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**JUMO Process Control, Inc.**  
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# JUMO NESOS R02 LS

## Standard version float switch

### Applications

- Point level measurement of liquids in storage tanks, containers, oil sumps, and tanks
- Water and wastewater treatment
- Mechanical and plant engineering
- Shipbuilding
- Energy technology
- Diesel tanks

### Brief description

The point level measurement is carried out according to Archimedes' principle for liquids. The float moves along the guide tube as the level rises or falls. The magnet in the float actuates the reed contact(s) installed in the guide tube with its magnetic field. The switching status of the reed contact can be evaluated and processed through downstream electronic components, relays, or contactors. Alarms, pumps, signal lamps, valves, and horns are typically switched via a contact protection relay.

Float switches of up to 4 m in length and with up to 5 switching points are available for applications involving high filling heights. Variants with a connecting plug help to minimize mounting effort.

Depending on the variant ordered, various electrical connections, process connections, guide tube lengths, floats, number and positions of contacts as well as their function (SPST-NO [N/O contact], SPST-NC [N/C contact], SPDT-CO [changeover contact], and bistable contacts) are available.

With the optional temperature sensor or temperature switch, both the point level measurement and the temperature can be acquired via just one measuring point. Variants for monitoring the reed contact temperature are also available.

Variants in an intrinsically safe [Ex i] design and flameproof enclosure [Ex d] are available for applications involving explosion protection, as are approvals for shipbuilding. No isolating switch amplifier is required for installations with a flameproof enclosure.

### Customer benefits

- Cost-effective installation and mounting, due to spring-cage terminals (Push-In®), for example
- Reduced operating costs due to maintenance-free device design
- Price-performance ratio optimized through the use of standard components
- No isolating switch amplifier required for [Ex d] (flameproof enclosure) applications



Type 408302

### Special features

- Approvals for shipbuilding and explosion protection are available
- High switching voltages and switching currents
- Large operating temperature range for media from -52 to +240 °C
- Large pressure range from -1 to +37 bar
- Up to 5 switching outputs can be freely defined as N/O contact, N/C contact, changeover contact, or bistable contact
- Temperature sensor/temperature switch are available

### Approvals and approval marks



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## Technical data

### General Information

|  |   |          |            |          |
|--|---|----------|------------|----------|
| Function principle                     | Magnetic float switch with reed contact |          |            |          |
| Installation position (vertical)       | ±30°                                    |          |            |          |
| Switching point accuracy <sup>a</sup>  | ±2 mm                                   |          |            |          |
| Switching function (potential-free)    | 10 SPST-NO                              |          | 02 SPST-NC |          |
| Switching voltage (max.) <sup>b</sup>  | AC 230 V                                | DC 230 V | AC 175 V   | DC 175 V |
| Switching capacity (max.) <sup>b</sup> | 100 VA                                  | 100 W    | 10 VA      | 10 W     |
| Switching current (max.) <sup>b</sup>  | 1.0 A                                   | 1.0 A    | 0.5 A      | 0.5 A    |

|  |            |          |                      |          |
|--|------------|----------|----------------------|----------|
| Switching function                     | 03 SPDT-CO |          | 15 SPST-NO, bistable |          |
| Switching voltage (max.) <sup>b</sup>  | AC 175 V   | DC 175 V | AC 230 V             | DC 200 V |
| Switching capacity (max.) <sup>b</sup> | 10 VA      | 10 W     | 50 VA                | 50 W     |
| Switching current (max.) <sup>b</sup>  | 0.5 A      | 0.5 A    | 1.5 A                | 1.5 A    |

|  |            |          |                      |          |
|--|------------|----------|----------------------|----------|
| Switching function                     | 12 SPDT-CO |          | 07 SPDT-CO, bistable |          |
| Switching voltage (max.) <sup>b</sup>  | AC 230 V   | DC 230 V | AC 230 V             | DC 200 V |
| Switching capacity (max.) <sup>b</sup> | 60 VA      | 60 W     | 40 VA                | 40 W     |
| Switching current (max.) <sup>b</sup>  | 1.0 A      | 1.0 A    | 0.5 A                | 0.5 A    |

|  |            |          |
|--|------------|----------|
| Switching function                     | 11 SPST-NC |          |
| Switching voltage (max.) <sup>b</sup>  | AC 230 V   | DC 230 V |
| Switching capacity (max.) <sup>b</sup> | 60 VA      | 60 W     |
| Switching current (max.) <sup>b</sup>  | 1.0 A      | 1.0 A    |

<sup>a</sup> Measured, dry

<sup>b</sup> The values must also be adhered to in combination.

|                 |  |                |   |
|-----------------|--|----------------|---|
|                 | Pt100  | Pt1000         | Temperature switch,<br>N/C contact, max. 2.5 A,<br>AC 230 V, cos φ 0.95 [0.6],<br>2.5 A [1.6 A] |
| Measuring range | -40 to +150 °C   | -40 to +150 °C | Indicate switching point specification in plain text  |
| Accuracy        | DIN class B<br>according to DIN EN 60751 the limit deviation in °C is as follows:<br>±(0.3 + 0.005  t )<br> t  = temperature in °C regardless of prefix sign |                | Tolerance ±5 K<br>Hysteresis 30 K ±15 K   |

|   |                          |                                |         |
|---|--------------------------|--------------------------------|---------|
| Special features for products with protection class 3 (see „Connection diagram“) <sup>a</sup> | Switching voltage (max.) | AC ≤ 33 V (AC 46 V peak value) | DC 70 V |
|---|--------------------------|--------------------------------|---------|

<sup>a</sup> Limit values according to EN 61010-1

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## Mechanical features

| Float | Form                  | Material         | Outer diameter | Min. density kg/m <sup>3</sup> | Pressure range (nominal pressure) in bar | Weight in grams |
|-------|-----------------------|------------------|----------------|--------------------------------|--|-----------------|
| 044   | Cylinder              | AISI 316 series  | 44             | 750                            | -1 to +24                                | 43              |
| 052   | Spherical             | AISI 316 series  | 52             | 680                            | -1 to +37                                | 36              |
| 053   | Spherical, e-polished | AISI 316 series  | 52             | 680                            | -1 to +37                                | 36              |
| 752   | Spherical             | Titanium grade 2 | 52             | 650                            | -1 to +24                                | 35              |

| Float | Density of medium kg/m <sup>3</sup> |      |      |      |      |      |
|-------|-------------------------------------|------|------|------|------|------|
|       | 700                                 | 800  | 900  | 1000 | 1200 | 1400 |
|       | Immersion depth mm                  |      |      |      |      |      |
| 044   |                                     | 44.5 | 39.5 | 35.6 | 29.6 | 25.4 |
| 052   | 38.6                                | 34.1 | 31.1 | 28.8 | 25.5 | 23.1 |
| 053   | 38.6                                | 34.1 | 31.1 | 28.8 | 25.5 | 23.1 |
| 752   | 39.1                                | 34.4 | 31.3 | 29   | 25.6 | 23.3 |

|   |   |
|---|---|
| Materials of parts in contact with medium <sup>a</sup><br>e.g. process connection, float, guide tube  | AISI 316 series,<br>in the case of float 752 only floats made of titanium   |
| Materials of parts not in contact with medium <sup>a</sup><br>Cable<br>Cable socket<br>Round plug M12 × 1<br>Terminal head Ex d<br>Connection housing, cube-shaped, small<br>Connection housing, cube-shaped, large | PVC or silicone or PUR<br>PBT-GF30<br>PBT-GF30<br>Aluminum, painted<br>Aluminum, painted<br>Aluminum, painted   |
| Clamping range<br>Cable fitting<br><br>Terminal block   | Diameter 6 to 12 mm for connection housing, cube-shaped, small (electrical connection 130) and connection housing, cube-shaped, large (electrical connection 131)<br>Diameter 6.5 to 11.9 mm for terminal head Ex d (electrical connection 115)<br>Diameter 6 to 8 mm for cable socket (electrical connection 061)<br>0.14 to 2.5 mm <sup>2</sup> for connection housing, cube-shaped, small (electrical connection 130)<br>0.14 to 1.5 mm <sup>2</sup> for terminal head Ex d (electrical connection 115) and connection housing, cube-shaped, large (electrical connection 131) |
| Weight  | 650 g for guide tube length of 400 mm, process connection G 1 1/2 (process connection 570) and connection housing, cube-shaped, small (electrical connection 130)   |

<sup>a</sup> The chemical resistance of the materials should be taken into account for the application.

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## Environmental influences

|  |  |
|--|--|
| Moisture   |  |
| Operation  | 100 % rel. humidity including condensation on the product outer shell              |
| Storage  | 90 % rel. humidity without condensation  |
| Protection type for electrical connection <sup>a</sup>     |  |
| Cable  | IP68   |
| Cable with AMP Superseal connector                         | IP67   |
| Cable with M12 connector                                   | IP66   |
| Round plug M12 × 1   | IP66   |
| Cable socket   | IP65   |
| Terminal head Ex d   | IP68   |
| Connection housing, cube-shaped, small                     | IP66   |
| Connection housing, cube-shaped, large                     | IP66   |
| Vibration <sup>b</sup>                                     | 0.7 g for 13.2 to 100 Hz and freely oscillating guide tube length up to max. 2.5 m |
| Ambient temperature for electrical connection <sup>c</sup> |  |
| PVC cable  | -5 to +80 °C   |
| Silicone cable   | -50 to +180 °C   |
| PUR cable  | -40 to +90 °C  |
| PVC cable, with AMP Superseal connector                    | -5 to +80 °C   |
| Silicone cable, with AMP Superseal connector               | -40 to +125 °C   |
| PUR cable, with AMP Superseal connector                    | -40 to +90 °C  |
| PVC cable, with M12 connector                              | -5 to +80 °C   |
| Silicone cable, with M12 connector                         | -40 to +85 °C  |
| PUR cable, with M12 connector                              | -40 to +85 °C  |
| Round plug M12 × 1   | -30 to +90 °C  |
| Cable socket   | -40 to +125 °C   |
| Terminal head Ex d   | -40 to +100 °C   |
| Connection housing, cube-shaped, small                     | -40 to +100 °C   |
| Connection housing, cube-shaped, large                     | -40 to +100 °C   |
| Process temperature  |  |
| Parts in contact with medium (e.g. guide tube with float)  | -40 to +150 °C (standard)<br>-52 to +240 °C (upon request)                         |

<sup>a</sup> According to DIN EN 60529

<sup>b</sup> According to IEC 60068-2-6

<sup>c</sup> Note dependency of extension tube length on process temperature, see diagrams below.

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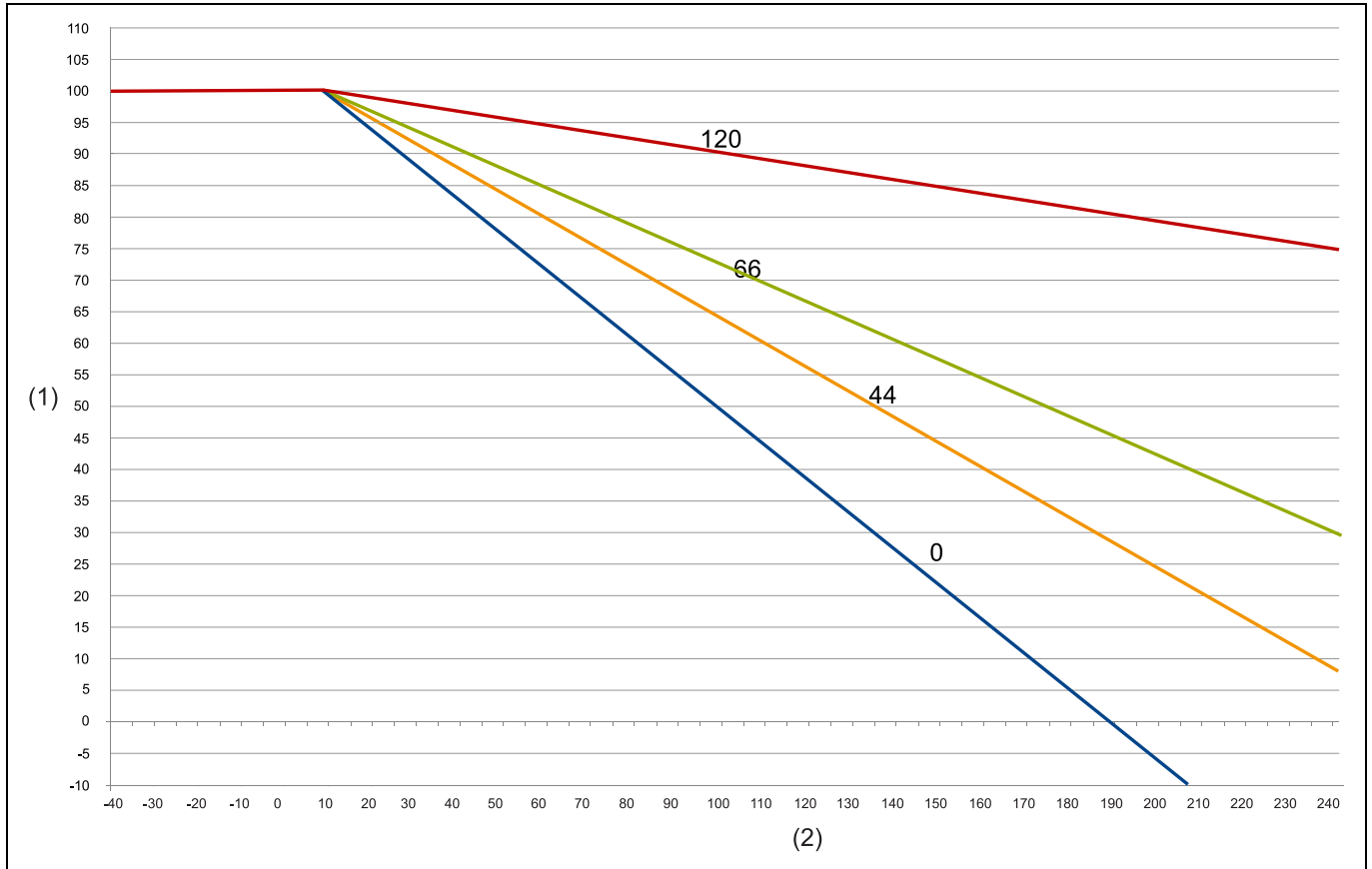
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**Maximum ambient temperature depending on extension tube and process temperature**

Connection housing small and large, extension tube in mm



- (1) Maximum ambient temperature
- (2) Medium temperature

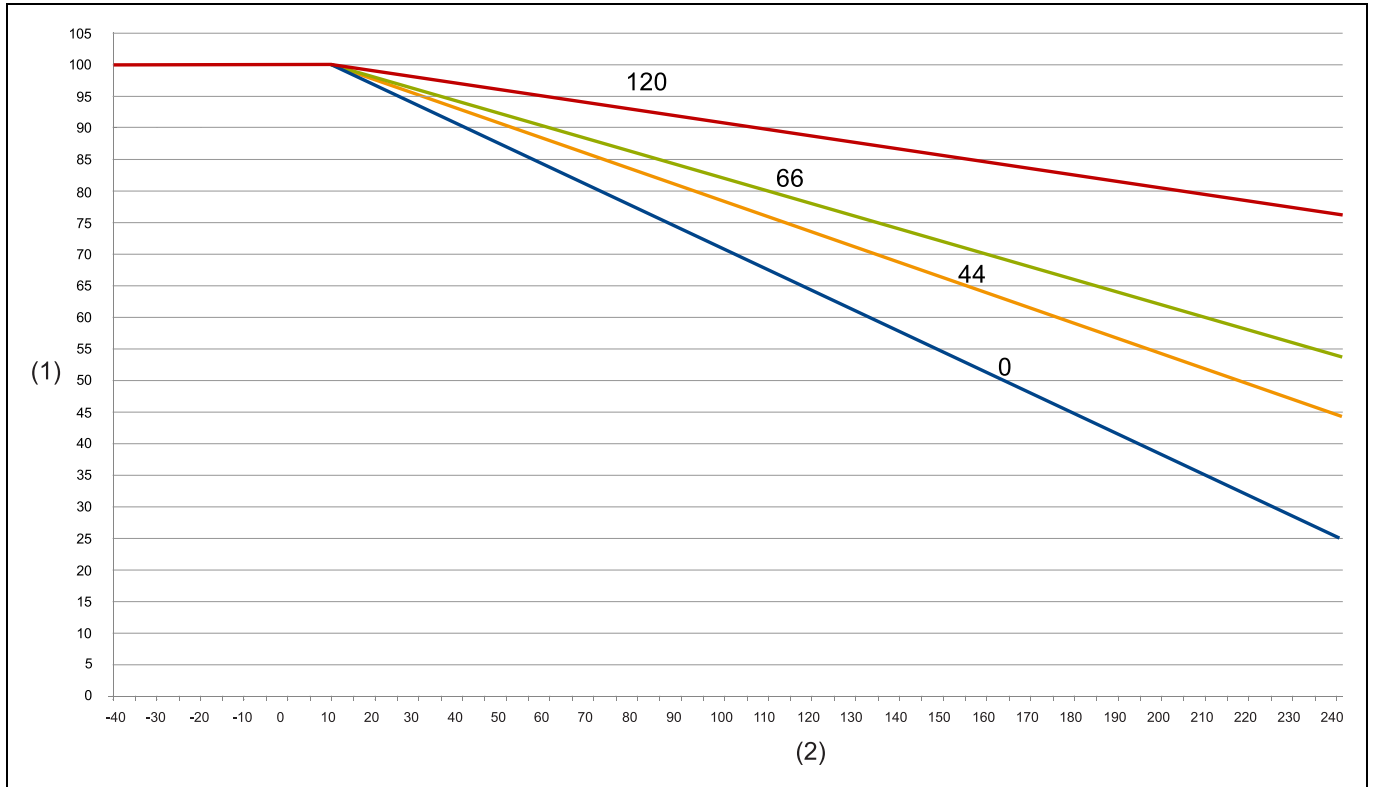
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Connection housing Ex d, extension tube in mm



- (1) Maximum ambient temperature
- (2) Medium temperature

### Approvals and approval marks

| Approval mark                                 | Test facility                             | Certificate/<br>certification number     | Inspection basis   | Valid for   |
|---|---|--|--|---|
| ATEX, IEC EX<br>intrinsically safe, Ex i      | Eurofins Electrosuisse<br>Product Testing | SEV 18 ATEX 0134 X<br>IECEX SEV 18.0011X | IEC/EN 60079-0<br>IEC/EN 60079-11<br>IEC/EN 60079-26<br>DIN EN ISO 80079-36<br>DIN EN ISO 80079-37                   | Type 408302/362<br>Type 408302/662                    |
| ATEX, IEC EX<br>flameproof enclosure,<br>Ex d | Eurofins Electrosuisse<br>Product Testing | SEV 18 ATEX 0133 X<br>IECEX SEV 18.0010X | IEC/EN 60079-0<br>IEC/EN 60079-1<br>IEC/EN 60079-26<br>IEC/EN 60079-31<br>DIN EN ISO 80079-36<br>DIN EN ISO 80079-37 | Type 408302/462<br>Type 408302/962                    |
| DNV GL  | DNV GL                                    | TAA00001VR                               | Class Guidelines CG 0339,<br>November 2016   | Type 408302/062<br>Type 408302/662<br>Type 408302/962 |

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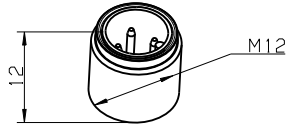
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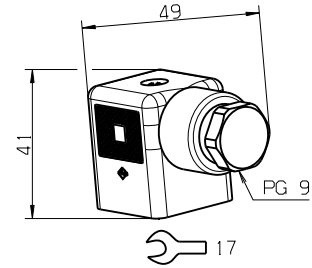
## Dimensions

### Electrical connection

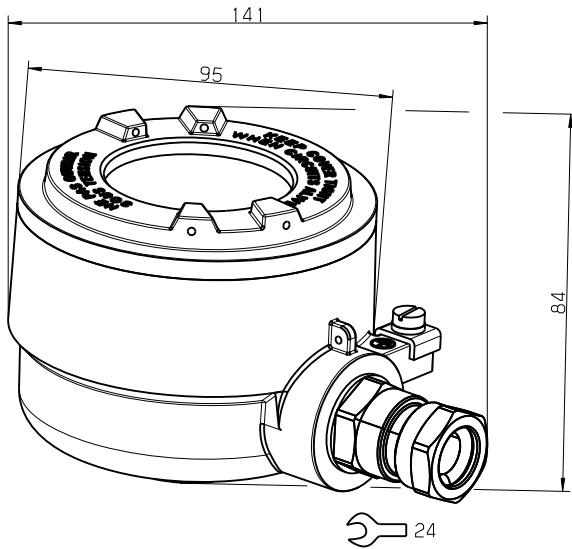
036  
 Round plug M12 × 1



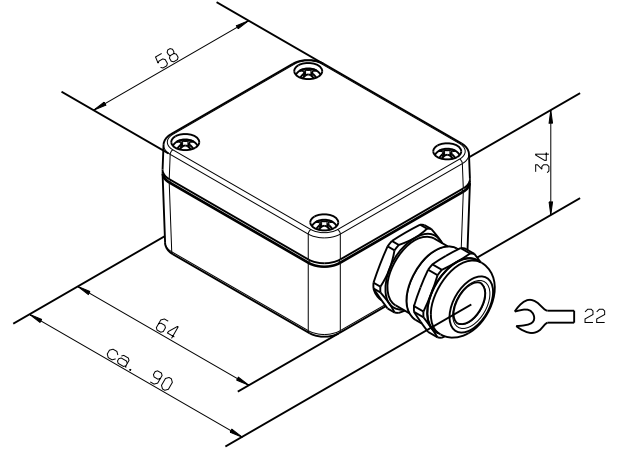
061  
 Cable socket DIN EN 175301-803



115  
 Terminal head Ex d



130  
 Connection housing, cube-shaped, small



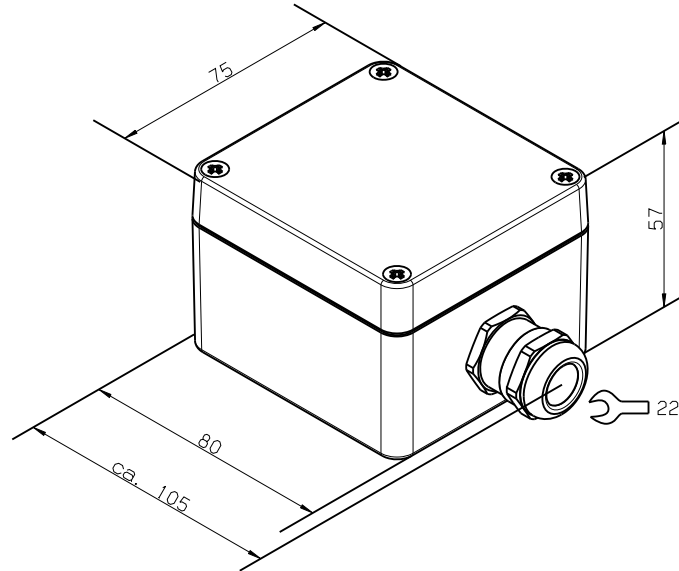
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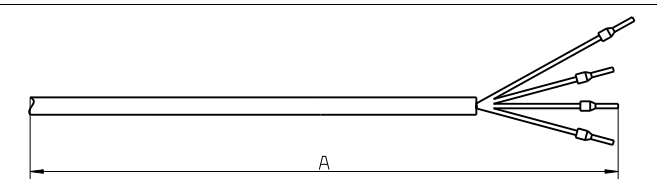
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131  
 Connection housing, cube-shaped, large

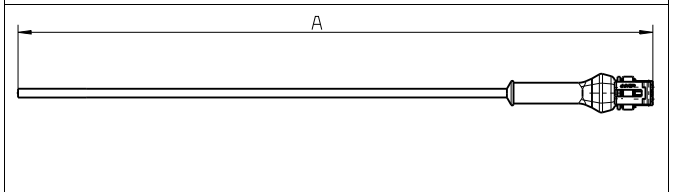


150 PVC, 160 silicone, 170 PUR  
 Cable with ferrules



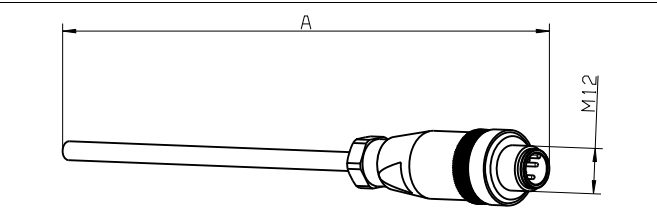
A Cable length, see order details

151 PVC, 161 silicone, 171 PUR  
 Cable with AMP Superseal connector



A Cable length, see order details

152 PVC, 162 silicone, 172 PUR  
 Cable with M12 connector



A Cable length, see order details



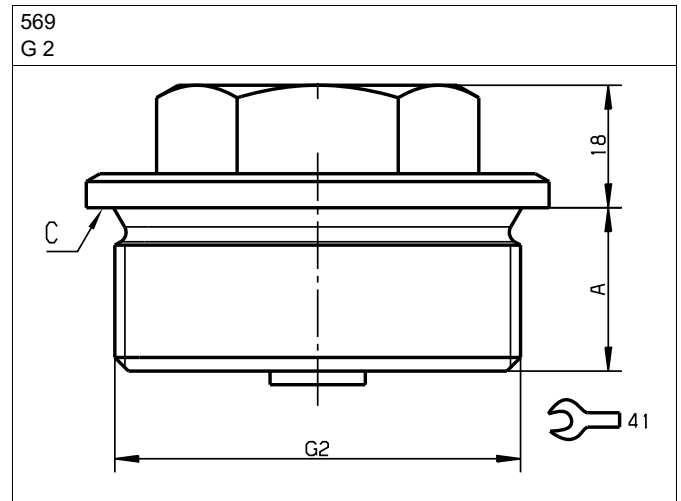
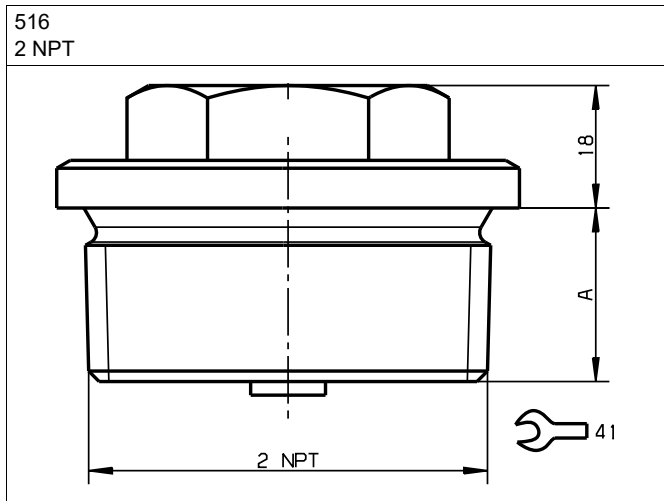
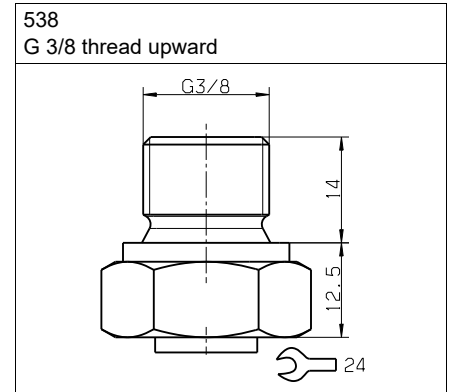
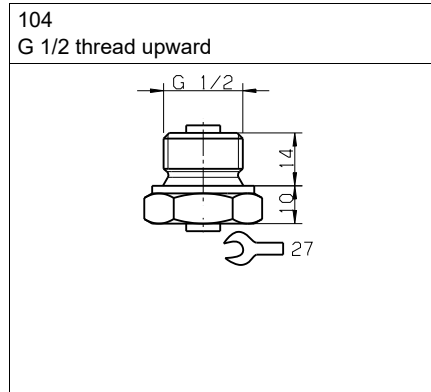
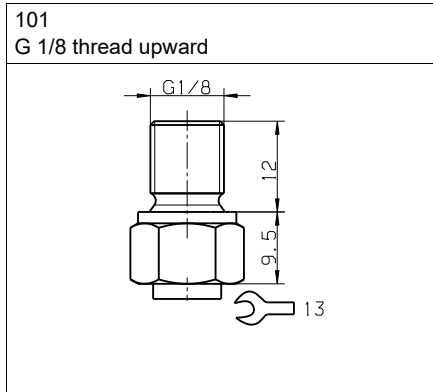
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**Process connections**



A 25.5

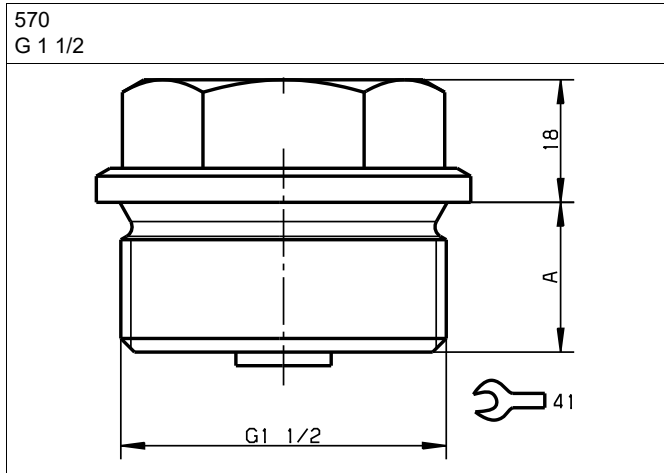
A 24 (25.5 for Ex d)

C A seal/O-ring with a thickness of at least 2 mm is recommended.

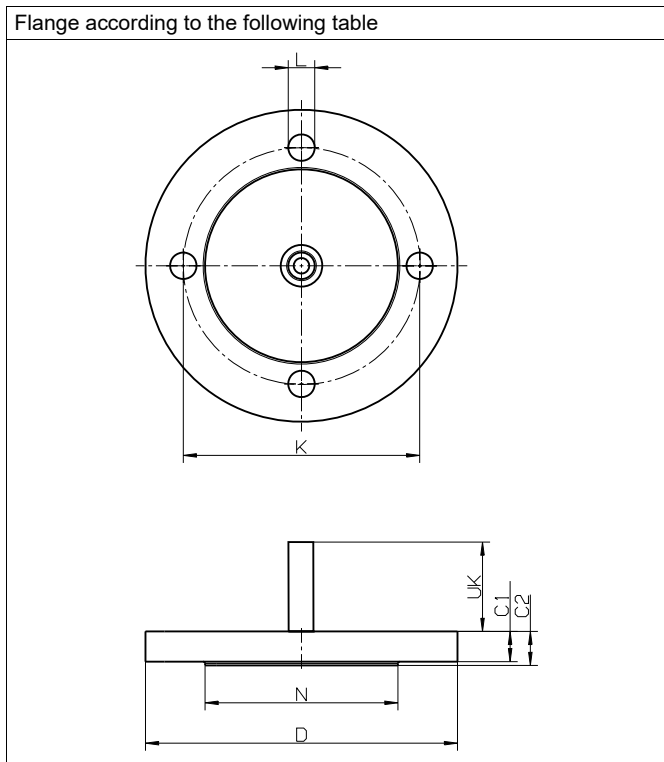
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A 22 (25.5 for Ex d)



Example for extension tube, also available for other process connections;  
 UK = extension tube length + 9 mm

| Order code | Flange designation                                       | Hole circle K | Number of holes | Diameter of holes L | Exterior diameter D | Diameter of sealing strip N | Strength of flange C1 | Strength of flange including sealing strip C2 |
|------------|--|---------------|-----------------|---------------------|---------------------|-----------------------------|-----------------------|---|
| 714        | Flange 2" 300 lbs ANSI B 16.5 RF                         | 127           | 8               | 19                  | 165.1               | 92.1                        | 20.6                  | 22.2  |
| 729        | Flange DN 50, PN40 EN 1092-1, form B1 with sealing strip | 125           | 4               | 18                  | 165                 | 102                         | 17                    | 20  |
| 784        | Flange DN 65, PN40 EN 1092-1, form B1 with sealing strip | 145           | 8               | 18                  | 185                 | 122                         | 19                    | 22  |
| 785        | Flange DN 80, PN40 EN 1092-1, form B1 with sealing strip | 160           | 8               | 18                  | 200                 | 138                         | 21                    | 24  |

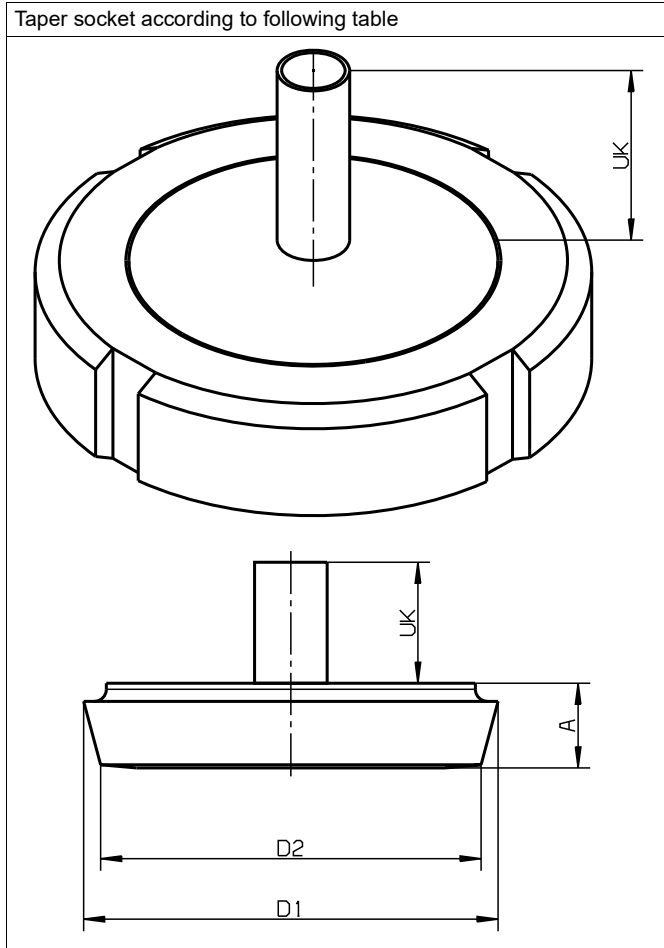
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Taper socket according to following table



Example of extension tube; also available for other process connections;  
 UK = extension tube length + 9 mm

| Order code | Designation  | A     | D1      | D2      |
|------------|--|-------|---------|---------|
| 607        | Taper socket with union nut DN 50,<br>DIN 11851 (dairy pipe fitting) | 14 mm | 68,5 mm | 62,9 mm |
| 608        | Taper socket with union nut DN 65,<br>DIN 11851 (dairy pipe fitting) | 16 mm | 86 mm   | 79,6 mm |

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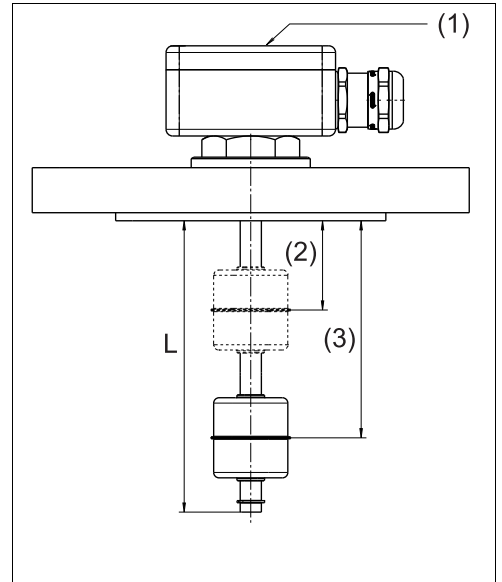
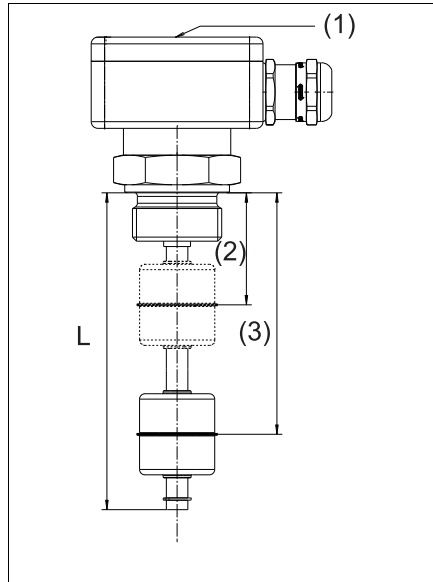
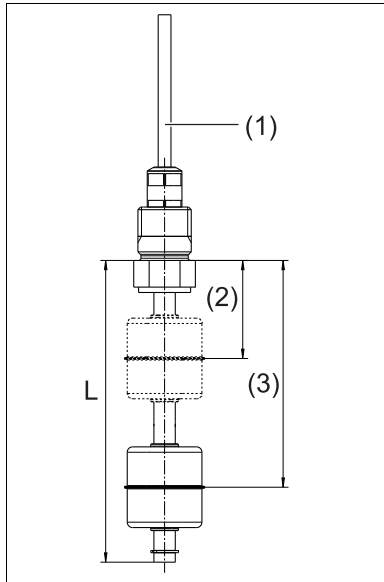
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**Notes to the order details**

Below are examples for the dimensioning of the guide tube length L, the measuring range start (3) as well as measuring range end (2) depending on the respective process connection.



- (1) Process connection „thread upward“
- (2) Position contact 1 (switching point) in mm
- (3) Position contact 2 (switching point) in mm
- L Guide tube length in mm

- (1) Process connection „thread“

- (1) Process connection „flange“

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# Connection diagram

The connection diagram in the data sheet provides preliminary information about the connection options. For the electrical connection, only use the installation instructions or the operating manual. The knowledge and the correct technical compliance with the safety information and warnings contained in these documents are mandatory for mounting, electrical connection, and startup as well as for safety during operation.

| Number of contacts |   |   |              |         |                    |         |                         |         |                |         |  |
|--------------------|---|---|--------------|---------|--------------------|---------|-------------------------|---------|----------------|---------|--|
|                    | Cable   |   | Cable socket |         | Connection housing |         | AMP Superseal connector |         | Round plug M12 |         |  |
|                    | SPST-NO/NC  | SPDT-CO   | SPST-NO/NC   | SPDT-CO | SPST-NO/NC         | SPDT-CO | SPST-NO/NC              | SPDT-CO | SPST-NO/NC     | SPDT-CO |  |
| 1                  | Silicone<br>RD<br>WH<br>PUR<br>BN<br>WH<br>PVC<br>BN<br>WH            | Silicone<br>RD<br>WH<br>RD/BU<br>BK<br>PVC<br>BN<br>WH<br>GN  |              |         |                    |         |                         |         |                |         |  |
| 2                  | Silicone<br>RD<br>WH<br>RD/BU<br>WH/BU<br>PVC<br>BN<br>WH<br>GN<br>YE | Silicone <sup>a</sup><br>RD<br>WH<br>BU<br>RD/BU<br>WH/BU<br>BU<br>PVC <sup>b</sup><br>RD<br>BK<br>BN<br>OG<br>GN<br>YE<br>PUR <sup>c</sup><br>PK<br>WH<br>YE<br>BN<br>GN<br>GY |              |         |                    |         |                         |         |                |         |  |

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| Number of contacts |   |         |              |         |                    |         |                         |         |                |         |
|--------------------|---|---------|--------------|---------|--------------------|---------|-------------------------|---------|----------------|---------|
|                    | Cable   |         | Cable socket |         | Connection housing |         | AMP Superseal connector |         | Round plug M12 |         |
|                    | SPST-NO/NC  | SPDT-CO | SPST-NO/NC   | SPDT-CO | SPST-NO/NC         | SPDT-CO | SPST-NO/NC              | SPDT-CO | SPST-NO/NC     | SPDT-CO |
| 3                  | Silicone <sup>a</sup><br>RD<br>WH<br>RD/BU<br>WH/BU<br>BU<br>BU<br>PVC <sup>b</sup><br>RD<br>BK<br>BN<br>OG<br>GN<br>YE | -       | -            | -       |                    |         | -                       | -       |                | -       |
| 4                  | -   | -       | -            | -       |                    |         | -                       | -       | -              | -       |

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| Number of contacts             |  |         |              |         |                    |         |                         |         |                |         |
|--------------------------------|--|---------|--------------|---------|--------------------|---------|-------------------------|---------|----------------|---------|
|                                | Cable                                  |         | Cable socket |         | Connection housing |         | AMP Superseal connector |         | Round plug M12 |         |
|                                | SPST-NO/NC                             | SPDT-CO | SPST-NO/NC   | SPDT-CO | SPST-NO/NC         | SPDT-CO | SPST-NO/NC              | SPDT-CO | SPST-NO/NC     | SPDT-CO |
| 5                              |  |         |              |         |                    |         |                         |         |                |         |
| Protection rating <sup>d</sup> | prepared for 2 according to EN 61010-1 |         | 1            | 1       | 1                  | 1       | 3                       | 3       | 3              | 3       |

<sup>a</sup> According to VDE 0298-4 max. current 0.8 A at max. 175 °C or 1 A at max. 170 °C  
<sup>b</sup> According to VDE 0298-4 max. current 0.8 A at max. 75 °C or 1 A at max. 70 °C, not available for shipbuilding approval (basic type extension 062), shipbuilding approval and explosion protection, intrinsically safe, Ex i (basic type extension 662), and shipbuilding approval and explosion protection, pressure resistant, Ex d (basic type extension 962)  
<sup>c</sup> Only available with protection class 3.  
<sup>d</sup> According to DIN EN 61140

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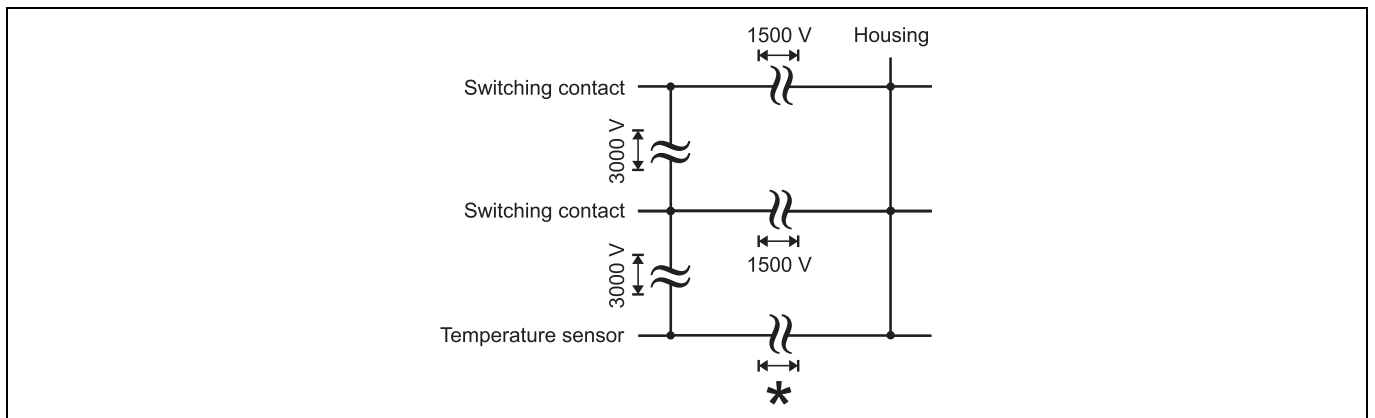


|  | Cable  | Cable socket | Connection housing | AMP Superseal connector | Round plug M12 |
|--|--|--------------|--------------------|-------------------------|----------------|
| Temperature sensor Pt100 <sup>a</sup>  | Silicone <sup>b</sup><br><br>Silicone <sup>b</sup><br> | -            |                    | -                       |                |
| Temperature sensor Pt1000 <sup>a</sup> | PVC <sup>b</sup><br>                                   |              |                    |                         |                |
| Temperature switch <sup>a</sup>        | Silicone <sup>c, d</sup><br>                           |              |                    |                         |                |
|  | PVC <sup>c, e</sup><br>                                |              |                    |                         |                |

- <sup>a</sup> Assignment is always to terminals with the highest numbers
- <sup>b</sup> For 1x SPST-NO/NC switching contacts
- <sup>c</sup> For 2x SPST-NO/NC or 1x SPDT-CO switching contacts
- <sup>d</sup> According to VDE 0298-4 max. current 0.8 A for max. 175 °C or 2 A for max. 150 °C
- <sup>e</sup> According to VDE 0298-4 max. current 0.8 A for max. 75 °C or 2 A for max. 50 °C

The galvanic isolation is implemented as follows:

Protection class 1





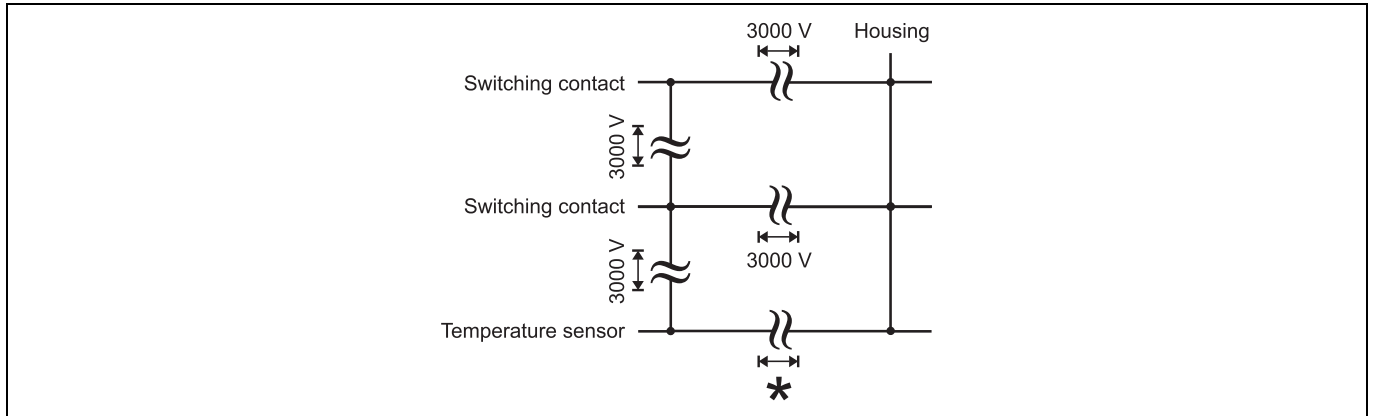
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Protection class 2



**Caution:**

\* Functional galvanic isolation

If connected to a certified intrinsically safe electrical circuit Ex i, the following values are given.

| Contact function   | Max. voltage $U_i$<br>in V | Max. current $U_i$<br>in mA | Max. power $P_i$<br>in mW | Internal inductance<br>in $\mu$ H                          | Internal capacitance<br>in pF                           |
|--------------------|----------------------------|-----------------------------|---------------------------|--|---|
| SPST-NO            | $\leq 30$                  | $\leq 100$                  | $\leq 750$                | ~0<br>for cable version<br>1 $\mu$ H/m<br>connecting cable | ~0<br>for cable version<br>200 pF/m<br>connecting cable |
| SPST-NC            |                            |                             |                           |  |   |
| SPDT-CO            |                            |                             |                           |  |   |
| Temperature switch |                            |                             |                           |  |   |

When using explosion-proof versions (intrinsically safe, Ex i, and flameproof enclosure, Ex d) the following values are given.

| Contact function | Max. voltage $U_i$<br>in V | Max. current $U_i$<br>in mA | Max. power $P_i$<br>in mW | Internal inductance<br>in $\mu$ H                          | Internal capacitance<br>in pF                           |
|------------------|----------------------------|-----------------------------|---------------------------|--|---|
| Pt100            | $\leq 30$                  | $\leq 55$                   | $\leq 413$                | ~0<br>for cable version<br>1 $\mu$ H/m<br>connecting cable | ~0<br>for cable version<br>200 pF/m<br>connecting cable |
| Pt1000           |                            |                             |                           |  |   |

| Legend: cable | BN | Brown | GN | Green  |
|---------------|----|-------|----|--------|
|               | WH | White | RD | Red    |
|               | BU | Blue  | YE | Yellow |
|               | PK | Pink  | GY | Grey   |

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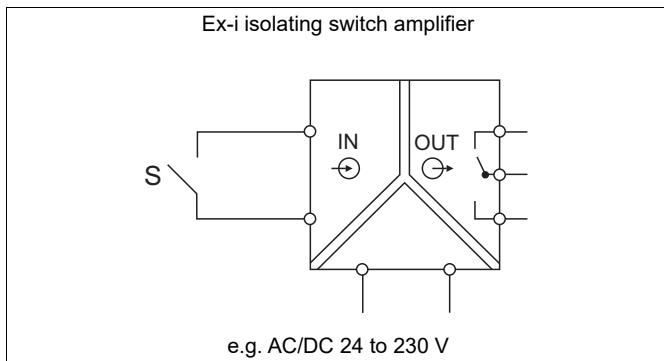
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## Connection examples of versions with explosion protection

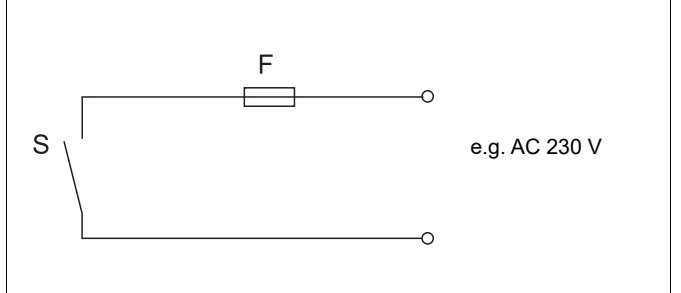
### Float switch (S)

Ex i



Ex d

According to operating manual 408301, chapter 6 on "Installation", the fuse (F) must be selected.



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## Order details

|             |  |
|-------------|--|
|             | <b>(1) Basic type</b>  |
| 408302      | JUMO NESOS R02 LS – Standard version float switch                            |
|             | <b>(2) Basic type extension</b>  |
| 000         | None   |
| 062         | Shipbuilding approval  |
| 362         | Explosion protection, intrinsically safe, Ex i                               |
| 462         | Explosion protection, pressure resistant, Ex d                               |
| 662         | Shipbuilding approval and explosion protection, intrinsically safe, Ex i     |
| 962         | Shipbuilding approval and explosion protection, pressure resistant, Ex d     |
| 999         | Special version  |
|             | <b>(3) Electrical connection</b>   |
| 036         | Round plug M12 × 1   |
| 061         | Cable socket DIN EN 175301-803, form A                                       |
| 115         | Terminal head Ex d   |
| 130         | Connection housing, cube-shaped, small                                       |
| 131         | Connection housing, cube-shaped, large                                       |
| 150         | Cable, PVC   |
| 151         | Cable, PVC with AMP Superseal connector (max. DC 24 V/3 A) <sup>a</sup>      |
| 152         | Cable, PVC with M12 connector  |
| 160         | Cable, silicone  |
| 161         | Cable, silicone with AMP Superseal connector (max. DC 24 V/3 A) <sup>a</sup> |
| 162         | Cable, silicone with M12 connector   |
| 170         | Cable, PUR   |
| 171         | Cable, PUR with AMP Superseal connector (max. DC 24 V/3 A) <sup>a</sup>      |
| 172         | Cable, PUR with M12 connector  |
| 999         | Special version  |
|             | <b>(4) Cable length</b>  |
| 0000        | None   |
| 2000        | 2000 mm  |
| 5000        | 5000 mm  |
| 0100 - 5000 | Specifications in plain text   |
|             | <b>(5) Process connection</b>  |
| 104         | G 1/2 thread upward  |
| 412         | Pg9  |
| 516         | 2 NPT  |
| 534         | M14 x 1.5 thread upward  |
| 538         | G 3/8 thread upward  |
| 569         | G 2  |
| 570         | G 1 1/2  |
| 607         | Taper socket with union nut DN 50, DIN 11851 (dairy pipe fitting)            |
| 608         | Taper socket with union nut DN 65, DIN 11851 (dairy pipe fitting)            |
| 714         | Flange 2" 300 lbs ANSI B 16.5 RF   |
| 729         | Flange DN 50, PN40 EN 1092-1, form B1 with sealing strip                     |
| 784         | Flange DN 65, PN40 EN 1092-1, form B1 with sealing strip                     |
| 785         | Flange DN 80, PN40 EN 1091-1, form B1 with sealing strip                     |
| 999         | According to customer specification  |
|             | <b>(6) Guide tube length L<sup>b</sup></b>                                   |
| 100 - 4000  | Specifications in plain text   |

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|           |   |
|-----------|---|
|           | <b>(7) Float</b>  |
| 044       | Cylinder, CrNi (stainless steel), diameter 44, density 750 kg/m <sup>3</sup>                    |
| 052       | Spherical, CrNi (stainless steel), diameter 52, density 680 kg/m <sup>3</sup>                   |
| 053       | Spherical, CrNi (stainless steel), diameter 52, density 680 kg/m <sup>3</sup> , electropolished |
| 752       | Spherical, Ti (titanium), diameter 52, density 650 kg/m <sup>3</sup>                            |
|           | <b>(8) Number of floats</b>   |
| 1         | 1 piece   |
| 2         | 2 pieces  |
| 3         | 3 pieces  |
| 4         | 4 pieces  |
| 5         | 5 pieces  |
|           | <b>(9) Switching function</b>   |
| 02        | SPST-NC, N/C contact (10 VA/AC 175 V/0.5 A)   |
| 03        | SPDT-CO, changeover contact (10 VA/AC 175 V/0.5 A)  |
| 07        | SPDT-CO, single-pole changeover contact, bistable (40 VA/AC 230 V/0.5 A)                        |
| 10        | SPST-NO, N/O contact (100 W/DC 230 V/1 A)   |
| 11        | SPST-NC, N/C contact (60 VA/AC 230 V/1 A)   |
| 12        | SPDT, single-pole changeover contact (60 VA/AC 230 V/1 A)                                       |
| 15        | SPST-NO, N/O contact bistable (100 W/DC 230 V/1 A)  |
| 99        | According to customer specification   |
|           | <b>(10) Number of contacts</b>  |
| 1         | 1 contact   |
| 2         | 2 contacts  |
| 3         | 3 contacts  |
| 4         | 4 contacts  |
| 5         | 5 contacts  |
|           | <b>(11) Position of contact 1<sup>c</sup></b>   |
| 20 - 3970 | Specifications in plain text  |
|           | <b>(12) Position of contact 2<sup>c</sup></b>   |
| 0         | None  |
| 20 - 3970 | Specifications in plain text  |
|           | <b>(13) Position of contact 3<sup>c</sup></b>   |
| 0         | None  |
| 40 - 3970 | Specifications in plain text  |
|           | <b>(14) Position of contact 4<sup>c</sup></b>   |
| 0         | None  |
| 40 - 3970 | Specifications in plain text  |
|           | <b>(15) Position of contact 5<sup>c</sup></b>   |
| 0         | None  |
| 40 - 3970 | Specifications in plain text  |

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| (16) Extra codes |   |
|------------------|---|
| 005              | Integrated temperature sensor Pt1000 <sup>d</sup> |
| 007              | Integrated temperature sensor Pt100 <sup>d</sup>  |
| 009              | Temperature switch <sup>e</sup>                   |
| 019              | Temperature monitoring of reed contact, Pt1000    |
| 370              | Extension tube                                    |
| 976              | Guide tube diameter 14 mm                         |
| 977              | Guide tube diameter 16 mm                         |

- <sup>a</sup> Not available for shipbuilding approval (basic type extension 062), shipbuilding approval and explosion protection, intrinsically safe, Ex i (basic type extension 662), and shipbuilding approval and explosion protection, pressure resistant, Ex d (basic type extension 962).
- <sup>b</sup> The dimensioning is in mm in relation to the contact/locating surface (threaded bushing of the container/tank wall) of the selected process connection (see operating manual chapter on "order details").
- <sup>c</sup> The contact positions are viewed from the process connection toward the guide tube end (see operating manual chapter on "order details").
- <sup>d</sup> The temperature sensor is positioned at the end of the guide tube.
- <sup>e</sup> Specify switching temperature in plain text. The temperature switch is positioned at the end of the guide tube.

|                      |        |   |      |   |      |   |      |   |      |   |      |   |      |   |      |   |     |   |
|----------------------|--------|---|------|---|------|---|------|---|------|---|------|---|------|---|------|---|-----|---|
|                      | (1)    |   | (2)  |   | (3)  |   | (4)  |   | (5)  |   | (6)  |   | (7)  |   | (8)  |   | (9) |   |
| <b>Order code</b>    | □      | / | □    | - | □    | - | □    | - | □    | - | □    | - | □    | - | □    | - | □   | - |
| <b>Order example</b> | 408302 | / | 000  | - | 130  | - | 0    | - | 570  | - | 1112 | - | 044  | - | 1    | - | 12  | - |
|                      |        |   | (10) |   | (11) |   | (12) |   | (13) |   | (14) |   | (15) |   | (16) |   |     |   |
|                      |        |   | □    | - | □    | - | □    | - | □    | - | □    | - | □    | / | □    |   |     |   |
|                      |        |   | 1    | - | 1060 | - | 0    | - | 0    | - | 0    | - | 0    | / | 000  |   |     |   |

Minimum order volume: 1 piece