



Instruction Sheet



Warning

- ✓ Please read this instruction carefully before use.
- ✓ DO NOT touch any terminal when the power is switched on. Switch off the power before wiring.
- ✓ DVP06AD-S 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 are 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.
- ✓ DO NOT touch any internal circuit in 1 minute after the power is switched off.
- ✓ Make sure the ground terminal (⓪) is correctly grounded in order to prevent electromagnetic interference.

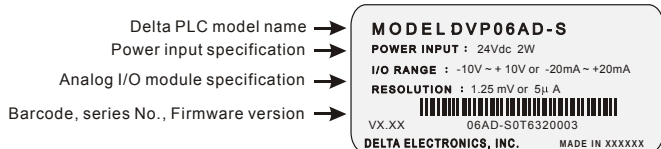
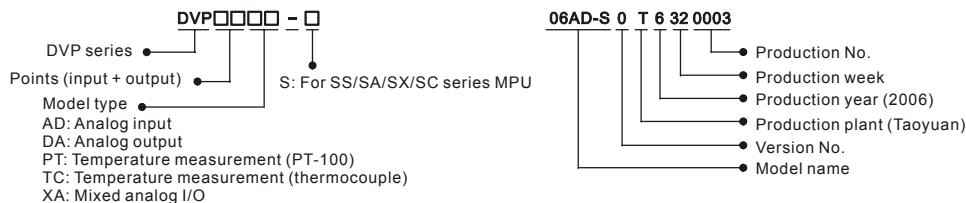
1 Introduction

1.1 Model Explanation & Peripherals

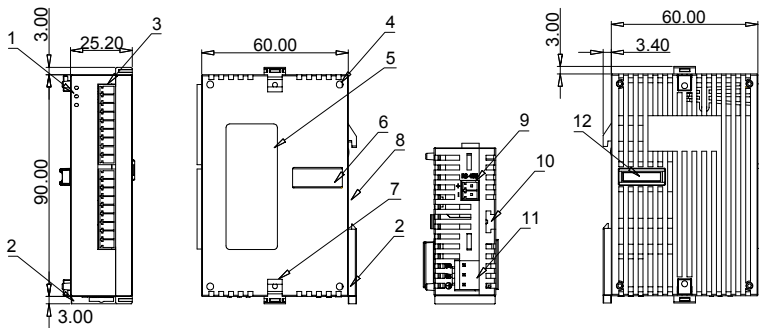
- ❖ Thank you for choosing Delta DVP series. The analog signal input module DVP06AD-S is able to receive 6 points of external analog signal inputs (both in voltage and current) and convert the signals into 14-bit digital ones. It is able to read and write the data in the module through FROM/TO instructions given by the program of DVP-PLC SS/SA/SX/SX series MPU. There are 49 16-bit control registers in the module.

- ❖ The user can select voltage or current output by wiring. Range of voltage output: $\pm 10\text{VDC}$ (resolution: 1.25mV)
Range of current output: $\pm 20\text{mA}$ (resolution: $5\mu\text{A}$).

❖ Nameplate Explanation

❖ **Model/Serial No. Explanation**

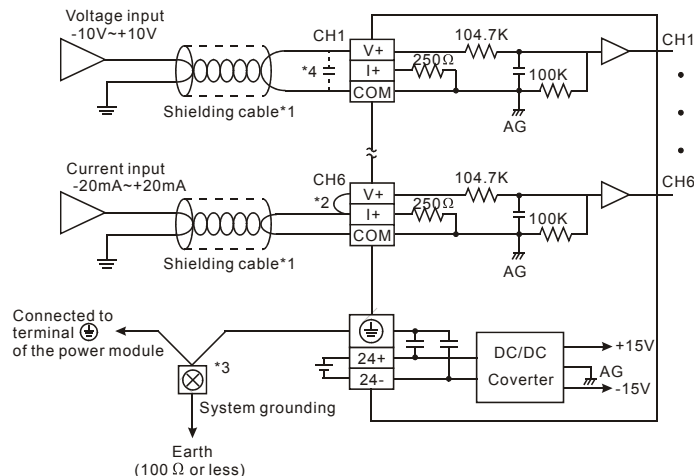
1.2 Product Profile & Outline



Unit: mm

1	POWER, ERROR, A/D indicator	7	Extension unit/module fixing clip
2	DIN rail clip	8	DIN rail (35mm)
3	Terminals	9	RS-485 communication port
4	Extension unit/module mounting hole	10	Extension unit/module fixing notch
5	Nameplate	11	Power input port
6	Extension unit/module connection port	12	Extension unit/module connection port

1.3 External Wiring



*1: When performing analog input, please isolate other power wirings.

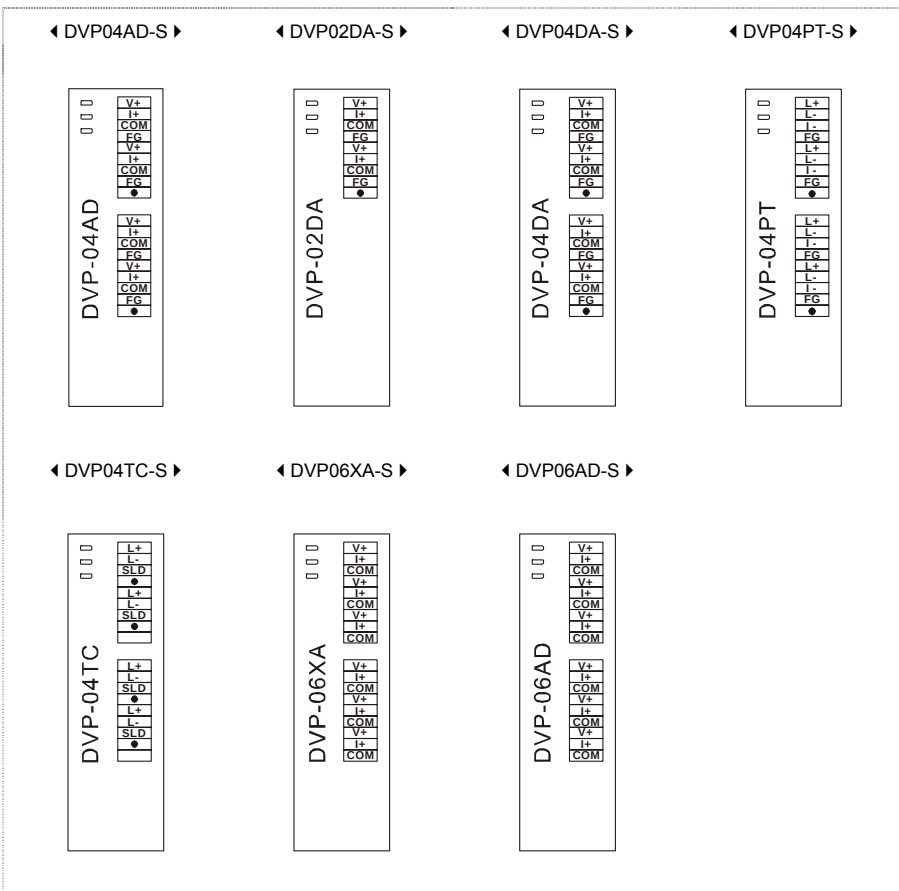
*2: When connecting to current signals, please make sure to short-circuit "V+" and "I+" terminals.

*3: Please connect the terminal on both the power module and DVP06AD-S to the system earth point and ground the system contact or connect it to the cover of power distribution cabinet.

*4: If the ripples at the loaded input terminal are too significant that causes noise interference on the wiring, connect the wiring to 0.1 ~ 0.47 μ F 25V capacitor.

Note: DO NOT wire empty terminals 

1.4 Terminal Configurations of the Analog Module



② Specifications

2.1 Functions

Analog/Digital (6A/D) Module	Voltage Input	Current Input
Power supply voltage	24VDC (20.4VDC~28.8VDC) (-15% ~ +20%)	
Analog input channel	6 channels/module	
Range of analog input	±10V	±20mA
Range of digital conversion	±8000	±4000

Analog/Digital (6A/D) Module	Voltage Input	Current Input
Resolution	14 bits (1 _{LSB} = 1.25mV)	13 bits (1 _{LSB} = 5μA)
Input impedance	200KΩ or more	250Ω
Overall accuracy	±0.5% when in full scale (25°C, 77°F) ±1% when in full scale in the range of 0 ~ 55°C, 32 ~ 131°F	
Response time	3ms × the number of channels	
Isolation	Isolation between digital area and analog area. No isolation among channels.	
Range of absolute input	±15V	±32mA
Digital data format	13 significant bits out of 16 bits are available; in 2's complement.	
Average function	Yes. Available for setting up in CR#2 ~ CR#7; range: K1 ~ K20.	
Self-diagnosis	Upper and lower bound detection/channel	
Communication mode (RS-485)	ASCII/RTU mode. Communication speed: 4,800/9,600/19,200/38,400/57,600/115,200 ASCII data format: 7-bit, even bit, 1 stop bit (7, E, 1) RTU data format: 8-bit, even bit, 1 stop bit (8, E, 1) RS-485 cannot be used when connected to PLC MPU in series.	
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.	

2.2 Others

Power Supply	
Max. rated power consumption	24VDC (20.4VDC ~ 28.8VDC) (-15% ~ +20%), 2W supplied by external power
Environment	
Insulation resistance	> 5 MΩ (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 the 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	Operation: 0°C ~ 55°C (temperature); 50 ~ 95% (humidity); pollution degree 2 Storage: -40°C ~70°C (temperature); 5 ~ 95% (humidity)
Vibration/shock immunity	International standards: IEC1131-2, IEC 68-2-6 (TEST Fc)/IEC1131-2 & IEC 68-2-27(TEST Ea)

3 Installation & Wiring

3.1 Mounting and Wiring

- ❖
- 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 loosen. 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

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. The PLC terminal screws shall be tightened to 1.95 kg-cm (1.7 in-lbs).
2. DO NOT place the I/O signal wires and power supply wire in the same wiring duct.
3. Use 60/75 °C copper wires only.

④ Control Registers

DVP06AD-S analog input module					Description															
CR#	RS-485 parameter address	Latched		Register content	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
#0	H 4000	☐	R	Model name	Set by the system. Data length: 8 bits (b7 ~ b0). DVP06AD-S model code = H C8															
#1	H 4001	☐	R/W	Input mode setting	Reserved				CH6		CH5		CH4		CH3		CH2		CH1	
					Input mode: Default = H0000 °															
					Mode 0: Voltage input (-10V ~ +10V)															
					Mode 1: Voltage input (-5V ~ +10V)															
					Mode 2: Current input (-12mA ~ +20mA)															
Mode 3: Current input (-20mA ~ +20mA)																				

