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# JUMO dTRANS p30

## Pressure Transmitter

### 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 16086 and DIN 60770

**Ranges**  
 see order details

**Overload limit**  
 ranges 0 to 25 bar  
 3 x full scale  
 ranges "0 to 40 bar" up to  
 "0 to 250 bar"  
 2 x full scale  
 ranges "0 to 400 bar" up to  
 "0 to 600 bar"  
 1.5 full scale

**Bursting pressure**  
 ranges 0 to 40 bar  
 ≤ 4 x full scale  
 ranges "0 to 60 bar" up to  
 "0 to 100 bar"  
 8 x full scale  
 ranges "0 to 160 bar" up to  
 "0 to 400 bar"  
 5 x full scale  
 ranges 0 to 600 bar  
 3 x full scale

**Parts in contact with medium**  
 normally:  
 Stainless steel 316 Ti/316 L  
 for range ≥ 60 bar:  
 Stainless steel 316 Ti/630

**Output**  
 0 to 20 mA, three-wire,  
 burden ≤ (U<sub>B</sub>-12 V) ÷ 0.02 A  
 4 to 20 mA, two-wire,  
 burden ≤ (U<sub>B</sub>-10 V) ÷ 0.02 A  
 4 to 20 mA, three-wire,  
 burden ≤ (U<sub>B</sub>-12 V) ÷ 0.02 A  
 0.5 to 4.5 V, burden ≥ 50 kΩ  
 1 to 6 V, burden ≥ 10 kΩ  
 0 to 10 V, burden ≥ 10 kΩ

**Burden error**  
 < 0.5 % max.

**Zero offset**  
 ≤ 0.3% MSP (measuring span)

**Thermal hysteresis**  
 ≤ ± 0.5 % max. MSP  
 (within compensated temperature range)  
 ≤ ± 1 % max. for ranges  
 0 to 250 mbar  
 0 to 400 mbar  
 0 to 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.  
 measuring 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.  
 with basic type extension 024:  
 zero: ≤ 0.01 %/°C

**Deviation from characteristic**  
 ≤ 0.5 % MSP (limit point adjustment)  
 with basic type extension 023:  
 ≤ 0.2 % MSP (limit point setting)

**Hysteresis**  
 ≤ 0.1 % MSP

**Repeatability**  
 ≤ 0.05 % MSP

**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 % MSP



Type 404366 with terminal box

**Voltage supply**  
 DC 10 to 30 V (output 4 to 20 mA and  
 1 to 6 V)  
 DC 5 V (output 0.5 to 4.5 V)  
 DC 11.5 to 30 V (output 0 to 10 V)  
 DC 11.5 to 30 V (output 0(4) to 20 mA)  
 Ripple: the voltage spikes must not go above  
 or below the values specified for the voltage  
 supply

Requirements: The device must be equipped  
 with an electrical circuit that meets the require-  
 ments of EN 61010-1 with regard to "Limited-  
 energy circuits".

max. current drawn: approx. 25 mA

**Supply voltage error**  
 ≤ 0.02 % per V  
 (nominal supply voltage DC 24 V)  
 in proportion for voltage supply  
 DC 5 V (±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 61326  
 interference emission: Class B<sup>1</sup>  
 noise immunity: industrial requirements

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## Mechanical shock

(to IEC 68-2-27)

100 g/1 msec

## Mechanical vibration

(to IEC 68-2-6)

20 g max. at 15 to 2000 Hz

## Protection

with terminal box

IP65 to EN 60529

(connecting cable diameter 5 mm min.,  
7 mm max.)

with connecting cable

IP67 to EN 60529

with circular connector M12 × 1

IP67 to EN 60529

## Housing

Stainless steel 304

Polycarbonate GF

## Pressure connection

see order details;

other connections on request

## Electrical connection

see order details

terminal box to DIN 43650, 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

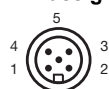
200 g

1 The product is suitable for industrial use as well as for households and small businesses.

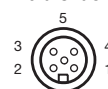
## Electrical connection

| Connection                                                       |  | Terminals                                                          |                |          |
|------------------------------------------------------------------|--|--------------------------------------------------------------------|----------------|----------|
|                                                                  |  | Plug                                                               | Cable          | M12 × 1  |
| Voltage supply<br>DC 10 to 30 V<br>DC 11.5 to 30 V<br>DC 5 V     |  | 1 L+<br>2 L-                                                       | white<br>grey  | 1+<br>3- |
| Output<br>1 to 6 V<br>0 to 10 V<br>0.5 to 4.5 V                  |  | 2 -<br>3 +                                                         | grey<br>yellow | 3-<br>4+ |
| Output 4 to 20 mA, two-wire                                      |  | 1 +<br>2 -<br>Proportional current 4 to 20 mA<br>in voltage supply | white<br>grey  | 1+<br>3- |
| Output 0(4) to 20 mA, three-wire                                 |  | 2 -<br>3 +                                                         | grey<br>yellow | 3-<br>4+ |
| Protective conductor                                             |  |                                                                    |                |          |
| Screen                                                           |  |                                                                    | black          | 2        |
| Caution:<br>Earth device (pressure connection and/or  or screen) |  |                                                                    |                |          |

## Pin assignment M12 × 1



## Cable box M12 × 1

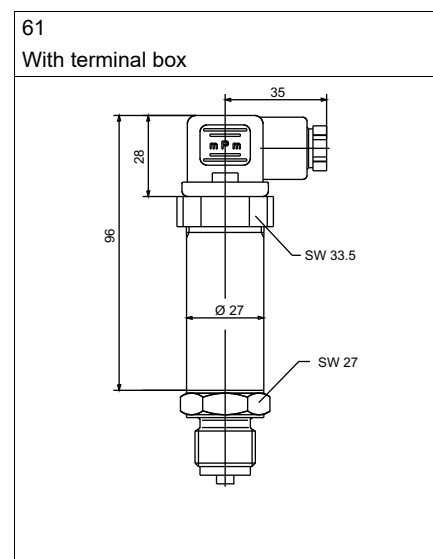
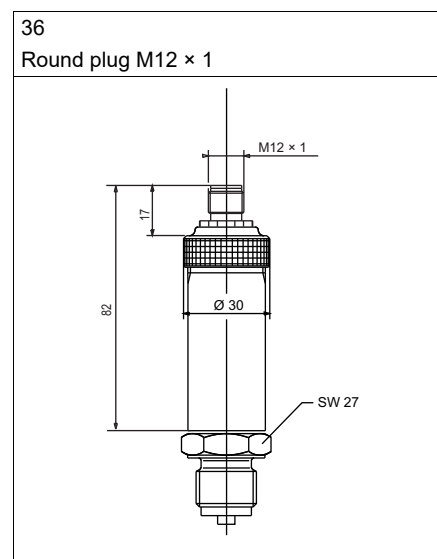
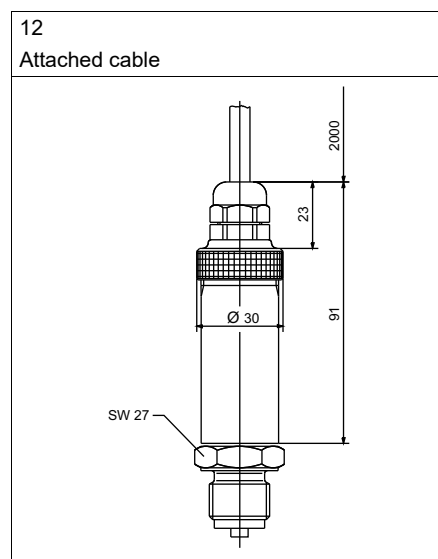


## Color assignment: Cable box

|      |                       |
|------|-----------------------|
| 1 WH | White                 |
| 2 BN | Brown                 |
| 3 GN | Green                 |
| 4 YE | Yellow                |
| 5    | Pressure compensation |

## Dimensions

### Electrical connection



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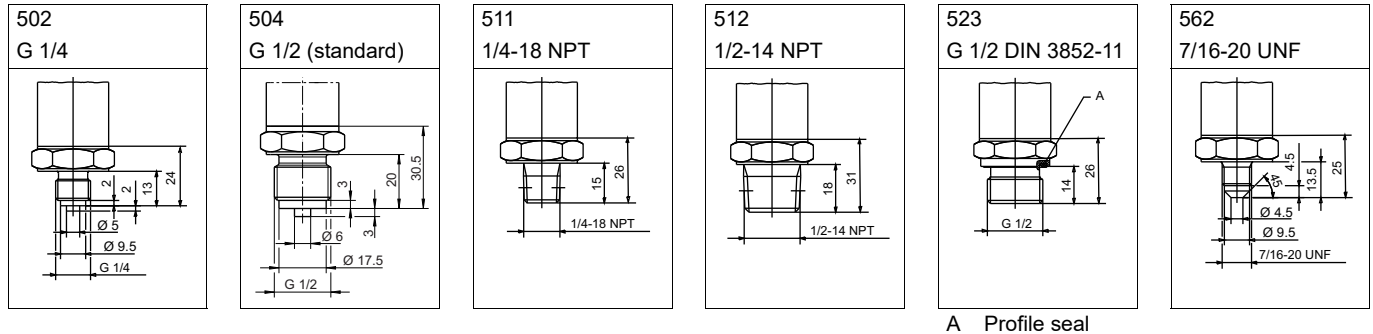
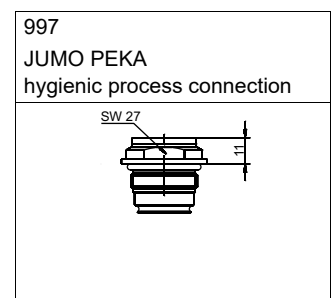
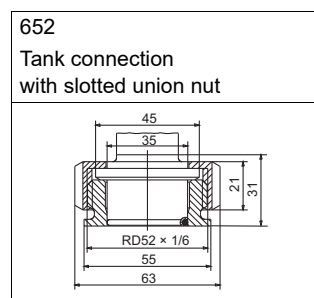
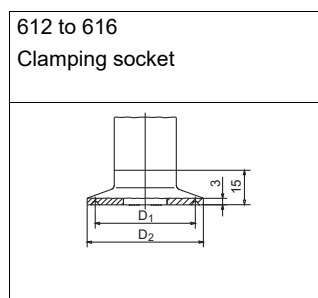
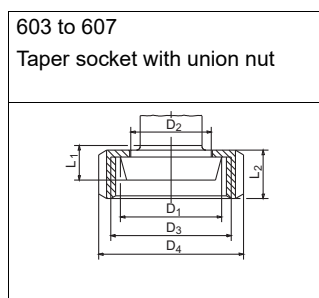
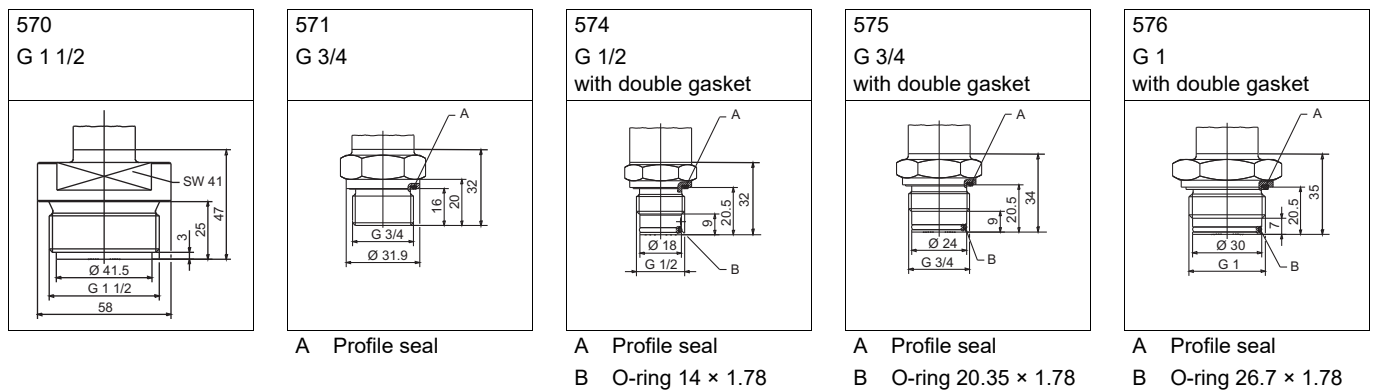
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Data Sheet 404366

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**Process connections, not front-flush****Process connections, front-flush**

| Process connection | DN | Ø D <sub>1</sub> | Ø D <sub>2</sub> | Ø D <sub>3</sub> | Ø D <sub>4</sub> | Ø L <sub>1</sub> | Ø L <sub>2</sub> |
|--------------------|----|------------------|------------------|------------------|------------------|------------------|------------------|
| 603                | 20 | 36.5             | 30               | RD44 × 1/6       | 54               | 13               | 21               |
| 604                | 25 | 44               | 35               | RD52 × 1/6       | 63               | 15               |                  |
| 605                | 32 | 50               | 41               | RD58 × 1/6       | 70               |                  |                  |
| 606                | 40 | 56               | 48               | RD65 × 1/6       | 78               |                  |                  |
| 607                | 50 | 68.5             | 61               | RD78 × 1/6       | 92               | 16               | 22               |

| Process connection | DN DIN 32676 | DN (Zoll) | Nominal size ISO 2852 | Ø D <sub>1</sub> | Ø D <sub>2</sub> |
|--------------------|--------------|-----------|-----------------------|------------------|------------------|
| 612                | 10           |           | 18                    | 27.5             | 34               |
|                    | 15           |           | 10                    |                  |                  |
|                    | 20           |           | 15                    |                  |                  |
| 613                | 25           | 1         | 20                    | 43.5             | 50.5             |
|                    | 32           | 1,5       | 25                    |                  |                  |
|                    | 40           |           | 32                    |                  |                  |
| 616                | 50           | 2         | 40                    | 56.5             | 64               |

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**Order details**

|                                 |                                                       |
|---------------------------------|-------------------------------------------------------|
| <b>(1) Basic type</b>           |                                                       |
| 404366                          | JUMO dTRANS p30 – Pressure Transmitter                |
| <b>(2) Basic type extension</b> |                                                       |
| 000                             | None                                                  |
| 023                             | reduced deviation of characteristic line <sup>a</sup> |
| 024                             | reduced influence of ambient temperature <sup>b</sup> |
| 999                             | Special version                                       |
| <b>(3) Input</b>                |                                                       |
| 451                             | 0 to 250 mbar relative pressure                       |
| 452                             | 0 to 400 mbar relative pressure                       |
| 453                             | 0 to 600 mbar relative pressure                       |
| 454                             | 0 to 1 bar relative pressure                          |
| 455                             | 0 to 1.6 bar relative pressure                        |
| 456                             | 0 to 2.5 bar relative pressure                        |
| 457                             | 0 to 4 bar relative pressure                          |
| 458                             | 0 to 6 bar relative pressure                          |
| 459                             | 0 to 10 bar relative pressure                         |
| 460                             | 0 to 16 bar relative pressure                         |
| 461                             | 0 to 25 bar relative pressure                         |
| 462                             | 0 to 40 bar relative pressure                         |
| 463                             | 0 to 60 bar relative pressure                         |
| 464                             | 0 to 100 bar relative pressure                        |
| 465                             | 0 to 160 bar relative pressure                        |
| 466                             | 0 to 250 bar relative pressure                        |
| 467                             | 0 to 400 bar relative pressure                        |
| 468                             | 0 to 600 bar relative pressure                        |
| 478                             | -1 to 0 bar relative pressure                         |
| 479                             | -1 to +0.6 bar relative pressure                      |
| 480                             | -1 to +1.5 bar relative pressure                      |
| 481                             | -1 to +3 bar relative pressure                        |
| 482                             | -1 to +5 bar relative pressure                        |
| 483                             | -1 to +9 bar relative pressure                        |
| 484                             | -1 to +15 bar relative pressure                       |
| 485                             | -1 to +24 bar relative pressure                       |
| 487                             | 0 to 600 mbar absolute pressure                       |
| 488                             | 0 to 1 bar absolute pressure                          |
| 489                             | 0 to 1,6 bar absolute pressure                        |
| 490                             | 0 to 2,5 bar absolute pressure                        |
| 491                             | 0 to 4 bar absolute pressure                          |
| 492                             | 0 to 6 bar absolute pressure                          |
| 493                             | 0 to 10 bar absolute pressure                         |
| 494                             | 0 to 16 bar absolute pressure                         |
| 495                             | 0 to 25 bar absolute pressure                         |
| 998                             | Special range absolute pressure                       |
| 999                             | Special range relative pressure                       |
| <b>(4) Output</b>               |                                                       |
| 402                             | 0 to 20 mA, three-wire                                |
| 405                             | 4 to 20 mA, two-wire                                  |
| 406                             | 4 to 20 mA, three-wire                                |
| 412                             | 0,5 to 4,5 V, three-wire                              |

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|     |                                                                                  |
|-----|----------------------------------------------------------------------------------|
| 415 | 0 to 10 V, three-wire                                                            |
| 418 | 1 to 5 V, three-wire                                                             |
| 420 | 1 to 6 V, three-wire                                                             |
| (5) | <b>Process connection</b>                                                        |
| 502 | G 1/4 DIN EN 837                                                                 |
| 504 | G 1/2 DIN EN 837                                                                 |
| 511 | 1/4-18 NPT DIN EN 837                                                            |
| 512 | 1/2-14 NPT DIN EN 837                                                            |
| 523 | G 1/2 DIN 3852-11                                                                |
| 562 | 7/16-20 UNF                                                                      |
| 570 | G 1 1/2 front-flush DIN EN ISO 228-1 <sup>c</sup>                                |
| 571 | G 3/4 front-flush DIN EN ISO 228-1 <sup>c</sup>                                  |
| 574 | G 1/2 front-flush, with double gasket <sup>d</sup>                               |
| 575 | G 3/4 front-flush, with double gasket <sup>c</sup>                               |
| 576 | G 1 front-flush, with double gasket <sup>c</sup>                                 |
| 603 | Taper socket with union nut DN 20 DIN 11851 (dairy pipe fitting) <sup>c</sup>    |
| 604 | Taper socket with union nut DN 25 DIN 11851 (dairy pipe fitting) <sup>c</sup>    |
| 605 | Taper socket with union nut DN 32 DIN 11851 (dairy pipe fitting) <sup>c</sup>    |
| 606 | Taper socket with union nut DN 40 DIN 11851 (dairy pipe fitting) <sup>c</sup>    |
| 607 | Taper socket with union nut DN 50 DIN 11851 (dairy pipe fitting) <sup>c</sup>    |
| 612 | Clamping socket DN 10/15/20 DIN 32676 <sup>c</sup>                               |
| 613 | Clamping socket DN 25/40 DIN 32676 <sup>c</sup>                                  |
| 616 | Clamping socket DN 50 (2") DIN 32676 <sup>c</sup>                                |
| 652 | Tank connection with union nut DN 25                                             |
| 997 | JUMO-PEKA hygienic process connection <sup>e</sup>                               |
| 998 | Connection for pressure separator                                                |
| (6) | <b>Material of process connection</b>                                            |
| 20  | CrNi (stainless steel)                                                           |
| (7) | <b>Electrical connection</b>                                                     |
| 12  | Fixed connecting cable shielded 2 m (further length on request)                  |
| 36  | Round plug M12 × 1                                                               |
| 61  | Cable socket DIN EN 175301-803, Form A                                           |
| (8) | <b>Extra code</b>                                                                |
| 000 | None                                                                             |
| 452 | Parts in contact with the medium electro-polished, surface roughness Ra ≤ 0.8 µm |
| 591 | Throttle in pressure duct                                                        |
| 631 | Higher humidity and vibration protection                                         |

<sup>a</sup> Measuring devices with reduced deviation from characteristic line are not available with process connection 574, they are only available with output 405 and only for measuring spans between 0.6 to 40 bar.

<sup>b</sup> Measuring devices with ambient temperature influence are not available with process connection 574, they are only available with outputs 402, 405, 406, 415 and only for measuring spans between 4 to 25 bar.

<sup>c</sup> Process connections 570, 571, 575, 576, 603, 604, 605, 606, 607, 612, 613, 616 are only available for measuring spans up to 25 bar.

<sup>d</sup> Process connection 574 is only available for measuring spans between 1 to 400 bar.

<sup>e</sup> Suitable process connection adapters can be found on data sheet or price sheet 409711.

|               | (1)                  | (2) | (3)                  | (4) | (5)                  | (6) | (7)                  | (8) |                      |   |                      |   |                      |   |                      |
|---------------|----------------------|-----|----------------------|-----|----------------------|-----|----------------------|-----|----------------------|---|----------------------|---|----------------------|---|----------------------|
| Order code    | <input type="text"/> | /   | <input type="text"/> | -   | <input type="text"/> | -   | <input type="text"/> | -   | <input type="text"/> | - | <input type="text"/> | - | <input type="text"/> | / | <input type="text"/> |
| Order example | 404366               | /   | 000                  | -   | 461                  | -   | 405                  | -   | 504                  | - | 20                   | - | 61                   | / | 000                  |

**Accessories**

| Article                                                                                         | Part no. |
|-------------------------------------------------------------------------------------------------|----------|
| Cable box (straight) with control cable, shielded, 4-pole, 5 m PVC cable, pressure compensation | 00512341 |