JUMO GmbH & Co. KG
Delivery address: Mackenrodtstraße 14,
36039 Fulda, Germany
Postal address: 36035 Fulda, Germany
Phone: +49 661 6003-0
Fax: +49 661 6003-607
e-mail: mail@jumo.net
Internet: www.jumo.net

JUMO Instrument Co. Ltd.
JUMO House
Temple Bank, Riverway
Harlow, Essex CM 20 2TT, UK
Phone: +44 1279 635533
Fax: +44 1279 635262
e-mail: sales@jumo.co.uk
Internet: www.jumo.co.uk

JUMO Process Control, Inc.
8 Technology Boulevard
Canastota, NY 13032, USA
Phone: 315-697-JUMO
1-800-554-JUMO
Fax: 315-697-5867
e-mail: info@jumo.us
Internet: www.jumo.us

Pressure transmitter for elevated media temperatures JUMO dTRANS p31

Type 402050

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 ≤ (U_B-12 V) / 0.02A
4 — 20 mA
2-wire burden ≤ (U_B-10 V) / 0.02A
4 — 20 mA
3-wire burden ≤ (U_B-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% of full scale
(within compensated temperature range)

Ambient temperature error
within range 0 to +100°C
(compensated temperature range)
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 setting)
for basic type extension 023:
≤ 0.2% of full scale
(limit point setting)

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 over 1 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)
ratiometric with supply voltage 5 V DC (±0.5 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 mm^2;
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

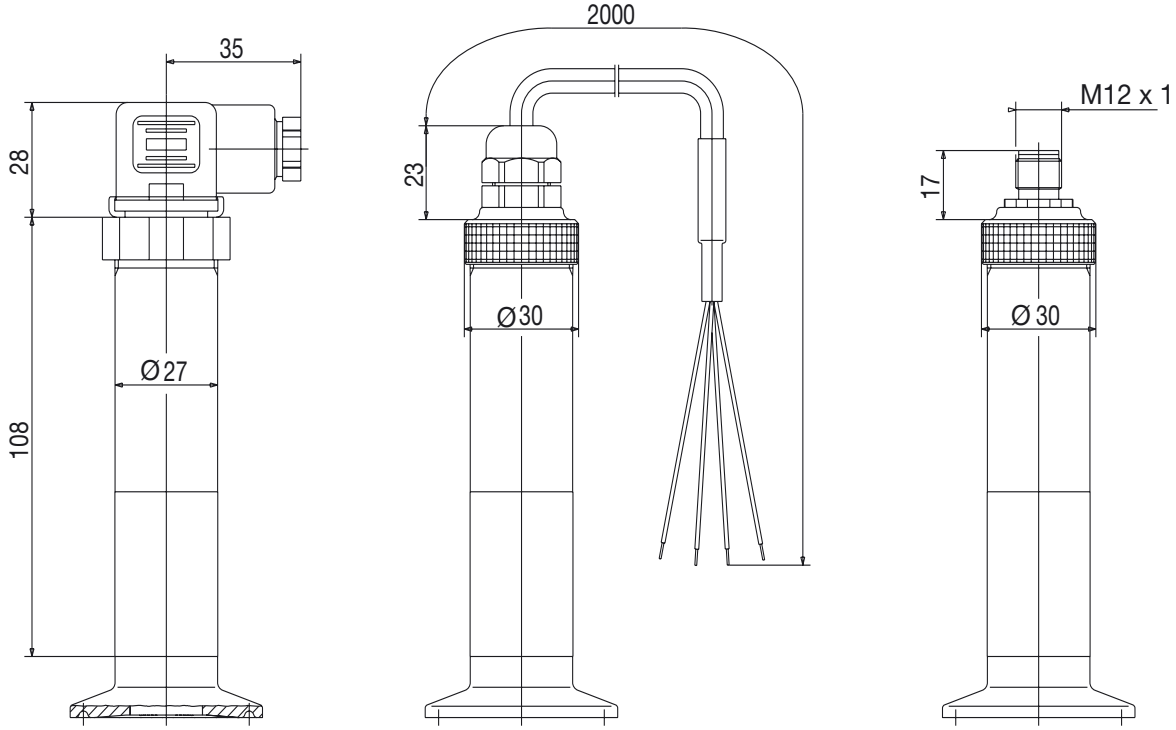
Electrical connection

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

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

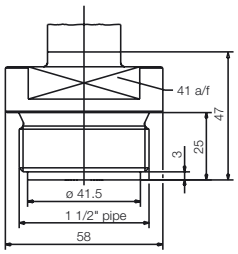
Connector assignment (M12 x 1)

Dimensions

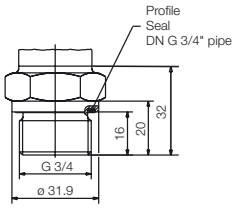


Front-flush connections

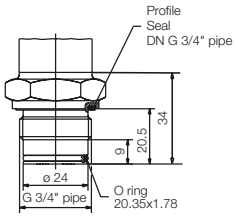
570



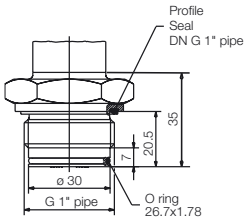
571



575

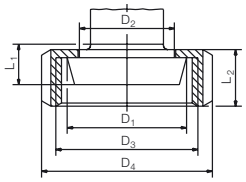


576



603-607

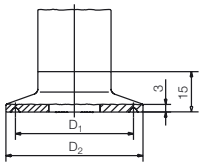
Cone nipple with slotted union nut to DIN 11 851



	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	15	
605	32	50	41	RD 58x1/6	70		
606	40	56	48	RD 65x1/6	78		
607	50	68.5	61	RD 78x1/6	92	16	22

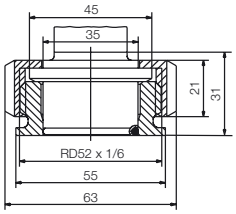
612-616

Clamp connection to DIN 32676



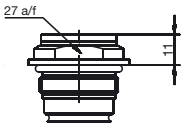
	DN DIN 32676	DN (Zoll)	Nominal Size ISO 2852	øD_1	øD_2
612	20 15		12 12.7 17.2 21.3	27.5	34
613	25 32 40	1" 1,5"	25 33.7 38	43.5	50.5
616	50	2"	40 51	56.5	64

652



997

Suitable for the JUMO PEKA adapter system, see data sheet 40.9711



Order details

	Basic type					
402050	Pressure transmitter JUMO dTRANS p31					
I		**Basic type extensions**				
I	/000	none				
I	/023	reduced deviation from characteristic[1]				
I	/999	special version				
I	I		**Input**			
I	I	454	0	1.0 bar gauge pressure		
I	I	455	0	1.6 bar gauge pressure		
I	I	456	0	2.5 bar gauge pressure		
I	I	457	0	4 bar gauge pressure		
I	I	458	0	6 bar gauge pressure		
I	I	459	0	10 bar gauge pressure		
I	I	460	0	16 bar gauge pressure		
I	I	461	0	25 bar gauge pressure		
I	I	462	0	40 bar gauge pressure		
I	I	463	0	60 bar gauge pressure		
I	I	478	-1	0 bar gauge pressure		
I	I	479	-1	0.6 bar gauge pressure		
I	I	480	-1	1.5 bar gauge pressure		
I	I	481	-1	3 bar gauge pressure		
I	I	482	-1	5 bar gauge pressure		
I	I	483	-1	9 bar gauge pressure		
I	I	484	-1	15 bar gauge pressure		
I	I	485	-1	24 bar gauge pressure		
I	I	488	0	1.0 bar absolute pressure		
I	I	489	0	1.6 bar absolute pressure		
I	I	490	0	2.5 bar absolute pressure		
I	I	491	0	4 bar absolute pressure		
I	I	492	0	6 bar absolute pressure		
I	I	493	0	10 bar absolute pressure		
I	I	494	0	16 bar absolute pressure		
I	I	495	0	25 bar absolute pressure		
I	I	999	special range			
I	I	I		**Output**		
I	I	I	402	0 to 20 mA 3-wire		
I	I	I	405	4 to 20 mA 2-wire		
I	I	I	406	4 to 20 mA 3-wire		
I	I	I	412	0.5 to 4.5 V 3-wire		
I	I	I	415	0 to10 V 3-wire		
I	I	I	418	1 to 5 V 3-wire		
I	I	I	420	1 to 6 V 3-wire		
I	I	I	I		**Process connection (front-flush)**	
I	I	I	I	550	aseptic to DIN 11 864-1A, DN20	
I	I	I	I	551	aseptic to DIN 11 864-1A, DN25	
I	I	I	I	552	aseptic to DIN 11 864-1A, DN32	
I	I	I	I	553	aseptic to DIN 11 864-1A, DN40	
I	I	I	I	554	aseptic to DIN 11 864-1A, DN50	
I	I	I	I	570	G$1^1/_2$	
I	I	I	I	571	G$^3/_4$	

I	I	I	I	575	$G^3/_4$ front seal
I	I	I	I	576	G1 front seal
I	I	I	I	584	SMS, DN1"
I	I	I	I	585	SMS, DN1 $^1/_2$"
I	I	I	I	586	SMS, DN2"
I	I	I	I	603	taper connection with slotted nut to DIN11851, DN20
I	I	I	I	604	taper connection with slotted nut to DIN11851, DN25
I	I	I	I	605	taper connection with slotted nut to DIN11851, DN32
I	I	I	I	606	taper connection with slotted nut to DIN11851, DN40
I	I	I	I	607	taper connection with slotted nut to DIN11851, DN50
I	I	I	I	612	clamp to DIN 32676, DN20
I	I	I	I	613	clamp to DIN 32676, DN25, DN32 and DN40
I	I	I	I	616	clamp to DIN 32676, DN50
I	I	I	I	623	small flange to DIN 28 403, DN25
I	I	I	I	652	tank connection with slotted union nut
I	I	I	I	661	clamping flange (DRD), 65 dia.
I	I	I	I	684	Varivent, DN15/10
I	I	I	I	685	Varivent, DN32/25
I	I	I	I	686	Varivent, DN50/40
I	I	I	I	997	JUMO-PEKA[2]
I	I	I	I		**Material of process connection**
I	I	I	I	I	20 stainless steel
I	I	I	I	I	I **Electrical connection**
I	I	I	I	I	I 12 with attached cable (cable length in plain text)
I	I	I	I	I	I 36 with circular connector M12 x 1
I	I	I	I	I	I 61 with terminal box
I	I	I	I	I	I I

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