2014-04-18

5014002901-6P01

DVP06PT-S

Instruction Sheet
Bilgi Dökümani
安 裝 說 明
安 装 说 明

Temperature Measurement Module
Sıcaklık Ölçüm Modülü
溫度量測模組
温度量测模块

Smarter. Greener. Together.

Thank you for choosing Delta DVP series PLC. DVP06PT-S is able to receive 6 points of RTDs and convert them into 16-bit digital signals. Besides, through FROM/TO instructions in DVP Slim series MPU program, the data in DVP06PT-S can be read and written. There are many 16-bit control registers (CR) in DVP06PT-S. The power unit is separate from it and is small in size and easy to install.

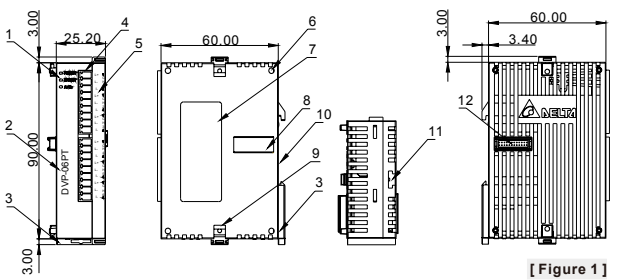
EN ✓ DVP06PT-S is an OPEN-TYPE device. It should be installed in a control cabinet free of airborne dust, humidity, electric shock and vibration. To prevent non-maintenance staff from operating DVP06PT-S, or to prevent an accident from damaging DVP06PT-S, the control cabinet in which DVP06PT-S is installed should be equipped with a safeguard. For example, the control cabinet in which DVP06PT-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 DVP06PT-S is powered up. After DVP06PT-S is disconnected, Do NOT touch any terminals in a minute. Make sure that the ground terminal ⏚ on DVP06PT-S is correctly grounded in order to prevent electromagnetic interference.

FR ✓ DVP06PT-S est un module OUVERT. Il doit être installé que dans une enceinte protectrice (boitier, 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 DVP06PT-S pourra être endommagé. Merci de vérifier encore une fois le câblage avant la mise sous tension du DVP06PT-S. 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 ⏚ afin d'éviter toute interférence électromagnétique.

■ Product Profile & Dimension



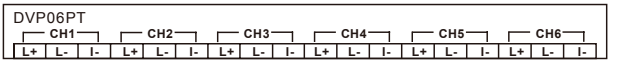
[Figure 1]

Unit: mm

1. Status indicator (POWER, RUN and ERROR)	2. Model name	3. DIN rail clip
4. I/O terminals	5. I/O point indicator	6. Mounting holes

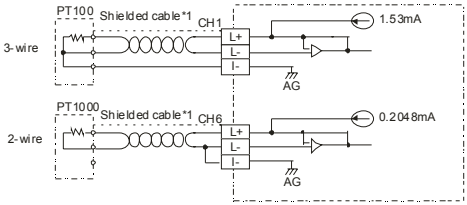
7. Specification label	8. I/O module connection port	9. I/O module clip
10. DIN rail (35mm)	11. I/O module clip	12. I/O module connection port

■ I/O Terminal Layout



[Figure 2]

■ External Wiring



Note1: Use only the wires that are packed with the temperature sensor for analog input and separate from other power line or any wire that may cause noise.

Note2: If there is noise, please connect the shielded cables to the system earth point, and then ground the system earth point or connect it to the distribution box.

Note 3: Please keep wires as short as possible when connecting the module to a device whose temperature is going to be measured, and keep the power cable used as far away from the cable connected to a load as possible to prevent noise interference.

■ Electrical Specifications

Max. rated power consumption	2W
Operation/storage	Operation: 0°C~55°C (temp.), 5~95% (humidity), pollution degree 2 Storage: -25°C~70°C (temp.), 5~95% (humidity)
Vibration/shock resistance	International standards: IEC61131-2, IEC 68-2-6 (TEST Fc)/ IEC61131-2 & IEC 68-2-27 (TEST Ea)
Series connection to DVP-PLC MPU	The modules are numbered from 0 to 7 automatically by their distance from MPU. No.0 is the closest to MPU and No.7 is the furthest. Maximum 8 modules are allowed to connect to MPU and will not occupy any digital I/O points.

■ Functional Specifications

DVP06PT-S	Celsius (°C)	Fahrenheit (°F)
Analog input channel	6 channels per module	
Sensors type	2-wire/3-wire PT100/ Ni100/ PT1000/ Ni100 3850 PPM/°C (DIN 43760 JIS C1604-1989)	
Current excitation	1.53mA / 204.8uA	
Temperature input range	Please refer to the temperature/digital value characteristic curve.	
Digital conversion range	Please refer to the temperature/digital value characteristic curve.	
Resolution	16 bits (0.1°C)	16 bits (0.1°F)
Overall accuracy	±0.6% of full scale during 0 ~ 55°C (32 ~ 131°F)	
Response time	1 second	
Isolation method	Isolation between digital and analog circuitry. There is no isolation between channels. 500VDC between digital circuits and Ground 500VDC between analog circuits and Ground 500VDC between analog circuits and digital circuits 500VDC between 24VDC and Ground	
Digital data format	2's complement of 16-bit	
Average function	Yes (CR#2)	
Self diagnostic function	Every channel has the upper/lower limit detection function.	

■ Control Register

CR#	Save		Register content	Description
#0	O	R	Model name	Set up by the system: DVP06PT-S model code = H'CA
#1	X	R/W	CH1~CH4 Mode setting	CH1 mode: b0 ~ b3 CH2 mode: b4 ~ b7 CH3 mode: b8 ~ b11 CH4 mode: b12 ~ b15 Take CH1 mode (b3,b2,b1,b0) for example. The default value is H'0000. 1. (0,0,0,0): PT100 2. (0,0,0,1): NI100 3. (0,0,1,0): PT1000 4. (0,0,1,1): NI1000 5. (1,1,1,1): The channel is disabled.
#2	X	R/W	CH1~CH6 average number	Number piece of readings used for the calculation of "average" temperature on channels CH1 ~ CH6 Setting range: K1~K20. Default setting is K10.
#6	X	R	CH1 average degrees	Average degrees for channels CH1 ~ CH6 (Unit: 0.1°C).
#7	X	R	CH2 average degrees	
#8	X	R	CH3 average degrees	
#9	X	R	CH4 average degrees	
#10	X	R	CH5 average degrees	
#11	X	R	CH6 average degrees	
#12	X	R	CH1 average degrees	Average degrees for channels CH1 ~ CH6 (Unit: 0.1°F).
#13	X	R	CH2 average degrees	
#14	X	R	CH3 average degrees	
#15	X	R	CH4 average degrees	
#16	X	R	CH5 average degrees	
#17	X	R	CH6 average degrees	
#18	X	R	Present temp. of CH1	Present temperature of channels CH1 ~ CH6 (Unit: 0.1°C).
#19	X	R	Present temp. of CH2	
#20	X	R	Present temp. of CH3	
#21	X	R	Present temp. of CH4	
#22	X	R	Present temp. of CH5	
#23	X	R	Present temp. of CH6	
#24	X	R	Present temp. of CH1	Present temperature of channels CH1 ~ CH6. (Unit: 0.1°F).
#25	X	R	Present temp. of CH2	
#26	X	R	Present temp. of CH3	
#27	X	R	Present temp. of CH4	
#28	X	R	Present temp. of CH5	
#29	X	R	Present temp. of CH6	
#30	X	R	Error status	Data register stores the error status. Refer to the error code chart for details.
#31	X	R/W	CH5~CH6 Mode setting	CH5 mode: b0 ~ b3 CH6 mode: b4 ~ b7 Take CH5 mode (b3,b2,b1,b0) for example. The default value is H'0000. 1. (0,0,0,0): PT100 2. (0,0,0,1): NI100 3. (0,0,1,0): PT1000 4. (0,0,1,1): NI1000 5. (1,1,1,1): The channel is disabled.
#32	X	R/W	CH5~CH6 Error LED indicator setting	1. b12 corresponds to CH5. When b12=1, the scale exceeds the range, and the Error LED indicator flashes. 2. b13 corresponds to CH6. When b13=1, the scale exceeds the range, and the Error LED indicator flashes.

CR#	Save		Register content	Description
#33	X	R/W	Reset to default setting CH1~CH4 Error LED indicator setting	If b0~b11 are set to H'924, all the setting values will be reset to the default setting. 1. b12 corresponds to CH1: when b12=1, the scale exceeds the range, and the Error LED indicator flashes. 2. b13 corresponds to CH2: when b13=1, the scale exceeds the range, and the Error LED indicator flashes. 3. b14 corresponds to CH3: when b14=1, the scale exceeds the range, and the Error LED indicator flashes. 4. b15 corresponds to CH4: when b15=1, the scale exceeds the range, and the Error LED indicator flashes.
#34	O	R	Firmware version	Display the firmware version in hexadecimal. ex: H'010A = version 1.0A
#35 ~ #48 System used				

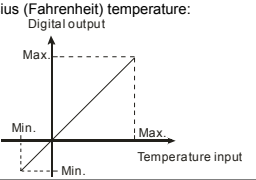
1. CR#30 is the error code register. Refer to the chart below:

Error description	Content	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Power source abnormal	K1 (H'1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
The contact is not connected to anything.	K2 (H'2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Hardware malfunction	K16 (H'10)	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
The contact of CH1 is not connected to anything. (Abnormal conversion)	K256 (H'100)	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
The contact of CH2 is not connected to anything. (Abnormal conversion)	K512 (H'200)	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
The contact of CH3 is not connected to anything. (Abnormal conversion)	K1024 (H'400)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
The contact of CH4 is not connected to anything. (Abnormal conversion)	K2048 (H'800)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
The contact of CH5 is not connected to anything. (Abnormal conversion)	K4096 (H'1000)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
The contact of CH6 is not connected to anything. (Abnormal conversion)	K8192 (H'2000)	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: Each error code will have a corresponding bit. Two or more errors may happen at the same time. 0 means normal and 1 means having error.

■ Temperature/Digital Value Characteristic Curve

The mode of measuring Celsius (Fahrenheit) temperature:



Platinum resistor	Temperature range		Digital value conversion range	
	°C (Min./Max.)	°F (Min./Max.)	°C (Min./Max.)	°F (Min./Max.)
PT100	-180 ~ 800°C	-292 ~ 1,472°F	K-1,800 ~ K8,000	K-2,920 ~ K14,720
NI100	-80 ~ 170°C	-112 ~ 338°F	K-800 ~ K1,700	K-1,120 ~ K3,380
PT1000	-180 ~ 800°C	-292 ~ 1,472°F	K-1,800 ~ K8,000	K-2,920 ~ K14,720
NI1000	-80 ~ 170°C	-112 ~ 338°F	K-800 ~ K1,700	K-1,120 ~ K3,380

感謝您採用台達 DVP 系列產品。DVP06PT-S 溫度量測模組可接受外部 6 點熱阻溫度感測器，將之轉換成 16 位元之數位信號。透過 DVP-PLC SS/ SA/SX/SC/SV 主機程式以指令 FROM/TO 來讀寫模組內之資料，模組內具有多個 CR (Control Register)暫存器，每個暫存器有 16 bits。電源單元與模組分離，體積小，安裝容易。

- 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，否則可能造成嚴重的損壞，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，請勿觸摸內部電路。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。

■ 產品外觀尺寸與部位介紹

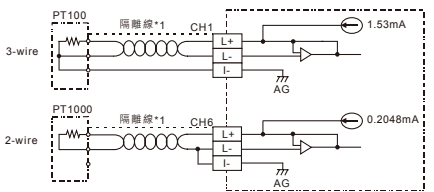
詳細部位指示圖與外觀尺寸請參閱英文版[Figure1]，單位：mm。

1. 電源、錯誤及運行指示燈	2. 機種型號	3. DIN 軌固定扣
4. 端子	5. 端子配置	6. I/O 模組定位孔
7. 銘牌	8. I/O 模組連接口	9. I/O 模組固定扣
10. DIN 軌槽 (35mm)	11. I/O 模組固定槽	12. I/O 模組連接口

■ 輸入/輸出端子台配置

請參閱英文版[Figure2]之端子台配置示意圖。

■ 外部配線



註1：使用於類比輸入的配線應採用溫度感測器之連接線或雙絞隔離線且應與其他電源線或可能引起雜訊之接線分開。

註2：如果雜訊過大，請將隔離線連接到系統接地點，再將系統接點作第三種接地或接到配電箱之機殼上。

註3：由待測物到模組間的配線路請用最短距離配線，為了避免雜訊及誘導的影響儘可能將電源線和負載配線分開。

■ 電氣規格

額定最大消耗功率	2W
操作/儲存環境	1. 操作：0°C ~ 55°C（溫度），5 ~ 95%（濕度），污染等級 2 2. 儲存：-25°C ~ 70°C（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)
與DVP-PLC主機串	模組編號以靠近主機之順序自動編號由0到7，最大可連接8台且不佔用數位

接說明	I/O點數。

■ 功能規格

DVP06PT-S	攝氏 (°C)	華氏 (°F)
類比訊號輸入通道	6通道/台	
適合感應器形式	2線/3線 PT100/ Ni100/ PT1000/ Ni100 3850 PPM/°C (DIN 43760 JIS C1604-1989)	
驅動電流	1.53mA / 204.8uA	
輸入溫度範圍	請參閱溫度/數位特性曲線附表	
數位轉換範圍	請參閱溫度/數位特性曲線附表	
解析度	16 bits (0.1°C)	16 bits (0.1°F)
總和精密度	±0.6% 在 (0 ~ 55°C, 32 ~ 131°F) 範圍內滿刻度時。	
響應時間	1s	
隔離方式	數位區與類比區有隔離，通道間未隔離。 數位電路與接地之間：500VDC 類比電路與接地之間：500VDC 類比電路與數位電路之間：500VDC 24VDC與接地之間：500VDC	
數位資料格式	16位元二補數	
平均功能	有 (CR#2)	
自我診斷功能	上下極限偵測/通道	

■ 控制暫存器（CR）

CR#	保持型		暫存器名稱	說明
#0	O	R	機種型號	系統內定，DVP06PT-S機種編碼= H'CA。
#1	X	R/W	CH1~CH4模式設定	CH1 模式：b0 ~ b3 CH2 模式：b4 ~ b7 CH3 模式：b8 ~ b11 CH4 模式：b12 ~ b15 以 CH1 設定(b3,b2,b1,b0) 說明，預設值 H'0000： 1. 設為(0,0,0,0)時，選用 PT100 2. 設為(0,0,0,1)時，選用 NI100 3. 設為(0,0,1,0)時，選用 PT1000 4. 設為(0,0,1,1)時，選用 NI1000 5. 設為(1,1,1,1)時，通道 Disable
#2	X	R/W	CH1~CH6平均次數	通道CH1 ~ CH6訊號的平均次數設定： 可設定範圍K1 ~ K20。出廠設定值為K10。
#6	X	R	CH1量測攝氏溫度平均值	通道CH1 ~ CH6量測攝氏溫度平均值顯示。單位0.1°C。
#7	X	R	CH2量測攝氏溫度平均值	
#8	X	R	CH3量測攝氏溫度平均值	
#9	X	R	CH4量測攝氏溫度平均值	
#10	X	R	CH5量測攝氏溫度平均值	
#11	X	R	CH6量測攝氏溫度平均值	
#12	X	R	CH1量測華氏溫度平均值	通道CH1 ~ CH6量測華氏溫度平均值顯示。單位

CR#	保持型		暫存器名稱	說明
#13	X	R	CH2量測華氏溫度平均值	
#14	X	R	CH3量測華氏溫度平均值	
#15	X	R	CH4量測華氏溫度平均值	
#16	X	R	CH5量測華氏溫度平均值	
#17	X	R	CH6量測華氏溫度平均值	
#18	X	R	CH1量測攝氏溫度現在值	
#19	X	R	CH2量測攝氏溫度現在值	
#20	X	R	CH3量測攝氏溫度現在值	通道CH1 ~ CH6量測攝氏溫度現在值顯示。單位
#21	X	R	CH4量測攝氏溫度現在值	0.1°C。
#22	X	R	CH5量測攝氏溫度現在值	
#23	X	R	CH6量測攝氏溫度現在值	
#24	X	R	CH1量測華氏溫度現在值	
#25	X	R	CH2量測華氏溫度現在值	
#26	X	R	CH3量測華氏溫度現在值	通道CH1 ~ CH6量測華氏溫度現在值顯示。單位
#27	X	R	CH4量測華氏溫度現在值	0.1°F。
#28	X	R	CH5量測華氏溫度現在值	
#29	X	R	CH6量測華氏溫度現在值	
#30	X	R	錯誤狀態	儲存所有錯誤狀態的資料暫存器，詳細內容請參照錯誤狀態表。
#31	X	R/W	CH5~CH6模式設定	CH5 模式：b0 ~ b3 CH6 模式：b4 ~ b7 以 CH5 設定(b3,b2,b1,b0) 說明，預設值 H'0000： 1. 設為(0,0,0,0)時，選用 PT100 2. 設為(0,0,0,1)時，選用 NI100 3. 設為(0,0,1,0)時，選用 PT1000 4. 設為(0,0,1,1)時，選用 NI1000 5. 設為(1,1,1,1)時，通道 Disable
#32	X	R/W	CH5~CH6 ERR燈設定	1. b12 對應CH5，當b12=1時，刻度超過ERR燈閃爍動作。 2. b13 對應CH6，當b13=1時，刻度超過ERR燈閃爍動作。
#33	X	R/W	恢復出廠設定 CH1~CH4 ERR燈設定	b0 ~ b11恢復出廠設定：寫入H'924所有設定值將回復原廠設定值。 1. b12 對應CH1，當b12=1時，刻度超過ERR燈閃爍動作。 2. b13 對應CH2，當b13=1時，刻度超過ERR燈閃爍動作。 3. b14 對應CH3，當b14=1時，刻度超過ERR燈閃爍動作。 4. b15 對應CH4，當b15=1時，刻度超過ERR燈閃爍動作。
#34	O	R	韌體版本	16進制，顯示目前韌體版本，如1.0A則 H'010A。
#35 ~ #48 系統內部使用				

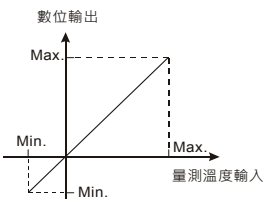
1. CR#30 錯誤狀態表：

錯誤狀態	內容值	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
電源異常	K1 (H'1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
接點空接	K2 (H'2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
硬體故障	K16 (H'10)	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
CH1 接點空接 (轉換異常)	K256 (H'100)	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
CH2 接點空接 (轉換異常)	K512 (H'200)	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
CH3 接點空接 (轉換異常)	K1024 (H'400)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
CH4 接點空接 (轉換異常)	K2048 (H'800)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
CH5 接點空接 (轉換異常)	K4096 (H'1000)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
CH6 接點空接 (轉換異常)	K8192 (H'2000)	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0

註：每個錯誤狀態由相對應之位元決定，有可能會同時產生兩個以上之錯誤狀態，0代表正常無錯誤，1代表有錯誤狀態產生。

■ 溫度/數位特性曲線

攝（華）氏溫度量測模式：



鉑金	輸入溫度範圍		數位轉換範圍	
電阻	°C (Min. / Max.)	°F (Min. / Max.)	°C (Min. / Max.)	°F (Min. / Max.)
PT100	-180 ~ 800°C	-292 ~ 1,472°F	K-1,800 ~ K8,000	K-2,920 ~ K14,720
NI100	-80 ~ 170°C	-112 ~ 338°F	K-800 ~ K1,700	K-1,120 ~ K3,380
PT1000	-180 ~ 800°C	-292 ~ 1,472°F	K-1,800 ~ K8,000	K-2,920 ~ K14,720
NI1000	-80 ~ 170°C	-112 ~ 338°F	K-800 ~ K1,700	K-1,120 ~ K3,380

感谢您采用台达 DVP 系列产品。DVP06PT-S 温度测量模块可接受外部 6 点热阻温度传感器，将之转换成 16 位的数字信号。透过 DVP-PLC SS/ SA/SX/SC/SV 主机程序以指令 FROM/TO 来读写模块内的数据，模块内具有多个 CR (Control Register)寄存器，每个寄存器有 16 bits。电源单元与模块分离，体积小，安装容易。

- 本机为开放型 (OPEN TYPE) 机壳，因此使用者使用本机时，必须将其安装于具防尘、防潮及免于电击/冲击意外的外壳配线箱内。另必须具备保护措施（如：特殊的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，否则可能造成严重的损坏，因此请在上电之前再次确认电源配线。输入电源切断后，一分钟之内，请勿触摸内部电路。本体上的接地端子 ⏚ 务必正确的接地，可提高产品抗噪声能力。

■ 产品外观尺寸与部位介绍

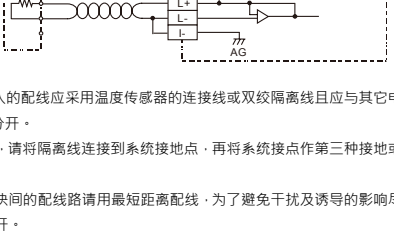
详细部位指示图与外观尺寸请参阅英文版[Figure1]，单位：mm。

1. 电源、错误及运行指示灯	2. 机种型号	3. DIN 轨固定扣
4. 端子	5. 端子配置	6. I/O 模块定位孔
7. 铭牌	8. I/O 模块连接口	9. I/O 模块固定扣
10. DIN 轨槽 (35mm)	11. I/O 模块固定槽	12. I/O 模块连接口

■ 输入/输出端子台配置

请参阅英文版[Figure2]的端子台配置示意图。

■ 外部配线



注1：使用于模拟输入的配线应采用温度传感器的连接线或双绞隔离线且应与其它电源线或可能引起干扰之接线分开。

注2：如果干扰过大，请将隔离线连接到系统接地点，再将系统接点作第三种接地或接到配电箱的机壳上。

注3：由待测物到模块间的配线路请用最短距离配线，为了避免干扰及诱导的影响尽可能将电源线和负载配线分开。

■ 电气规格

额定最大消耗功率	2W
操作/储存环境	1. 操作：0°C ~ 55°C（温度），5 ~ 95%（湿度），污染等级 2 2. 储存：-25°C ~ 70°C（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)
与DVP-PLC主机串接说明	模块编号以靠近主机的顺序自动编号由0到7，最大可连接8台且不占用数字I/O点数。

■ 功能规格

DVP06PT-S	摄氏 (°C)	华氏 (°F)
模拟讯号输入通道	6通道/台	
适合感应器形式	2线/3线PT100/ Ni100/ PT1000/ Ni100 3850 PPM/°C (DIN 43760 JIS C1604-1989)	
驱动电流	1.53mA / 204.8uA	
输入温度范围	请参阅温度/数字特性曲线附表	
数字转换范围	请参阅温度/数字特性曲线附表	
分辨率	16 bits (0.1°C)	16 bits (0.1°F)
总和精密度	±0.6% 在 (0 ~ 55°C, 32 ~ 131°F) 范围内满刻度时。	
响应时间	1s	
隔离方式	数字电路与模拟电路有隔离，通道间未隔离。 数字电路与接地之间：500VDC 模拟电路与接地之间：500VDC 模拟电路与数字电路之间：500VDC 24VDC与接地之间：500VDC	
数字数据格式	16位二补码	
平均功能	有 (CR#2)	
自我诊断功能	上下极限侦测/通道	

■ 控制寄存器（CR）

CR#	保持型		寄存器名称	说明
#0	O	R	机种型号	系统内定，DVP06PT-S机种编码= H'CA。
#1	X	R/W	CH1~CH4模式设定	CH1 模式：b0 ~ b3 CH2 模式：b4 ~ b7 CH3 模式：b8 ~ b11 CH4 模式：b12 ~ b15 以 CH1 设定(b3,b2,b1,b0) 说明，默认值 H'0000： 1. 设为(0,0,0,0)时，选用 PT100。 2. 设为(0,0,0,1)时，选用 NI100 3. 设为(0,0,1,0)时，选用 PT1000 4. 设为(0,0,1,1)时，选用 NI1000 5. 设为(1,1,1,1)时，通道 Disable
#2	X	R/W	CH1~CH6平均次数	通道CH1 ~ CH6信号的平均次数设定： 可设定范围K1 ~ K20，出厂默认值为K10。
#6	X	R	CH1测量摄氏温度平均值	通道CH1 ~ CH6测量摄氏温度平均值显示。单位0.1°C。
#7	X	R	CH2测量摄氏温度平均值	
#8	X	R	CH3测量摄氏温度平均值	
#9	X	R	CH4测量摄氏温度平均值	
#10	X	R	CH5测量摄氏温度平均值	
#11	X	R	CH6测量摄氏温度平均值	
#12	X	R	CH1测量华氏温度平均值	通道CH1测量华氏温度平均值显示。单位0.1°F。
#13	X	R	CH2测量华氏温度平均值	通道CH2 ~ CH6测量华氏温度平均值显示。单位0.1°F。
#14	X	R	CH3测量华氏温度平均值	

CR#	保持型		寄存器名称	说明
#15	X	R	CH4测量华氏温度平均值	
#16	X	R	CH5测量华氏温度平均值	
#17	X	R	CH6测量华氏温度平均值	
#18	X	R	CH1测量摄氏温度现在值	
#19	X	R	CH2测量摄氏温度现在值	
#20	X	R	CH3测量摄氏温度现在值	通道CH1 ~ CH6测量摄氏温度现在值显示。单位
#21	X	R	CH4测量摄氏温度现在值	0.1°C。
#22	X	R	CH5测量摄氏温度现在值	
#23	X	R	CH6测量摄氏温度现在值	
#24	X	R	CH1测量华氏温度现在值	
#25	X	R	CH2测量华氏温度现在值	
#26	X	R	CH3测量华氏温度现在值	通道CH1 ~ CH6测量华氏温度现在值显示。单位
#27	X	R	CH4测量华氏温度现在值	0.1°F。
#28	X	R	CH5测量华氏温度现在值	
#29	X	R	CH6测量华氏温度现在值	
#30	X	R	错误状态	储存所有错误状态的数据寄存器，详细内容请参照错误信息表。
#31	X	R/W	CH5~CH6模式设置	CH5 模式：b0 ~ b3 CH6 模式：b4 ~ b7 以 CH5 设定(b3,b2,b1,b0) 说明，默认值 H'0000： 1. 设为(0,0,0,0)时，选用 PT100 2. 设为(0,0,0,1)时，选用 NI100 3. 设为(0,0,1,0)时，选用 PT1000 4. 设为(0,0,1,1)时，选用 NI1000 5. 设为(1,1,1,1)时，通道 Disable
#32	X	R/W	CH5~CH6 ERR灯设置	1. b12对应CH5，当b12=1时，刻度超过ERR灯闪烁动作。 2. b13对应CH6，当b13=1时，刻度超过ERR灯闪烁动作。
#33	X	R/W	恢复出厂设定 CH1~CH4 ERR灯设置	b0 ~ b11恢复原厂默认值：写入H'924所有设定值将回复原厂设定值。 1. b12对应CH1，当b12=1时，刻度超过ERR灯闪烁动作。 2. b13对应CH2，当b13=1时，刻度超过ERR灯闪烁动作。 3. b14对应CH3，当b14=1时，刻度超过ERR灯闪烁动作。 4. b15对应CH4，当b15=1时，刻度超过ERR灯闪烁动作。
#34	O	R	韧体版本	16进制，显示目前韧体版本，如1.0A则 H'010A。
#35 ~ #48 系统内部使用				

1. CR#30 错误信息表：

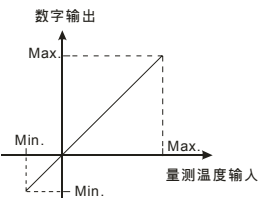
错误状态	内容值	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0

电源异常	K1 (H'1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
接点空接	K2 (H'2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
硬件故障	K16 (H'10)	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
CH1 接点空接 (转换异常)	K256 (H'100)	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
CH2 接点空接 (转换异常)	K512 (H'200)	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
CH3 接点空接 (转换异常)	K1024 (H'400)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
CH4 接点空接 (转换异常)	K2048 (H'800)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
CH5 接点空接 (转换异常)	K4096 (H'1000)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
CH6 接点空接 (转换异常)	K8192 (H'2000)	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0

注：每个错误状态由相对应之位决定，有可能会同时产生两个以上之错误状态，0代表正常无错误，1代表有错误状态产生。

■ 温度/数字特性曲线

摄（华）氏温度量测模式：



铂金	输入温度范围		数字转换范围	
电阻	°C (Min. / Max.)	°F (Min. / Max.)	°C (Min. / Max.)	°F (Min. / Max.)
PT100	-180 ~ 800°C	-292 ~ 1,472°F	K-1,800 ~ K8,000	K-2,920 ~ K14,720
NI100	-80 ~ 170°C	-112 ~ 338°F	K-800 ~ K1,700	K-1,120 ~ K3,380
PT1000	-180 ~ 800°C	-292 ~ 1,472°F	K-1,800 ~ K8,000	K-2,920 ~ K14,720
NI1000	-80 ~ 170°C	-112 ~ 338°F	K-800 ~ K1,700	K-1,120 ~ K3,380

Delta DVP serisi PLC'leri seçtiğiniz için teşekkürler. DVP06PT-S modülüne 6 ad RTD sıcaklık sensörü bağlanılabilir ve 16-bit dijital değere çevirir. Ayrıca DVP PLC CPU'da FROM/TO komutları kullanılarak DVP06PT-S modülünün içine veri yazılabilir veya okunabilir. DVP06PT-S modülünün içinde çok adet 16-bit kontrol register (CR) vardır. Ürünün beslemesi ayrı olup küçük boyutlu ve kurulumu kolaydır.

- DVP06PT-S ürünü AÇIK TİP bir aygıt olup toz, rutubet, elektrik şoku ve titreşimden uzak kapalı yerlerde muhafaza edilmelidir. Yanlış kullanım sonucu DVP06PT-S ürününün zarar görmesini önlemek için yetkili olmayan kişiler tarafından DVP06PT-S ürününe müdahale edilmesini önleyecek koruyucu önlemler alınmalıdır. (DVP06PT-S ürününün bulunduğu panoya kilit konulması gibi).
- Ürünün I/O terminallerine AC power bağlamayınız, aksi halde ürün zarar görebilir. DVP06PT-S ürününe enerji vermeden önce bağlantıları kontrol ediniz. DVP06PT-S ürününün enerjisi kesildikten sonra 1dk boyunca terminallere dokunmayınız. Elektromanyetik gürültüyü engellemek için, DVP06PT-S ürününün topraklama terminalinin ⏚ topraklamasının doğru olduğuna emin olunuz.

■ Ürün Görünüşü & Ölçüler

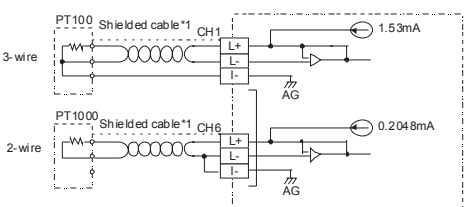
Lütfen sayfa 1'de (Şekil 1)'ye bakınız., Birim: mm.

1. Durum indikatör (POWER, RUN ve ERROR)	2. Model adı	3. DIN ray klipsi
4. I/O terminaller	5. I/O nokta indikatör	6. Montaj delikleri
7. Ürün Özellik Etiketi	8. I/O modul bağlantı portu	9. I/O modul klipsi
10. DIN ray (35mm)	11. I/O modül klipsi	12. I/O modül bağlantı portu

■ I/O Terminal Yerleşimi

Lütfen İngilizce versiyonu için sayfa 1 'ye bakınız.

■ Harici Bağlantı



Not 1: Ürüne giriş bağlantısı yaparken sıcaklık sensörünün orjinal kablosunu kullanınız ve bu kabloları gürültüden etkilenmemesi için güç kablolarından uzak tutunuz.

Not 2: Eğer gürültü varsa, ekran kablolarını sistem toprağına bağlayınız ve sistem toprağını topraklayınız veya dağıtım panosunun toprak terminaline bağlayınız.

Not 3: Lütfen sensör bağlantılarını sıcaklığı ölçülecek aygıta mümkün olduğunca yakın tutunuz ve elektriksel gürültü etkileşimini azaltmak için yüke bağlanan güç kablolarını mümkün olduğunca uzak tutunuz.

■ Elektriksel Özellikler

Max. güç tüketim oranı	2W
Çalışma/saklama	Çalışma: 0°C~55°C (sıcaklık), 5~95% (rutubet), kirlenme derecesi 2 Saklama: -25°C~70°C (sıcaklık), 5~95% (rutubet)
Titreşim/şok direnci	Uluslararası standartlar: IEC61131-2, IEC 68-2-6 (TEST Fc)/ IEC61131-2 & IEC 68-2-27 (TEST Ea)
DVP-PLC MPU'ya seri bağlantı	Modül CPU'ya bağlandığında uzaklığına göre sırasıyla otomatik olarak 0 – 7 arası numaralandırılır. En yakın modülün numarası "0" ve en uzaktaki modülün numarası "7" dir. Maksimum 8 adet özel modül bağlanabilir ve digital I/O işgal etmezler.

■ Fonksiyonel Özellikler

DVP06PT-S	Celsius (°C)	Fahrenheit (°F)
Analog giriş kanalı	Modül başına 6 kanal	
Sensors tipi	2-telli/3-telli PT100/ Ni100/ PT1000/ Ni100 3850 PPM/°C (DIN 43760 JIS C1604-1989)	
Akım eksitasyon	1.53mA / 204.8uA	
Sıcaklık giriş aralığı	Lütfen sıcaklık/dijital değer karakteristik eğrisini inceleyiniz.	
Digital dönüşüm aralığı	Lütfen sıcaklık/dijital değer karakteristik eğrisini inceleyiniz.	
Çözünürlük	16 bit (0.1°C)	16 bit (0.1°F)
Genel doğruluk	±0.6% tam skala 0 ~ 55°C (32 ~ 131°F)'de	
Cevap zamanı	1 saniye	
Izolasyon metodu	Digital ve analog devreler arasında izolasyon mevcut. Kanallar arası izolasyon yok. 500VDC Dijital devreler ve Toprak (Ground) arasında 500VDC Analog devreler ve Toprak (Ground) arasında 500VDC Analog devreler ve Dijital devreler arasında 500VDC 24VDC ve Toprak (Ground) arasında	
Digital data formatı	16-bit, 2'nin komplementi	
Ortalama fonksiyonu	Mevcut (CR#2)	
Self diagnostic fonksiyonu	Her kanal üst/alt limit algılama fonksiyonuna sahiptir.	

■ Kontrol Register

CR#	Kayıt		Register içeriği	Açıklama
#0	O	R	Model adı	Sistem tarafından ayarlanır: DVP06PT-S model kodu = H'CA.
#1	X	R/W	CH1~CH4 Mod ayarı	CH1 mod: b0 ~ b3 CH2 mod: b4 ~ b7 CH3 mod: b8 ~ b11 CH4 mod: b12 ~ b15 CH1 mod (b3,b2,b1,b0) örneğini alalım. Default değeri H'0000. 1. (0,0,0,0): PT100 2. (0,0,0,1): NI100 3. (0,0,1,0): PT1000 4. (0,0,1,1): NI1000 5. (1,1,1,1): kanal pasif.
#2	X	R/W	CH1~CH6 ortalama adeti	Number piece of readings used for the calculation of "average" temperature on channels CH1 ~ CH6 Ayar aralığı: K1~K20. Default ayarı K10.
#6	X	R	CH1 ortalama sıcaklık	CH1 ~ CH6 ortalama sıcaklık değeri. (Birim: 0.1°C).
#7	X	R	CH2 ortalama sıcaklık	
#8	X	R	CH3 ortalama sıcaklık	
#9	X	R	CH4 ortalama sıcaklık	
#10	X	R	CH5 ortalama sıcaklık	
#11	X	R	CH6 ortalama sıcaklık	
#12	X	R	CH1 ortalama sıcaklık	CH1 ~ CH6 ortalama sıcaklık değeri.

CR#	Kayıt		Register içeriği	Açıklama
#13	X	R	CH2 ortalama sıcaklık	(Birim: 0.1°F).
#14	X	R	CH3 ortalama sıcaklık	
#15	X	R	CH4 ortalama sıcaklık	
#16	X	R	CH5 ortalama sıcaklık	
#17	X	R	CH6 ortalama sıcaklık	
#18	X	R	CH1 mevcut sıcaklık	CH1 ~ CH6 mevcut sıcaklık değeri. (Birim: 0.1°C).
#19	X	R	CH2 mevcut sıcaklık	
#20	X	R	CH3 mevcut sıcaklık	
#21	X	R	CH4 mevcut sıcaklık	
#22	X	R	CH5 mevcut sıcaklık	
#23	X	R	CH6 mevcut sıcaklık	
#24	X	R	CH1 mevcut sıcaklık	CH1 ~ CH6 mevcut sıcaklık değeri. (Birim: 0.1°F).
#25	X	R	CH2 mevcut sıcaklık	
#26	X	R	CH3 mevcut sıcaklık	
#27	X	R	CH4 mevcut sıcaklık	
#28	X	R	CH5 mevcut sıcaklık	
#29	X	R	CH6 mevcut sıcaklık	
#30	X	R	Error (Hata) durumu	Hata kodu data register içine kaydedilir. Lütfen hata kodu tablosuna bakınız.
#31	X	R/W	CH5~CH6 Mod ayarı	CH5 mod: b0 ~ b3 CH6 mod: b4 ~ b7 CH5 mod (b3,b2,b1,b0) örneğini alalım. Default ayarı H'0000. 1. (0,0,0,0): PT100 2. (0,0,0,1): NI100 3. (0,0,1,0): PT1000 4. (0,0,1,1): NI1000 5. (1,1,1,1): Kanal pasif.
#32	X	R/W	CH5~CH6 Hata LED indikatör ayarı	1. b12 CH5'e karşılık gelir. b12=1 ise, skala aralığı aştı ve Error LED flash yapar. 2. b13 CH6'ya karşılık gelir. b13=1 ise, skala aralığı aştı ve Error LED flash yapar.
#33	X	R/W	Fabrika Ayarlarına Reset CH1~CH4 Error LED indikatör ayarı	Eğer b0~b11 değeri H'924 ise, tüm ayarlar fabrika ayarına resetlenir. 1. b12 CH1'e karşılık gelir. b12=1 ise, skala aralığı aştı ve Error LED flash yapar. 2. b13 CH2'ye karşılık gelir. b13=1 ise, skala aralığı aştı ve Error LED flash yapar. 3. b14 CH3'e karşılık gelir. b14=1 ise, skala aralığı aştı ve Error LED flash yapar. 4. b15 CH4'e karşılık gelir. b15=1 ise, skala aralığı aştı ve Error LED flash yapar.
#34	O	R	Yazılım versiyonu	Yazılım versiyonunu heksadesimal olarak gösterilir. Örn:H'010A = versiyon 1.0A
#35 ~ #48 Sistem kullanır				

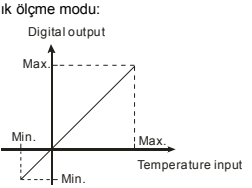
1. CR#30 hata kodu (error code) register. Aşağıdaki tabloyu inceleyiniz:

Hata açıklaması	İçerik	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Güç kaynağı anormal	K1 (H'1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Kontak herhangi bir şeye bağlı değil	K2 (H'2)	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Donanım hatası	K16 (H'10)	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
CH1 kontağı herhangi bir şeye bağlı değil (Anormal dönüşüm)	K256 (H'100)	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
CH2 kontağı herhangi bir şeye	K512	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0

Hata açıklaması	İçerik	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
bağlı değil (Anormal dönüşüm)	(H'200)																
CH3 kontağı herhangi bir şeye bağlı değil (Anormal dönüşüm)	K1024 (H'400)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
CH4 kontağı herhangi bir şeye bağlı değil (Anormal dönüşüm)	K2048 (H'800)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
CH5 kontağı herhangi bir şeye bağlı değil (Anormal dönüşüm)	K4096 (H'1000)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
CH6 kontağı herhangi bir şeye bağlı değil (Anormal dönüşüm)	K8192 (H'2000)	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Not: Her hata kodu bir bite karşılık gelir. İki veya daha fazla hata aynı anda meydana gelebilir. 0 normal durumu 1 ise hata olduğunu gösterir.																	

■ Sıcaklık/Dijital Değer Karakteristik Eğrisi

Santigrat (Fahrenhayt) sıcaklık ölçme modu:



Platinyum resistor	Sıcaklık aralığı		Dijital değer dönüşüm aralığı	
	°C (Min./Max.)	°F (Min./Max.)	°C (Min./Max.)	°F (Min./Max.)
PT100	-180 ~ 800°C	-292 ~ 1,472°F	K-1,800 ~ K8,000	K-2,920 ~ K14,720
NI100	-80 ~ 170°C	-112 ~ 338°F	K-800 ~ K1,700	K-1,120 ~ K3,380
PT1000	-180 ~ 800°C	-292 ~ 1,472°F	K-1,800 ~ K8,000	K-2,920 ~ K14,720
NI1000	-80 ~ 170°C	-112 ~ 338°F	K-800 ~ K1,700	K-1,120 ~ K3,380

TÜRKİYE
İTHALATÇI FİRMA

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