

DVPCOPM-SL



Instruction Sheet

安裝說明 安 装 说 明

CANopen Module

CANopen 模組

CANopen 模块



⚠ Warning

EN DVPCOPM-SL 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 DVPCOPM-SL, or to prevent an accident from damaging DVPCOPM-SL, the control cabinet in which DVPCOPM-SL is installed should be equipped with a safeguard. For example, the control cabinet in which DVPCOPM-SL 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 DVPCOPM-SL is powered up. After DVPCOPM-SL is disconnected, Do NOT touch any terminals in a minute. Make sure that the ground terminal ⊕ on DVPCOPM-SL is correctly grounded in order to prevent electromagnetic interference.

FR DVPCOPM-SL est un module OUVERT. Il doit être installé que dans une enceinte protectrice (boîtier, 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 nécessaires pour ouvrir a protection).

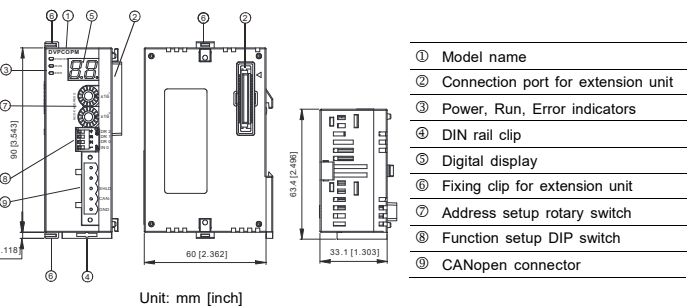
FR Ne pas appliquer la tension secteur sur les bornes d'entrées/Sorties, ou l'appareil DVPCOPM-SL pourra être endommagé. Merci de vérifier encore une fois le câblage avant la mise sous tension du DVPCOPM-SL. Lors de la déconnexion de l'appareil, ne pas toucher les connecteurs dans la minute suivante.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

1 Introduction

■ Functions

- Complied with CANopen standard protocol DS301v4.02
- Supports NMT service
- Supports Error Control Protocol
- Supports SDO service
- Supports EDS files in CANopen Configurator
- Supports PDO service: Supports max. 200 RxPDOs and the data can be up to 390 bytes.
- Supports max. 200 TxPDOs and the data can be up to 390 bytes.
- PDO transmission type: supports event trigger, time trigger, synchronous cycle and synchronous non-cycle.

■ Product Profile & Outline



- Model name
- Connection port for extension unit
- Power, Run, Error indicators
- DIN rail clip
- Digital display
- Fixing clip for extension unit
- Address setup rotary switch
- Function setup DIP switch
- CANopen connector

Unit: mm [inch]

2 Specifications

■ CANopen Connector

Type	Removable connector (5.08mm)
Transmission method	CAN
Transmission cable	2 communication cables, 1 shielded cable and 1 grounding cable
Electrical isolation	500VDC

■ Communication

Message type	PDO, SDO, SYNC (synchronous object), Emergency (emergency object), NMT
Series transmission speed	10k, 20k, 50k,125k, 250k, 500k, 800k, 1M bps (bits per second)
Product code	64
Equipment type	0 (Non-Profile)
Company ID	477 (Delta Electronics, Inc.)

■ Electrical Specifications

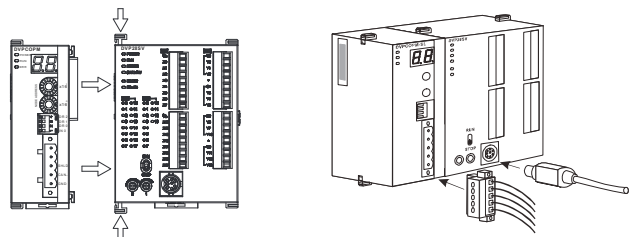
Power voltage	24VDC (-15% ~ 20%) (supplied by the internal bus from MPU)
Power consumption	1.7W
Isolation voltage	500V
Weight (approx. g)	66 (g)

■ Environment

Interference immunity	ESD (IEC 61131-2, IEC 61000-4-2): 8KV Air Discharge, 4KV Contact Discharge EFT (IEC 61131-2, IEC 61000-4-4): Power Line: 2KV, Digital I/O: 1KV Analog & Communication I/O: 1KV Damped-Oscillatory Wave: Power Line: 1KV, Digital I/O: 1KV RS (IEC 61131-2, IEC 61000-4-3): 80MHz ~ 1000MHz , 1.4GHz ~ 2.0GHz , 10V/m
Operation/Storage	Operation: 0°C ~ 55°C (temperature), 5 ~ 95% (humidity), pollution degree 2 Storage: -25°C ~ 70°C (temperature), 5 ~ 95% (humidity)
Shock/vibration immunity	International standards: IEC 61131-2, IEC 68-2-6 (TEST Fc)/IEC 61131-2 & IEC 68-2-27 (TEST Ea)
Certificates	IEC 61131-2, UL508
Configuration	DVPCOPM-SL modules are numbered automatically from 1 ~ 8 according to their distance from the MPU (1 is the closest one). Maximum 8 modules are extendable

3 Installation

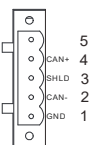
Connecting DVPCOPM-SL with SV series MPU



4 Components

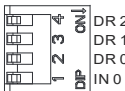
■ CANopen Connector

PIN	Signal	Description
1	GND	GND
2	CAN_L	Signal-
3	SHLD	Shielded cable
4	CAN_H	Signal+
5	-	Reserved



■ Function Setup DIP Switch

DR2	DR1	DR0	IN0	Baud Rate
OFF	OFF	OFF	Reserved	10kbps
OFF	OFF	ON		20kbps
OFF	ON	OFF		50kbps
OFF	ON	ON		125kbps
ON	OFF	OFF		250kbps
ON	OFF	ON		500kbps
ON	ON	OFF	800kbps	
ON	ON	ON	1Mbps	



Note: The setup of address and function is only valid when the power of DVPCOPM-SL is switched off. Re-power the module after the setup is completed.

■ Address Setup Rotary Switch

Address Setting	Description
1 ~ 7F	Valid CANopen node address
0, 80 ~ FF	Invalid CANopen node address



5 LED Indicator & Trouble-shooting

■ POWER LED

LED Status	Indication	How to deal with it
On	Power is abnormal	1. Check if the PLC MPU is connected normally to DVPCOPM-SL. 2. Check if the power supply for PLC MPU is working normally.
Green light On	Power is normal	--

■ RUN LED

LED Status	Indication	How to deal with it
Off	No power	Check the power of DVPCOPM-SL and make sure the connection is normal
Green light single flash	DVPCOPM-SL in STOP status	--
Green light blinking	DVPCOPM-SL in pre-operational status	
Green light steady on	DVPCOPM-SL in operational status	

■ ERROR LED

LED Status	Indication	How to deal with it
Off	Normal	No action needed
Red light single flash	Bus error exceeds the warning limit	Check if the network connection and operation are normal
Red light double flash	Error control event	Check if the connection of communication cable is normal.
Red light steady on	Bus-off	Make sure the connection of communication cable is normal and all the nodes on the network share the same communication speed, then re-power DVPCOPM-SL.

■ Codes in Digital Display

Codes on digital display when DVPCOPM-SL is in master mode:

Code	Indication	How to deal with it
1 ~ 7F	The node address of DVPCOPM-SL when in normal operation.	No action needed
F1	No slaves configured in node list	Re-configured the node list and download it to DVPCOPM-SL
F2	The data are being downloaded to DVPCOPM-SL	No action needed
F3	DVPCOPM-SL in error status	Re-download the parameter configuration
F4	Bus-off is detected	Make sure the communication cable is in normal operation and all the nodes in the network work in the same baud rate. Re-power

Code	Indication	How to deal with it
		DVPCOPM-SL.
F5	Wrong node address for DVPCOPM-SL	Set the node address of DVPCOPM-SL to be between 1 ~ 127.
F6 ~ F8	Internal (device, GPIO check, memory) abnormality is detected.	Re-power DVPCOPM-SL. If the error still exists, change to a new DVPCOPM-SL
F9	Low voltage is detected.	Check and make sure the power of DVPCOPM-SL works normally.
E0	DVPCOPM-SL receives Emergency message sent by the Slave.	Read relevant information through PLC MPU.
E1	PDO data length returning from the Slave is not consistent with the length set in the Slave address	Reset the PDO data length in the Slave and download the new setting to DVPCOPM-SL
E2	PDO message from the Slave has not been received.	Check and make sure the setting is correct.
E3	Auto SDO download failed.	Check and make sure Auto SDO is correct.
E4	PDO parameter setting has failed.	Make sure the PDO parameter setting is legal.
E5	Error in key parameter setting	Make sure all the Slaves connected are consistent with the Slaves set.
E6	The Slave does not exist in the network	Check if the connection of communication cable and the power supply for slave are normal.
E7	Slave's Error control is time-out	
E8	Master/slave node address is repeated	Reset the node address and make sure the new node address is not repeated one.

Codes on digital display when DVPCOPM-SL is in slave mode:

Code	Indication	How to deal with it
1~ 7F	The node address of DVPCOPM-SL when in normal operation.	--
A0	The parameters in DVPCOPM-SL are being initialized.	--
A1	DVPCOPM-SL is in pre-operational status.	--
A3	The data are being downloaded to DVPCOPM-SL.	--
B0	Heartbeat timed-out	Re-connect DVPCOPM-SL to the network.
B1	PDO data length returned from the slave is not consistent with the length set in the node list.	Reset the PDO data length in the slave and download the new setting to DVPCOPM-SL.
F4	Bus-off status detected	Make sure the communication cable is in normal operation, and all the nodes on the network work in the same baud rate. Re-power DVPCOPM-SL.
FB	The sending buffer in DVPCOPM-SL is full.	Make sure the bus works normally and re-power DVPCOPM-SL.
FC	The receiving buffer in DVPCOPM-SL is full.	Make sure the bus works normally and re-power DVPCOPM-SL.

⚠ 注意事項

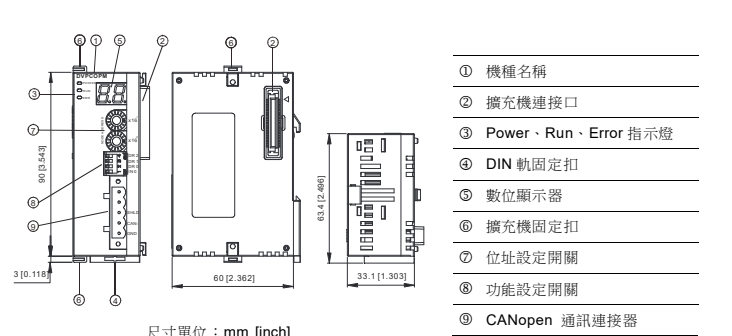
- 使用前請務必仔細閱讀本使用手冊，並按照本手冊指示進行操作，以免造成產品受損或人員受傷。
- 配線時請務必關閉電源，雷模組上電後，請勿觸摸接線端子。
- 此安裝手冊只提供電氣規格、一般規格、安裝配線、故障排除及周邊裝置部分說明，本說明書僅作為 DVPCOPM-SL 操作指南和入門參考，CANopen 協定之詳細內容這裏不作介紹。如讀者想瞭解更多 CANopen 協定之內容，請參閱相關專業文章或書籍資料。
- 本機為開放型 (Open Type) 機殼，因此使用者使用本機時，必須將其安裝於具防塵、防潮及免於電擊/衝擊意外之外殼配線箱內。另必須具備保護措施 (如：特殊之工具或鑰匙才可打開)，防止非維護人員操作或意外衝擊本體，造成危險及損壞。
- 交流輸入電源不可連接於輸入/輸出訊號端，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，以提高產品抗雜訊能力。

1 產品簡介

■ 功能

- 符合 CANopen 標準協定 DS301v4.02
- 支援 NMT 服務
- 支援 Error Control Protocol
- 支援 SDO 服務
- 在 CANopen 組態軟體中支援 EDS 檔案配置
- 支援 PDO 服務: RxPDO 最大支援 200 個，資料量最大支援 390 個位元組。TxPDO 最大支援 200 個，資料量最大支援 390 個位元組。
- PDO 傳輸類型: 支援事件觸發、時間觸發、同步週期、同步非週期。

■ 產品外觀



尺寸單位: mm [inch]

- 機種名稱
- 擴充機連接口
- Power、Run、Error 指示燈
- DIN 軌固定扣
- 數位顯示器
- 擴充機固定扣
- 位址設定開關
- 功能設定開關
- CANopen 通訊連接器

2 功能規格

■ CANopen 連接器

接頭	可插拔式連接器 (5.08mm)
傳輸方式	CAN
傳輸電纜	兩條通訊線、一條遮蔽線和一條接地線
電氣隔離	500VDC

■ 通訊

資訊類型	PDO、SDO、SYNC (同步物件)、Emergency (緊急物件)、NMT
串列傳輸速度	支援 10k、20k、50k、125k、250k、500k、800k、1M bps (位元/秒)
產品代碼	64
設備類型	0 (Non-Profile)
廠商 ID	477 (台達電子)

■ 電氣規格

電源電壓	由主機經由內部匯流排供應 24VDC (-15% ~ 20%)
消耗電力	1.7W
絕緣電壓	500V
重量 (約.g)	66 (g)

■ 環境規格

雜訊免疫力	ESD (IEC 61131-2, IEC 61000-4-2): 8KV Air Discharge, 4KV Contact Discharge EFT (IEC 61131-2, IEC 61000-4-4): Power Line: 2KV, Digital I/O: 1KV Analog & Communication I/O: 1KV Damped-Oscillatory Wave: Power Line: 1KV, Digital I/O: 1KV RS (IEC 61131-2, IEC 61000-4-3): 80MHz ~ 1000MHz , 1.4GHz ~ 2.0GHz , 10V/m
操作/儲存環境	操作: 0°C ~ 55°C (溫度)、5 ~ 95% (濕度)、污染等級 2 儲存: -25°C ~ 70°C (溫度)、5 ~ 95% (濕度)
耐震動/衝擊	國際標準規範 IEC 61131-2、IEC 68-2-6 (TEST Fc)/IEC 61131-2 & IEC 68-2-27 (TEST Ea)
標準	IEC 61131-2、UL508 標準
配置	DVPCOPM-SL 左側模組編號以靠近主機之順序自動編號由 1 ~ 8，最大可連接 8 台。

