

AD-Scan MiniModule 4 pro HS

- ▶ Universally applicable, extremely compact CAN bus measurement module
- ▶ Measurement rate per channel, up to 10 kHz
- ▶ 4 voltage differential inputs, completely electrically isolated
- ▶ Measurement range adjustable per channel from 10 mV to 60 V
- ▶ High-precision differential sensor excitation, adjustable per channel
- ▶ Digital 6th order Butterworth filter
- ▶ Operating temperature: -40 °C to +125 °C
- ▶ Robust aluminium housing: IP67
- ▶ LED status indicator per channel
- ▶ Excellent price-performance ratio

The **AD-Scan MiniModule pro HS** covers an **extremely wide range of applications**: “Simple” voltage measurement, high-precision current measurement via shunts, measurement of very low (mV level) voltages, acquisition of higher frequent signals with **measurement data rates up to 10 kHz**. This module is designed for an operating temperature up to 125 °C.

4 high-speed channels

Each analog input is extremely low-noise and sampled with 10 kHz. Via CAN bus up to 2 channels with **10 kHz**, respectively 4 channels with 5 kHz can be transferred securely.

Therefore the acquisition of higher frequent sensor signals, like acceleration or pressure sensors with the traditional CAN bus measurement technology.

mV measurement ranges and high-precision sensor excitation

The AD-Scan MiniModule pro HS has an extremely stable, very robust and high-precision differential sensor excitation over the complete operating temperature range from -40 °C to +125 °C. The module is suited for use of **ratiometric sensors**, such as motor vehicle production series sensors for challenging measuring problems – such as in the engine compartment.

To address these applications, the sensor excitation is implemented in a distributive way, where the overall available power is distributed according to requirements of the connected sensors as assigned



ADMM 4 pro HS Automotive

per channel. Therefore e.g. current clamps can be connected directly.

To resolve low signal voltages of mV/V sensors, **piezo-electric sensors** or **strain gauge-bridges**, measurement ranges of 10 mV, 20 mV and 50 mV are available.

Further ranges are 100 mV, 500 mV, 1 V, 2 V, 5 V, 10 V, 20 V and 60 V. Each channel can be configured individually.

The CSM Config Tool offers the possibility of zero-point and span amplification factor compensation.

Accessories

Cable for CAN and power supply, adapter cable CAN, signal cables for sensor connection, CAN bus termination and mounting angle brackets. For further details please consult the data sheet “**Accessories for CSM MiniModules**”.

Shipping Content: CAN bus MiniModule, CSM Config Tool, documentation, Calibration certificate according to DIN EN ISO/IEC 17025

We recommend a calibration interval of 1 year. For further technical information and references please contact our technical sales (sales@csm.de) or support and application team (support@csm.de).

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Specifications AD-Scan MiniModule 4 pro HS

Technical Data	ADMM 4 pro HS
Inputs	4 analog inputs
Measurement ranges	$\pm 10, \pm 20, \pm 50, \pm 100, \pm 500 \text{ mV}$ $\pm 1, \pm 2, \pm 5, \pm 10, \pm 20, \pm 60 \text{ V}^{1)}$
Internal resolution	16 bit
Internal sampling rate per channel	10 kHz
Measurement data rate per channel	1, 2, 5, 10, 50, 100, 500 Hz, 1 kHz, 2 kHz, 5 kHz ²⁾ and 10 kHz ³⁾
Input protection	$\pm 100 \text{ V}$ permanent, additional ESD protection
SW Input filter	selectable 6 th order Butterworth, range 0,1 Hz to 2 kHz, automatically adjusts to the measurement data rate or threshold frequency adjustable per channel
HW Input filter	Low-pass filter 3 rd order, approx. 2 kHz
Sensor excitation	$\pm 5 \text{ V}, \pm 8 \text{ V}, \pm 10 \text{ V}, \pm 12 \text{ V}, \pm 15 \text{ V DC}$ per channel typ. $\pm 30 \text{ mA}$, max. $\pm 120 \text{ mA}^{4)}$, selectable and adjustable per ch. ⁵⁾
Galvanic Isolation	
Channel / Channel	500 V DC
CAN / Channel	500 V DC
CAN / Power Supply	500 V DC
CAN Interface	
	CAN2.0B (active), High Speed (ISO 11898) 125 kBit/s to max. 1 MBit/s, data transfer is free running
Configuration	via CAN-Bus with CSM Config Tool or CSM INCA AddOn all settings and configuration data stored in module
LED Power/Status	LED: Power (green) / Status (red)
LED per input channel	Configuration: general (green blinking), short-circuit at sensor excitation (red blinking) Measurement operation: with sensor excitation (green) / short-circuit (red)
Power supply	approx. 5 V to 60 V DC
Power consumption	typ. 1,5 to 2,3 W ⁶⁾ (without sensor excitation)
Dimensions (W x H x D)	approx. 120 x 30 x 50 mm
Weight	approx. 300 g
Operating temperature / Protection	Automotive Version: -40 °C to +125 °C / IP67 -55 °C to +150 °C
Storage temperature	
Relative Humidity	5 % to 95 %
Connectors CAN / Voltage	LEMO 0B 5-pole or Fischer Series 102, 7-pole
Connectors signal inputs / sensor excitation	LEMO 0B 6-pole or LEMO 1B 6-pole IPT compatible or Fischer 6-pole to Fischer 5-pole with MB configuration downwards compatible
Housing ⁷⁾	Aluminium - Automotive Version: gold anodized
Conformity	CE

1) Optional current measurement ranges: $\pm 20 \text{ mA}$

2) 4 channels @ 1 MBit/s, 2 channels @ 500 kBit/s

3) 2 channels @ 1 MBit/s

4) Distributive sensor excitation, see Application Note

5) In case of full load (3,6 W) a power supply > 8 V is required, see Application Note

6) Power consumption depends on sampling rate, see Application Note

7) Also available with slide case: no mounting tool needed