

Rockwell Automation, Inc.

MicroLogix, SLC-500 Series

Ethernet Driver

Supported version TOP Design Studio V1.0 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".

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Describes the devices required for connection, the setting of each device, cables, and configurable systems.
- 2. External device selection** [Page 3](#)

Select a TOP model and an external device.
- 3. TOP communication setting** [Page 4](#)

Describes how to set the TOP communication.
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Describes how to set up communication for external devices.
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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 "Rockwell Automation, Inc. – SLC500/MicroLogix Series EthernetIP" is as follows:

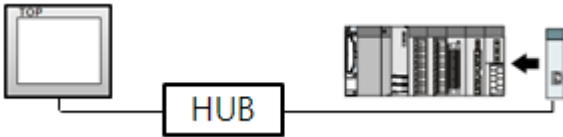
Series	CPU	Link I/F	Communication method	System setting	Cable
MicroLogix	MicroLoigx 1000 MicroLoigx 1100 MicroLogix 1200 MicroLogix 1500	1761-NET_ENI	Ethernet(TCP)	3.2 Settings example 2 (Page 5)	Twisted pair cable *Note 1)
	MicroLoigx 1100	CPU Direct	Ethernet(TCP)	3.1 Settings example 1 (Page 4)	
SLC500	SLC 5/05	CPU Direct	Ethernet (TCP)	3.1 Settings example 1 (Page 4)	
	SLC 5/03 SLC 5/04 SLC 5/05	1761-NET-ENI	Ethernet (TCP)	3.2 Settings example 2 (Page 5)	

***Note 1)** Twisted pair cable

- Refer to STP (Shielded Twisted Pair Cable) or UTP (Unshielded Twisted Pair Cable) Category 3, 4, 5.
- Depending on the network configuration, you can connect to components such as the hub and transceiver, and in this case, use a direct cable.

■ Connectable configuration

- 1:1 connection (one TOP and one external device) connection



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 "Rockwell Automation (AB)".					
	PLC	Select the external device to be connected to the TOP. <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th>Model</th> <th>Interface</th> <th>Protocol</th> </tr> </thead> <tbody> <tr> <td>MicroLogix Series</td> <td>Ethernet</td> <td>Ethernet/IP</td> </tr> </tbody> </table> <p>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.</p>	Model	Interface	Protocol	MicroLogix Series	Ethernet
Model	Interface	Protocol					
MicroLogix Series	Ethernet	Ethernet/IP					

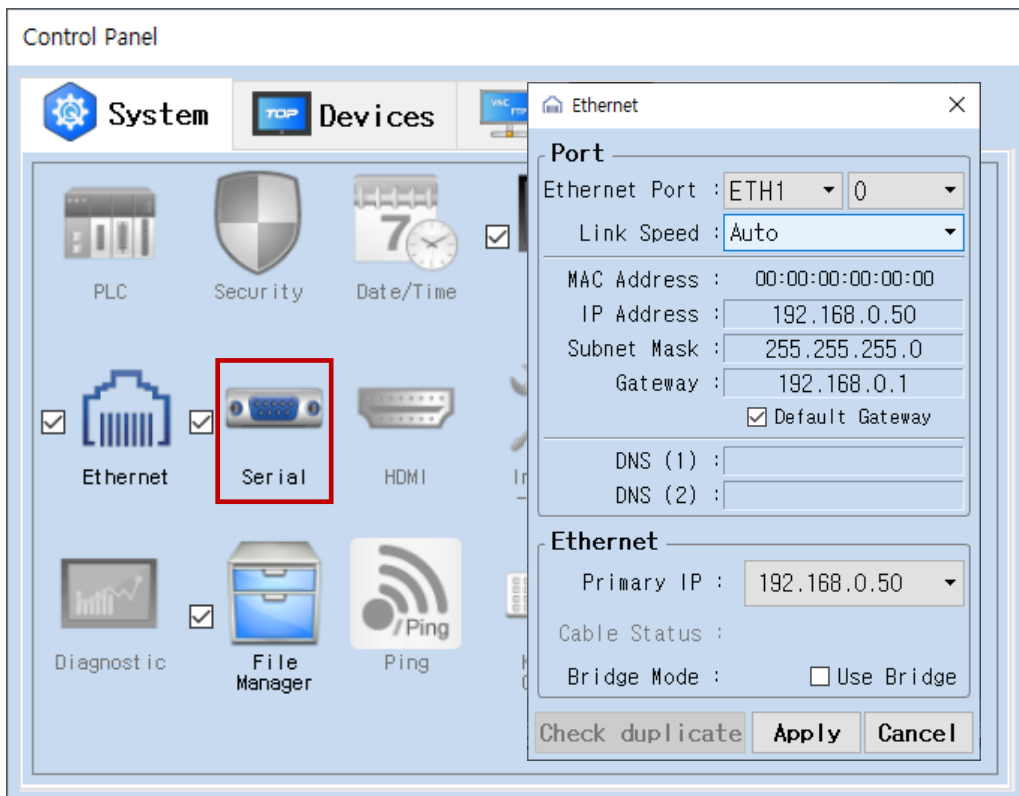
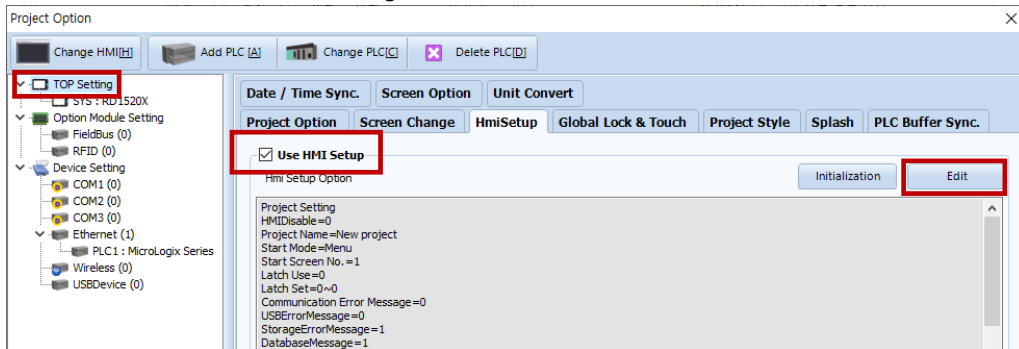
3. TOP communication setting

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 > Ethernet]
- Set the TOP communication interface in TOP Design Studio.



Items	TOP	External device	Remarks
IP Address* Note 1 Note 2)	192.168.0.50	192.168.0.51	
Subnet Mask	255.255.255.0	255.255.255.0	
Gateway	192.168.0.1	192.168.0.1	

*[Note 1](#)) The network addresses of the TOP and the external device (the first three digits of the IP, 192 . 168 . 0 . 0) should match.

*[Note 2](#)) Do not use duplicate IP addresses over the same network.

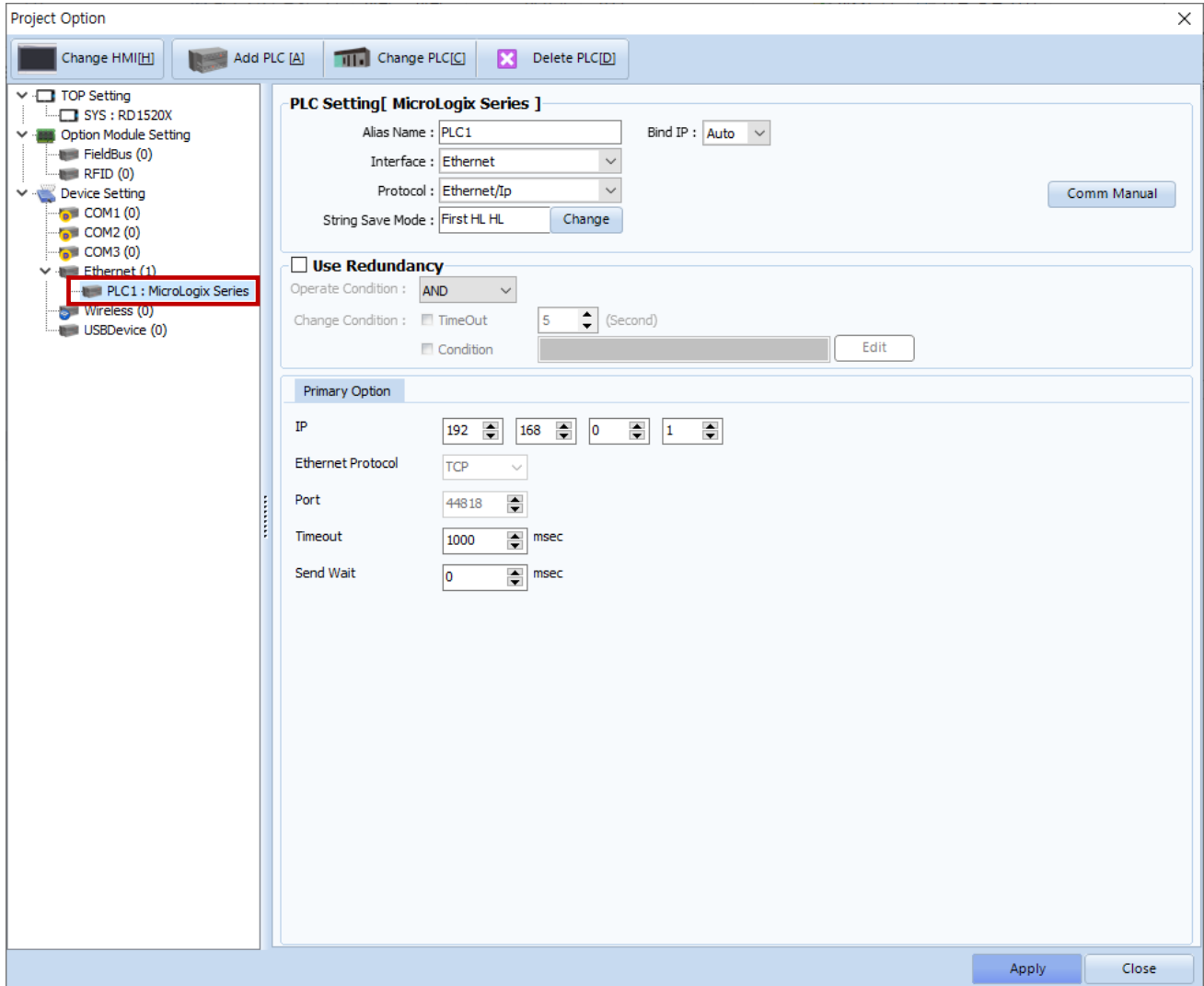
* The above settings are examples recommended by the company.

Items	Description
IP Address	Set an IP address to be used by the TOP to use over the network.
Subnet Mask	Enter the subnet mask of the network.
Gateway	Enter the gateway of the network.

(2) Communication option setting

■ [Project > Project Property > Device Setting > ETHERNET > "PLC1 : MicroLogix Series"]

– Set the options of the MicroLogix Series Ethernet communication driver in TOP Design Studio.



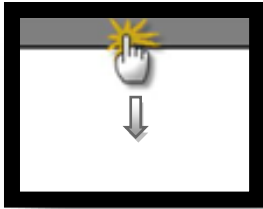
* The above settings are examples recommended by the company.

Items	Settings	Remarks
Interface	Select "Ethernet".	Refer to "2. External device selection".
Protocol	Select "Ethernet/IP".	
IP	Enter the IP address of the external device.	
Ethernet Protocol	Selects the Ethernet protocol "TCP" between the TOP and an external device.	Fixed
Port	Enter "44818", which is the Ethernet communication port number of the external device.	Fixed
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.	

3.2. Communication setting in TOP

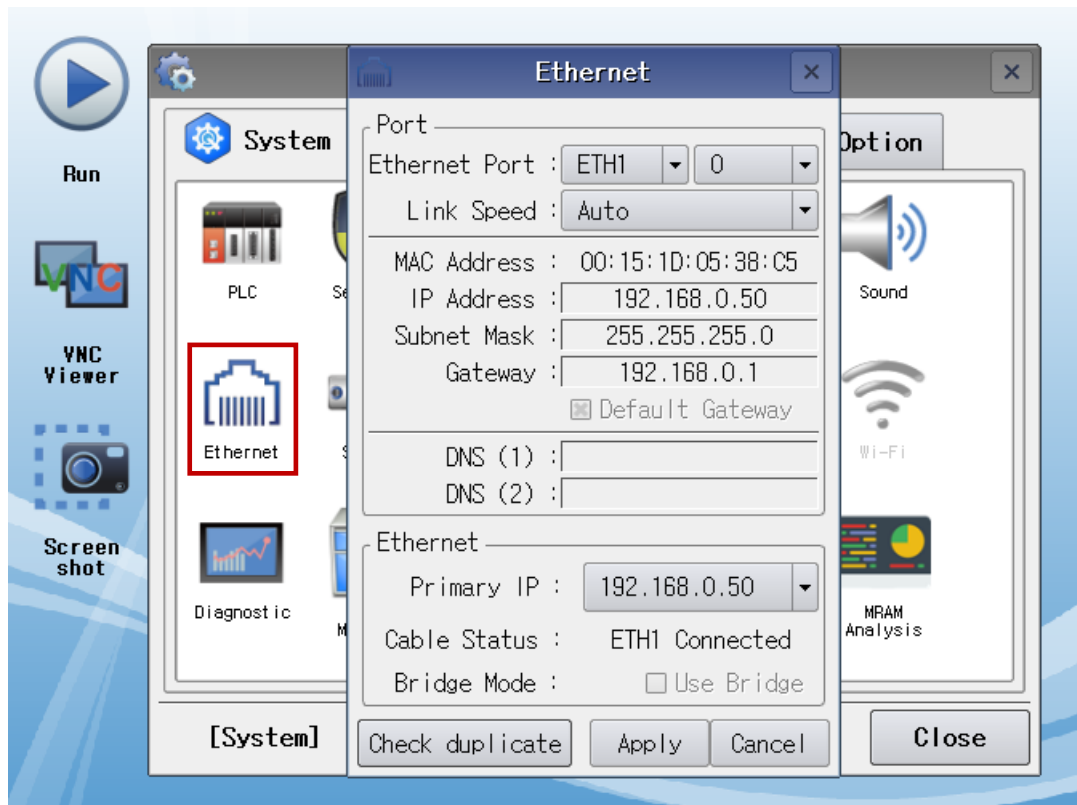
* This is a setting method when "Use HMI Setup" in the setting items in "3.1 TOP Design Studio" is not checked.

- 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 > Ethernet]



Items	TOP	External device	Remarks
IP Address* Note 1) Note 2)	192.168.0.50	192.168.0.51	
Subnet Mask	255.255.255.0	255.255.255.0	
Gateway	192.168.0.1	192.168.0.1	

*[Note 1](#)) The network addresses of the TOP and the external device (the first three digits of the IP, 192 . 168 . 0 . 0) should match.

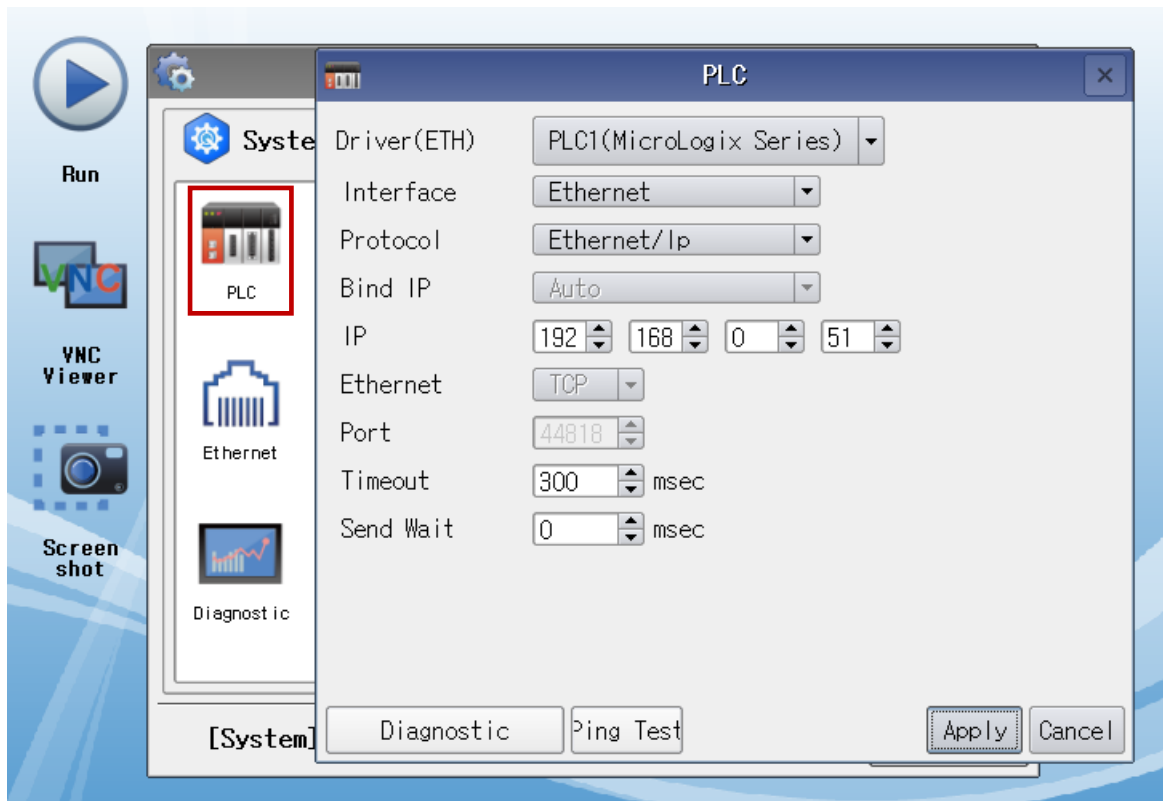
*[Note 2](#)) Do not use duplicate IP addresses over the same network.

* The above settings are examples recommended by the company.

Items	Description
IP Address	Set an IP address to be used by the TOP to use over the network.
Subnet Mask	Enter the subnet mask of the network.
Gateway	Enter the gateway of the network.

(2) Communication option setting

■ [Main Screen > Control Panel > PLC]



* The above settings are examples recommended by the company.

Items	Settings	Remarks
Interface	Select "Ethernet".	Refer to "2. External device selection".
Protocol	Select "Ethernet/IP".	Refer to "2. External device selection".
IP	Enter the IP address of the external device.	
Ethernet Protocol	Selects the Ethernet protocol "TCP" between the TOP and an external device.	Fixed
Port	Enter "44818", which is the Ethernet communication port number of the external device.	Fixed
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.	

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 port (ETH1/ETH2) settings you want to use in [Control Panel > Ethernet] 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.

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
	Ethernet port setting	IP Address	OK		NG
Subnet Mask		OK	NG		
Gateway		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		
	Ethernet port setting	IP Address	OK		NG
		Subnet Mask	OK		NG
Gateway		OK	NG		
Check address range	OK	NG	5. Supported addresses (For details, please refer to the PLC vendor's manual.)		

4. External device setting

4.1 External device setting 1 (1761-NET-ENI)

Use [ENI/ENIW Utility] for communication settings to configure as shown below.

For more detailed setting method than that described in this example, refer to the PLC user manual.

Step 1. From the [ENI IP Addr] tab of [ENI/ENIW Utility], configure the "IP Address : 192.168.0.51" and other settings.

Step 2. Download the configurations for 1761-NET-ENI.

4.2. External device setting 2 (CPU Direct)

Set as below using "MicroLogix Series" Ladder Software "RSLogix500".

For more detailed setting method than that described in this example, refer to the PLC user manual.

Step 1. Create a new project at "RSLogix500".

Step 2. From the Project tree, go to [Controller] > Select "Open" for [Channel Configuration].

Step 3. From the [Chan – 1 system] tab of [Channel Configuration] dialog box, configure the "IP Address : 192.168.0.51" and other settings.

Step 4. Download the configurations.

5. 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 notation

→ Device Name : File Number : Element

Device			Bit Address	Word Address	Remarks
Input file			I:00.000/00 ~ I:63.255/15	I:00.000 ~ I:63.255	
Output file			O:00.000/00 ~ O:63.255/15	O:00.000 ~ O:63.255	
Status file			S:000/00 ~ S:163/15	S:000 ~ S:163	
Bit file			B003:000/00 ~ B003:255/15 B009:000/00 ~ B255:255/15	B003:000 ~ B003:255 B009:000 ~ B255:255	
Timer file	EN	Enable	T004:000/13 ~ T004:255/15 T009:000/13 ~ T255:255/15	T004:000 ~ T004:255 T009:000 ~ T255:255	
	TT	Timing			
	DN	Done			
	PRE	Preset	-	TP004:000 ~ TP004:255 TP009:000 ~ TP255:255	
	ACC	Accumulated	-	TA004:000 ~ TA004:255 TA009:000 ~ TA255:255	
Counter file	CU	Up enable	C005:000/10 ~ C005:255/15 C009:000/10 ~ C255:255/15	C005:000 ~ C005:255 C009:000 ~ C255:255	
	CD	Down enable			
	DN	Done			
	OV	Overflow			
	UN	Underflow			
	UA	Update Acc			
	PRE	Preset	-	CP005:000 ~ CP005:255 CP009:000 ~ CP255:255	
ACC	Accumulated	-	CA005:000 ~ CA005:255 CA009:000 ~ CA255:255		
Control file	EN	Enable	R006:000/10 ~ R006:255/15 R009:000/10 ~ R255:255/15	R006:000 ~ R006:255 R009:000 ~ R255:255	
	EU	Enable unload			
	DN	Done			
	EM	Empty			
	ER	Error			
	UL	Unload			
	IN	Inhibit comp.			
	FD	Found			
	LEN	Length	-	RL006:000 ~ RL006:255 RL009:000 ~ RL255:255	
	POS	Position	-	RP006:000 ~ RP006:255 RP009:000 ~ RP255:255	
Integer file			N007:000/10 ~ N007:255/15 N009:000/10 ~ N255:255/15	N007:000 ~ N007:255 N009:000 ~ N255:255	
Floating point file			None	F008:000 ~ F255:255	
String file			None	ST009:000 ~ ST255:255	
Long word file			L009:000/00 ~ L255:255/31	L009:000 ~ L255:255	