

μ-CANSAS-B1/B4

1- or 4-channel differential amplifier for **bridge measurement**



μ-CANSAS-B1/B4 is a 1-channel or 4-channel differential measurement amplifier with 24-bit A/D-conversion, which transforms an analog sensor into an intelligent, distinctly identified digital smart sensor. The conditioned and digitalized signal from analog sensors can be outputted as a CAN- or CANopen[®] signal. **μ-CANSAS-B1/B4** is particularly designed for use in extremely warm environments.

This module's **special features** are:

- 24-bit A/D-conversion
- Operating temperature: -40°C...120°C
- Extremely robust (IP 65)

Order code:	Article #
CAN/μ-B1-AS	1160010
CAN/μ-B4-AS	1160013

2 different models available:

μ-CANSAS-B1-AS

Fanless aluminum strand-cast housing (1x Phoenix signal terminal (internally);
1x Autosport CAN OUT); 40 x 20 x 60 (W x H x D in mm) without interconnections

μ-CANSAS-B4-AS

Fanless aluminum strand-cast housing (1x Autosport signal terminal;
2x Autosport CAN IN / CAN OUT); 55 x 63 x 70 (W x H x D in mm) without interconnections

μ-CANSAS-B1-AS terminals

- CAN-Bus connection via:
 - 1x 6-pin Autosport terminal (Type: AS208-35PA for CAN OUT)
 - CAN-Bus Interface for transmitting measurement channel signals on the CAN-Bus at up to 1Mbit/s, (conformant to CiA® Draft Standard 102 Version 2.0, CAN Physical Layer for Industrial Applications)
- Power supply via CAN-Bus terminal
- Signal connection at module: 1x 8-pin Phoenix strip terminal (MPT0,5/8) internally, with waterproofed cable grommet (type Pflitsch *UNI ENTSTOER DICHT*)

μ-CANSAS-B4-AS terminals

- CAN-Bus connection via:
 - 2x 6-pin Autosport terminals (Type: AS208-35PA for CAN IN; AS208-35SA for CAN OUT)
 - CAN-Bus Interface for transmitting measurement channel signals on the CAN-Bus at up to 1Mbit/s, (conformant to CiA® Draft Standard 102 Version 2.0, CAN Physical Layer for Industrial Applications)
- Power supply via CAN-Bus terminal
- Signal connection at module: 1x 37 pin Autosport terminal (Type: AS214-35SN)

Power supply

- Supply voltage: 9..50 V DC via CAN-Bus terminal
- Automatic self-activation upon application of power supply
- Power consumption: μ-CANSAS-B1: 1,0 W (typ.), μ-CANSAS-B4: 4,0 W (typ.)

Operating conditions

- Operating temperature: -40°C...120°C condensation allowed
- Shock resistance:
- according to IEC 61373
 - Broad band random, long time test (4,33 g_{RMS} / 15 h, 5 Hz to 250 Hz)
 - Shock, half-sine (30,6 g_{RMS} / 18 ms, 18 shocks)
 - Broad band random, functional test (0,55 g_{RMS} / 30 min, 5 Hz to 250 Hz)
- according to IEC 60068-2-27
 - Shock, half-sine (60 g_{RMS} / 6 ms, 18 shocks)
 - Shock, half-sine (75 g_{RMS} / 3 ms, 18 shocks)
 - Shock, half-sine (85 g_{RMS} / 3 ms, 18 shocks)
 - Shock, half-sine (100 g_{RMS} / 2,5 ms, 18 Schocks)
- according to MIL STD810F
 - Rail Cargo Vibration Exposure (0,486 g_{RMS} / 9 h, 1 Hz to 350 Hz)
 - U.S. Highway Truck Vibration Exposure (2,12 g_{RMS} / 3 h, 10 Hz to 500 Hz)
 - General Minimum Integrity (7,7 g_{RMS} / 3 h, 20 Hz to 2000 Hz)

Included accessories

- Calibration certificate in accordance with DIN EN ISO 9001
- Operating instructions

Measurement properties

- Sampling frequencies selectable in steps of 1, 2, 5; up to max. 2 kHz
- 840 Hz bandwidth (-3 dB)
- 24 Bit A/D-conversion

Plug & Measure

- The module is fully equipped with *imc Plug & Measure* technology.
- Support of TEDS for storing and exporting sensor information
- Parameterization of a measurement channel at the click of a mouse

Measurement channels

- 1 or 4 differential analog channels, filtered and processed for voltage measurement
- Synchronized sampling with measurement systems or other appropriate modules possible using CAN-Bus

Special properties

- The module can periodically send a CAN-Bus message ("Heartbeat"). This can serve to verify whether the correct module is being used with the correct configuration.
- The configuration operable in the module can be read by the software, which makes it possible for configurations made by other users to be transferred using just the module.
- The CANopen[®] protocol supported conforms to "CiA[®] DS 301 B4.0.2" and "CiA[®] DS 404B1.2"; 1 PDO in INT16, INT32, and FLOAT.¹ The supported capabilities, more standards and the settings which can be edited via CANopen[®] are described in "*CANSAS CANopen[®]*".

Optional accessories

- see price list

Other options and accessories

- The terminals necessary for connecting signals are described in "*CANSAS Signal Connection Terminals*".
- Configuration of the modules for use in a CAN-network can be performed either at factory per customer order, or by the customer using appropriate configuration software. To learn what software is required, as well as what cables and additional accessories are available, see the data sheet "*Integrating CANSAS in CAN Networks*".

¹ In CANopen[®] mode, the LEDs are not operable; not in conjunction with μ-CANSAS-HUB4

μ-CAN - B1/B4

Technical Specs (1 or 4 differential analog inputs)

Parameter	Value (min./ max.)	Remarks
Channels	1 4	μ-CANSAS-B1 μ-CANSAS-B4
Measurement modes:	full bridge, half bridge	dR/R at -IN max 0,7 input: +IN_1V, -IN_COM
Sampling frequency/ channel	2 kHz	
Analog bandwidth	840 Hz	-3 dB, Filter OFF
AD-conversion	24 bit	
Input ranges:	±200 mV/V, ±100 mV/V, ±50 mV/V, ±20 mV/V, ±10 mV/V, ±5 mV/V, ±2 mV/V, ±1 mV/V, ±0,5 mV/V	
Bridge supply:	5 V	DC; max 210 mW, short-circuit protection 1 s
Isolation:	60 V 500 V	long-term 10 s
Max. sustainable voltage:	40 V / 100 V	long-term / 1 s
Min. bridge impedance	120 Ω	I _{max} =42 mA
Input impedance	5 MΩ 10 kΩ	for voltage surge, or deactivated
Gain uncertainty	<0,1 %	of measured value
Offset of input range	<0,02 % <2 μV/V	±200 mV/V to ±10 mV/V < ±10 mV/V
Offset drift	0,04 μV/V/K	
Noise	0,32 μVrms	full bridge, dR/R=0
IMR	0,004 μV/V / V	50 Hz
Supply voltage	9..50 V DC	
Power consumption:	typ. 1 W, max 1,5 W typ. 4 W, max 4,5 W	μ-CANSAS-B1 μ-CANSAS-B4
Temperature range	-40°C...120°C +125 °C (max.)	operating temperature interior module temperature (components)
Dimensions (W x H x D)	40 x 20 x 60 mm 55 x 63 x 70 mm 104 mm 89 mm	(without interconnections) μ-CANSAS-B1-AS μ-CANSAS-B4-AS /D (with interconnections) μ-CANSAS-B1-AS μ-CANSAS-B4-AS
Weight	0,08 kg 0,26 kg	μ-CANSAS-B1-AS μ-CANSAS-B4-AS
Connection terminals		
Sensor	1x 8-pin Phoenix strip terminal (MPT0,5/8) 1x 37-pin Autosport Type: AS214-35SN	μ-CANSAS-B1-AS μ-CANSAS-B4-AS
CAN , Supply	1x 6-pin Autosport Type: AS208-35PA 1x 6-pin Autosport Type: AS208-35PA 1x 6-pin Autosport Type: AS208-35SA	μ-CANSAS-B1-AS CAN OUT μ-CANSAS-B4-AS CAN IN μ-CANSAS-B4-AS CAN OUT
CANopen® mode	"CiA® DS 301 V4.0.2" and "CiA® DS 404V1.2" supports 1 PDO	only with μ-CANSAS-B1 in INT16, INT32, and FLOAT
TEDS - Transducer Electronic DataSheets	conform IEEE 1451.4 Class II MMI	

