HV AD2 evo IF20

Product description

The **HV AD2 evo IF20** measurement module has been designed for the acquisition of voltage signals in high-voltage environments. With two analog measurement inputs with galvanically isolated sensor excitation, the **HV AD2 evo IF20** is suitable for a wide range of applications.

The **HV AD2 evo IF20** comprises a galvanically isolated sensor excitation for each channel. Hence, conventional sensors, which are normally used in low-voltage applications, can be used in high-voltage environments as well when using high-voltage safe sensor cables.

Apart from analog voltage measurements, **HV AD2 evo IF20** measurement modules are thus also suitable for the measurement of pressure sensors and humidity sensors in high-voltage environments.

Key features

- ▶ 2 voltage inputs up to ±20 V with reinforced insulation
- ▶ Use of standard sensors in high-voltage environments possible
- ▶ Galvanically isolated sensor excitation with reinforced insulation 1,000 V
- ▶ Measurement data rate up to 20 kHz via CAN
- ▶ Type approval test and routine test according to safety standard EN 61010

Scope of delivery

- ▶ Measurement module HV AD2 evo IF20
- ▶ 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 AD2 evo IF20
Technical data valid as of revision	B001
Measurement inputs	2 voltage inputs
Measurement ranges	±1, ±2, ±5, ±10, ±20 V
Internal resolution	16 bit
Internal sampling rate per ch.	80 kHz
Measurement data rate per ch.[1]	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. 5 kHz)
SW filter options per channel	▶ Off ▶ 6th order Butterworth filter, range: 0.1 Hz to 2 kHz: 　▶ automatically adjusted based on sending rate or 　▶ user-selectable cutoff frequency ▶ Average value per sending interval
Channel-specific comments	free text consisting of up to 100 characters per channel
Measurement uncertainty	
Gain error at 25 °C	max. ±0.04 % of measured value
Offset and scaling error	max. ±0.02 % of final value
Gain drift	max. ±10 ppm/K of measured value
Zero drift	max. ±10 ppm/K of final value
Sensor excitation	unipolar, galvanically isolated, switchable and adjustable per channel
Voltage	5, 10, 12, 15 V DC
Power output [2]	typ. 0.6 W, max. 0.75 W
Tolerance [3]	max. ±1 %
Fields of application [4]	for measurements in HV environments
Nominal operating voltage	up to ± 1,000 V DC
Isolation test [4]	
Routine test	test voltage [5] 3,100 V DC
Reinforced insulation [4,5,6]	
Channel/channel	1,000 VDC
Channel/CAN	1,000 VDC
Channel/power supply	1,000 VDC
Functional insulation	
CAN/power supply	designed for supply voltages 12 V and 24 V

Type designation	HV AD2 evo IF20
Measurement categories [7]	
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 CSMcan interface, data transfer rate free running
Configuration	via CAN bus with CSMconfig, settings and configurations stored in the module
Power supply	
Minimum	6 V DC (-10 %)
Maximum	30 V DC (+10 %)
Power consumption	typ. 0.65 W without sensor excitation typ. 1.1 W with sensor excitation switched on, without load
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 (device)	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 C (black)
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	$C\epsilon$
Device safety	EN 61010-1:2020+COR1:2022, EN 61010-2-030:2022

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

[2] Specified typ. power output valid as of hardware revision B000. At temperatures above 85 °C, high power output may result in shutdowns due to overheating.

[3] Specified tolerance at the signal socket without considering the resistance of the connection cable. Especially at low voltages and high output, high currents may occur, which can cause a significant voltage drop in the connection cable.

[4] Please also read the CSM document "Safety Instructions HV ADMM"

[5] According to EN 61010-1:2010 +COR1:2022, EN 61010-2-030:2022

[6] One channel consists of one measurement input plus sensor excitation.

[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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