A-CAN-DG-V4-1

8 channels Wheatstone bridge amplifier with temperature compensation

SN: D########

Texense sensors are designed for data logging. Should the users want to include this sensor in a closed loop system, they must undertake total responsibility from doing so.

Bridge voltage measurement			
Available range (user configurable)	±7.8	mV/V	
	±15		
	±31		
	±62		
	±125		
	±250		
	±500		
	±1000		
Uncertainty	±0.1% of the selected range		
Resolution(1)	0.1	µV/V	
Sampling frequency	500	Hz	
Analog filter cut-off frequency	209	Hz	
Input impedance	>50	kΩ	
Bridge temperature measurement			
Type	Thermistor Rth(25°C)=15 kΩ		
Range	-40°C to +150°C		
Uncertainty	±1.5°C (with perfect thermistor)		
Resolution	0.1°C		
Internal temperature measurement			
Range	-40°C to +125°C		
Uncertainty	±0.25°C		
CAN output features			
CAN bus type	2.0 A or B		
CAN baudrate	125kbps to 1Mbps		
CAN bus termination resistor	120 Ω (user selectable)		
Output Frequency	Bridge voltage data	1Hz to 250Hz, or on request	
	Temperature data	1Hz	

(1) Other resolution and customer unit are settable on the CAN output. Please refer to §Calibration parameters and A-CAN-DG-V4-1 user guide for more complete information.

Date		Operator	
Customer			
Order			
Product Ref	A-CAN-DG-V4-1		
SW version	V#.##		

CAN Data parameters		
CAN type	2.0A ~~2.0B~~	-
Baudrate	1M	bps
Frequency	10	Hz
Rx trig frame ID	0x7F0	Hex
Tx01 frame ID	0x3F0	Hex
Tx02 frame ID	0x3F4	Hex
Tx03 frame ID	0x3F8	Hex
Tx04 frame ID	0x3FC	Hex
Tx05 frame ID	0x400	Hex
CAN 120 Ω termination	☐ enable ☒ disable	-

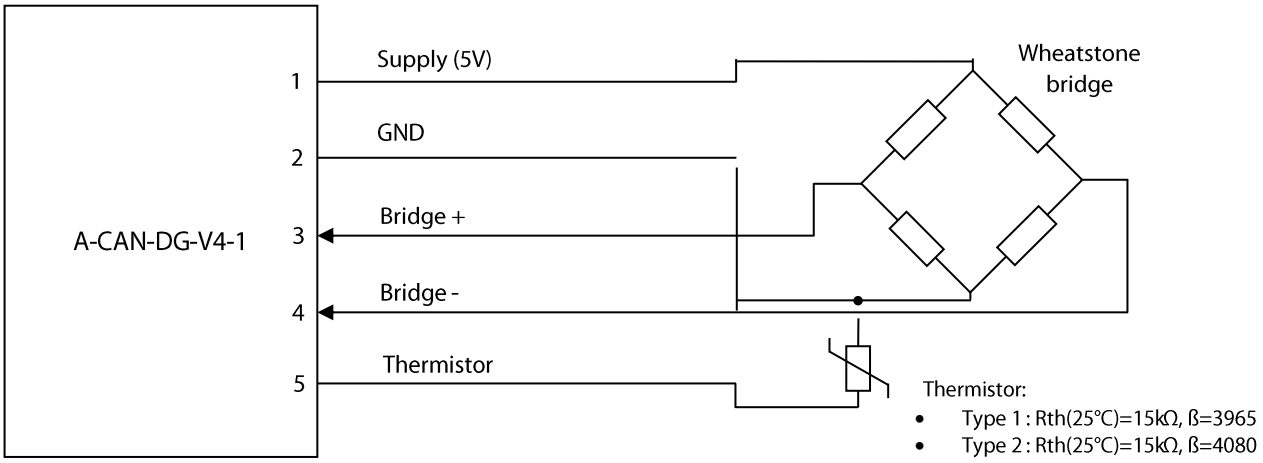
Electrical features			
Input supply voltage		6 to 30	V
Bridge supply voltage		5	V
Supported bridge impedance		120 to 10000	Ω
Input supply current under 12V supply voltage	internal	Max 30 mA	
	8x 120Ω bridges	333mA to add	
	8x 350Ω bridges	114mA to add	
	8x 1000Ω bridges	40mA to add	
Mechanical features			
Dimension		23 x 26 x 85	mm
Material		Aluminium	
Weight		60	g
Environment			
Protection		IP65	
Vibration test		20Gpp5'	
Shock		500	G
Operating Temp		-40 to +125	°C
Storage Temp		-40 to +125	°C

Sensor readings

Channel	Bridge voltage			Thermistor	
	@-23.866 mV/V	@0 mV/V	@+23.866 mV/V	@25.05°C (14.965kΩ)	@101.3°C (0.997 kΩ)
#1	…mV/V	…mV/V	…mV/V	…°C	…°C
#2	…mV/V	…mV/V	…mV/V	…°C	…°C
#3	…mV/V	…mV/V	…mV/V	…°C	…°C
#4	…mV/V	…mV/V	…mV/V	…°C	…°C
#5	…mV/V	…mV/V	…mV/V	…°C	…°C
#6	…mV/V	…mV/V	…mV/V	…°C	…°C
#7	…mV/V	…mV/V	…mV/V	…°C	…°C
#8	…mV/V	…mV/V	…mV/V	…°C	…°C

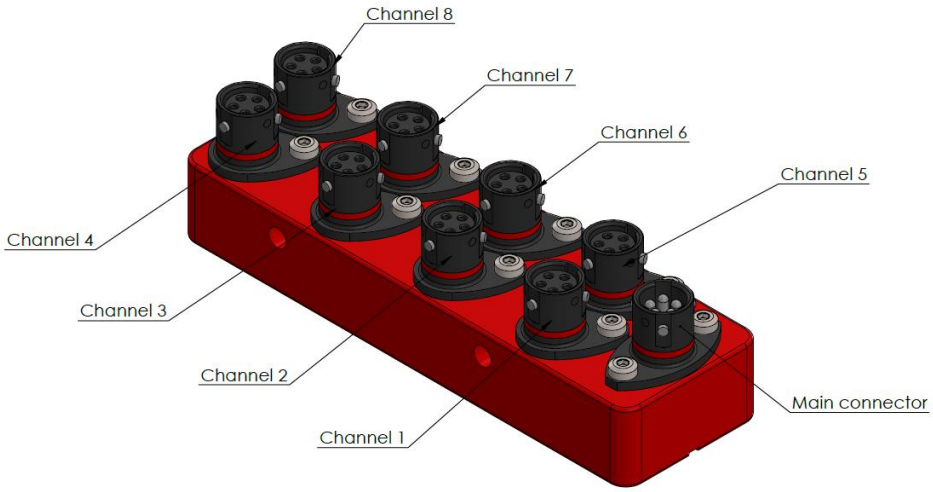
Wiring

For each channel connector:



Note: all signals must be isolated from any other conductive part with at least 100MΩ under 50V.

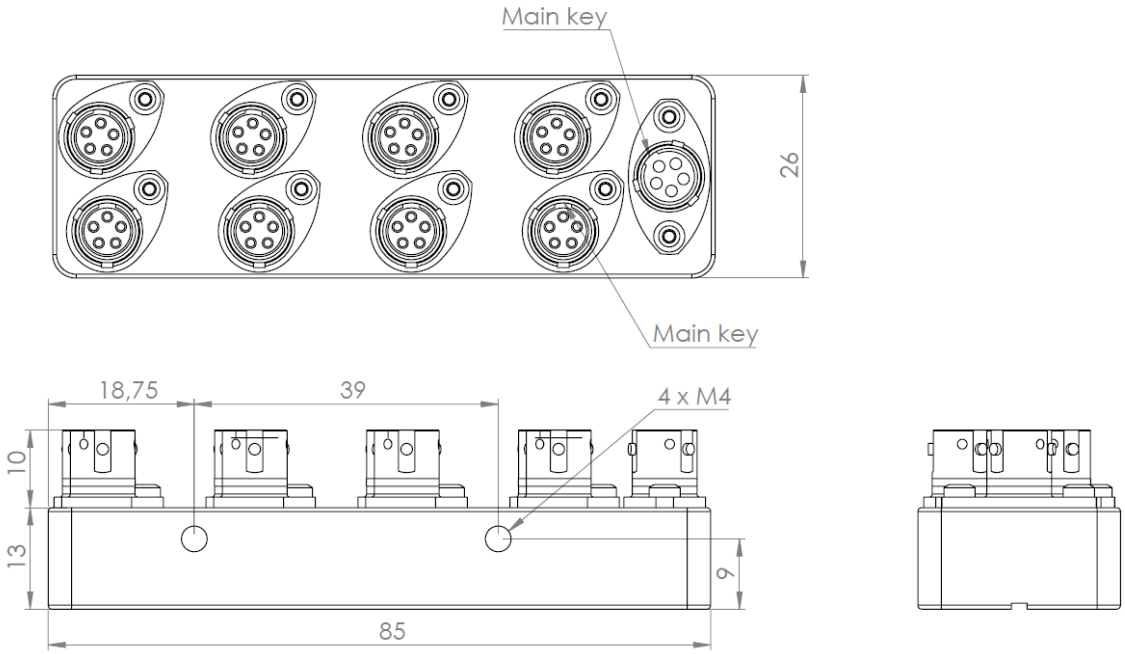
Pinout



8x Channel connectors (#1 to #8)	
Connector ref: 8STA0-0205SN Mating connector ref: 8STA6-0205PN	
Pin	**Function**
1	5V supply output
2	GND
3	Bridge+
4	Bridge-
5	Thermistor input

Main connector	
Connector ref: 8STA0-0205PN Mating connector ref: 8STA6-0205SN	
Pin	**Function**
1	Supply
2	0V
3	CAN Low
4	CAN High
5	One-Wire Rx/Tx

Mechanical drawing



CAN data

Data output

TX Frame #01 (1 to 250Hz output rate)

ID	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
0x03F0 (default)	MSB	LSB	MSB	LSB	MSB	LSB	MSB	LSB
	Signed integer 16bits		Signed integer 16bits		Signed integer 16bits		Signed integer 16bits	
	Channel 1 effort value		Channel 2 effort value		Channel 3 effort value		Channel 4 effort value	
	Resolution and unit: 0.1µV/V/bit or user unit (see §Calibration parameters and A-CAN-DG-V4 User guide)							

TX Frame #02 (1 to 250Hz output rate)

ID	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
0x03F4 (default)	MSB	LSB	MSB	LSB	MSB	LSB	MSB	LSB
	Signed integer 16bits		Signed integer 16bits		Signed integer 16bits		Signed integer 16bits	
	Channel 5 effort value		Channel 6 effort value		Channel 7 effort value		Channel 8 effort value	
	Resolution and unit: 0.1µV/V/bit or user unit (see §Calibration parameters and A-CAN-DG-V4 User guide)							

TX Frame #03 (1Hz output rate)

ID	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
0x03F8 (default)	MSB	LSB	MSB	LSB	MSB	LSB	MSB	LSB
	Signed integer 16bits		Signed integer 16bits		Signed integer 16bits		Signed integer 16bits	
	Thermistor temp. 1		Thermistor temp. 2		Thermistor temp. 3		Thermistor temp. 4	
	0.1°C/bit		0.1°C/bit		0.1°C/bit		0.1°C/bit	

TX Frame #04 (1Hz output rate)

ID	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
0x03FC (default)	MSB	LSB	MSB	LSB	MSB	LSB	MSB	LSB
	Signed integer 16bits		Signed integer 16bits		Signed integer 16bits		Signed integer 16bits	
	Thermistor temp. 5		Thermistor temp. 6		Thermistor temp. 7		Thermistor temp. 8	
	0.1°C/bit		0.1°C/bit		0.1°C/bit		0.1°C/bit	

TX Frame #05 (1Hz output rate)

ID	Byte 0	Byte 1
0x0400 (default)	MSB	LSB
	Signed integer 16bits	
	Internal temperature	
	0.1°C/bit	

Changing parameters

Must be setup according to Texense CAN protocol, or by using the tWist® software (texense Windows software tool) with the tSIB (texense Smart Interface Box).

Address	Parameter	Raw values	Values	Comments	
0x00	CAN type A or B (11 or 29bits ID)	0x00	CAN2.0**A** (standard)	default	
		0x10	CAN2.0**B** (extended)		
0x01	CAN baudrate	0x00	1Mbps	default	
		0x01	500 Kbps		
		0x02	250 Kbps		
		0x03	125 Kbps		
0x02	CAN output frequency	0x00	Rx frame trig	Request mode - 20Hz max.	
		0x01	1 Hz		
		0x02	5 Hz		
		0x03	10 Hz	default	
		0x04	50 Hz		
		0x05	125 Hz		
		0x06	250 Hz		
0x03	Rx trig frame ID	if CAN2.0A: 0 to 0x7F0 if CAN2.0B: 0 to 0xFFFF (except 0x7F1 and 0x7F3)		MSB	Default 0x07F0
0x04				LSB	
0x05	Tx01 frame ID	if CAN2.0A: 0 to 0x7F0 if CAN2.0B: 0 to 0xFFFF (except 0x7F1 and 0x7F3)		MSB	Default 0x03F0
0x06				LSB	
0x07	Tx02 frame ID	if CAN2.0A: 0 to 0x7F0 if CAN2.0B: 0 to 0xFFFF (except 0x7F1 and 0x7F3)		MSB	Default 0x03F4
0x08				LSB	
0x09	Tx03 frame ID	if CAN2.0A: 0 to 0x7F0 if CAN2.0B: 0 to 0xFFFF (except 0x7F1 and 0x7F3)		MSB	Default 0x03F8
0x0A				LSB	
0x0B	Tx04 frame ID	if CAN2.0A: 0 to 0x7F0 if CAN2.0B: 0 to 0xFFFF (except 0x7F1 and 0x7F3)		MSB	Default 0x03FC
0x0C				LSB	
0x0D	Tx05 frame ID	if CAN2.0A: 0 to 0x7F0 if CAN2.0B: 0 to 0xFFFF (except 0x7F1 and 0x7F3)		MSB	Default 0x0400
0x0E				LSB	
0x0F	CAN termination 120Ω resistor	0	Not connected	default	
		1	Connected		

For complete information, contact us at info@texense.com

Calibration parameters

The product is factory calibrated in µV/V. It is possible to add user calibration parameters on top of factory calibration to have the CAN data directly in end user units (daN, N.m,…).
The following parameters can be adjusted thanks to Texense tools (tSib or USB-Connect-1W-5V):

- Offset
- Gain
- Offset drift
- Gain drift

Please refer to A-CAN-DG-V4-1 user guide for complete information.