

Electronic pressure transducer type DT 11

Product documentation



Electrical connection acc. to
EN 175 301-803 A

Measuring range $p_{\text{range max}}$: 1000 bar



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1 Overview electronic pressure transducer types DT 11 and DT 11V

The electronic pressure transducers type DT 11 operate according to the principle of strain gauge strips, which are switched in a full-bridge. The sensor elements are manufactured using thin-film technology and are temperature-compensated. The strengthening and adjustment of the measuring signal is carried out by analogue electronics. (with digital linearisation of the characteristic curve)
 The electronic pressure transducers type DT 11 may be used in almost all areas of industrial pressure measurement technology. Typical application areas include hydraulics, machine, test bench and plant engineering, as well as automation technology.
 The measuring cell manufactured using thin-film technology gives the device long-term stability.
 The EMC properties guarantee secure signal detection, even in harsh environments.
 The good price-performance ratio qualifies this transducer for applications of medium to high quantities, in which reliability and efficiency are the main requirements.

The most important function components are:

- Strain gauge full bridge manufactured in thin-film technology as pressure measuring cell
- Analogue electronic evaluation with digital linearisation
- Male connector, in accordance with EN 175 301-803 A
- Plastic, stainless steel housing
- Discharge port G 1/4 A (BSPP) -outer thread

The most important features:

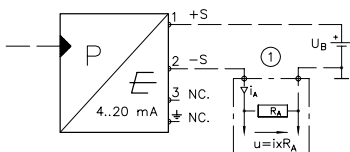
- Nominal pressure stages 100, 250, 400, 600 and 1000 bar
- Precision 1%
- Pressure peak resistance through capillary damping system $\varnothing 0.6$ mm (CDS) resistant to vibrations
- High long-term stability
- Two-wire system, 4 ... 20 mA, load 800 Ohm (at 24 V DC) or three-wire system 0 ... 10 V DC, R_B 10 kOhm
- Material contact parts made of stainless steel (material 316 L and 13-8 PH)
- EMC certified
- Very good price- performance ratio



Figure 1: Electronic pressure transducer types DT 11 and DT 11V

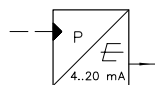
Connection diagram DT 11-...

(Two-wire system, 4 ... 20 mA)



1 Current input

Simplified circuit symbol

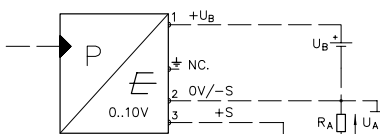


Note

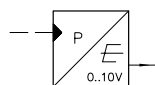
Protective conductor contact not connected.

Connection diagram DT 11V-...

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



Simplified circuit symbol



Note

Protective conductor contact not connected.

Pressure transducer: with current signal

Order coding	Part no.	Measuring range
DT 11-100	6217 8151	0 ... 100 bar
DT 11-250	6217 8152	0 ... 250 bar
DT 11-400	6217 8154	0 ... 400 bar
DT 11-600	6217 8153	0 ... 600 bar
DT 11-1000	6217 8155	0 ... 1000 bar

with voltage signal

Order coding	Part no.	Measuring range
DT 11V-100	6217 8156	0 ... 100 bar
DT 11V-250	6217 8157	0 ... 250 bar
DT 11V-400	6217 8159	0 ... 400 bar
DT 11V-600	6217 8158	0 ... 600 bar
DT 11V-1000	6217 8160	0 ... 1000 bar

Assembly accessories

 Order coding: **K 1/4**

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

 Order coding: **L 1/4**

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

3 Technical data

3.1 General parameters

Description	Electronic pressure transducer
Pressure port	G 1/4 A (BSPP) in accordance with DIN 3852 E, with NBR seal, damping by means of 0.6 mm EDM bore
Materials in contact with hydraulic fluid	Stainless steel (specifications 13-8 PH and 316 L)
Housing material	Stainless steel, plastic
Electrical connection	using male connector, in accordance with EN 175 301-803 A, max. 1.5 mm ² Line diameter Ø6-8 mm (in scope of delivery)
Installation position	As desired
Weight	Approx. 80 g
Protection class IEC 60529 (Female connector mounted correctly)	IP 65 (IP 54 without socket)
Ambient temperature	-30° ... +100°C (also applies for storage)
Compensated area	0° ... +80°C
Medium temperature	-30° ... +100°C
Electro-magnetic compatibility (EMC)	Emitted interference and immunity to interference in accordance with EN 61326 as per EC Directive 89/336 EEC (limit value class B) (HF field up to 30 V/m; HF resistance 10 V)
Vibration resistance in accordance with IEC 60068-2-6	10 g
Shock resistance in accordance with IEC 60068-2-27	500 g
RoHS-compliant	Yes

UL approval ("UL Listed" mark)  IND.CONT.EQ LISTED optionally possible

3.2 Hydraulic parameters

		DT 11V-100 DT 11-100	DT 11V-250 DT 11-250	DT 11V-400 DT 11-400	DT 11V-600 DT 11-600	DT 11V-1000 DT 11-1000
Measuring range	p_{range} [bar]	0 ... 100	0 ... 250	0 ... 400	0 ... 600	0 ... 1000
Admissible overload pressure	p_{max} [bar]	200	500	800	1200	1500
Burst pressure	p_{burst} [bar]	800	1200	1700	1800	1800

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 device may still appear intact on the outside.

Accessory mounting K 1/4 and L 1/4:

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

3.3 Electrical parameters

Pressure transducer DT 11-... (4 ... 20 mA)

Supply voltage	U_B	8 ... 30 V DC Protected against polarity reversal
Max. permissible ripple factor	w	10% (ripple)
Output:		
Output signal	I_A	4 ... 20 mA, two-wire system (limited to 25 mA)
Admissible load	R_A	$R_A [\text{Ohm}] \leq (U_B [\text{V}] - 8 \text{ V}) / 0.02 \text{ A}$
Adjusting time (10... 90%)	t_A	$\leq 6 \text{ ms}$

Pressure transducer DT 11V-... (0 ... 10 V DC)

Supply voltage	U_B	14 ... 30 V DC Protected against polarity reversal
Supply system	I_B	max. 8 mA
Max. permissible ripple factor	w	10% (ripple)
Output:		
Output signal	I_A	0 ... 10 V DC, three-wire system, short-circuit proof
Admissible load	R_A	$\geq 10 \text{ kOhm}$
Adjusting time (10... 90%)	t_A	$\leq 6 \text{ ms}$

3.4 Electro-magnetic compatibility (EMC)

The EMC of the device was tested using an accredited testing laboratory (emitted interference and immunity to interference according to EN 61326). Due to the test set-ups only showing typical uses, this EMC testing does not release the user from carrying out adequate prescribed EMC testing of their complete system (according to Directive 89/336/EC). The following measures increase the EMC:

- The device should be earthed (Warning: earthing via the female connector is not possible)
- The device should be installed in a closed metal cabinet (shielding)
- Supply lines, such as inputs and outputs to and from the device, should be as short as possible. If necessary, they should be shielded and twisted in pairs (to reduce the antennae-like effect for increasing the immunity to interference).

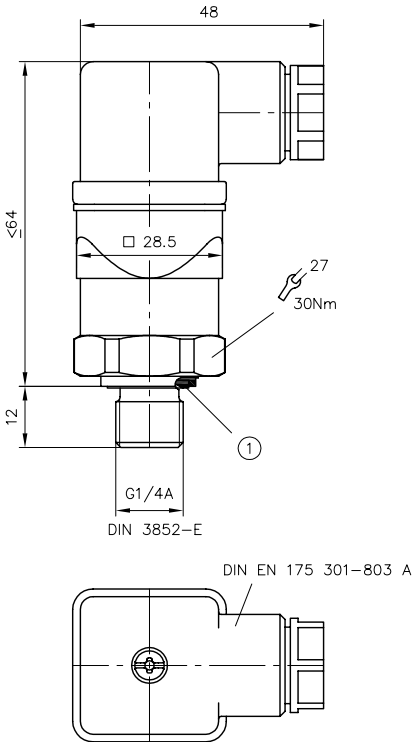
3.5 Instructions for assembly and commissioning

The pressure transducer complies with protection class IP 65 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, decrease the protection against penetration of moisture to protection class IP 54.

4 Unit dimensions

All dimensions in mm, subject to change!

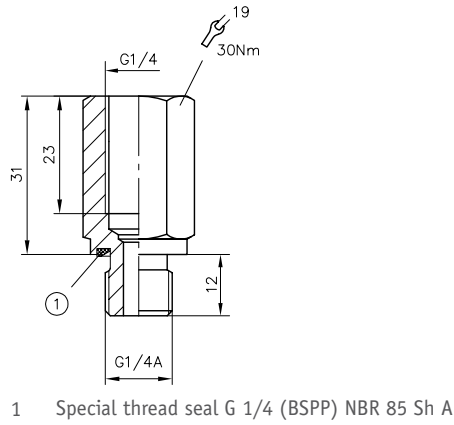
Electronic pressure transducer Types DT 11-... and DT 11V-...



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

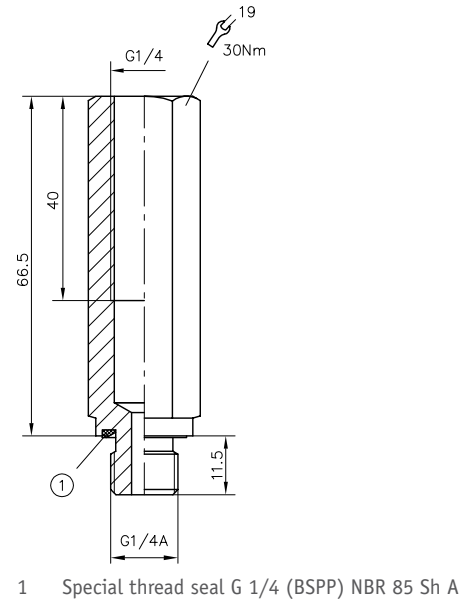
Assembly accessories

Extension type K 1/4



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

Type L 1/4



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

Mounting hole

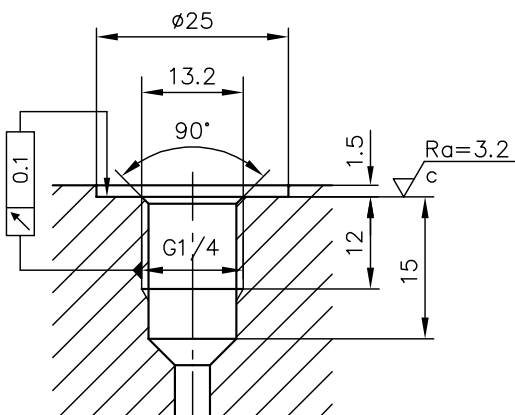


Figure 2: Screw-in thread DIN 3852-X-G 1/4

Further information

Additional versions

- 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