Electronic pressure transducer type DT11 and DT11V

Two-wire system 4 ... 20 mA signal output or
Three-wire system 0 ... 10 V DC signal output
Connection via plug EN 175 301-803 A

Pressure range p_{range} = 0 ... 1000 bar

1. General information, brief description

The electronic pressure transducers type DT11 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 (with digital linearization of the characteristic).

Functional parts are:

Measurement device with strain gauge full bridge via thin film technology and analogous evaluation system with digital linearization

Plug conforming EN 175 301-803 A

Housing made of stainless and plastic

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

Features:

Nom. pressure ranges 100, 250, 400, 600 and 1000 bar

Accuracy 1% of p_{range}

Pressure peak resistant due capillary dampening system ∅0.6 mm (CDS) extreme vibration proof

High long term stability

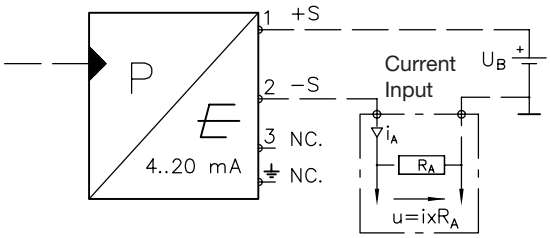
Two-wire system, 4 ... 20 mA, burden 800 Ohm (at 24 V DC) or
Three-wire system 0 ... 10 V DC, R_B 10 kOhm

All parts in contact with the medium made stainless (spec. 316 L and 13-8 PH)

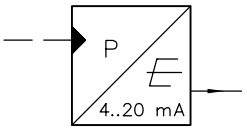
Certified EMC

Very good price/performance ratio qualifies

1.1 Circuitry DT11-... (Two-wire system, 4 .. 20 mA)

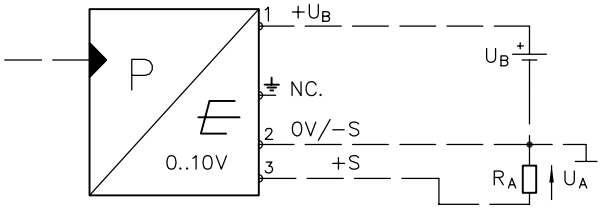


Simplified symbol

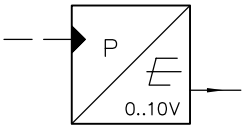


Attention: Grounding conductor contact is not attached

1.2 Circuitry DT11V-... (Three-wire system, 0 ... 10 V DC)



Simplified symbol



Attention: Grounding conductor contact is not attached

The electronic pressure transducers type DT11 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**

Order coding:

	Parts No.	Measuring range		Parts No.	Measuring range
DT11-100	6217 8151	0 ... 100 bar	**DT11V-100**	6217 8156	0 ... 100 bar
DT11-250	6217 8152	0 ... 250 bar	**DT11V-250**	6217 8157	0 ... 250 bar
DT11-400	6217 8154	0 ... 400 bar	**DT11V-400**	6217 8159	0 ... 400 bar
DT11-600	6217 8153	0 ... 600 bar	**DT11V-600**	6217 8158	0 ... 600 bar
DT11-1000	6217 8155	0 ... 1000 bar	**DT11V-1000**	6217 8160	0 ... 1000 bar

Nom. pressure range

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)

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, dampening via orifice dia. 0.6 mm
Materials in contact with the pressure fluid	Stainless (spec.13-8 PH and 316 L)
Housing materials	Stainless, plastic
Electrical connection	Via plug conf. EN 175 301-803 A, max. 1,5 mm² ext. cable dia. ∅6-8 mm (not scope of delivery)
Installed position	Any
Mass (weight)	approx. 80 g
Protection class IEC 60529 (plug properly installed)	IP 65 (IP 54 without plug)
Ambient temperature	-30° ... +100°C (also applied to storage)
Compensated range	0° ... +80°C
Fluid temperature	-30° ... +100°C
Electro magnetic compatibility (EMC)	Interference emission and interference immunity acc. to EN 61326 conf. EC regulation 89/336 EWG (limit value class B) (HF-field max. 30 V/m; HF-resistance 10 V)
Vibration resistance acc. to IEC 68-2	10 g
Shock resistance acc. to IEC 60068-2-27	500 g
ROHS conformity	yes
UL- approval (UL-Listing Mark) apparent	c UL us LISTED IND.CONT.EQ LISTED (optional)

3.2 Hydraulic parameters

			DT11V-100 DT11-100	DT11V-250 DT11-250	DT11V-400 DT11-400	DT11V-600 DT11-600	DT11V-1000 DT11-1000
Measuring range	p_{range}	(bar)	0 ... 100	0 ... 250	0 ... 400	0 ... 600	0 ... 1000
Perm. pressure overbad	p_{max}	(bar)	200	500	800	1200	1500
Burst pressure	p_{burst}	(bar)	800	1200	1700	1800	1800

Note: The device won't be harmed between p_{range} and p_{max}.
But it will be damaged in the range between p_{max} and p_{burst} but remains tight to the outside.

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

Max. operation pressure	p_{oper}	(bar)	1000
Burst pressure	p_{burst}	(bar)	approx. 2 x p_{oper}

3.3 Electrical data

3.3.1 Pressure transducer type DT11-... (4 ... 20 mA)

Supply voltage	U_B	8 ... 30 V DC Reverse polarity safe
Max. perm. ripple factor	w	10% (ripple)
Output:		
Output signal	I_A	4 ... 20 mA, two-wire system (limited to 25 mA)
Perm. burden	R_A	R_A [Ohm] ≤ (U_B [V] - 8 V) / 0,02 A
Response time (10...90%)	t_A	≤ 6 ms

3.3.2 Pressure transducer type DT11V-... (0 ... 10 V DC)

Supply voltage	U_B	14 ... 30 V DC Reverse polarity safe
Power supply	I_B	max. 8 mA
Max. perm. ripple factor	w	10% (ripple)
Output:		
Output signal	U_A	0 ... 10 V DC, three-wire system, short-circuit proof
Perm. burden	R_A	≥ 10 kOhm
Response time (10...90%)	t_A	≤ 6 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/EWG). The following measures increase the EMC:

- The transducer should be grounded (**Attention:** Grounding via plug is not possible)
- 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).

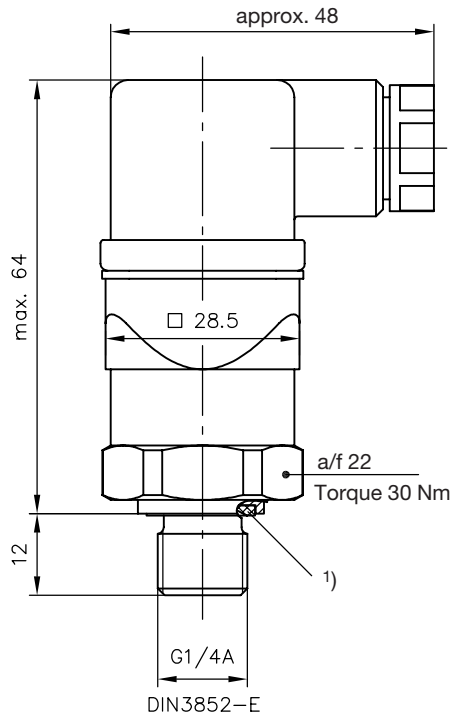
3.5 Indications for assembly and initial operation

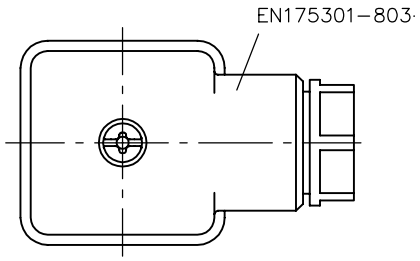
The electronic pressure transducer fulfills protection class IP 65 only when the plug with connection cable is correctly installed. Moisture might intrude when a too thin cable is used or other leaking spots are apparent i.e. only IP 54 is fulfilled.

4. Unit dimensions

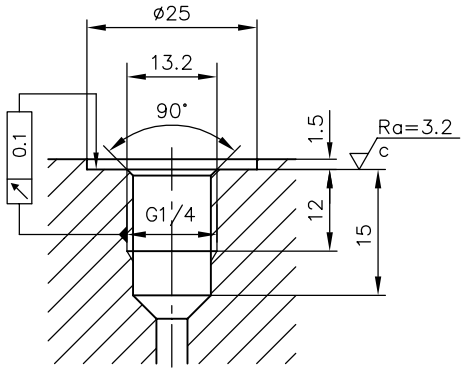
All dimensions in mm, subject to change without notice!

Electronic pressure transducer type DT11-... and DT11V-...



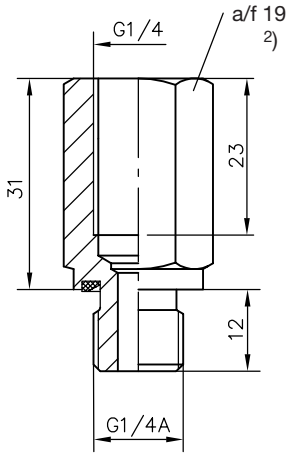


Mounting hole



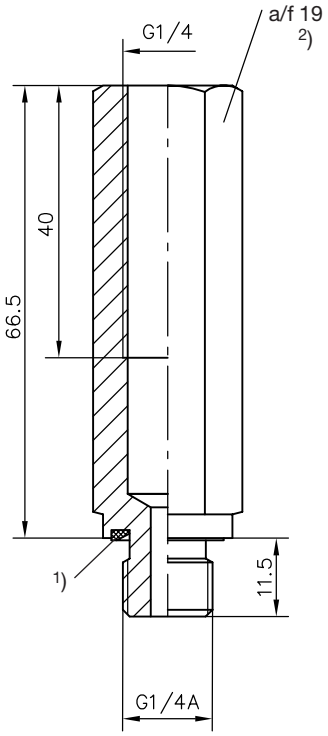
Tapped port DIN 3852-X-G 1/4

Mounting accessories
Prolongation type K 1/4



Port conf. ISO 228/1
G 1/4 (A) = (BSPP)

type L 1/4



1) Fitting seal G 1/4 (BSPP) NBR 85 Sh A

2) Torque 30 Nm