

HV PT8



Product description

The **HV PT8** measurement module features eight measurement inputs in 4-wire-connection for PT100 and PT1000 sensors, and has been especially designed for precise temperature measurements in high-voltage environments. The 19-inch version has been specifically designed for test bench applications.

The **HV PT8** measurement module 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 limited space conditions.

Scope of delivery

- ▶ Measurement module HV PT8
- ▶ Configuration software CSMconfig
- ▶ Documentation
- ▶ Calibration certificate in accordance with DIN EN ISO/IEC 17025
- ▶ HV isolation test certificate



Key features

- ▶ 8 inputs in 4-wire connection for PT100 and PT1000 sensors with reinforced insulation
- ▶ Individual PT coefficients can be entered for best possible sensor adjustment
- ▶ Type approval test and routine test according to safety standard EN 61010


Maintenance

- ▶ HV isolation test at least every 12 months, see EN 61010 for scope of testing
- ▶ Calibration every 12 months recommended

Accessories

- ▶ See datasheet "CAN Accessories"

Technical data

Type designation	HV PT8
	
Measurement inputs	8 inputs in 4-wire connection for PT100 and PT1000 sensors, configurable via software
Measurement ranges	-50 °C to +100 °C and -100 °C to +500 °C
Internal resolution	16 bit
Internal sampling rate per ch.	8 kHz
Measurement data rate/sending rate per channel	1, 2, 5, 10, 20, 50, 100 Hz adjustable per module or per channel via configurable CAN identifier
HW input filter	4th order Butterworth filter (cutoff frequency approx. 2.5 kHz ¹)
SW input filter	FIR filter (Finite Impulse Response) cutoff frequency automatically adjusted to measurement data rate median11 filter, single or double internal clock rate
Channel-specific comments	free text consisting of up to 100 characters per channel
Linearization	via individual PT coefficients R0, A, B and C
Measurement current	PT100: 500 µA, PT1000: 400 µA
Measurement deviation ²	
Gain error at 25 °C	max. ±0.1 % of measured value
Offset and scaling error	max. ±0.25 K (PT100) / ±0.175 K (PT1000)
Gain drift	max. ±10 ppm/K of measured value
Zero drift	max. ±3 mK/K
Fields of application ³	for measurements in HV environments ⁴
Working voltages ⁴	up to 846 V DC
Isolation test ³	
Routine test	test voltage ⁴ 3,100 V DC
Reinforced insulation ^{3, 4}	
Channel/channel	846 V
Channel/CAN	846 V
Channel/power supply	846 V
Functional insulation	
CAN/power supply	designed for supply voltages 12 V and 24 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 free running
Configuration	via CAN bus with CSMconfig or CSM INCA AddOn, settings and configurations stored in the device

Type designation	HV PT8
Power supply	
Minimum	6 V DC (-10 %)
Maximum	30 V DC (+10 %)
Power consumption	typ. 3 W
LED indicator	
CAN	power/status
Measurement channels	configuration/operation
Housing	aluminum with HV designation on the front-side (RAL 2003)
Protection class	IP65
Ground connection	M6 threaded hole
Mounting	19 inch
Weight (device)	approx. 735 g
Dimensions (w × h × d)	19 HP (approx. 96 mm) 3 U (approx. 129 mm) 100 mm (+ 25 mm protective bracket)
Connectors	
CAN/power supply ⁵	LEMO 0B, 5-pole, code G
Signal inputs	LEMO Redel 2P, 8-pole, code C (grey)
Operating and storage conditions	
Operating temperature range	-40 °C to +85 °C
Relative humidity	5 % to 95 % (non-condensing)
Operating altitude	max. 5,000 m above sea level
Pollution degree	3
Storage temperature	-40 °C to +85 °C
Conformity⁶	CE
Device safety	EN 61010-1:2020+COR1:2022, +COR2:2023 EN 61010-2-030:2022

¹ As of hardware revision A003. For older hardware revisions, a frequency of 5 kHz applies.

² In interference-polluted environments, additional measurement errors can occur.
Further information can be found in the Technical Information document on the subject of "Deviation of Measurement".

³ Please read the CSM document "Safety Instructions HV PT-TBM"

⁴ According to EN 61010-1:2020, +COR1:2022, +COR2:2023, EN 61010-2-030:2022

⁵ Optionally available in other variants

⁶ The measurement modules are designed for cable lengths < 3 m.



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