

# Pressure transmitter

## dTRANS p30

### Type 404366

### General application

Pressure transmitters are used to measure the relative (gauge) and absolute pressures in liquids or gases. The measuring device for the transmitter is a piezo-resistive element or a thin-film strain gauge. The pressure is converted into an electrical signal.

### Technical data

#### Reference conditions

as per DIN 16 086 and IEC 770/5.3

#### Ranges

see order details

#### Overload limit

ranges

0 – 25 bar 3 x full scale

ranges

0 – 40 to 0 – 250 bar 2 x full scale

ranges

0 – 400 to 0 – 600 bar 1.5 full scale

#### Bursting pressure

ranges 0 – 40 bar ≤ 4 x full scale

ranges

0 – 60 to 0 – 100 bar 8 x full scale

ranges

0 – 160 to 0 – 400 bar 5 x full scale

ranges

0 – 600 bar 3 x full scale

#### Parts in contact with medium

normally: st. steel, Mat. Ref. 1.4571 / 1.4435

for range ≥ 60 bar, Mat. Ref. 1.4571 / 1.4542

#### Output

0 – 20 mA

3-wire burden ≤ (U<sub>B</sub>-12 V) / 0.02A

4 – 20 mA

2-wire burden ≤ (U<sub>B</sub>-10 V) / 0.02A

4 – 20 mA

3-wire burden ≤ (U<sub>B</sub>-12 V) / 0.02A

0.5 – 4.5 V burden ≥ 50 kΩ

1 – 6 V burden ≥ 10 kΩ

0 – 10 V burden ≥ 10 kΩ

#### Burden error

0.5% max.

#### Zero offset

≤ 0.3% of full scale

#### Thermal hysteresis

± 0.5% max. of full scale

(within compensated temperature range)

± 1% max. for ranges 0 – 250 mbar

0 – 400 mbar

0 – 600 mbar

#### Ambient temperature error

within range 0 to +100°C

(compensated temperature range)

for ranges 250 and 400 mbar

zero: ≤ 0.03%/°C typical,

≤ 0.05%/°C max.

span: ≤ 0.02%/°C typical,

≤ 0.04%/°C max.

for ranges above 600 mbar

zero: ≤ 0.02%/°C typical,

≤ 0.04%/°C max.

span: ≤ 0.02%/°C typical,

≤ 0.04%/°C max.

#### Deviation from characteristic

≤ 0.5% of full scale

(limit point adjustment)

#### Hysteresis

≤ 0.1% of full scale

#### Repeatability

≤ 0.05% of full scale

#### Response time

with current output (output 402, 405 or 406):

≤ 3 msec max.

with voltage output (output 412, 415, 418 or 420):

≤ 10 msec max.

#### Stability per year

≤ 0.5% of full scale

#### Supply

10 – 30 V DC (output 4 – 20 mA and 1 – 6 V)

5 V DC (output 0.5 – 4.5 V)

11.5 – 30 V DC (output 0 – 10 V)

11.5 – 30 V DC (output 0(4) – 20 mA)



Ripple: the voltage spikes must not go above or below the values specified for the supply

max. current drawn: approx. 25 mA

#### Supply voltage error

≤ 0.02% per V

(nominal supply voltage 24 V DC)

in proportion for supply 5 V DC (±0.5 V)

#### Permissible ambient temperature

-20 to +100°C

#### Storage temperature

-40 to +125°C

#### Permissible temperature of medium

-30 to +120°C

#### Electromagnetic compatibility

EN 61 326

interference emission: Class B

noise immunity: industrial requirements

The pressure transmitter thus fulfils all requirements of EN 50 082-2 (CE mark) for use in industrial areas.

#### Mechanical shock

(to IEC 68-2-27)

100 g/1 msec

#### Mechanical vibration

(to IEC 68-2-6)

20 g max. at 15 – 2000 Hz

#### Protection

with terminal box

IP65 to EN 60 529

(connecting cable diameter

5 mm min., 7 mm max.)

with connecting cable

IP67 to EN 60 529

#### Housing

stainless steel, Mat. Ref. 1.4301

polycarbonate GF

**Pressure connection**  
see order details;  
other connections on request

**Electrical connection**  
see order details  
terminal box to DIN 43 650,  
Form A,  
conductor cross-section up to 1.5 mm<sup>2</sup>;  
or  
attached 4-core PVC cable, length 2 m  
other lengths on request

**Nominal position**  
unrestricted

**Weight**  
200 g

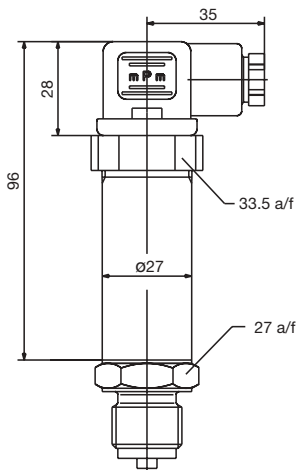
### Electrical connection

Connection		Terminals	
		Plug	Cable
Supply 10 – 30 V DC 11.5 – 30 V DC 5 V DC		1 L+ 2 L-	white grey
Output 1 – 6 V 0 – 10 V 0.5 – 4.5 V		2 - 3 +	grey yellow
Output 4 – 20 mA, 2-wire		1 + 2 - proportional current 4 to 20 mA in supply	white grey
Output 0(4) – 20 mA, 3-wire		2 - 3 +	grey yellow
Protective earth			
Screen			black

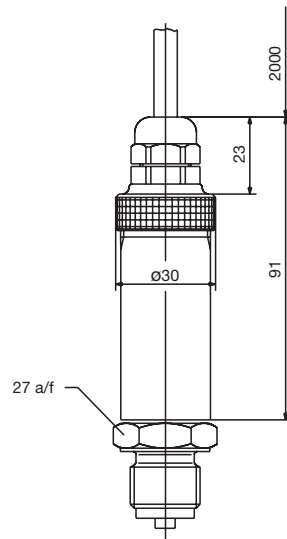
**Caution**  
Earth instrument!  
(pressure connection and / or or screen)

### Dimensions

Electrical connection  
with terminal box  
(61)

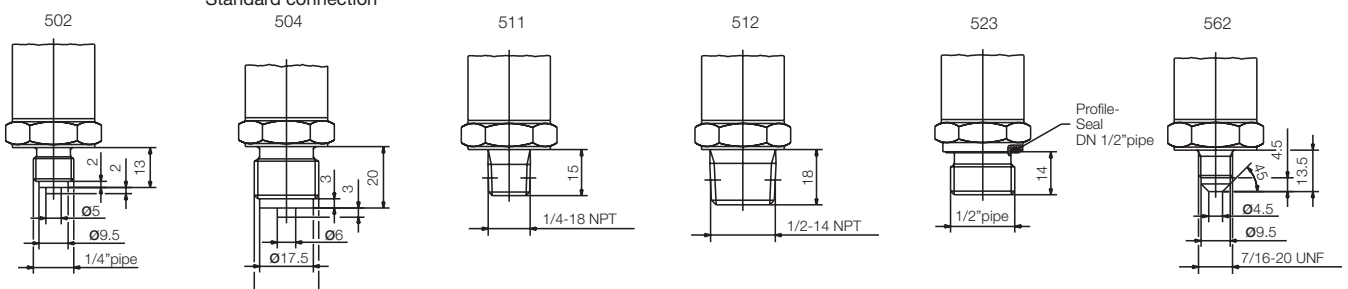


Electrical connection  
with attached cable  
(12)

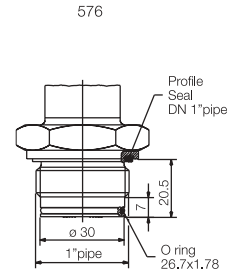
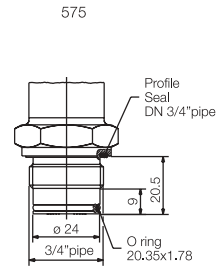
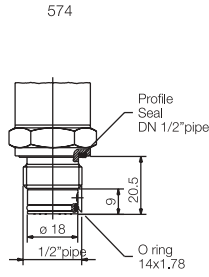
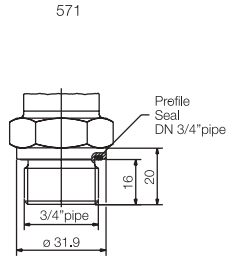
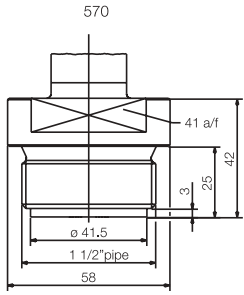


### connections (not front-flush)

Standard connection

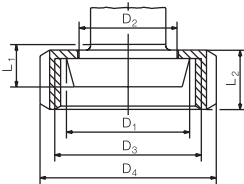


front-flush connections



603-607

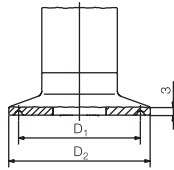
Cone nipple with slotted union nut to DIN 11 851



NTS	DN	øD <sub>1</sub>	øD <sub>2</sub>	øD <sub>3</sub>	øD <sub>4</sub>	L <sub>1</sub>	L <sub>2</sub>
603	20	36.5	30	RD 44x1/8	54	13	
604	25	44	35	RD 52x1/8	63		21
605	32	50	41	RD 58x1/8	70	15	
606	40	56	48	RD 65x1/8	78		
607	50	68.5	61	RD 78x1/8	92	16	22

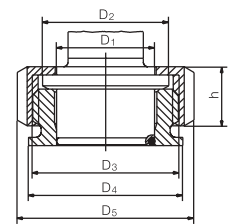
612-616

Clamp connection to DIN 32 676



NTS	DN	øD <sub>1</sub>	øD <sub>2</sub>
612	20	27.5	34
613	25	43.5	50.5
616	50	56.5	64

652-654



NTS	DN	øD <sub>1</sub>	øD <sub>2</sub>	øD <sub>3</sub>	øD <sub>4</sub>	øD <sub>5</sub>	h
652	25	35	45	RD 52x1/8	55	63	21
653	40	48	56	RD 65x1/8	70	78	21
654	50	61	68.5	RD 78x1/8	84	92	22

## Order details

### Basic type

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Basic type extensions	
	/000 none
	/023 reduced deviation from characteristic <sup>1</sup>
	/000 reduced ambient temperature error <sup>2</sup>
	/999 special version
Input	
	451 0 –0.25 bar gauge pressure
	452 0 – 0.4 bar gauge pressure
	453 0 – 0.6 bar gauge pressure
	454 0 – 1.0 bar gauge pressure
	455 0 – 1.6 bar gauge pressure
	456 0 – 2.5 bar gauge pressure
	457 0 – 4 bar gauge pressure
	458 0 – 6 bar gauge pressure
	459 0 – 10 bar gauge pressure
	460 0 – 16 bar gauge pressure
	461 0 – 25 bar gauge pressure
	462 0 – 40 bar gauge pressure
	463 0 – 60 bar gauge pressure
	464 0 – 100 bar gauge pressure
	465 0 – 160 bar gauge pressure
	466 0 – 250 bar gauge pressure
	467 0 – 400 bar gauge pressure
	468 0 – 600 bar gauge pressure
	478 -1 – 0 bar gauge pressure
	479 -1 – 0.6 bar gauge pressure
	480 -1 – 1.6 bar gauge pressure
	481 -1 – 3 bar gauge pressure
	482 -1 – 5 bar gauge pressure
	483 -1 – 9 bar gauge pressure
	484 -1 – 15 bar gauge pressure
	485 -1 – 24 bar gauge pressure
	487 0 – 0.6 bar absolute pressure
	488 0 – 1.0 bar absolute pressure
	489 0 – 1.6 bar absolute pressure
	490 0 – 2.5 bar absolute pressure
	491 0 – 4 bar absolute pressure
	492 0 – 6 bar absolute pressure
	493 0 – 10 bar absolute pressure
	494 0 – 16 bar absolute pressure
	495 0 – 25 bar absolute pressure
	998 special range absolute pressure
	999 special range gage pressure
Output	
	402 0 to 20 mA 3-wire
	405 4 to 20 mA 2-wire
	406 4 to 20 mA 3-wire
	412 0.5 to 4.5 V 3-wire
	415 0 to 10 V 3-wire
	418 1 to 5 V 3-wire

			420	1 to 6 V 3-wire
				<b>Process connection (not front-flush)</b>
			502	1/4" pipe to EN 837
			504	1/2" pipe to EN 837 (standard connection)
			511	1/4"-18 NPT to DIN 837
			512	1/2"-14 NPT to DIN 837
			523	1/2" pipe to DIN 3852 T11
			562	7/16"-20 UNF
			998	suitable for connecting to pressure separator
				<b>Process connection (front-flush)</b>
			570	1 1/2" pipe <sup>4</sup>
			571	3/4" pipe <sup>4</sup>
			574	1/2" pipe with front seal <sup>3</sup>
			575	3/4" pipe with front seal <sup>4</sup>
			576	1" pipe with front seal <sup>4</sup>
			603	taper pressure connection with slotted nut to DIN11 851, DN20 <sup>4</sup>
			604	taper pressure connection with slotted nut to DIN 11 851, DN25 <sup>4</sup>
			605	taper pressure connection with slotted nut to DIN 11 851, DN32 <sup>4</sup>
			606	taper pressure connection with slotted nut to DIN 11 851, DN40 <sup>4</sup>
			607	taper pressure connection with slotted nut to DIN 11 851, DN50 <sup>4</sup>
			612	clamp pressure connection to DIN 32 676, DN20 <sup>4</sup>
			613	clamp pressure connection to DIN 32 676, DN25 <sup>4</sup>
			614	clamp pressure connection to DIN 32 676, DN32 <sup>4</sup>
			615	clamp pressure connection to DIN 32 676, DN40 <sup>4</sup>
			616	clamp pressure connection to DIN 32 676, DN50 <sup>4</sup>
			652	tank connection with slotted union nut <sup>4</sup>
				<b>Material of process connection</b>
			20	stainless steel
				<b>Electrical connection</b>
			12	with attached cable (cable length in plain text)
			61	with terminal box

404366 / [ ] - [ ] - [ ] - [ ] - 20 - [ ] Order code

<sup>1</sup> only for 4 to 20 mA 2-wire output  
not for ranges between 0.25 and 0.4 bar  
not with +/- ranges  
not with process connection 574.

<sup>2</sup> only for spans between 4 and 25 bar  
only for output 0 to 10 V or 4 to 20 mA 2-wire or 0(4) to 20 mA 3-wire  
not with process connection 574

<sup>3</sup> only for ranges from 1 to 400 bar

<sup>4</sup> only for ranges up to 25 bar