HV TH4 evo CAN MM Series

Product description

CSM's **HV TH4 evo** measurement module is especially designed for safe temperature measurements on live high-voltage parts and is therefore excellently suited for mobile and stationary use in e-mobility applications (electric and hybrid vehicles).

Thanks to their compact and robust design and a very wide operating temperature range, **HV TH4 evo** measurement modules can be installed and operated directly in the engine compartment and other constrained spaces, e. g. close to the high-voltage battery and power electronics. **HV TH4 evo** features a high degree of measurement accuracy over the entire operating temperature range.

Key features

- NiCr-Ni temperature inputs (K type), with reinforced insulation up to 1,000 V DC
- Excellent measurement accuracy for all temperature ranges and environmental conditions
- Operating temperature range: -40 °C to +125 °C
- Type approval test and routine test according to safety standard EN 61010

Scope of delivery

- Measurement module HV TH4 evo
- Configuration software CSMconfig
- Documentation
- Calibration certificate in accordance with DIN EN ISO/IEC 17025
- HV isolation test certificate

Maintenance

- HV isolation test according to EN 61010 at least every 12 months
- Calibration every 12 months recommended

Accessories

- See datasheet "CAN Accessories"

Technical data

Type designation	**HV TH4 evo**
	
Technical data valid as of revision	B104
Inputs	4 NiCr-Ni (K type)
Measurement range	-270 °C to +1,372 °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 adjustable per module or per channel via configurable CAN identifier
HW input filter	low-pass filter 150 Hz
SW input filter	FIR-Filter (Finite Impulse Response), averaging automatically adjusted to measurement data rate
Channel-specific comments	free text consisting of up to 100 characters per channel
Broken sensor detection	yes
Cold junction compensation	internal cold junction per channel
Measurement deviation [1]	
Gain error at 25 °C	max. ±0.05 % of measured value
Offset and scaling error	typ. ±0.15 K max. ±0.3 K ±12 µV
Gain drift	max. ±10 ppm/K of measured value
Zero drift	max. ±4 mK/K
Fields of application [2]	for measurements in HV environments [3]
nominal voltage [3]	up to 1,000 V DC
Isolation test [2]	
Routine test	test voltage [3] 3,100 V DC
Reinforced insulation [2, 3]	
Channel/channel	1,000 V DC
Channel/CAN	1,000 V DC
Channel/power supply	1,000 V DC
Functional insulation	
CAN/power supply	designed for supply voltages 12 V and 24 V

Type designation	HV TH4 evo
Measurement categories [4]	
CAT 0	1,000 V
CAT II	600 V
CAT III	300 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 suitable CAN interface, data transfer is “free running”
Configuration	via CAN bus with CSMconfig or CSM INCA AddOn settings and configurations stored in the device
Power supply	
Minimum	6 V DC (-10 %)
Maximum	30 V DC (+10 %)
Power consumption	typ. 650 mW
LED indicator	power (green), status (red)
Housing	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 B (grey)
Operating and storage conditions	
Operating temperature range	-40 °C to +125 °C
Relative humidity	5 % to 95 % (non-condensing)
Altitude	max. 5,000 m above sea level (CAT 0) max. 3,000 m above sea level (CAT II and CAT III)
Pollution degree	4
Storage temperature	-40 °C to +125 °C
Conformity	CE
Device safety	EN 61010-1:2020+COR1:2022; EN 61010-2-030:2022

[1] Further information can be found in the Technical Information document on the subject of "Deviation of Measurement".

[2] Please also read the CSM document “Safety Instructions HV TH4 evo CAN MM”

[3] According to EN 61010-1:2020+COR1:2022 with EN 61010-2-030:2022

[4] Further information can be found in the Technical Information document "Measurement Categories for CSM HV Measurement Modules".

[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)

Site d´Archamps
60, rue Douglas Engelbart • Immeuble ABC 1, Entrée A – 1er étage
74160 Archamps, France
+33 450-95 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