Giddings & Lewis Motion Control Inc. Digital MMC Controller

Ethernet Driver

Supported version TOP Design Studio V1.4 or higher



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We want to thank our customers who use the Touch Operation Panel.

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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 "Giddings&Lewis Motion Control Inc. –Digital MMC Controller" is as follows:

Series	CPU	Link I/F	Communication method	System setting	Cable
MMC	Digital MMC	ENET Port on MMC	Ethernet (UDP)	3. TOP communication setting 4. External device setting	Twisted pair cable*Note 1)

*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



• 1:N connection (one TOP and multiple external devices) connection





2. External device selection

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

Select Device					x
PLC select [E	thernet]				
Filter : [All]		~		Search :	
2.43				Model	Vendor
Vendor		Model			
KDT Systems		^ 🜮 ммс	Series		
RS Automation					
FATEK Automation Cor	poration				
DST ROBOT					
BACnet					
SEMI Organization					
EMOTIONTEK					
FUJI Electric Co. 1 td.					
OPTICON					
DATITE					
PAILITE					
Giddings & Lewis Motion	n Control				
DELTA TAU Data Syste	ims				
KEYENCE Corporation					
CEYON Technology		*			
			Back	🄷 Next	X Cancel
Calast Davisa					_
					^
-PLC Setting[MMC	Series]		Diad ID .		
Alias Name	PLC1		DIDD IP . OUTO	\sim	
Alias Name Interface	: PLC1	~	Bind IP : Auto	~	
Alias Name Interface Protocol	: PLC1 : Ethernet : Ethernet	~	bind IP : Auto	Co	mm Manual
Alias Name Interface Protocol String Save Mode	: PLC1 : Ethernet : Ethernet : First LH HL	Change	Ding 19. 1	Co	mm Manual
Alias Name Interface Protocol String Save Mode	:: PLC1 :: Ethernet I: Ethernet :: First LH HL	Change		Co	mm Manual
Alias Name Interface Protocol String Save Mode	:: PLC1 :: Ethernet I: Ethernet :: First LH HL CY AND ~	Change		Co	mm Manual
Alias Name Interface Protocol String Save Mode Use Redundan Operate Condition : [Change Condition :]	Ethernet Ethernet First LH HL CY AND V	Change	cond)	Co	mm Manual
Alias Name Interface Protocol String Save Mode Operate Condition : Change Condition :	Ethernet Ethernet First LH HL CY AND ~ TimeOut	Change	cond)	Co	mm Manual
Alias Name Interface Protocol String Save Mode Operate Condition : Change Condition :	Ethernet Ethernet Ethernet First LH HL Cy AND ~ TimeOut Condition	Change	cond)	•••••••••••••••••••••••••••••••••••••••	mm Manual
Alias Name Interface Protocol String Save Mode Use Redundan Operate Condition : I Change Condition : I Primary Option IP	PLC1 Ethernet Ethernet First LH HL CY AND ~ TimeOut Condition	✓ ✓ ✓ ✓ ✓ Change 5	cond)	•	mm Manual
Alias Name Interface Protocol String Save Mode Use Redundan Operate Condition : I Change Condition : I Primary Option IP Ethernet Protocol	PLC1 Ethernet Ethernet First LH HL Cy AND TimeOut Condition 192		cond)	•	mm Manual
Alias Name Interface Protocol String Save Mode Operate Condition : Change Condition : Primary Option IP Ethernet Protocol Port	EPLC1 Ethernet Ethernet Ethernet Ethernet Ethernet TimeOut Condition 192 UDP 1025		cond)	 Co I I	mm Manual
Alias Name Interface Protocol String Save Mode Operate Condition : Change Condition : I Primary Option IP Ethernet Protocol Port Timeout	EPLC1 Ethernet Ethernet Ethernet Ethernet EfretLH HL Cy AND		cond)	Co	mm Manual
Alias Name Interface Protocol String Save Mode Operate Condition : Change Condition : I Primary Option IP Ethernet Protocol Port Timeout Send Wait	E PLC1 Ethernet Ethernet Ethernet Ethernet TirstLHHL O		cond)	 Co I 	mm Manual
Alias Name Interface Protocol String Save Mode Operate Condition : Change Condition : I Primary Option IP Ethernet Protocol Port Timeout Send Wait Baby:	E PLC1 Ethernet Ethernet Ethernet Ethernet TimeOut ToreOut ToreOut		cond)	 Co I 	mm Manual
Alias Name Interface Protocol String Save Mode Operate Condition : Change Condition : Primary Option IP Ethernet Protocol Port Timeout Send Wait Retry	E PLC1 Ethernet Ethernet Ethernet Ethernet TimeOut ToreOut UDP UDP 1025 E 1000 E 5 E		cond)	 Co I 	mm Manual
Alias Name Interface Protocol String Save Mode Operate Condition : Change Condition : Primary Option IP Ethernet Protocol Port Timeout Send Wait Retry HMI Station	E PLC1 Ethernet Ethernet Ethernet Ethernet TimeOut ToreOut ToreOut	✓ Change 5 € 168 0 ✓ 0 ✓ 0 ♦ msec ♦ ●	cond)	Co	mm Manual
Alias Name Interface Protocol String Save Mode Operate Condition : Change Condition : Primary Option IP Ethernet Protocol Port Timeout Send Wait Retry HMI Station MMC Station	E PLC1 Ethernet Ethernet Ethernet Ethernet TimeOut ToreOut UDP 1025 E 1000 E 5 E 0 E 0 E 0 E 0 E		cond)	Co	mm Manual
Alias Name Interface Protocol String Save Mode Operate Condition : Change Condition : IP Ethernet Protocol Port Timeout Send Wait Retry HMI Station MMC Station OID CheckSum	E PLC1 Ethernet Ethernet Ethernet Ethernet TimeOut TomeOut 192 1025 1000 E E D E D E D E D E D E D E D E D E D E D E D E D E D E D E D E D E D E		cond)	Co	mm Manual

Settings		Contents				
ТОР	Model	Check the TOP display and process to select the touch model.				
External device	Vendor	Select the vendor of the externa Choose "Giddings & Lewis Mot	2			
	PLC	Select the external device to be connected to the TOP.				
		Model	Interface	Protocol		
		MMC Series	Ethernet	Ethernet		
		Please check the system config connect is a model whose syste	guration in Chapter 1 to see if the see it is the see if the see it is the second set of the second s	the 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 Property > TOP Setting] → [Project Option > "Use HMI Setup" Check > Edit > Ethernet]

- Set the TOP communication interface in TOP Design Studio.



Items	ТОР	External device	Remarks
IP Address*Note 1) Note 2)	192.168.0.100	192.168.0.50	
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, <u>192</u>. <u>168</u>. <u>0</u>. 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 > PLC Settings > ETHERNET > "PLC1 : MMC Series"]
 - Set the options of the Digital MMC Controller Ethernet communication driver in TOP Design Studio.

Project Option		×
Change HMI[H] Add PLC [A] The Change PLC[C] Change PLC[D]		
PLC Setting MMC Series] and Primery Option Primery Option PLC Setting MMC Series] Alas Name : PLC1 met Protocol : Ethernet Protocol : Ethernet Primary Option Primary Opt	Con	nt Address m Manual
	Apply	Close

Items	Settings	Remarks
Interface	Select "Ethernet".	Refer to "2. External
Protocol	Select "Ethernet".	device selection".
IP	Enter the IP address of the external device.	
Ethernet Protocol	Select the Ethernet protocol between the TOP and an external device.	
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.	
HMI Station	Enter the TOP prefix number.	
MMC Station	Enter the external device prefix number.	
MMC Port	Enter the Ethernet communication port number of the external device.	
OID CheckSum	OID CheckSum Required information for communication between external device and TOP.	
	The *.oid file is automatically entered when imported.	Fixed

The Digital MMC Ethernet communication driver imports and creates the *.oid file exported by the Digital MMC program. For a detailed explanation, please reference **[5. Supported addresses].



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]

	\$	Et;	iernet	×		×	
Run	🔯 System	Port Ethernet Port :	ETH1 ↓ 0	·	Option		
VNC Viewer		Link Speed : MAC Address : IP Address : Subnet Mask : Gateway :	Auto 00: 15: 1D: 00: 00 192.168.0.10 255.255.255. 192.168.0.1	• 00 0 0	Sound		
	Ethernet	DNS (1) : [DNS (2) : [Derault Gatev	way	WI-FI		
Screen shot	Diagnostic M	Ethernet Primary IP : Cable Status : Bridge Mode :	192.168.0.100 ETH1 Not conne Use Bri	0 • ected idge	MRAM Analysis		
	[System]	Check duplicate	Apply Car	ncel	Close		
Toprx – Toprx08005	5				A 2021-0	09-01 10:59:	08 AM

Items	ТОР	External device	Remarks
IP Address*Note 1) Note 2)	192.168.0.100	192.168.0.50	
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, <u>192</u>. <u>168</u>. <u>0</u>. 0) should match.

*Note 2) Do not use duplicate IP addresses over the same network.

 \ast The above settings are $\underline{examples}$ 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

External device connection manual for TOP Design Studio



💛 🔞 System	Driver(ETH)	PLC1(MMC Series) -	
Run	Interface	Ethernet 🔹	<u> </u>
	Protocol	Ethernet 🔹	
PLC	s Bind IP	Auto	
	IP	192 168 0 50 0	
iewer C	Ethernet	UDP -	
	Port	1025 🖨	
	Timeout	300 🜩 msec	
	Send Wait	0 🖨 msec	
hot	Retry	5	
Diagnostic	HMI Stati	0	
	MMC Stati	0	•
[System]	Diagnostic	Ping Test	Apply Cance
		C	

Items	Settings	Remarks
Interface	Select "Ethernet".	Refer to "2. External
Protocol	Select "Ethernet".	device selection".
IP	Enter the IP address of the external device.	
Ethernet Protocol	Select the Ethernet protocol between the TOP and an external device.	
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.	
HMI Station	Enter the TOP prefix number.	
MMC Station	Enter the external device prefix number.	
MMC Port	Enter the Ethernet communication port number of the external device.	
OID CheckSum	Required information for communication between external device and TOP.	Fixed
	The *.oid file is automatically entered when imported.	Fixed

"The Digital MMC Ethernet communication driver imports and creates the *.oid file exported by the Digital MMC program. For a detailed explanation, please reference **[5. Supported addresses]**.



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 ETH port 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.

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 Custom configuration
configuration	Connection cable name	OK	NG	1. System configuration	
TOP	Version information		OK	NG	
	Port in use		OK	NG	
	Driver name		OK	NG	
	Other detailed settings		OK	NG	
	Relative prefix	Project setting	OK	NG	2. External device selection
		Communication diagnostics	ОК	NG	3. Communication setting
	Ethernet port setting	IP Address	OK	NG	
		Subnet Mask	OK	NG	
		Gateway	OK	NG	
External device	ernal device CPU name		OK	NG	
	Communication port name (module name)			NG	
	Protocol (mode)	ОК	NG		
	Setup Prefix		OK	NG	4 External device setting
	Other detailed settings		OK	NG	4. External device setting
	Ethernet port setting	IP Address	OK	NG	
		Subnet Mask	OK	NG	
		Gateway	OK	NG	
	Check address range		ОК	NG	5. Supported addresses (For details, please refer to the PLC vendor's manual.)



4. External device setting

Set using Digital MMC Software "PicPro" for communication setup. For detailed setup instructions, see the User's Manual in the Digital MMC Controller. When setup is complete, download the settings with the appropriate equipment.





5. Supported addresses

TOP Giddings&Lewis Digital MMC Controller Ethernet communication driver imports and creates the MMC's *.oid file.

Step 1. [Project > Project Property > PLC Settings > ETHERNET > "PLC1 : MMC Series > Import Address"]

TOP Setting	PLC Setting[MMC Series]	
Device Setting	Alias Name : PLC1 Bind IP : Auto	
COM1 (0)	Interface : Ethernet	Address
COM2 (0)	Protocol + Ethernet	
PLC1 : MMC Series	Chine Cause Market	Manual
	String Save Mode : Inist Lin HL Change	
	Use Redundancy	
	Operate Condition : AND V	
	Change Condition : TimeOut 5 \$ (Second)	
	Condition Edit	
	Primary Option	
	IP 192 💭 168 💭 0 💭 50 💭	
	Ethernet Protocol UDP V	
	Port 1025	
	Timeout 300 msec	
	Send Wait 0 msec	
	Retry c	
	HMI Station 0	
	MMC Station 0	
	OID CheckSum	

Step 2. Click "Import File" and choose *.oid file, then click "Check Validate" to import used object information from MMC.

Import MMC Address	-	
Import File		Keyword Search Data Type ALL •
Select / Unselect Delete Error Data	Delete	Check Validate
Name	Data Type	Comment
ADD_FR_LENGTH	BOOL	Address:926
ADD_RE_LENGTH	BOOL	Address:928
ALARM(0)	BOOL	Address:1027
ALARM(1)	BOOL	Address:1028
ALARM(10)	BOOL	Address:1037
ALARM(11)	BOOL	Address:1038
ALARM(12)	BOOL	Address:1039
ALARM(13)	BOOL	Address:1040
ALARM(14)	BOOL	Address:1041
ALARM(15)	BOOL	Address:1042
ALARM(16)	BOOL	Address:1043
ALARM(17)	BOOL	Address:1044
ALARM(18)	BOOL	Address:1045
ALARM(19)	BOOL	Address:1046
ALARM(2)	BOOL	Address:1029
ALARM(20)	BOOL	Address:1047
ALARM(21)	BOOL	Address:1048
ALARM(22)	BOOL	Address:1049
ALARM(23)	BOOL	Address:1050
ALARM(24)	BOOL	Address:1051
ALARM(25)	BOOL	Address:1052
ALARM(26)	BOOL	Address: 1053
ALARM(27)	BOOL	Address:1054
ALARM(28)	BOOL	Address:1055
ALARM(29)	BOOL	Address:1056
ALARM(3)	BOOL	Address:1030
ALARM(30)	BOOL	Address:1057
ALARM(31)	BOOL	Address:1058
		Close



* TOP Giddings&Lewis Digital MMC Ethernet communication driver supported data types are as follows.

Numeric	Size	Bitwise	Size	Time	Size
SINT	1 Byte	BOOL	1 Byte	TIME	4 Byte
INT	2 Byte	BYTE	1 Byte		
DINT	4 Byte	WORD	2 Byte		
USINT	1 Byte	DWORD	4 Byte		
UINT	2 Byte				
UDINT	4 Byte				
REAL	4 Byte				