

AD CAN MM Series

Type MC10 | MC2



CAN

Product description

AD measurement modules feature 4 or 8 differential, galvanically isolated voltage inputs. They are also equipped with a very precise, bipolar sensor excitation, which is adjustable per channel.

With their extended operating temperature range and extremely compact housing, AD measurement modules are designed to be used for measurement tasks in the engine compartment. Due to their wide range of applications, they are increasingly used in test benches.

Shipping content

- ▶ MiniModule AD4 MC10 | AD8 MC2
- ▶ Configuration software CSMconfig
- ▶ Documentation
- ▶ Calibration certificate in accordance with DIN EN ISO/IEC 17025

Key features

- ▶ 4 or 8 differential voltage inputs, galvanically isolated
- ▶ Measurement inputs adjustable per channel from $\pm 100\text{ mV}$ to $\pm 60\text{ V}$
- ▶ Measurement data rate per channel up to 10 kHz (AD4 MC10)
- ▶ High-precision bipolar sensor excitation, adjustable per channel
- ▶ TEDS functionality according to IEEE 1451.4 (template 30)



Maintenance



- ▶ Calibration every 12 months recommended

Accessories

- ▶ See datasheet "CAN Accessories"

Technical data

Type designation	AD4 MC10	AD8 MC2
Technical data valid as of revision	G500	H500
		
Inputs	4 analog inputs	8 analog inputs
Measurement ranges	$\pm 100, \pm 200, \pm 500$ mV and $\pm 10, \pm 20, \pm 60$ V	
Internal resolution	16 bit	
Internal sampling rate per ch.	10kHz	2 kHz
Measurement data rate/ sending rate per channel	1, 2, 5, 10, 20, 50, 100, 200, 500 Hz and 1 kHz, 2 kHz, 5 kHz ¹ , 10 kHz ¹	1, 2, 5, 10, 20, 50, 100, 200, 500 Hz and 1 kHz, 2 kHz
HW input filter	low-pass filter 3 rd order, approx. 2.5 kHz	low-pass filter 3 rd order, approx. 500 Hz
SW input filter	switchable 6 th order Butterworth filter, range: 0.1 Hz to 2 kHz	switchable 6 th order Butterworth filter, range: 0.1 Hz to 500 Hz
	automatically adjusted to measurement data rate, alternatively: threshold frequency adjustable per channel	
Input protection ²		
Operational safety	± 60 V permanent	
Device safety	± 100 V permanent, additional ESD protection	
TEDS functionality supported	according to IEEE 1451.4 (template 30)	
Gain error³		
at 25 °C	max. ± 0.05 % of measured value	
Temperature drift	max. ± 10 ppm/K	
Sensor excitation	bipolar, switchable and adjustable per channel ⁴	
Voltage	$\pm 5, \pm 8, \pm 10, \pm 12, \pm 15$ V DC	
Current	max. ± 30 mA per channel, max. ± 120 mA (AD4) or ± 240 mA (AD8) per module	
Galvanic isolation⁵	no safety isolation in terms of high-voltage applications	
Channel/channel	500 V	
CAN/channel	500 V	
CAN/power supply	500 V	
CAN interface	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	

Type designation	AD4 MC10	AD8 MC2
		
Power supply		
Minimum	6V DC (-10 %)	
Maximum	50V DC (+10 %)	
Power consumption ⁶	typ. 0.8W (without sensor excitation)	typ. 1.3W (without sensor excitation)
Housing	aluminum, gold anodized	
Protection class	IP67	
Weight	approx. 300g	approx. 500g
Dimensions (w × h × d)	approx. 120 × 32 × 50 mm approx. 120 × 37 × 50 mm (Slide Case)	approx. 200 × 35 × 50 mm approx. 200 × 40 × 50 mm (Slide Case)
Connectors ⁷		
CAN/power supply	LEMO 0B, 5-pole, code G	
Signal inputs	LEMO 0B, 6-pole, code A	
Operating and storage conditions		
Operating temperature range	-40 °C to +125 °C	
Relative humidity	5 % to 95 %	
Pollution degree	3	
Storage temperature	-55 °C to +150 °C	
Conformity	CE	
Part Number	ART1012522	ART0200944

¹ 5 kHz: 2 channels @ 500 kbit/s, 4 channels @ 1 Mbit/s, 10 kHz: 2 channels @ 1 Mbit/s, 4 channels @ 2 Mbit/s.

² Observe information regarding the intended use. See CSM document "Safety Instructions MiniModules".

³ Further information can be found in the Technical Information document on the subject of "Deviation of Measurement".

⁴ In case of full load (AD4 MC10: 3.6W, AD8 MC2: 7.2W) a power supply > 8V is required (> 10V as of an operating temperature of +85 °C), see "Tech Note".

⁵ These MiniModules are designed for measurements in vehicles with 12V, 24V, or 48V on-board power supply systems. The maximum operating voltage at the measurement inputs is 60V. Do not connect directly to systems with higher operating voltages, e.g. high-voltage batteries of hybrid or electric vehicles.

⁶ The specified power consumption increases to up to 1.2W (AD4) or 1.8W (AD8) depending on TEDS wiring.

⁷ Optionally available in other variants.



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