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Inductive Conductivity/Concentration and Temperature Transmitter with switch contacts

JUMO CTI-750

Type 202756

Brief description

The instrument is used for the measurement/control of conductivity or concentration in liquid media. It is particularly recommended for use in media where severe deposits of dirt, oil, grease or gypsum/lime precipitates are to be expected. The integrated temperature measurement enables fast and accurate temperature compensation, which is of particular importance when measuring conductivity. Additional functions, such as the combined changeover of measurement range and temperature coefficient, and a particularly robust conductivity probe, enable optimum application in CIP processes.

Two built-in switching outputs can be freely programmed to monitor limits for conductivity/concentration and/or temperature. It is also possible to assign alarm and control functions (dilution).

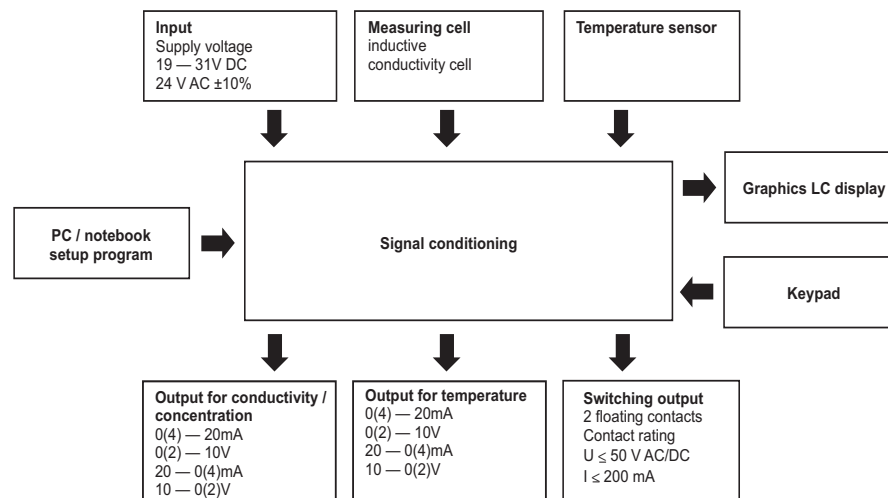
The instrument is operated either from the membrane keypad and plain-text graphics display or through the user-friendly PC setup program. The display can be read in a vertical or horizontal mounting position. The instrument can also be supplied without a keyboard/display. In this case, the setup program is required for programming.

Plastic or stainless steel can be chosen as the housing material, depending on the requirement. The separate sensor design is particularly suitable for systems with powerful vibrations and/or powerful heat emissions at the measuring location.

Typical areas of application: Food/beverage and pharmaceutical industries, product separation in the beverage industry, breweries and dairies, bottle cleaning plant, concentration control in electroplating and chemical processing plant, CIP systems, water and wastewater engineering, dosing of chemicals, leakage indication, in heating and cooling plant, and so on.



Block structure



Key features

- Hygienic sensor
- Activation of up to four measuring ranges and temperature coefficients
- Concentration measurement of
 - caustic soda NaOH
 - nitric acid HNO₃
 - a freely definable curve
- Fast-response temperature sensor
- Temperature compensation
 - linear, natural water or specific characteristic (learning function)
- Operation via keypad and LC display or through setup program
- Operator languages: English, French, German, Italian, Dutch, Polish, Portuguese, Russian, Spanish, Swedish
- By using the setup program:
 - user-friendly programming
 - plant documentation

Approvals/marks of conformity



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Functional description

The inductive measurement method permits largely maintenance-free acquisition of the specific conductivity, even in the toughest media conditions. As opposed to the conductive measurement method, problems such as electrode decomposition and polarization do not occur.

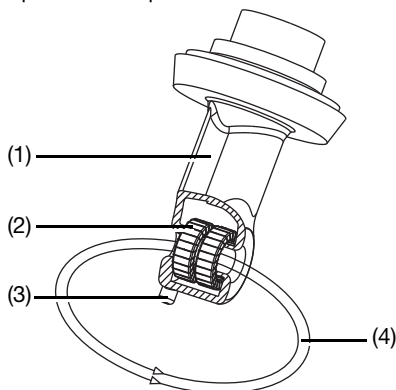
Conductivity is measured by using an inductive probe. A sinusoidal a.c. voltage feeds the transmitting coil. Depending on the conductivity of the liquid to be measured, a current is induced in the receiver coil. This current is proportional to the conductivity of the medium.

Instrument description

Measuring cell

The measuring cell consists of a hermetically sealed body inside which the two measurement coils are arranged. A bore in the measuring cell enables the medium to flow through. The measurement principle entails an inevitable electrical isolation between the sample medium and the signal output.

The measuring cell is largely unaffected by temperature and pressure variations.



- (1) Cell body (PEEK)
- (2) Measuring coils
- (3) Temperature sensor
- (4) Liquid loop

Exposed temperature sensor

The exposed sensor reacts very quickly to changes in temperature. This is particularly important in CIP processes (phase separation).

Parts in contact with the medium

Depending on the measuring cell version, the following materials come into contact with the sample medium: PEEK, PVDF, EPDM, stainless steels 1.4301 (AISI 304), 1.4305 (AISI 303) and 1.4404 (AISI 316L); see Dimensions.

Temperature compensation

Since conductivity depends to a large extent on the temperature of the medium, it is usually necessary to compensate for the temperature effect.

The instrument allows both linear and non-linear temperature compensation.

If required, temperature compensation can be switched off, for example, when the temperature conditions on the measurement site are stable or when temperature compensation is carried out in the software, in external evaluation devices (PLC or similar).

Process connections

To cover a wide variety of applications, the instrument can be supplied with different process connections, see dimensions.

Installation at the measurement point

The operating position is generally unrestricted. However, it is essential to ensure that there is a continuous exchange of the sample medium in the flow channel and that both air bubbles and dry-running are avoided.

Transmitter

The type 202756 transmitter has been designed for use on site. A rugged housing protects the electronics and the electrical connections from corrosive environmental conditions (IP67). A vent screw with a PTFE membrane prevents condensation.

Operation

The type 202756 can be operated either from the instrument keys and the graphics LC display and/or through the setup program from a PC or laptop.

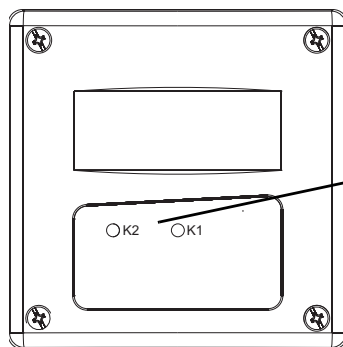
The instrument can be secured against unauthorized alteration by a password.

Functions of the outputs

Analog outputs

- One analog signal output for conductivity/concentration and temperature respectively.
- The analog output signals are freely scalable (range start and end values).
- The response of the analog outputs to over/underrange or alarm can be programmed.
- Simulation of the signal output:
The analog signal outputs can be freely set in the manual ("Hand") mode.
Application: "Dry-run" start-up of the plant, trouble-shooting, servicing.

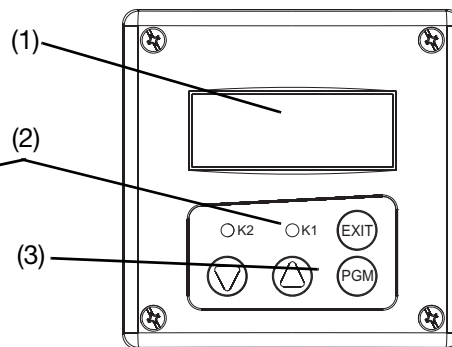
Displays and controls



Version without a display

Operation/configuration through the setup program only

- (1) Graphics LC display
- (2) LEDs for the switching status indication of the outputs K1 and K2
- (3) Keys

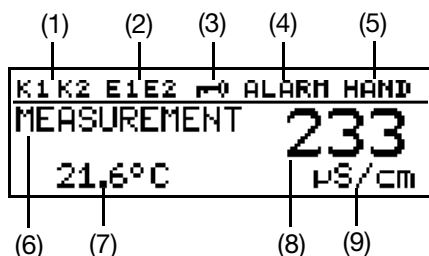


Version with a display

Operation/configuration from the keys or through the setup program



Graphics display



- (1) Switching output 1 or 2 is active
- (2) Binary input 1 or 2 is operated
- (3) Keypad is inhibited
- (4) Alarm has been activated
- (5) Instrument is in manual mode
- (6) Instrument status
- (7) Temperature of medium
- (8) Conductivity measurement
- (9) Unit of conductivity measurement

Switching outputs

The instrument features two floating switching outputs (solid-state relays) as standard.

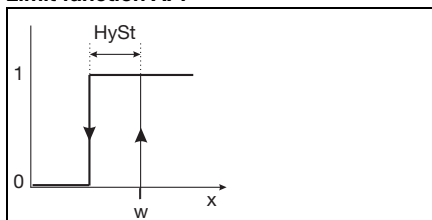
These can be used freely for monitoring the conductivity/concentration or the temperature.

The following functions can be assigned:

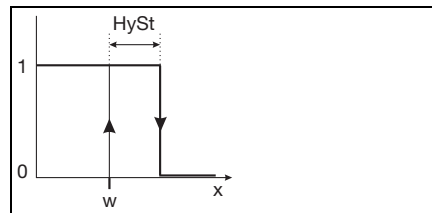
- Limit monitoring (MAX. or MIN. limit comparator) with programmable hysteresis
- Pulse function (the output switches briefly on reaching the switching point, then opens again).
- Pull-in and drop-out delay
- Inverted switching outputs
- Response to overrange/underrange or with activated measuring circuit monitoring (pull-in/drop-out)
- "Calibration timer run down" signal.

Contact functions

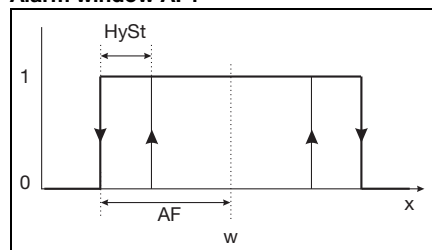
Limit function AF7



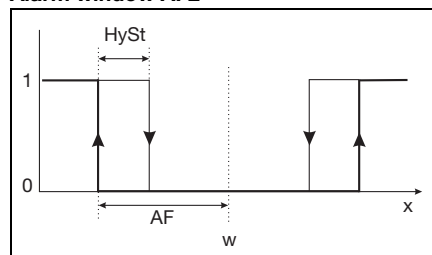
Limit function AF8



Alarm window AF1

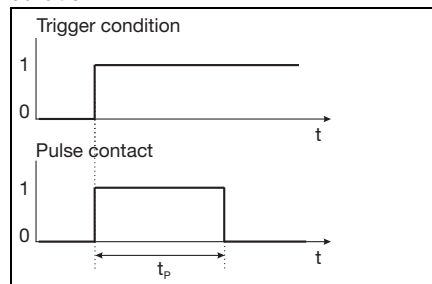


Alarm window AF2



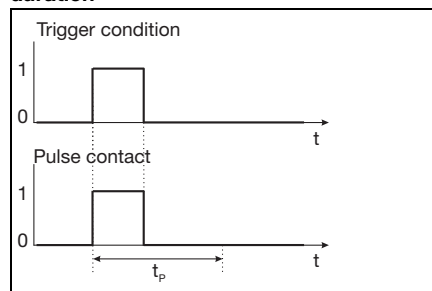
Pulse contact

Trigger conditions longer than pulse duration



Pulse contact

Trigger conditions shorter than pulse duration



Binary inputs

The two binary inputs serve to implement the following functions:

- Key inhibit
- HOLD mode
- 4-fold range changeover
- 4-fold temperature coefficient changeover
- Initiation of dilution function and biocide dosing

Special functions

- The **learning function** for the temperature coefficient enables exact measurement of media with a non-linear characteristic.

During a temperature change, the instrument "learns" the temperature coefficient of the present medium and stores the profile. The stored values then enable the correct indication of the temperature-compensated conductivity.

- **Individual characteristic** for concentration indication. An individual characteristic with 20 interpolation points can be entered through the setup program. This function can be used to generate special characteristics for specific media (e.g. special detergents). This results in correct measurements that contribute to assuring the quality and saving costs.

- **Dilution control**

Various processes that find their application in wet cooling towers are stored as sequence control (biocide dosing and subsequent inhibiting of dilution). Detailed information can be found in the operating manual.

- The **calibration timer** draws your attention to a calibration schedule. This function is activated by entering a number of days, after which recalibration has to be carried out (plant or operator requirement).

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Function of the binary inputs

Setting parameters	Binary input 1	Binary input 2
Range/temperature coefficient changeover	Range1/TC1	open
	Range2/TC2	closed
	Range3/TC3	open
	Range4/TC4	closed
Key inhibit	closed	X
Hold function	X	closed
Start dilution function	close (0 - 1 edge)	open
Stop dilution function	open	close (0 - 1 edge)

Technical data

Conductivity transmitter

A/D converter	
Resolution	15 bits
Sampling time	500 ms = 2 measurements/s
Power supply	For SELV and PELV circuit operation only.
Standard	19 - 31 V DC (24 V DC nominal)
Residual ripple	< 5 %
Reverse polarity protection	yes
Extra code 844	24 V DC \pm 10%, 50 - 60 Hz
Power draw	
with display	\leq 3 W
without display	\leq 2,6 W
Contact rating of the photo MOS relay	
Voltage	\leq 50 V AC/DC
Current	\leq 200 mA
Electrical connection	
82	Cable glands / pluggable screw terminals, 2,5 mm ²
83	M12 plug/socket (instead of cable glands)
84	Two M16 cable glands and a pluggable screw terminal blanking plug, 2,5 mm ²
Display	
Basic type extension 10	without display
Basic type extension 15	Backlit graphic LCD; adjustable contrast; dimensions: 62 x 23 mm
Basic type extension 16	Backlit graphic LCD; adjustable contrast; dimensions: 62 x 23 mm
Permissible ambient temperature	5 to +50°C; max. rel. humidity. 93%, no condensation
Permissible storage temperature	-10 to +75°C; max. rel. humidity. 93%, no condensation
Protection rating^a	IP 67
Electromagnetic compatibility^b	
Interference emission	Class B
Interference immunity	to industrial requirements
Housing	
Basic type extensions 10, 15, 20, 25, 60 and 65	PA
Basic type extensions 16, 26 and 66	Stainless steel 1.4305 (AISI 303)
Weight^c	approx. 0,3 - 2,4 kg

^a DIN EN 60529

^b DIN EN 61326

^c Dependent on version and process connection

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Measuring ranges

There is a choice of four different measuring ranges. Any one of these ranges can be activated by an external switch or by a PLC.

Note: The overall accuracy is composed of transmitter accuracy + sensor accuracy.

Transmitter measuring ranges	Accuracy (as % of measuring range span)
0 - 500 μ S/cm	$\leq 0,5\%$
0 - 1000 μ S/cm	
0 - 2000 μ S/cm	
0 - 5000 μ S/cm	
0 - 10 mS/cm	
0 - 20 mS/cm	
0 - 50 mS/cm	
0 - 100 mS/cm	
0 - 200 mS/cm	
0 - 500 mS/cm	
0 - 1000 mS/cm	
0 - 2000 mS/cm ¹	
Concentration measurement NaOH (caustic soda) HNO ₃ (nitric acid) Customer-specific concentration curve	
Calibration timer	0 - 999 days (0 = OFF)
Output signal conductivity and concentration²	0 - 10 V or 10 - 0 V 2 - 10 V or 10 - 2 V 0 - 20 mA or 20 - 0 mA 4 - 20 mA or 20 - 4 mA
Burden at current output at voltage output	$\leq 500 \Omega$ $\geq 2k \Omega$
Ambient temperature effect	$\leq 0,1 \%/K$
Analog output at "Alarm" Low High	0 mA / 0 V / 3.4 mA / 1.4 V or a fixed value 22.0 mA / 0.7 V or a fixed value

¹ Not temperature compensated.

² The output signal is freely scalable.

Temperature transmitters

Temperature acquisition¹	Manually, -20.0 to 25.0 to 150°C or °F, or automatically
Measuring range	-20 - 150°C or °F
Characteristic	linear
Accuracy	$\leq 0.5\%$ of the measuring range
Ambient temperature effect	$\leq 0.1 \%/K$
Output signal	0 - 10 V or 10 - 0 V 2 - 10 V or 10 - 2 V 0 - 20 mA or 20 - 0 mA 4 - 20 mA or 20 - 4 mA The output signal is freely scalable in the -20 to +200°C range
Burdon at current output at voltage output	$\leq 500 \Omega$ $\geq 2 k\Omega$
Analog output at "Alarm" Low High	0 mA / 0 V / 3.4 mA / 1.4 V or a fixed value 22.0 mA / 10.7 V

¹ Take the permissible sample medium temperature into consideration!

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Temperature compensation

Reference temperature	15 to 30 °C, adjustable
Temperature coefficient	5.5 %/°C, adjustable
Compensation range	-20 to 150 °C
Function	linear or natural water (EN 27 888) or non-linear (learning function, see Special functions)

Inductive conductivity sensor

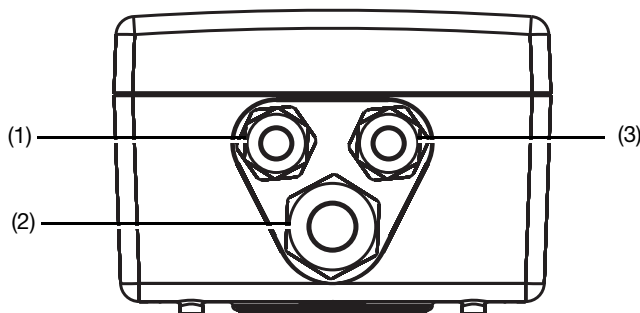
Measuring range	Accuracy (as % of measuring range span)
0 - 500 µS/cm	≤ 1%
0 - 1000 µS/cm	≤ 1%
0 - 2000 µS/cm	≤ 0,5%
0 - 5000 µS/cm	≤ 0,5%
0 - 10 mS/cm	≤ 0,5%
0 - 20 mS/cm	≤ 0,5%
0 - 50 mS/cm	≤ 0,5%
0 - 100 mS/cm	≤ 0,5%
0 - 200 mS/cm	≤ 0,5%
0 - 500 mS/cm	≤ 0,5%
0 - 1000 mS/cm	≤ 1%
0 - 2000 mS/cm ¹	≤ 1%
Material	PEEK PVDF
for extra code 767 for extra code 768	
Permissible sample medium temperatures	-10 - +120°C, briefly +140°C (sterilization)
Pressure	max. 10 bar

¹ Not temperature compensated

² **Note:** The temperature, pressure and sample medium affect the service life of the measuring cell!

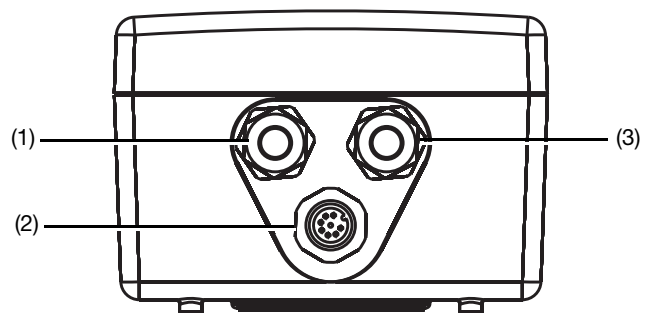
Electrical connection (transmitter with electrical connection 82 (cable glands))

Head transmitter



- (1) Power supply and actual value output
(conductivity / concentration and temperature)
M12 cable gland (PA)
- (2) Switching outputs
M16 cable gland (PA)
- (3) Binary input
M12 cable gland (PA)

Transmitter with separate sensor



- (1) Power supply and actual value output
(conductivity / concentration and temperature)
M12 cable gland (PA)
- (2) Separate sensor
M12 flush-type connector
- (3) Binary input and switching outputs
M12 cable gland (PA)

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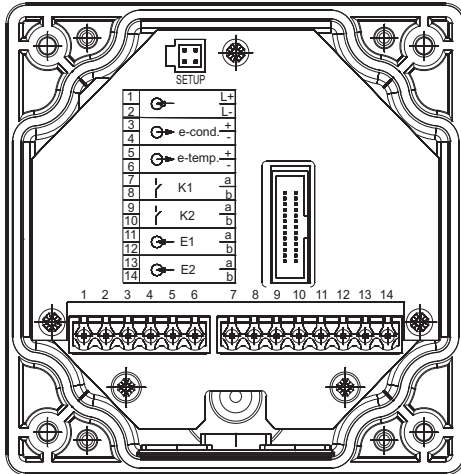
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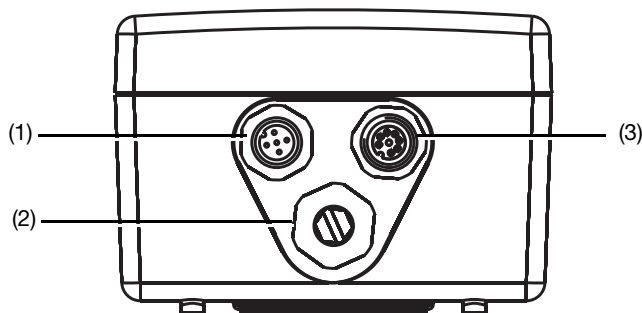
Supply	Terminal assignment	Symbol
Supply (with reverse-polarity protection)	1 L + 2 L -	

Outputs	Terminal assignment	Symbol
Analog signal output: conductivity/concentration (electrically isolated)	3 + 4 -	
Analog signal output: temperature (electrically isolated)	5 + 6 -	
Foto-MOS-Relay K1 (floating, no)	7 8	
Foto-MOS-Relay K2 (floating, no)	9 10	

Binary inputs	Terminal assignment	Symbol
Binary input E1	11 12	
Binary input E2	13 14	

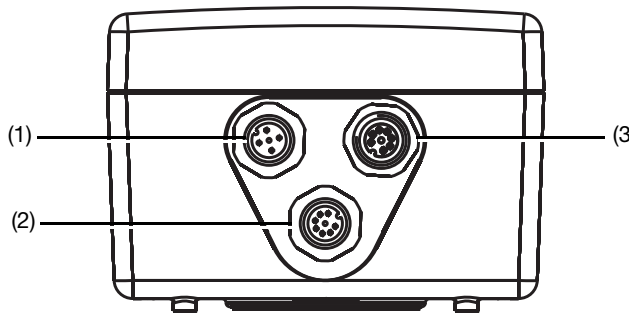
Electrical connection (transmitter with electrical connection 83 (M12 connectors))

Head transmitter



- (1) **Connector I**
Power supply and actual value output for conductivity / concentration
M12 flush-type connector, 5-pin
- (2) Blanking plug
- (3) **Connector II**
Actual value output for temperature, and binary input and switching outputs
M12 flush-type connector, 8-pin

Transmitter with separate sensor



- (1) **Connector I**
Power supply and actual value output for conductivity / concentration
M12 flush-type connector, 5-pin
- (2) **Connector III**
Inductive conductivity sensor
M12 flush-type connector, 8-pin
- (3) **Connector II**
Actual value output for temperature, and binary input and switching outputs
M12 flush-type connector, 8-pin

Supply	Connector	Assignment	Symbol
Supply (with reverse-polarity protection)	I	L + L -	

Outputs	Connector	Assignment	Symbol
Analog signal output: conductivity/concentration (electrically isolated)	I		
Analog signal output: temperature (electrically isolated)	II		
Switching output K1 (floating)	II		
Switching output K2 (floating)	II		

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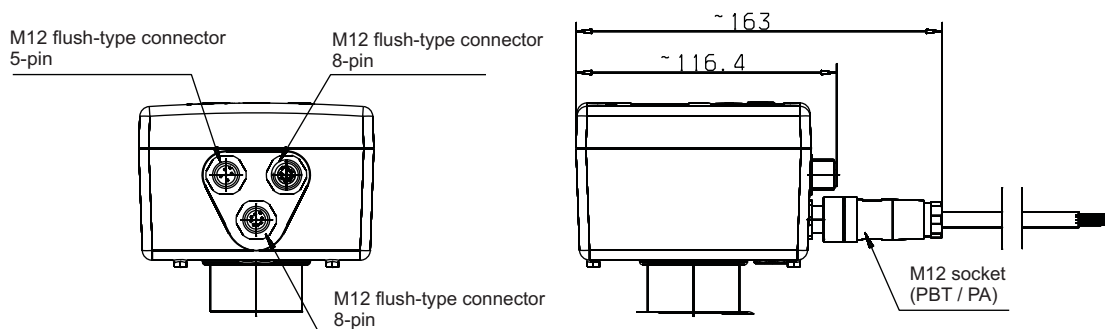
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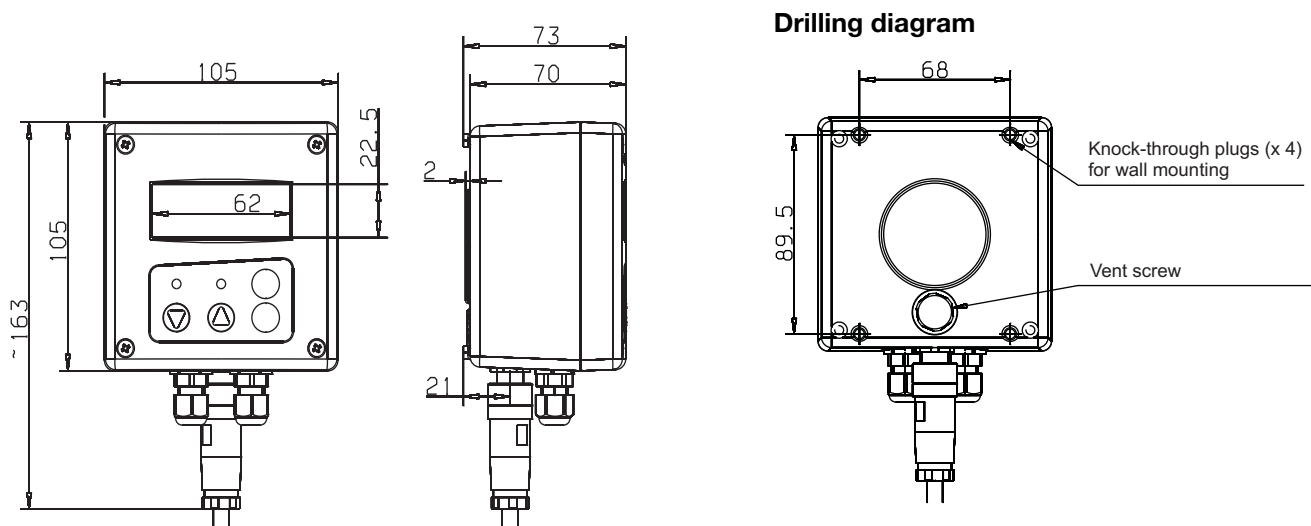
Binary inputs	Connector	Assignment	Symbol
Binary input E1	I II		
Binary input E2	I II		

Dimensions

**Operating unit of transmitter (head transmitter in plastic housing)
 with basic type extension 10 or 15 and electrical connection 83**



**Operating unit of transmitter (transmitter with separate sensor, in plastic housing)
 with basic type extension 20 or 25 and electrical connection 82**



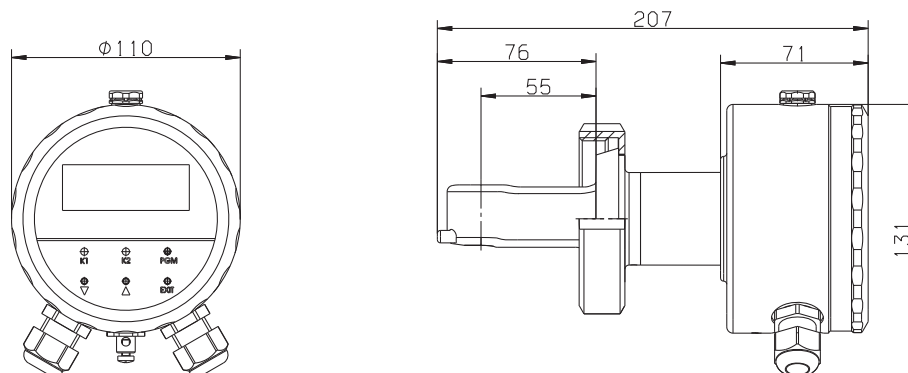
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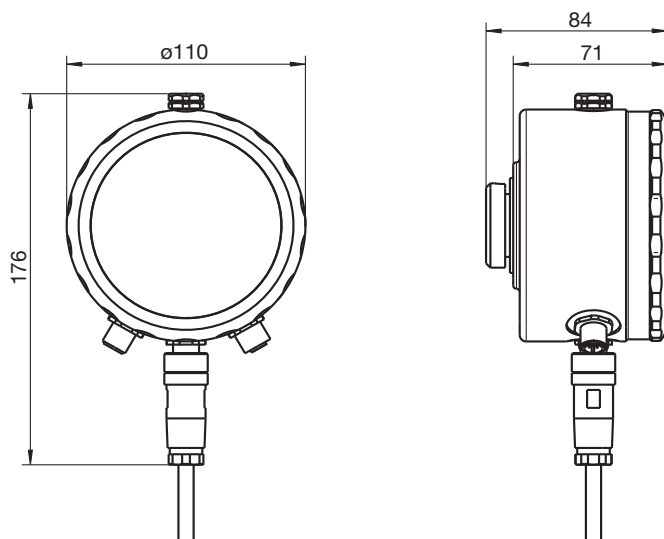
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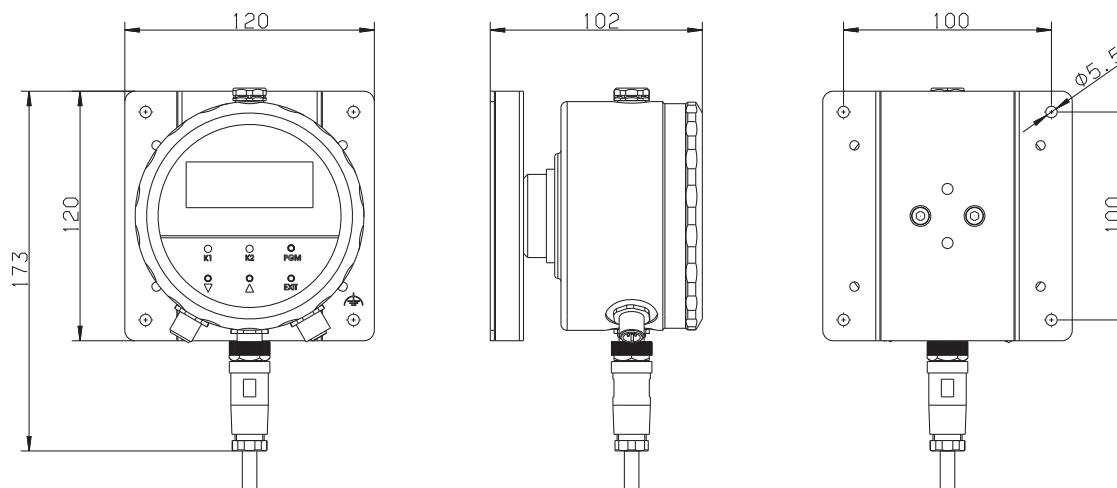
**Operating unit of transmitter (head transmitter in stainless steel housing)
 with basic type extension 16 and electrical connection 84**



**Operating unit of transmitter (transmitter with separate sensor, in stainless steel housing)
 with basic type extension 26 or 66 and electrical connection 83**



Wall mounting



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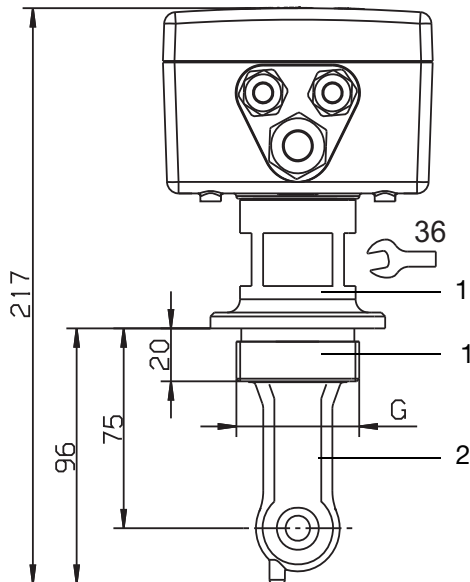
JUMO House
Temple Bank, Riverway
Harlow - Essex CM20 2DY, UK
Phone: +44 1279 63 55 33
Fax: +44 1279 63 52 62
E-mail: sales@jumo.co.uk
Internet: www.jumo.co.uk

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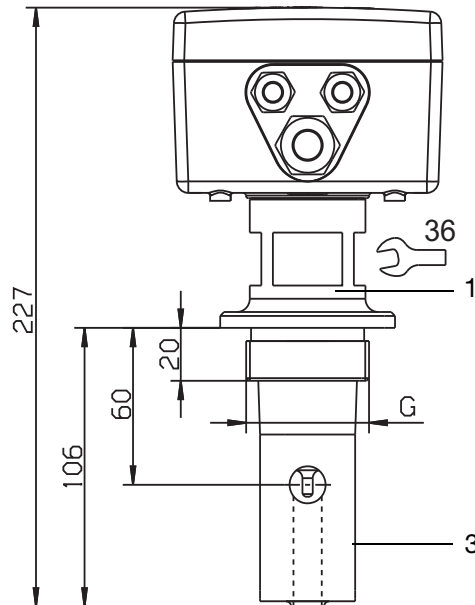
8 Technology Boulevard
Canastota, NY 13032, USA
Phone: 315-697-JUMO
1-800-554-JUMO
Fax: 315-697-5867
E-mail: info@jumo.us
Internet: www.jumo.us



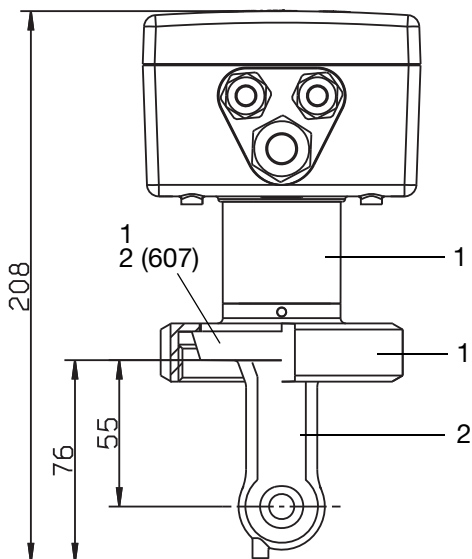
Dimensions / Process connections (head transmitter)



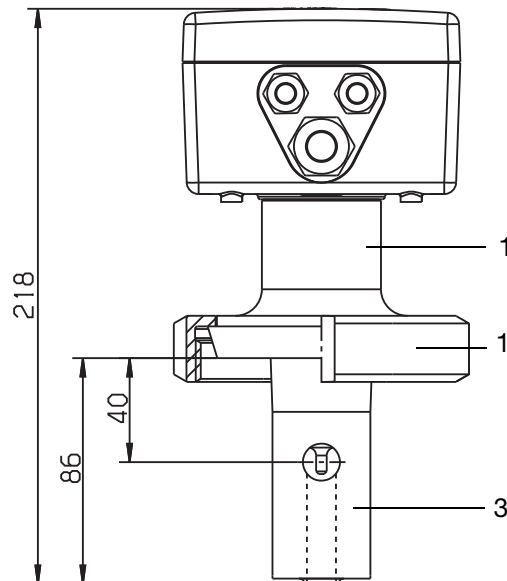
Version with process connection
108 = screw-in thread G1 1/2A
110 = screw-in thread G2A
and extra code 767



Version with process connection
107 = screw-in thread G1 1/4A
108 = screw-in thread G1 1/2A
110 = screw-in thread G2A
and extra code 768



Version with process connection
607 = MK DN50
608 = MK DN65
609 = MK DN80
and extra code 767



Version with process connection
606 = MK DN40
607 = MK DN50
608 = MK DN65
609 = MK DN80
and extra code 768

1 = 1.4301

2 = PEEK

3 = PVDF

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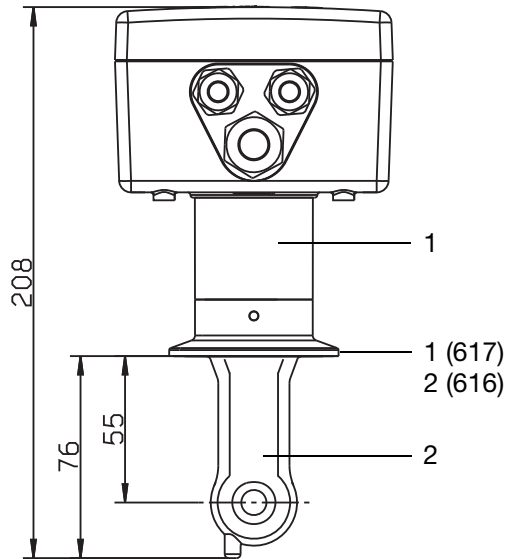
Delivery address: Mackenrodtstraße 14,
36039 Fulda, Germany
Postal address: 36035 Fulda, Germany
Phone: +49 661 6003-0
Fax: +49 661 6003-607
E-mail: mail@jumo.net
Internet: www.jumo.net

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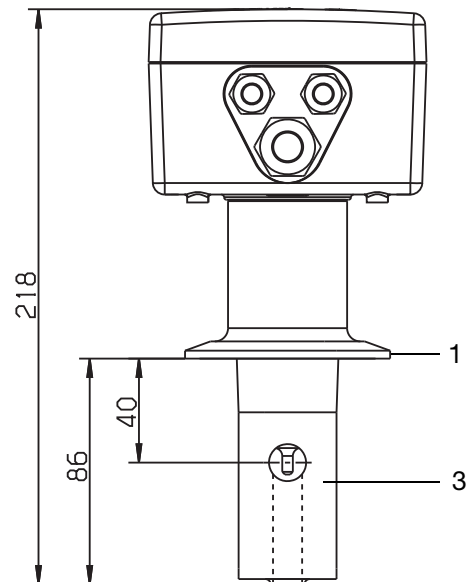
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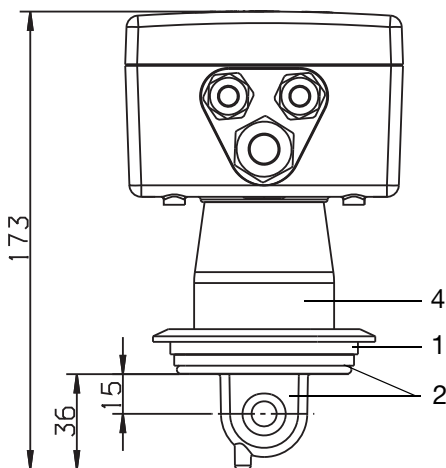
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**Dimensions / Process connections (head transmitter)**

Version with process connection
616 = Clamp 2"
617 = Clamp 2 1/2"
and extra code 767 and 941
(retaining clip not included in delivery)



Version with process connection
617 = Clamp 2 1/2"
and extra code 768
(retaining clip not included in delivery)



Version with process connection
686 = VARIVENT® DN40/50
and extra code 767 and 941

1 = 1.4301

2 = PEEK

3 = PVDF

4 = PPS GF 40

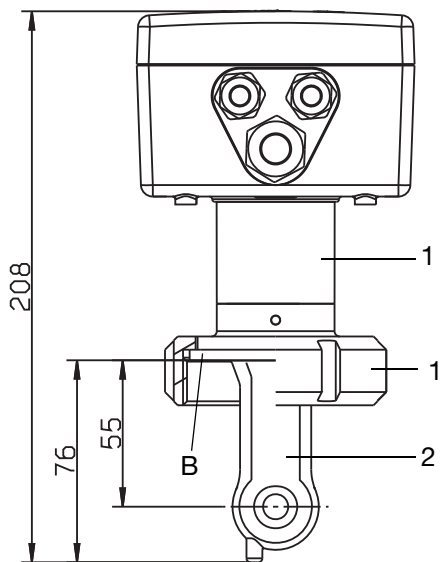
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 36039 Fulda, Germany
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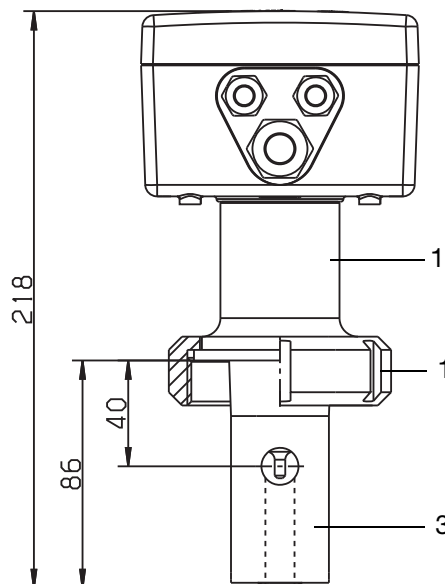
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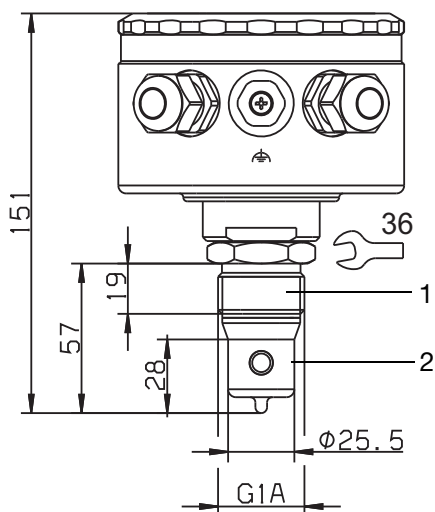
Dimensions / Process connections (head transmitter)



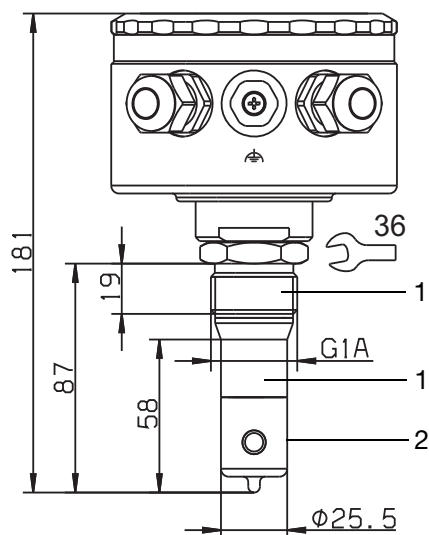
Version with process connection
 690 = SMS 2"
 and extra code 767 and 941



Version with process connection
 690 SMS 2"
 and extra code 768



Version with process connection
 955 = Pressing screw G1", EL=57 mm



Version with process connection
 956 = Pressing screw G1", EL=87 mm

1 = 1.4301

2 = PEEK

3 = PVDF

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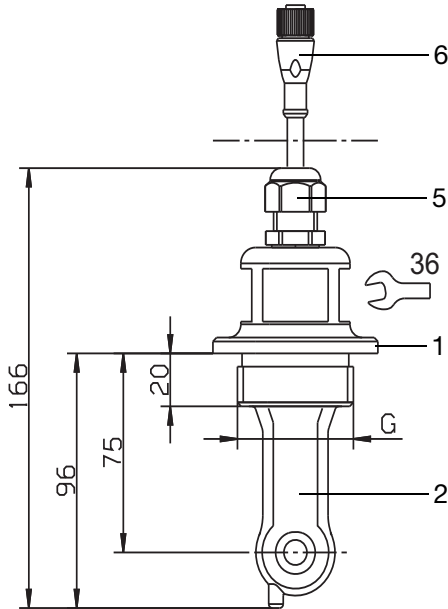
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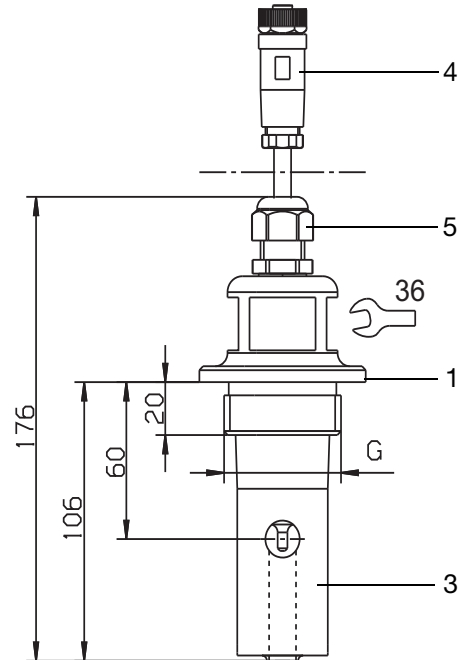
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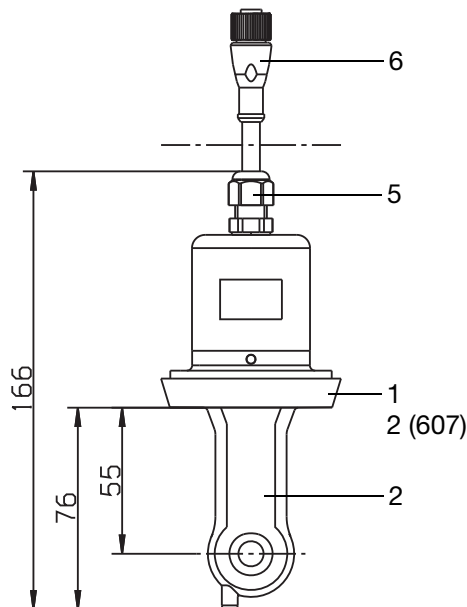
Dimensions / Process connections (separate sensor)



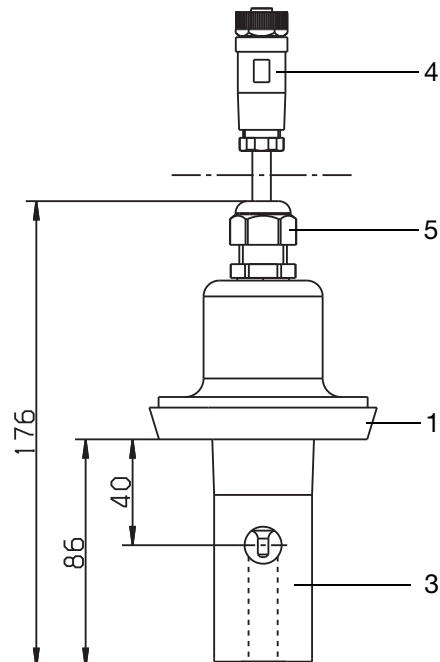
Split version with process connection
108 = screw-in thread G1 1/2A
110 = screw-in thread G2A
and extra code 767



Split version with process connection
107 = screw-in thread G1 1/4A
108 = screw-in thread G1 1/2A
110 = screw-in thread G2A
and extra code 768



Split version with process connection
607 = MK DN50
608 = MK DN65
609 = MK DN80
and extra code 767
(retaining clip not included in delivery)



Split version with process connection
606 = MK DN40
607 = MK DN50
608 = MK DN65
609 = MK DN80
and extra code 768
(retaining clip not included in delivery)

1 = 1.4301

2 = PEEK

3 = PVDF

4 = PBT

5 = PA

6 = TPU

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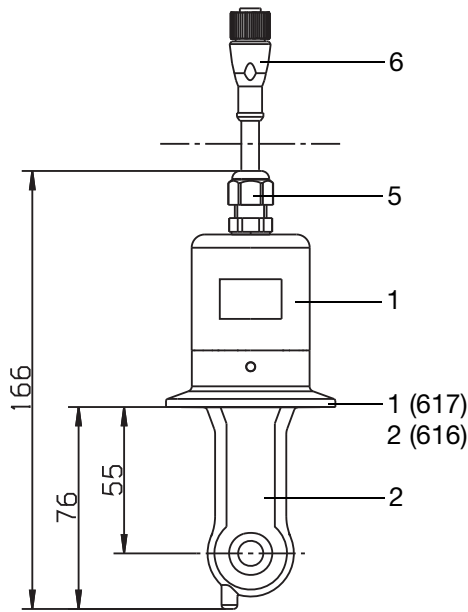
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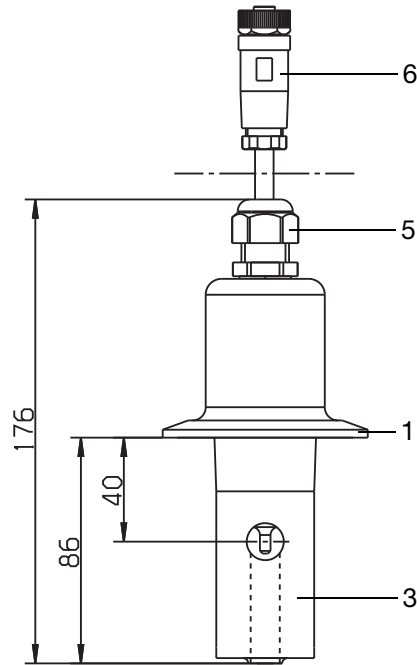
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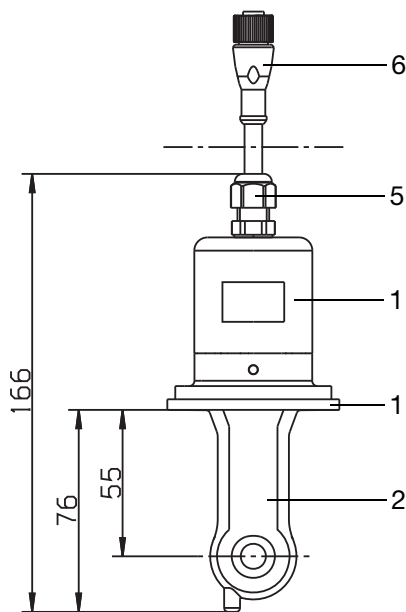
Dimensions / Process connections (separate sensor)



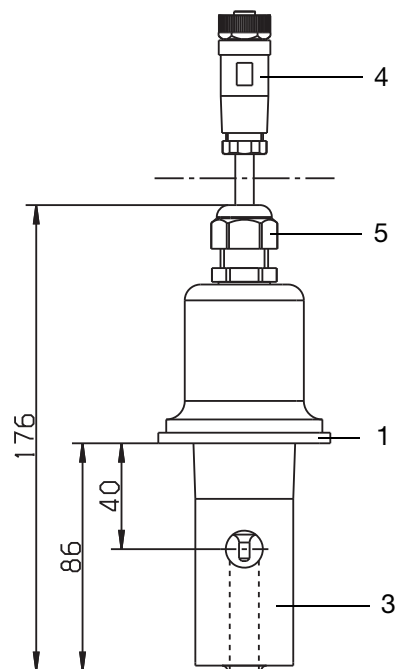
Split version with process connection
616 = Clamp 2"
617 = Clamp 2 1/2"
and extra code 767
(retaining clip not included in delivery)



Split version with process connection
617 = Clamp 2 1/2"
and extra code 768
(retaining clip not included in delivery)



Split version with process connection
690 = SMS 2"
and extra code 767
(retaining clip not included in delivery)



Split version with process connection
690 = SMS 2"
and extra code 768
(retaining clip not included in delivery)

1 = 1.4301

2 = PEEK

3 = PVDF

4 = PBT

5 = PA

6 = TPU

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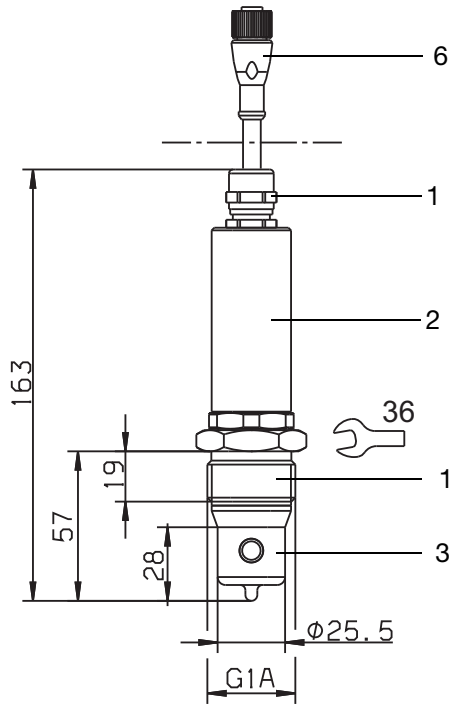
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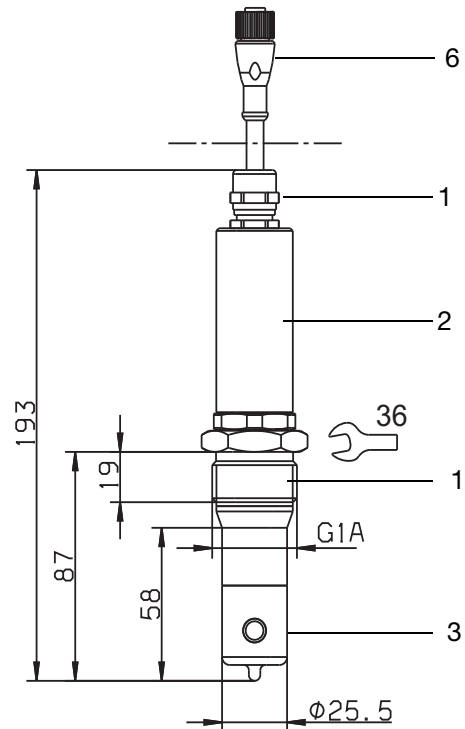
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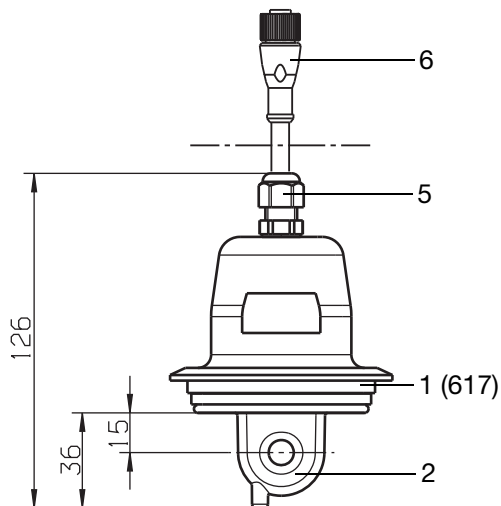
Dimensions / Process connections (separate sensor)



Split version with process connection
955 = Pressing screw G1", EL = 57 mm
and extra code 767



Split version with process connection
956 = Pressing screw G1", EL = 87 mm
and extra code 767



Split version with process connection
686 VARIVENT® DN40/50
and extra code 767 und 941
(retaining clip not included in delivery)

1 = 1.4301

2 = PEEK

3 = PVDF

4 = PBT

5 = PA

6 = TPU

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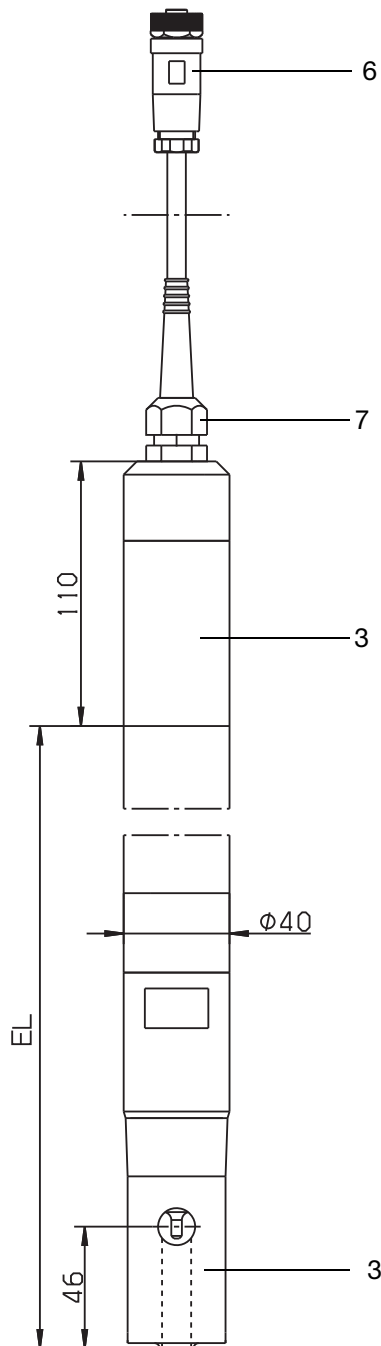
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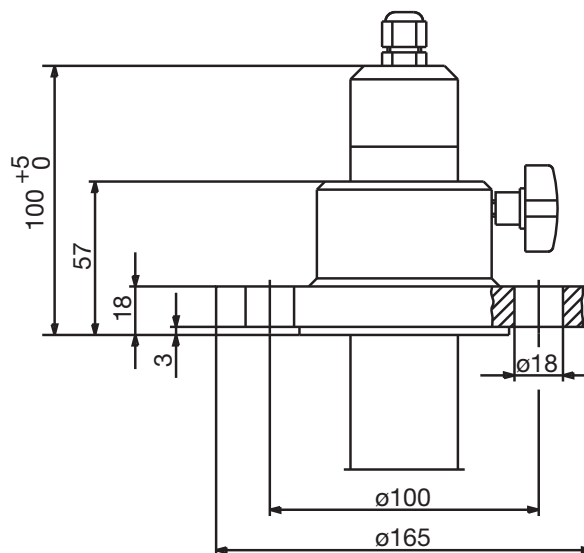
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Harlow - Essex CM20 2DY, UK
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Fax: +44 1279 63 52 62
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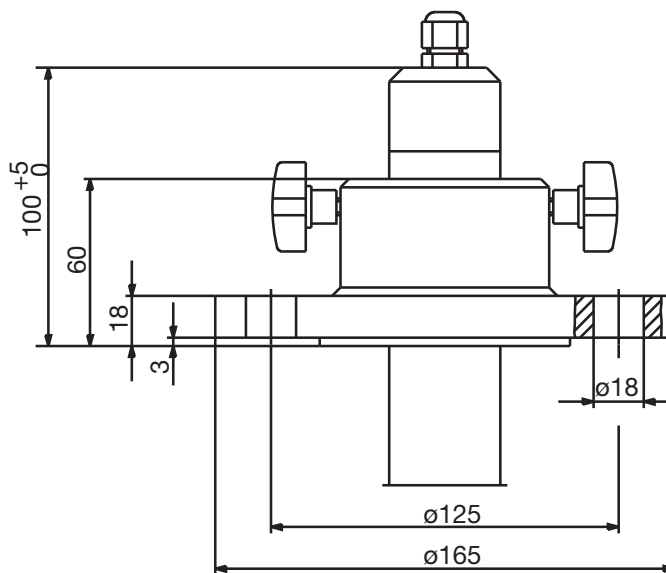
8 Technology Boulevard
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1-800-554-JUMO
Fax: 315-697-5867
E-mail: info@jumo.us
Internet: www.jumo.us



Split version with process connection 706
immersion model
(pipe clips not included in delivery)



Optional accessory:
DN 32 Flange
Sales No. 20/00083375



Optional accessory:
DN 50 flange
Sales No. 20/00083376

3 = PVDF

6 = PBT

7 = brass nickel plated
EPDM

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 E-mail: mail@jumo.net
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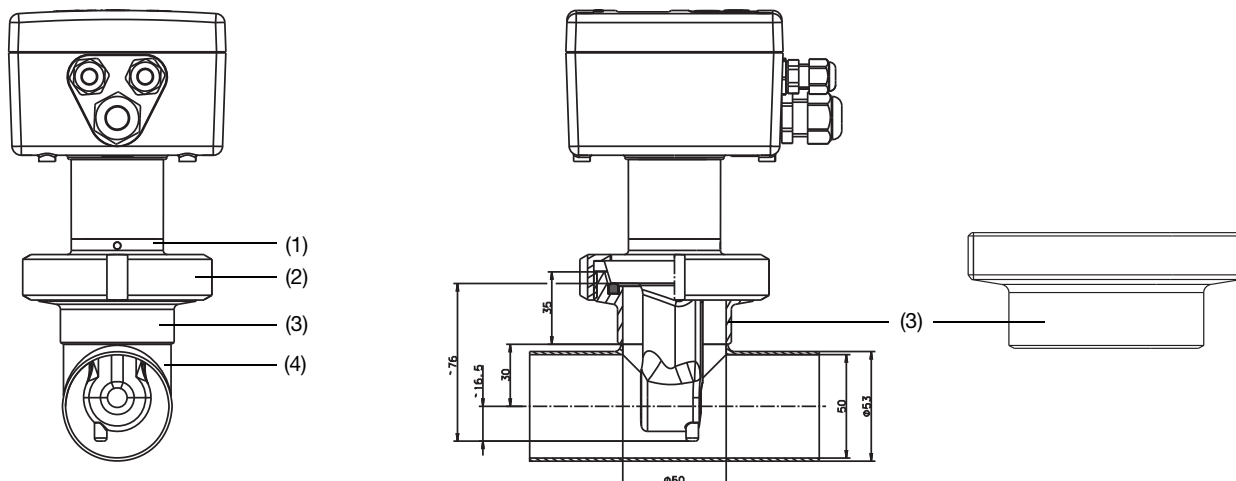
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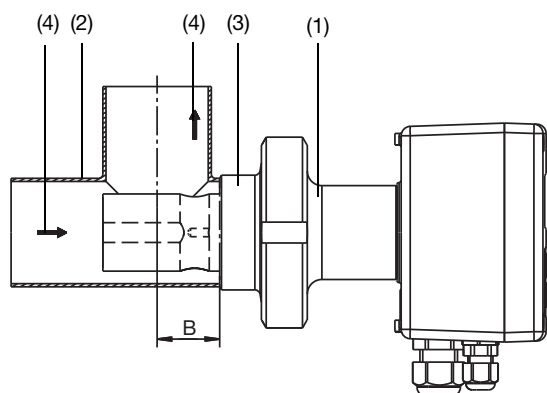


Mounting examples

Threaded pipe adapter

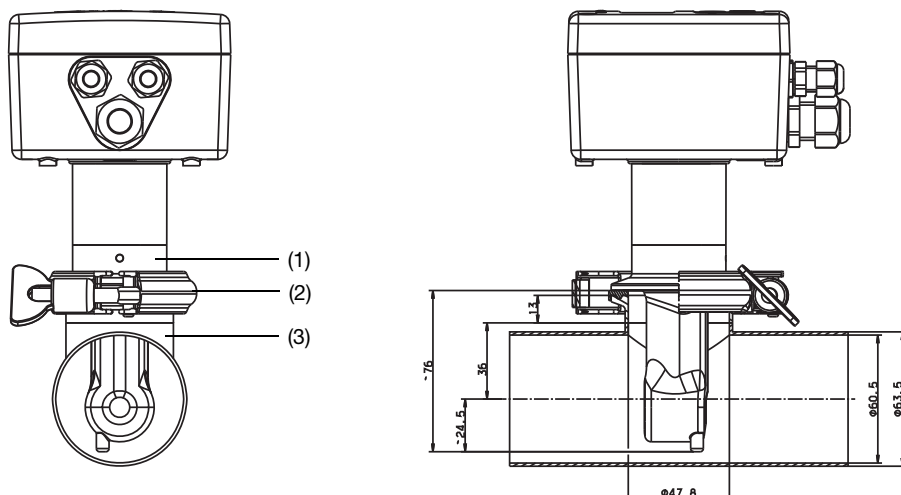


- (1) Process connection 607, screwed pipe fitting DN50, DIN 11851 (MK DN50, milk cone), PEEK
- (2) Ring nut DN50, 1.4301
- (3) Weld-on threaded pipe adaptor DN50, DIN 11851, 1.4301, (matching part for process connection 607)
- (4) Tee DIN 11852, short, DN50, 1.4301 (to be provided by the plant operator; not supplied by JUMO)



- (1) Process connection 607, screwed pipe fitting DN50, DIN 11851 (MK DN50, milk cone), 1.4301
- (2) Tee DIN 11852, SSS DN50, 1.4301, Dim. B shortened to 30 mm, (to be provided by the plant operator; not supplied by JUMO)
- (3) Weld-on threaded pipe adaptor DN50, DIN 11851, 1.4301, (matching part for process connection 607)
- (4) Flow direction

Clamp



- (1) Process connection 617, Clamp 2¹/₂", PEEK
- (2) Clamping ring, 1.4301,
- (3) Tee, short, 2.5" - 2" similar to DIN 11852, and 2" clamp adapter, 1.430 (to be provided by the plant operator; not supplied by JUMO)

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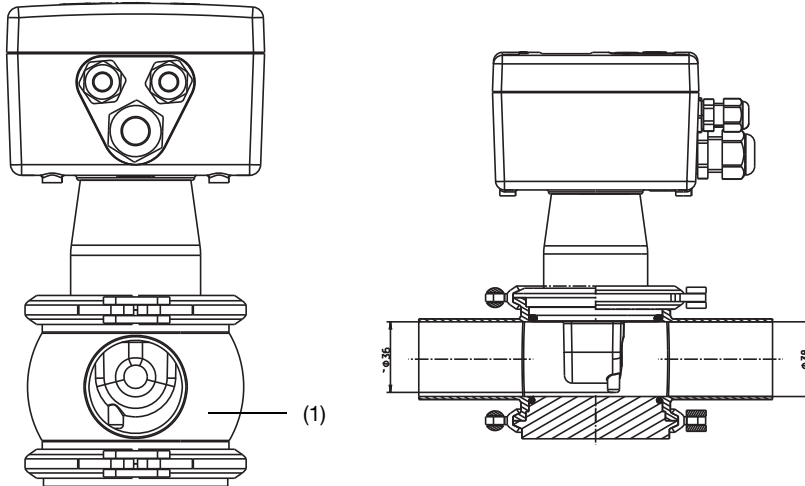
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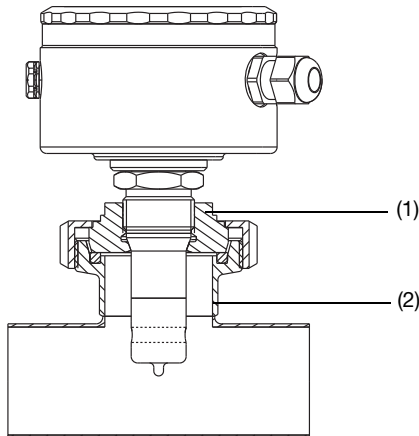
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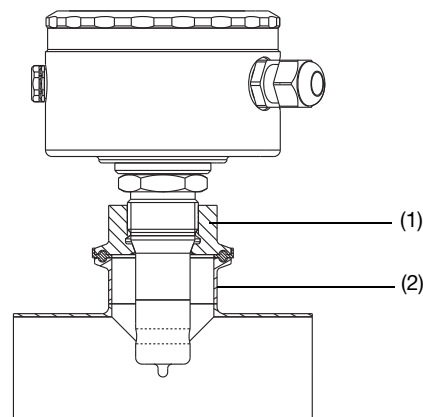
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**Varivent®**

- (1) Tee, VARIVENT®, DN50
1.4404
(to be provided by the plant operator; not
supplied by JUMO)

Pressing screw G1A

- (1) Process connection adapter Pressing
screw G1A to threaded pipe adapter
DN50, DIN 11851
(2) Tee DIN, short , SSS DN65/50
1.4301
(to be provided by the plant operator; not
supplied by JUMO)



- (1) Process connection adapter Pressing
screw G1A to Clamp 1" and 1.5"
(2) Tee DIN, short, SSS DN65/50
1.4301
(to be provided by the plant operator; not
supplied by JUMO)

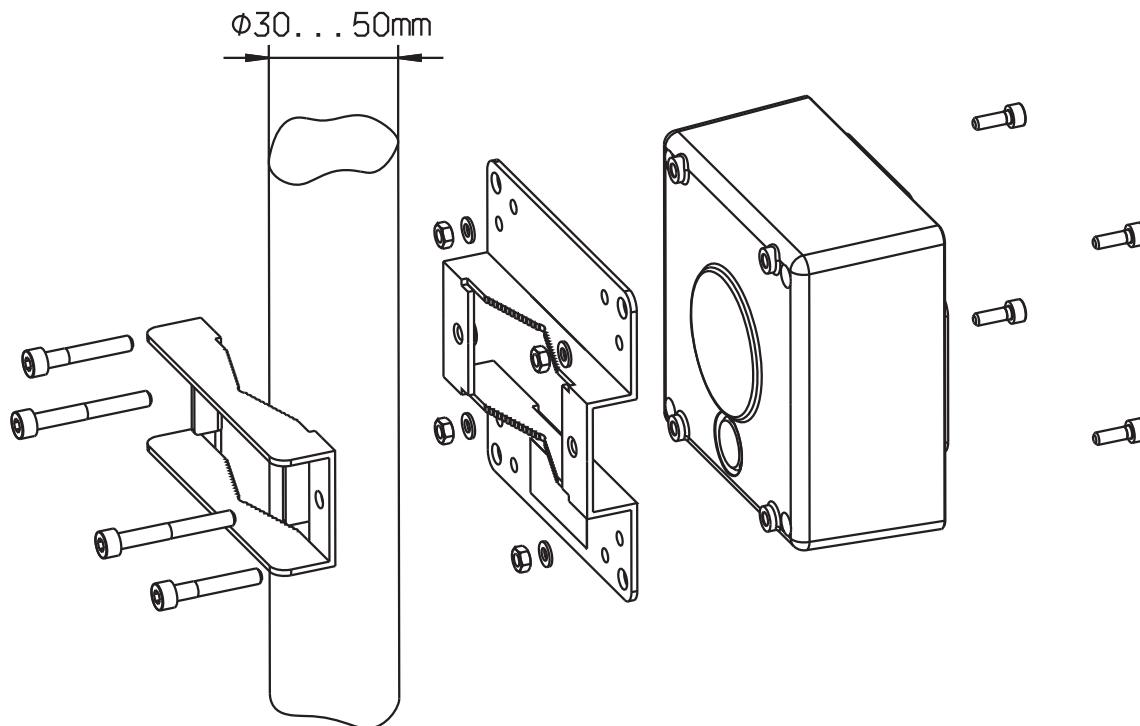
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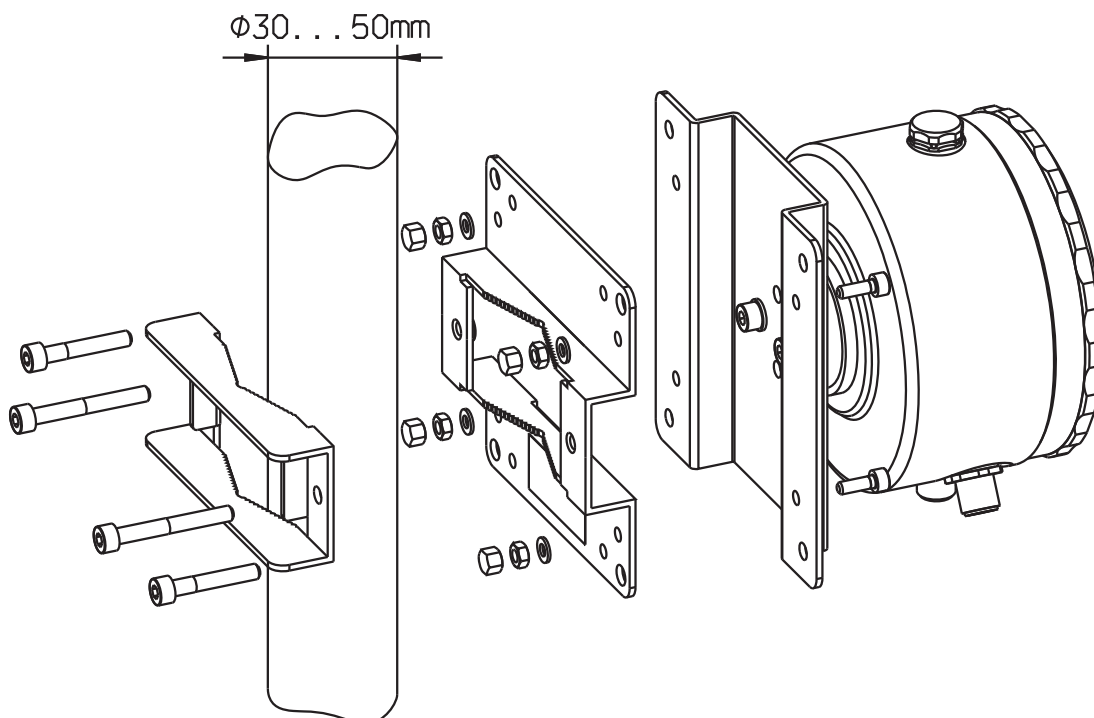
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Kit for pipe mounting



Kit for pipe mounting for type 202756, Sales No. 20/00515128



Kit for pipe mounting for type 202756, Sales No. 20/00515128

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 Internet: www.jumo.us



Order details JUMO CTI-750 as "Head transmitter"

202756	(1) Basic type	JUMO CTI/750 Inductive transmitter/switching device for conductivity/ concentration and temperature
10	(2) Basic type extensions	head transmitter in plastic housing, without display/keypad ¹
15		head transmitter in plastic housing, with display/keypad
16		head transmitter in stainless steel housing, with display/keypad
	(3) Process connection	
107		thread G1 1/4A ⁹
108		thread G1 1/2A
110		thread G2A
606		DN40 screwed pipe fitting, DIN 11 851 (MK DN40, milk cone) ⁹
607		DN50 screwed pipe fitting, DIN 11 851 (MK DN50, milk cone)
608		DN65 screwed pipe fitting, DIN 11 851 (MK DN65, milk cone)
609		DN80 screwed pipe fitting, DIN 11 851 (MK DN80, milk cone)
617		clamp 2 1/2" ²
686		VARIVENT [®] DN40/50 ^{2, 3, 10}
690		SMS 2"
955		pressing screw G1", EL=57 mm ^{3, 7}
956		pressing screw G1", EL=87 mm ^{3, 7}
000	(4) Immersion length	see "Dimensions for head transmitter"
	(5) Electrical connection	
82		cable glands
83		M12 plug/socket connectors (instead of the cable glands) ⁴
84		two M16 cable glands and one blanking plug ⁶
	(6) Extra codes⁵	
268		internal temperature sensor
767		cell material PEEK ⁸
768		measuring cell material PVDF ⁹
844		supply voltage 24 V AC
941		hygienic design

	(1)	(2)	(3)	(4)	(5)	(6)	(6)				
Order code	<input type="text"/>	/	<input type="text"/>	-	<input type="text"/>	-	<input type="text"/>	/	<input type="text"/>	,	...
Order example	202756	/	10	-	607	-	000	-	82	/	767

¹ The PC setup program is required for programming the instrument, see accessories.

² Mounting items (mounting brackets) not included in delivery.

³ Only in conjunction with extra code 767 (cell material PEEK).

⁴ If required, order 1 set M12 plug/socket connectors, Sales No.: 20/00529482.

⁵ List extra codes in sequence, separated by commas.

⁶ Standard on basic type extension 16.

⁷ Only in conjunction with extra code 268 (internal temperature sensor) and 767 (cell material PEEK).

Installation only in conjunction with process connection adapter, Sales No.: 20/00530354 or 20/00530355!

⁸ Temperature sensor always internal.

⁹ Not in combination with extra code 941.

¹⁰ EHEDG-certified.

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JUMO Instrument Co. Ltd.

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**Order details: CTI-750 as "Transmitter with separate sensor"**

202756	(1) Basic type JUMO CTI-750 Inductive transmitter/switching device for conductivity/concentration and temperature
25	(2) Basic type extensions transmitter in plastic housing, with display/keypad (without sensor) ²
26	transmitter in stainless steel housing, with display/keypad (without sensor) ²
60	transmitter in plastic housing, without display/keypad ¹ including sensor (cable length: 10 m)
65	transmitter in plastic housing, with display/keypad including sensor (cable length: 10 m)
66	transmitter in stainless steel housing, with display/keypad including sensor (cable length: 10 m)
80	replacement sensor with a 10 m long cable for transmitter in plastic housing (without transmitter) ^{2, 3}
85	replacement sensor with a 10 m long cable for transmitter in stainless steel housing (without transmitter) ^{2, 3}
	(3) Process connection
000	without process connection
107	thread G1 1/4A ¹²
108	thread G1 1/2A
110	thread G2A
606	DN40 screwed pipe fitting, DIN 11851 (MK DN40, milk cone) ¹²
607	DN50 screwed pipe fitting, DIN 11851 (MK DN50, milk cone)
608	DN65 screwed pipe fitting, DIN 11851 (MK DN65, milk cone)
609	DN80 screwed pipe fitting, DIN 11851 (MK DN80, milk cone)
617	clamp 2 1/2" ³
686	VARIVENT® DN40/50 ^{3, 4, 9}
690	SMS 2"
706	immersion model ⁵
955	pressing screw G1", EL=57 mm ^{4, 8}
956	pressing screw G1", EL=87 mm ^{4, 8}
	(4) Immersion length (see "Dimensions for separate sensor") ⁵
0000	not available
0500	500 mm
1000	1000 mm
1500	1500 mm
2000	2000 mm
xxxx	special length (in 250 mm increments, e.g. 0250, 0750, 1250, 1750)
	(5) Electrical connection
21	fixed cable with M12 socket connector on separate sensor
82	cable glands on the operating unit
83	M12 plug/socket connectors on operating unit (instead of cable glands on the operating unit) ⁶
84	two M16 cable glands and a blind grommet ⁷

continued on next page

¹ The PC setup program is required for programming the instrument, see accessories.

² A calibration kit is absolutely essential for commissioning. If not available, please include in your order (see accessories)

³ Mounting items (union/ring nuts, mounting brackets) are not included in delivery. If required, please include in order (accessories).

⁴ Only in conjunction with extra code 767 (cell material PEEK).

⁵ Only in conjunction with extra code 768 (cell material PVDF).

⁶ If required, order 1 set M12 plug/socket connectors, Sales No.: 20/00529482.

⁷ Standard on basic type extension 66.

⁸ Only in conjunction with extra code 268 (internal temperature sensor) and 767 (cell material PEEK).

Installation only in conjunction with process connection adapter, Sales No.: 20/00530354 or 20/00530355!

⁹ EHEDG-certified.

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**(6) Extra codes¹⁰**

000	no extra code
268	internal temperature sensor
767	cell material PEEK ¹¹
768	cell material PVDF ¹²
844	supply voltage 24 V AC
941	hygienic design

	(1)	(2)	(3)	(4)	(5)	(6)	(6)						
Order code	<input type="text"/>	/	<input type="text"/>	-	<input type="text"/>	-	<input type="text"/>	-	<input type="text"/>	/	<input type="text"/>	,	...
Order example	202756	/	65	-	607	-	0000	-	82	/	767	,	

¹⁰ List extra codes in sequence, separated by commas.

¹¹ Temperature sensor always internal.

¹² Not in combination with extra code 941.

Stock items (shipment: 3 working days after receipt of order)

Type	Sales No.
202756/10-607-0000-82/767/941	20/00553551
202756/15-607-0000-82/767/941	20/00544540
202756/15-607-0000-82/768	20/00470099
202756/15-617-0000-82/767/941	20/00551874
202756/65-607-0000-82/767/941	20/00547023

Non-stock items (shipment: 10 working days after receipt of order)

Type	Sales No.
202756/15-108-0000-82/767/941	20/00547143
202756/15-690-0000-82/767/941	20/00544540
202756/65-607-0000-82/767/941	20/00547023

Accessories

Type	Sales No.
Weld-on threaded adapter DN50, DIN 11851 (mating component for process connection 607)	20/00085020
Ring nut DN50, DIN 11 851	20/00343368
Ring nut SMS DN2"	20/00345162
Flange DN32 ² , material: PP	20/00083375
Flange DN50 ² , material: PP	20/00083376
Process connection adapter pressure screw G1A on pipe union DN50, DIN 11 851	(PG 209791) 20/00530355
Process connection adapter pressure screw G1A on 1" and 1.5" clamp	(PG 209791) 20/00530354
Kit for pipe mounting	(PG 209791) 20/00515128
Kit for DIN rail mounting	(PG 209791) 20/00459903
M12 socket connector, 5-pole, straight, for assembly by user	replacement part for sensor 202756/xx-xxx-xxxx-83 20/00444313
M12 plug connector, 8-pole, straight, for assembly by user	necessary for versions 202756/xx-xxx-xxxx-83 20/00444307
M12 socket connector, 8-pole, straight, for assembly by user	replacement part for sensor 202756/80...(PG 209711) 20/00444312
M12 socket connector, 8-pole, straight, for assembly by user	replacement part for sensor 202756/85...(PG 209711) 20/00486503
1 set M12 plug/socket connectors, extra code 580, suitable for electrical connection 83	(PG 209711) 20/00529482

¹ Only in conjunction with a separate sensor in immersion version: 202756/60-xxx-... or 202756/65-xxx-... or 202756/66-xxx-...

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PC setup software for type 202756	(PG 202599)	20/00454710
PC interface cable with TTL / RS232 converter and adapter (serial connection cable)		70/00350260
PC interface cable with USB / TTL converter and two adapters (USB connection cable)		70/00456352
Switched-mode power supply, Type PS5R-A24	SMPS for DIN rail mounting input voltage 100 — 240 VAC / 50 — 60 Hz output voltage 0.3 A 24 VDC	20/00374661
Cover with LC display and keypad	facilitates the programming of transmitters without display and without keypad	20/00443725
Display with accessories in a stainless steel version for type 202756	(PG 209711)	20/00525488
Calibration kit (for calibrating a replacement transmitter or replacement sensor)		20/00459436
Additional concentration curves for the usual acids and lyes (20 interpolation points in tabular form), for entry on the CTI-750 through the setup program.		on request