

DVP06AD-S



Instruction Sheet 安裝說明 安裝說明

Analogue Input Module

- 類比輸入模組
- 模拟輸入模块

*4: If the ripple voltage of the input terminal of the load connected is large, and results in interference with the wiring, please connect a 0.1-0.47 μ F and 25 V capacitor.

- DO NOT wire error terminals.
- Use cables with the same length (less than 200 m) and wire resistance of less than 100 Ω .

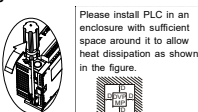
Specifications

Functions		Analogue/Digital (A/D) module	Voltage input	Current input
Power supply voltage	24V DC (20.4V DC ~ 28.8V DC) (-15% ~ +20%)	Analogue input channel	6 channels/module	
Range of analog input	$\pm 10V$	Resolution	$\pm 20mA$	
Range of digital conversion	$\pm 8,000$	Resolution	$\pm 4,000$	
Resolution	14 bits (1LSB=1.25mV)	Resolution	13 bits (1LSB=5 μ A)	
Input impedance	200k Ω or more	Input impedance	250 Ω	
Overall accuracy	$\pm 0.5%$ when in full scale (25°C, 77°F) $\pm 1%$ when in full scale in the range of 0 ~ 55°C, 32 ~ 131°F	Response time	3ms \times the number of channels	
Isolation	An analog circuit is isolated from a digital circuit by an optocoupler, but the analog channels are not isolated from one another.	Self-diagnosis	Supported, including ASCI/RTU mode. Default communication format: 9600, 7, E, 1, ASCII; refer to CR#2 for details on communication format.	
Range of absolute input	$\pm 15V$	Communication mode (RS-485)	Note1: RS-485 cannot be used when connected to CPU series PLCs. Note2: Refer to Slim Type Special Module Communications in the appendix E of the DVP programming manual for more details on RS-485 communication setups.	
Digital data format	13 significant bits out of 16 bits are available; in 2's complement.	When connected to DVP-PLC MPU in series	The modules are numbered from 0 to 7 automatically by their distance from MPU. Maximum 8 modules are allowed to connect to MPU and will not occupy any digital I/O points.	
Average function	Yes. Available for setting up in CR#2 ~ CR#7; range: K1 ~ K20.	Others		
Upper and lower bound detection/channel	Supported, including ASCI/RTU mode. Default communication format: 9600, 7, E, 1, ASCII; refer to CR#2 for details on communication format.	Power supply		
Self-diagnosis	Supported, including ASCI/RTU mode. Default communication format: 9600, 7, E, 1, ASCII; refer to CR#2 for details on communication format.	Max. rated power consumption	24V DC (20.4V DC ~ 28.8V DC) (-15% ~ +20%), 2W, supplied by external power.	
Communication mode (RS-485)	Note1: RS-485 cannot be used when connected to CPU series PLCs. Note2: Refer to Slim Type Special Module Communications in the appendix E of the DVP programming manual for more details on RS-485 communication setups.	Environment	Operation: 0°C ~ 55°C (temperature); 5 ~ 95% (humidity); pollution degree 2. Storage: -25°C ~ 70°C (temperature); 5 ~ 95% (humidity).	
When connected to DVP-PLC MPU in series	The modules are numbered from 0 to 7 automatically by their distance from MPU. Maximum 8 modules are allowed to connect to MPU and will not occupy any digital I/O points.	Environment	Operation: 0°C ~ 55°C (temperature); 5 ~ 95% (humidity); pollution degree 2. Storage: -25°C ~ 70°C (temperature); 5 ~ 95% (humidity).	
Others		Environment	Operation: 0°C ~ 55°C (temperature); 5 ~ 95% (humidity); pollution degree 2. Storage: -25°C ~ 70°C (temperature); 5 ~ 95% (humidity).	
Max. rated power consumption		Environment	Operation: 0°C ~ 55°C (temperature); 5 ~ 95% (humidity); pollution degree 2. Storage: -25°C ~ 70°C (temperature); 5 ~ 95% (humidity).	
Operation/storage	Operation: 0°C ~ 55°C (temperature); 5 ~ 95% (humidity); pollution degree 2. Storage: -25°C ~ 70°C (temperature); 5 ~ 95% (humidity).	Environment	Operation: 0°C ~ 55°C (temperature); 5 ~ 95% (humidity); pollution degree 2. Storage: -25°C ~ 70°C (temperature); 5 ~ 95% (humidity).	
Vibration/shock immunity	International standards: IEC 61131-2, IEC 68-2-6 (TEST Fc)/IEC 61131-2 & IEC 68-2-27 (TEST Ea)	Environment	Operation: 0°C ~ 55°C (temperature); 5 ~ 95% (humidity); pollution degree 2. Storage: -25°C ~ 70°C (temperature); 5 ~ 95% (humidity).	

Installation & Wiring

Mounting Arrangements and Wiring Notes

How to install DIN rail
DVP-PLC can be secured to a cabinet by using the DIN rail of 35mm in height and 7.5mm in depth. When mounting PLC to DIN rail, be sure to use the end bracket to stop any side-to-side movement of PLC and reduce the chance of wires being loosened. A small retaining clip is at the bottom of PLC. To secure PLC to DIN rail, place the clip onto the rail and gently push it up. To remove it, pull the retaining clip down and gently remove PLC from DIN rail, as shown in the figure.



Please install PLC in an enclosure with sufficient space around it to allow heat dissipation as shown in the figure.

Wiring

- Use 22-16AWG (1.5mm) single or multiple core wire on I/O wiring terminals. The specification of the terminal is shown in the figure on the left. The PLC terminal screws shall be tightened to 1.95 kg-cm (1.7 in-lb).
- DO NOT place the I/O signal wires and power supply wire in the same wiring duct.
- Use 60/75°C copper wires only.

Warning

EN * DVP06AD-S 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 DVP06AD-S, or to prevent an accident from damaging DVP06AD-S, the control cabinet in which DVP06AD-S is installed should be equipped with a safeguard. For example, the control cabinet in which DVP06AD-S 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 DVP06AD-S is powered up. After DVP06AD-S is disconnected, do NOT touch any terminals in a minute. Make sure that the ground terminal is correctly grounded in order to prevent electromagnetic interference.

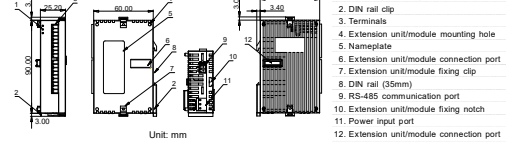
FR * DVP06AD-S est un module OUVERT. Il doit être installé que dans une enceinte protégée (boîtier, armure, etc.) sans dépourvue de poussière, d'humidité, de vibrations et hors d'influence des chocs électriques. La protection doit éviter que les personnes non habilitées à la maintenance puissent accéder à l'appareil (par exemple, une clé ou un outil doivent être nécessaire pour ouvrir la protection).

FR * Ne pas appliquer la tension secteur sur les bornes d'entrées/Sorties, ou l'appareil DVP06AD-S pourra être endommagé. Merci de vérifier encore une fois le câblage avant la mise sous tension du DVP06AD-S. 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.

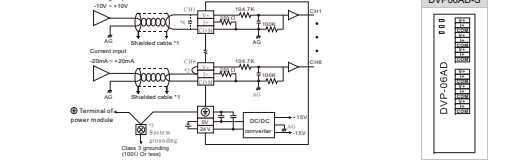
Introduction

- Model Explanation & Peripherals**
- Thank you for choosing Delta DVP series. The analog signal module DVP06AD-S is able to receive 6 points of external analog signal inputs (both in voltage and current) and convert the signals into 14-bit digital ones. It is able to read and write the data into the module through FROM/TO instructions given by the program of DVP-PLC slim type series CPU. There are 48 16-bit control registers in the module.
- The user can select voltage or current output by wiring. Range of voltage output: $\pm 10V$ DC (resolution: 1.25mV). Range of current output: 20mA (resolution: 5 μ A).

Product Profile & Outline



- POWER, ERROR, A/D indicator
- DIN rail clip
- Terminals
- Extension unit/module mounting hole
- Nameplate
- Extension unit/module connection port
- Extension unit/module fixing clip
- DIN rail (35mm)
- RS-485 communication port
- Extension unit/module fixing notch
- Power input port
- Extension unit/module connection port



- When performing analog input, please isolate other power wirings.
- When connecting to current signals, please make sure to short-circuit "V+" and "I+" terminals.
- Please connect the terminal on both the power module and DVP06AD-S to the system earth point and ground the system control or connect it to the cover of power distribution cabinet.

CR #	parameter	Latched	Register content	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
	Incorrect average times setting	K64 (H40)		0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Instruction error	K128 (H80)		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: Each error status is determined by the corresponding bit (b0 ~ b7) and there may be more than 2 errors occurring at the same time. 0:normal; 1:error

#31 H401F R/W Communication address setting

For setting RS-485 communication address. Range: 01 ~ 254. Default:K1.

For baud rate, the settings are: 4,800/9,600/19,200/38,400/57,600/115,200 bps.

Communication format: ASCII: 7.E,1/7.0,1/8.E,1/8.O,1/8.N,1 RTU: 8.E,1/8.O,1/8.N,1

Factory default: ASCII:9600,7,E,1 (CR#32=H0002)

Refer to CR#32 communication format settings at the end of this table for more information.

Return to default: CH6 CH5 CH4 CH3 CH2 CH1

Take the setting of CH1 for example:
1. Set bit 1 to 1 to enable upper/lower bound alarm on the input value for the channel. (0:disabled, 1:enabled (default)).
2. b1: OFFSET/GAIN tuning. 0:forbidden; 1:allowed (default).
3. When b12 ~ b15=1, all values in CH1 ~ CH6 will return to default settings. b12 ~ b15 will return to 0 automatically after the setting is completed.

CR for input mode, setting of average times, OFFSET value and GAIN value will be reset after returning to default settings.

#34 H4022 R Firmware version

Displaying the current firmware version in hex, e.g. version 1.00 is indicated as H0100.

#35 ~ #48 For system use

Symbol: : Latched (when written in through RS-485 communication). : Not-latched.

R: Able to read data by FROM instruction or RS-485 communication.
W: Able to write data by TO instruction or RS-485 communication.

LSB (Least Significant Bit): 1. For voltage input: 1LSB=10V/0.001=125mV. 2. For current input: 1LSB=20mA/4,000=5 μ A.

CR#2 communication format settings:	for modules with firmware V4.10 or previous versions, b11~b8 data format selection is not available. For ASCII mode, the format is fixed to 7, E, 1 (H010X) and for RTU mode, the format is fixed to 8, E, 1 (H0C0X/H80X). For modules with firmware V4.11 or later, refer to the following table for setups. Note that the original code H0C0X/H80X will be seen as RTU, 8, E, 1 for modules with firmware V4.11 or later.				
b15 ~ b12	b7 ~ b0				
exchange low and high byte of CRC check code	Data format	Baud rate			
H0	ASCII	H0	7.E,1**	H01	4800 bps
H8	do not exchange low and high byte of CRC check code	H1	8.E,1	H02	9600 bps
		H2	reserved	H04	19200 bps
		H3	8.N,1	H08	38400 bps
HC	exchange low and high byte of CRC check code	H4	7.0,1**	H10	57600 bps
		H5	8.0,1	H20	115200 bps

Note *1: This is only available for ASCII format.
Err: Write H0C10 into CR#2 for the setting of RTU, exchange low and high byte of CRC check code, 8.N,1 and baud rate as 57600 bps.

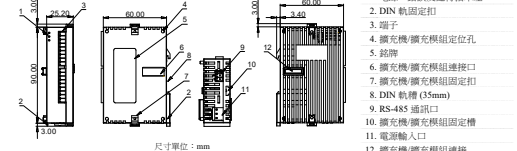
注意事項

- 請在使用之前，詳細閱讀本使用說明書。
- 請將本上電器與端子，實施配線，務必確認電源。
- 本產品為開放型 (OPEN TYPE) 機殼，因此使用本機時，必須將之安裝於具防塵、防塵及電擊/衝擊意外於外部配線內，務必須確保保護輸入/出信號之工具與設備才可打開，防止非專業人員操作或意外衝擊本機，造成危險及損壞。
- 交流輸入電源不連接於輸入/出信號端，否則可能造成或嚴重之損壞，因此請在上電之前再次確認電源配線。
- 輸入電源切斷後，一分鐘之內，請勿觸摸內部配線。
- 左標之接地端及 標務必正確的接線，可避免產品抗擾能力。

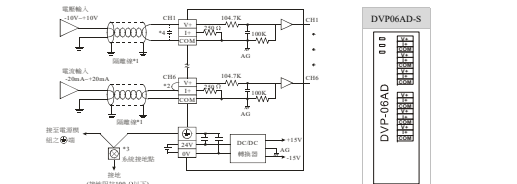
產品簡介

- 說明及週邊裝置**
- 謝謝您採用台灣 DVP 系列產品。DVP06AD-S 類比信號輸入模組可接受外部 6 點類比信號輸入 (電壓或電流輸出)，將之轉換成 14 位元之數位信號。透過 DVP 智慧型主機 (Slim type) 主機程式以指令 FROM/TO 來讀寫模組內之資料，模組內具有 49 個 CR (Control Register) 暫存器，每個暫存器為 16 bits。
- 使用者可藉由配線選擇電壓輸入或電流輸入。電壓輸入範圍 $\pm 10V$ DC (解析度為 1.25mV)，電流輸入範圍 $\pm 20mA$ (解析度為 5 μ A)。

產品外觀及各部介紹

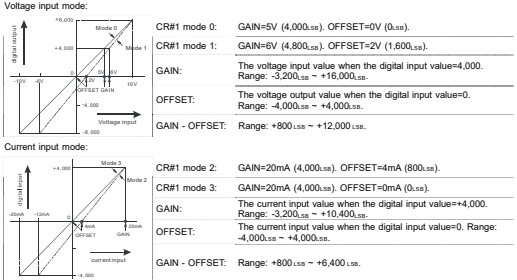


- 電源、錯誤及運行指示燈
- DIN 軌固定扣
- 端子
- 擴充機櫃擴充組定孔
- 銘牌
- 擴充機櫃擴充組連接口
- 擴充機櫃擴充組固定扣
- DIN 軌槽 (35mm)
- RS-485 插口
- 擴充機櫃擴充組固定槽
- 電源輸入口
- 擴充機櫃擴充組連接



- 註 1: 類比輸入請與其他電源線隔離。
- 註 2: 如果連接電流信號時，V+ 及 I+ 端子請務必短路。
- 註 3: 請將電源線與 I+ 端及 DVP06AD-S 類比信號輸入模組之 端連接至系統接地點，再將系統接地點三種接法或類比信號輸入之接線。
- 註 4: 如果來自輸入端之配線造成大造成配線電壓降時，請連接 0.1 ~ 0.47 μ F 25V 之電容。
- 注意: 空端子 * 請務必配線。
- 注意: 線材長度需掌握，單一線長 < 200 m 且單一線徑 < 100 Ω 。

Adjusting A/D Conversion Curve



The user can adjust the OFFSET/GAIN curves according to the actual needs by changing the OFFSET value (CR#18 ~ CR#23) and GAIN value (CR#24 ~ CR#29).

規格

功能規格

類比信號 (A/D) 模組	電壓輸入 (Voltage input)	電流輸入 (Current input)
電源電壓範圍	24V DC (20.4V DC ~ 28.8V DC) (-15% ~ +20%)	
類比信號輸入通道	6 通道/埠	
類比輸入範圍	$\pm 10V$	$\pm 20mA$
類比轉換範圍	$\pm 8,000$	$\pm 4,000$
解析度	14 bits (1LSB=1.25mV)	13 bits (1LSB=5 μ A)
輸入阻抗	200k Ω 以上	250 Ω
精度和精度度	$\pm 0.5%$ 在 (25°C, 77°F) 範圍內滿量程時。 $\pm 1%$ 在 (0 ~ 55°C, 32 ~ 131°F) 範圍內滿量程時。	
響應時間	3ms \times 通道數	
隔離方式	類比信號數位位與光耦合器隔離，類比信號間未隔離。	
絕對輸入範圍	$\pm 15V$	$\pm 32mA$
數位資料格式	16 位元二補數，最大有效位 13 位。	
平均功能	有 (CR#2 ~ CR#7 可設定，範圍 K1 ~ K20)	
自我診斷功能	上下限限偵測功能	

通訊規格 (RS-485)
備註 1: 當與 PLC 主機連接時，RS-485 通訊規格使用。
備註 2: RS-485 通訊改詳細內容請參考 DVP 程式手冊之附錄 "類型及特殊規格通訊協議"。

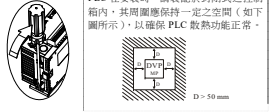
與 DVP-PLC 主機連接說明
模組編號以靠近主機之自動編號 0 起，最大可連接 8 且不佔用數位 I/O 點數。

其他規格

電壓規格	
額定最大功耗率	直流 24V DC (20.4V DC ~ 28.8V DC) (-15% ~ +20%), 2W, 由外部電源供應。
環境溫度	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)
電磁動靜態	國際標準規範 IEC 61131-2, IEC 68-2-6 (TEST Fc)/IEC 61131-2 & IEC 68-2-27 (TEST Ea)

安裝及配線

- 盤內安裝及配線**
- DIN 軌之安裝方法
適合 35mm 之 DIN 軌鉗; 主機裝掛於軌鉗時，先將 PLC 下方之固定塑膠片鬆開，再將 PLC 上方之固定塑膠片，以起子插入凹槽，向上擰開即開，該固定塑膠片為保型片，當所有的固定片擰開後，再將 PLC 往上方推出，如右圖所示:



- 配線
1. 輸出/輸入端請使用 22-16AWG (1.5mm) 單芯漆線或多芯線，端子規格如左所示。PLC 端子螺絲扭力為 1.95 kg-cm (1.7lb-in)。
- 2. 在配線時請勿讓輸入點信號線與輸出點或電源等動力線置於同一線槽內。
- 3. 只能使用 60/75°C 銅導線。

