



# AD8 pro MD2 (ADMM 8 pro2)



## Product description

The **AD8 pro MD2** measurement module is especially designed for the use of ratiometric sensors and sensors with a power supply voltage up to 30 V DC. With its high-precision, galvanically isolated sensor excitation it is not only suitable for a wide range of active sensors but also for sensors with ground-referenced signal inputs.

## Shipping content

- ▶ Measurement module AD8 pro MD2
- ▶ Configuration software CSMconfig
- ▶ Documentation
- ▶ Calibration certificate in accordance with DIN EN ISO/IEC 17025

## Key features

CAN

- ▶ *8 differential voltage inputs, galvanically isolated*
- ▶ *Measurement inputs adjustable per channel from  $\pm 10$  mV to  $\pm 60$  V*
- ▶ *High-precision bipolar, galvanically isolated sensor excitation, adjustable per channel*
- ▶ *Sensor linearization with axis points*


## Maintenance

- ▶ Calibration every 12 months recommended

## Accessories

- ▶ See datasheet "CAN Accessories"

## Technical data

<b>Type designation</b>	<b>AD8 pro MD2</b>
	
<b>Measurement inputs</b>	8 analog inputs
Measurement ranges	$\pm 10$ , $\pm 20$ , $\pm 50$ , $\pm 100$ , $\pm 200$ , $\pm 500$ mV and $\pm 1$ , $\pm 2$ , $\pm 5$ , $\pm 10$ , $\pm 20$ , $\pm 60$ V
Internal resolution	16 bit
Internal sampling rate per ch.	2 kHz
Measurement data rate / sending rate per channel	1, 2, 5, 10, 20, 50, 100, 200, 500 Hz and 1 kHz, 2 kHz adjustable per module or per channel via configurable CAN identifier
HW input filter	low-pass filter 3rd order, approx. 500 Hz
SW input filter	switchable 6th order Butterworth filter, range: 0.1 Hz to 500 Hz, automatically adjusted to measurement data rate, alternatively: threshold frequency adjustable per channel
Axis points	8 tables, each with up to 32 axis points
Input protection <sup>1)</sup>	
Operational safety	$\pm 60$ V permanent
Device safety	$\pm 100$ V permanent, additional ESD protection
<b>Gain error <sup>2)</sup></b>	
at 25 °C	max. $\pm 0.05$ % of measured value
Temperature drift	max. $\pm 10$ ppm/K
<b>Sensor excitation</b>	switchable, galvanically isolated and adjustable per channel <sup>3)</sup>
Voltage	$\pm 5$ , $\pm 8$ , $\pm 10$ , $\pm 12$ , $\pm 15$ V DC, therefore also 10, 16, 20, 24, 30 V DC
Current	max. $\pm 30$ mA per channel, max. $\pm 240$ mA per module
<b>Galvanic isolation <sup>4)</sup></b>	no safety isolation in terms of high-voltage applications
Channel / channel	500 V
CAN / channel	500 V
CAN / power supply	500 V
Power supply / sensor excitation	500 V
<b>CAN interface</b>	CAN 2.0B (active), High Speed (ISO 11898-2:2016), 125 kBit/s to max. 1 MBit/s, up to 2 MBit/s with CSMcan Interface, data transfer free running
Configuration	via CAN bus using CSMconfig or CSM INCA AddOn, settings and configurations stored in the module
<b>Power supply</b>	
Minimum	6 V DC (-10 %)
Maximum	45 V DC (+10 %)
Power consumption	typ. 1.8 W (without sensor excitation)

<b>Type designation</b>	<b>AD8 pro MD2</b>
<b>LED indicators</b>	
CAN	power / status
Measurement channels	configuration / operation / sensor excitation
<b>Housing<sup>5)</sup></b>	aluminium, gold anodized
Protection class	IP67
Weight	approx. 500 g
Dimensions (w × h × d)	approx. 200 × 35 × 50 mm, approx. 200 × 40 × 50 mm (Slide Case)
<b>Connectors</b>	
CAN / power supply	LEMO 0B, 5-pole, code G
Signal inputs	LEMO 0B, 6-pole, code A
<b>Operating and storage conditions</b>	
Operating temperature range	-40 °C to +125 °C
Relative humidity	5 % to 95 %
Pollution degree	3
Storage temperature	-55 °C to +150 °C
<b>Conformity</b>	<b>CE</b>

<sup>1</sup> Observe information regarding the intended use. See CSM document "Safety Instructions MiniModule".

<sup>2</sup> Further information can be found in the Technical Information document on the subject of "Deviation of Measurement".

<sup>3</sup> In case of a typ. load of 4.6 W a power supply > 9 V is required, see "Tech Note".

<sup>4</sup> These MiniModules are designed for measurements in vehicles with 12 V, 24 V, or 48 V on-board power supply systems. The maximum operating voltage at the measurement inputs is 60 V. Do not connect directly to systems with higher operating voltages, e.g. high-voltage batteries of hybrid or electric vehicles.

<sup>5</sup> Optionally available in other variants

## additional products

### AD4 pro MC10

AD pro measurement modules cover an extremely wide range of applications. They can be used for voltage measurement, high-precision current measurement (via shunts), measurement of very low voltages (such as strain gauge based sensors measuring at mV levels), and the acquisition of higher frequency signals with measurement data rates up to 10 kHz.



### AD4 OG10

AD4 OG10 provides the means to perform measurements with measurement data rates up to 10 kHz per channel at a high Ethernet bandwidth. EtherCAT® time synchronizations are fully supported. AD4 OG10 is either operated by using an EtherCAT® master via CANopen over EtherCAT® (CoE) or by using the Ethernet/EtherCAT® protocol converter XCP-Gateway in combination with an XCP-compatible data acquisition software.





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