



Temperature transmitters

ETS 4100

CAN interface

Temperature probes

Accuracy 0.4 %

CANopen
SAE J1939 C **RU**® **US**

Features

- CANopen or SAE J1939 protocol, depending on version
- Robust design
- Integrated temperature sensor
- Excellent EMC characteristics

Description

ETS 4100 is an electronic temperature transmitter which is applied for measuring temperature in hydraulic industrial applications, especially due to its robust design.

The measured temperature value is digitised and made available to the CAN field bus system via the CANopen protocol or SAE J1939 protocol. These parameters can be read out and configured by the operator using standard CAN software.

Temperatures within a range of -25 °C to +100 °C can be measured by means of this temperature sensor based on a PT 1000 with its corresponding electronic evaluation unit.

For integration into modern controls, standard analogue output signals are available, e.g. 4 .. 20 mA and 0 .. 10 V. Due to a pressure resistance of 600 bar and excellent EMC characteristics, the ETS 4100(Smart) is ideal for use in harsh conditions.

Fields of application

Wide field of applications in the mechanical engineering sector, such as:

- Hydraulics
- Pneumatics
- Cooler unit
- Compressor
- and much more

The temperature sensor is particularly used in systems where continuous, intelligent monitoring is necessary.

Technical data

Input data						
Measuring range	-25 .. +100 °C					
Probe length	mm	6	50	100	250	350
Probe diameter	mm	4.5	8	8	8	8
Pressure resistance	bar	600	125	125	125	125
Mechanical connection	G1/4 A ISO 1179-2 / external					
Tightening torque, recommended	20 Nm					
Parts in contact with fluid ¹⁾	Connector: Seal: Stainless steel FKM					
Output data						
Output signal	Via CANopen protocol or SAE J1939 protocol, depending on the version					
Accuracy (at room temperature)	≤ ± 0.4 % FS typ. ≤ ± 0.8 % FS max.					
Rise time acc. to DIN EN 60751	t ₉₀ : ~ 4 s t ₉₀ : ~ 8 s					
Temperature drift	≤ ± 0.01 % FS / °C					
Environmental conditions / Approvals / Tests						
Operating temperature range ²⁾	-40 .. +85 °C / -25 .. +85 °C					
Storage temperature range	-40 .. +100 °C					
Fluid temperature range ²⁾	-40 .. +125 °C / -25 .. +125 °C					
EMC	EN 61000-6-1 / 2 / 3 / 4					
CE / UKCA conformity	Provided					
cULus approval ³⁾	Provided					
Vibration resistance acc. to DIN EN 60068-2 at 0 .. 500 Hz	≤ 25 g					
Shock resistance acc. to DIN EN 60068-2-27	< 20 g					
Protection type acc. to DIN EN 60529 ⁴⁾	IP 67					
Protocol data for CANopen						
Communication Profile	CiA 301 V4.2					
Layer Setting Services and Protocol	CiA 305 V2.2					
Device Profile	CiA 404 V1.3					
Automatic bit-rate detection	CiA AN 801					
Bit rates	10 kbit .. 1 Mbit acc. to 305 V2.2					
Node Id/Bit rate	adjustable via Manufacturer Specific Profile					
Default settings	Bit rate: 250 kbit/s Node ID: 1					
Protocol data for SAE J1939						
Data link layer	SAE J1939-21					
Network Layer	SAE J1939-31					
Network Management	SAE J1939-81					
Default settings	Bit rate: 250 kbit/s Address: 1					
Other data						
Supply voltage	9 .. 35 V DC					
Supply voltage when applied acc. to UL specifications	- limited energy – acc. to 9.3 UL 61010; Class 2 UL 1310/1585; LPS UL 60950					
Residual ripple of supply voltage	≤ 5 %					
Current consumption	≤ 25 mA					
Weight (without connection head)	~ 200 g probe length 6 mm ~ 215 g probe length 50 mm ~ 235 g probe length 100 mm ~ 280 g probe length 250 mm ~ 315 g probe length 350 mm					

Note: Reverse polarity protection of the supply voltage, overvoltage, override and short circuit protection are provided.

FS (Full Scale) = relative to complete measuring range

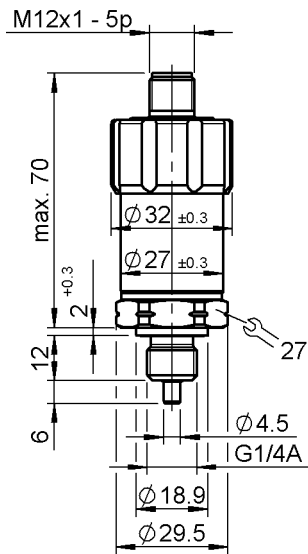
¹⁾ Other seal materials on request

²⁾ In the standard up to -25 °C with FKM seal, -40 °C on request

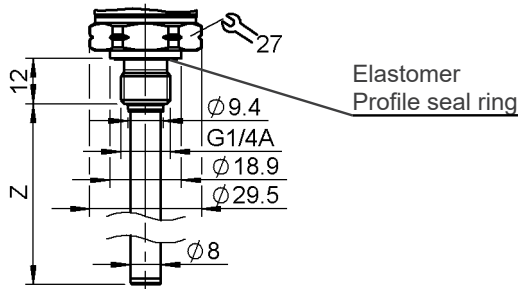
³⁾ Environmental conditions acc. to 1.4.2 UL 61010-1; C22.2 no. 61010-1

⁴⁾ With mounted mating connector in corresponding protection type

Dimensions



Probe length	Probe diameter
6 mm	4.5 mm
50 mm	8 mm
100 mm	8 mm
250 mm	8 mm
350 mm	8 mm



Pin connections

M12x1, 5 pole	Pin	Output signal: F1X	
		Signal	Description
	1	Housing	Shield/housing
	2	+U _B	Supply +
	3	0 V	Supply -
	4	CAN_H	Bus line dominant high
	5	CAN_L	Bus line dominant low

Model code

ETS 4 1 4 8 - FXX - XXX - 000

Mechanical connection

4 = G1/4 A ISO 1179-2

Electrical connection

8 = Plug connector M12x1, 5 pole (without mating connector)

Output signal

F11 = CANopen

F12 = CAN SAE J1939

Probe length

006 = 6 mm

050 = 50 mm

100 = 100 mm

250 = 250 mm

350 = 350 mm

Modification number

000 = Standard

Accessories:

Appropriate accessories, such as mating connectors for the electrical connection, can be found in the Accessories brochure.

Note

The information in this brochure relates to the operating conditions and applications described.
For applications and operating conditions not described, please contact the relevant technical department.
Subject to technical modifications.

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