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2009-09-29

5011668601-SC01

DELTA ELECTRONICS, INC.

DVP-SC

INSTRUCTION SHEET

安裝說明
安装说明

▲ *Compact, Multi-Functional, Multiple Instructions*
▲ 微型，多功能，豐富指令集
▲ 微型，多功能，丰富指令集

www.delta.com.tw/industrialautomation

DVP-1040030-02

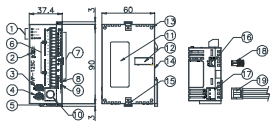
⚠ Warning ENGLISH

- ✓ *This Instruction Sheet only provides descriptions for electrical specifications, general specifications, installation & wiring. Other detail infromation about programming and intructions is compatible with SA/SX/SC series; please see PLC Application Manual. For more information about the optional peripherals, please see individual product instuction shee or "DVP-PLC Application Manual: Special module".*
- ✓ *This is an OPEN TYPE PLC. The PLC should be kept in an enclosure away from airborne dust, humidity, electric shock risk and vibration. Also, it is equipped with protective methods such as some special tools or keys to open the enclosure, in order to prevent hazard to users or damage the PLC..*
- ✓ *Do NOT connect the AC main circuit power supply to any of the input/output terminals, or it may damage the PLC. Check all the wiring prior to power up. To prevent any electromagnetic noise, make sure the PLC is properly grounded ⏚. DO NOT touch terminals when power on.*

❶ Introduction

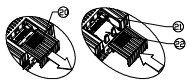
Thank you for choosing DELTA's PLC DVP series. The DVP-SC series has a 12-points (8 input points + 4 outputs) MPU with powerful instructions (the same instruction sets as SA/SX/SC series) for use. It also has an 8k Steps program memory and high-speed pulse inputs(X10 and X11)/outputs (Y10 and Y11). For high-speed pulse, total bandwidth can up to 130kHz and 100kHz maximum for single input/output. Besides, it also provides instructions of position control and zero point return to use with high-speed pulse output. It could connect all extension units of DVP-SS series for various applications.

■ Product Profile and Outline



Unit: mm

Battery replacement: Battery replacement must be finished within 3 minutes, or the internal data of the PLC (including the program area, RTC and latched registers) could be lost or destroyed.



1	Status indicators of POWER, RUN and ERROR	12	Extension port for wire to connect extension module/unit
2	RUN/STOP switch	13	Mounting hole
3	VR0: Start-up by M1178/D1178 Corresponding value	14	DIN rail track (35mm)
4	VR1: Start-up by M1179/D1179 Corresponding value	15	Extension unit clip
5	DIN rail clip	16	RS-485 communication port (Master/Slave)
6	I/O terminals	17	DC Power input
7	I/O point indicators	18	2 pin removable terminal (standard accessory)
8	COM1 (RS-232) (Rx) indicator	19	Power input cable (standard accessory)
9	COM2 (RS-485) (Tx) indicator	20	Battery cover
10	COM1 (RS-232) port	21	Battery socket connection
11	Nameplate	22	Battery holder

❷ Specifications

Item \ Model	DVP12SC11T
Power supply voltage	MPU: 24VDC (-15% ~ +20%) (With DC input reverse polarity protection),
Fuse	2A/250VAC
Power consumption	4W MAX
Insulation resistance	5 MΩ and above at 500VDC (Between all inputs/outputs and earth)
Noise immunity	ESD: 8KV Air Discharge EFT: Power Line: 2KV, Digital I/O: 1KV, Analog & Communication I/O: 250V Damped-Oscillatory Wave: Power Line: 1KV, Digital I/O: 1KV RS: 26MHz ~ 1GHz, 10V/m
Grounding	The diameter of grounding wire cannot be smaller than the wire diameter of terminals L and N (All DVP units should be grounded directly to the ground pole).
Environment	Operation: 0℃ ~ 55℃ (temperature), 50 ~ 95% (humidity), pollution degree 2; Storage: -25℃ ~ 70℃ (temperature), 5 ~ 95% (humidity)
Vibration/shock resistance	Standard: IEC61131-2, IEC 68-2-6 (TEST Fc)/IEC61131-2 & IEC 68-2-27 (TEST Ea)
Weight (approx. g)	158
Certificates	CE cULus

Input Point Electrical Specification			
Input type	DC (SINK or SOURCE)		
Input current	24VDC 5mA		
Active level	Off → On	X0, X1, 18.5VDC and above X2 ~ X5, 16.5VDC and above X10, X11, 18.5VDC and above	
	On → Off	X0 ~ X5, X10, X11, below 8VDC	
Response time	X0~X5	Hardware	The constant of filter time is 10ms
		Software	0 ~ 20ms (Set by D1020)
	X10, X11	Hardware	The constant of filter time is 4.7us
		Software	0 ~ 1,000 times (Set by D1021)

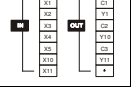
Output Specifications		
Output type	Transistor	
Rated current	0.3A/1 point @ 40°C (Room Temp.)	
	When the output of Y0 and Y1 is high-speed pulse above 3kHz, Y0, Y1 ,Y10 and Y11 = 30mA	
Voltage specification	5 ~ 30VDC	
Maximum loading	Y0, Y1	9W/1 point
	Y10, Y11	0.9W/1 point
Response time	Y0, Y1	Off → On < 20us, On → Off < 30us
	Y10, Y11	Off → On < 1us, On → Off < 1us

Battery life:

Temperature (˚C)	0	25	50	70
Life (years)	9	8	6	5

Precision of calendar timer:
At 0˚C/32˚F, less than -117 seconds error per month.
At 25˚C/77˚F, less than 52 seconds error per month.
At 55˚C/131˚F, less than -132 seconds error per month

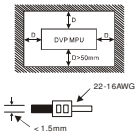
❸ Model Name & I/O Configuration

Model	Input/Output Specification					I/O Configuration
	Power	Input Unit		Output Unit		
		Points	Type	Points	Type	
DVP12SC11T	24VDC	6	24VDC Sink/Source X0~X5	2	Transistor Y0, Y1	
		2	24VDC Sink/Source Hi-speed X10, X11	2	Transistor Hi-speed Y10, Y11	

❹ Installation & Wiring

4.1 PLC Mounting Arrangements and Wiring Notes

1. When installing the DVP series PLC, make sure that it is installed in an enclosure with sufficient space (as shown on the right) to its surroundings so as to allow heat dissipation.
2. I/O signal wires or power supply should not run through the same multi-wire cable or conduit.
3. Please use 22-16AWG (1.5mm) wiring (either single or multiple core) for I/O wiring terminals. The specification for the terminals is as shown on the right.
4. PLC terminal screws should be tightened to a torque of 1.95 kg-cm (1.7 in-lbs).
5. Use copper conductor only, 60/75˚C



4.2 Wiring Notes

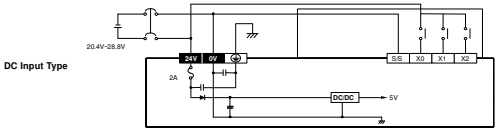
■ Environment

1. DO NOT store the PLC in an atmosphere that is dusty, smoky, with metallic debris or corrosive or flammable gases.
2. DO NOT store the PLC in an environment with high temperature or high humidity.
3. DO NOT install the PLC on a shelf or on an unstable surface.

■ Power Input Wiring

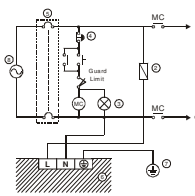
DVP-SC series input power supply is DC input. Please take a note of listed items when operating DVP-SC Series.

1. Please make sure the power is at terminals 24VDC and 0V (power range is 20.4 ~ 28.8VDC). When voltage is lower than 20.4VDC, PLC will stop operating, all outputs will be Off and ERROR LED will flash continuously.
2. If the power-cut time is less than 10ms, the PLC still operates unaffectedly. If the power-cut time is too long or the power voltage drops, the PLC will stop operating and all the outputs will be Off. Once the power is restored, the PLC will return to operation automatically. (There are latched auxiliary relays and registers inside of the PLC, please be aware when programming.)



■ Safety Wiring

Since the PLC is used to control numerous devices, motion of either one device could affect the motion of other devices. Therefore the breakdown of a device would consequently be detrimental to the whole auto control system, thus the result is dangerous. Please use the recommended wiring below for the power input (DVPPS01/DVPPS02):

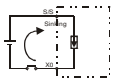


① Power supply for AC loads
② Power Circuit Protection Fuse (3A)
③ Power indicator
④ Emergency stop
The machinery must provide a quick manual method disconnecting all system power.
⑤ Circuit isolation device (System Power Disconnect)
Utilize the electromagnetic contactor and the relay to be the isolation unit of the power circuit to prevent the possible instability of the system when the power is supplied on and off.
⑥ DVPPS01/DVPPS02
⑦ Earth
⑧ Power supply:
AC: 100 ~ 240VAC, 50/60Hz

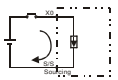
■ Input Point Wiring

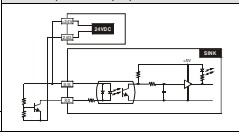
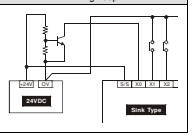
The DC power is used for DC input signal. Two types of DC wiring are used: SINK and SOURCE, defined as follows:

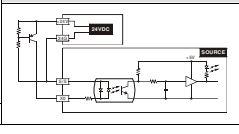
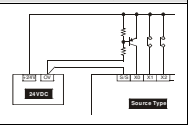
Sink = Current flows into the common terminal S/S



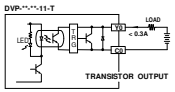
Source = Current flows out of common terminal S/S



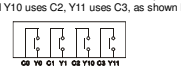
	Input Point Loop Equivalent Circuit	Wiring Loop
DC Type (DC Signal IN)		
SINK Mode		

	Input Point Loop Equivalent Circuit	Wiring Loop
DC Type (DC Signal IN)		
SOURCE Mode		

■ Output Point Wiring



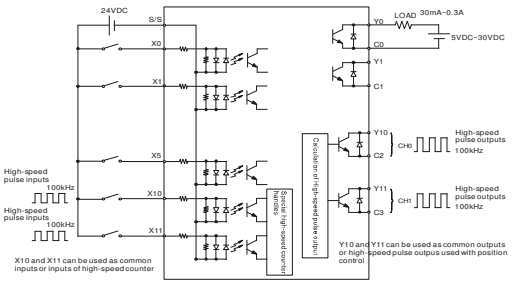
1. Two types of DVP-SC Series PLC output modules Transistor. For the electrical specification, please refer to the function specification.
2. Please watch out the connection of common terminals while wire the outputs. Output terminal Y0 uses one common terminal C0, Y1 uses C1, and Y10 uses C2, Y11 uses C3, as shown below:



Action indication: When the output point is active, the corresponding indicator at the front panel will be on.

3. Isolated circuit: The optical coupler is used to isolate signals between PLC internal circuits and input modules.

■ Input/Output Wiring



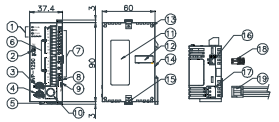
⚠ 注意事項 ENGLISH

- ✓ 本使用說明書僅提供電氣規格、功能規格、安裝配線部份說明，其它詳細之程式設計及指令與 SA/SX/SC 系列相容，詳細說明請見 DVP-PLC 應用技術手冊【程式篇】。選購之週邊裝置詳細說明請見該產品隨機手冊或 DVP-PLC 應用技術手冊【特殊模組篇】。
- ✓ 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。
- ✓ 交流輸入電源不可連接於輸入／出信號端，否則可能造成嚴重損壞，請在上電之前再次確認電源配線，請勿在上電時觸摸任何端子，本體上之接地端子 ⏚ 務必正確的接地，可提高產品抗雜訊能力。

❶ 產品簡介

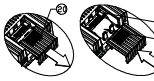
DVP-SC 系列爲一 12 點〔8 輸入點 + 4 輸出點〕PLC 主機，除提供豐富的指令集〔與 SA/SX/SC 指令集相同〕、8k Steps 的程式記憶體並具有高速脈波輸入 (X10、X11) 及輸出(Y10、Y11)，總和頻寬可達 130kHz，單一輸入或輸出最高可達 100kHz，另外配合高速脈波輸出功能，提供定位控制及原點回歸指令，可連接 SS 系列全系列擴充機，滿足各種應用場合。

■ 產品外觀及各部介紹



尺寸單位：mm

電池安裝：更換電池時，請在 3 分鐘內完成，否則 PLC 內部資料〔包含程式區，萬年曆及停電保持暫存器〕有可能會消失或被破壞。



1	電源、運行及錯誤指示燈	12	擴充機連接口
2	RUN／STOP 開關	13	擴充機定位孔
3	VR0：M1178 啓動／D1178 對應值	14	DIN 軌槽 (35mm)
4	VR1：M1179 啓動／D1179 對應值	15	擴充機固定扣
5	DIN 軌固定扣	16	RS-485 通訊口 (Master/Slave)
6	輸出／入端子	17	電源輸入口
7	輸出/入點指示燈	18	2 pin 脫落式端子（標準附件）
8	RS-232 通訊接收 (Rx) 指示燈	19	電源輸入連接線（標準附件）
9	RS-485 通訊傳送 (Tx) 指示燈	20	電池蓋
10	RS-232 程式輸出／入通訊口	21	電池插座連接
11	銘牌	22	電池座

❷ 電氣規格

機種 \ 項目	DVP12SC11T
電源電壓	主機：24VDC (-15% ~ +20%)（具直流輸入電源短性反接保護）
電源保險絲容量	2A/250VAC
消耗電力	4W MAX
絕緣阻抗	5 MΩ 以上（所有輸出／入點對地之間 500VDC）
雜訊免疫力	ESD: 8KV Air Discharge EFT: Power Line: 2KV, Digital I/O: 1KV, Analog & Communication I/O: 250V Damped-Oscillatory Wave: Power Line: 1KV, Digital I/O: 1KV RS: 26MHz ~ 1GHz, 10V/m
接地	接地配線之線徑不得小於電源端 L, N 之線徑（多台 PLC 同時使用時，請務必單點接地）
操作／儲存環境	操作：0℃ ~ 55℃（溫度），50 ~ 95%（濕度），污染等級 2 儲存：-25℃ ~ 70℃（溫度），5 ~ 95%（濕度）
耐振動／衝擊	國際標準規範 IEC61131-2, IEC 68-2-6 (TEST Fc)/IEC61131-2 & IEC 68-2-27 (TEST Ea)
重量〔約，g〕	158 (g)
認證	CE cULus

輸入點電氣規格			
輸入形式	直流〔SINK 或 SOURCE〕		
輸入電流	24VDC 5mA 約 10 ms		
動作位準	Off → On	X0 ~ X1 爲 18.5VDC 以上 X2 ~ X5 爲 16.5VDC 以上 X10 ~ X11 爲 18.5VDC 以上	
	On → Off	X0 ~ X5、X10 ~ X11 爲 8VDC 以下	
反應時間	一般輸入 X0 ~ X5	硬體	濾波時間常數 10 ms
		軟體	由 D1020 可作 0 ~ 20 ms 的調整
	高速輸入 X10 ~ X11	硬體	濾波時間常數 4.7us
		軟體	由 D1021 作 0 ~ 1,000 次的調整

輸出點電氣規格		
輸出點形式	電晶體	
電流規格	0.3A/1 點@ 40℃	
	高速頻波輸出 3kHz 以上 時 Y0、Y1 及 Y10、Y11 爲 30mA	
電壓規格	30VDC	
最大負載	一般輸出	9W/1 點
	高速輸出	0.9W/1 點
反應時間	一般輸出	Off → On 20us, On → Off 30us
	高速輸出	Off → On 1us, On → Off 1us

電池壽命：

溫度 (℃)	0	25	50	70
壽命 (年)	9	8	6	5

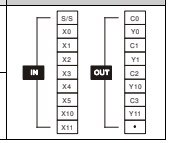
萬年曆的精度 (秒)：
在 0℃/32℉ 時，每月最大誤差 -117 秒，

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在 25℃/77℉ 時，每月最大誤差 52 秒。
在 55℃/131℉ 時，每月最大誤差 -132 秒。

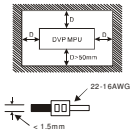
❸ 機種型號與 I/O 配置

機種	電源	輸入／輸出規格				I/O 配置
		輸入單元		輸出單元		
		點數	形 式	點數	形 式	
DVP12SC11T	24VDC	6	一般輸入 光耦隔離 X0 ~ X5	2	一般輸出 電晶體模組 Y0、Y1	
		2	高速輸入 高速光耦隔離 X10、X11	2	高速輸出 高速電晶體模組 Y10、Y11	

❹ 安裝及配線

4.1 盤內安裝及配線

1. PLC 在安裝時，請裝配於封閉式之控制箱內，其周圍應保持一定之空間〔如右圖所示〕，以確保 PLC 散熱功能正常。
2. 在配線時請勿將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. 輸出／入配線端請使用 22-16AWG (1.5mm) 單蕊線或多蕊線，端子規格如左所示。
4. PLC 端子螺絲扭力為 1.95 kg-cm (1.7 in-lbs)。
5. 只能使用 60/75℃ 的銅導線。



4.2 注意事項

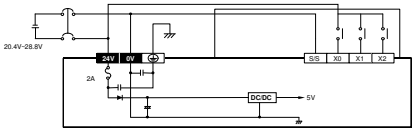
■ 使用環境

1. 請勿將 PLC 裝置於落塵大、油煙、金屬性粉塵及腐蝕性或可燃性氣體的環境當中。
2. 請勿將 PLC 裝置於高溫、結露之環境。
3. 請勿將 PLC 裝置有直接振動及衝擊的場所。

■ 電源端輸入配線

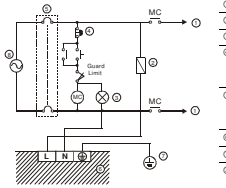
SC 機種為直流電源輸入，在使用上應注意下列事項：

1. 電源請接於 24VDC 及 0V 兩端，電源範圍為 20.4 ~ 28.8VDC，當電源電壓低於 20.4VDC 時，PLC 會停止運轉，輸出全部 Off，ERROR LED 快速閃爍。
2. 當停電時間低於 10ms 時，PLC 不受影響繼續運轉，當停電時間過長或電源電壓下降時使 PLC 停止運轉，輸出全部 Off，當電源恢復正常時，PLC 亦自動回復運轉。（PLC 內部具有停電保持的輔助繼電器及暫存器，使用者在作程式設計規劃時應特別注意使用。）



■ 安全配線回路

由於 PLC 控制許多裝置，任一裝置的動作可能都會影響其它裝置的動作，因此任一裝置的故障都可能會造成整個自動控制系統失控，甚至造成危險，所以在電源端輸入回路 (DVPPS01/DVPPS02)，建議配置如下的保護回路：



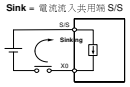
①	交流電源負載
②	電源回路保護用保險絲（3A）
③	電源指示燈
④	緊急停止 為預防突發狀況發生，設置一緊急停止按鈕，可在狀況發生時，切斷系統電源。
⑤	系統回路隔離裝置 使用電磁接觸器、繼電器等開關作爲系統電源回路隔離裝置，可防止電源斷續供應時，造成系統的不穩定。
⑥	DVPPS01/DVPPS02 本體
⑦	接地
⑧	電源供應： 交流（AC）：100 ~ 240VAC, 50/60Hz

■ 輸入點之配線

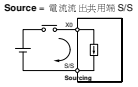
輸入點之入力信號爲直流電源 DC 輸入，DC 型式共有兩種接法：SINK 及 SOURCE，其定義如下：

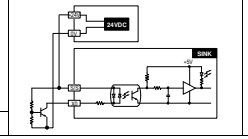
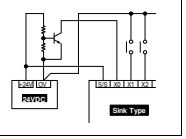
DC 型式，DC 型式共有兩種接法，SINK 及 SOURCE，其定義如下：

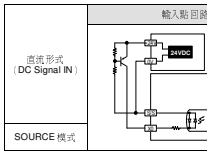
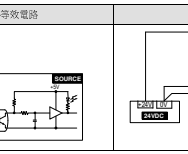
Sink = 電流流入共用端 S/S

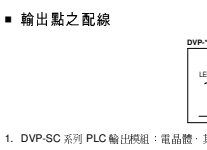
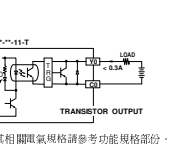


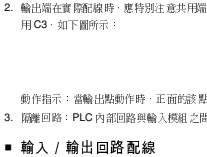
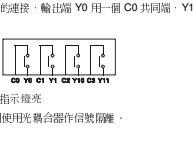
Source = 電流流出共用端 S/S



	輸入點回路等效電路	配線回路
直流形式 （DC Signal IN）		
SINK 模式		

	輸入點回路等效電路	配線回路
直流形式 （DC Signal IN）		
SOURCE 模式		

	輸入點回路等效電路	配線回路
直流形式 （DC Signal IN）		
SINK 模式		

	輸入點回路等效電路	配線回路
直流形式 （DC Signal IN）		
SOURCE 模式		

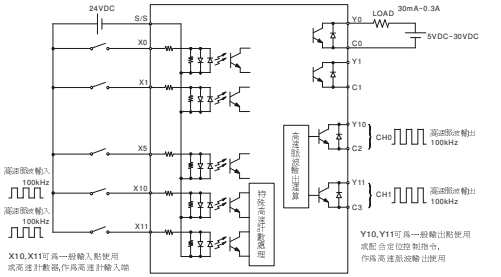
■ 輸出點之配線

1. DVP-SC 系列 PLC 輸出模組：電晶體，其相關電氣規格請參考功能規格部份。
2. 輸出端在實際配線時，應特別注意共用端的連接，輸出端 Y0 用一個 C0 共同端，Y1 用 C1，Y2 用 C2，Y3 用 C3，如下圖所示：

動作指示：當輸出點動作時，正面的該點指示燈亮

3. 隔離回路：PLC 內部回路與輸入模組之間使用光耦合器作信號隔離。

■ 輸入 / 輸出回路配線



⚠ 注意事項

✓ 本使用說明書僅提供電氣規格、功能規格、安裝配線部份說明，其它詳細之程序設計及指令與 SA/SX/SC 系列兼容，詳細說明請見 DVP-PLC 應用技術手冊【程序篇】，透過外圍裝置詳細說明請見該產品隨機手冊或 DVP-PLC 應用技術手冊【特殊模塊篇】。

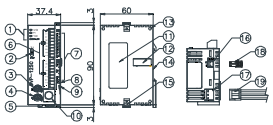
✓ 本機為開放型 (OPEN TYPE) 機殼，因此使用者使用本機時，必須將之安裝于具防塵、防潮及免于電击／冲击意外之外壳配线箱内。另必須具备保护措施（如：特殊之工具或钥匙才可打开）防止非维护人员操作或意外冲击本体，造成危险及损坏。

✓ 交流输入电源不可连接于输入／出信号端，否则可能造成严重损坏，请在上电之前再次确认电源配线。请勿在上电时触摸任何端子。本体上之接地端子 ⏚ 务必正确的接地，可提高产品抗噪声能力。

❶ 产品简介

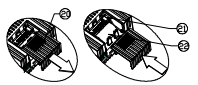
DVP-SC 系列为一 12 点（8 输入点+4 输出点）PLC 主机，除提供丰富的指令集（与 SA/SX/SC 指令集相同）、8k Steps 的程序内存并具有高速脉冲输入(X10、X11)及输出(Y10、Y11)，总和频宽可达 130kHz，单一输入或输出最高可达 100kHz。另外配合高速脉冲输出功能，提供定位控制及原点复归指令，可连接 SS 系列全系列扩展机，满足各种应用场合。

■ 产品外观及各部介绍



尺寸单位：mm

电池安装：更换电池时，请在 3 分钟内完成，否则 PLC 内部资料（包含程序区，万年历及停电保持寄存器）有可能会消失或被破坏。



1	电源、运行及错误指示灯	12	扩展机连接口
2	RUN/STOP 开关	13	扩展机 定位 孔
3	VR0：M1178 激活／D1178 对应值	14	DIN 轨槽 (35mm)
4	VR1：M1179 激活／D1179 对应值	15	扩展机 固定扣
5	DIN 轨固定扣	16	RS-485 通讯 口 (Master/Slave)
6	输出／入端子	17	电源输入口
7	输出／入点指示灯	18	2 pin 脱落式端子（标准附件）
8	RS-232 通讯接收 (Rx) 指示灯	19	电源输入连接线（标准附件）
9	RS-485 通讯传送 (Tx) 指示灯	20	电池盖
10	RS-232 程序输出／入通讯 口	21	电池插座连接
11	铭牌	22	电池座

❷ 电气规格

机种 项目	DVP12SC11T		
电源电压	主机：24VDC (-15% ~ +20%)（具直流输入电源极性反接保护）		
电源保险丝容量	2A/250VAC		
消耗电力	4W MAX		
绝缘阻抗	5 MΩ 以上（所有输出／入点对地之间 500VDC）		
噪声免疫力	ESD: 8KV Air Discharge EFT: Power Line: 2KV, Digital I/O: 1KV, Analog & Communication I/O: 250V Damped-Oscillatory Wave: Power Line: 1KV, Digital I/O: 1KV RS: 26MHz ~ 1GHz, 10V/m		
接地	接地配线之线径不得小于电源端 L, N 之线径（多台 PLC 同时使用时，请务必单点接地）		
操作／储存环境	操作：0℃ ~ 55℃（温度），50 ~ 95%（湿度），污染等级 2 储存：-25℃ ~ 70℃（温度），5 ~ 95%（湿度）		
耐振动／冲击	国际标准规范 IEC61131-2, IEC 68-2-6 (TEST Fc)/IEC61131-2 & IEC 68-2-27 (TEST Ea)		
重 量（約, g）	158 (g)		
認證	CE cULus		

输入点电气规格			
输入形式	直流（SINK 或 SOURCE）		
输入电流	24VDC 5mA 約 10 ms		
动作位準	Off → On	X0、X1 为 18.5VDC 以上 X2 ~ X5 为 16.5VDC 以上 X10、X11 为 18.5VDC 以上	
	On → Off	X0~X5、X10、X11 为 8VDC 以下	
反应时间	一般输入 X0 ~ X5	硬件	滤波时间常数 10 ms
		软件	由 D1020 可作 0 ~ 20 ms 的调整
	高速输入 X10、X11	硬件	滤波时间常数 4.7us
		软件	由 D1021 作 0 ~ 1,000 次的调整

输出点电气规格		
输出点形式	晶体管	
电流规格	0.3A/1 点@ 40℃	
	高速脉波输出 3kHz 以上时	
	Y0、Y1 及 Y10、Y11 为 30mA	
电压规格	30VDC	
最大负载	一般输出	9W/1 点
	高速输出	0.9W/1 点
反应时间	一般输出	Off→On 20us, On→Off 30us
	高速输出	Off→On 1us, On→Off 1us

电池寿命：

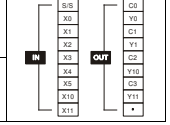
温度 (℃)	0	25	50	70
寿命 (年)	9	8	6	5

万年历的精度（秒）：

在 0°C /32°F 时，每月最大误差 -117 秒。

在 25°C /77°F 时，每月最大误差 52 秒。
在 55°C /131°F 時，每月最大误差 -132 秒。

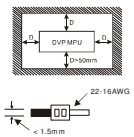
❸ 机种型号与 I/O 配置

机种	电源	输入／输出规格				I/O 配置
		输入单元		输出单元		
		点数	形式	点数	形式	
DVP12SC11T	24VDC	6	一般输入 光耦管模块 X0 ~ X5	2	一般输出 晶体管模块 Y0、Y1	
		2	高速输入 高速光耦隔离 X10、X11	2	高速输出 高速晶体管模块 Y10、Y11	

❹ 安装及配线

4.1 盘内安装及配线

1. PLC 在安装时，请装配于封闭式之控制箱内，其周围应保持一定之空间（如下图所示），以确保 PLC 散热功能正常。
2. 在配线时请勿将输入点信号线与输出点或电源等动力线置于同一线槽内。
3. 输出／入配线端请使用 22-16AWG (1.5mm) 单蕊绝线或多蕊线，端子规格如左所示。
4. PLC 端子螺丝扭力为 1.95 kg-cm (1.7 in-lbs)。
5. 只能使用 60/75℃ 的铜导线。



4.2 注意事項

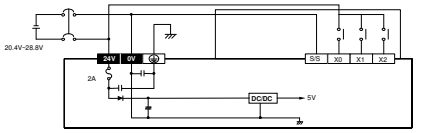
■ 使用环境

1. 请勿将 PLC 装置于落尘大、油烟、金属性粉尘及腐蚀性或可燃性气体的环境当中。
2. 请勿将 PLC 装置于高温、结露之环境。
3. 请勿将 PLC 装置有直接振动及冲击的场所。

■ 电源端输入配线

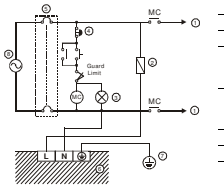
SC 机种为直流电源输入，在使用上应注意下列事項：

1. 电源请接于 24VDC 及 0V 两端，电源范围为 20.4 ~ 28.8VDC，当电源电压低于 20.4VDC 时，PLC 会停止运行，输出全部 Off，ERROR LED 快速闪烁。
2. 当停电时间低于 10ms 时，PLC 不受影响继续运行，当停电时间过长或电源电压下降将 使 PLC 停止运行，输出全部 Off，当电源恢复正常时，PLC 亦 自动回复运行。（PLC 内部具有停电保持的辅助继电器及寄存器，使用者在作程序 设计 規划时应特 別注意使用 。）



■ 安全配线回路

由于 PLC 控制许多装置，任一装置的动作可能都会影响其它装置的动作，因此任一装置的故障都可能造成整个自动控制系统失控，甚至造成危险。所以在电源端输入回路（DVPPS01/DVPPS02），建议配置如下的保护回路：



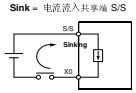
①	交流电源负载
②	电源回路保护用保险丝（3A）
③	电源指示灯
④	紧急停止 为预防突发状况发生，设置一紧急停止按钮，可在状况发生时，切断系统电源。
⑤	系统回路隔离装置 使用电磁接触器、继电器等开关作为系统电源回路隔离装置，可防止电源断续供应时，造成系统的不稳定。
⑥	DVPPS01/DVPPS02 本体
⑦	接地
⑧	电源供应： 交流（AC）：100 ~ 240VAC, 50/60Hz

■ 输入点之配线

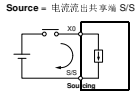
输入点之入力信号为直流电源 DC 输入，DC 型式共有两种接法：SINK 及 SOURCE，其定义如下：

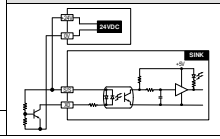
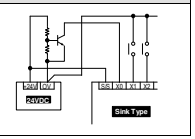
DC 型式，DC 型式共有两种接法，SINK 及 SOURCE，其定义如下：

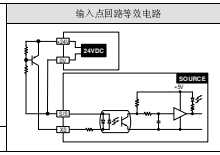
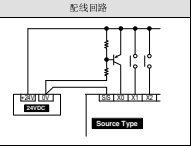
Sink = 电流流入共享端 S/S



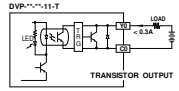
Source = 电流流出共享端 S/S



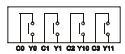
	输入点回路等效电路	配线回路
直流形式 （DC Signal IN）		
SINK 模式		

	输入点回路等效电路	配线回路
直流形式 （DC Signal IN）		
SOURCE 模式		

■ 输出点之配线



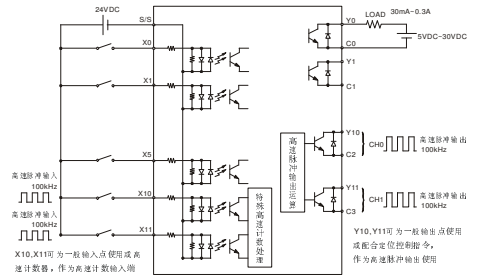
1. DVP-SC 系列 PLC 输出模块：晶体管，其相关电气规格请参考功能规格部份。
2. 输出端在实际配线时，应特别注意共享端的连接，输出端 Y0 用一个 C0 共同端，另外 Y1 用 C1，Y2 用 C2，Y3 用 C3，如下图所示：



动作指示：当输出点动作时，正面的该点指示灯亮。

3. 隔离回路：PLC 内部回路与输入模块之间使用光耦合器作信号隔离。

■ 输入／输出回路配线



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DELTA ELECTRONICS, INC.

DVP-SC

BILGI DÖKÜMANI

▲ *Kompak, Çok Fonksiyonlu, Çok Komutlu PLC*

http://www.delta.com.tw/industrialautomation

DVP-1040060-01

❷ Özellikler

Model / Madde	DVP12SC11T
Power supply voltajı	MPU: 24VDC (-15% ~ +20%) (DC giriş ters bağlantı koruması),
Sigorta	2A/250VAC
Güç Tüketimi	4W MAX
İzolasyon Direnci	500VDC'de 5 MΩ ve üzeri (tüm girişler / çıkışlar ve toprak arasında)
Gürültü Bağışıklığı	ESD: 8KV Air Discharge EFT: Power Line: 2KV, Digital I/O: 1KV, Analog & Communication I/O: 250V Damped-Oscillatory Wave: Power Line: 1KV, Digital I/O: 1KV RS: 26MHz ~ 1GHz, 10V/m
Topraklama	Topraklama kablosu kesiti besleme kablosu kesitinden küçük olmamalıdır. (Tüm DVP ürünleri doğrudan ground ucundan topraklanmalıdır).
Çalışma Ortamı	Çalışma: 0℃ ~ 55℃ (sıcaklık), 50 ~ 95% (rutubet), kirlenme derecesi 2 Saklama: -25℃ ~ 70℃ (sıcaklık), 5 ~ 95% (rutubet)
Titreşim/şok direnci	Standart: IEC61131-2, IEC 68-2-6 (TEST Fc)/IEC61131-2 & IEC 68-2-27 (TEST Ea)
Ağırlık (yaklaşık)	158 gr
Sertefikalar	CE cULus C-Tick

Giriş Noktası Elektriksel Özellikleri			
Giriş tipi	DC (SINK veya SOURCE)		
Giriş akımı	24VDC 5mA		
Aktif seviyesi	Off → On	X0, X1, 18.5VDC ve üzeri X2 ~ X5, 16.5VDC ve üzeri X10, X11, 18.5VDC ve üzeri	
	On → Off	X0 ~ X5, X10, X11, 8 VDC altı	
Cevap zamanı	X0~X5	Hardware	Sabit filtre zamanı 10ms
		Software	0 ~ 20ms (D1020'den ayarlanır)
	X10, X11	Hardware	Sabit filtre zamanı 4.7us
		Software	0 ~ 1,000 katı (D1021'den ayarlanır)

Çıkış Özellikleri		
Çıkış tipi	Transistör	
Akım oranı	40°C'de 0.3A/1 nokta (Oda sıcaklığında)	
	Y0 ve Y1 3KHz'in üzerinde yüksek hızlı pulse çıkışı ise, Y0, Y1 ,Y10 ve Y11 = 30mA	
Voltaj özelliği	5 ~ 30VDC	
Maksimum yükleme	Y0, Y1	9W/1 nokta
	Y10, Y11	0.9W/1 nokta
Cevap zamanı	Y0, Y1	Off → On < 20us, On → Off < 30us
	Y10, Y11	Off → On < 1us, On → Off < 1us

Pil ömrü:

Sıcaklık (℃)	0	25	50	70
Ömür (yıl)	9	8	6	5

Takvim zamanı doğruluğu:
0℃/32℉'de, aylık -117 saniyeden az.
25℃/77℉'de, 52 saniyeden az.
55℃/131℉'de, -132 saniyeden az.

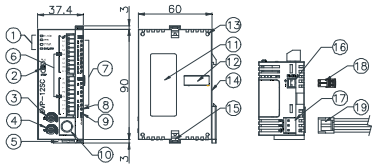
⚠ Uyarı TÜRKÇE

- ✓ *Bu bilgi dökümanı sadece PLC'nin elektriksel özellikleri, genel özellikleri, kurulum & bağlantısı hakkında bilgiler sağlar. SA/SX/SC serisine uyumlu diğer programlama ve komutlar ile ilgili bilgiler için; PLC Application Manualine bakınız.Opsiyonel modüller ile ilgili daha fazla bilgi için, o modülün kendine ait özel bilgi dökümanına bakınız.*
- ✓ *Bu ürün AÇIK TİP PLC olduğundan dolayı toz, rutubet, elektrik şoku ve titreşimden uzak yerlere kurulumu yapılmalıdır. Tehlikeleri ve ürünün zarar görmesini engellemek için koruyucu önlemler alınmalıdır. (Ör: Panoya kilit konulması gibi).*
- ✓ *Ürünün giriş/çıkış terminallerine AC power bağlamayınız. Enerji vermeden önce tüm bağlantıların doğru yapıldığını kontrol ediniz. Elektromanyetik gürültüyü önlemek için PLC'nin düzgün topraklandığını kontrol ediniz. Enerji varken terminallere dokunmayınız.*

❶ Önsöz

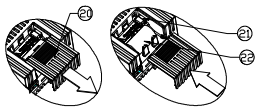
DELTA'nın DVP serisi PLC'lerini seçtiğiniz için teşekkürler. DVP-SC serisi MPU'da kullanım için güçlü komut seti (SA/SX/SC serisi ile aynı komut seti) ve 8 giriş + 4 çıkış olmak üzere toplam 12 I/O noktası vardır. 8K program kapasitesinin yanında yüksek-hızlı pulse girişleri (X10 ve X11)/çıkışları (Y10 ve Y11) vardır. Yüksek-hızlı pulse için, toplam bant genişliği 130kHz ve tek giriş/çıkış için maksimum 100kHz'dir. Bunun yanında yüksek-hızlı pulse çıkışları kullanılarak pozisyon kontrol ve sıfır noktasına dönüş komutları sağlar. Çeşitli uygulamalar için DVP-SS serisi PLC'lerin ilave ünitelerine bağlanabilir.

■ Ürün Profili ve Taslağı



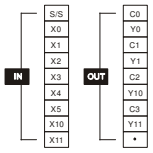
Birim: mm

Pil değişimi: Pil değişimi 3 dakika içinde tamamlanmalıdır, aksi halde PLC'nin dahili dataları (program, RTC ve kalıcı registerler) silinebilir veya zarar görebilir.



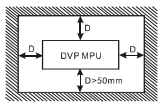
1	POWER, RUN ve ERROR durum indikatorleri	12	İlave üniteye bağlantı portu
2	RUN/STOP anahtarı	13	Montaj deliği
3	VR0: M1178/D1178 değeri belirlenir	14	DIN ray track (35mm)
4	VR1: M1179/D1179 değeri belirlenir	15	İlave unite klip
5	DIN ray klip	16	RS-485 haberleşme portu (Master/Slave)
6	I/O terminaller	17	DC Power girişi
7	I/O nokta indikatörleri	18	2 pin sökülebilir terminal (standart aksesuar)
8	COM1 (RS-232) (Rx) indikatör	19	Power giriş kablosu (standart aksesuar)
9	COM2 (RS-485) (Tx) indikatör	20	Pil kapağı
10	COM1 (RS-232) port	21	Pil bağlantı soketi
11	Etiket	22	Pil montaj yuvası

❸ Model Adı & I/O Konfigurasyon

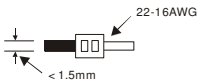
Model	Giriş/Çıkış Özellikleri					I/O Konfigurasyon
	Power	Giriş Ünitesi		Çıkış Ünitesi		
		Nokta	Tip	Nokta	Tip	
DVP12SC11T	24VDC	6	24VDC Sink/Source X0~X5	2	Transistör Y0, Y1	
		2	24VDC Sink/Source Yüksek-hızlı X10, X11	2	Transistör Yüksek-hızlı Y10, Y11	

❹ Kurulum & Bağlantı

4.1 PLC Montaj Düzeni ve Bağlantı Notları



1. DVP serisi PLC'lerin kurulumunu yaparken, sıcaklık dağılımının sağlanabilmesi için PLC'nin çevresinde yandaki şekilde gösterilen minimum boşluğun bırakıldığına emin olunuz.
2. I/O sinyal kobloları ile güç kaynağı kabloları aynı kablo bloğunun içinde olmamalıdır.
3. I/O terminal bağlantısı için lütfen 22-16AWG (1.5mm) kablo kullanınız. (tek damarlı veya çok damarlı). Terminallerin açıklaması sağdaki şekilde gösterildiği gibidir.
4. PLC terminal vidaları 1.95 kg-cm (1.7 in-lbs) oranında sıkılmalıdır.
5. Sadece 60/75℃ bakır iletken kullanınız



4.2 Bağlantı Notları

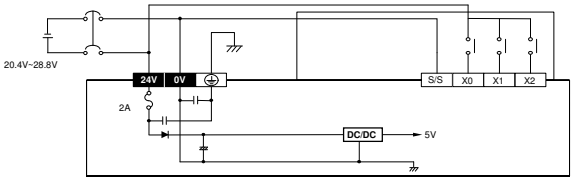
■ Çalışma Ortamı

1. PLC'yi toz, duman ve metal parçacıkların bulunduğu, aşındırıcı ve yanıcı gazlar içeren ortamlara kurmayınız.
2. PLC'yi yüksek sıcaklık ve yüksek rutubetin olduğu ortamlara kurmayınız.
3. PLC'yi yüzeyi düzgün olmayan yerlere kurmayınız.

■ Power Giriş Bağlantısı

DVP-SC serisi ürünler DC voltaj ile beslenir. DVP-SC serisini çalıştırırken lütfen aşağıdaki notlara dikkat ediniz.

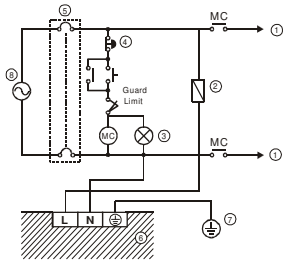
1. Lütfen 24VDC ve 0V terminallerine doğru power bağladığınıza emin olunuz. (20.4 ~ 28.8VDC arası). Eğer voltaj 20.4VDC'den küçükse, PLC çalışması duracak, tüm çıkışlar Off olacak ve ERROR LED sürekli flash yapacak.
2. Eğer ürünün beslemesi 10ms'den az bir süre kesilirse PLC etkilenmeden normal çalışmasına devam eder. Fakat enerji daha uzun süre kesilirse veya besleme voltajı düşerse, PLC çalışması durur ve tüm çıkışlar OFF olur. PLC'ye tekrar enerji verildiği zaman otomatik olarak normal çalışmasına geri döner. (PLC'nin içinde kalıcı röleler ve registerler vardır. Lütfen programlama yaparken bunların kullanımına dikkat ediniz).



DC Giriş Tipi

■ Güvenli Bağlantı

PLC birçok donanımı kontrol edeceği için, bu donanımların herhangi bir tanesinin hareketi diğer donanımların da çalışmasını etkiler. Bu donanımlardan herhangi bir tanesinin arızalanması veya yanlış çalışması tüm otomatik kontrol sisteminin aksamasına ve tehlikeli durumlara sebep olabilir. Power girişi için tavsiye edilen bağlantı aşağıda gösterilmiştir (DVPPS01/DVPPS02):

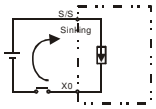


①	AC yükler için besleme
②	Power Devresi Koruma Sigortası (3A)
③	Power indikatör
④	Acil stop Makina sistemi manual olarak tüm sistemin enerjisini kesebilmeyi sağlamalıdır.
⑤	Sistem devresi izolasyon ünitesi (Sistem Power Kesilmesi) Sistemin enerjisi aniden kesilip geldiğinde olası kararsızlığı önlemek için güç devresinde elektromanyetik kontaktör ve röle kullanılarak izolasyon birimi oluşturulur.
⑥	DVPPS01/DVPPS02
⑦	Toprak
⑧	Güç kaynağı: AC: 100 ~ 240VAC, 50/60Hz

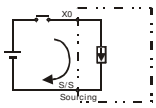
■ Giriş Bağlantısı

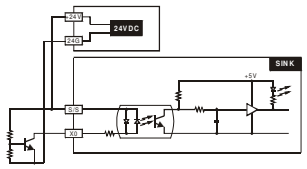
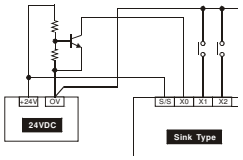
DC giriş sinyali için DC power kullanılır. Aşağıda gösterildiği gibi iki çeşit bağlantı kullanılır: SINK ve SOURCE.

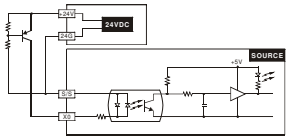
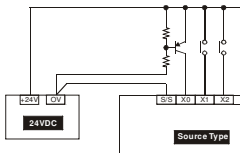
Sink = S/S ortak terminaline (+) bağlanır



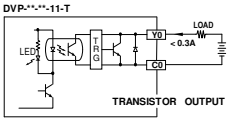
Source = S/S ortak terminaline (-) bağlanır



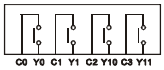
	Giriş Bağlantısı Eşdeğer Devresi	Bağlantı
DC Tip (DC Signal IN) SINK Mod		

	Giriş Bağlantısı Eşdeğer Devresi	Bağlantı
DC Tip (DC Signal IN) SOURCE Mod		

■ Çıkış Bağlantısı



1. DVP-SA Serisi PLC'de iki tip çıkış modülü vardır: Röle veya Transistor. Elektriksel özellikler için, lütfen fonksiyon özellikleri kısmına bakınız.
2. Lütfen çıkış bağlantılarını yaparken ortak terminallerin kullanımına dikkat ediniz. Örneğin DVP12SA11R PLC'nin Y0 çıkış terminali bağlantısı için C0 ortak terminali Y1 bağlantısı için C1 ortak terminali Y10 bağlantısı için C2 ortak terminali Y11 bağlantısı için C3 ortak terminali kullanılır. Lütfen aşağıdaki şekili inceleyiniz:



   Çıkış indikatörü: Çıkışlardan herhangi biri aktif olduğu zaman, ön panelde ilgili indikatör ON olur.
3. İzolasyon devresi: PLC iç devreleri ve giriş modülleri arası izolasyon için optokuplör kullanılır.

■ Giriş/Çıkış Bağlantısı

