HV PT2

Product description

The **HV PT2** measurement module 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.

The **HV PT2** 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 special foil PT sensors, it is possible to precisely monitor the temperature of battery cells, even under very limited space conditions

Key features

- 2 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
- Low power consumption typ. 1W

Scope of delivery

- Measurement module HV PT2
- Configuration software CSMconfig
- Documentation
- Calibration certificate in accordance with DIN EN ISO/IEC 17025
- HV isolation test certificate

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 PT2
	
Measurement inputs	2 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) threshold frequency automatically adjusted to measurement data 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 CSMcan 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 PT2
Power supply	
Minimum	6 V DC (-10 %)
Maximum	30 V DC (+10 %)
Power consumption	typ. 1 W
LED indicator	power/status
Housing [5]	aluminum with HV designation on the front-side (RAL 2003)
Protection class	IP67
Ground connection	M6 threaded hole
Weight	approx. 350 g
Dimensions (w × h × d)	approx. 130 × 33 × 75 mm/approx. 130 × 38 × 75 mm (Slide Case)
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 +100 °C
Relative humidity	5 % to 95 % (non-condensing)
Operating altitude	max. 5,000 m above sea level
Pollution degree	4
Storage temperature	-40 °C to +100 °C
Conformity [6]	CE
Device safety	EN 61010-1:2020+COR1:2022 EN 61010-2-030:2022

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

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

[3] Please read the CSM document "Safety Instructions HV PT2"

[4] According to EN 61010-1:2020+COR1:2022 with 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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