

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
Email: mail@jumo.net
Internet: www.jumo.net

JUMO Instrument Co. Ltd.
JUMO House
Temple Bank, Riverway
Harlow, Essex, CM20 2DY, UK
Phone: +44 1279 63 55 33
Fax: +44 1279 62 50 29
Email: sales@jumo.co.uk
Internet: www.jumo.co.uk

JUMO Process Control, Inc.
6733 Myers Road
East Syracuse, NY 13057, USA
Phone: +1 315 437 5866
Fax: +1 315 437 5860
Email: info.us@jumo.net
Internet: www.jumousa.com



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



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
 Email: mail@jumo.net
 Internet: www.jumo.net

JUMO Instrument Co. Ltd.
 JUMO House
 Temple Bank, Riverway
 Harlow, Essex, CM20 2DY, UK
 Phone: +44 1279 63 55 33
 Fax: +44 1279 62 50 29
 Email: sales@jumo.co.uk
 Internet: www.jumo.co.uk

JUMO Process Control, Inc.
 6733 Myers Road
 East Syracuse, NY 13057, USA
 Phone: +1 315 437 5866
 Fax: +1 315 437 5860
 Email: info.us@jumo.net
 Internet: www.jumousa.com



Technical data

General Information

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

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

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

Switching function	11 SPST-NC	
Switching voltage (max.) ^b	AC 230 V	DC 230 V
Switching capacity (max.) ^b	60 VA	60 W
Switching current (max.) ^b	1.0 A	1.0 A

^a Measured, dry

^b The values must also be adhered to in combination.

	Pt100	Pt1000	Temperature switch, N/C contact, max. 2.5 A, AC 230 V, cos φ 0.95 [0.6], 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 according to DIN EN 60751 the limit deviation in °C is as follows: ±(0.3 + 0.005 t) t = temperature in °C regardless of prefix sign		Tolerance ±5 K Hysteresis 30 K ±15 K

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
 Email: mail@jumo.net
 Internet: www.jumo.net

JUMO Instrument Co. Ltd.
 JUMO House
 Temple Bank, Riverway
 Harlow, Essex, CM20 2DY, UK
 Phone: +44 1279 63 55 33
 Fax: +44 1279 62 50 29
 Email: sales@jumo.co.uk
 Internet: www.jumo.co.uk

JUMO Process Control, Inc.
 6733 Myers Road
 East Syracuse, NY 13057, USA
 Phone: +1 315 437 5866
 Fax: +1 315 437 5860
 Email: info.us@jumo.net
 Internet: www.jumousa.com



Mechanical features

Float	Form	Material	Outer diameter	Min. density kg/m ³	Pressure range (nominal pressure) in bar	Weight in grams
044	Cylinder	AISI 316 series	44	650	-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 ³					
	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 ^a e.g. process connection, float, guide tube	AISI 316 series, in the case of float 752 only floats made of titanium
Materials of parts not in contact with medium ^a Cable Cable socket Round plug M12 × 1 Terminal head Ex d Connection housing, cube-shaped, small Connection housing, cube-shaped, large	PVC or silicone or PUR PBT-GF30 PBT-GF30 Aluminum, painted Aluminum, painted Aluminum, painted
Clamping range Cable fitting 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) Diameter 6.5 to 11.9 mm for terminal head Ex d (electrical connection 115) Diameter 6 to 8 mm for cable socket (electrical connection 061) 0.14 to 2.5 mm ² for connection housing, cube-shaped, small (electrical connection 130) 0.14 to 1.5 mm ² for terminal head Ex d (electrical connection 115) and connection housing, cube-shaped, large (electrical connectin 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)

^a The chemical resistance of the materials should be taken into account for the application.

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
 Email: mail@jumo.net
 Internet: www.jumo.net

JUMO Instrument Co. Ltd.
 JUMO House
 Temple Bank, Riverway
 Harlow, Essex, CM20 2DY, UK
 Phone: +44 1279 63 55 33
 Fax: +44 1279 62 50 29
 Email: sales@jumo.co.uk
 Internet: www.jumo.co.uk

JUMO Process Control, Inc.
 6733 Myers Road
 East Syracuse, NY 13057, USA
 Phone: +1 315 437 5866
 Fax: +1 315 437 5860
 Email: info.us@jumo.net
 Internet: www.jumousa.com



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 ^a	
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 ^b	0.7 g for 13.2 to 100 Hz and freely oscillating guide tube length up to max. 2.5 m 4 g for 25 to 100 Hz and freely oscillating guide tube length up to max. 1 m
Ambient temperature for electrical connection ^c	
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 (e.g. guide tube with float)	-40 to +150 °C (standard) -52 to +240 °C (upon request)

^a According to DIN EN 60529

^b According to IEC 60068-2-6

^c Note dependency of extension tube length on process temperature, see diagrams below.

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
 Email: mail@jumo.net
 Internet: www.jumo.net

JUMO Instrument Co. Ltd.
 JUMO House
 Temple Bank, Riverway
 Harlow, Essex, CM20 2DY, UK
 Phone: +44 1279 63 55 33
 Fax: +44 1279 62 50 29
 Email: sales@jumo.co.uk
 Internet: www.jumo.co.uk

JUMO Process Control, Inc.
 6733 Myers Road
 East Syracuse, NY 13057, USA
 Phone: +1 315 437 5866
 Fax: +1 315 437 5860
 Email: info.us@jumo.net
 Internet: www.jumousa.com



Maximum ambient temperature depending on extension tube and process temperature

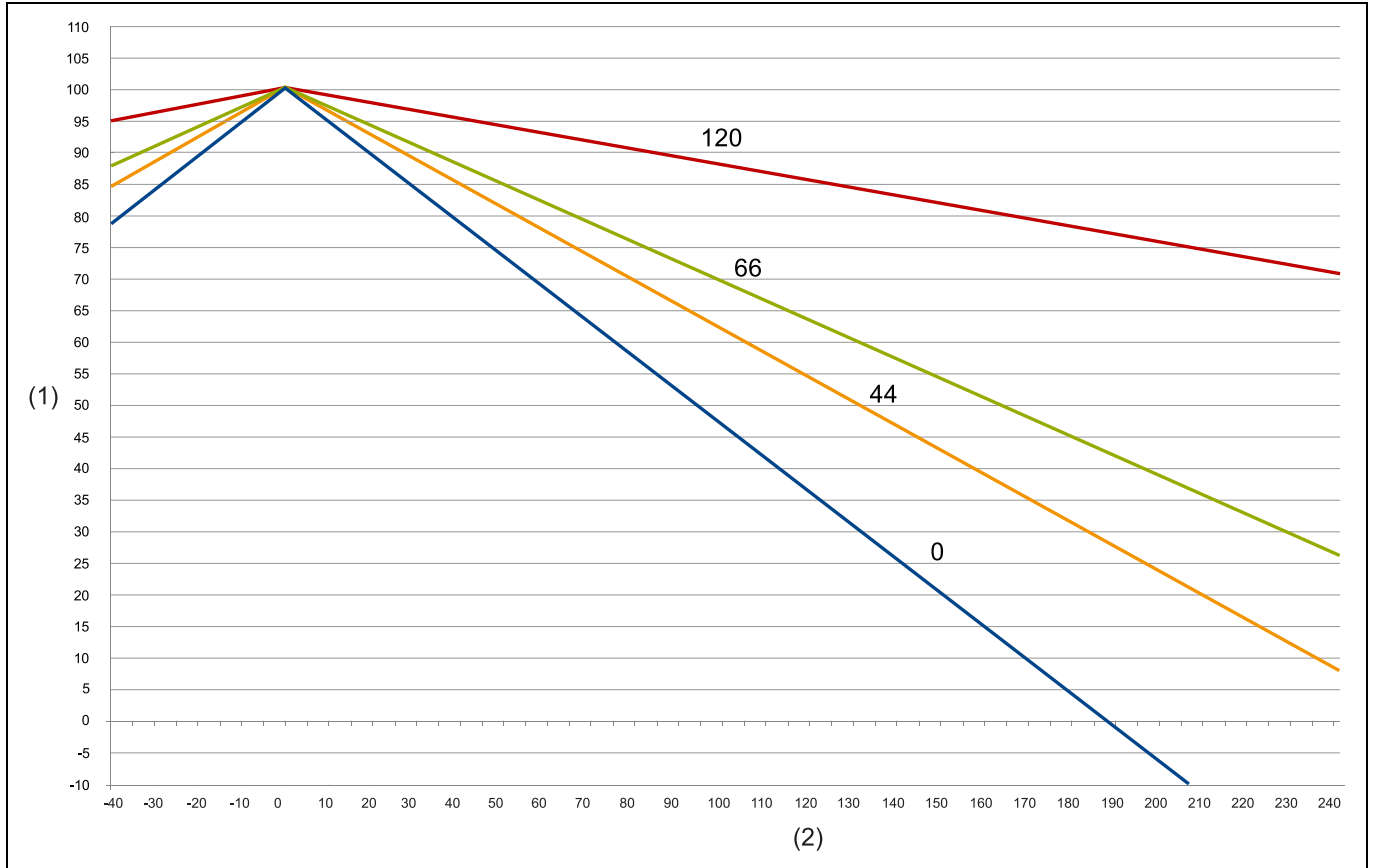


Fig. 0-1 Connection housing small and large, extension tube in mm

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

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
 Email: mail@jumo.net
 Internet: www.jumo.net

JUMO Instrument Co. Ltd.
 JUMO House
 Temple Bank, Riverway
 Harlow, Essex, CM20 2DY, UK
 Phone: +44 1279 63 55 33
 Fax: +44 1279 62 50 29
 Email: sales@jumo.co.uk
 Internet: www.jumo.co.uk

JUMO Process Control, Inc.
 6733 Myers Road
 East Syracuse, NY 13057, USA
 Phone: +1 315 437 5866
 Fax: +1 315 437 5860
 Email: info.us@jumo.net
 Internet: www.jumousa.com

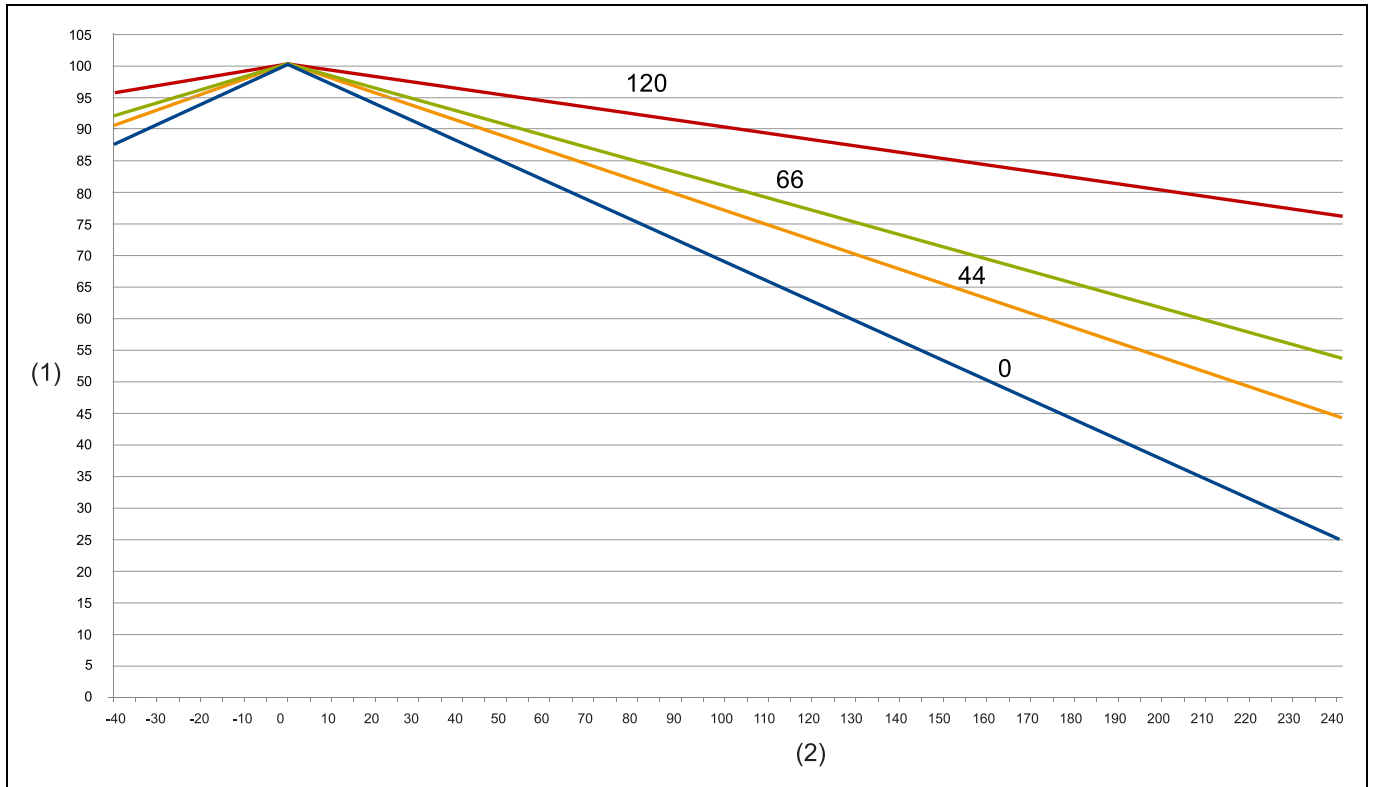


Fig. 0-2 Connection housing Ex d, extension tube in mm

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

Approvals and approval marks

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

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
 Email: mail@jumo.net
 Internet: www.jumo.net

JUMO Instrument Co. Ltd.
 JUMO House
 Temple Bank, Riverway
 Harlow, Essex, CM20 2DY, UK
 Phone: +44 1279 63 55 33
 Fax: +44 1279 62 50 29
 Email: sales@jumo.co.uk
 Internet: www.jumo.co.uk

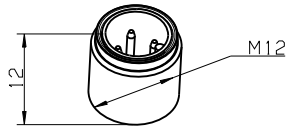
JUMO Process Control, Inc.
 6733 Myers Road
 East Syracuse, NY 13057, USA
 Phone: +1 315 437 5866
 Fax: +1 315 437 5860
 Email: info.us@jumo.net
 Internet: www.jumousa.com



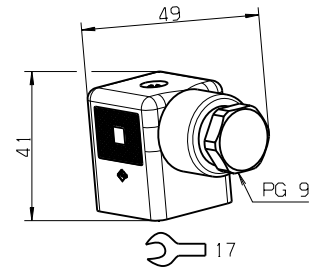
Dimensions

Electrical connection

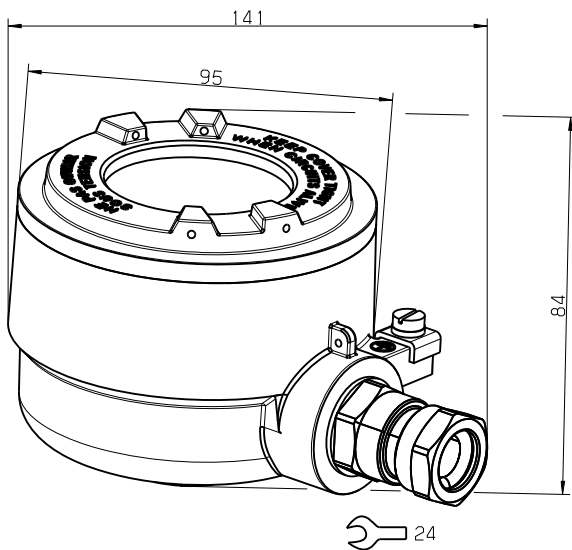
036
 Round plug M12 × 1



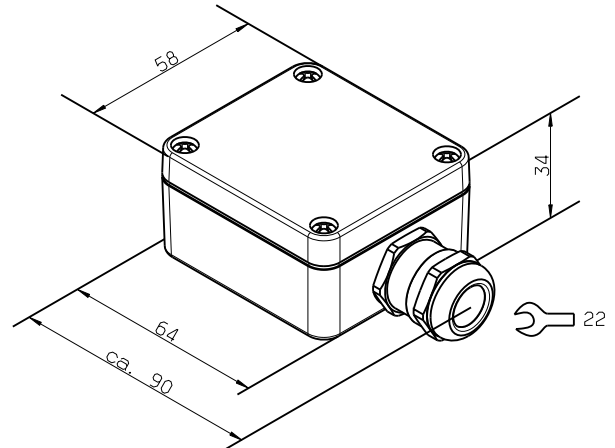
061
 Cable socket DIN EN 175301-803



115
 Terminal head Ex d



130
 Connection housing, cube-shaped, small



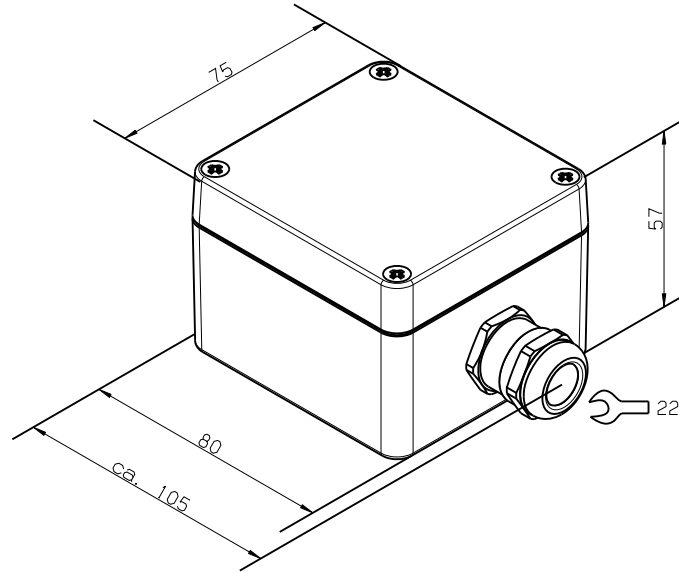
JUMO GmbH & Co. KG
 Delivery address: Mackenrodtstraße 14
 36039 Fulda, Germany
 Postal address: 36035 Fulda, Germany
 Phone: +49 661 6003-0
 Fax: +49 661 6003-607
 Email: mail@jumo.net
 Internet: www.jumo.net

JUMO Instrument Co. Ltd.
 JUMO House
 Temple Bank, Riverway
 Harlow, Essex, CM20 2DY, UK
 Phone: +44 1279 63 55 33
 Fax: +44 1279 62 50 29
 Email: sales@jumo.co.uk
 Internet: www.jumo.co.uk

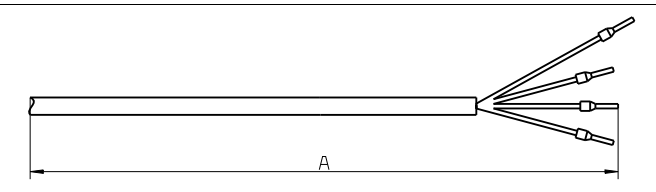
JUMO Process Control, Inc.
 6733 Myers Road
 East Syracuse, NY 13057, USA
 Phone: +1 315 437 5866
 Fax: +1 315 437 5860
 Email: info.us@jumo.net
 Internet: www.jumousa.com



131
 Connection housing, cube-shaped, large

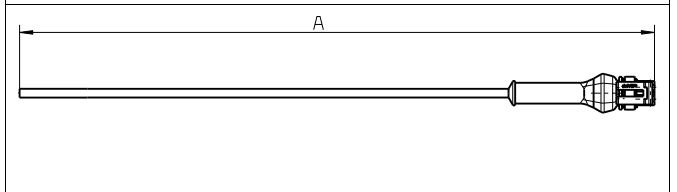


150 PVC, 160 silicone, 170 PUR
 Cable with ferrules



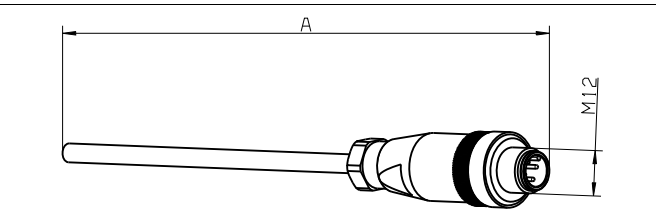
A Cable length, see order details

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

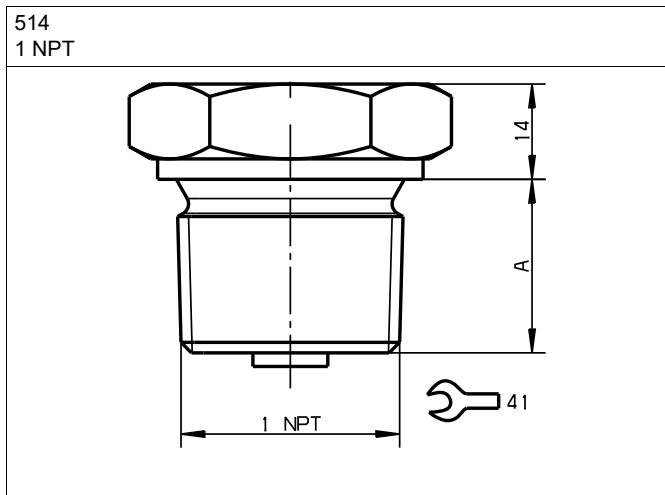
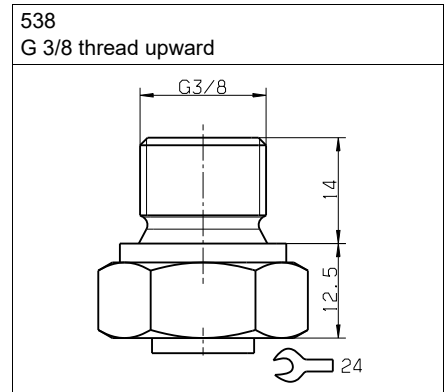
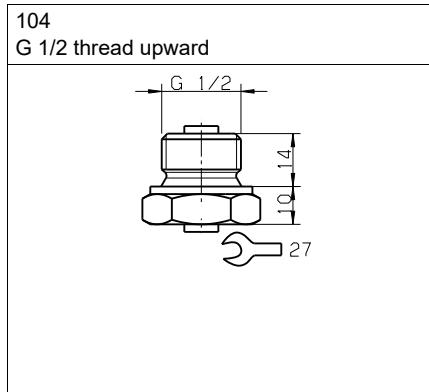
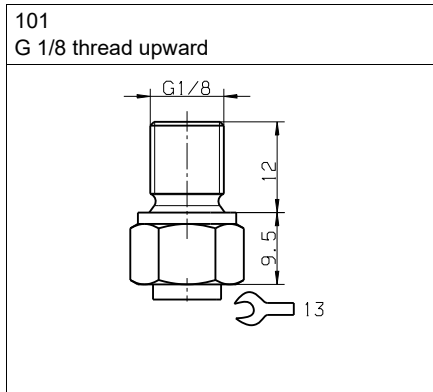
JUMO GmbH & Co. KG
 Delivery address: Mackenrodtstraße 14
 36039 Fulda, Germany
 Postal address: 36035 Fulda, Germany
 Phone: +49 661 6003-0
 Fax: +49 661 6003-607
 Email: mail@jumo.net
 Internet: www.jumo.net

JUMO Instrument Co. Ltd.
 JUMO House
 Temple Bank, Riverway
 Harlow, Essex, CM20 2DY, UK
 Phone: +44 1279 63 55 33
 Fax: +44 1279 62 50 29
 Email: sales@jumo.co.uk
 Internet: www.jumo.co.uk

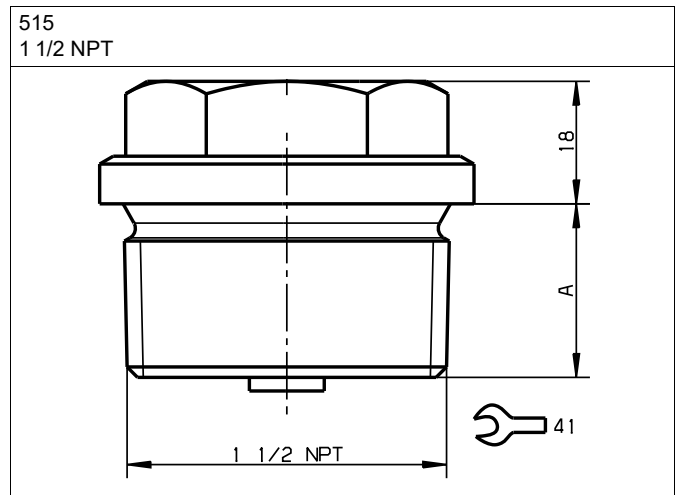
JUMO Process Control, Inc.
 6733 Myers Road
 East Syracuse, NY 13057, USA
 Phone: +1 315 437 5866
 Fax: +1 315 437 5860
 Email: info.us@jumo.net
 Internet: www.jumousa.com



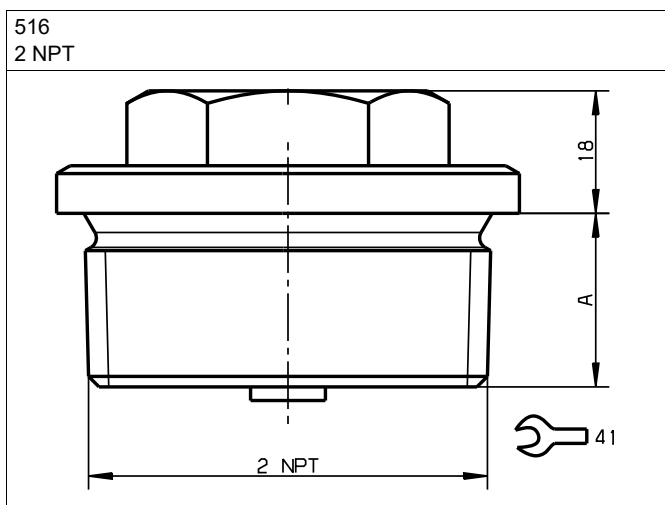
Process connections



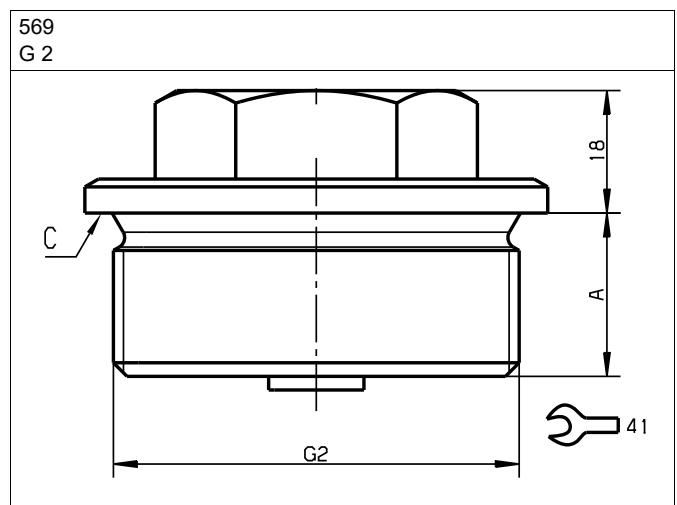
A 25.5



A 25.5



A 25.5



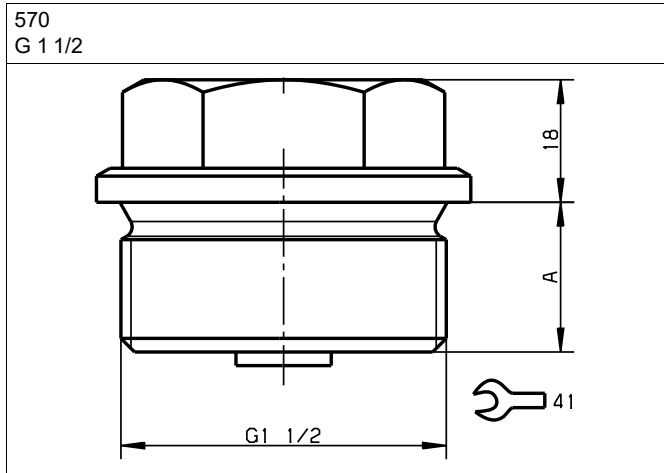
A 24 (25.5 for Ex d)

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

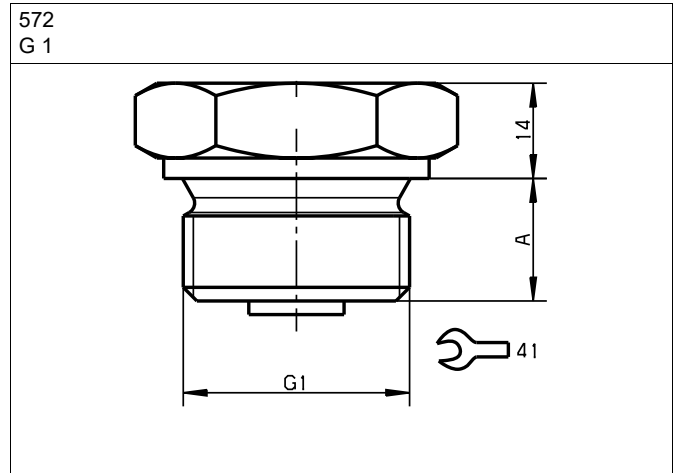
JUMO GmbH & Co. KG
 Delivery address: Mackenrodtstraße 14
 36039 Fulda, Germany
 Postal address: 36035 Fulda, Germany
 Phone: +49 661 6003-0
 Fax: +49 661 6003-607
 Email: mail@jumo.net
 Internet: www.jumo.net

JUMO Instrument Co. Ltd.
 JUMO House
 Temple Bank, Riverway
 Harlow, Essex, CM20 2DY, UK
 Phone: +44 1279 63 55 33
 Fax: +44 1279 62 50 29
 Email: sales@jumo.co.uk
 Internet: www.jumo.co.uk

JUMO Process Control, Inc.
 6733 Myers Road
 East Syracuse, NY 13057, USA
 Phone: +1 315 437 5866
 Fax: +1 315 437 5860
 Email: info.us@jumo.net
 Internet: www.jumousa.com

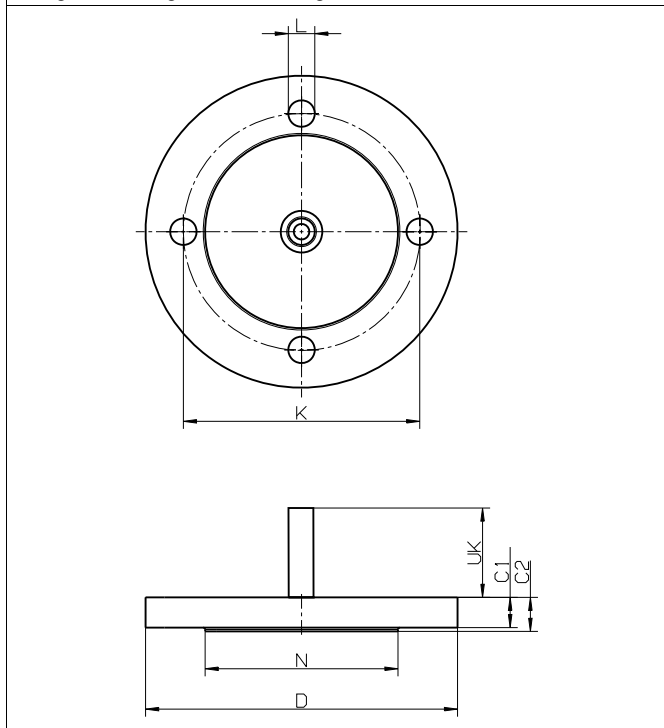


A 22 (25.5 for Ex d)



A 18 (25.5 for Ex d)

Flange according to the following table



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

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
 Email: mail@jumo.net
 Internet: www.jumo.net

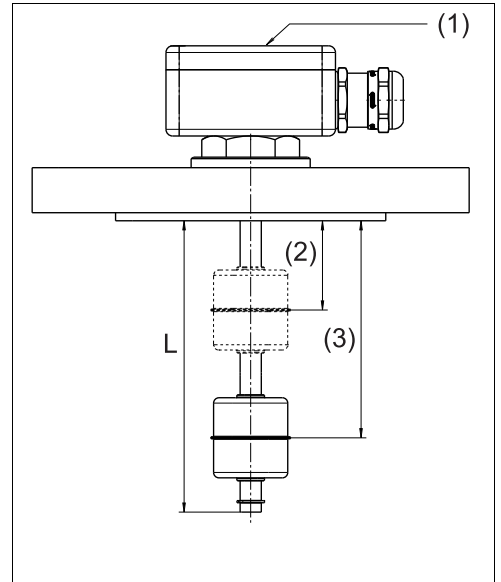
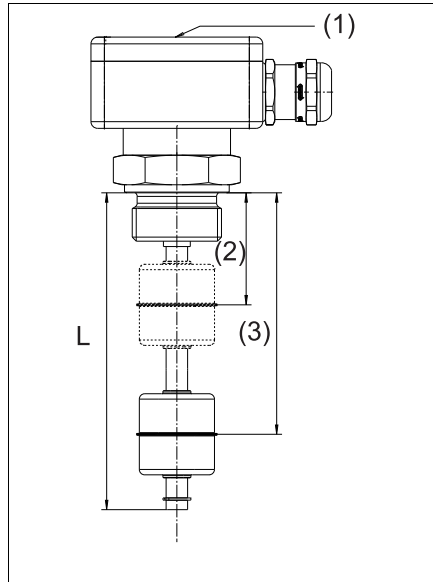
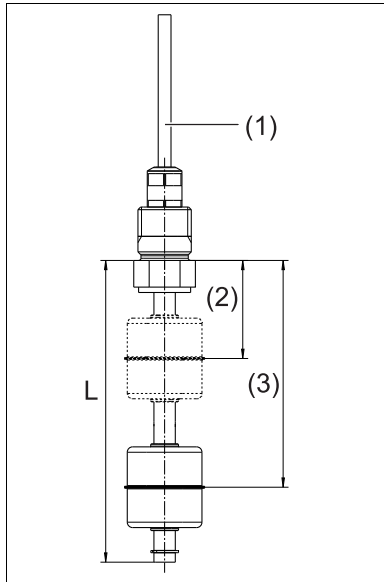
JUMO Instrument Co. Ltd.
 JUMO House
 Temple Bank, Riverway
 Harlow, Essex, CM20 2DY, UK
 Phone: +44 1279 63 55 33
 Fax: +44 1279 62 50 29
 Email: sales@jumo.co.uk
 Internet: www.jumo.co.uk

JUMO Process Control, Inc.
 6733 Myers Road
 East Syracuse, NY 13057, USA
 Phone: +1 315 437 5866
 Fax: +1 315 437 5860
 Email: info.us@jumo.net
 Internet: www.jumousa.com



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“

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
 Email: mail@jumo.net
 Internet: www.jumo.net

JUMO Instrument Co. Ltd.
 JUMO House
 Temple Bank, Riverway
 Harlow, Essex, CM20 2DY, UK
 Phone: +44 1279 63 55 33
 Fax: +44 1279 62 50 29
 Email: sales@jumo.co.uk
 Internet: www.jumo.co.uk

JUMO Process Control, Inc.
 6733 Myers Road
 East Syracuse, NY 13057, USA
 Phone: +1 315 437 5866
 Fax: +1 315 437 5860
 Email: info.us@jumo.net
 Internet: www.jumousa.com



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 RD WH PUR BN WH PVC BN WH	Silicone RD WH RD/BU BK PVC BN WH GN									
2	Silicone RD WH RD/BU WH/BU PVC BN WH GN YE	Silicone ^a RD WH BU RD/BU WH/BU BU PVC ^b RD BK BN OG GN YE									

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
 Email: mail@jumo.net
 Internet: www.jumo.net

JUMO Instrument Co. Ltd.
 JUMO House
 Temple Bank, Riverway
 Harlow, Essex, CM20 2DY, UK
 Phone: +44 1279 63 55 33
 Fax: +44 1279 62 50 29
 Email: sales@jumo.co.uk
 Internet: www.jumo.co.uk

JUMO Process Control, Inc.
 6733 Myers Road
 East Syracuse, NY 13057, USA
 Phone: +1 315 437 5866
 Fax: +1 315 437 5860
 Email: info.us@jumo.net
 Internet: www.jumousa.com



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 ^a RD WH RD/BU WH/BU BU BU PVC ^b RD BK BN OG GN YE	-	-	-			-	-		-
4	-	-	-	-			-	-	-	-

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
 Email: mail@jumo.net
 Internet: www.jumo.net

JUMO Instrument Co. Ltd.
 JUMO House
 Temple Bank, Riverway
 Harlow, Essex, CM20 2DY, UK
 Phone: +44 1279 63 55 33
 Fax: +44 1279 62 50 29
 Email: sales@jumo.co.uk
 Internet: www.jumo.co.uk

JUMO Process Control, Inc.
 6733 Myers Road
 East Syracuse, NY 13057, USA
 Phone: +1 315 437 5866
 Fax: +1 315 437 5860
 Email: info.us@jumo.net
 Internet: www.jumousa.com



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 ^c	prepared for 2 according to EN 61010-1		1	1	1	1	3	3	3	3
Creepage distances in mm ^d	3	3	1.5	1.5	1.5	1.5	not relevant		not relevant	

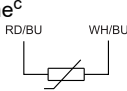


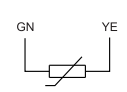




^a According to VDE 0298-4 max. current 0.8 A at max. 175 °C or 1 A at max. 170 °C
^b According to VDE 0298-4 max. current 0.8 A at max. 75 °C or 1 A at max. 70 °C
^c According to DIN EN 61140
^d According to DIN EN 61010-1

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
 Email: mail@jumo.net
 Internet: www.jumo.net

JUMO Instrument Co. Ltd.
 JUMO House
 Temple Bank, Riverway
 Harlow, Essex, CM20 2DY, UK
 Phone: +44 1279 63 55 33
 Fax: +44 1279 62 50 29
 Email: sales@jumo.co.uk
 Internet: www.jumo.co.uk

JUMO Process Control, Inc.
 6733 Myers Road
 East Syracuse, NY 13057, USA
 Phone: +1 315 437 5866
 Fax: +1 315 437 5860
 Email: info.us@jumo.net
 Internet: www.jumousa.com

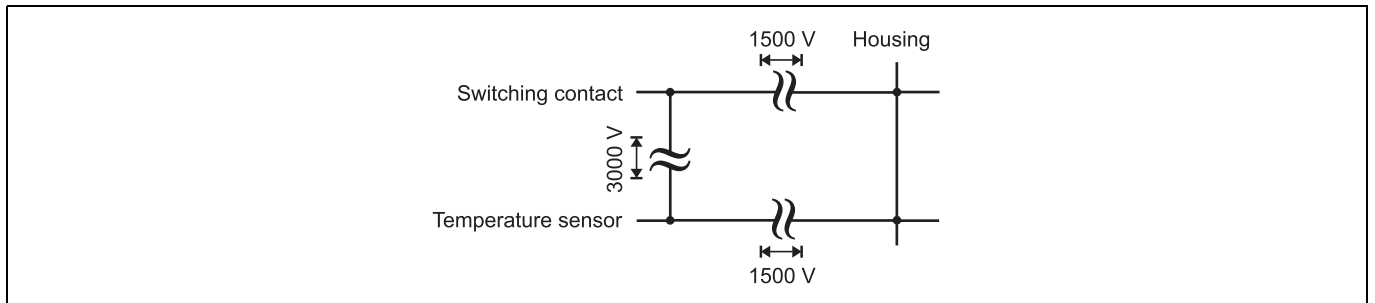


	Cable ^a	Cable socket	Connection housing	AMP Superseal connector	Round plug M12 ^a
Temperature sensor Pt100 ^b	Silicone ^c 	-		-	
Temperature sensor Pt1000 ^b	PVC ^c 	-	-	-	-
Temperature switch ^b	Silicone ^{d, e} 	-		-	
	PVC ^{d, f} 	-	-	-	-

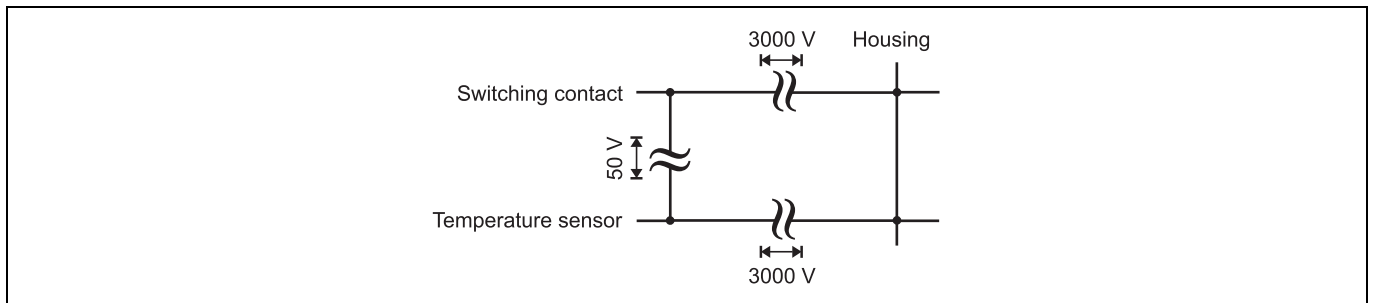
- ^a Connect all measuring circuits of a product to SELV circuits.
- ^b Assignment is always to terminals with the highest numbers
- ^c For 1x SPST-NO/NC switching contacts
- ^d For 2x SPST-NO/NC or 1x SPDT-CO switching contacts
- ^e According to VDE 0298-4 max. current 0.8 A for max. 175 °C or 2 A for max. 150 °C
- ^f 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 realized according to the following figure.

The specified voltages are test voltages according to EN 61010-1 for protection class 1:



The specified voltages are test voltages according to EN 61010-1 for protection class 2:



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
 Email: mail@jumo.net
 Internet: www.jumo.net

JUMO Instrument Co. Ltd.
 JUMO House
 Temple Bank, Riverway
 Harlow, Essex, CM20 2DY, UK
 Phone: +44 1279 63 55 33
 Fax: +44 1279 62 50 29
 Email: sales@jumo.co.uk
 Internet: www.jumo.co.uk

JUMO Process Control, Inc.
 6733 Myers Road
 East Syracuse, NY 13057, USA
 Phone: +1 315 437 5866
 Fax: +1 315 437 5860
 Email: info.us@jumo.net
 Internet: www.jumousa.com



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

Contact function	Max. voltage U_i in V	Max. current I_i in mA	Max. power P_i in mW	Internal inductance in μ H	Internal capacitance in pF
SPST-NO	≤ 30	≤ 100	≤ 750	~0 for cable version 1 μ H/m connecting cable	~0 for cable version 200 pF/m 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.

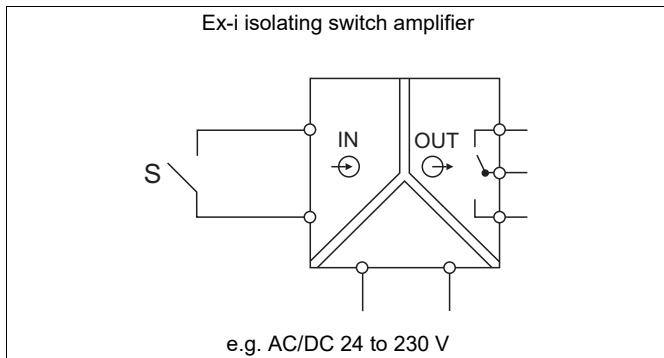
Contact function	Max. voltage U_i in V	Max. current I_i in mA	Max. power P_i in mW	Internal inductance in μ H	Internal capacitance in pF
Pt100	≤ 30	≤ 55	≤ 413	~0 for cable version 1 μ H/m connecting cable	~0 for cable version 200 pF/m connecting cable
Pt1000					

Legend: cable	BN	Brown	RD	Red
	WH	White	YE	Yellow
	BU	Blue	OG	Orange
	GN	Green	BK	Black

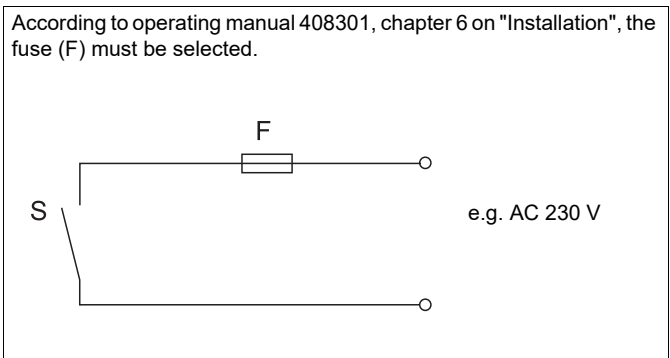
Connection examples of versions with explosion protection

Float switch (S)

Ex i



Ex d



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
 Email: mail@jumo.net
 Internet: www.jumo.net

JUMO Instrument Co. Ltd.
 JUMO House
 Temple Bank, Riverway
 Harlow, Essex, CM20 2DY, UK
 Phone: +44 1279 63 55 33
 Fax: +44 1279 62 50 29
 Email: sales@jumo.co.uk
 Internet: www.jumo.co.uk

JUMO Process Control, Inc.
 6733 Myers Road
 East Syracuse, NY 13057, USA
 Phone: +1 315 437 5866
 Fax: +1 315 437 5860
 Email: info.us@jumo.net
 Internet: www.jumousa.com



Order details

	(1) Basic type
408302	JUMO NESOS R02 LS – Standard version float switch
	(2) Basic type extension
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
	(3) Electrical connection
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)
152	Cable, PVC with M12 connector
160	Cable, silicone ^a
161	Cable, silicone with AMP Superseal connector (max. DC 24 V/3 A) ^a
162	Cable, silicone with M12 connector ^a
170	Cable, PUR
171	Cable, PUR with AMP Superseal connector (max. DC 24 V/3 A)
172	Cable, PUR with M12 connector
999	Special version
	(4) Cable length
0000	None
2000	2000 mm
5000	5000 mm
0100 - 5000	Specifications in plain text
	(5) Process connection
104	G 1/2 thread upward
412	Pg9
514	1 NPT
515	1 1/2 NPT
516	2 NPT
534	M14 x 1.5 thread upward
538	G 3/8 thread upward
569	G 2
570	G 1 1/2
572	G 1
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
	(6) Guide tube length L^b
100 - 4000	Specifications in plain text

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
 Email: mail@jumo.net
 Internet: www.jumo.net

JUMO Instrument Co. Ltd.
 JUMO House
 Temple Bank, Riverway
 Harlow, Essex, CM20 2DY, UK
 Phone: +44 1279 63 55 33
 Fax: +44 1279 62 50 29
 Email: sales@jumo.co.uk
 Internet: www.jumo.co.uk

JUMO Process Control, Inc.
 6733 Myers Road
 East Syracuse, NY 13057, USA
 Phone: +1 315 437 5866
 Fax: +1 315 437 5860
 Email: info.us@jumo.net
 Internet: www.jumousa.com



	(7) Float
044	Cylinder, CrNi (stainless steel), diameter 44, density 750 kg/m ³
052	Spherical, CrNi (stainless steel), diameter 52, density 680 kg/m ³
053	Spherical, CrNi (stainless steel), diameter 52, density 680 kg/m ³ , electropolished
752	Spherical, Ti (titanium), diameter 52, density 650 kg/m ³
	(8) Number of floats
1	1 piece
2	2 pieces
3	3 pieces
4	4 pieces
5	5 pieces
	(9) Switching function
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
	(10) Number of contacts
1	1 contact
2	2 contacts
3	3 contacts
4	4 contacts
5	5 contacts
	(11) Position of contact 1^c
20 - 3970	Specifications in plain text
	(12) Position of contact 2^c
0	None
20 - 3970	Specifications in plain text
	(13) Position of contact 3^c
0	None
40 - 3970	Specifications in plain text
	(14) Position of contact 4^c
0	None
40 - 3970	Specifications in plain text
	(15) Position of contact 5^c
0	None
40 - 3970	Specifications in plain text
	(16) Extra codes
005	Integrated temperature sensor Pt1000 ^d
007	Integrated temperature sensor Pt100 ^d
009	Temperature switch ^e
019	Temperature monitoring of reed contact, Pt1000
370	Extension tube
976	Guide tube diameter 14 mm
977	Guide tube diameter 16 mm

^a 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)

^b 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").

^c The contact positions are viewed from the process connection toward the guide tube end (see operating manual chapter on "order details").

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
 Email: mail@jumo.net
 Internet: www.jumo.net

JUMO Instrument Co. Ltd.
 JUMO House
 Temple Bank, Riverway
 Harlow, Essex, CM20 2DY, UK
 Phone: +44 1279 63 55 33
 Fax: +44 1279 62 50 29
 Email: sales@jumo.co.uk
 Internet: www.jumo.co.uk

JUMO Process Control, Inc.
 6733 Myers Road
 East Syracuse, NY 13057, USA
 Phone: +1 315 437 5866
 Fax: +1 315 437 5860
 Email: info.us@jumo.net
 Internet: www.jumousa.com



- ^d The temperature sensor is positioned at the end of the guide tube.
- ^e 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)	
Order code		/		-		-		-		-		-		-		-		-
Order example	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