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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, 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).

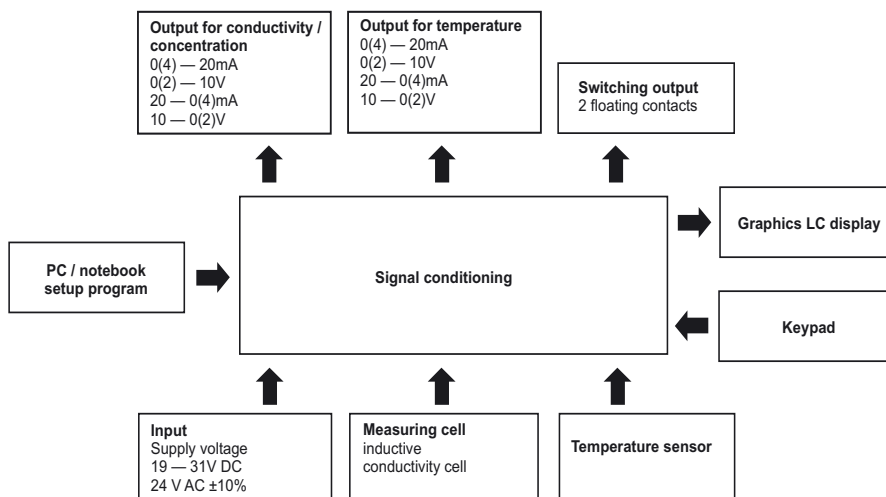
The instrument is operated either from the membrane keypad and plain-text graphics display (operator language can be changed over) or through the user-friendly PC setup program. Simply rotating the housing cover makes it possible to read the display, regardless of whether the installation is in horizontally or vertically arranged pipes. By using the setup program, the instrument configuration data for plant documentation can be saved and printed out. To prevent any tampering, the instrument can also be supplied without keypad or display. In this case, the setup program is needed for programming.

The JUMO CTI-750 is available either as a combined unit (transmitter and measuring cell together in one unit) or as a split version (transmitter and cell connected by cable). The split version is particularly suitable for plant subjected to strong vibration and/or significant heat radiation at the measurement point, or for installation on sites that are difficult to access.

**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

- Activation of up to four ranges
- Activation of up to four temperature coefficients
- Concentration measurement of
  - caustic soda NaOH
  - nitric acid HNO<sub>3</sub>
  - a freely definable curve (through the setup program)
- Fast-response temperature sensor
- Temperature compensation
  - linear
  - natural water
  - specific characteristic (learning function)
- Operation
  - via keypad and LC display
  - 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
- Learning function for the temperature coefficient
- Individual characteristic for concentration indication
- Dilution control

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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.

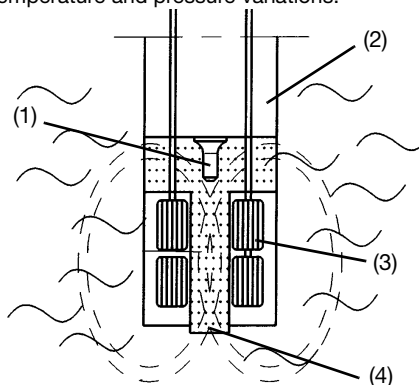
Conductivity is measured by using an inductive probe. A sinusoidal a.c. voltage feeds the transmitting coil. Depending on the conductivity of the liquid to be measured, a current is induced in the receiver coil. This current is proportional to the conductivity of the medium.

## Instrument description

### Measuring cell

The measuring cell consists of a hermetically sealed polyetheretherketone (PEEK) or polyvinylidene fluoride (PVDF) 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) Temperature sensor, exposed in flow-through channel  
optionally: internal
- (2) Cell body in PEEK or PVDF
- (3) Measurement coils
- (4) Liquid loop

### Exposed temperature sensor

The sensor (in a stainless steel sleeve) exhibits a very fast response to temperature variations. This is especially important for CIP processes (phase separation).

### 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 liquid in the flow channel.

### Transmitter

The CTI-750 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 JUMO CTI-750 can be operated either from the instrument keys and the graphics LC display and/or through the setup program from a PC or laptop.

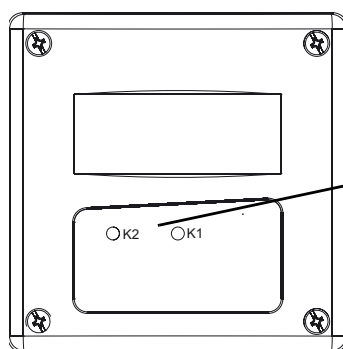
The instrument can be secured against unauthorized alteration by a password.

## Functions of the outputs

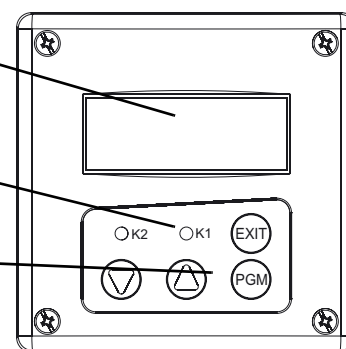
### Analog outputs

- 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/under-range 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

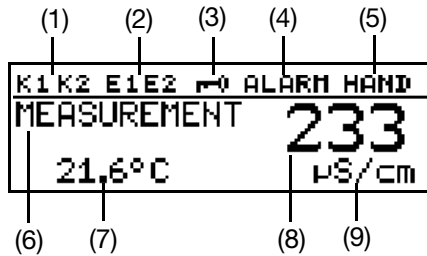


Version with a display  
 Operation/configuration from the keys or through the setup program

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



**Graphics LC 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.

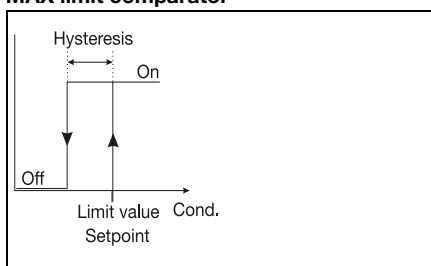
These can be used freely for monitoring the conductivity/concentration or the temperature.

The following functions can be assigned:

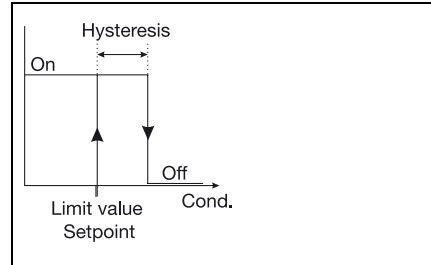
- Limit monitoring (MAX. or MIN. limit comparator) with programmable hysteresis
- Pulse function (the output switches briefly on reaching the switching point, then opens again).
- Pull-in and drop-out delay
- Inverted switching outputs
- Response to overrange/underrange or with activated measuring circuit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

**Contact functions**

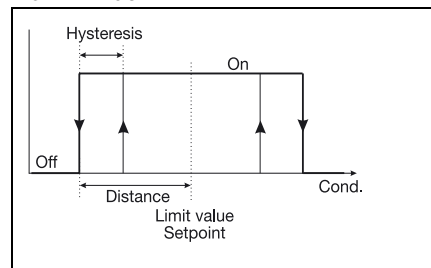
**MAX limit comparator**



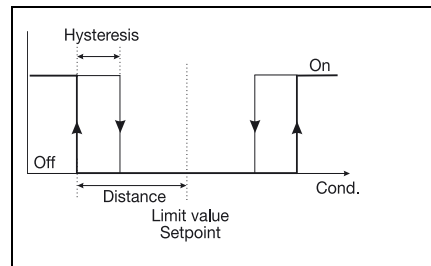
**MIN limit comparator**



**Alarm window 1**

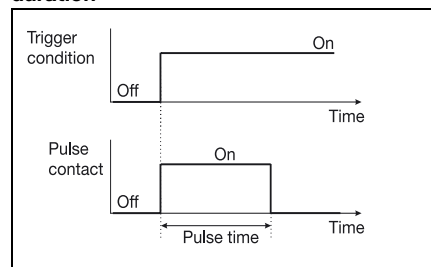


**Alarm window 2**



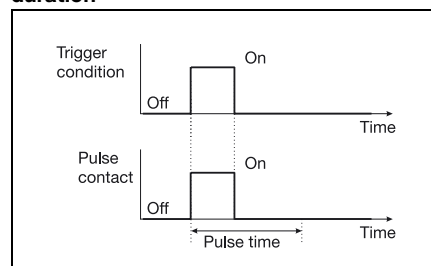
**Pulse contact**

**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.

■ Calibration timer

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	open
	Range2/TC2	closed	open
	Range3/TC3	open	closed
	Range4/TC4	closed	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

### General

#### A/D converter

resolution: 15-bit  
 sampling time: 500msec = 2 meas. per sec

#### Supply voltage

for operation with SELV or PELV circuits as standard:  
 19 – 31 V DC (24 V DC nominal),  
 the instrument is protected against polarity reversal  
 ripple: < 5%  
 extra code 844:  
 24 V AC ±10%, 50 – 60 Hz  
 power consumption  
 with display: ≤ 3 W  
 power consumption  
 without display: ≤ 2.6 W

#### Rating of the solid-state relays

U < 50 V AC/DC  
 I ≤ 200 mA

#### Electrical connection

2.5 mm<sup>2</sup> plug-in screw terminals or  
 M12 plug/socket connectors

#### Display (option)

graphics LCD with background lighting;  
 contrast is adjustable,  
 dimensions: 62 x 23 mm

#### Permissible ambient temperature (transmitter)

-5 to +50°C  
 max. 93% relative humidity,  
 no condensation

#### Permissible storage temperature (transmitter)

-10 to +75°C  
 max. 93% relative humidity,  
 no condensation

#### Enclosure protection (transmitter)

IP67

#### Electromagnetic compatibility

to EN 61 326  
 interference emission: Class B  
 interference immunity: to industrial requirements

#### Housing

with basic type extensions 10, 15, 20, 25, 60 and 65: polyamide (PA)  
 with basic type extensions 16,26 and 66: stainless steel 1.4305

#### Weight

depending on version and process connection:  
 approx. 0.3 – 2 kg

### Conductivity/concentration transmitter

#### Concentration measurement

(implemented in the device software)  
 – NaOH (caustic soda)  
 0 – 15% by weight or 25 – 50% by weight  
 – HNO<sub>3</sub> (nitric acid)  
 0 – 25% by weight or 36 – 82% by weight  
 – customer-specific concentration curve, freely programmable through the setup program (see “special functions”)

#### Calibration timer

adjustable: 0 – 999 days (0 = off)

#### Output signal for conductivity/concentration

0 – 10 V / 10 – 0 V  
 2 – 10 V / 10 – 2 V  
 0 – 20 mA / 20 – 0 mA  
 4 – 20 mA / 20 – 4 mA  
 The output signal is freely scalable.

#### Burden

≤ 500Ω for current output  
 ≥ 2kΩ for voltage output

#### Ambient temperature error

≤ 0.1%/°C

### Analog output for “Alarm”

Low (0 mA / 0 V / 3.4 mA / 1.4 V)  
 or  
 High (22.0 mA / 10.7 V)  
 or  
 a value with a fixed setting

### Measuring ranges

Four ranges can be selected. One of these ranges can be activated via an external switch or a PLC.

Meas. ranges Transmitter	Tolerance (in % of range span)
0 – 500 μS/cm	≤ 0.5%
0 – 1000 μS/cm	
0 – 2000 μS/cm	
0 – 5000 μS/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 <sup>1</sup>	

<sup>1</sup> not compensated for temperature

#### Note:

The overall tolerance is made up of the tolerance of the transmitter + the tolerance of the sensor.

### Temperature transmitter

#### Temperature acquisition

manually -20.0 to 25.0 to +150°C/°F  
 or automatically

#### Temperature range

-20 to +150°C or °F

#### Characteristic

linear

#### Accuracy

≤ 0.5% of range

#### Ambient temperature error

≤ 0.1%/°C

#### Output signal for temperature

0 – 10 V / 10 – 0 V  
 2 – 10 V / 10 – 2 V  
 0 – 20 mA / 20 – 0 mA  
 4 – 20 mA / 20 – 4 mA

The output signal is freely scalable within the range -20 to +200°C.  
 The sensor can be applied within the range -10 to +120°C (briefly to +140°C).

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**Burden**

≤ 500Ω for current output  
 ≥ 2kΩ for voltage output

**Analog output for "Alarm"**

Low (0 mA / 0 V / 3.4 mA / 1.4 V)  
 or  
 High (22.0 mA / 10.7 V)  
 or  
 a value with a fixed setting

**Temperature compensation**

**Reference temperature**

15 to 30°C, adjustable

**Temperature coefficient**

0.0 – 5.5 %/°C, adjustable

**Compensation range**

-20 to +150°C

**Function**

- linear
- natural water (EN 27 888)
- non-linear (learning function, see special functions)

**Sensor**

**Material**

PEEK (polyetheretherketone)  
 PVDF (polyvinylidene fluoride)

Note:  
 Temperature, pressure and sample medium affect the life of the cell

**Temperature of the sample medium**

-10 to +120°C  
 briefly +140°C (sterilization)

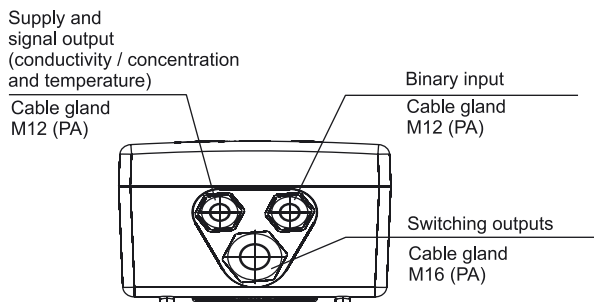
**Pressure**

10 bar max.

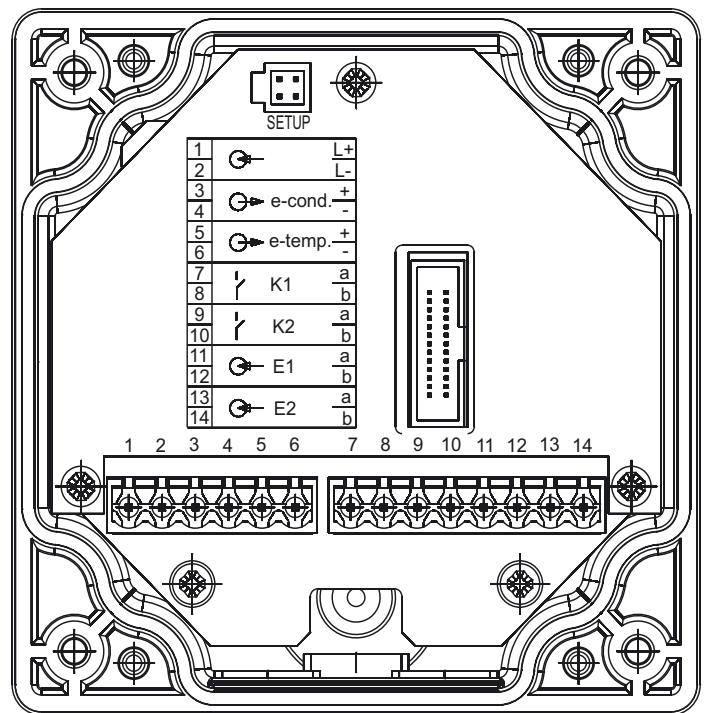
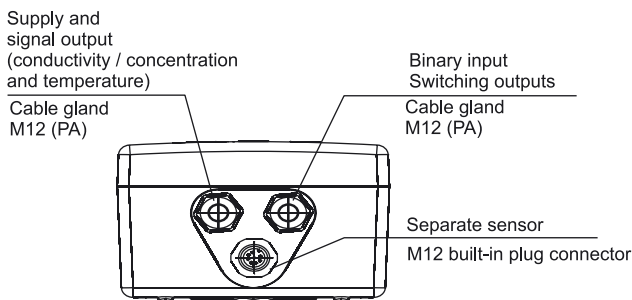
Meas. range Sensor	Tolerance (in % of range span)
0 – 500 μS/cm	≤ 1%
0 – 1000 μS/cm	
0 – 2000 μS/cm	
0 – 5000 μS/cm	
0 – 10 mS/cm	
0 – 20 mS/cm	≤ 0.5%
0 – 50 mS/cm	
0 – 100 mS/cm	
0 – 200 mS/cm	
0 – 500 mS/cm	
0 – 1000 mS/cm	≤ 1%
0 – 2000 mS/cm <sup>1</sup>	

**Electrical connection - head transmitter (transmitter with cable glands (-82))**

Wiring recommendation - head transmitter



Wiring recommendation - with separate sensor



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

Outputs	Terminal assignment		Symbol
Analog signal output: conductivity/concentration (electrically isolated)	3 4	+ -	
Analog signal output: temperature (electrically isolated)	5 6	+ -	
Switching output K1 (floating)	7 8		
Switching output K2 (floating)	9 10		

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

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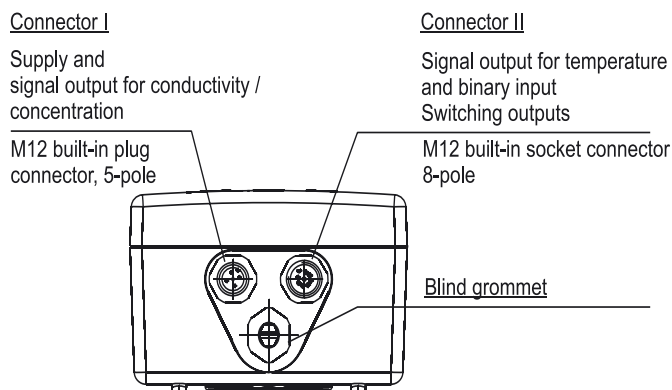
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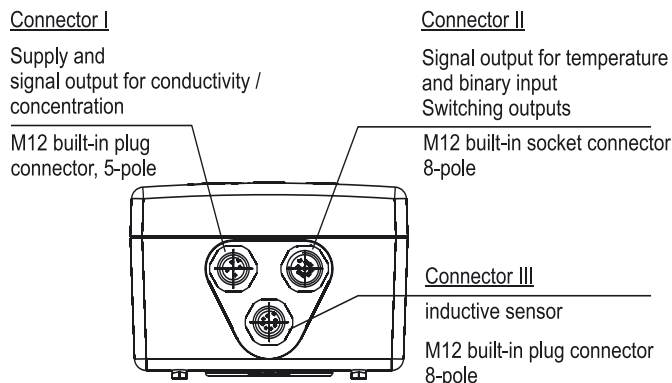


## Electrical connection (transmitter with M12 connectors (-83))

### Head transmitter



### Transmitter with separate sensor



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		

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

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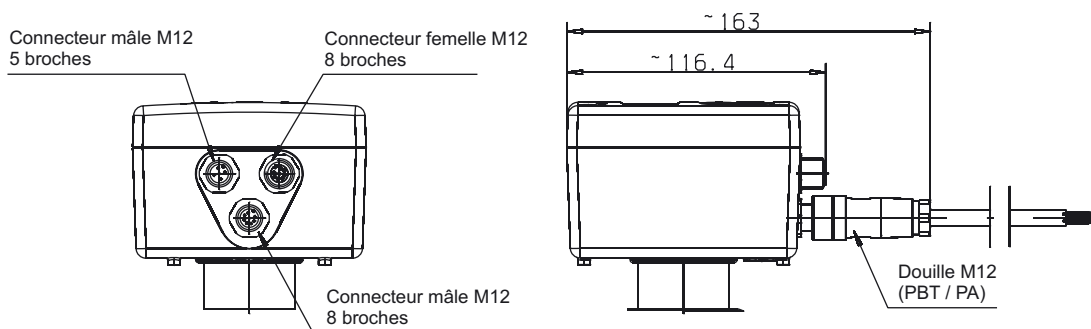
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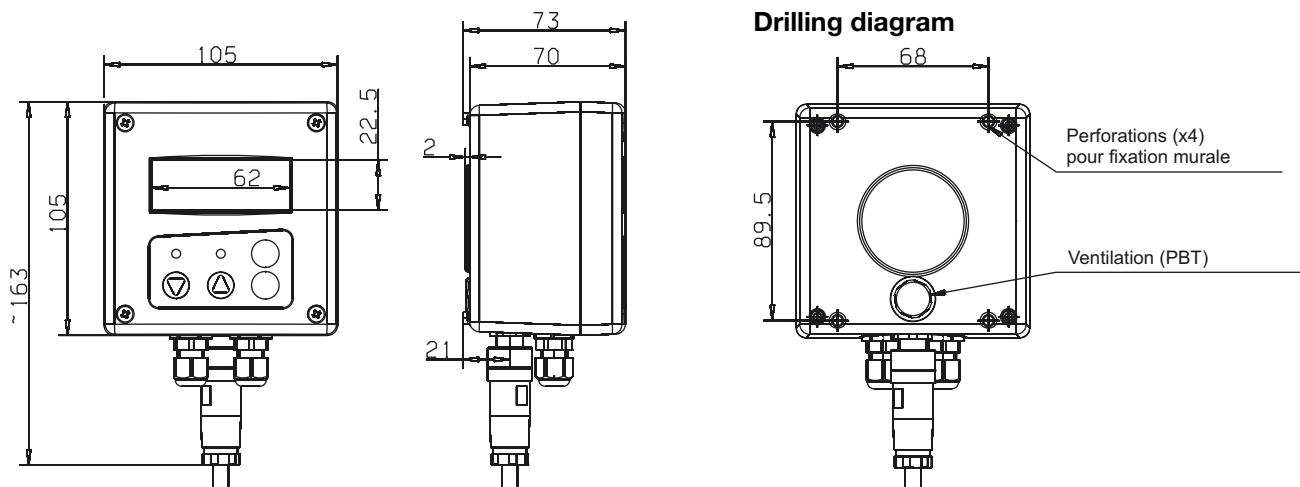


## Dimensions

### 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





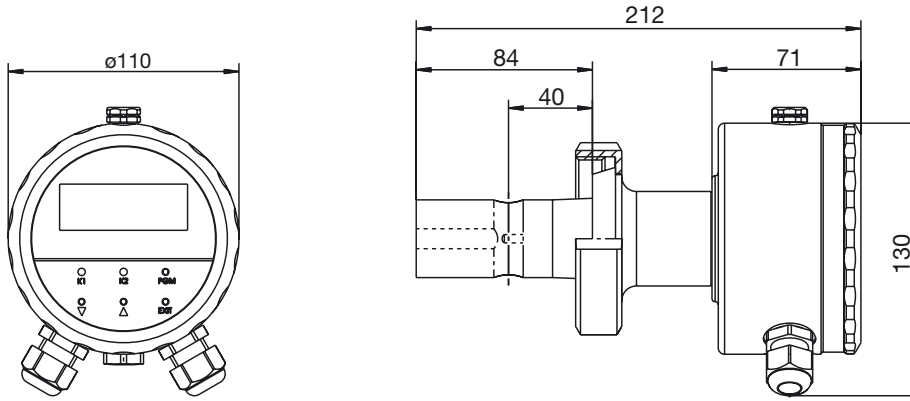
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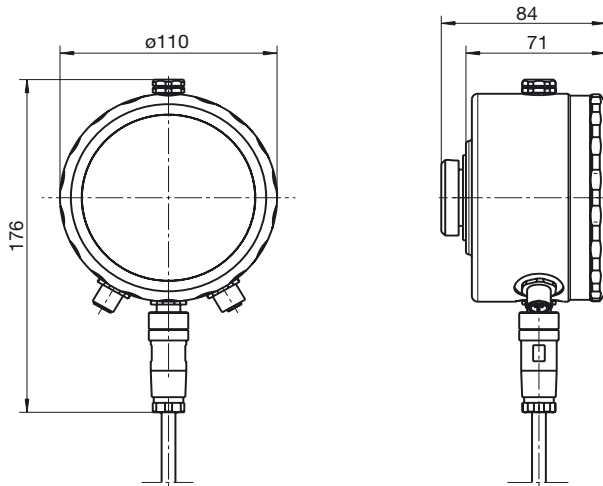
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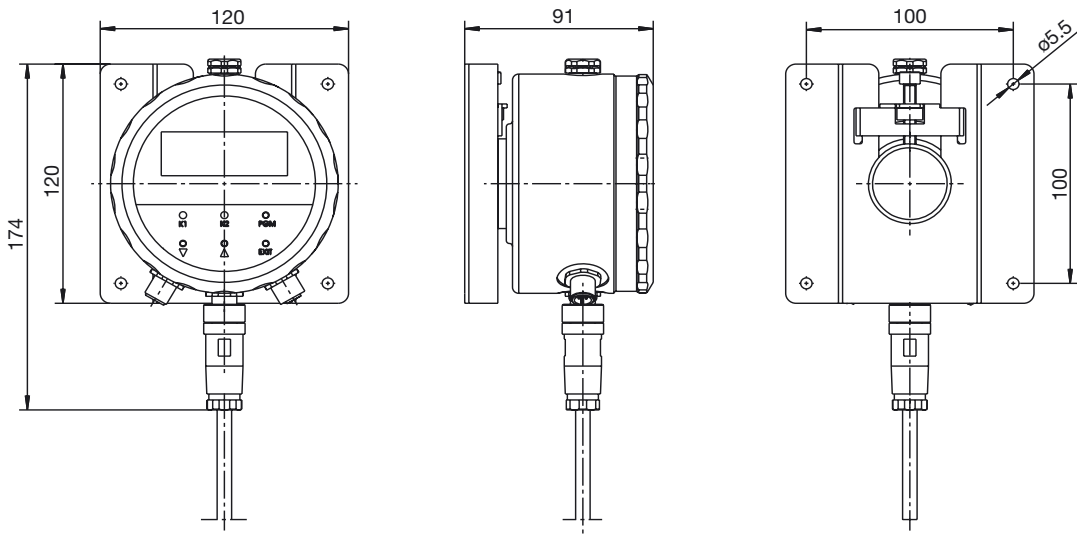
**Operating unit of transmitter (head transmitter in stainless steel housing)  
 with basic type extension 16 and electrical connection 82**



**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**



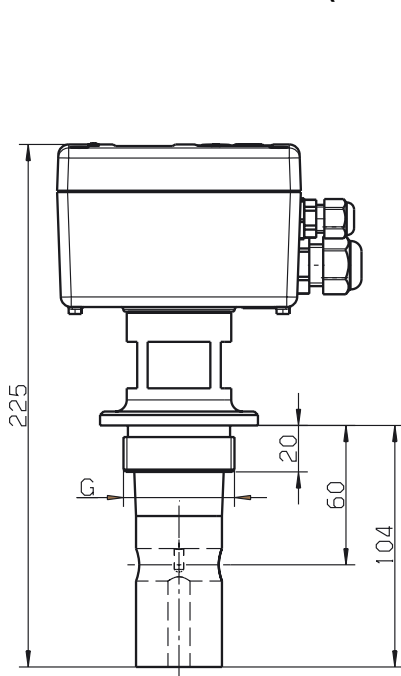
**JUMO GmbH & Co. KG**  
 Delivery address: Mackenrodtstraße 14,  
 36039 Fulda, Germany  
 Postal address: 36035 Fulda, Germany  
 Phone: +49 661 6003-0  
 Fax: +49 661 6003-607  
 e-mail: mail@jumo.net  
 Internet: www.jumo.net

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

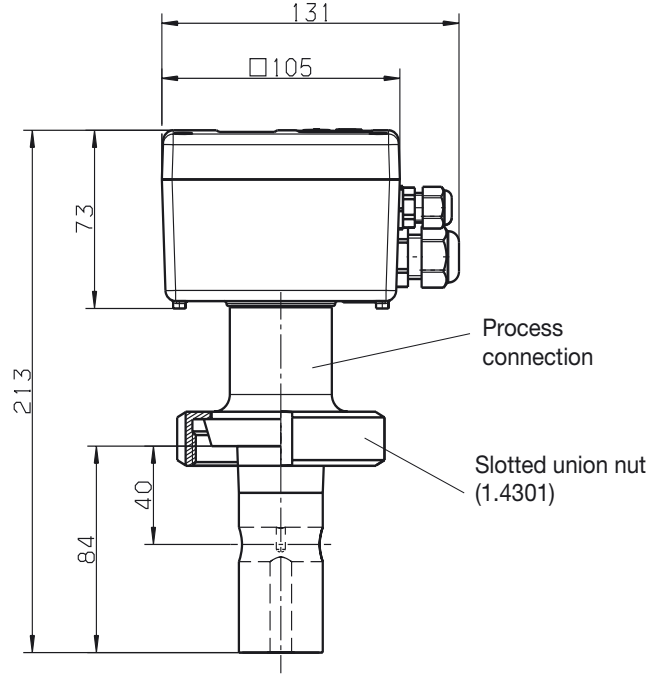
**JUMO Process Control, Inc.**  
 8 Technology Boulevard  
 Canastota, NY 13032, USA  
 Phone: 315-697-JUMO  
 1-800-554-JUMO  
 Fax: 315-697-5867  
 e-mail: info@jumo.us  
 Internet: www.jumo.us



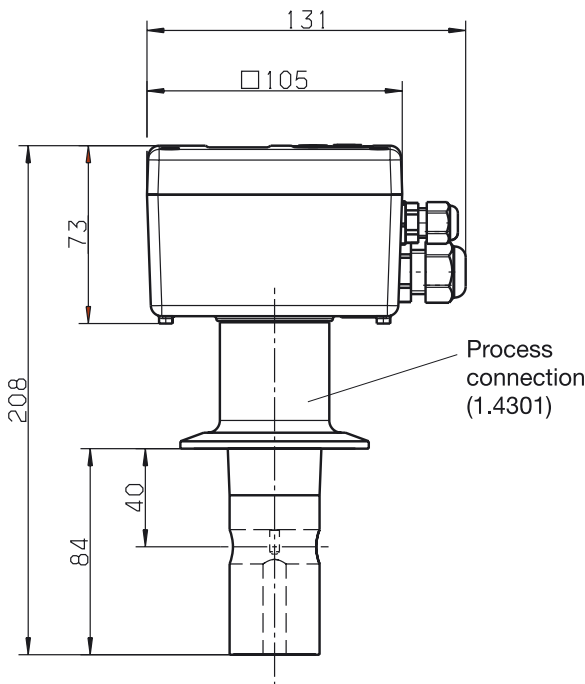
**Dimensions / Process connections (head transmitter)**



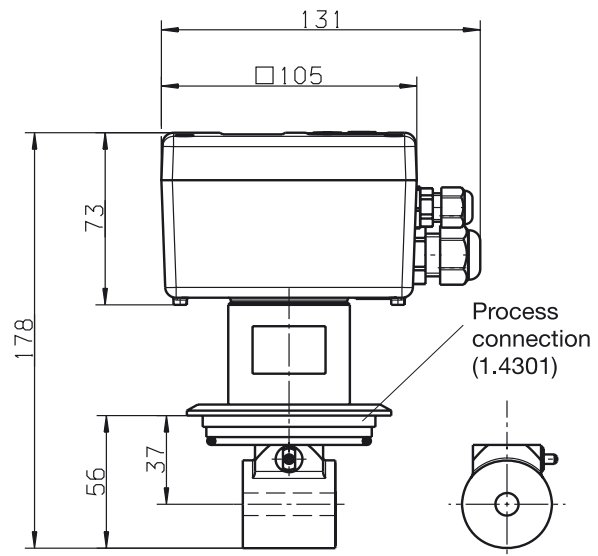
Version with process connection  
 107 = screw-in thread G1 1/4A  
 108 = screw-in thread G1 1/2A  
 110 = screw-in thread G2A



Version with process connection  
 606 = MK DN40  
 607 = MK DN50  
 608 = MK DN65  
 609 = MK DN80



Version with process connection 617  
 clamp 2 1/2"  
 (retaining clip not included in delivery)

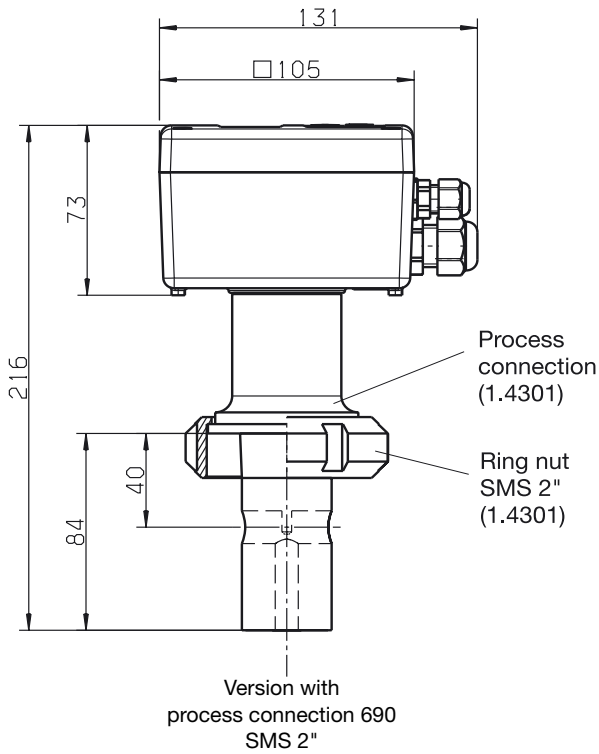


Version with process connection 686  
 VARIVENT® DN40/50

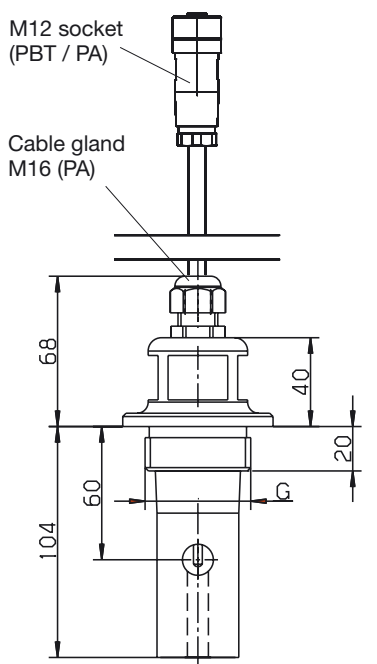
**JUMO GmbH & Co. KG**  
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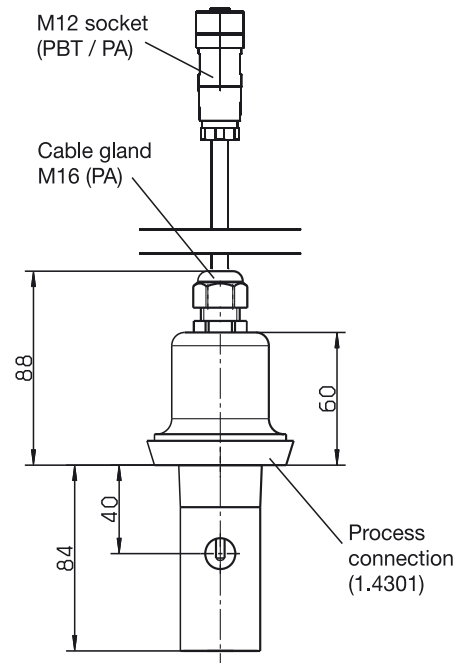
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 1-800-554-JUMO  
 Fax: 315-697-5867  
 e-mail: info@jumo.us  
 Internet: www.jumo.us



**Dimensions / Process connections (separate sensor)**



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

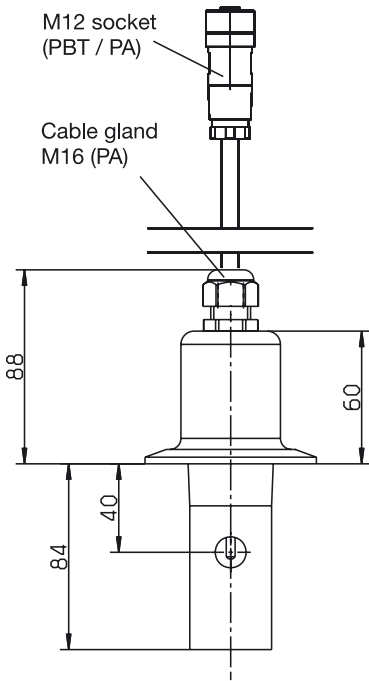


Split version with process connection  
 606 = MK DN40  
 607 = MK DN50  
 608 = MK DN65  
 609 = MK DN80  
 (union nut not included in delivery)

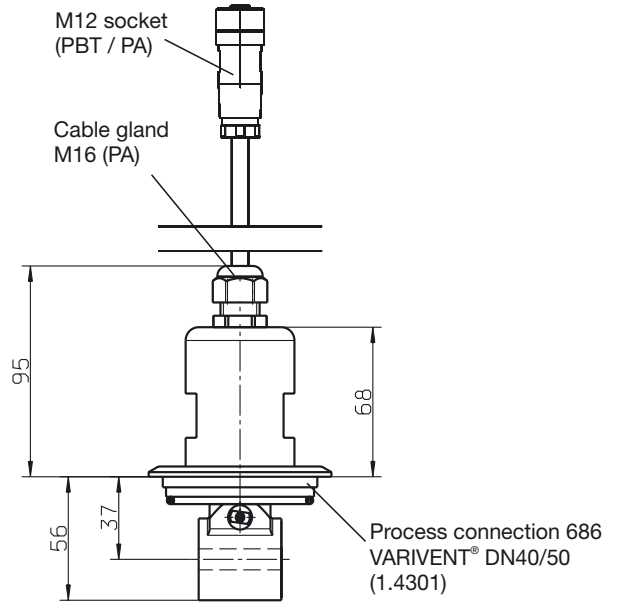
**JUMO GmbH & Co. KG**  
 Delivery address: Mackenrodtstraße 14,  
 36039 Fulda, Germany  
 Postal address: 36035 Fulda, Germany  
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 Fax: +49 661 6003-607  
 e-mail: mail@jumo.net  
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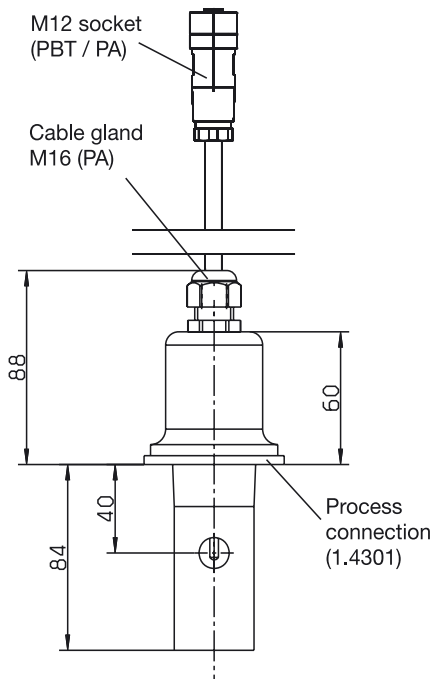
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 e-mail: info@jumo.us  
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Split version with  
 process connection 617  
 clamp 2 1/2"  
 (retaining clip not included in delivery)



Split version with  
 process connection 686  
 VARIVENT® DN40/50  
 (retaining clip not included in delivery)



Split version with  
 process connection 690  
 SMS 2"  
 (union nut not included in delivery)

**JUMO GmbH & Co. KG**

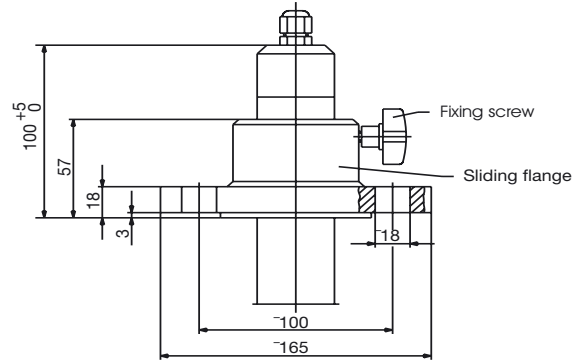
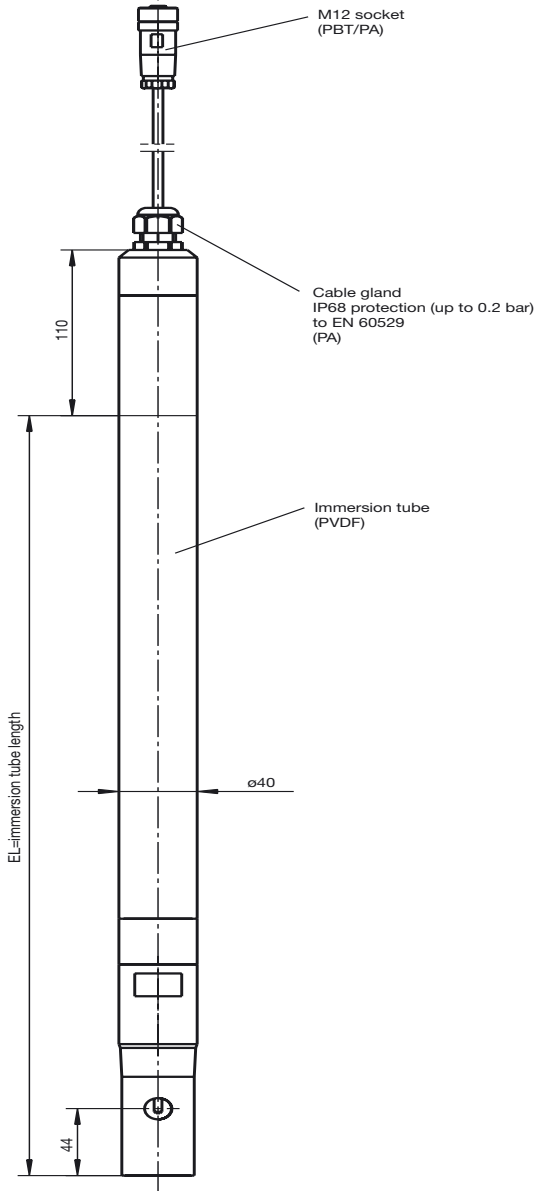
Delivery address: Mackenrodtstraße 14,  
36039 Fulda, Germany  
Postal address: 36035 Fulda, Germany  
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Fax: +49 661 6003-607  
e-mail: mail@jumo.net  
Internet: www.jumo.net

**JUMO Instrument Co. Ltd.**

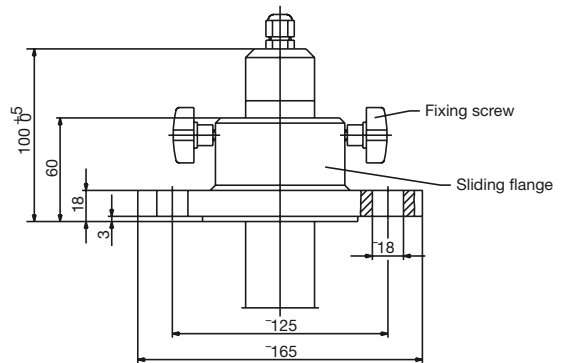
JUMO House  
Temple Bank, Riverway  
Harlow, Essex CM 20 2TT, UK  
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Optional accessory:  
DN32 flange, Sales No. 20/00083375



Optional accessories:  
DN50 flange, Sales No. 20/00083376

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

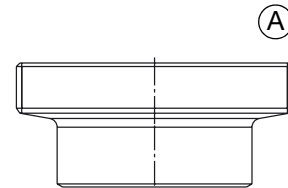
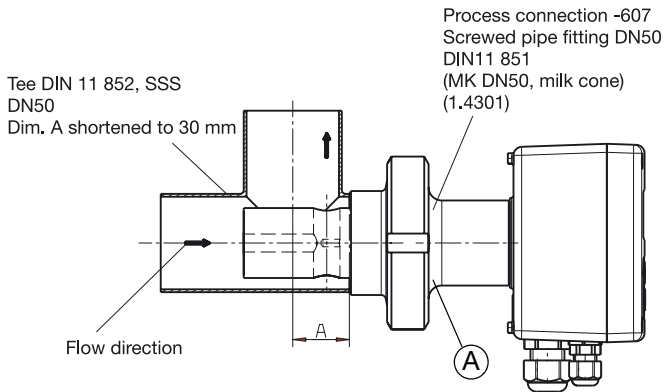
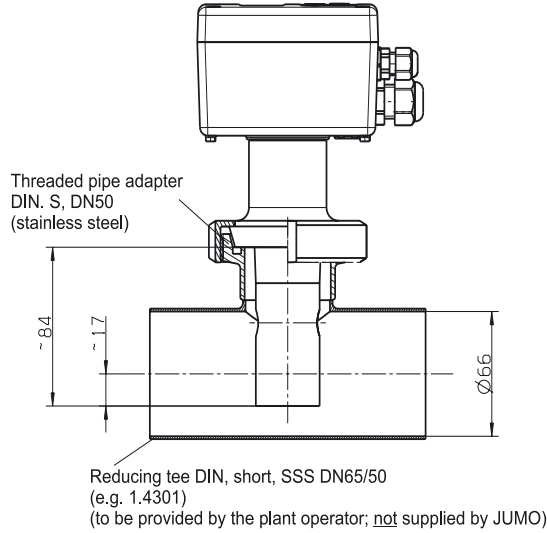
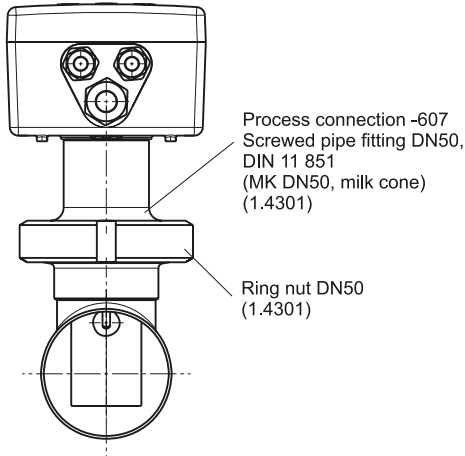
**JUMO GmbH & Co. KG**  
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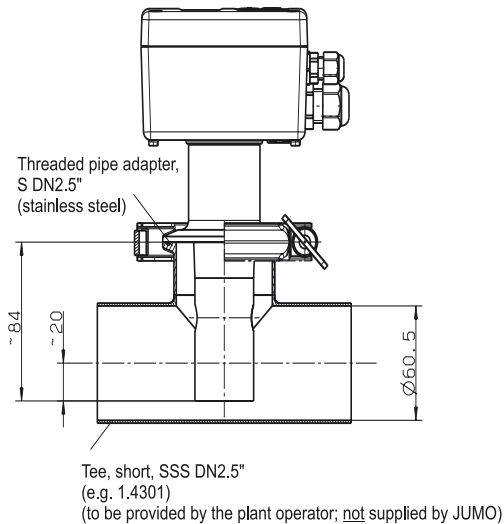
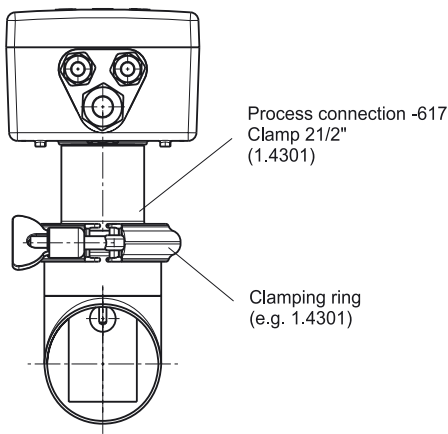
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## Mounting examples



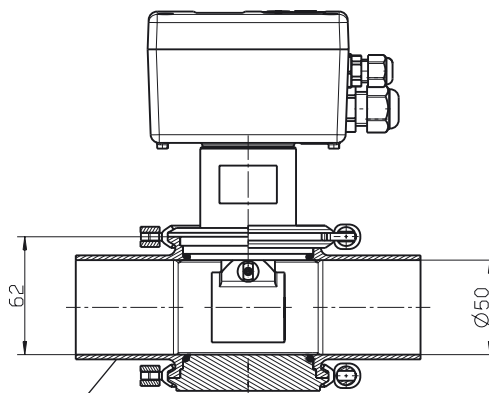
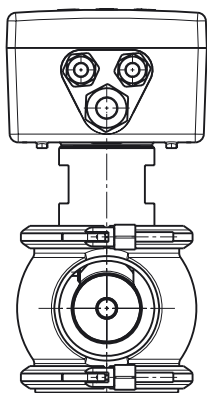
Weld-on threaded pipe adaptor  
 DN50, DIN 11 851  
 (matching part for  
 process connection 607)  
 Sales No. 20/00085020



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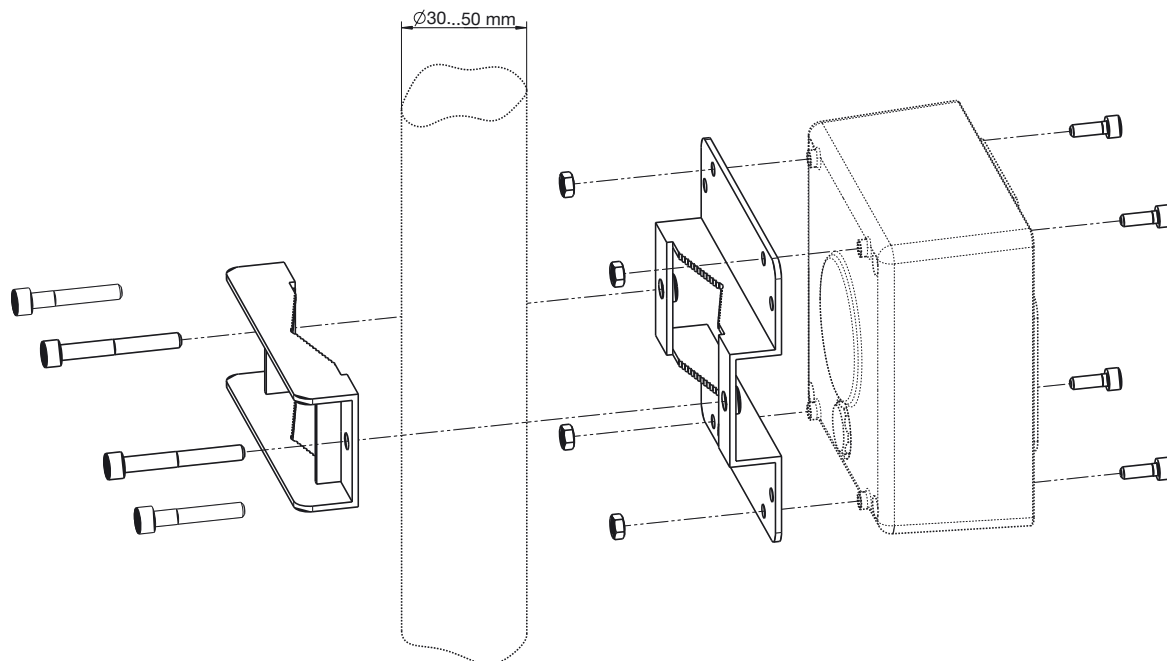
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Tee, VARIVENT, DN50  
 (e.g. 1.4301)  
 (to be provided by the plant operator; not supplied by JUMO)

**Kit for pipe mounting**



**JUMO GmbH & Co. KG**  
 Delivery address: Mackenrodtstraße 14,  
 36039 Fulda, Germany  
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 e-mail: info@jumo.us  
 Internet: www.jumo.us



## Order details: CTI-750 as "Head transmitter"

**(1) Basic type**  
 202756 JUMO CTI/750  
 Inductive transmitter/switching device for conductivity/ concentration  
 and temperature

**(2) Basic type extensions**

10	head transmitter in plastic housing, without display/keypad <sup>1</sup>
15	head transmitter in plastic housing, with display/keypad
16	head transmitter in stainless steel housing, with display/keypad

**(3) Process connection**

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	107	screw-in thread G1 1/4A
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	108	screw-in thread G1 1/2A
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	110	screw-in thread G2A
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	606	DN40 screwed pipe fitting, DIN 11 851 (MK DN40, milk cone)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	607	DN50 screwed pipe fitting, DIN 11 851 (MK DN50, milk cone)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	608	DN65 screwed pipe fitting, DIN 11 851 (MK DN65, milk cone)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	609	DN80 screwed pipe fitting, DIN 11 851 (MK DN80, milk cone)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	617	clamp 2 1/2" <sup>2</sup>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	686	VARIVENT <sup>®</sup> DN40/50 <sup>3</sup>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	690	SMS 2"

**(4) Immersion length**

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	000	see "Dimensions for head transmitter"
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**(5) Electrical connection**

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	82	cable glands
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	83	M12 plug/socket connectors (instead of the cable glands) <sup>4</sup>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	84	two M16 cable glands and one blanking plug

**(6) Extra codes <sup>5</sup>**

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	580	1 set M12 plug/socket connectors
<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	767	cell material: PEEK
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	768	measuring cell material PVDF
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	844	supply voltage 24 V AC

x = standard  
 o = available as an option

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

<sup>1</sup> The PC setup program is required for programming the instrument, see accessories.  
<sup>2</sup> Mounting items (mounting brackets) not included in delivery.  
<sup>3</sup> Only in conjunction with extra code 767 (cell material PEEK)\  
<sup>4</sup> If required, order extra code 580.  
<sup>5</sup> List extra codes in sequence, separated by commas.





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						(6) Extra codes <sup>7</sup>	
x	x					000	no extra code
o	o	o	o			580	1 set M12 plug/socket connectors
o	o	x	x	x		767	cell material PEEK
o	o	x	x	x		768	cell material PVDF
o	o	o	o			844	supply voltage 24 V AC

x = standard  
 o = available as an option

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

<sup>7</sup> List extra code in sequence, separated by commas.

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

Type	Sales No.
202756/10-607-0000-82/767	20/00451592
202756/15-607-0000-82/767	20/00449604
202756/65-607-0000-82/767	20/00449610

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

Type	Sales No.
202756/15-108-0000-82/767	20/00467153
202756/10-690-0000-82/767	20/00451594
202756/15-690-0000-82/767	20/00451593
202756/60-690-0000-82/767	20/00451597
202756/65-690-0000-82/767	20/00451596
202756/60-607-0000-82/767	20/00451595
202756/10-686-0000-82/767	20/00454702
202756/15-686-0000-82/767	20/00454704
202756/60-686-0000-82/767	20/00454705
202756/65-686-0000-82/767	20/00454707
202756/16-607-0000-82/767	20/00481095

**Accessories**

Type	Sales No.
DN50 weld-on threaded adaptor, DIN 11 851 (matching part for process connection -607)	20/00085020
Slotted union nut DN50, DIN 11 851	20/00343368
Slotted union nut SMS DN2"	20/00345162
Flange DN32 <sup>2</sup> , material PP	20/00083375
Flange DN50 <sup>2</sup> , material PP	20/00083376
Kit for pipe mounting	20/00083376
Wall bracket with mounting items, suitable for transmitter in st. steel housing, with separate sensor	20/00477194
M12 socket connector, 5-pole, straight, assembly by user necessary for versions 202755/xx-xxx-xxxx-83/xxx <sup>1</sup>	20/00444313
M12 plug connector, 8-pole, straight, assembly by user necessary for versions 202755/xx-xxx-xxxx-83/xxx <sup>1</sup>	20/00444307
M12 socket connector, 8-pole, straight, assembly by user replacement part for sensor 202755/80	20/00444312

<sup>1</sup> Not required if extra code 580 is ordered.

<sup>2</sup> Only in conjunction with separate sensor as immersion model: 202756&60-xxx... or 202756&65-xxx... or 202756&66-xxx...

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M12 socket connector, 8-pole, straight, for assembly by user	replacement part for sensor 202755/80...	20/00444312
PC setup software for JUMO CTI-750		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	switched-mode power supply for mounting on DIN rail 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
Calibration kit (for calibrating a replacement transmitter or replacement sensor). 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.		20/00459436