HV AD4 evo CAN MM Series

Type XW20

Product description

The measurement module **HV AD4 evo XW20** is equipped with 4 analog inputs and has been specifically designed for safely measuring up to 1,000 V in high voltage environments. This module features an extended measurement range up to 2,000 V DC and a CAN bus measurement data rate of up to 20 kHz.

This makes the device not only suitable for mobile use in the field of electromobility - electric and hybrid vehicles - but also for stationary use, e.g. in test benches.

Key features

- 4 analog inputs with reinforced insulation
- Measurement range up to ±1.000 V (extendable to ±2,000 V), adjustable per channel
- Measurement data rate up to 20 kHz via CAN
- Type approval and routine test according to safety standard EN 61010

Scope of delivery

- Measurement module HV AD4 evo XW20
- Configuration software CSMconfig
- Documentation
- Calibration certificate in accordance with DIN EN ISO/IEC 17025

Maintenance

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

Accessories

- See "CAN Accessories" datasheet.

Technical data

Type designation	HV AD4 evo XW20
	
Inputs	4 analog inputs
Measurement ranges	±100, ±200, ±500, ±1,000 V
Extended	±2,000 V [1]
Internal resolution	16 bit
Internal sampling rate per channel	80 kS/s
Measurement data rate per channel [2]	1, 2, 5, 10, 20, 50, 100, 200, 500 Hz, 1, 2, 5, 10, 20 kHz
HW input filter	4th order Butterworth filter (cutoff frequency approx. 4.4 kHz)
SW input filter [3]	6th order Butterworth filter
Channel comments	Up to 100 characters of free text per channel
Error of measurement [4]	
Gain error at 25 °C	max. ±0.04 % of measured value
Offset and scaling error	max. ±0.02 % of range
Gain drift	max. ±10 ppm/K of measured value
Zero drift	max. ±5 ppm/K of range
Field of application [5]	measurements in HV environments [6]
Nominal voltage (unipolar & bipolar)	up to 1,000 V DC
Isolation test [5]	
Routine test	Test voltage [6] 3,100 V DC
Reinforced insulation [5,6]	
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 12 V and 24 V supply voltages
Measurement categories [7]	
CAT 0	1,000 V
CAT II	600 V
CAT III	300 V

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Power supply	
Minimum	6 V DC (-10 %)
Maximum	30 V DC (+10 %)
Power consumption	typ. 950 mW
LED indicator	power (green), status (red)
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 appropriate CAN interface, data transfer free running
Configuration	via CAN bus with CSMconfig, settings and configuration data stored in the device
Housing	aluminum with HV designation on the front-side (RAL2003)
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[8]	LEMO 0B, 5-pole, code G
Signal inputs	LEMO Redel 2P, 8-pole, code D (red)
Operating and storage conditions	
Operating temperature range	-40 °C to +125 °C
Relative humidity	5 % to 95 % (non-condensing)
Operating 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
Safety	EN 61010-1:2020+COR1:2022, EN 61010-2-030:2022

[1] In order to be able to record transient overvoltages, the measurement ranges of the analog inputs are dimensioned for ±2,000 V.

[2] 5 kHz: 2 channels @ 500 kbit/s CAN bus, 4 channels @ 1 Mbit/s CAN bus; 10 kHz: 2 channels @ 1 Mbit/s CAN bus, 4 channels @ 2 Mbit/s CAN bus; 20 kHz: 2 channels @ 2 Mbit/s CAN bus

[3] Selectable per channel; cutoff frequency is automatically adjusted to measurement data rate.

[4] For further information, please refer to the Technical Information "Deviation of Measurement".

[5] Please read the CSM document "Safety Instructions HV ADMM"!

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

[7] For further information, please refer to the Technical Information "Measurement Categories for CSM HV Measurement Modules".

[8] Optionally available in other variants.

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