

CMC-PD01 INSTRUCTION SHEET

安裝說明 安装说明

- ▲ PROFIBUS DP Communication Card
- ▲ PROFIBUS DP 通訊卡
- ▲ PROFIBUS DP 通讯卡



CMC-1205830-02

Warning ENGLISH

- ✓ This instruction sheet only provides information on electrical specification, general specification, how to install and wire.
- ✓ Switch off the power before wiring. DO NOT touch any terminal when the power is switched on.
- ✓ CMC-PD01 is an OPEN-TYPE device and therefore should be installed in an enclosure free of airborne dust, humidity, electric shock and vibration. The enclosure should prevent non-maintenance staff from operating the device (e.g. key or specific tools are required to open the enclosure) in case danger and damage on the device may occur.
- ✓ DO NOT touch the internal circuit in 1 minute after the input power supply is cut off.
- ✓ DO NOT connect input AC power supply to any of the I/O terminals; otherwise serious damage may occur. Check all the wiring again before switching on the power, and DO NOT touch any terminal when the power is switched on. Make sure the ground terminal Ⓞ is correctly grounded in order to prevent electromagnetic interference.

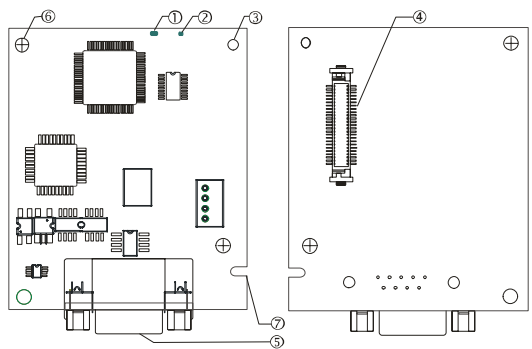
Introduction

Thank you for choosing Delta CMC-PD01 network communication card. CMC-PD01 is PROFIBUS DP network communication card for connecting Delta VFD-C2000 series AC motor drive to PROFIBUS DP network. No external power supply is required for CMC-PD01. The power will be supplied from the AC motor drive.

Functions

1. Supports PZD control data exchange.
2. Supports PKW polling AC motor drive parameters.
3. Supports user diagnosis function.
4. Auto-detects baud rates; supports Max. 12Mbps.

Product Profile



[Figure 1]

1. NET indicator	2. POWER indicator	3. Positioning hole
4. AC motor drive connection port	5. PROFIBUS DP connection port	6. Screw fixing hole
7. Foot-proof groove		

Specifications

PROFIBUS DP Connector

Interface	DB9 connector
Transmission method	High-speed RS-485
Transmission cable	Shielded twisted pair cable
Electrical isolation	500VDC

Communication

Message type	Cyclic data exchange
Comm. Card name	CMC-PD01
GSD document	DELA08DB.GSD
Company ID	08DB (HEX)
Serial transmission speed supported (auto-detection)	9.6kbps, 19.2kbps, 93.75kbps, 187.5kbps, 500kbps, 1.5Mbps, 3Mbps, 6Mbps, 12Mbps (bits per second)

Electrical Specification

Power supply voltage	5VDC (supplied by AC motor drive)
Insulation voltage	500VDC
Power consumption	1W
Weight	28g

Environment

Noise immunity	ESD(IEC 61800-5-1,IEC 6100-4-2) EFT(IEC 61800-5-1,IEC 6100-4-4) Surge Teat(IEC 61800-5-1,IEC 6100-4-5) Conducted Susceptibility Test(IEC 61800-5-1,IEC 6100-4-6)
Operation /storage	Operation: -10°C ~ 50°C (temperature), 90% (humidity), pollution degree 2 Storage: -25°C ~ 70°C (temperature), 95% (humidity, non-condensing)
Shock / vibration resistance	International standards: IEC61131-2, IEC68-2-6 (TEST Fc)/IEC61131-2 & IEC 68-2-27 (TEST Ea)

Installation

PROFIBUS DP Connector

PIN	PIN name	Definition
1	-	Not defined
2	-	Not defined
3	Rxd/Txd-P	Sending/receiving data P(B)
4	-	Not defined
5	DGND	Data reference ground



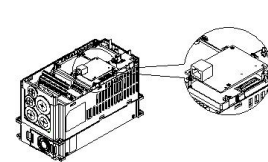
PIN	PIN name	Definition
6	VP	Power voltage – positive
7	-	Not defined
8	Rxd/Txd-N	Sending/receiving data N(A)
9	-	Not defined

Connecting CMC-PD01 to VFD-C2000

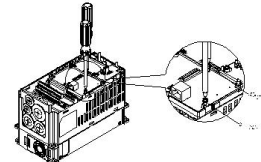
1. Switch off the power of VFD-C2000.
2. Open the front cover of VFD-C2000.
3. Place the insulation spacer into the positioning pin at Slot 1 (shown in Figure 2), and aim the two holes on the PCB at the positioning pin. Press the pin to clip the holes with the PCB (see Figure 3).
4. Screw up at torque 6 ~ 8 kg-cm (5.21 ~ 6.94 in-lbs) after the PCB is clipped with the holes (see Figure 4).



[Figure 2]



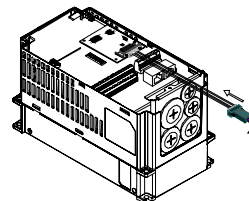
[Figure 3]



[Figure 4]

Connecting to PROFIBUS DP Connector

Insert the connector to the connection port on CMC-PD01 (see Figure 5), and screw up the screws on the connector to ensure tight connection between CMC-PD01 and the PROFIBUS DP connector.



[Figure 5]

Communication Parameters for VFD-C2000 Connected to PROFIBUS DP

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

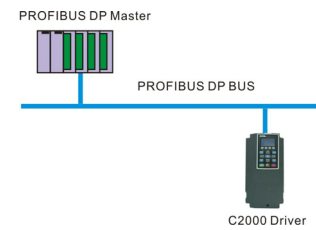
Parameter	Function	Set value	Explanation
P00-20	Setting up source of frequency command	8	The frequency command is controlled by communication card.
P00-21	Setting up source of operation command	5	The operation command is controlled by communication card.

Parameter	Function	Set value	Explanation
P09-30	Decoding method for communication	0/1	0: The old decoding method for Delta AC motor drive (20XX). 1: The new decoding method for Delta AC motor drive (60XX).
P09-70	Address of communication card	User defined	Address of VFD-C2000 on PROFIBUS DP network.

Note: The value of P09-70 is the address of VFD-C2000 in PROFIBUS DP network. The address has to be consistent with the address of VFD-C2000 during configuration. Changing the value is P09-70 when VFD-C2000 is working will be invalid. After the value in P09-70 is changed, please shut down VFD-C2000 and re-power it to make the parameter valid.

Connecting VFD-C2000 to PROFIBUS DP Network

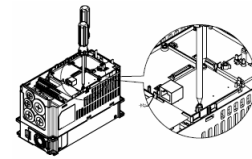
See Figure 6 below:



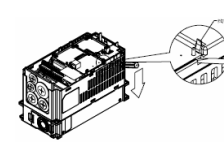
[Figure 6]

Disconnecting CMC-PD01 from VFD-C2000

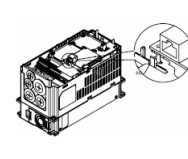
1. Switch off the power supply of VFD-C2000.
2. Remove the two screws (see Figure 7).
3. Twist open the card clip and insert the slot type screwdriver to the hollow to prize the PCB off the card clip (see Figure 8).
4. Twist open the other card clip to remove the PCB (see Figure 9).



[Figure 7]



[Figure 8]



[Figure 9]

LED Indicator & Troubleshooting

There are 2 LED indicators on CMC-PD01. POWER LED displays the status of the working power. NET LED displays the connection status of the communication.

POWER LED

LED status	Indication	How to correct
Green light on	Power supply in normal status.	--

LED status	Indication	How to correct
Off	No power	Check if the connection between CMC-PD01 and AC motor drive is normal.

NET LED

LED status	Indication	How to correct
Green light on	Normal status	--
Red light on	CMC-PD01 is not connected to PROFIBUS DP master.	1. Check if the configuration address of CMC-PD01 is consistent with the actual address. 2. Check if CMC-PD01 is normally connected to PROFIBUS DP bus. 3. Check if the communication cable between CMC-PD01 and PROFIBUS DP master is working normally.
Red light flashes	Invalid PROFIBUS communication address	Set the PROFIBUS address of CMC-PD01 between 1 ~ 125 (decimal)
Orange light flashes	CMC-PD01 fails to communication with AC motor drive.	Switch off the power and check whether CMC-PD01 is correctly and normally connected to AC motor drive.

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。
- ✓ 配線時請務必關閉電源，請勿在上電時觸摸任何端子。
- ✓ 本機為開放型 (OPEN TYPE) 機殼，因此使用者使用本機時，必須將之安裝於具防塵、防潮及免於電擊 / 衝擊意外之外殼配線箱內。另必須具備保護措施 (如：特殊之工具或鑰匙才可打開)，防止非維護人員操作或意外衝擊本體，造成危險及損壞。
- ✓ 輸入電源切斷後，一分鐘之內，請勿觸摸內部電路。
- ✓ 交流輸入電源不可連接於輸入 / 輸出信號端，否則可能造成嚴重損壞。請在上電前再次確認電源配線，且請勿在上電時觸摸任何端子。本體上的接地端子 Ⓞ 務必正確的接地，以提高產品抗干擾能力。

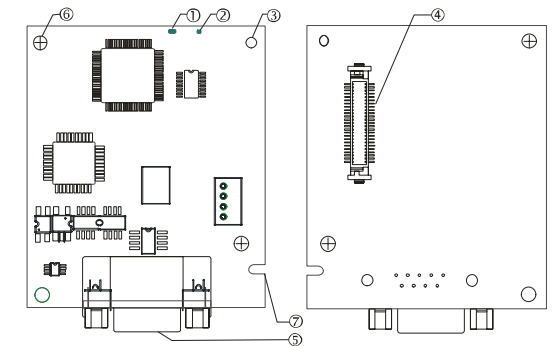
產品簡介

感謝您使用台達 CMC-PD01 網路通訊卡。CMC-PD01 定義為 PROFIBUS DP 網路通訊卡，用於將台達 VFD-C2000 系列交流馬達驅動器接入 PROFIBUS DP 網路，CMC-PD01 無需外接電源，由交流馬達驅動器提供。

功能特色

1. 支援 PZD 控制資料交換
2. 支持 PKW 訪問交流馬達驅動器參數
3. 支援用戶診斷功能
4. 自動偵測通訊速率，最高通訊速率支援 12Mbps。

產品外觀



[圖 1]

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

功能規格

PROFIBUS DP 通訊連接器

接頭	DB9 接頭
傳輸方式	高速的 RS-485
傳輸電纜	遮罩雙絞線
電氣隔離	500VDC

通訊

資訊類型	週期性資料交換
通訊卡名稱	CMC-PD01
GSD 文件	DELA08DB.GSD
產品 ID	08DB (HEX)
支援串列傳輸速度 (自動偵測)	支援 9.6kbps, 19.2kbps, 93.75kbps, 187.5kbps, 500kbps, 1.5Mbps, 3Mbps, 6Mbps, 12Mbps (位 / 秒)

電氣規格

電源電壓	5VDC (由交流馬達驅動器提供)
絕緣電壓	500VDC
消耗電力	1W
重量	28g

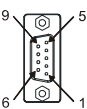
環境規格

雜訊免疫力	ESD(IEC 61800-5-1,IEC 6100-4-2) EFT(IEC 61800-5-1,IEC 6100-4-4) Surge Teat(IEC 61800-5-1,IEC 6100-4-5) Conducted Susceptibility Test(IEC 61800-5-1,IEC 6100-4-6)
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)
耐震動 / 衝擊	國際標準規範 IEC61131-2, IEC68-2-6 (TEST Fc) / IEC61131-2 & IEC 68-2-27(TEST Ea)

安裝

PROFIBUS DP 通訊連接器腳位定義

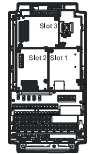
腳位	名稱	敘述
1	-	未指定
2	-	未指定
3	Rxd/Txd-P	接收 / 發送資料 P(B)
4	-	未指定
5	DGND	資料參考接地



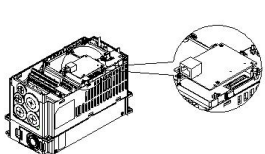
腳位	名稱	敘述
6	VP	電源電壓-正壓
7	-	未指定
8	Rxd/Txd-N	接收 / 發送資料 N(A)
9	-	未指定

■ CMC-PD01 安裝於 VFD-C2000 系列交流馬達驅動器上

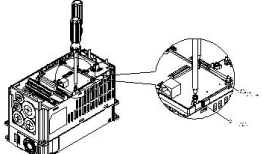
- 關閉交流馬達驅動器電源。
- 打開交流馬達驅動器上蓋。
- 於[圖 2]顯示的 Slot1 處，先將絕緣片放入定位柱後，再將 PCB 上兩個圓孔對準定位柱後，下壓讓兩個卡勾卡住 PCB，如 [圖 3] 所示。
- 確認 PCB 上兩個卡勾確實卡住 PCB 後，將螺絲鎖上，扭力為 6~8 kg-cm (5.21~6.94 in-lbs)，如[圖 4] 所示。



[圖 2]



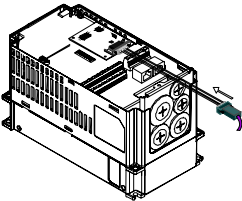
[圖 3]



[圖 4]

■ 連接 PROFIBUS DP 通訊連接器

將 PROFIBUS DP 匯流排連接器依照 [圖 5] 箭頭所示的方向插入 CMC-PD01 通訊連接面，旋緊 PROFIBUS DP 匯流排連接器上的螺絲，以確保 CMC-PD01 與 PROFIBUS DP 匯流排的穩固連接。



[圖 5]

■ VFD-C2000 Driver 連接 PROFIBUS DP 網路時的通訊參數設定

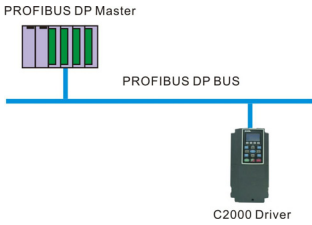
台達 VFD-C2000 Driver 連接 PROFIBUS DP 網路時，須根據表格設定交流馬達驅動器的通訊參數。設置通訊參數後，PROFIBUS DP 主站才可以對台達 VFD-C2000 Driver 的頻率字元組和控制字元組進行讀寫操作。

參數	參數說明	參數設定值	參數設定值說明
P00-20	頻率命令來源設定	8	頻率命令由通訊卡控制
P00-21	運轉命令來源設定	5	運轉命令由通訊卡控制
P09-30	通訊解碼方式選擇	0/1	0：台達交流馬達驅動器舊的解碼方式(20XX) 1：台達交流馬達驅動器新的解碼方式(60XX)
P09-70	通訊卡位址	自行設定	VFD-C2000 Driver 在 PROFIBUS DP 網路中的位址

備註：P09-70 的參數值為台達 VFD-C2000 Driver 在 PROFIBUS DP 網路中的位址，此位址必須與組態配置時 VFD-C2000 Driver 的位址一致。VFD-C2000 Driver 在工作時更改 P09-70 的參數值無效；當更改 P09-70 的參數值後，VFD-C2000 Driver 須斷電後再重新上電才有效。

■ VFD-C2000 Driver 連接 PROFIBUS DP 網路

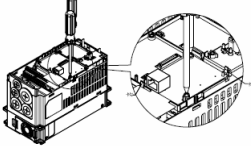
VFD-C2000 Driver 連接 PROFIBUS DP 網路時的示意圖，如 [圖 6] 所示。



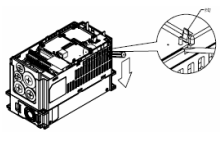
[圖 6]

■ CMC-PD01 從 VFD-C2000 系列交流馬達驅動器上卸除

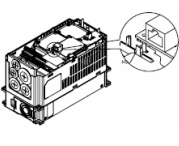
- 關閉交流馬達驅動器電源。
- 將兩顆螺絲拆下，如 [圖 7] 所示。
- 將卡勾扳開後，將一字起子斜插入凹陷處，將 PCB 撬開脫離卡勾，如 [圖 8] 所示。
- 再將另一卡勾扳開後，將 PCB 取出，如 [圖 9] 所示。



[圖 7]



[圖 8]



[圖 9]

LED 燈指示說明及故障排除

CMC-PD01 有兩個 LED 指示燈：POWER LED 和 NET LED。POWER LED 用來顯示 CMC-PD01 的工作電源是否正常，NET LED 用來顯示 CMC-PD01 的通訊連接狀態是否正常。

■ POWER LED 燈顯示說明

LED 狀態	顯示說明	處理方法
綠燈亮	電源正常	無需處理
燈滅	無電源	檢查 CMC-PD01 與交流馬達驅動器連接是否正常

■ NET LED 燈顯示說明

LED 燈狀態	顯示說明	處理方法
綠燈亮	正常	無需處理

LED 燈狀態	顯示說明	處理方法
紅燈亮	CMC-PD01 未和 PROFIBUS DP 主站建立連接	1.檢查 CMC-PD01 組態時，配器位址和其實際位址是否一致 2.檢查 CMC-PD01 和 PROFIBUS DP 匯流排連接是否正常 3.檢查 CMC-PD01 和 PROFIBUS DP 主站之間的通訊線是否正常
紅燈閃爍	無效的 PROFIBUS 通訊位址	設置 CMC-PD01 的 PROFIBUS 位址在 1 ~ 125 (十進位) 之間
橙色閃爍	CMC-PD01 和交流馬達驅動器不能通訊	請斷電檢查 CMC-PD01 與交流馬達驅動器是否正確安裝，連接是否正常。

⚠ 注意事项

- ✓ 此安装手册只提供电气规格、一般规格、安装及配线等。
- ✓ 配线时请务必关闭电源，请勿在上电时触摸任何端子。
- ✓ 本机为开放型 (OPEN TYPE) 机壳，因此使用者使用本机时，必须将之安装于具防尘、防潮及免于电击 / 冲击意外之外壳配线箱内。另必须具备保护措施 (如：特殊之工具或钥匙才可打开)，防止非维护人员操作或意外冲击本体，造成危险及损坏。
- ✓ 输入电源切断后，一分钟之内，请勿触摸内部电路。
- ✓ 交流输入电源不可连接于输入 / 输出信号端，否则可