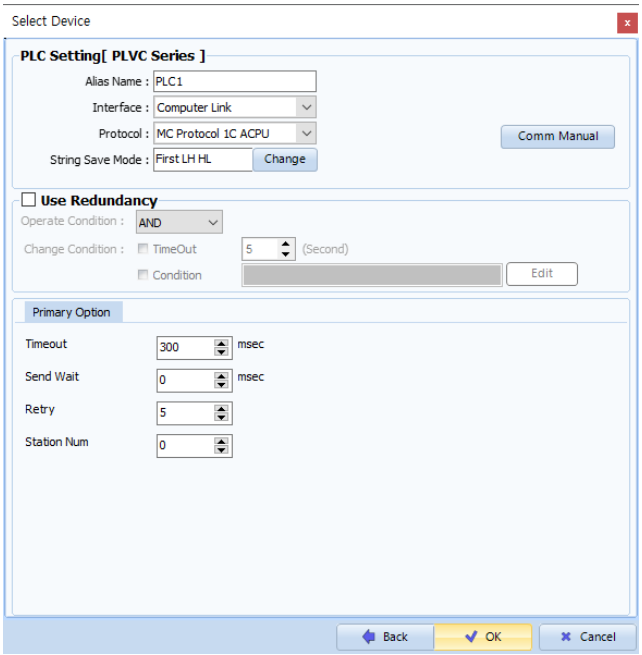


• 1:N (one TOP and multiple external devices) connection – configuration which is possible in RS422/485 communication.

2. External device selection

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





Settings		Contents
TOP	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. Select “HAWE HYDRAULIK”.
	PLC	Select an external device to connect to TOP. Select “HAWE PLVC”. Please check the system configuration in Chapter 1 to see if the external device you want to connect is a model whose system can be configured.

3. TOP communication setting

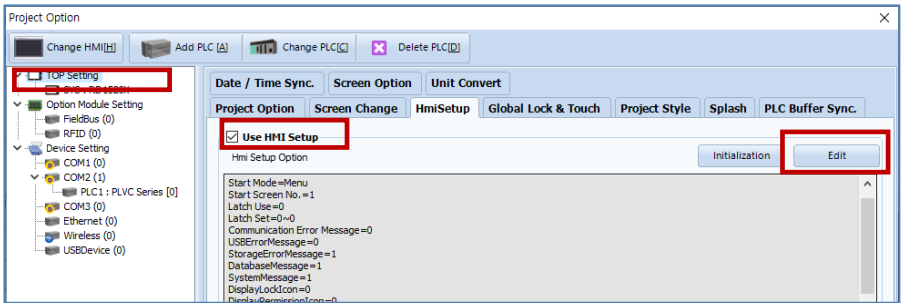
The communication can be set in TOP Design Studio or TOP main menu. The communication should be set in the same way as that of the external device.

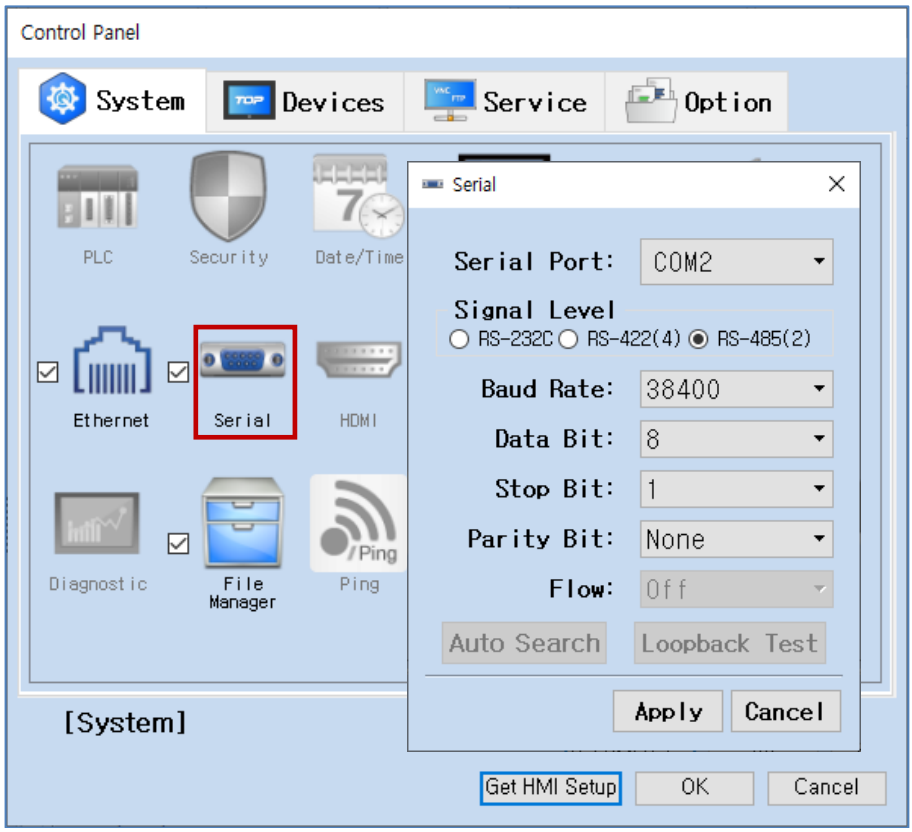
3.1 Communication setting in TOP Design Studio

(1) Communication interface setting

■ [Project > Project Property > TOP Setting] → [Project Option > "Use HMI Setup" Check > Edit > Serial]

– Set the TOP communication interface in TOP Design Studio.





Items	TOP	External device	Remarks
Signal Level (port)	RS-232C/RS-485	RS-232C/RS-485	
Baud Rate	38400		
Data Bit	8		
Stop Bit	1		
Parity Bit	NONE		

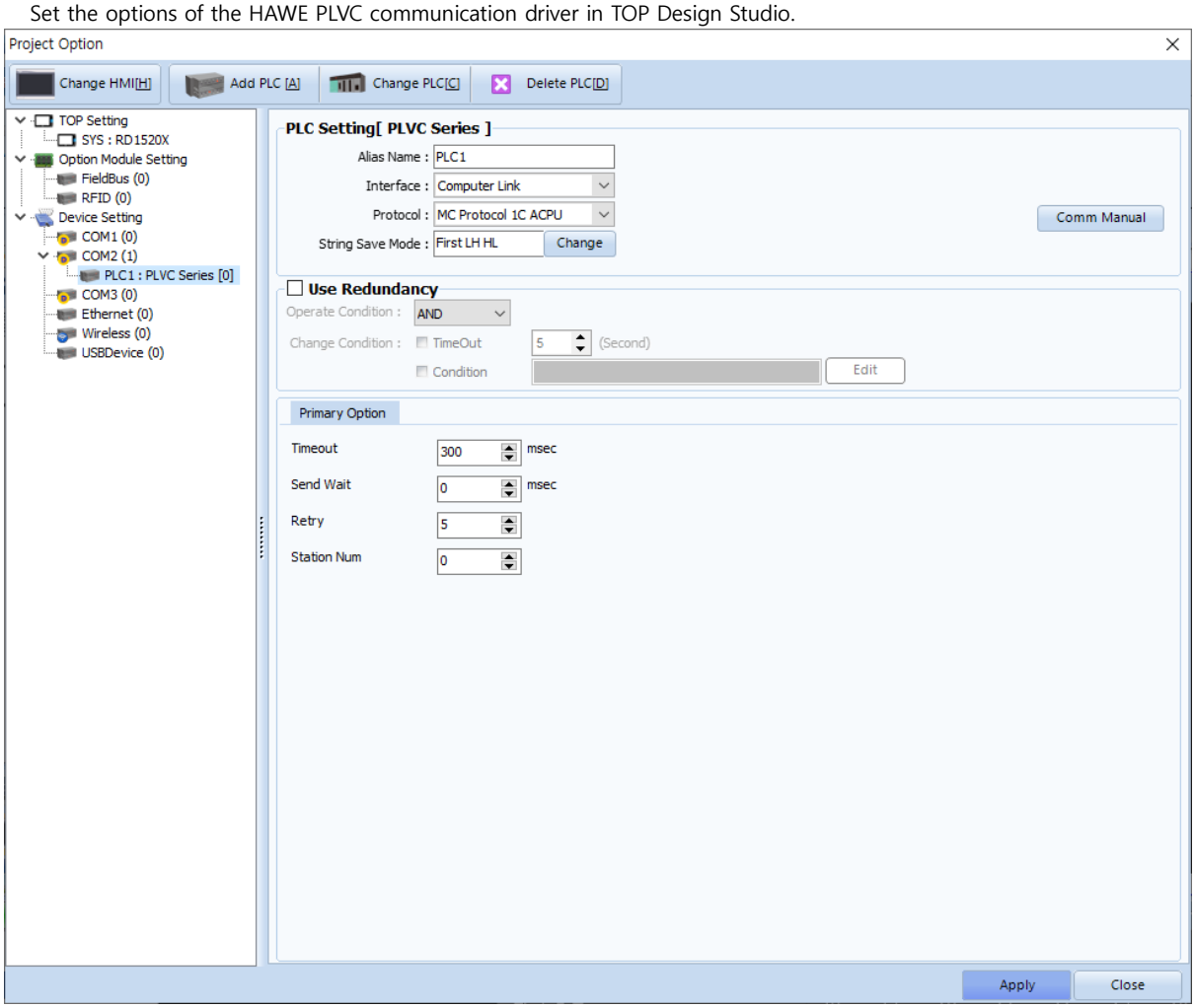
* The above settings are examples recommended by the company.

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 Property > Device Setting > COM > "PLC1 : HAWE PLVC"]

Set the options of the HAWE PLVC communication driver in TOP Design Studio.

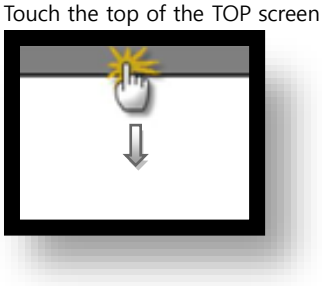


Items	Settings	Remarks
Interface	"Computer Link	Fixed
Protocol	MC Protocol 1C ACPU	
TimeOut (ms)	Set the time for the TOP to wait for a response from an external device.	
SendWait (ms)	Set the waiting time between TOP's receiving a response from an external device and sending the next command request.	
Retry	Retry attempts upon communication failure.	
Station Num	Select station number.	

3.2. Communication setting in TOP

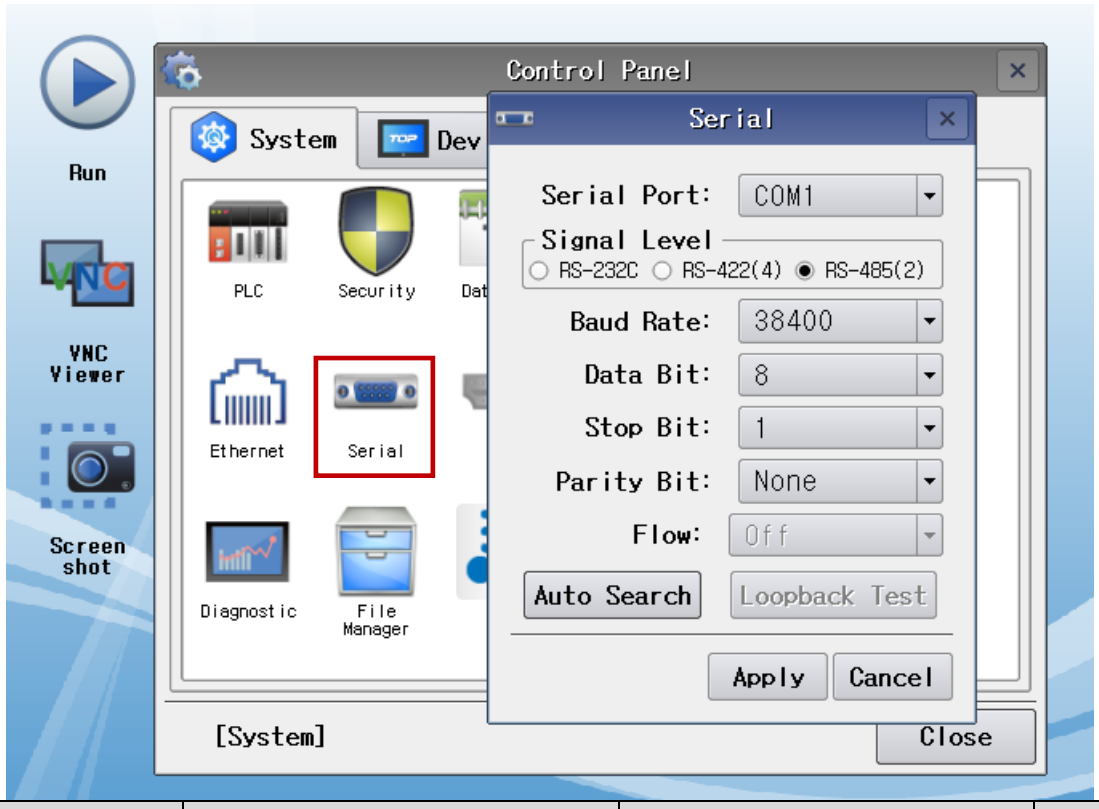
*** This is a setting method when "Use HMI Setup" in the setting items in "3.1 TOP Design Studio" is not checked.**

■ 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]



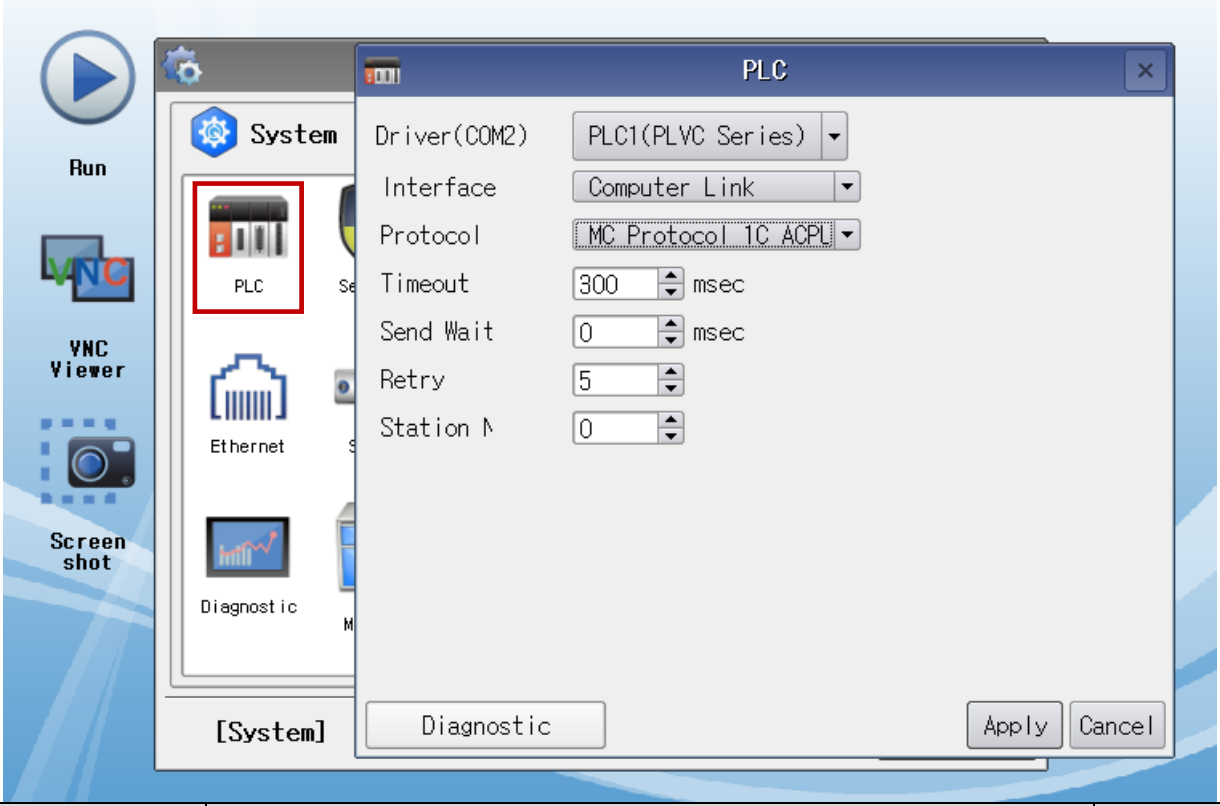
Items	TOP	External device	Remarks
Signal Level (port)	RS-232C/RS-485	RS-232C/RS-485	
Baud Rate	38400		
Data Bit	8		
Stop Bit	1		
Parity Bit	NONE		

* 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]



Items	Settings	Remarks
Interface	"Computer Link	Fixed
Protocol	Computer Link	
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.	
Retry	Retry attempts upon communication failure.	
Station Num	Select station number.	

3.3 Communication diagnostics

■ 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.

OK	**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 configuration	How to connect the system		OK	NG	1. System configuration
	Connection cable name		OK	NG	
TOP	Version information		OK	NG	2. External device selection 3. Communication setting
	Port in use		OK	NG	
	Driver name		OK	NG	
	Other detailed settings		OK	NG	
	Relative prefix	Project setting	OK	NG	
		Communication diagnostics	OK	NG	
	Serial Parameter	Transmission Speed	OK	NG	
		Data Bit	OK	NG	
		Stop Bit	OK	NG	
		Parity Bit	OK	NG	
External device	CPU name		OK	NG	4. External device setting
	Communication port name (module name)		OK	NG	
	Protocol (mode)		OK	NG	
	Setup Prefix		OK	NG	
	Other detailed settings		OK	NG	
	Serial Parameter	Transmission Speed	OK	NG	
		Data Bit	OK	NG	
		Stop Bit	OK	NG	
		Parity Bit	OK	NG	
	Check address range		OK	NG	6. Supported addresses (For details, please refer to the PLC vendor's manual.)

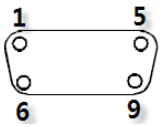
4. External device setting

Configure the communication setting of the external device by referring to its user manual.

5. Cable table

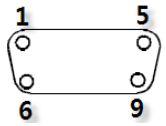
This chapter introduces a cable diagram for normal communication between the TOP and the corresponding device.
(The cable diagrams described in this section may differ from the external device vendor's recommendations.)

■ **RS-232C** (1:1 connection)

COM			Cable connection	PLC	
Pin arrangement*Note 1)	Signal name	Pin number		Signal name	
 Based on communication cable connector front, D-SUB 9 Pin male (male, convex)	CD	1			
	RD	2		SD	
	SD	3		RD	
	DTR	4		DTR	
	SG	5		SG	
	DSR	6		DSR	
	RTS	7		RTS	
	CTS	8		CTS	
		9			

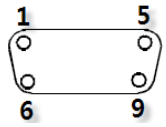
*Note 1) The pin arrangement is as seen from the connecting side of the cable connection connector.

■ **RS-422** (1:1 connection)

COM			Cable connection	PLC	
Pin arrangement*Note 1)	Signal name	Pin number		Signal name	
 Based on communication cable connector front, D-SUB 9 Pin male (male, convex)	RDA(+)	1		SDA(+)	
		2		SDB(-)	
		3		RDA(+)	
	RDB(-)	4		RDB(-)	
	SG	5		SG	
	SDA(+)	6			
		7			
		8			
	SDB(-)	9			

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

■ **RS-485** (1:1 connection)

COM			Cable connection	PLC	
Pin arrangement*Note 1)	Signal name	Pin number		Signal name	
 Based on communication cable connector front, D-SUB 9 Pin male (male, convex)	RDA(+)	1		SDA(+)	
		2		SDB(-)	
		3		RDA(+)	
	RDB(-)	4		RDB(-)	
	SG	5		SG	
	SDA(+)	6			
		7			
		8			
	SDB(-)	9			

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

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.

Type	Remarks	Bit-designated address	Word-designated address
Input relay	Bit	X0000 – X1FFF	X0000 – X1FF0
Output relay	Bit	Y0000 – Y1FFF	Y0000 – Y1FF0
Internal relay	Bit	M0000.00–M9999.15	M0000–M9999
Timer (contact)	Bit	T0000.00–T9999.15	T0000–T9999
Counter (contact)	Bit	C0000.00–C9999.15	C0000–C9999
Link relay	Bit	B0000 – B1FFF	B0000 – B1FF0
Special relay	Bit	F0000.00–F9999.15	F0000–F9999
Timer value	Word	TV000.00–TV999.15	TV000–TV999
Counter value	Bit	CV000.00–CV999.15	CV000–CV999
Data register	Bit	D0000.00–D9999.15	D0000–D9999
Link register	Word	W0000 – W1FFF	W0000 – W1FF0
Extend register	Bit	R0000.00–R9999.15	R0000–R9999