



# Thermo-Scan MiniModul classic

- ▶ Extremely compact CAN bus measurement modules
- ▶ 8 or 16 completely electrically isolated NiCr-Ni temperature inputs (type K)
- ▶ Internal cold junction compensation per channel
- ▶ Outstanding measurement precision under all temperature and environmental conditions
- ▶ Unrivalled low power consumption
- ▶ Operating temperature: -40°C to +125°C
- ▶ Robust aluminium housing: IP65/IP67
- ▶ Excellent price-performance ratio

The measurement modules of the CSM MiniModule family address the severe environmental conditions and complex measurement demands of automotive measurement technology. Originally developed for use inside engine compartments, these modules are designed to operate in extreme temperature and environmental conditions, and are very compact in size. All CSM MiniModules deliver excellent technical specifications, and an outstanding price-performance ratio.

Customer-driven in their concept, these modules are for thermocouple temperature measurements. All connectors are located on the front side of the modules, which assists in addressing important handling considerations. Three different housing styles are available – all housing styles can be used in any combination.

## **Thermo-Scan 8/16 classic** (THMM 8/16 classic)

The device is configured as an **8- or 16-channel** module with **8/16 NiCr-Ni Mini Thermo Connectors**. The most cost effective, easy-to-use, and flexible solution for many applications.

This THMM 8/16 classic is available with or without Slide Case mounting mechanism.

## **Thermo-Scan MC** (THMC 8c)

The device is configured as an **8-channel** module with a single **LEMO 2B NiCr-Ni Multi-Connector**. This module can be installed in very small spaces. The signal cable consists of Teflon-coated thermocouple wires.



THMC 8

THMM 8 classic (Slide Case Small)

THMM 16 classic (Slide Case Large)

The pins of the Multi-Connector are made of NiCr-Ni material, which is very important for measurement accuracy. This solution is preferred if modules often have to be changed quickly

## **Shipping content**

CAN bus MiniModul, CSM ConfigTool, documentation, calibration certificate in accordance with DIN EN ISO/IEC 170025.

## **Maintenance**

We recommend a calibration interval of 1 year. For further technical information and references please ask our technical sales and distribution.

## **Part numbers**

ART1012102THMM 8 classic (Slide Case)

ART1012101 THMM 8 classic

ART1012700THMM 16 classic (Slide Case)

ART1012701 THMM 16 classic

ART0201013THMC 8

## **Accessories**

Cables for CAN and power supply, CAN adapter cables, CAN bus termination, signal cables for THMC, and various mechanical mounting solutions. For further details please consult the data sheet "**MiniModul Accessories**".

## Specifications Thermo-Scan MiniModul classic

Technical Data	THMM 8 classic	THMM 16 classic	THMC 8
<b>Inputs</b>	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 250 kHz	low-pass 15 Hz	
SW input filter	<b>FIR-Filter (Finite Impulse Response)</b> Threshold frequency automatically adjusted to measurement data rate		
Input protection <sup>(1)</sup>	±60 V permanent		
Operational safety	±100 V permanent, additional ESD protection		
Device safety	yes		
Broken sensor detection	internal reference per channel		
Cold junction compensation			
<b>Measurement accuracy</b> at 25 °C	typ. 0.05 %		
Temperature drift	typ. ± 10 ppm/K		
<b>Galvanic insulation</b> <sup>(2)</sup>	no safety insulation in terms of high-voltage applications		
Channel/channel	500 V		
CAN/channel	500 V		
CAN/power supply	500 V		
<b>CAN interface</b>	CAN2 0B (active), High Speed (ISO11898) 125 kBit/s up to max. 1 MBit/s, data transfer is free running via CAN-Bus with CSM ConfigTool or CSM INCA AddOn, settings and configurations stored in the device alternatively: configuration and data transfer via CANopen protocol <sup>(3)</sup>		
<b>Power supply</b>	6 V DC (-10 %)		
Minimum	50 V DC (+10 %)		
Maximum	typ. 1.0 W	typ. 2.0 W	typ. 1.0 W
Power consumption	LED: power (green) / status (red)		
LED indicator	aluminium – gold anodized		
<b>Housing</b>	IP65		
Protection class	IP67		IP67
Weight	approx. 300 g	approx. 500 g	approx. 200 g
Dimensions (w x h x d)	approx. 120 x 33 x 50 mm approx. 120 x 37 x 50 mm (Slide Case)	approx. 200 x 36 x 50 mm approx. 200 x 40 x 50 mm (Slide Case)	approx. 50 x 32 x 6 mm Front approx. 35 x 29 x 100 mm housing
<b>Connectors</b>	LEMO 0B 5-pole		
CAN / voltage <sup>(4)</sup>	miniature thermo connectors		LEMO 2B NiCr-Ni multi-connector
Signal inputs / sensor excitation			
<b>Operating and storage conditions</b>	-40°C to +125°C		
Operating temperature	5 % to 95 %		
Relative humidity	3		
Pollution degree	-55°C to +150°C		
Storage temperature	CE		
<b>Conformity</b>			

1) Observe information regarding the intended use: see CSM document "Safety Instructions MiniModul".

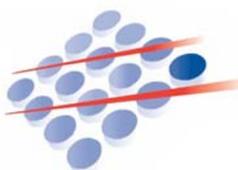
2) Those MiniModules designed for measurements in vehicles with 12 V-, 24 V-, or 42 V onboard power supply systems. The maximum operating voltage at the measuring inputs is 60 V. **Not suitable** to be used in systems with higher operating voltages, e.g. high-voltage batteries of hybrid- or electric cars.

3) CANopen: see separate data sheet.

4) Optionally available with other CAN connectors.



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