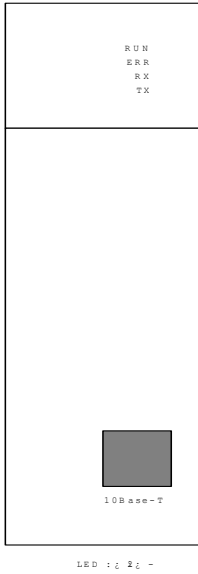




Ethernet CM1 – EC01A

Features and Operation

CM1-EC01A



LED No.	Indication	Description
0	RUN	ON in case of power supply.
1	ERR	Blinking in case of error in system.
2	RX	Blinking in case of receiving.
3	TX	Blinking in case of sending.

- 1) Complies with IEEE802.3 standard.
- 2) Supports the protocols like ARP, ICMP, IP, TCP and UDP.
- 3) Several Ethernet modules can be mounted on one base plate.
- 4) Supports PLC link function for the communications between CIMON-PLCs. Allows communications up to 64 stations at the same time.
- 5) In case of PLC link communication, Ethernet modules up to 4 units can be mounted.
- 6) Ethernet module can be mounted on a expansion base plate.

General Specifications

No	Item	Specification	Reference		
1	Op.Temp.	Operating Temperature -10 ~65 □			
2	St.Temp.	Storage Temperature -25 ~80 □			
3	Op.Hum.	Operating Humidity 5 ~95%RH, Not Condensed			
4	St.Hum.	Storage Humidity 5 ~95%RH, Not Condensed			
5	Vibration	In case of intermittent vibration		IEC61131-2	
		Frequency	Acceleration		Amplitude
		10≤f≤57Hz			0.075mm
		57≤f≤150Hz	9.8m/s ² {1G}		-
		In case of continuous vibration			10 times in X,Y,Z
		Frequency	Acceleration		
10≤f≤57Hz		0.035mm			
6	Shock	□Max. shock Acc. :147 m/s ² {15G} □Time :1□ □Pulse wave: Half sine wave pulse(3 times in X,Y,Z)	IEC61131-2		
7	Noise	Square wave impulse noise	□2,000 V	KDT Standards	
		Electro-static discharge	Voltage :4kV (Contact discharge)	IEC61131-2 IEC1000-4-2	
		Radiated electro-magnetic field	27 ~500 MHz,10 V/m	IEC1131-2 IEC1000-4-3	
		Fast transient burst noise	Power Module	Digital I/O(Less than 24V or more)	Digital I/O(Less than 24V) Analog I/O comm.. Interface
			V	2kV	1kV
8	Environ..	No corrosive gas and no dust			
9	Altitude	2,000m or less			
10	Pollution	2 or less			
11	Cooling	Natural Air Cooling			

Safety Precautions

- PLC Link station number of all communications modules including Ethernet module is to be different each other.
- If duplicate station number is accessed, an error occurs.
- Use the communication cable with assigned specification.
- Check whether communication cable is broken before installation.
- The cable other than assigned may cause communication disturbance.
- Connect communication cable correctly. Incomplete cable connection may cause serious communication disturbance.
- As shield cable has low flexibility, it is to be branched 30 cm or more away from the connector of a communications module. Bending perpendicularly or transforming by force may cause breaking cable or the connector in a communications module.
- In case of long-distance communication cable, wire a cable far away from power line or induction noise.

Module Specifications

Item	Specification (10BASE-T)
Baud Rate	10 Mbps
Sending Type	Base Band
Max. Segment Length	100m(Node – Hub)
Max. No. of Nodes	4-Hub link
Max. Size of Protocol	1500 Byte
Communication Access	CSMA / CD
5V Current Consumption	280(□)
No. of Occupied Points	16 Points

✓ Cable Specifications – Twisted-Pair Cable (UTP)

Item	Unit	Value	
Conductor Resistance (Max.)	Ω / □	93.5	
Insulation Resistance (Min.)	□□□	2500	
Internal Voltage	V / min.	AC 500	
Characteristic Impedance	Ω (1 ~ 100□)	100±15	
Attenuation	Less than dB / 100m	10	6.5
		16	8.2
		20	9.3
Near-end Cross Talk Attenuation	Less than dB / 100m	10	47
		16	44
		20	42

□ As the cables for Ethernet connection are different according to system configuration and cable type, consultation with an expert is required to install them

Setting up IP Address and NetMask

- 1) Click Tool =>Special Card Setup in the CIMON.
- 2) Select Ethernet as Type and base and slot number.

Base: This is used to select the number of the base on which a module is mounted. If an Ethernet module is mounted on an expansion base, select the number of the base on which the module is mounted among Expansion 1, Expansion 2, ... and Expansion 16. Otherwise, select Local.

Slot No.: This is used to select the number of the slot on which an Ethernet module is mounted.

- 3) Enter IP Address and Net Mask used for an Ethernet module and click Download.
- 4) Press OK to set up IP Address and Net Mask for an Ethernet module following the above order.

- Upload Set Value : This is used to read and display current IP Address and Net Mask of the Ethernet module which is mounted on a slot from buffer memory.
- Current Status : This is used to display error status, the IP address and port for the last HMI service, the IP address and port for the last loader service and PLC Link status.

⚠ Caution

To use this product correctly, it is absolutely required to read the product description before use.

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*As the contents of specifications are subject to change for quality improvement, please consult with us when purchasing products.

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I/O Signals

Signal Direction (CPU←Ethernet)		Signal Direction (CPU→Ethernet)	
Input	Signal Name	Output	Signal Name
X0	Error in module	Y0	Request to clear error
X1	Initialized	Y1	Request to clear PLC link status
X2	User frame received	Y2	Request to clear received user frame
X3	User frame sending busy	Y3	Request to clear sending
X4		Y4	
X5		Y5	
X6		Y6	
X7		Y7	
X8		Y8	
X9		Y9	
XA		YA	
XB		YB	
XC	HMI TCP Link On-Service	YC	Request to unlink HMI TCP
XD		YD	
XE		YE	
XF	Parameter has been saved.	YF	Request to save parameter

User Program Memory Devices (1)

Offset	Description	R/W
0	Status Code (0=Normal, Others=Error Code)	R
1		
2		
3		
4	IP Address	R/W
5	IP Address	R/W
6	Net Mask	R/W
7	Net Mask	R/W
8	PLC Link Station	R
9	PLC Link Connection	R
10	PLC Link Connection	R
11	PLC Link Connection	R
12	PLC Link Connection	R
13	The last HMI Service IP Address	R
14	The last HMI Service IP Address	R
15	The last HMI Service Port	R
16	The last Loader Service IP Address	R
17	The last Loader Service IP Address	R
18	The last Loader Service Port	R
19	TCP Modbus Unit ID	R/W
20	Dest IP Address	
21	Dest IP Address	
22	Dest Port	
23	Source IP Address	
24	Source IP Address	
25	Source Port	
26	Gate Way	R/W
27	Gate Way	R/W

User Program Memory Devices (2)

...		
30	DNP Host IP Address (Upper)	
31	DNP Host IP Address (Lower)	
32	DNP Host Station	
33	DNP My Station	
34	DNP Flags	
35	Dnp DataLink Rty/Dnp DataLink T.O	
36	Dnp Application Rty/Dnp Application T.O	
37~127	User Message	R/W
...		
128	PLC Link Number 0 Station IP Address (Upper)	R/W
129	PLC Link Number 0 Station IP Address (Lower)	R/W
...		
254	PLC Link Number 63 Station IP Address (Upper)	R/W
255	PLC Link Number 63 Station IP Address (Lower)	R/W

Error Codes for Exclusive Service

Error Codes

Code	Description
0000h	No error (Cmd=57h/77h, the response in case that the command is successfully processed.)
0001h	Error in system (No link with CPU)
0002h	Invalid device prefix
0003h	Invalid device address
0004h	Error in requested data size
0005h	Over 16 request blocks
0006h	The case that buffer memory send an error in data and size
0007h	Over receiving buffer capacity
0008h	Over sending time
0009h	Error in header
000Ah	Error in check-sum of received data
000Bh	Error in the information on frame length (Total received frame size)
000Ch	Error in the size to write
000Dh	Error in Bit Write Data
000Eh	Unknown command
000Fh	Disabling state from writing
0010h	Error in CPU process

PLC Link in Common/Exclusive Network

1. PLC Link in Common Network

PLC Link is used to exchange data and information with other party at a certain time periodically. The sending/receiving data size, the interval and the device in the parameter of the CICON to exchange data can be set up.

IP Address of other node is stored in User Program Memory Device (128 ~ 255).

2. PLC Link in Exclusive Network

PLC Link is used to exchange data and information with other party at a certain time periodically. The sending/receiving data size, the interval and the device in the parameter of the CICON to exchange data can be set up.

- Transport Layer : UDP/IP(IP Broadcasting)
- Maximum linked PLC : 64 units

Number of Link Points

Sending/Receiving Capacity per Station	Max. Block Number	Max. No. of Points per Block
4,096 words	Block 64 (0~63)	64 words

Setting up PLC Link Parameters

- 1) Select PLC Link in Parameter.
- 2) Ethernet modules up to 4 can be mounted on a base to set up PLC Link.
- 3) Select PLC Link.
 - Network: Select Ethernet (Common, Exclusive).
 - Base: This is used to select the base on which an Ethernet module is mounted. If an Ethernet module is mounted on the base on which a CPU module is mounted, select Local. In case of an Ethernet module mounted on an expansion base, select the number of the expansion base.
 - Slot: Select the slot on which an Ethernet module is mounted.
 - Station: Select a station number for PLC Link. But, the station number duplicated with other Ethernet module may cause an error.
- 4) Select PLC Link Type and enter the values of parameters to set up Comm. Block.
- 5) Select Add button to set up a sending block and a receiving block.
- 6) Select the sending interval, sending device and data size of a sending block.
- 7) Select the number of a receiving station and block, the address in which received data are stored and data size.

Error Codes for System

Code	Description
0000h	No error
0001h	A specialty module is not initialized.
0002h	EEPROM is not initialized.
0005h	Not able to write to buffer memory.
0006h	Not able to read buffer memory.
0007h	A CPU module is dismantled.
0008h	Station number for PLC LINK is duplicated.
000Dh	Buffer is overflowed.
000Fh	Accesses Graphic Loader over the maximum.
0010h	Not able to access EEPROM.
0011h	Sending/receiving data size for PLC LINK is exceeded.
0012h	Not able to send specialty program.
0014h	No. of PLC LINK stations is over the Maximum.

Trouble Shooting

