TH pro CAN MM Series

Product description

TH pro 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 and two-color status LEDs. The maximum measurement data rate per channel is 200 Hz. **TH pro** measurement modules are also available with type J or type T measurement inputs.

Measurement module **TH16** provides 16 measurement inputs and is equipped with two LEMO 2B NiCr-Ni multi-connectors. The usage of **TH16** measurement modules with multi connectors is recommended if the devices need to be changed frequently and rapidly.

Key features

- Measurement data rate up to 200 Hz per channel
- Internal cold junction compensation per channel
- Median11 filter for interference pulse suppression
- LEDs per channel, e.g. to indicate broken sensors
- Very good measurement accuracy under difficult temperature ranges and environmental conditions

Scope of delivery

- Measurement module TH8 pro or TH16 pro or TH16
- Configuration software CSMconfig
- Documentation
- Calibration certificate in accordance with DIN EN ISO/IEC17025

Maintenance

- Calibration every 12 months recommended

Accessories

- See datasheet "CAN Accessories"

Technical data

Type designation	**TH8 pro**	**TH16 pro**	**TH16**
			
Technical data valid as of revision	I1xx	E0xx	
Measurement 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 ranges			
Type K	-270 °C to +1,372 °C		
Type J	-210 °C to +1,200 °C		
Type T	-270 °C to +400 °C		
Internal resolution	16 bit		
Internal sampling rate per ch.	1 kHz		
Measurement data rate/ sending rate per channel	1, 2, 5, 10, 20, 50, 100, 200 Hz adjustable per module or per channel via configurable CAN identifier		
HW input filter	low-pass filter 250 Hz		
SW input filter	FIR filter (Finite Impulse Response), averaging 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		
Input protection [1] Operational safety Device safety	 ±60 V permanent ±100 V permanent, additional ESD protection		
Broken sensor detection	yes		
Cold junction compensation	internal reference per channel		
Measurement deviation (type K) [2]			
Measurement range	-200 °C bis +1,372 °C [3]		
Gain error at 25 °C	max. ±0.05 % of measured value		
Offset and scaling error	typ. ±0.1 K max. ±0.3 K ±12 µV		typ. ±0.2 K max. ±0.3 K ±12 µV
Gain drift	max. ±10 ppm/K		
Zero drift	max. ±4 mK/K		
Galvanic isolation [4]	no safety isolation in terms of high-voltage applications		
Channel/channel	500 V		
CAN/channel	500 V		
CAN/power supply	500 V		

Type designation	TH8 pro	TH16 pro	TH16
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	6 V DC (-10 %)		
Maximum	50 V DC (+10 %)		
Power consumption	typ. 0.75 W	typ. 1.2 W	
LED indicators			
CAN	power/status		
Measurement channels Configuration Operation	Open channel (red flashing)/ sensor connected (green flashing) Open channel or broken sensor (red)/ Sensor detected (off)		-
Housing	aluminum, gold anodized		
Protection class	IP65		IP67
Weight (device)	approx. 300 g	approx. 500 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)	
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	CE		

[1] Observe information regarding the intended use. See CSM document “Safety Instructions MiniModules”.

[2] Further information can be found in the Technical Information document on the subject of “Deviation of Measurement”.

[3] The range of -200 °C to -101 °C is only available in 1 °C or 0.1 °C mode.

[4] 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.

[5] Optionally available in other variants.

CSM GmbH Headquarters (Germany)

Raiffeisenstraße 36 • 70794 Filderstadt
+49 711-77 96 40 sales@csm.de

CSM Office Southern Europe (France, Italy)

ArchParc • Immeuble ABC 1 • Entrée A
60, rue Douglas Engelbart • 74160 Archamps, France
+33 4 50 95 86 44 info@csm-produits.fr

CSM Products, Inc. USA (USA, Canada, Mexico)

1920 Opdyke Court, Suite 200 • Auburn Hills, MI 48326
+1 248 836-4995 sales@csmproductsinc.com

CSM (RoW)

Vector Informatik (China, Japan, Korea, India, Great Britain)
ECM AB (Sweden)
DATRON-TECHNOLOGY (Slovakia, Czech Republic)

Our partners guarantee you worldwide availability.
Feel free to contact us.

CSM GmbH Germany is certified.

ISO 9001, ISO 14001
Certified Integrated Quality and Environmental Management System
www.tuv-sud.com/ms-cert

DAkkS
Deutsche Akkreditierungsstelle
D-K-15214-01-00