

Electronic pressure transducer type DT 2

Product documentation



Two-wire system with current output, three-wire system with voltage output, housing made of plastic/stainless steel

Measuring range $p_{\text{range max}}$: 600 bar



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1 Overview of electronic pressure transducers type DT 2

The electronic pressure transducers are hydraulic accessories. They operate according to the principle of strain gauges which are connected in a full bridge. The sensor elements are manufactured using thin-film technology and are temperature-compensated. The measuring signal was strengthened and adjusted by analogue electronics.

The electronic pressure transducers type DT 2 can be used in almost all areas of industrial and mobile hydraulics. Thanks to the high level of long-term stability and the EMC properties, they guarantee reliable signal detection under adverse ambient conditions.

The electronic pressure transducers DT 2 are available with different analogue outputs featuring two-wire or three-wire technology. Depending on the requirement, the electronic pressure transducers DT 2 can be used in a housing made of a highly resistant, glass-fibre reinforced plastic or stainless steel.

Features and benefits:

- Sturdy design
- DMS strain gauge full bridge manufactured using thin-film technology, as pressure measuring cell
- Analogue electronic evaluation with digital linearisation
- Male connector M12x1, 4-pole in accordance with IEC 61076-2-101
- plastic, stainless steel housing
- Pressure-side connection G 1/4 A - external thread
- High level of long-term stability
- Two-wire system, 4... 20 mA, load 700 U (at 24 V DC) or three-wire system 0 ... 10 V DC, RB $\geq 5 \text{ k}\Omega$ or three-wire system 1 ... 5 V DC

Intended applications:

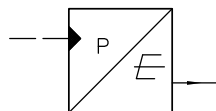
- Industrial hydraulics
- Mobile hydraulics



Electronic pressure transducers type DT 2

2 Available versions, main data

Circuit symbol:



Order coding example:

DTS 2	V	- 4
		Pressure range Table 3 Pressure range
		output signal Table 2 Output signal
Basic type		Table 1 Basic type

Table 1 Basic type

Type	Description
DT 2	Plastic housing
DTS 2	Stainless steel housing

Table 2 Output signal

Coding	Description
No designation	Current signal 4 ... 20 mA
V	Voltage signal 0 ... 10 V DC
V4	Voltage signal 1 ... 5 V DC

Table 3 Pressure range

Coding	Measuring range (bar)
-1	0 ... 100
-2	0 ... 250
-4	0 ... 400
-6	0 ... 600

Type	Part no.
DT 2-1	6217 7201-00
DT 2-2	6217 7202-00
DT 2-4	6217 7203-00
DT 2-6	6217 7204-00
DT 2V-1	6217 7205-00
DT 2V-2	6217 7206-00
DT 2V-4	6217 7207-00
DT 2V-6	6217 7208-00
DTS 2-2	6217 7209-00
DTS 2-4	6217 7210-00
DTS 2V-4	6217 7211-00
DTS 2V4-4	6217 7212-00

Assembly accessories

Order coding: **K 1/4**

Short extension G 1/4 - G 1/4 A, with fitting seal G 1/4 NBR

Order coding: **L 1/4**

Long extension G 1/4 - G 1/4 A, with fitting seal G 1/4 NBR

Order coding:

Line connector M12x1; 4-pole MSD-T7, part no. 6217 8048-00

3 Parameters

3.1 General parameters

Designation	Electronic pressure transducer
Pressure connection	G 1/4 A in accordance with DIN 3852 E, with NBR seal
Materials in contact with hydraulic fluid	1.4542 or 316L
Housing material	Highly resistant, glass-fibre reinforced plastic (PBT) Version DTS 2V in a stainless steel housing
Electrical connection	by means of line connector M12x1, 4-pole in accordance with EN 61076-2-101 (not included in scope of delivery)
Installation position	As desired
Weight	approx. 70 g
Protection class DIN EN 60529 or IEC 60529 in installed condition	IP 67
Ambient temperature	-30° to +100°C (storage -30° ... +100°C)
Compensated area	-40° to 100°C
Medium temperature	-30° to 100°C
Electromagnetic compatibility (EMC)	Emitted interference and immunity to interference in accordance with EN 61326 as per EC Directive 89/336 EEC
Vibration resistance in accordance with IEC 68-2	20 g
Shock resistance in accordance with DIN EN 837	500 g
MTTF	>100 years

3.2 Hydraulic parameters

		DT 2V-1 DT 2-1	DT 2V-2 DT(S) 2-2	DTS 2V4-4 DT(S) 2V-4 DT(S) 2-4	DT 2V-6 DT 2-6
Measuring range	p_{range} [bar]	0 ... 100	0 ... 250	0 ... 400	0 ... 600
Admissible overload pressure	p_{max} [bar]	200	500	800	1200
Bursting pressure	p_{burst} [bar]	800	1200	1700	2400

Note: The measuring system is not damaged between p_{range} and p_{max} .
The measuring system may be damaged (offset) between p_{max} and p_{burst} , although the unit appears intact on the outside.

Assembly accessories K 1/4 and L 1/4:

Max. operating pressure	p_{operate} (bar)	1000
Bursting pressure	p_{burst} [bar]	approx. 2x p_{operate}

3.3 Electrical parameters

Precision:

Characteristic curve deviation in the compensated area	$\leq \pm 1\%$ of the span for measuring ranges ≥ 40 bar $\leq \pm 2\%$ of the span for measuring ranges < 40 bar
Reproducibility	$\leq \pm 0.2\%$ of the span/year for measuring ranges ≥ 40 bar $\leq \pm 0.3\%$ of the span/year for measuring ranges < 40 bar

Temperature influence:

Average TC of the zero signal	$\leq \pm 0.15\%$ of the measuring end value / 10 K for measuring ranges ≥ 40 bar
Average TC of the span	$\leq \pm 0.08\%$ of the measuring end value / 10 K
Stability per year	$\leq \pm 0.2\%$ of the measuring end value / 10 K for measuring ranges ≥ 40 bar $\leq \pm 0.3\%$ of the measuring end value / 10 K for measuring ranges < 40 bar

3.3.1 Electronic pressure transducer DT 2 -... (4 – 20 mA)

Supply voltage U_B	10 ... 36 V DC protected against polarity reversal
Current consumption I_B	Max. 30 mA
Max. permissible ripple factor w	10% (ripple)

The supply voltage U_B must exceed the value of 10 V DC at least by the amount of the voltage drop of the external display and evaluation units (see permitted load R_A or [See Chapter 3.4, "Connection diagram"](#)).

Output:

Output signal I_A	4 ... 20 mA, two-wire system
Permitted load R_A	$R_A [\Omega] \leq (U_B [V] - 10 V) / 0.02 A$
Adjusting time (10... 90%) t_A	≤ 2 ms

3.3.2 Electronic pressure transducer DT 2 V-... (0 – 10 V DC)

Supply voltage U_B	14 ... 36 V DC protected against polarity reversal
Current consumption I_B	Max. 10 mA
Max. permissible ripple factor w	10% (ripple)

Output:

Output signal U_A	0 ... 10 V DC, three-wire system, short-circuit proof
Permitted load R_A	$\geq 5 \text{ k}\Omega$
Adjusting time (10... 90%) t_A	$\leq 2 \text{ ms}$

3.3.3 Electronic pressure transducer DTS 2 V4-4 (1 ... 5 V DC)

Supply voltage U_B	8 to 36 V DC protected against polarity reversal
Current consumption I_B	Max. 10 mA
Max. permissible ripple factor w	10% (ripple)

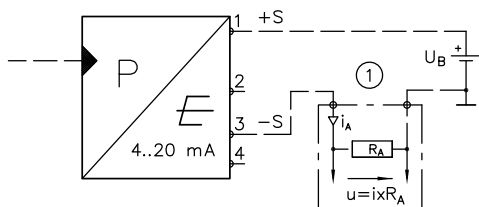
Output:

Output signal U_A	1 ... 5 V DC, three-wire system
Permitted load R_A	$\geq 5 \text{ k}\Omega$
Adjusting time (10... 90%) t_A	$\leq 2 \text{ ms}$

3.4 Connection diagram

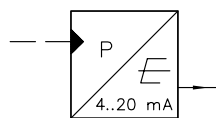
3.4.1 Electronic pressure transducer DT(S) 2-... (4 – 20 mA)

Two-wire system



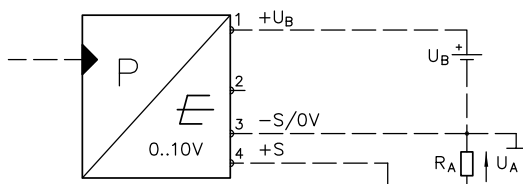
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Simplified circuit symbol

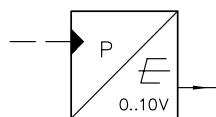


3.4.2 Electronic pressure transducer DT(S) 2 V-... (0 – 10 V DC)

Three-wire system

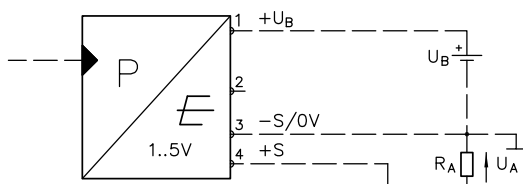


Simplified circuit symbol

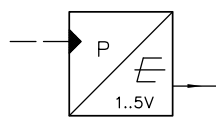


3.4.3 Electronic pressure transducer DTS 2 V-... (1 – 5 V DC)

Three-wire system



Simplified circuit symbol



3.5 Approval

Description	Country
CE declaration of conformity <ul style="list-style-type: none"> ▪ EMC Directive EN 61326 Emission (Group 1, Class B) and immunity to interference (industrial sector) ▪ Pressure Equipment Directive ▪ RoHs directive 	European Union
EAC <ul style="list-style-type: none"> ▪ EMC Directive 	Eurasian Economic Community
GOST <ul style="list-style-type: none"> ▪ Metrology ▪ measurement technology 	Russia

3.6 Instructions for assembly and commissioning

The electronic pressure transducer complies with protection class IP 67 only after the line connector has been correctly installed with the cable. A cable which is too thin, and/or weak points on the line connector, will reduce protection against penetration of moisture. As a result, moisture may penetrate the plug connection and therefore the unit and cause corrosion damage or total failure of the electronics.

i NOTE

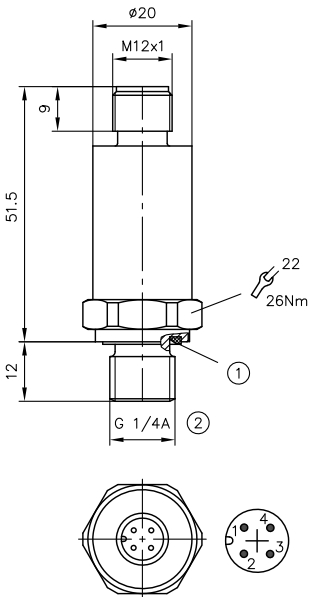
Damage, which can be attributed to the aforementioned reasons, is excluded from the warranty!

4 Dimensions

All dimensions in mm, subject to change.

Electronic pressure transducer

DT 2-...
DT(S) 2V-...

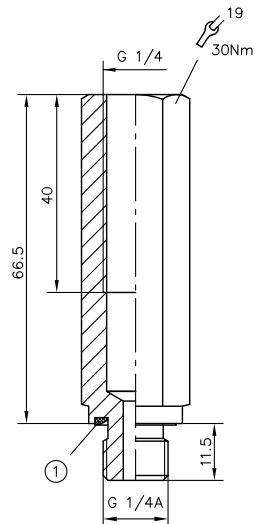


- 1 Verschraubungsdichtung G 1/4 NBR
2 nach DIN 3852-E

Assembly accessories

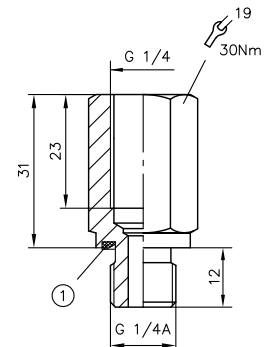
Extension

L 1/4

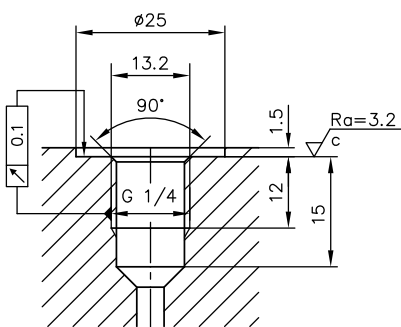


- 1 Fitting seal G 1/4 NBR 85 Sh A

K 1/4



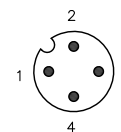
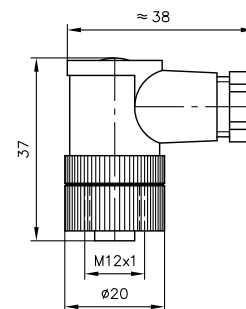
Mounting hole



Screw-in thread DIN 3852-X-G 1/4

Line connector

MSD-T7



Further information

Additional versions

- Electronic pressure transducer type DT 11: D 5440 T/2
- Fitting type X 84: D 7077
- Valve bank (nominal size 6) type BA: D 7788
- Valve bank (directional seated valve) type BVH: D 7788 BV
- Valve bank (directional seated valve) type BWN and BWH: D 7470 B/1
- Valve bank (directional seated valve) type VB: D 7302
- Connection blocks type A for hydraulic power packs: D 6905 A/1