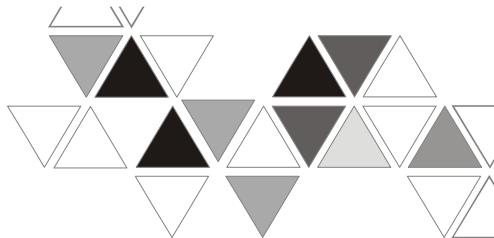




2008-06-24



## DVP01PU-H2 INSTRUCTION SHEET

### 安裝說明 安装说明

#### ▲ Position Control Module ▲ 定位控制模組 ▲ 定位控制模块



[www.delta.com.tw/industrialautomation](http://www.delta.com.tw/industrialautomation)

1.

### Warning

- This instruction sheet provides information on the installation, wiring and trial operation of DVP01PU-H2. For more detailed information, see "DVP-PLC Application Manual: Special Module".
- DO NOT touch any terminal when the power is switched on. Switch off the power before wiring.
- DVP01PU-H2 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 required to open the enclosure) in case danger and damage on the device may occur.
- 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.

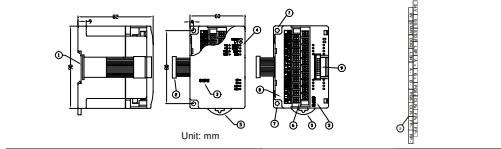
ENGLISH

### 1. Introduction

#### ■ Model Explanation and Peripherals

DVP01PU-H2 pulse generation unit is mainly applied to the speed or position control of step or servo drive system. The maximum output pulse of DVP01PU-H2 can be up to 200KPPS. DVP01PU-H2 is built in with various route control modes. Through FROM/TO instructions in DVP-EH2 MPU program, the data in DVP01PU-H2 can be read or written. There are 54-bit control registers (CR) in DVP01PU-H2. The 32-bit parameters are composed of 2 continuous CR#.

#### ■ Product Profile (Indicators, Terminal Block, I/O Terminals)



① DIN rail (35mm) ② Connection port for extension unit/module ③ Model name ④ Status indicators ⑤ DIN rail clip

#### ■ LED Indicators

POWER	Power indicator, +5V internal power is normal	START	: Starting input indicator
LV	: Low voltage indicator (on when the external power supply is less than 9.5V)	STOP	: Stopping input indicator
ERROR	: Error indicator (On/Off/flash). Flashes when CR#4 is not 0.	DOG	: DOG input indicator
LSP	: Right limit input indicator	RP	: Reverse pulse output indicator
LSN	: Left limit input indicator	AP	: MPG A-phase pulse input indicator
PGL	: Zero signal input indicator	AB	: MPG B-phase pulse input indicator
		CLR	: Clearing signal output indicator

#### ■ I/O Terminal Signals

Type	Terminal	Description	Response feature
Power supply	+24V, OV	Power input; 24V DC (-15 ~ +20%). Current consumption: 100mA	-
START		Starting input	15ms/50ms
STOP		Stopping input	15ms
LSP, LSN		Right limit input	1ms
AP, AB		MPG A-phase pulse input <-> (differential signal input)	200kHz
AB, AP		MPG B-phase pulse input <-> (differential signal input)	200kHz
PGL, PG0		Zero signal input <-> (differential signal input)	1ms

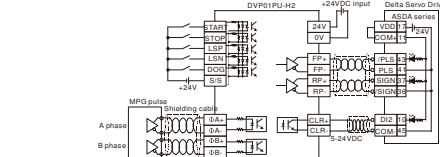
Unit: mm

Input	DOG	2 variations according to different operation modes: 1. DOG signal when in zero return 2. Interruption signal inserted in signal-path or 2-speed sections	1ms
Output	CLR+, CLR-	Forward pulse output; clearing signals in the error counter in servo drive	130ms
	FP+, FP-	FPR mode: forward pulse output; pulse/direction: pulse output; A/B phase: A phase output	200kHz
	RP+, RP-	FPR mode: reverse pulse output; pulse/direction: direction output; A/B phase: B phase output	200kHz

#### ■ Wiring

- Less than 6.8 mm  
For M5  
Less than 6.8 mm
- Use O-type or Y-type terminals for the IO wiring as shown in the figure. The torque of screw at the PLC terminal should be 5 ~ 6 kg-cm (4.3 ~ 6.9 in-lbs).
  - DO NOT place the wirings of input signals, output signals and power supply in the same wire conduit.
  - Use only 60/75°C copper conductors.

#### ■ I/O Circuit



## 2 Specifications

Item	Description
Power supply	24V DC (-15% ~ +20%); Current consumption: 140 ± 30mA, supplied by DVP-EH2 MPU or other self-prepared power supplier
Max. number of connected modules/axes	8 modules (axes), which will not occupy any I/O points. DVP-EH2 series MPU is able to connect to max. a total of 8 extension modules.
Distance	Set up by CR. Range: -2,147,483,648 ~ +2,147,483,647; unit: mm, mdeg, 10° inch. Pulse; unit: mm, mdeg, 10° inch. Position or relative displacement
Speed	Set up by CR. Range: -2,147,483,648 ~ +2,147,483,647 (0 ~ 200KPPS pulse conversion); unit: pulses/min, 10deg/min, inch/min
External output points	Isolated by photocoupler. LED indicators for all I/O signals. Output point FP and RP are differential signal (5V).
External input points	Output point CLR is transistor NPN open collector (5 ~ 24V DC, less than 20mA). Isolated by photocoupler. LED indicators for all I/O signals. Input points START, STOP, LSP, LSN, DOG are contacts or transistor open collector (24V DC ± 10%, 5mA).
Pulse output methods	Input points PG0 is differential or transistor open collector (5 ~ 24V DC, 6 ~ 15mA). Input points PG1 is digital or transistor open collector (5 ~ 24V DC, 6 ~ 15mA)
Position control program & data exchange with MPU	In 3 modes: PulseDir, FP (CW)/RP (CCW); A/B: differential output
When connected to DVP-PLC MPU in series	Through FROM/TO instructions in DVP-EH2 MPU program, DVP01PU-H2 is able to read and write the data in the CR. If the data are 32-bit, 2 CRs will be required to process the data. CR#0 and CR#1 are required to read/write the registers.

#### ■ Other Specifications

Environment	
Operation/storage	Operation: 0°C ~ +55°C (temperature); 50 ~ 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 Ea) / IEC 68-2-7 (TEST Ea)

## 3 Control Registers

CR#	HW	LW	Address	Latch	Attribute	Content	Setup range
#0	H4190	□	R			Model name	Set up by the system, DVP01PU-H2 model code = H6110
#2 #1	H4191	□	R/W			Number of pulses required for rotate motor for 1 revolution (A)	Range: 1 ~ +2,147,483,647 PPS/REV Default = 2,000 pulses/revolution (PLS/REV)
#4 #3	H4193	□	R/W			Distance the motor rotates for 1 revolution (B)	Range: 1 ~ +2,147,483,647 unit/REV Default = 1,000 (unit=1)REV
#5	H4195	□	R/W			Parameter setting Default = H'0000	b15 b14 b13 b12 b11 b10 b9 b8 b7 b6 b5 b4 b3 b2 b1 b0
#7 #6	H4196	□	R/W			Maximum speed (V <sub>MAX</sub> ) Range: 0 ~ +2,147,483,647 unit/1 (0 ~ 200KPPS pulse conversion). Default = 200,000 unit/1	±4ms (default)
#9 #8	H4198	□	R/W			Bias speed (V <sub>BIAS</sub> ) Range: 0 ~ +2,147,483,647 unit/1 (0 ~ 200KPPS pulse conversion). Default = 0	32ms
#10 #19	H4199	□	R/W			JOG speed (V <sub>JOG</sub> ) Range: 0 ~ +2,147,483,647 unit/1 (0 ~ 200KPPS pulse conversion). Default = 50,000 unit/1	10ms
#13 #12	H419C	□	R/W			Zero return speed (V <sub>ZRT</sub> ) Range: 0 ~ +2,147,483,647 unit/1 (0 ~ 200KPPS pulse conversion). Default = 50,000 unit/1	256ms
#15 #14	H419E	□	R/W			Zero return deceleration speed (V <sub>ZRD</sub> ) Range: 0 ~ +2,147,483,647 unit/1 (0 ~ 200KPPS pulse conversion). Default = 1,000 unit/1	500ms
#16 H41A0	□	R/W				The number of PG0 in zero return mode (N <sub>ZRT</sub> ) Range: 0 ~ 32,767PLS Default: 0PLS	b15 b14 b13 b12 b11 b10 b9 b8 b7 b6 b5 b4 b3 b2 b1 b0
#17 H41A1	□	R/W				The number of pulses in zero return mode (P <sub>ZRT</sub> ) Range: 0 ~ 32,767PLS Default: 0PLS	b15 b14 b13 b12 b11 b10 b9 b8 b7 b6 b5 b4 b3 b2 b1 b0
#18 H41A2	□	R/W				Zero return mode (H MODE) b0: zero return mode b1: detecting DOG falling edge in zero return mode	b0 b1
#20 #19 H41A3	□	R/W				Setup of zero point (HP) Range: 0 ~ +2,999,999 unit/1. Default = 0 unit/1	10ms
#21 H41A5	□	R/W				Acceleration time (T <sub>ACC</sub> ) Range: 10 ~ +32,767ms. Default: 100ms	10ms
#22 H41A6	□	R/W				Deceleration time (T <sub>DEC</sub> ) Range: 10 ~ +32,767ms. Default: 100ms	10ms
#23 H41A7	□	R/W				Target position (I) (P <sub>LI</sub> ) Range: +2,147,483,647 ~ +2,147,483,647 unit/1 * 2. Default = 0 unit/1	b15 b14 b13 b12 b11 b10 b9 b8 b7 b6 b5 b4 b3 b2 b1 b0
#26 #25 H41A9	□	R/W				Operation speed (I) (V <sub>II</sub> ) Range: +2,147,483,648 ~ +2,147,483,647 unit/1 (0 ~ 200KPPS pulse conversion)*2. Default = 1,000 unit/1	b15 b14 b13 b12 b11 b10 b9 b8 b7 b6 b5 b4 b3 b2 b1 b0
#28 #27 H41AB	□	R/W				Target position (II) (P <sub>LI</sub> ) Range: +2,147,483,648 ~ +2,147,483,647 unit/1 * 2. Default = 0 unit/1	b15 b14 b13 b12 b11 b10 b9 b8 b7 b6 b5 b4 b3 b2 b1 b0

## 注意事項

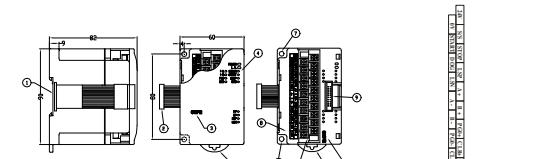
- 本手冊主要提供DVP01PU-H2定位模組安裝、配線回路及試驗之參考，有關進一步的使用說明，請參考DVP-PLC應用技術手冊【特殊模組篇】。
- 操作在上電時請勿碰任何端子，實施範圍，務必關閉電源。
- 本機為開型式(Open Type)機殼，因此使用或使用本機時，須將機殼之安裝於具防塵、防潮及免於電擊/衝擊之外之鐵櫃或機箱內。另必須俱備保護措施（如：特殊工具或鑰匙才可打開）防止非維護人員操作意外危險。
- 交換輸入/輸出不可直接於輸入/出信號間，否則將造成嚴重的損壞。請在上電之前再次確認電源連接。

## 1 產品簡介

### ■ 說明及選型裝置

DVP01PU-H2 離散單元主要可應用於步進或伺服驅動系統之速度或位置控制，最高200KPPS脈波輸出，內建多種行程控制模式。透過DVP-PLC EH2系列主機程式以指令FROM/TO來讀寫模組內之資料，模組內具有54個CR，每個暫存器為16 bits，32位元數值參數由兩個連續編號的CR所組成。

### ■ 產品外觀 (指示燈、端子台、端子配置)



## 2 指示燈

編號	端子	說明	應急特性
①	DIN 拆卸 (35mm)	START : 啟動輸入/停止燈	-
②	擴充/擴充模組連接埠	STOP : 停止輸入/停止燈	-
③	機殼名稱	DOC : 逆向行程輸入/逆向行程指示燈	-
④	電源/喇叭/熔絲及轉換指示燈	FP : 正向方向脈波輸出/正向方向脈波指示燈	-
⑤	DIN 拆卸扣	LSP : 反向方向脈波輸出/反向方向脈波指示燈	-
⑥	右側旋鈕/左側旋鈕	PG0 : 正向脈波輸入/正向脈波指示燈	-
⑦	左側旋鈕/右側旋鈕	PG1 : 反向脈波輸入/反向脈波指示燈	-
⑧	CLR : 清除信號輸出指示燈	PG0 : 喇叭信號輸出指示燈	-
⑨		CLR : 清除信號輸出指示燈	-

## 3 輸出/輸入子信號

編類	端子	說明	應急特性
輸入			
①	電源輸入	24V DC (-15 ~ +20%) 滲耗電流 100mA	-
②	低電壓輸入	外管電源輸入 10V	15ms/50ms
③	19.5V	該指標燈亮	15ms
④	ERR	錯誤指標 (On/Off 閃爍)，當 CR#44	-
⑤	FP	正向方向脈波輸出	-
⑥	LSP	右側旋鈕輸入/左側旋鈕輸入	-
⑦	PG0, PG1	手搖輪 A 相逆波輸入 (需逆波輸入)	200kHz
⑧	PG0, PG1	手搖輪 B 相逆波輸入 (需逆波輸入)	200kHz
⑨	DOG	依原廠模式不有以下 2 種變化： 1. 設定復歸時為點型信號：2-段或2段追插密碼鎖輸入 2. 在接觸時勿將輸入端子短路或電源關掉力道置於同一導線內。	-
⑩	CLR	消音 (Servo 驅動器內部驅動器清零指標)	130ms
⑪	RP	反向方向脈波輸出/脈波輸出：脈波/方向：脈波輸出端	200kHz
⑫	AP	AB 相輸出	-
⑬	AB	反向模式：反轉方向脈波輸出：脈波/方向：方向輸出端	200kHz

## 4 電源

項目	說明
電源輸入	24V DC (-15 ~ +20%) 滲耗電流 140.30mA 由 DVP-EH2 主機供出或自備電源供應器。
最大連接台 (P) 數	8 台 (P) : 不論何種 I/O 數量，DVP-EH2 主機所能連接的接埠數和爲 8 台。
距離 值	距離設定值由割接點與終端設定 1. 設定值 = -2,147,483,648 ~ +2,147,483,647 ; 2. 可選擇對位置或絕對坐標 3. 可選擇倍率：10 <sup>1</sup> , 10 <sup>2</sup> , 10 <sup>3</sup> : 4. 可選擇絕對位置或相對坐標 速度設定值由割接點與終端設定 1. 設定值 = -2,147,483,648 ~ +2,147,483,647 (10 ~ 200KPPS 的迴轉換換值) ; 2. 位址可選擇：pulse/s, cm/min, 10deg/min, inch/min
速度 值	



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