



Thermo-Scan MiniModul pro

- ▶ **Extremely compact CAN bus measurement modules**
- ▶ **8 or 16 completely electrically isolated NiCr-Ni temperature inputs (Type K)**
(Type J and Type T also available)
- ▶ **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 to be used inside engine compartments, these modules are designed to operate under extreme temperature and environmental conditions. In addition, they are very compact in size. All CSM MiniModules deliver excellent technical specifications and an outstanding price-performance ratio.

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. Four different housing styles are available: 8- and 16-channel housings, both available with or without Slide Case mounting mechanisms. All housing styles can be used together in any combination.

Thermo-Scan 8/16 pro (THMM 8/16 pro)

These devices are configured as either **8- or 16-channel** modules with **NiCr-Ni mini thermo connectors** and a two-colour status LED per channel. This module supports measurement data rates of up to **200 Hz**, and is particularly suitable for higher channel applications. Type J and Type T thermocouple units are additionally available.

When configuring a THMM 16 pro device it is handled like two THMM 8 pro modules.

Thermo-Scan MC (THMC 16)

This device is configured as a 16-channel module with two LEMO 2B NiCr-Ni Multi-Connectors



The signal cable consists of thermocouple wires with Teflon coating. 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 17025.

Maintenance

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

Part numbers

THMM 8 pro	ART1011103 (Slide Case)
THMM 16 pro	ART0200943 (Slide Case)
THMC 16	ART1012301 (Slide Case)
THMM 8 pro	ART1011104
THMM 16 pro	ART0200970
THMC 16	ART0200999

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 pro

Technical Data	THMM 8 pro	THMM 16 pro	THMC 16
Inputs			
Type K	8 NiCr-Ni	16 NiCr-Ni	
Type J	8 Fe-CuNi	16 Fe-CuNi	-
Type T	8 Cu-CuNi	16 Cu-CuNi	-
Measurement range			
Type K	100°C to +1372°C		
Type J	-100°C to +1200°C		
Type T	-100°C to +400°C		
Internal resolution	16 bit		
Internal sampling rate per ch.	1 kHz		
Measurement data rate per ch.	1, 2, 5, 10, 20, 50, 100, 200 Hz		
HW input filter	low-pass filter 250 Hz		
SW input filter	FIR-Filter (Finite Impulse Response) threshold frequency automatically adjusted to measurement data rate		
Input protection ⁽¹⁾			
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 accuracy			
at 25°C	typ. 0.05 %		
Temperature drift	typ. ± 10 ppm/K		
Galvanic insulation⁽²⁾	no safety insulation in terms of high-voltage applications		
Channel / channel	500 V		
CAN / channel	500 V		
CAN / power supply	500 V		
CAN interface			
Configuration	CAN2 0B (active), High Speed (ISO11898) 125 kBit/s to max. 1 MBit/s, data transfer rate 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 ⁽³⁾		
Power supply			
Minimum	6 V DC (-10 %)		
Maximum	50 V DC (+10 %)		
Power consumption	typ. 1.0 W	typ. 2.0 W	
LED indicator	power (green) / status (red)		
	Configuration: open channel (red flashing) / sensor connected (green flashing)		-
	Measurement operation: open channel or broken sensor (red) / sensor detected (off)		
Housing	aluminium – gold anodized		
Protection class	IP65		IP67
Weight	approx. 300 g	approx. 500 g	
Dimensions (w x h x d)	approx. 120 x 33 x 50 mm approx. 120 x 37 x 50 mm (S. Case)	approx. 200 x 36 x 50 mm approx. 200 x 40 x 50 mm (Slide Case)	
Connectors	LEMO 0B 5-pole ⁽⁴⁾		
CAN / voltage			
Signal inputs / sensor excitation	miniature thermo connectors		LEMO 2B NiCr-Ni multi-connector
Operating and storage conditions			
Operating temperature	-40°C to +125°C		
Relative humidity	5 % to 95 %		
Pollution degree	3		
Storage temperature	-55°C to +150°C		
Conformity	CE		

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

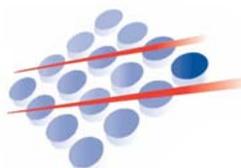
2) Those MiniModules are designed to measure within 12 V-, 24 V-, or 42 V- vehicle onboard power supply. The maximum operation voltage at the measuring inputs is 60 V. **Not suitable** for direct usage at systems with higher operating voltages, e.g. HV-battery of hybrid- or e-cars.

3) CANopen: see separate data sheet.

4) Optionally available with other CAN connectors.



For UK distribution contact:



LABCELL LTD

FOUR MARKS, ALTON, HAMPSHIRE GU34 5PZ
TEL: ++44 (0)1420 568150 FAX: ++44 (0)1420 568151
e: mail@labcell.com www.labcell.com



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