

# Electronic pressure transducer type DT2 and DT2V

Two-wire system 4 ... 20 mA signal output or

Three-wire system 0 ... 10 V DC signal output, 1 ... 5 V DC output

Connection via plug M12x1; 4-pin conforming IEC 61076-2-101 (draft)



Pressure range  $p_{range} = 0 \dots 600 \text{ bar}$

## 1. General information, brief description

The electronic pressure transducers type DT2 are thin-film strain gauges utilizing a full bridge. The sensor elements are temperature-compensated. The amplifying and adjustment of the measuring signal takes place by analogous electronics.

### Functional parts are:

Thin-film strain gauge

Analogous amplifier

Connection via plug M12x1; 4-pin conforming IEC 61076-2-101 (draft)

Housing made of stainless and plastic

Hydraulic connection via tapped journal G 1/4 (BSPP)

### Features:

Nom. pressure ranges 100, 250, 400, and 600 bar

Accuracy 1 % of  $p_{range}$

Pressure peak resistant due capillary dampening system (CDS),  
extreme temperature shocks and vibration proof

High long term stability

Two-wire system 4 ... 20 mA, burden  $700 \Omega$  (at 24 V DC) or

Three-wire system 0 ... 10 V DC,  $R_B \geq 5 \text{ k}\Omega$

Three-wire system 1 ... 5 V DC

All parts in contact with the fluid made of stainless (DIN 1.4542 and 316L)

Housing made of fiber enforced plastic (PBT)

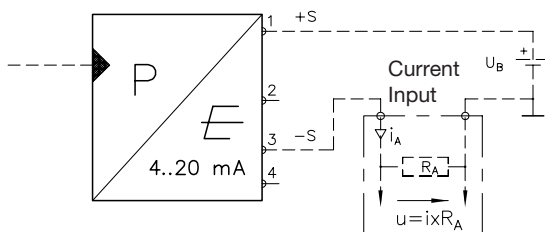
Sturdy industrial design

Certified EMC

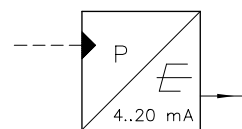
Very good price/performance ratio qualifies



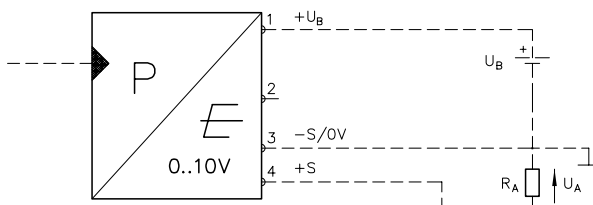
### 1.1 Circuitry DT2-... (Two-wire system, 4 ... 20 mA)



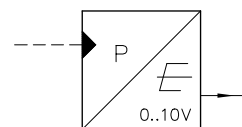
Simplified symbol



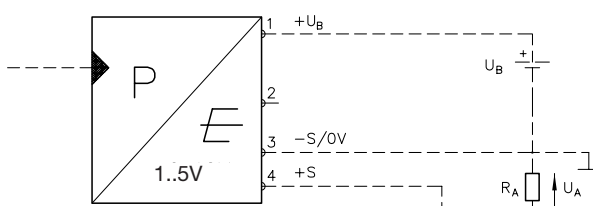
### 1.2 Circuitry DT(S)2V-... (Three-wire system, 0 ... 10 V DC)



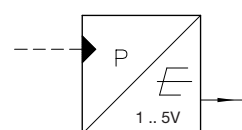
Simplified symbol



### 1.3 Circuitry DTS2V4-4 (Three-wire system, 1 ... 5 V DC)



Simplified symbol



The electronic pressure transducers type DT2 can be utilized in almost all areas of industrial hydraulics. Typical applications are test benches, machines, plant construction as well as automation engineering.

The thin film technology enables the long term reliability often demanded for hydraulics.

The EMC enables signal output without interferences even under rough ambient conditions.

The good price/performance ratio qualifies this pressure transducer for middle to high quantity applications, where reliability and economy are a must.

2. Available versions, type coding key, accessories

Pressure transducer	with current signal		with voltage signal	
	bar	Parts No.:	bar	Parts No.:
Order coding:	<b>DT2-1</b>	100 6217 8099	<b>DT2V-1</b>	100 6217 8103
	<b>DT2-2</b>	250 6217 8100	<b>DT2V-2</b>	250 6217 8104
	<b>DT2-4</b>	400 6217 8101	<b>DT2V-4</b>	400 6217 8105
	<b>DT2-6</b>	600 6217 8102	<b>DTS2V-4</b>	400 6217 8188
			<b>DTS2V4-4</b>	400 6217 8193
			<b>DT2V-6</b>	600 6217 8106

Nom. pressure range in bar

**Mounting accessories**  
Order coding: **K 1/4**  
Short prolongation G 1/4 - G 1/4 A, with fitting seal ring G 1/4 NBR (BSPP)

Order coding: **L 1/4**  
Long prolongation G 1/4 - G 1/4 A, with fitting seal ring G 1/4 NBR (BSPP)

Order coding:  
Plug M12x1; 4-pin MSD-T7, parts No. 6217 8048

3. Technical data  
3.1 General data

Nomenclature	Electronic pressure transducer
Hydraulic connection	G 1/4 A (BSPP) conf. DIN 3852 E, with NBR seal ring
Materials in contact with the pressure fluid	DIN 1.4542 or 316L
Housing materials	Fiber enforced plastic (PBT) Version DTS2V with stainless housing
Electrical connection	Via plug M12x1; 4-pin conforming EN 61076-2-101 (not scope of delivery)
Installed position	Any
Mass (weight)	approx. 70 g
Protection class DIN EN 60529 or IEC 60529 properly installed	IP 67
Ambient temperature	-40°C ... +100°C (storage -40°C ... +120°C)
Compensated range	0°C ... 80°C
Fluid temperature	-40°C ... +125°C
Electro magnetic compatibility (EMC)	Interference emission and interference immunity acc. to EN 61326 conf. EC regulation 89/336 EWG
Vibration resistance acc. to DIN IEC 68-2	20 g
Shock resistance acc. to DIN EN 837	500 g

3.2 Hydraulic parameters

		<b>DT2V-1</b> <b>DT2-1</b>	<b>DT2V-2</b> <b>DT2-2</b>	<b>DTS2V4-4</b> <b>DT(S)2V-4</b> <b>DT2-4</b>	<b>DT2V-6</b> <b>DT2-6</b>
Measuring range	p <sub>range</sub> [bar]	0 ... 100	0 ... 250	0 ... 400	0 ... 600
Perm. pressure overbad	p <sub>max</sub> [bar]	200	500	800	1200
Burst pressure	p <sub>burst</sub> [bar]	800	1200	1700	2400

**Note:** The device won't be harmed between p<sub>range</sub> and p<sub>max</sub>.  
But it will be damaged in the range between p<sub>max</sub> and p<sub>burst</sub> but remains tight to the outside.

**Mounting accessories K 1/4 and L 1/4:**

Max. operation pressure	p <sub>oper</sub> [bar]	1000
Burst pressure	p <sub>burst</sub> [bar]	approx. 2 x p <sub>oper</sub>

### 3.3 Electrical data

#### Accuracy:

Linearity within the compensated pressure range	$\pm 1\%$ of the span (typical $\pm 0.6\%$ )
Repeatability	$\pm 0.2\%$ of the span

#### Temperature drift:

Mean TC of zero	$\pm 0.15\%$ of the span / 10K
Mean TC of the span	$\pm 0.15\%$ of the span / 10K
1-year stability	$\pm 0.2\%$ of the span (at reference conditions)

#### 3.3.1 Pressure transducer type DT2-... (4 ... 20 mA)

Supply voltage	$U_B$	10 ... 36 V DC Reverse polarity
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Max. perm. ripple factor	w	10% (ripple)
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The supply voltage  $U_B$  must be minimum 10 V DC higher than the voltage drop of the external measuring device (see permissible burden  $R_A$  and sect. 1.1 "Circuitry").

#### Output:

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

#### 3.3.2 Pressure transducer type DT2V-... (0 ... 10 V DC)

Supply voltage	$U_B$	14 ... 36 V DC Reverse polarity
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Max. perm. ripple factor	w	10% (ripple)
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#### Output:

Output signal	$U_A$	0 ... 10 V DC, three-wire system, short-circuit proof
Perm. burden	$R_A$	$\geq 5$ k $\Omega$
Response time (10...90%)	$t_A$	$\leq 2$ ms

#### 3.3.3 Pressure transducer type DTS2V4-4 (1 ... 5 V DC)

Supply voltage	$U_B$	10 ... 30 V DC Reverse polarity
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Max. perm. ripple factor	w	10% (ripple)
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#### Output:

Output signal	$U_A$	1 ... 5 V DC, three-wire system
Perm. burden	$R_A$	$\geq 5$ k $\Omega$
Response time (10...90%)	$t_A$	$\leq 2$ ms

### 3.4 Electro-magnetic compatibility (EMC)

The EMC of the device was checked by an accredited approval institute (Interference emission and interference immunity acc. to EN 61326). This EMC test doesn't relieve the user from the proper execution of a specified EMC test for his complete system, since these test assemblies represent only a typical application (conforming the EC-guideline 89/336/EEG). The following measures increase the EMC:

- The transducer should be grounded
- The device should be installed in a closed metal cabinet (shielding).
- All cables, leading in or out of the device should be kept as short as possible. They should be also shielded and twisted in pairs. (This will reduce the antenna effect and increase the interference immunity).

### 3.5 Indications for assembly and initial operation

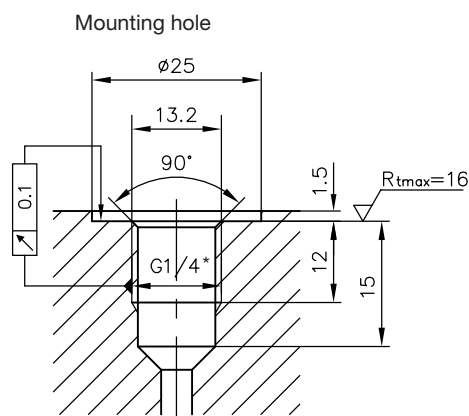
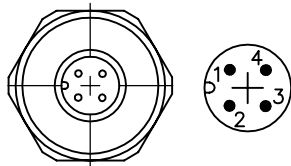
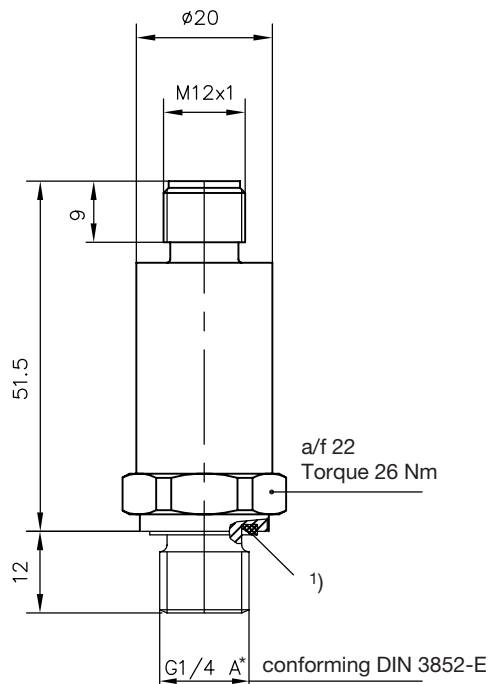
The electronic pressure transducer fulfills protection class IP 67 only when the plug with connection cable is correctly installed. Moisture might intrude when a too thin cable is used or other leaking spots are apparent. This moisture will get to the internal electronics leading to corrosion and malfunction of the device.

**Attention:** All defects of the device caused by above causes will harm the warranty!

## 4. Unit dimensions

All dimensions in mm, subject to change without notice!

### Electronic pressure transducer Type DT2-... and DT(S)2V-...



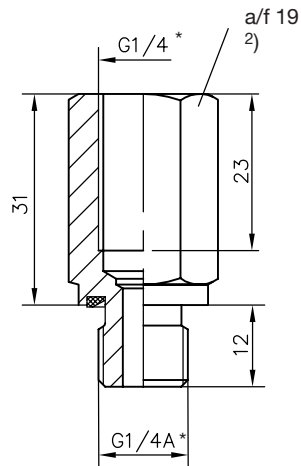
Tapped port DIN 3852-X-G 1/4 \*

1) Fitting seal G 1/4 NBR (BSPP)

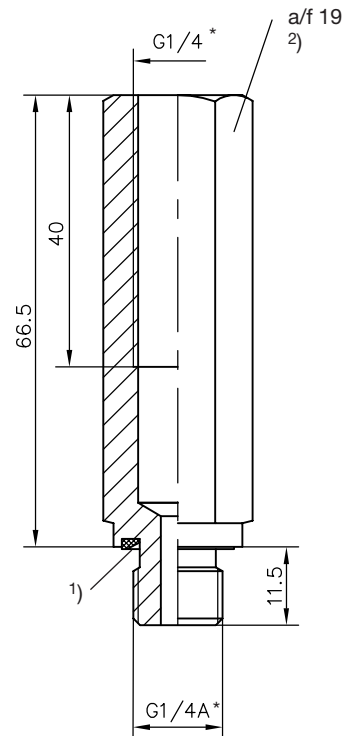
2) Torque 30 Nm

\* BSPP

### Mounting accessories Prolongation type K 1/4



### Type L 1/4



### Plug type MSD-T7

