

M-SENS 8



8-Channel Analog Input with Sensor Excitation

- ▶ 8 measurement inputs for voltage / current
- ▶ 8 separate sensor excitations, supply voltage individually selectable (up to ± 15 V, ± 45 mA)
- ▶ 11 unipolar and 11 bipolar measuring ranges
- ▶ 2 current measuring ranges
- ▶ Status LED at each input channel (sensor break indication and configuration aid)
- ▶ Measurement data output to CAN
- ▶ Complete galvanic isolation (signal inputs, excitation, CAN, power supply, enclosure)
- ▶ Designed for engine compartment applications
- ▶ Toolless module to module connection

Measurement ranges	Covering input signals 0.1 V to 100 V
Input voltage (IN+ \leftrightarrow IN-)	max. ± 100 V, short-time (1 ms) ± 200 V
Channel sample rates	1/ 2/ 5/ 10/ 50/ 100/ 200/ 500/ 1000/ 2000 Hz
Voltage supply	12, 24, 36 V _{DC} automotive power supply systems Switch-off for voltage < 6 V
Power consumption, typical	3.5 W
Working temperature range	-40 °C ... +125 °C (-40 °F ... +257 °F)
Storage temperature range	-55 °C ... +150 °C (-67 °F ... +302 °F)
IP-Code	IP 67 (ISO 20653 - 2013)
Dimensions	W204 mm x H41 mm x D55 mm (W8.03 in x H1.61 in x D2.17 in)
Weight	695 g (1.53 lb)

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Voltage input	electriclly isolated	
Galvanic isolation input ↔ module power supply input ↔ excitation input ↔ CAN input ↔ input	nominal voltage ±100 V, short-time (1 ms) ±200 V ±100 V, short-time (1 ms) ±200 V ±100 V, short-time (1 ms) ±200 V ±100 V, short-time (1 ms) ±200 V	
Voltage ranges		
Voltage unipolar (0 ...) Input resistance	0.1/ 0.2/ 0.5/ 1/ 2/ 5/ 10/ 20/ 30/ 50/ 100 V 10 MΩ	
Voltage bipolar (+ / -) Input resistance	±0.1/ ±0.2/ ±0.5/ ±1/ ±2/ ±5/ ±10/ ±20/ ±30/ ±50/ ±100 V 10 MΩ	
Current unipolar (0 ...) / bipolar (+ / -) Input resistance	0 ... 20 mA, ±20 mA 50 Ω	
Signal resolution	16 Bit	
Accuracy at T _{ambient} = 25 °C (77 °F)	±0.10 % ±0,15 % ±0.50 %	bipolar voltage ranges unipolar voltage ranges current ranges (bipolar, unipolar)
Drift at an ambient temperature of -40 °C to +85 °C (-40 °F to +185 °F) +85 °C to +105 °C (+185 °F to +221 °F) +105 °C to +125 °C (+221 °F to +257 °F)	±40 ppm ±80 ppm ±250 ppm	
Input channel status LED	1. Channel identification for configuration (LED flashes) 2. Current overload indication (LED on)	
Offset adjust by broadcast command (Offset adjust also supported during measurement!)	- manual offset adjust - offset adjust for all channels of a group	
Hardware filter, switchable	150 Hz, filter type 8-pole Butterworth	
Software filter (DSP), optional	cut-off frequency and filter type selectable	
Aggregate sample rate	max. 16 kHz (1 MBit/s data rate, no other devices)	
Sensor excitation	electriclly isolated	
Selectable output voltage	Off/ ±2.5/ ±5/ ±7.5/ ±8,0/ ±10/ ±12.5/ ±15 V _{DC}	
Output current (short circuit proof) at V _{output} ±2.5/ ±10.0 V at V _{output} ±5.0/ ±12.5 V at V _{output} ±7.5/ ±15.0 V	±25 mA (independent from output voltage) max. ±30 mA max. ±40 mA max. ±45 mA	
Derating (decrease of total output power)	-1.25 %/K for T _{ambient} ≥ 85 °C	
Accuracy at an ambient temperature of -40 °C / 23 °C / 85 °C / 120 °C (-40 °F / 73 °F / 185 °F / 248 °F)	±0.50 % / ±0.30 % / ±0.50 % / ±0.70 %	
Hardware connectors		
Standard ODU	System connector EGA 0B 309 EGA 0B 309	Input connector EGG 1B 307 Series F, Size 1, 5-pin
CAN output	2.0 B, electriclly isolated	
Selectable data transfer rate (bit rate)	up to 1 MBit/s according to ISO11898-2	
CAN message data format (signal) Resolution (Format) Sign	8 Bit (Byte) and 16 Bit (Word) selectable signed, unsigned	
Configuration interface	CAN	