



Pressure transmitter

HPT 1400S Smart

CAN interface

Relative pressure

Device temperature

Accuracy 0.5 %

smart

CANopen[®]
SAE J1939

E13

Features

- With CANopen or J1939 protocol
- Robust
- Very compact design
- Approval for road vehicles E13
- Added value thanks to:
 - Process data
 - Condition data
 - Smart data

Description

The new generation of smart sensors is designed to generate further relevant information in addition to the operation data. This ensures the support of dynamic, real-time optimized and self-organising processes, which optimises the availability as well as resource consumption and reduces operating costs.

The pressure transmitter series HPT 1400S has been specifically developed for the use in serial applications, suitable also for applications with extremely limited space. Like most of our pressure transmitter series, the HPT 1400S is based on a robust and long-life thin-film sensor.

The materials in contact with the fluid (fluid port and sensor) are constructed from stainless steel with a welded connection. This means that there are no seals on the fluid side, eliminating the risk of leakage. The risk of leakage has been eliminated.

The transmitters are available providing various pressure ranges. A basic accuracy of $\leq \pm 0.5 \% \text{ FS}$, combined with a small temperature drift, ensures a broad range of applications for the HPT 1400S.

The measured pressure value is digitized and made available to the CAN field bus system via the CANopen protocol or J1939 protocol. The instrument parameters can be viewed and configured by the user using standard CAN software.

In addition, the HPT 1400S provides a wide range of additional smart information.

Application fields

Wide range of applications within the mechanical engineering sector, such as:

- Hydraulics
- Pneumatics
- Cooling power units
- Compressors
- and much more

Technical details

Input data									
Measuring ranges	bar	16	25	40	60	100	250	400	600
Overload pressures	bar	32	50	80	120	200	500	800	1000
Burst pressure	bar	125	125	200	300	500	1250	2000	2000
Mechanical connection	G 1/4 A ISO 1179-2, plug								
Tightening torque, recommended	20 Nm								
Parts in contact with the fluid	Mech. connection: stainless steel Seal: FKM								
Output data									
Output signal	CANopen								
Accuracy acc. to DIN 16086, terminal based	≤ ± 0.5 % FS typ. ≤ ± 1.0 % FS max.								
Accuracy at minimum value setting (B.F.S.L)	≤ ± 0.25 % FS typ. ≤ ± 0.5 % FS max.								
Temperature compensation, zero point	≤ ± 0.015 % FS / °C typ. ≤ ± 0.025 % FS / °C max.								
Temperature compensation, over range	≤ ± 0.015 % FS / °C typ. ≤ ± 0.025 % FS / °C max.								
Non-linearity acc. to DIN 16086, terminal based	≤ ± 0.3 % FS max.								
Hysteresis	≤ ± 0.4 % FS max.								
Repeatability	≤ ± 0.1 % FS								
Rise time	≤ 1 ms								
Long-term drift	≤ ± 0.3 % FS typ. / year								
Smart Functions									
Operating data logging (resettable as well as persistent throughout the whole life cycle)	Pressure (min / max / average values) operating time, i.e. -General (hour counter) -Arrhenius value (device temperature, weighted operating time)								
Measuring channel-related events	General measured-channel related operating times Event counter Statistic for the actual use (operation per measuring range segment / over/undershooting, overload etc.)								
Environmental conditions									
Compensated temperature range	-25 .. +85 °C								
Operating temperature range ¹⁾	-40 .. +100 °C / -25 .. +100 °C								
Storage temperature range	-40 .. +100 °C								
Fluid temperature range ¹⁾	-40 .. +125 °C / -25 .. +125 °C								
CE mark	EN 61000-6-1 / -2 / -3 / -4								
E ¹⁾ mark	E13*10R05/01*14850*00								
Vibration resistance acc. to DIN EN 60068-2-6 at 10 .. 500 Hz	≤ 25g								
Shock resistance acc. to DIN EN 60068-2-27	100 g / 6 ms / half-sine 500 g / 1 ms / half-sine								
Protection class acc. to DIN EN 60529 ²⁾	IP 67								
Other data									
Supply voltage	9 .. 35 V DC								
Residual ripple of supply voltage	≤ 5 %								
Current consumption	≤ 25 mA								
Life expectancy	> 10 million load cycles (0 .. 100 % FS)								
Weight	~ 45 g								

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

FS (Full Scale) = relative to complete measuring range

B.F.S.L. = Best Fit Straight Line

¹⁾ In the standard up to -25 °C with FKM seal, -40 °C on request

²⁾ With mounted mating connector in corresponding protection type

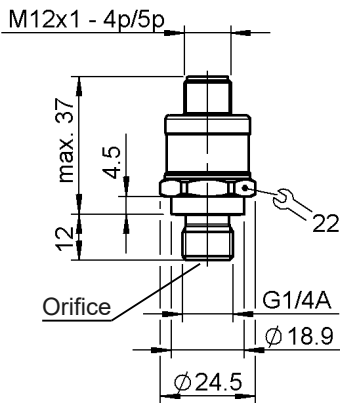
Protocol data for CANopen

CANopen	
Communication profile	CiA DS 301 V4.2
Device profile	CiA DS 404 V2.1
Layer setting services and protocol	CiA DSP 305 V3.0
Automatic bit-rate detection	CiA AN 801
Baud rates	10 kbit .. 1 Mbit acc. to. DS305 V3.0
Transmission services	Measured value as 16 bit integer / 32 bit integer or 32 bit float; status synchronous, asynchronous, cyclical, measured value change, exceeding boundaries
- PDO	
- Transfer	
Node ID/ Baud rate	Settable via Manufacturer Specific Profile

Protocol data for SAE J1939

SAE J1939	
Data Link Layer	SAE J1939-21
Network Layer	SAE J1939-31
Network Management	SAE J1939-81

Dimensions



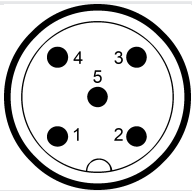
Electrical Connection Variants :

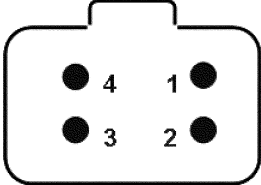
Device connector, Deutsch DT04 - 4 pole

Technical drawing of a Deutsch DT04 - 4p connector. The drawing shows a side view of the connector with the following dimensions and labels:

- DEUTSCH DT04 - 4p**: Label pointing to the connector.
- max. 26**: Maximum height of the connector.

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

Deutsch DT 04, 4 pole	Pin	Output signal: F1X	
		Signal	Description
	1	+U _B	Supply +
	2	0 V	Supply -
	3	CAN_H	Bus line dominant high
	4	CAN_L	Bus line dominant low

Model code

HPT 1 4 4 8 S - F1X - XXXX - 000

Mechanical connection

4 = G 1/4 A ISO 1179-2 with orifice

Electrical connection

8 = Plug connector M12x1, 5 pole
V = Plug connector Deutsch DT04, 4 pole

Enhanced functions

S = Smart

Output signal

F11 = CANopen
F12 = CAN SAE J1939

Pressure ranges in bar

0016; 0025; 0040; 0060; 0100; 0160; 0250; 0400; 0600

Modification number

000 = Standard

Accessories:

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

Note

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

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