

# DVP-SLIM

## Instruction Sheet

### 安裝說明


### 安 裝 說 明

Digital I/O Extension Unit

數位I/O擴充機

数字I/O扩展机



Model name	Power supply	Input		Output		Dimension (mm)			Outline
		Points	Type	Points	Type				
DVP08SM11N		8	DC Type	0					
DVP16SM11N		16	Sink/Source	0					
DVP06SN11R		0	N/A	6	Relay				
DVP08SN11R		0		8					
DVP08SN11T		0		8	Transistor (Sink)				
DVP16SN11T		0		16					
DVP08SN11TS		0		8	Transistor (Source)				
DVP16SN11TS		0		16					

## 2 Specifications

### ■ Electrical Specifications

Item	Model	08SM11N 08SM10N	16SM11N	08SN11R/T /TS	08SP11R/T /TS	16SP11R/T	16SP11TS	06SN11R	16SN11T /TS
Power supply voltage		24VDC (-15%~20%) (with DC input polarity reverse protection)							
Motion specification		Within 5ms of the momentary power loss, the device will keep on operating							
Power consumption		1W	2W	1.5W	1.5W	2W	2W	1.5W	1W
Insulation resistance		> 5MΩ (all I/O point-to-ground: 500VDC)							
Noise immunity		ESD (IEC 61131-2, IEC 61000-4-2): 8KV Air 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): 26MHz ~ 1GHz, 10V/m							
Earth		The diameter of grounding wire shall not be less than that of L, N terminal of the power. When many PLCs are in use at the same time, please make sure every PLC is properly grounded.							
Operation / storage environment		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: IEC61131-2, IEC 68-2-6 (TEST Fc) / IEC61131-2 & IEC 68-2-27 (TEST Ea)							
Weight (g)		162 / 141	146	154 / 146	141 / 136	162 / 154	151	200	70

### ■ I/O Point Specifications

Input Point		
Input point type	DC	AC
Input type	DC Type (Sink or Source)	-
Input resistance	-	19Kohm/50Hz 16Kohm/60Hz
Input current/voltage	24VDC 5mA	85 ~ 132VAC, 50 ~ 60Hz 9.2mA, 110VAC/60Hz
Active level	Off → On: more than 16.5VDC	More than 79VAC
	On → Off: less than 8VDC	Less than 30VAC
Response time	Approx. 10ms	Off → On < 15ms On → Off < 20ms
Circuit isolation / operation instruction	By photocoupler / LED On	



## Warning

EN **⚠** DVP-SLIM 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 DVP-SLIM, or to prevent an accident from damaging DVP-SLIM, the control cabinet in which DVP-SLIM is installed should be equipped with a safeguard. For example, the control cabinet in which DVP-SLIM 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 DVP-SLIM is powered up. After DVP-SLIM is disconnected, Do NOT touch any terminals in a minute. Make sure that the ground terminal ④ on DVP-SLIM is correctly grounded in order to prevent electromagnetic interference.

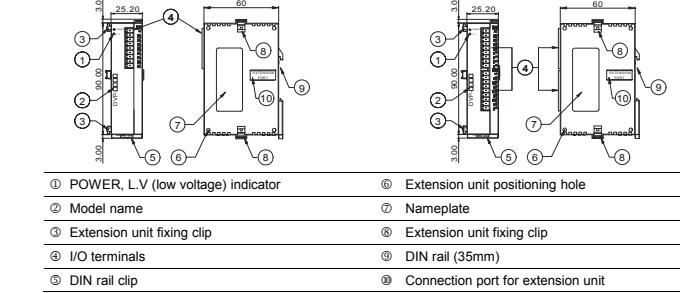
FR **⚠** DVP-SLIM est un module OUVERT. Il doit être installé que dans une enceinte protectrice (boîtier, armoire, etc.) saine, dépourvue de poussière, d'humidité, de vibrations et hors d'atteinte des chocs électriques. La protection doit éviter que les personnes non habilitées à la maintenance puissent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

FR **⚠** Ne pas appliquer la tension secteur sur les bornes d'entrées/Sorties, ou l'appareil DVP-SLIM pourra être endommagé. Merci de vérifier encore une fois le câblage avant la mise sous tension du DVP-SLIM. Lors de la déconnection de l'appareil, ne pas toucher les connecteurs dans la minute suivante. Vérifier que la terre est bien reliée au connecteur de terre ④ afin d'éviter toute interférence électromagnétique.


## 1 Introduction

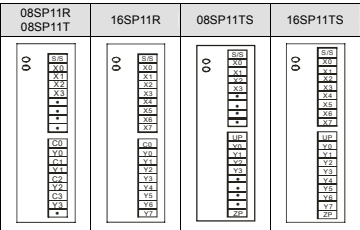
Thank you for choosing Delta DVP-Slim series programmable logic controller. DVP-Slim digital I/O extension unit offers 6 ~ 16 points, and the maximum digital I/O extension points (including the MPU) can reach 256 points. In addition, maximum 8 additional special modules (AD/DA/PT/TC/XA/PU) can be extended to DVP-Slim series extension unit.

### ■ Product Profile & Outline



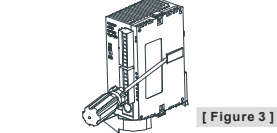
### ■ Model Information

Model name	Power supply	Input		Output		Dimension (mm)			Outline	
		Points	Type	Points	Type					
DVP08SP11R	24VDC	4	DC Type Sink/Source	4	Relay	25.2	90	60		
DVP16SP11R		8		8						
DVP08SP11T		4		Transistor (Sink)						
DVP16SP11T		8			8					
DVP08SP11TS		4		Transistor (Source)						
DVP16SP11TS		8			8					
DVP08SM10N		8		100 ~ 120VAC	0					N/A

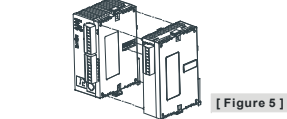


### ■ Connection

Step 1 Screw open the side cover of the extension unit, and you will see the connection port.



Step 3 Adjust the positioning hole of the MPU and the extension unit. Meet the connection port on the MPU with the extension unit to tightly connect the two.



### ■ Installation & Wiring

Install the PLC in an enclosure with sufficient space around it to allow heat dissipation (as shown in the figure below).

**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 the DIN rail, be sure to use the end bracket to stop any side-to-side movement of the PLC and reduce the chance of wires being loosen. A small retaining clip is at the bottom of the PLC. To secure PLC to the DIN rail, place the clip onto the rail and gently push it up. To remove it, pull the retaining clip down and gently remove the PLC from the DIN rail.

**Wiring**  
1. 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 hand side. The PLC terminal screws shall be tightened to 1.95kg-cm (1.7 in-lbs). Use 65/75°C copper wires only.  
2. DO NOT place the I/O signal wires and power supply wire in the same wiring duct.

### ■ Notes

- DO NOT install PLC in an environment with
  - Dust, smoke, metallic debris, corrosive or flammable gas
  - High temperature, humidity
  - Direct shock and vibration

#### ■ During the engineering

- DO NOT drop tiny metallic conductor into the PLC when screwing and wiring.
- There should be a margin of more than 50mm between the PLC and other control devices, and the PLC should be placed away from high voltage wire and power equipment.

### ■ Arrangement of I/O Points

No matter the MPU with how many points you are using, the input point No. of the first connected extension unit has to start from X20 and output point No. from Y20. The MPU is able to connect to maximum 14 digital extension units. The connection of MPU and extension units is demonstrated in the figure below.

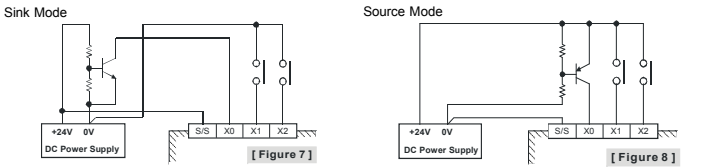
PLC	Model	Input points	Output points	Input point No.	Output point No.
MPU	SS/SA/SX/SC	8	4/6	X0 ~ X7, X10, X11	Y0 ~ Y5, X10, X11
EXT1	16SP11T	8	8	X20 ~ X27	Y20 ~ Y27
EXT2	08SM11N	8	0	X30 ~ X37	-
EXT3	06SN11R	0	6	-	Y30 ~ Y35
EXT4	08SP11R	4	4	X40 ~ X43	Y40 ~ Y43

The 3<sup>rd</sup> extension module 06SN11R will be regarded as 8-point output. The 2 output points of bigger No. will have no actual corresponding output points.

The 4<sup>th</sup> extension module 08SP11R will be regarded as 8-point input/8-point output. The 4 input points and 4 output points of bigger No. will have no actual corresponding input/output points. Therefore, it is suggested that they placed in the end of the series connection to make the No. of I/I points continuous.

### ■ Input Point Wiring & Specification

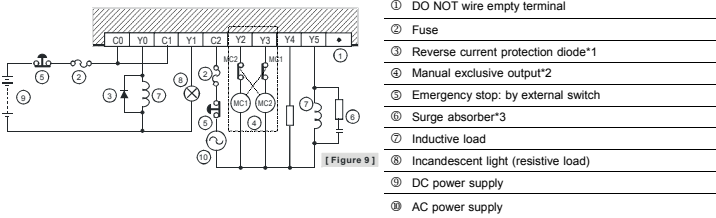
There are two types of signals at input points, DC and AC, and there are two types of DC inputs, Sink and Source. The wiring is as follows.



#### AC Wiring:

Wiring Loop		110VAC Input Specification	
	Input voltage	85 ~ 132VAC, 50 ~ 60Hz	
	Input resistance	19Kohm/50Hz, 16Kohm/60Hz	
	Input current	9.2mA 110VAC/60Hz	
	On/Off voltage level	79V 3.8mA/30V 2.5mA	
	Response time	15ms	
Circuit isolation/operation instruction		By photocoupler / LED On	

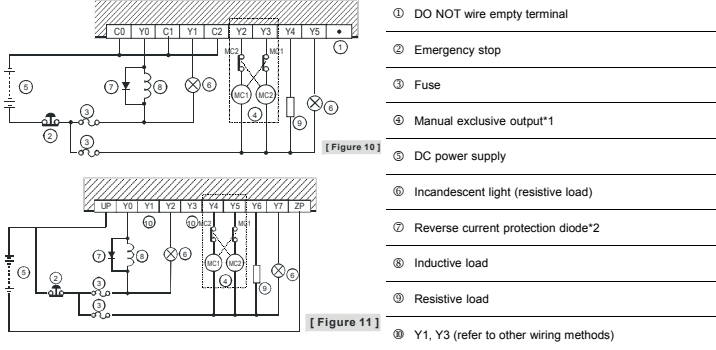
#### Relay Output Wiring Circuit (Sink):



- DO NOT wire empty terminal
- Fuse
- Reverse current protection diode\*1
- Manual exclusive output\*2
- Emergency stop: by external switch
- Surge absorber\*3
- Inductive load
- Incandescent light (resistive load)
- DC power supply
- AC power supply

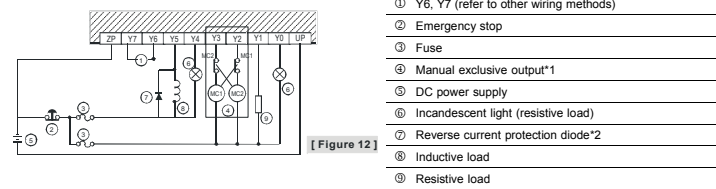
- \*1: There is no internal protection circuit in the output relay of the PLC; therefore when activating an inductive load, we suggest you parallelly connect a reverse current protection diode to extend the life of the contact.
  - The diode has to be able to endure max. 5 ~ 10 times of load voltage.
  - The positive current of the diode has to be bigger than load current.
- \*2: Manual exclusive output uses external circuit and forms an interlock, together with the PLC internal program, to ensure safety protection in case of any unexpected errors.
- \*3: There is no internal protection circuit in the output relay of the PLC; therefore when activating an inductive load, we suggest you parallelly connect a surge absorber (0.1uF + \*100ohm to 120ohm) to reduce the noise on AC load and extend the life of the contact.

#### Transistor Output Wiring Circuit (Sink):



- \*1: Manual exclusive output uses external circuit and forms an interlock, together with the PLC internal program, to ensure safety protection in case of any unexpected errors.
- \*2: Use a zener diode (39V) in the PLC to protect the transistor output. When activating inductive load, we suggest you parallelly connect a reverse current protection diode.

#### Transistor Output Wiring Loop (Source):



- \*1: Manual exclusive output uses external circuit and forms an interlock, together with the PLC internal program, to ensure safety protection in case of any unexpected errors.
- \*2: Use a zener diode (39V) in the PLC to protect the transistor output. When activating inductive load, we suggest you parallelly connect a reverse current protection diode.

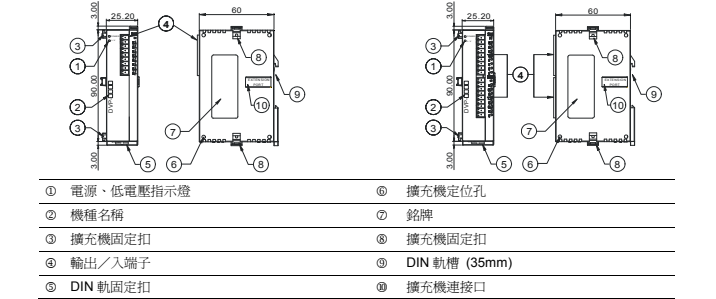
## ⚠ 注意事項

- 請在使用之前，詳細閱讀本使用說明書。
- 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／衝擊意外之一般配線箱內。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直流類型之輸入／出信號端，否則可能造成嚴重的損壞，因此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。

## 1 產品簡介

謝謝您採用台達 DVP-SLIM 系列程式控制器。DVP-SLIM 系列 6 ~ 16 點擴充，含主機最大數位輸入／輸出擴充分別可達 256 點。另備特殊模組(AD/DA/PT/TC/XA/PU)擴充功能，最多可擴充 8 台特殊模組。

### ■ 產品外觀及各部介紹



機種型號		輸入單元		輸出單元		尺寸 (mm)			外形參考	
機種	電源	點數	形式	點數	形 式	25.2	90	60		
DVP08SP11R	24VDC	4	DC Type Sink/Source	4	繼電器					
DVP16SP11R		8		8						
DVP08SP11T		4		4	電晶體(Sink)					
DVP16SP11T		8		8						
DVP08SP11TS		4		4	電晶體(Source)					
DVP16SP11TS		8	8							
DVP08SM10N		8	100 ~ 120VAC	0	無					
DVP08SM11N		8	DC Type Sink/Source	0						
DVP16SM11N		16	0							
DVP06SN11R		0	無	6	繼電器					
DVP08SN11R		0		8						
DVP08SN11T		0		8	電晶體(Sink)					
DVP16SN11T		0		16						
DVP08SN11TS		0		8	電晶體(Source)					

