

# Electronic pressure transducer type DT1 and DT1V

Two-wire system 4 .. 20 mA signal output or  
 Three-wire system 0 .. 10V DC signal output  
 Connection via plug conforming DIN 43 650 A



Pressure range  $p_{range} = 1000 \text{ bar}$

## 1. General information

### 1.1 Brief description

The electronic pressure transducers type DT1 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:

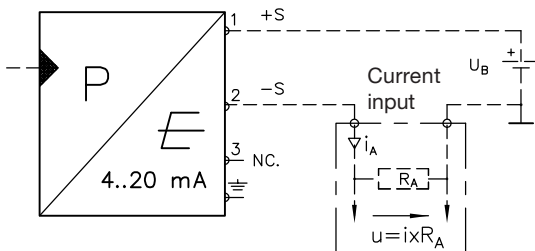
- Thin-film strain gauge
- Analogous amplifier
- Plug conforming DIN 43 650 A
- Housing made of stainless and plastic
- Hydraulic connection via tapped journal G 1/4 (BSPP)

#### Features:

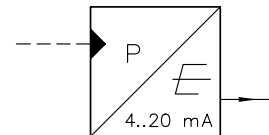
- Nom. pressure ranges 100, 250, 400, 600 and 1000 bar
- Accuracy 1% of  $p_{range}$
- High long term stability
- Two-wire system, 4 .. 20 mA, burden 650 Ohm (at 24V DC) or
- Three-wire system 0 .. 10V DC,  $R_B \geq 5 \text{ kOhm}$
- All parts in contact with the fluid made of stainless (DIN 1.4571 or 1.4542)
- Sturdy industrial design
- High protection class (IP 65)
- Certified EMC



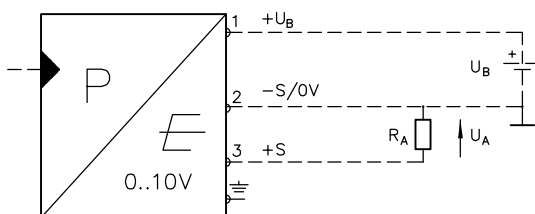
#### Circuitry DT1-... (Two-wire system, 4 .. 20 mA)



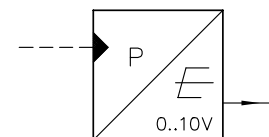
#### Simplified symbol



#### Circuitry DT1V-... (Three-wire system, 0 .. 10V DC)



#### Simplified symbol



The electronic pressure transducers type DT1 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 low to middle quantity applications, where reliability and economy are a must.



### 3.3 Electrical data

#### Accuracy:

Linearity within the compensated pressure range		$\pm 1\%$ of the span (typical $\pm 0.6\%$ )
Repeatability		$\pm 0.1\%$ of the span

#### Temperature drift:

Mean TC of zero		$\pm 0.4\%$ of the span / 10K
Mean TC of the span		$\pm 0.3\%$ of the span / 10K
1-year stability		$\pm 0.3\%$ of the span (at reference conditions)

#### 3.3.1 Pressure transducer type DT1-... (4 .. 20 mA)

Supply voltage	$U_B$	11 .. 30V DC Reverse polarity safe
Max. perm. ripple factor	w	10% (ripple)

The supply voltage  $U_B$  must be minimum 11V 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	$R_A$	$R_A [\text{Ohm}] \leq (U_B[\text{V}] - 11\text{V}) / 0,02\text{A}$
Response time (10...90%)	$t_A$	$\leq 5 \text{ ms}$

#### 3.3.2 Pressure transducer type DT1V-... (0 .. 10V DC)

Supply voltage	$U_B$	14 .. 30V DC Reverse polarity safe
Max. perm. ripple factor	w	10% (ripple)

Output:

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

### 3.4 Electro-magnetic compatibility (EMC)

The EMC of the device was checked by an accredited approval institute (Interference emission acc. to EN 50 081-1 and interference immunity acc. to EN 50082-2). 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
- 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

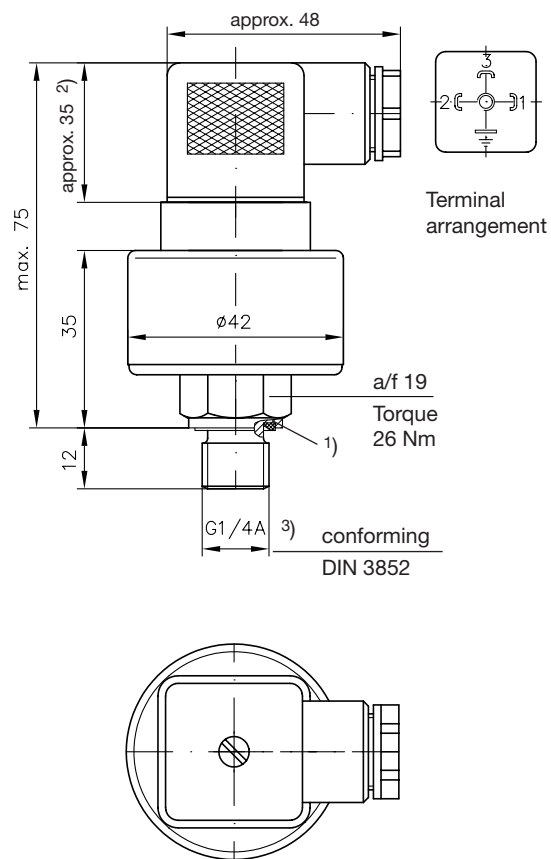
The electronic pressure transducer fulfills protection class IP 65 only when the plug with connection cable is correctly installed. Moisture might intrude when a too thin cable is used or other leaking spots are apparent. This moisture will get to the internal electronics leading to corrosion and malfunction of the device.

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

## 4. Unit dimensions

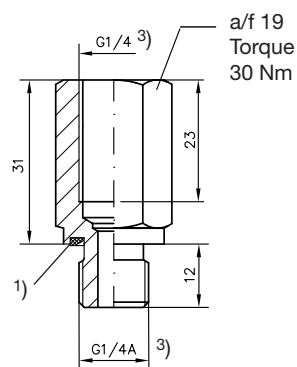
### Electronic pressure transducer

Type DT1 - ...  
DT1V-...

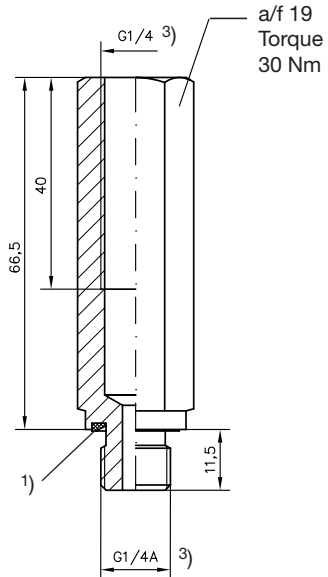


### Mounting accessories

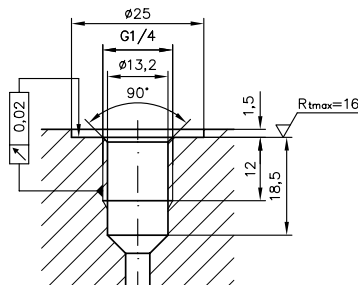
Type K 1/4



Type L 1/4



### Mounting hole



1) Fitting seal G 1/4 NBR

2) This dimension depends on the utilized brand, but may be up to 40 mm conforming DIN 43 650.

3) G 1/4(A)  $\triangle$  BSPP

All dimensions in mm, subject to change without notice!