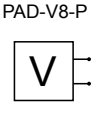
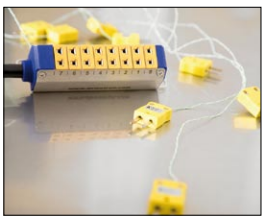
Selection Guide

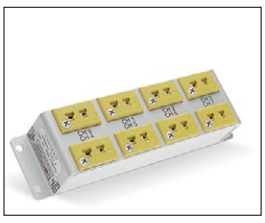
PAD Series Modules

- *Multi channel*
- *Low bandwidth - for static signals*
- *Isolation*
- *Digital output (RS-485)*
- *Exchangeable*
- *For DEWETRON systems with built-in DAQ rack*

Module	# CH	Input type	Ranges	Bandwidth (BW), Filters (FILT)	Isolation (ISO), Overvoltage protection (OP)	Special functions
Voltage measurement						
PAD-V8-P  	8	Voltage,	up to ±50 V	BW: 6 Hz	ISO: 350 V_{DC}	separate 24 bit
		current with external shunt	±20 mA	FILT: 1 / 4 / 8 values	OP: 150 V_{DC}	A/D per channel
Temperature and ohmic measurement						
PAD-TH8-P  	8	Voltage	±15, ±50, ±100, ±150 mV, -150 mV to +1.5 V,	BW: 6 Hz FILT: 1 / 4 / 8 values	ISO: 350 V_{DC} OP: 15 V_{DC}	separate 24 bit A/D per channel
		Thermocouple	Thermocouple type J, K and T			
PAD-TH8-P + CB8-RTD 	8	Thermoresistors	Pt100, Pt200, Pt500, Pt1000, Pt2000, Ni120	BW: 6 Hz FILT: 1 / 4 / 8 values	ISO: 350 V_{DC} OP: 15 V_{DC}	separate 24 bit A/D per channel
		Resistors	up to 2 kOhm			
Digital out, analog out						
PAD-DO7  	7	Digital output	Relay outputs (dry contacts)	-	ISO: 300 V_{DC}	max load: 0.5 A @ 60 V_{AC}, 1 A @ 24 V_{DC}
Voltage output module						
PAD-AO1  	1	Voltage output	0 to 10 V	-	ISO: 300 V_{DC}	
		current output	0 to 20 mA, 4 to 20 mA			

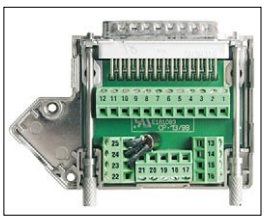


PAD-CB8-x-M
Miniature thermocouple connection block for PAD-TH8-P modules

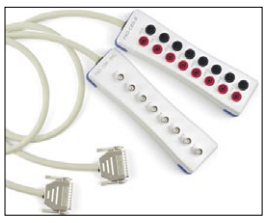


PAD-CB8-x-P2
Standard thermocouple connection block for PAD-TH8-P modules

PAD-CB8-RTD
Connect up to 8 RTD sensors (or resistors) to PAD-TH8-P modules



PAD-OPT1
Screw terminal adapter including cold junction compensation (CJC) for PAD-TH8-P modules



PAD-CB8-x
BNC or banana plugs for easy signal connection to PAD-V8-P modules

PAD-V8-P — 8 channel voltage module

- *Input channels:* 8 differential input channels
- *A/D conversion* 8 internal 24 bit A/D converters
- *Bandwidth:* 6 Hz
- *Isolation:* 350 V_{DC}
- *Signal connection:* 25-pin SUB-D connector

Module specifications (for revision 6.00 or higher)

	PAD-V8-P
Input channels	8 differential input channels
Input signals	
Voltage	±100 mV, ±150 mV, ±500 mV, ±1 V, ±2.5 V, ±5 V, ±10 V, ±50 V, -0.15 to +1.5 V
Current	With external shunt resistor
Resolution	10 µV for all ranges
Sampling rate	Max. 12 Hz per channel
Readout speed	Typ. 80 ch/sec.*
DC accuracy	±0.02 % of reading ±900 µV
Bandwidth (-3 dB)	6 Hz (±1.5 dB @ f0)
Isolation voltage	350 V_{DC} (channel to channel and input to output)
Overvoltage protection	150 V_{DC}
Common mode voltage	350 V_{DC} / 250 V_{AC} @ 50 Hz
NMR	120 dB @ 50/60 Hz
CMRR	140 dB @ DC, 120 dB @ 50 Hz
RS-485 interface	Yes
Interface speed	9600 bps (2400 to 115200)
Power supply voltage	±9 V_{DC} (±10 %)
Power consumption	Typical 0.6 W

*) Depending on system and number of channels

PAD-TH8-P — *8 channel thermocouple and RTD module*

- *Input channels:* *8 differential input channels*
  Thermocouple: requires PAD-CB8-x breakout box
  RTD:requires PDA-CB8-RTD breakout box
- *A/D conversion* *8 internal 24 bit A/D converters*
- *Bandwidth:* *6 Hz*
- *Isolation:* *350 V_{DC}*
- *Signal connection:* *25-pin SUB-D connector*

Module specifications (for revision 6.00 or higher)

	PAD-TH8-P
Input channels	8 differential input channels
Input voltage	±1.5 V
Input resistance	1.4 MΩ
Gain linearity	0.001%
Bandwidth	6 Hz
Resolution	1 µV (24-bit)
Temperature drift	30 ppm/°K
Typical noise	2 µV
DC accuracy	Better ±0.05 % ±200 µV (typ. ±0.03 % F.S. ±20 µV)
Sampling rate	Max. 12 Hz per channel
Readout speed	Typ. 80 ch/sec.*
Isolation voltage	350 V_{DC} (channel to channel and input to output)
Overvoltage protection	15 V_{DC}
Channel to channel voltage	100 V_{DC}
NMR (50/60 Hz)	120 dB
CMRR (50/60 Hz)	130 dB
RS-485 interface	Yes
Interface speed	9600 bps (2400 to 115200)
Power supply voltage	±9 V_{DC} (±10 %)
Power consumption	Typical 0.6 W
*) Depending on system and number of channels	

PAD-CB8-RTD *8 channel RTD connector block for PAD-TH8-P*

- *Input channels:* *8 RTD channels, type Pt100, Pt200, Pt500, Ni120, ...*
- *Sensor supply:* *galvanically isolated to PAD-TH8-P module*

Specifications

	PAD-CB8-RTD			
Input channels	8 RTDs			
Constant current	1250 µA (CB8-RTD-S3: 250 µA)			
Constant current drift	5 ppm/°K			
Connection types	2-, 3- or 4-wire			
Standard input ranges	Resistor 0 to 999,99 Ohm, Pt100 a = 0.00385; Pt100 a = 0.003916; Pt200; Pt500; Ni120			
CB8-RTD-S3	Resistor 0 to 999,99 Ohm, Pt100 a = 0.00385; Pt100 a = 0.003916; Pt200; Pt500; Pt1000; Pt2000			
Accuracy	Pt100 a = 0.00385 ±0.25 °C @ -200 to 100 °C ±0.4 °C @ 100 to 400 °C ±0.8 °C @ 400 to 800 °C	Pt100 a = 0.003916 ±0.25 °C @ -200 to 100 °C ±0.4 °C @ 100 to 400 °C ±0.8 °C @ 400 to 800 °C	Pt200 a = 0.00385 ±0.25 °C @ -200 to 100 °C ±0.4 °C @ 100 to 400 °C ±0.5 °C @ 400 to 630 °C	Pt500 a = 0.00385 ±0.25 °C @ -200 to 100 °C ±0.4 °C @ 100 to 250 °C
	Pt1000 a = 0.00385 ±0.25 °C @ -200 to 100 °C ±0.4 °C @ 100 to 400 °C ±0.8 °C @ 400 to 600 °C	Pt2000 a = 0.00385 ±0.25 °C @ -200 to 100 °C ±0.4 °C @ 100 to 400 °C ±0.8 °C @ 400 to 600 °C	Ni120 ±0.3 °C @ -80 to 100 °C ±0.6 °C @ 100 to 260 °C	
Typical noise	0.01 °C			
Operating temperature	-25 to +80 °C			
Cabel length	2m (up to 12 m on request)			
Dimensions (WxDxH)	approx. 196 x 57 x 32.2 mm (7.7 x 2.2 x 1.3 in.)			

PAD-CB8-x-M and PAD-CB8-x-P2 *8 channel thermocouple connector block for PAD-TH8-P*

- *Input channels:* *8 thermocouple*
- *Thermocouple type:* *versions for K, J, T*

Specifications

	PAD-CB8-x-P2 and PAD-CB8-x-M		
Input channels	8 isolated thermocouple input channels		
Accuracy	Thermocouple type J: ±1.0 °C @ -200 to -100 °C ±0.3 °C @ -100 to 150 °C ±0.4 °C @ 150 to 400 °C ±1 °C @ 400 to 1200 °C	Thermocouple type K: ±1.0 °C @ -200 to -25 °C ±0.4 °C @ -25 to 120 °C ±0.6 °C @ 120 to 400 °C ±1 °C @ 400 to 1372 °C	Thermocouple type T: ±1.0 °C @ -200 to -150 °C ±0.4 °C @ -150 to 400 °C
	Thermocouple type E, R, S, N, C or other types on request		
Typical noise	±0.1 °C @ 6 Hz sampling; no average		
CJC	Internal		
Operating temperature	-25 to +80 °C (better on request)		
Cable length	2 m (up to 12 m on request)		

PAD-DO7 — 7 channel relay output module

- *Output channels:* *7 relay output channels*
- *Isolation:* *300 V_{RMS}*
- *Signal connection:* *25-pin SUB-D connector*

Module specifications

	PAD-DO7
Number of channels	7 relay output channels
Relay type	Form ‚A' relay SPST N.O. with dry contacts
Max. load	0.5 A (60 V_{AC}) 1 A (24 V_{DC})
Isolation voltage	300 V_{RMS}
Relay on time	Typical 5 ms
RS-485 interface	Yes
Interface speed	9600 bps
Power supply voltage	+12 V_{DC} (±10 %)
Power consumption	Typical 1.0 W

PAD-AO1 — 1 channel analog output module

- *Output channels:* *1 output channel*
- *Isolation:* *300 V_{DC}*
- *Signal connection:* *25-pin SUB-D connector*

Module specifications

	PAD-AO1
Number of channels	1 output channel
Output signals	
Voltage	0 to 10 V
Current	0 to 20 mA or 4 to 20 mA
Resolution	12-bit
Accuracy	±0.1 % of FSR
Readback accuracy	±1 % of FSR
Resolution	±0.02 % of FSR
Zero drift	
Voltage output	±30 µV/°C
Current output	±0.2 µA/°C
Span temp. coefficient	±25 ppm/°C
Programmable output slope	0.125 to 1024 mA/sec or 0.0625 to 512 V/sec
Current load resistor	500 Ohm
Isolation	300 V_{DC}
RS-485 interface	Yes
Interface speed	9600 bps
Power supply voltage	+12 V_{DC} (±10 %)
Power consumption	Typical 1.2 W