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JUMO Instrument Co. Ltd.
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JUMO Process Control, Inc.
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JUMO dTRANS p31

Pressure transmitter

for elevated media temperatures

General application

Pressure transmitters are used for measuring the relative (gauge) and absolute pressures in liquids and gases. The pressure transmitter operates on the piezo-resistive measuring principle. The pressure is converted into an electrical signal.

Technical data

Reference conditions

to DIN 16 086 and IEC 770/5.3

Ranges

see order details

Overload limit

all ranges 3 x full scale

Bursting pressure

all ranges 4 x full scale

Parts in contact with medium

standard: stainless steel,
Mat. Ref. 1.4571 / 1.4435

Output

0 – 20 mA
3-wire burden $\leq (U_B - 12 \text{ V}) / 0.02 \text{ A}$
4 – 20 mA
2-wire burden $\leq (U_B - 10 \text{ V}) / 0.02 \text{ A}$
4 – 20 mA
3-wire burden $\leq (U_B - 12 \text{ V}) / 0.02 \text{ A}$
0.5 – 4.5 V burden $\geq 50 \text{ k}\Omega$
1 – 6 V burden $\geq 10 \text{ k}\Omega$
0 – 10 V burden $\geq 10 \text{ k}\Omega$

Burden error

< 0.5% max.

Zero offset

$\leq 0.3\%$ of full scale

Thermal hysteresis

$\leq \pm 0.5\%$ of full scale
(within compensated temperature range)

Ambient temperature error

within range 0 to +100°C
(compensated temperature range)

zero: $\leq 0.02\%/^\circ\text{C}$ typical,
 $\leq 0.04\%/^\circ\text{C}$ max.

span: $\leq 0.02\%/^\circ\text{C}$ typical,
 $\leq 0.04\%/^\circ\text{C}$ max.

Deviation from characteristic

$\leq 0.5\%$ of full scale
(limit point setting)

for basic type extension 023:

$\leq 0.2\%$ of full scale
(limit point setting)

Hysteresis

$\leq 0.1\%$ of full scale

Repeatability

$\leq 0.05\%$ 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 over 1 year

$\leq 0.5\%$ 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

$\leq 0.02\%$ per V
(nominal supply voltage 24 V DC)
ratiometric with supply voltage 5 V DC
($\pm 0.5 \text{ V}$)

Permissible ambient temperature

(max. housing temperature)
-20 to +125°C

Storage temperature

-40 to +125°C

Permissible temperature of medium

-30 to +200°C

Electromagnetic compatibility

EN 61 326

interference emission: Class B



immunity to interference: to industrial requirements

Mechanical shock

(to IEC 68-2-27)
100 g/1 msec

Mechanical vibration

(to IEC 68-2-6)
max. 20 g at 15–2000 Hz

Protection

with terminal box
IP65 to EN 60 529
(connecting cable diameter
min. 5 mm, max. 7 mm).

with circular connector M12 x 1 or
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 EN 175301-803,
conductor cross-section up to
max. 1.5 mm²;
or
attached 4-core PVC cable, length 2 m
other lengths on request

or
circular connector M12 x 1, 4-pole

Nominal position

any

Weight

200 g

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Electrical connection

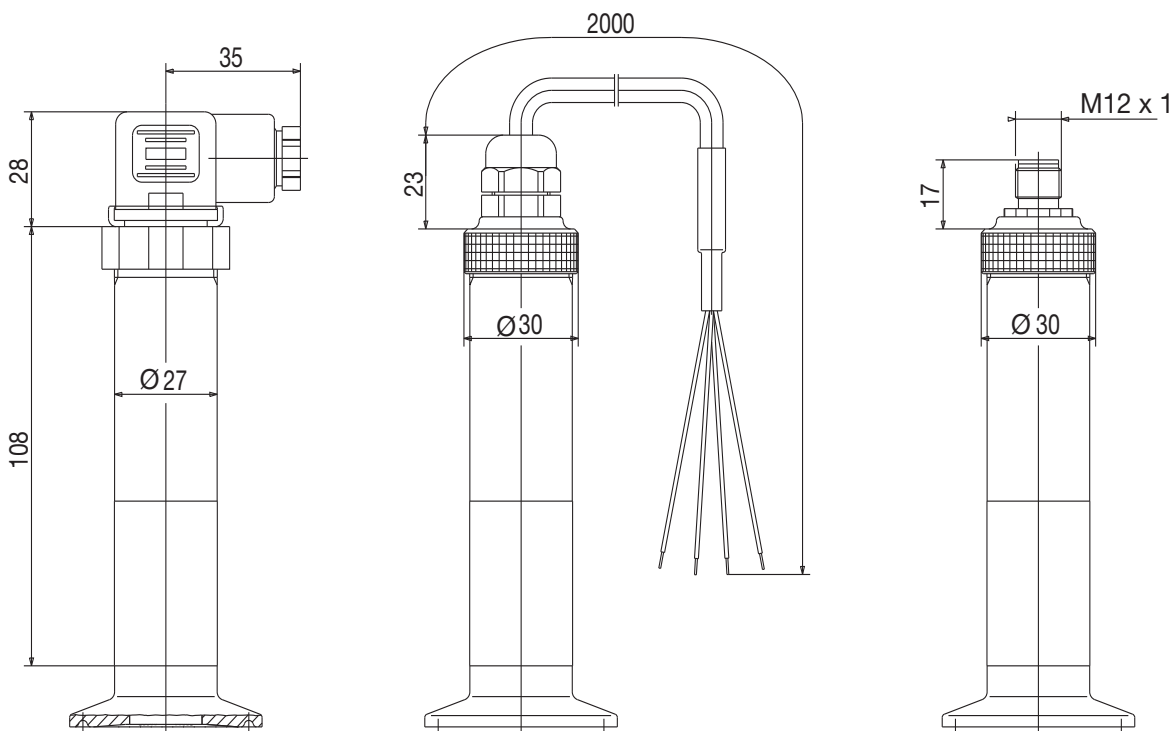
Connection			Terminals		
				Cable	M12 x 1
Supply	(for output)		1L+ 2L-	white gray	1+ 3-
10 – 30 V DC	(1 –(5) 6 V)				
11.5 – 30 V DC	(0 – 10 V) (0(4) – 20 mA, 3-wire)				
5 V DC	(0.5 – 4.5 V)				
Supply	(for output)		1L+ 2L-	white gray	1+ 3-
10 – 30 V DC	(4 – 20 mA, 2-wire)				
Output			2- 3+	gray yellow	3- 4+
1 – 6 V					
0 – 10 V					
0.5 – 4.5 V					
4 – 20 mA, 3-wire					
Output			1+ 2-	white gray	1+ 3-
4 – 20 mA, 2-wire					
			proportional current 4 – 20 mA in supply		
Screen				black	2

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

Connector assignment (M12 x 1)



Dimensions



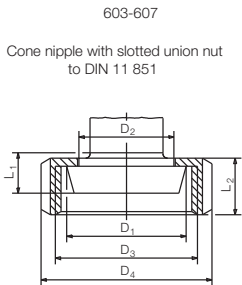
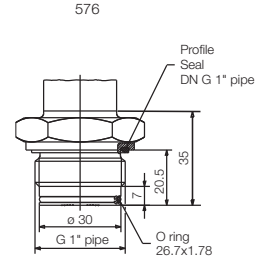
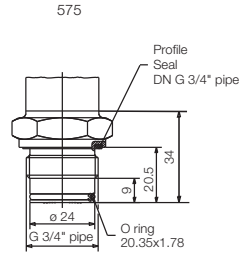
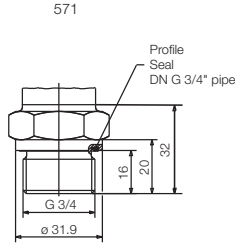
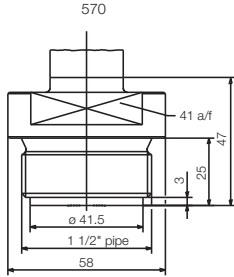
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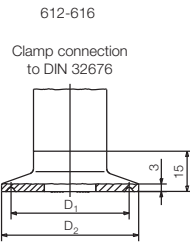
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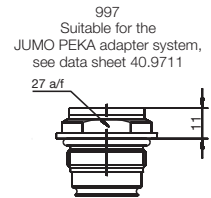
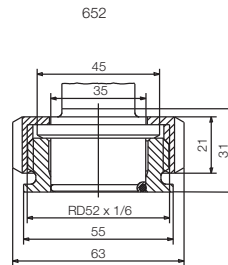
Front-flush connections



	DN	øD ₁	øD ₂	øD ₃	øD ₄	L ₁	L ₂
603	20	36.5	30	RD 44x1/6	54	13	21
604	25	44	35	RD 52x1/6	63		
605	32	50	41	RD 58x1/6	70	15	
606	40	56	48	RD 65x1/6	78		
607	50	68.5	61	RD 78x1/6	92	16	



	DN DIN 32676	DN (Zoll)	Nominal Size ISO 2852	øD ₁	øD ₂
612	20 15		12	27.5	34
			12.7		
			17.2		
613	25 32 40	1" 1.5"	25	43.5	50.5
			33.7		
			38		
616	50	2"	40	56.5	64
			51		



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**Order details****Basic type**

402050 Pressure transmitter JUMO dTRANS p31

| **Basic type extensions**

| /000 none
| /023 reduced deviation from characteristic¹
| /999 special version

| | **Input**

| | 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
| | 478 -1 0 bar gauge pressure
| | 479 -1 0.6 bar gauge pressure
| | 480 -1 1.5 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
| | 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
| | 999 special range

| | | **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

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					Process connection (front-flush)
				550	aseptic to DIN 11 864-1A, DN20
				551	aseptic to DIN 11 864-1A, DN25
				552	aseptic to DIN 11 864-1A, DN32
				553	aseptic to DIN 11 864-1A, DN40
				554	aseptic to DIN 11 864-1A, DN50
				570	G1 ^{1/2}
				571	G ^{3/4}
				575	G ^{3/4} front seal
				576	G1 front seal
				584	SMS, DN1"
				585	SMS, DN1 1/2"
				586	SMS, DN2"
				603	taper connection with slotted nut to DIN11 851, DN20
				604	taper connection with slotted nut to DIN11 851, DN25
				605	taper connection with slotted nut to DIN11 851, DN32
				606	taper connection with slotted nut to DIN11 851, DN40
				607	taper connection with slotted nut to DIN11 851, DN50
				612	clamp to DIN 32676, DN20
				613	clamp to DIN 32676, DN25, DN32 and DN40
				616	clamp to DIN 32676, DN50
				623	small flange to DIN 28 403, DN25
				652	tank connection with slotted union nut
				661	clamping flange (DRD), 65 dia.
				684	Varivent, DN15/10
				685	Varivent, DN32/25
				686	Varivent, DN50/40
				997	JUMO-PEKA ²
					Material of process connection
				20	stainless steel
					Electrical connection
				12	with attached cable (cable length in plain text)
				36	with circular connector M12 x 1
				61	with terminal box

402050 / [] - [] - [] - [] - 20 - [] **Order code**

¹ only for output 4 to 20 mA 2-wire.
 not for +/- ranges.

² suitable process connection adapter, see data sheet 40.9711