

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.

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



Key features

- ▶ 2 voltage inputs up to $\pm 20V$ 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

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	±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	4 th order Butterworth filter (threshold frequency approx. 5 kHz)
SW input filter ²	6 th order Butterworth filter
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 ³	typ. 0,6 W, max. 0,75 W
Tolerance ⁴	max. ±1 %
Fields of application⁵	for measurements in HV environments
Nominal operating voltage	up to ± 1,000 V DC
Isolation test⁵	
Type approval test	by external accredited test laboratory ⁶
Routine test	test voltage ⁶ 3,100 V DC, isolation test is to be performed at least every 12 months
Reinforced insulation^{5,6,7}	
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 ⁸	
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 non-volatile memory
Power supply	
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)
Housing	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)
Connectors	
CAN/power supply ⁹	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	CE
Device safety	EN 61010-1:2020+COR1:2022, EN 61010-2-030:2022

¹5 kHz: @ 500 kbit/s CAN; 10 kHz: @ 1 Mbit/s CAN, 20 kHz: @ 2 Mbit/s CAN

²Selectable per channel; threshold frequency is automatically adjusted to measurement data rate.

³Specified typ. power output valid as of hardware revision B000. At temperatures above 85 °C, high power output may result in shutdowns due to overheating.

⁴Specified 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.

⁵Please also read the CSM document "Safety Instructions HV ADMM"

⁶According to EN 61010-1:2010 +COR1:2022, EN 61010-2-030:2022

⁷One channel consists of one measurement input plus sensor excitation.

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

⁹Optionally 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.



All trademarks mentioned are property of their respective owners.
Specifications are subject to change without notice.
CANopen® and CiA® are registered community trademarks of CAN in Automation e.V.
EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.