# PTMM evo

## 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. 0.85 W (PTMM 4 evo)

## Scope of delivery

- ▶ Measurement module PTMM 4 evo or PTMM 8 evo
- ▶ Configuration software CSMconfig
- ▶ Documentation
- ▶ Calibration certificate in accordance with DIN EN ISO/IEC 17025

## 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 |
|---|---|---|
| |  |  |
| **Technical data valid as of revision** | D000 ||
| **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 channel | 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 suitable CAN 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. 0.85 W | typ. 1.25 W |
| LED indicator | power/status ||

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|---|---|---|
| **Housing** [5] | aluminum, gold anodized | |
| Protection class | IP67 | |
| Weight | approx. 300 g | approx. 500 g |
| Dimensions (w × h × d) | approx. 120 × 32 × 50 mm<br>approx. 120 × 37 × 50 mm (Slide Case) | approx. 200 × 35 × 50 mm<br>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** | C E | |

[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

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