PTMM evo

LOW POWER CONSUMPTION

Product description

PTMM evo is a further development of the PTMM series and available in two versions with four or eight measurement channels.

Another prominent feature is the extended operating temperature range of -40 °C to +125 °C. Last but not least, the modules' power consumption could be further reduced. Thanks to a measurement data rate of 100 Hz per channel, **PTMM evo** is a perfect choice for measurement applications using sensors with short response times.

To achieve best possible accuracy results, **PTMM evo** modules can be parameterized by means of individual PT coefficients (R0, A, B and C). This allows the use of low-accuracy PT sensors if required.

Key features

- ***4 or 8 inputs for PT100 and PT1000 sensors***
- ***High measurement data rate of 100 Hz for the acquisition of fast temperature gradients***
- ***Individual PT coefficients can be entered for best possible sensor adjustment***
- ***TEDS ready: Prepared for TEDS-capable PT sensors***
- ***Operating temperature range from -40° C to +125° C***
- ***Low power consumption, typ. 0.9 W (PTMM 4 evo)***

Shipping content

- Measurement module PTMM 4 evo or PTMM 8 evo
- Configuration software CSMconfig
- Documentation
- Calibration certificate

Maintenance

- Calibration every 12 months recommended

Accessories

- See datasheet "CAN Accessories"

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Technical data

Type designation	PTMM 4 evo	PTMM 8 evo
		
Measurement inputs	4	8
	for PT100 / PT1000 sensors, configurable via CSMconfig	
Measurement range	-50 °C to +500 °C	
Internal resolution	16 bit	
Internal sampling rate per ch.	10 kHz	5 kHz
Measurement data rate / sending rate per ch.	1, 2, 5, 10, 20, 50, 100 Hz	
HW input filter	low-pass filter, 3rd order, approx. 2.5 kHz	low-pass filter, 3rd order, approx. 500 Hz
SW input filter	FIR filter (Finite Impulse Response) threshold frequency automatically adjusted to measurement data rate	
Linearization	via individual PT coefficients R0, A, B and C	
TEDS support [1)]	according to standard IEEE 1451.4 (Class 2)	
Broken sensor detection	yes	
Measurement current	PT100: 1 mA, PT1000: 100 µA	
Measurement deviation [2)]		
Gain error at 25 °C	max. ±0.1 % of measured value	
Offset and scaling error	max. ±0.2 K	
Gain drift	max. ±10 ppm/K of measured value	
Zero drift	max. ±5 mK/K	
Galvanic isolation [3)]	no safety isolation in terms of high-voltage applications	
CAN / channel	500 V	
CAN / power supply	500 V	
CAN interface	CAN 2.0B (active), High Speed (ISO 11898-2:2016) 125 kbit/s to 1 Mbit/s, up to 2 Mbit/s with CSMcan interface, data transfer rate is free running	
Configuration	via CAN bus with CSMconfig settings and configuration data stored in the device alternatively: configuration and data transfer via CANopen protocol [4)]	
Power supply		
Minimum	6 V DC (-10 %)	
Maximum	50 V DC (+10 %)	
Power consumption	typ. 0.9 W	typ. 1.3 W
LED indicator	power / status	

Type designation	PTMM 4 evo	PTMM 8 evo
Housing [5]	aluminum, gold anodized	
Protection class	IP67	
Weight	approx. 300 g	approx. 500 g
Dimensions (w × h × d)	approx. 120 × 32 × 50 mm approx. 120 × 37 × 50 mm (Slide Case)	approx. 200 × 35 × 50 mm approx. 200 × 40 × 50 mm (Slide Case)
Sockets [5]		
CAN / power supply	LEMO 0B, 5-pole, code G	
Signal inputs	LEMO 0B, 6-pole, code A	
Operating and storage conditions		
Operating temperature range	-40 °C to +125 °C	
Relative humidity	5 % to 95 % (non-condensing)	
Pollution degree	3	
Storage temperature	-55 °C to +150 °C	
Conformity	CE	
Part numbers		
Standard	ART1013401	ART1013501
Slide Case	ART1013400	ART1013500

[1] Hardware prepared for TEDS support. In order to make use of TEDS sensors, the measurement module has to be equipped with 6-pole measurement inputs.

[2] In interference-polluted environments or at operating temperatures above +110 °C, additional measurement errors can occur. Further information can be found in the Technical Information document on the subject of “Deviation of Measurement”.

[3] These MiniModules are designed for measurements in vehicles with 12 V, 24 V, or 48 V on-board power supply systems. The maximum operating voltage at the measurement inputs is 60 V. Not suitable to be directly connected to systems with higher operating voltages, e.g. high-voltage batteries of hybrid or electric vehicles.

[4] The only CANopen version currently available is PTMM 4 evo.

[5] Optionally available in other variants

additional products

HV PTMM 2

Measurement module HV PTMM 2 features two measurement inputs in 4-wire-connection for PT100 and PT1000 sensors and has been especially designed for precise temperature measurements in high-voltage environments. HV PTMM 2 is excellently suited for measuring the temperature of individual battery cells and battery packs in high-voltage batteries. Due to the thin-film design of specific foil PT sensors, it is possible to precisely monitor the temperature of battery cells, even under very confined conditions.

HV PT-TBM 8

Like the HV PTMM 2, measurement module HV PT-TBM 8 /65 has been designed for precise temperature measurements with PT100/PT1000 sensors in high-voltage environments. This device is equipped with eight measurement inputs and, as a 19 inch measurement module, it is particularly suited for measurement applications in test benches.

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CSM GmbH Germany is certified.

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