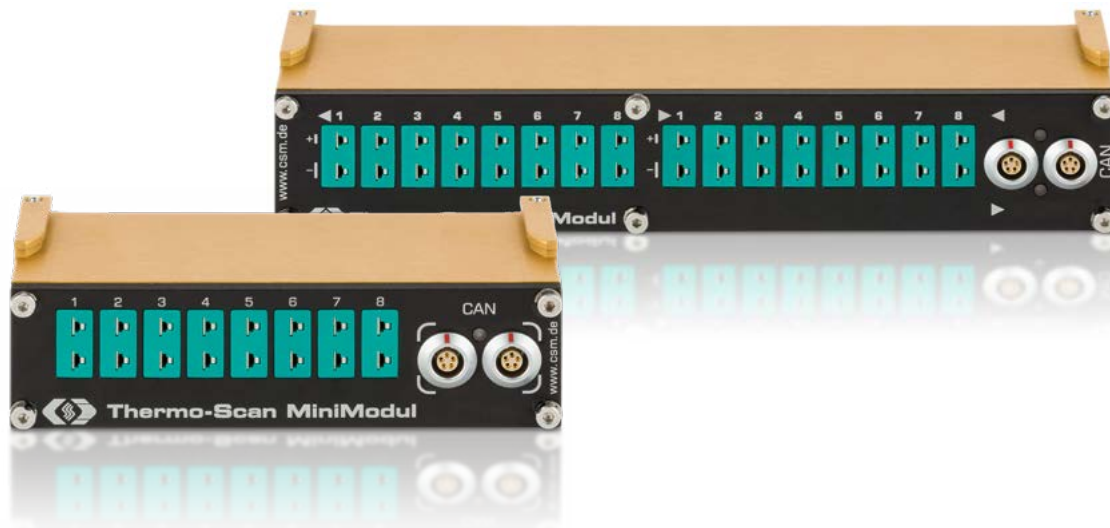




THMM classic



Measurements at high operating temperatures

THMM classic measurement modules are equipped with 8 or 16 signal inputs for temperature measurements with thermocouples and are designed for applications used under extreme operating temperatures, like e.g. in engine compartments. The measurement inputs are equipped with NiCr-Ni mini thermo connectors. The maximum measurement data rate per channel is 10 Hz.

Measurement module **THMC 8** provides 8 measurement inputs and is equipped with one LEMO 2B NiCr-Ni multi-connector. The usage of **THMC 8** measurement modules with multi connectors is recommended if the devices need to be changed frequently and rapidly.

Shipping content

- ▶ MiniModule THMM classic
- ▶ Configuration software CSMconfig
- ▶ Documentation
- ▶ Calibration certificate in accordance with DIN EN ISO/IEC 17025

Key features

CAN

- ▶ *Internal cold junction compensation per channel*
- ▶ *Very good measurement accuracy under difficult temperature ranges and environmental conditions*
- ▶ *Very low power consumption*

Maintenance


- ▶ Calibration every 12 months recommended

Accessories

- ▶ See datasheet "CAN Accessories"

Technical data

Type designation	THMM 8 classic	THMM 16 classic	THMC 8
			
Measurement inputs	8 NiCr-Ni	16 NiCr-Ni	8 NiCr-Ni
Measurement ranges	-100 °C to +1372 °C		
Internal resolution	16 bit		
Internal sampling rate per ch.	1 kHz		
Measurement data rate per ch.	1, 2, 5, 10 Hz		
HW input filter	low-pass filter 250 Hz ¹⁾		
SW input filter	FIR filter (Finite Impulse Response) threshold frequency automatically adjusted to measurement data rate		
Input protection ²⁾			
Operational safety	±60 V permanent		
Device safety	±100 V permanent, additional ESD protection		
Broken sensor detection	yes		
Cold junction compensation	internal reference per channel		
Measurement uncertainty			
Gain error at 25 °C	max. ±0.05 % of measured value		
Offset and scaling error	max. ±0.3 K		
Gain drift	max. ±10 ppm/K		
Zero drift	max. ±4 mK/K		
Galvanic isolation ³⁾	no safety isolation in terms of high-voltage applications		
Channel / channel	500 V		
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 max. 1 Mbit/s, data transfer "free running"		
Configuration	via CAN bus with CSMconfig or CSM INCA AddOn settings and configurations are stored in the device		
Power supply			
Minimum	6V DC (-10 %)		
Maximum	50V DC (+10 %)		
Power consumption	typ. 1.0 W	typ. 1.4 W	typ. 0.8 W ⁴⁾
LED indicator			
CAN	Power (green), status (red)		

Type designation	THMM 8 classic	THMM 16 classic	THMC 8
Housing	aluminium, gold anodized		
Protection class	IP65		IP67
Weight	approx. 300 g	approx. 500 g	approx. 200 g
Dimensions (w × h × d)	approx. 120 × 33 × 50 mm / approx. 120 × 37 × 50 mm (Slide Case)	approx. 200 × 36 × 50 mm / approx. 200 × 40 × 50 mm (Slide Case)	approx. 50 × 32 × 6 mm (front) approx. 35 × 29 × 100 mm (housing)
Connectors			
CAN / power supply	LEMO 0B, 5-pole, code G ⁵⁾		
Signal inputs	Miniature thermo connectors		LEMO 2B NiCr-Ni multi-connector
Operating and storage conditions			
Operating temperature range	-40 °C to +125 °C		
Relative humidity	5 % to 95 %		
Pollution degree	3		
Storage temperature	-55 °C to +150 °C		
Conformity			
			

¹ THMC 8: 250 Hz as of hardware revision B, the threshold frequency of previous revisions is 15 Hz.

² Observe information regarding the intended use. See CSM document "Safety Instructions MiniModules".

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 THMC 8: 0.8 W as of hardware revision B, the typical power consumption of previous revisions is 1.0 W.

⁵ Optionally available in other variants.

additional products

PTMM evo

PTMM evo MiniModules are designed for temperature measurements with PT100 and PT1000 elements and are available in different housings.



HV THMM 4

HV THMM 4 MiniModules are especially designed for safe temperature measurements on high-voltage components and are excellently suited for applications in the field of e-mobility.





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