

# 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.

Due to the galvanically isolated sensor excitation, **standard sensors**, which are normally used in conventional low-voltage applications, can be used in high-voltage environments as well if they are combined with specific, 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  $\pm 20\text{V}$  with reinforced insulation
- ▶ Measurement data rate up to 20 kHz via CAN
- ▶ Galvanically isolated sensor excitation with reinforced insulation 1,000 V
- ▶ Use of standard sensors in high-voltage environments possible
- ▶ Type approval test and routine test according to safety standard EN 61010

## Shipping content

- ▶ 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	B000
Measurement inputs	2 voltage inputs
Measurement ranges	$\pm 1, \pm 2, \pm 5, \pm 10, \pm 20 \text{ V}$
Internal resolution	16 bit
Internal sampling rate per ch.	80 kHz
Measurement data rate per ch. <sup>1</sup>	1, 2, 5, 10, 20, 50, 100, 200, 500 Hz, 1, 2, 5, 10, 20 kHz
HW input filter	4 <sup>th</sup> order Butterworth filter (threshold frequency approx. 5 kHz)
SW input filter <sup>2</sup>	6 <sup>th</sup> order Butterworth filter
Channel-specific comments	free text consisting of up to 100 characters per channel
Measurement uncertainty	
Gain error at 25 °C	max. $\pm 0.04 \%$ of measured value
Offset and scaling error	max. $\pm 0.02 \%$ of final value
Gain drift	max. $\pm 10 \text{ ppm/K}$ of measured value
Zero drift	max. $\pm 10 \text{ ppm/K}$ of final value
Sensor excitation	unipolar, galvanically isolated, switchable and adjustable per channel
Voltage	5, 10, 12, 15 V DC
Power output <sup>3</sup>	typ. 0,6 W, max. 0,75 W
Tolerance <sup>4</sup>	max. $\pm 1 \%$
Fields of application <sup>5</sup>	for measurements in HV environments
Nominal operating voltage	up to $\pm 1,000 \text{ V DC}$
Isolation test <sup>5</sup>	
Type approval test	by external accredited test laboratory <sup>6</sup>
Routine test	test voltage <sup>6</sup> 3,100 V DC, isolation test is to be performed at least every 12 months
Reinforced insulation <sup>5,6,7</sup>	
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

<b>Type designation</b>	<b>HV AD2 evo IF20</b>
<b>Measurement categories <sup>8</sup></b>	
CAT 0	1,000 V
CAT II	600 V
CAT III	300 V
<b>CAN interface</b>	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
<b>Configuration</b>	via CAN bus with CSMconfig, settings and configurations stored in the non-volatile memory
<b>Power supply</b>	
Minimum	6 V DC (-10 %)
Maximum	30 V DC (+10 %)
Power consumption	typ. 0.6 W without sensor excitation typ. 1.1 W with sensor excitation switched on, without load up to 5 W at max. load of sensor excitation
LED indicator	power (green)/status (red)
<b>Housing</b>	aluminium 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)
<b>Connectors</b>	
CAN/power supply <sup>9</sup>	LEMO 0B, 5-pole, code G
Signal inputs	LEMO Redel 2P, 8-pole, code C (black)
<b>Operating and storage conditions</b>	
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
<b>Conformity</b>	<b>CE</b>
<b>Device safety</b>	EN 61010-1:2020+COR1:2022, EN 61010-2-030:2022

<sup>1</sup>5 kHz: @ 500 kbit/s CAN; 10 kHz: @ 1 Mbit/s CAN, 20 kHz: @ 2 Mbit/s CAN

<sup>2</sup>Selectable per channel; threshold frequency is automatically adjusted to measurement data rate.

<sup>3</sup>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.

<sup>4</sup>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.

<sup>5</sup>Please also read the CSM document "Safety Instructions HV ADMM"

<sup>6</sup>According to EN 61010-1:2010 +COR1:2022, EN 61010-2-030:2022

<sup>7</sup>One channel consists of one measurement input plus sensor excitation.

<sup>8</sup>For further information, please refer to the Technical Information "Measurement Categories for CSM HV Measurement Modules".

<sup>9</sup>Optionally available in other variants.



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