CMC-EIP01

2013-12-15

5011693501-CIP1

Instruction Sheet

安 裝 說 明

安 装 说 明

EtherNet/IP Communication Card

EtherNet/IP 通訊卡

EtherNet/IP 通讯卡

Smarter. Greener. Together.

⚠ Warning ENGLISH

EN ✓ CMC-EIP01 is an OPEN-TYPE device. It should be installed in a control cabinet free of airborne dust, humidity, electric shock and vibration. To prevent non-maintenance staff from operating CMC-EIP01, or to prevent an accident from damaging CMC-EIP01, the control cabinet in which CMC-EIP01 is installed should be equipped with a safeguard. For example, the control cabinet in which CMC-EIP01 is installed can be unlocked with a special tool or key.

EN ✓ DO NOT connect AC power to any of I/O terminals, otherwise serious damage may occur. Please check all wiring again before CMC-EIP01 is powered up. After CMC-EIP01 is disconnected, Do NOT touch any terminals in a minute. Make sure that the ground terminal ⏚ on CMC-EIP01 is correctly grounded in order to prevent electromagnetic interference.

FR ✓ CMC-EIP01 est un module OUVERT. Il doit être installé que dans une enceinte protectrice (boitier, armoire, etc.) saine, dépourvue de poussière, d'humidité, de vibrations et hors d'atteinte des chocs électriques. La protection doit éviter que les personnes non habilitées à la maintenance puissent accéder à l'appareil (par exemple, une clé ou un outil doivent être nécessaire pour ouvrir a protection).

FR ✓ Ne pas appliquer la tension secteur sur les bornes d'entrées/Sorties, ou l'appareil CMC-EIP01 pourra être endommagé. Merci de vérifier encore une fois le câblage avant la mise sous tension du CMC-EIP01. Lors de la déconnection de l'appareil, ne pas toucher les connecteurs dans la minute suivante. Vérifier que la terre est bien reliée au connecteur de terre ⏚ afin d'éviter toute interférence électromagnétique.

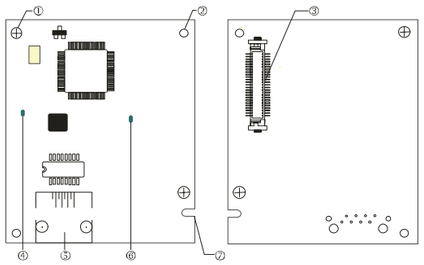
❶ Introduction

Thank you for choosing Delta CMC-EIP01 communication card. CMC-EIP01 is an EtherNet/IP communication card for connecting Delta C2000 series, CH2000 series, CP2000 series, CT2000 series, and AFE2000 series AC motor drives to EtherNet/IP network. No external power supply is required for CMC-EIP01. The power will be supplied by an AC motor drive.

■ Functions

1. Supports MODBUS TCP and EtherNet/IP protocol
2. MDI/MDI-X auto-detect
3. Baud rate: 10/100Mbps auto-detect
4. E-mail alarm
5. AC motor drive keypad/Ethernet configuration
6. Virtual serial port

■ Product Profile



[Figure 1]

1. Screw fixing hole	2. Positioning hole	3. AC motor drive connection port
4. LINK indicator	5. RJ-45 connection port	6. POWER indicator
7. Fool-proof groove		

❷ Specifications

■ Network Interface

Interface	RJ-45 with Auto MDI/MDIX
Number of ports	1 Port
Transmission method	IEEE 802.3, IEEE 802.3u
Transmission cable	Category 5e shielding 100M
Transmission speed	10/100 Mbps Auto-Detect
Network protocol	ICMP, IP, TCP, UDP, DHCP, HTTP, SMTP, MODBUS OVER TCP/IP, EtherNet/IP, Delta Configuration

■ Electrical Specification

Weight	25g
Insulation voltage	500VDC
Power consumption	0.8W
Power supply voltage	5VDC

■ Environment

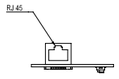
Noise immunity	ESD (IEC 61800-5-1,IEC 61000-4-2) EFT (IEC 61800-5-1,IEC 61000-4-4) Surge Test (IEC 61800-5-1,IEC 61000-4-5) Conducted Susceptibility Test (IEC 61800-5-1,IEC 61000-4-6)
Operation/storage	Operation: -10°C ~ 50°C (temperature), 90% (humidity) Storage: -25°C ~ 70°C (temperature), 95% (humidity)
Vibration/shock immunity	International standard: IEC 61800-5-1, IEC 60068-2-6/IEC 61800-5-1, IEC 60068-2-27

❸ Installation

Note: The contents below are about installing CMC-EIP01 on C2000.

■ Connecting CMC-EIP01 to Network

1. Switch off the power of AC motor drive.
2. Open the front cover of AC motor drive.
3. Connect CAT-5e network cable to RJ-45 port on CMC-EIP01 (See Figure 2).



[Figure 2]

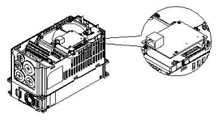
■ RJ-45 PIN Definition

PIN	Signal	Definition
1	Tx+	Positive pole for data transmission
2	Tx-	Negative pole for data transmission
3	Rx+	Positive pole for data receiving
4	--	N/C
5	--	N/C
6	Rx-	Negative pole for data receiving
7	--	N/C
8	--	N/C

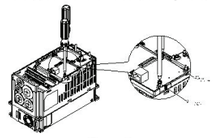
■ Connecting CMC-EIP01 to C2000

1. Switch off the power of the AC motor drive.
2. Open the front cover of the AC motor drive.
3. Place the insulation spacer into the positioning pin at Slot 1 (shown in Figure 3), and aim the two holes on the PCB at the positioning pin. Press the pin to clip the holes with the PCB (see Figure 4).
4. Screw up at torque 6 ~8 kg-cm (5.21 ~6.94 in-lbs) after the PCB is clipped with the holes (see Figure 5).

[Figure 3]



[Figure 4]



[Figure 5]

■ Communication Parameters for C2000 Connected to Ethernet/IP

When C2000 is connected to Ethernet/IP network, please set up the communication parameters for it according to the table below. The Ethernet/IP master is only able to read/write the frequency word and control word of C2000 after the communication parameters are set.

Parameter (Dec)	Function	Set value (Dec)	Explanation
P00-20	Setting up source of frequency command	8	The frequency command is controlled by the communication card.
P00-21	Setting up source of operation command	5	The operation command is controlled by the communication card.
P09-30	Decoding method for communication	0	The decoding method for the Delta AC motor drive
P09-75	IP setting	0	Static IP(0)/Dynamic distribution IP(1)
P09-76	IP address -1	192	IP address 192.168.1.5
P09-77	IP address -2	168	IP address 192.168.1.5
P09-78	IP address -3	1	IP address 192.168.1.5
P09-79	IP address -4	5	IP address 192.168.1.5
P09-80	Netmask -1	255	Netmask 255.255.255.0
P09-81	Netmask -2	255	Netmask 255.255.255.0
P09-82	Netmask -3	255	Netmask 255.255.255.0
P09-83	Netmask -4	0	Netmask 255.255.255.0
P09-84	Default gateway -1	192	Default gateway 192.168.1.1
P09-85	Default gateway -2	168	Default gateway 192.168.1.1
P09-86	Default gateway -3	1	Default gateway 192.168.1.1
P09-87	Default gateway -4	1	Default gateway 192.168.1.1

■ Controlling and Using the I/O on an AC Motor Drive by a Communication Card

1. Controlling the setting by a control card

Multi-function output terminal	Parameter	Setting value
Relay1~Relay3*	02-13~02-15	52
MO1~MO2	02-16~02-17	52
MO10~MO15(RY10~RY15)	02-36~02-41	52
AFM1	03-20	22
AFM2	03-23	22

*Relay3 is for CP2000. MO1~MO2 are for C2000/CH2000.

2. Control addresses

Terminal	Address	R/W	Address length	Description
DI	2600h	R	b15~b0	Digital inputs b15~b0
DO	2640h	RW	b15~b0	Digital outputs b15~b0
AI	2660h	R	b15~b0	Percentage of AVI analog input signals
	2661h	R	b15~b0	Percentage of ACI analog input signals
	2662h	R	b15~b0	Percentage of AUI analog input signals
AO	26A0h	RW	b15~b0	Percentage of AFM1 analog output signals
	26A1h	RW	b15~b0	Percentage of AFM2 analog output signals

Correspondence for the address 2600:

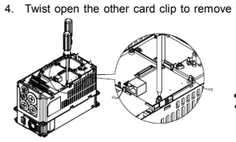
Number	Bit 0	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7	Bit 8	Bit 9	Bit 10	Bit 11	Bit 12	Bit 13	Bit 14	Bit15
I/O on the control panel	FWD	REV	MI1	MI2	MI3	MI4	MI5	MI6	MI7	MI8	-	-	-	-	-	-
EMC-D611A	-	-	-	-	-	-	-	-	-	-	MI10	MI11	MI12	MI13	MI14	MI15
EMC-D42A	-	-	-	-	-	-	-	-	-	-	MI10	MI11	MI12	MI13	-	-

Correspondence for the address 2640:

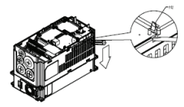
Number	Bit 0	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7	Bit 8	Bit 9	Bit 10	Bit 11	Bit 12	Bit 13	Bit 14	Bit15
I/O on the control panel	RY1	RY2	-	MO1	MO2	-	-	-	-	-	-	-	-	-	-	-
EMC-D42A	-	-	-	-	-	MO10	MO11	-	-	-	-	-	-	-	-	-
EMC-R6AA	-	-	-	-	-	RY10	RY11	RY12	RY13	RY14	RY15	-	-	-	-	-

■ Disconnecting CMC- EIP01 from C2000

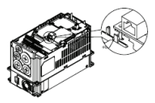
1. Switch off the power supply of C2000.
2. Remove the two screws (see Figure 6).
3. Twist open the card clip and insert the slot type screwdriver to the hollow to prize the PCB off the card clip (see Figure 7).
4. Twist open the other card clip to remove the PCB (see Figure 8).



[Figure 6]



[Figure 7]



[Figure 8]

❹ LED Indicator & Troubleshooting

There are 2 LED indicators on CMC-EIP01. The POWER LED displays the status of power supply, and the LINK LED displays the connection status of the communication.

■ LED Indicators

LED	Status		Indication	How to correct
POWER	Green	On	Power supply in normal status	--
		Off	No power supply	Check the power supply.
LINK	Green	On	Network connection in normal status	--
		Flashes	Network in operation	--
		Off	Network not connected	Check if the network cable is connected.

■ Troubleshooting

Abnormality	Cause	How to correct
POWER LED off	AC motor drive not powered	Check if AC motor drive is powered, and if the power supply is normal.
	CMC-EIP01 not connected to AC motor drive	Make sure CMC-EIP01 is connected to AC motor drive.
LINK LED off	CMC-EIP01 not connected to network	Make sure the network cable is correctly connected to network.
	Poor contact to RJ-45 connector	Make sure RJ-45 connector is connected to Ethernet port.
No communication card found	CMC-EIP01 not connected to network	Make sure CMC-EIP01 is connected to network.
	PC and CMC-EIP01 in different networks and blocked by network firewall.	Search by IP or set up relevant settings by AC motor drive keypad.
Fail to open CMC-EIP01 setup page	CMC-EIP01 not connected to network	Make sure CMC-EIP01 is connected to the network.
	Incorrect communication setting in DCISoft	Make sure the communication setting in DCISoft is set to Ethernet.
	PC and CMC-EIP01 in different networks and blocked by network firewall.	Conduct the setup by AC motor drive keypad.
Able to open CMC-EIP01 setup page but fail to utilize webpage monitoring	Incorrect network setting in CMC-EIP01	Check if the network setting for CMC-EIP01 is correct. For the Intranet setting in your company, please consult your IT staff. For the Internet setting in your home, please refer to the network setting instruction provided by your ISP.
Fail to send e-mail	Incorrect network setting in CMC-EIP01	Check if the network setting for CMC-EIP01 is correct.
	Incorrect mail server setting	Please confirm the IP address for SMTP-Server.

⚠ 注意事項 繁體中文

- ✓ 此安裝手冊只提供電氣規格、一般規格、安裝及配線等。詳細關於 CMC-EIP01 包含的網路協定內容，請參閱相關的專業文章或書籍資料。交流馬達驅動器安裝環境及方式及注意事項請參考交流馬達驅動器手冊。
- ✓ 安裝本產品時，請先關閉交流馬達驅動器電源。交流馬達驅動器的內部電路板有 CMOS IC 極易受靜電的破壞，故在未做好防靜電措施前請勿用手觸摸電路板。
- ✓ 本機屬於交流馬達驅動器之配件卡，使用者使用本產品時，必須將之安裝於 C2000、CH2000、CP2000、CT2000 及 AFE2000 系列交流馬達驅動器上。
- ✓ 電路板上的 IC 易受靜電破壞，未做好防靜電措施前請勿用手觸摸。防止非維護人員操作或意外衝擊本體，造成危險及損壞，且請勿在上電時觸摸任何端子。
- ✓ 請務必仔細閱讀本安裝說明，並依照說明指示進行操作，以免造成產品受損，或導致人員受傷。

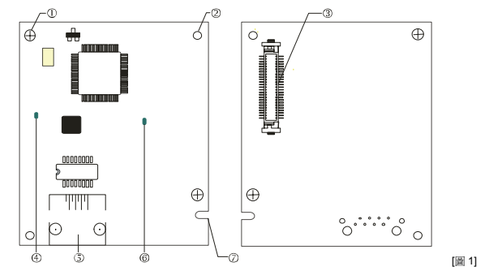
❶ 產品簡介

感謝您使用台達 CMC-EIP01 通訊卡。CMC-EIP01 定義爲 EtherNet/IP 通訊卡，用於將台達 C2000、CH2000、CP2000、CT2000 及 AFE2000 系列交流馬達驅動器連接 EtherNet/IP 網路，CMC-EIP01 不需外接電源，由交流馬達驅動器提供。

■ 功能特色

1. 支援 MODBUS TCP 和 EtherNet/IP 通訊協定
2. MDI/MDI-X 自動偵測
3. 傳輸速率 10/100Mbps 自動偵測
4. 電子郵件警報
5. 交流馬達驅動器操作器 / Ethernet 組態設定
6. 虛擬序列埠

■ 產品外觀



[圖 1]

1. 螺絲固定孔	2. 通訊卡定位孔	3. 交流馬達驅動器連接埠
4. LINK 指示燈	5. RJ-45 連接埠	6. POWER 指示燈
7. 通訊卡防呆溝槽		

❷ 功能規格

■ 網路介面

接頭	RJ-45 with Auto MDI/MDIX
埠數	1 Port
傳輸方式	IEEE 802.3, IEEE 802.3u
傳輸線	Category 5e shielding 100M
傳輸速率	10/100 Mbps Auto-Detect
網路協定	ICMP, IP, TCP, UDP, DHCP, HTTP, SMTP, MODBUS OVER TCP/IP, EtherNet/IP, Delta Configuration

■ 電氣規格

重量	25g
絕緣電壓	500VDC
消耗電力	0.8W
電源電壓	5VDC

■ 環境規格

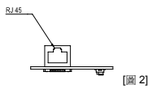
雜訊免疫力	ESD (IEC 61800-5-1,IEC 61000-4-2) EFT (IEC 61800-5-1,IEC 61000-4-4) Surge Test (IEC 61800-5-1,IEC 61000-4-5) Conducted Susceptibility Test (IEC 61800-5-1,IEC 61000-4-6)
操作 / 儲存環境	操作：-10°C ~ 50°C（溫度），90%（濕度） 儲存：-25°C ~ 70°C（溫度），95%（濕度）
耐振動 / 衝擊	國際標準規範 IEC 61800-5-1,IEC 60068-2-6 / IEC 61800-5-1,IEC 60068-2-27

❸ 安裝

註：以下內容僅以 C2000 示意。

■ CMC-EIP01 與網路連接

1. 關閉交流馬達驅動器電源
2. 打開交流馬達驅動器上蓋
3. 連接 CAT-5e 網路線至 CMC-EIP01 RJ-45 接孔，如圖[2] 所示。



[圖 2]

■ RJ-45 連接器腳位定義

腳 位	訊 號	敘 述
1	Tx+	傳輸資料正極
2	Tx-	傳輸資料負極
3	Rx+	接收資料正極
4	--	N/C
5	--	N/C
6	Rx-	接收資料負極
7	--	N/C
8	--	N/C