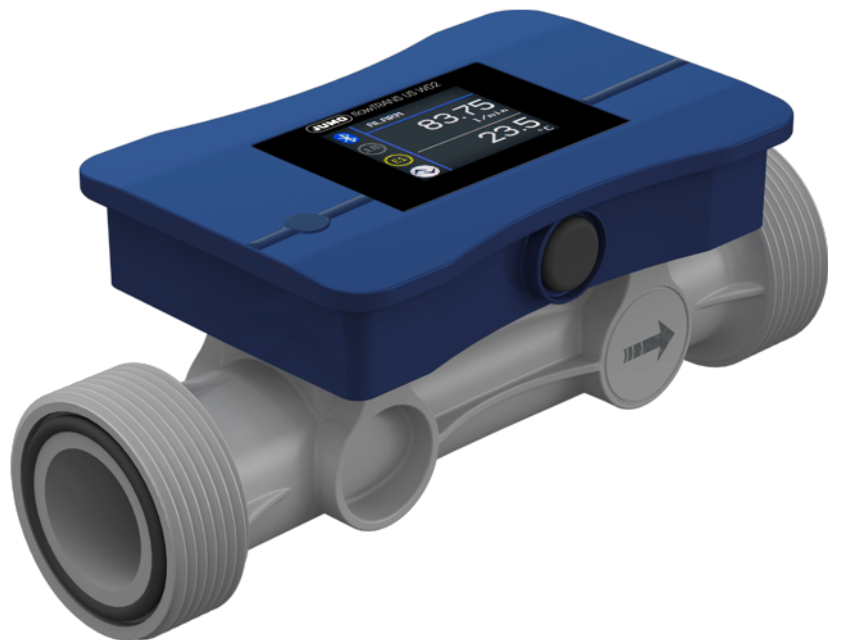


# JUMO flowTRANS US W02

Ultrasonic flow meter

For liquids

 Bluetooth®  IO-Link



Brief Instructions



40605100T97Z101K000

V1.01/EN/00769022/2022-06-29

**Further information and downloads**



[qr-406051-en.jumo.info](https://qr-406051-en.jumo.info)

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# 1 About this documentation

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## 1.1 Purpose

This documentation is part of the device and includes all information to ensure that it is used safely and as intended across all phases of the product lifecycle.

If you do not follow the documentation and safety information, this may result in risk to life and damage to property due to improper use.

- Follow the documentation and the safety information and warnings.
- Store the document in its entirety, in an easily accessible location, and so that it can be read in full at all times.
- Contact the manufacturer if you have any questions about the device and documentation.

## 1.2 Target group

This documentation is intended to be used by trained electrical, mechanical, and plant engineering personnel across all phases of the product lifecycle.

## 1.3 Definition of terms

Use in the documentation	Definition
Device, inline device, product	Ultrasonic flowmeter
Medium, measurement medium, fluid	Liquid
Transducer	Ultrasonic converter, transducer, sensor
Product lifecycle	Overall consideration of Product identification, acceptance of the goods, storage, mounting, connection, operation, troubleshooting, maintenance to disposal
Volume flow, flow	Totalized flow rate per time span

## 1.4 Notes on trademark

- Android® is a registered trademark of Google LLC, 94043, Mountain View, US
- Apple® is a registered trademark of Apple Inc., Cupertino Calif., US
- Bluetooth® and the Bluetooth logo are registered trademarks of Bluetooth SIG, Inc. Kirkland WA 98033, US.
- IO-Link® and the IO-Link logo are registered trademarks of PROFIBUS Nutzerorganisation e.V., 76131 Karlsruhe, DE.

## 1.5 Symbols



### NOTE!

This symbol refers to **important information** about the product, its handling, or additional benefits.

---



### NOTE!

This symbol is used in tables and indicates that further information is provided after the table.

---



### REFERENCE!

This symbol refers to **further information** in other sections, chapters, or other manuals.

---

## 2.1 Safe operation

This device is built based on current state-of-the-art technology and is safe to use. The device has been tested and was shipped from the plant in perfect working order.

If you do not follow the measures to ensure safe operation, this may result in risk to life and damage to property due to improper use.

- Only ever use the device for its intended purpose.
- Do not place the device and the process connections under mechanical strain.
- Systematically check that the process connections are leak-tight.
- Protect the device from electromechanical interference and UV radiation.
- Protect the device from the weather (when using outside).
- Only perform modifications and repairs to the device if expressly permitted by the documentation.

## 2.2 Intended use

The ultrasonic flowmeter measures the flow, temperature and optionally the pressure of conductive and non-conductive liquid media.

The process values can be mapped via the process display, and issued to a higher-level system via the outputs.

Usage	Suitable	Not suitable
Continuous measurement of the volume flow	x	
Conductive and non-conductive media	x	
Potentially explosive areas and safety applications		x

During operation, the admissible data and operating conditions specified in the legal documents and operating manual must be observed.

## 2.3 Qualification of personnel

The personnel deployed must meet the following requirements in all phases of the product lifecycle:

- Trained electrical, mechanical, and plant engineering personnel.
- Members of personnel are familiar with this documentation and the safety information and warnings it contains.

## 2.4 Hot media

Hot media may result in the device surfaces becoming hot and presenting a risk of injury.

- Allow the device and plant to cool down.
- Wear suitable protective equipment.
- Take into account alignment of the housing for electronic components.  
⇒ "Alignment of the housing for electronic components", Page 21
- If required, install contact protection.

## 2 Safety

---

### 2.5 Hazardous materials

Using hazardous materials as a medium may result in abrasive and corrosive damage to components of the product that come into contact with the medium. The medium may leak and present a fire hazard and a risk to health.

Carry out a risk assessment taking into consideration the safety data sheet for the relevant hazardous substance for mounting, operation, maintenance, cleaning, and disposal:

- Comparison and systematic checking of the durability of the components of the product that come into contact with the medium and the admissible environmental influences.
- Assessment of the risk to people and the environment.
- Assessment of the fire hazard due to the product materials, the admissible environmental influences, and the voltage supply.

### 2.6 Declarations of conformity

#### Radio Equipment Directive (RED)

JUMO GmbH & Co. KG hereby states that the flowTRANS US W02 device complies with the Directive 2014/53/EU. The full text of the EU Declaration of Conformity is available at the following web address: [qr-406051-en.jumo.info](http://qr-406051-en.jumo.info).

#### Federal Communications Commission (FCC)

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions.

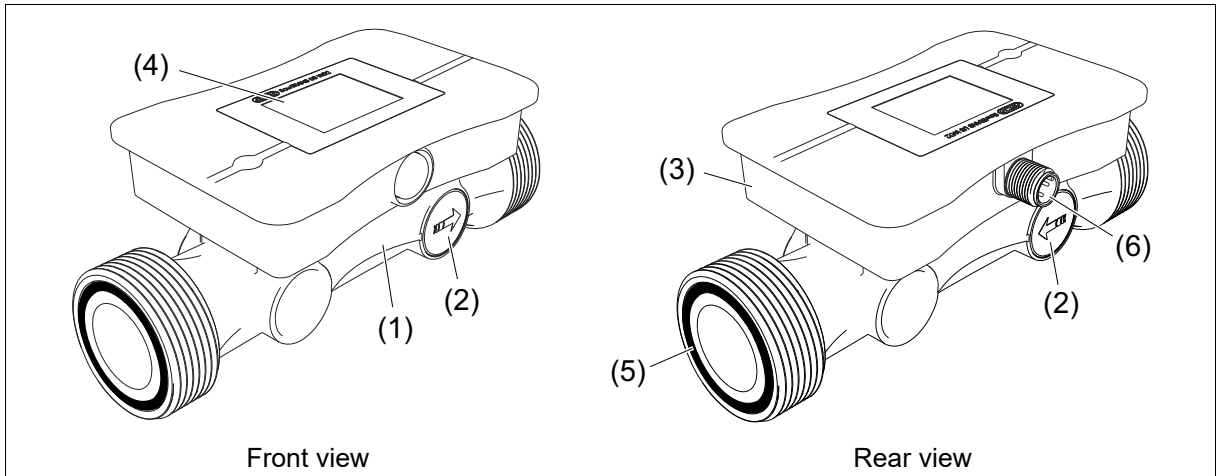
(1) This device may not cause harmful interference.

(2) This device must accept any interference received, including interference that may cause undesired operation.

Caution: Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



## 3.1 Design



- |                                       |  |
|---------------------------------------|--|
| (1) Measuring tube                    | (4) Display (TFT display)                    |
| (2) Transducer (ultrasonic converter) | (5) O-ring (seal for the process connection) |
| (3) Housing for electronic components | (6) M12 plug connection (4-pole)             |

## 3.2 Function

The transducers are on opposite sides of the measuring section and act as transmitters and receivers, i.e. they convert the electrical energy into sound waves and the sound waves into electrical energy.

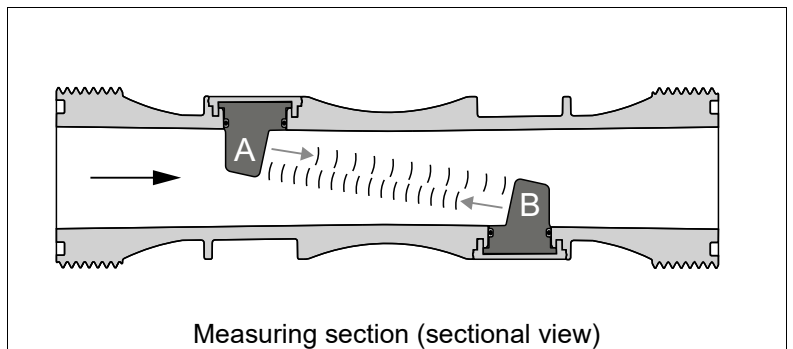
The electronic components supply power to the device, convert the raw signals into standard signals for communicating with other systems (PLC, recorder, indicating device, etc.), and provide interfaces for displaying measured values.

### Function principle

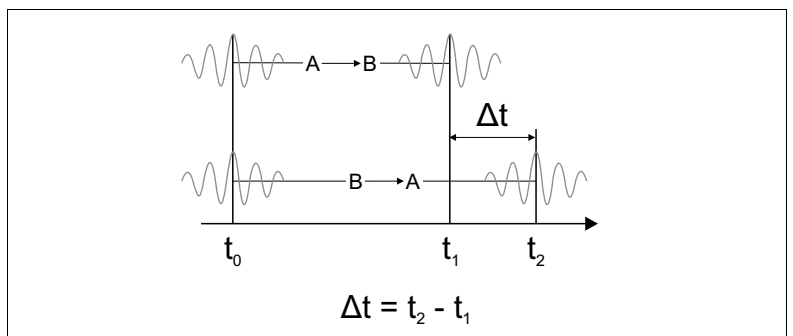
The ultrasonic flowmeter works according to the runtime method.

This method measures the runtimes  $t_1$  and  $t_2$  required by the sound to travel from transducer A to transducer B and vice versa.

→ = Flow direction

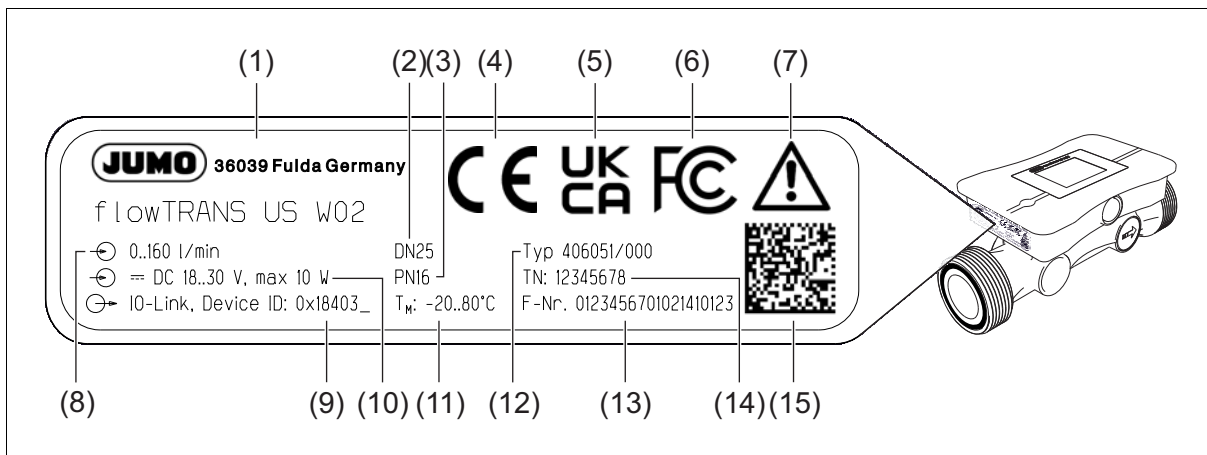


The runtime differential  $\Delta t$  is directly proportional to the flow velocity of the medium.



# 3 Device Description

## 3.3 Nameplate



- |   |                               |    |   |
|---|-------------------------------|----|---|
| 1 | Manufacturer and address      | 9  | Device ID   |
| 2 | Nominal width                 | 10 | Voltage supply<br>(--- Symbol for direct voltage) |
| 3 | Nominal pressure level        | 11 | Medium temperature                                |
| 4 | EU conformity label           | 12 | Product group number                              |
| 5 | UK conformity label           | 13 | Fabrication number                                |
| 6 | FCC approval                  | 14 | Part no.  |
| 7 | Observe device documentation! | 15 | Fabrication number as a DMC code                  |
| 8 | Measuring range               |    |   |



### READ THE DOCUMENTATION!

This symbol, which is attached to the device, indicates that the associated **documentation for the device** must be **observed**. This is necessary to identify the nature of the potential hazard, and to take measures to prevent it.

# 3 Device Description

## 3.4 Device ID

The device ID is shown on the nameplate (⇒ "Nameplate", Page 10) and identifies the device version. A device description file (IODD) is assigned to each device ID.

The IODD is required for communication with the device via an IO-Link interface ⇒ "IO-Link", Page 31.

### Nominal width: DN 15 with low-flow calibration

Device ID	Device version	IODD
0x18403_	DN15LF flowmeter	JUMO-184031-*.xml
0x1840B_	DN15LF flowmeter/pressure sensor 0 to 2.5 bar rel.	JUMO-1840B1-*.xml
0x18413_	DN15LF flowmeter/pressure sensor -1 to +6 bar rel.	JUMO-184131-*.xml
0x1841B_	DN15LF flowmeter/pressure sensor -1 to +10 bar rel.	JUMO-1841B1-*.xml
0x18423_	DN15LF flowmeter/pressure sensor -1 to +16 bar rel.	JUMO-184231-*.xml

### Nominal width: DN 15

Device ID	Device version	IODD
0x18483_	DN15 flowmeter	JUMO-184831-*.xml
0x1848B_	DN15 flowmeter/pressure sensor 0 to 2.5 bar rel.	JUMO-1848B1-*.xml
0x18493_	DN15 flowmeter/pressure sensor -1 to +6 bar rel.	JUMO-184931-*.xml
0x1849B_	DN15 flowmeter/pressure sensor -1 to +10 bar rel.	JUMO-1849B1-*.xml
0x184A3_	DN15 flowmeter/pressure sensor -1 to +16 bar rel.	JUMO-184A31-*.xml

### Nominal width: DN 20

Device ID	Device version	IODD
0x18503_	DN20 flowmeter	JUMO-185031-*.xml
0x1850B_	DN20 flowmeter/pressure sensor 0 to 2.5 bar rel.	JUMO-1850B1-*.xml
0x18513_	DN20 flowmeter/pressure sensor -1 to +6 bar rel.	JUMO-185131-*.xml
0x1851B_	DN20 flowmeter/pressure sensor -1 to +10 bar rel.	JUMO-1851B1-*.xml
0x18523_	DN20 flowmeter/pressure sensor -1 to +16 bar rel.	JUMO-185231-*.xml

### Nominal width: DN 25

Device ID	Device version	IODD
0x18583_	DN25 flowmeter	JUMO-185831-*.xml
0x1858B_	DN25 flowmeter/pressure sensor 0 to 2.5 bar rel.	JUMO-1858B1-*.xml
0x18593_	DN25 flowmeter/pressure sensor -1 to +6 bar rel.	JUMO-185931-*.xml
0x1859B_	DN25 flowmeter/pressure sensor -1 to +10 bar rel.	JUMO-1859B1-*.xml
0x185A3_	DN25 flowmeter/pressure sensor -1 to +16 bar rel.	JUMO-185A31-*.xml

### Nominal width: DN 32

Device ID	Device version	IODD
0x18603_	DN32 flowmeter	JUMO-186031-*.xml
0x1860B_	DN32 flowmeter/pressure sensor 0 to 2.5 bar rel.	JUMO-1860B1-*.xml
0x18613_	DN32 flowmeter/pressure sensor -1 to +6 bar rel.	JUMO-186131-*.xml
0x1861B_	DN32 flowmeter/pressure sensor -1 to +10 bar rel.	JUMO-1861B1-*.xml
0x18623_	DN32 flowmeter/pressure sensor -1 to +16 bar rel.	JUMO-186231-*.xml

## 4 Technical data

### 4.1 Electrical data

Voltage supply	DC 18 to 30 V SELV, PELV, Class 2
Current consumption	$\leq 100$ mA, with switching outputs $\leq 600$ mA
Power consumption	$\leq 10$ W
Protection rating	DIN EN 61140, Class III (protective low voltage )
Electrical safety	The device must be equipped with an electrical circuit that meets the requirements of DIN EN 61010-1 with regard to "Limited-energy circuits".

### 4.2 Inputs

#### 4.2.1 Reference conditions

Measurement medium	Water
Medium temperature	23 °C (73 °F) $\pm 5$ K
Ambient temperature	23 °C (73 °F) $\pm 5$ K
Medium pressure	1 to 4 bar
Measuring tube	Horizontal installation, compliance with the required inlet and outlet sections

#### 4.2.2 Flow

Measuring range $_{max}$ DN 15 with Low-flow calibration DN 15 DN 20 DN 25 DN 32	60 l/min 80 l/min 210 l/min 320 l/min 520 l/min
Accuracy <sup>a</sup> Pulse output Current output Voltage output Reproducibility Temperature drift Response time $t_{90}$	$\leq \pm 1.0\%$ of the measuring range $\pm 0.03\%$ of the measuring range $_{max}$ Like pulse output, additionally $\leq \pm 0.1\%$ of 16 mA Like pulse output, additionally $\leq \pm 0.1\%$ of 10 V $\leq \pm 0.5\%$ of measured value <sup>a</sup> $\pm 0.03\%$ of the measuring range $_{max}$ $\leq \pm 0.05\%$ of measured value <sup>a</sup> per 10 K temperature change (at -20 to +80 °C) $\leq 2$ s
X = measuring range $_{max}$ (%) Y = deviation from measured value $\pm$ (%)	<p>The graph plots deviation Y (%) on the vertical axis (0 to 5) against measuring range X (%) on the horizontal axis (0 to 100). The curve shows a sharp decrease in deviation as the measuring range increases, starting at approximately 4% deviation for very low ranges and stabilizing at about 1% deviation for ranges above 10%.</p>

<sup>a</sup> Under reference conditions.

### 4.2.3 Temperature input

Measuring range	-40 to +125 °C
Accuracy	±2 K

### 4.2.4 Pressure input (optional)

Measuring range	up to 16 bar relative
Accuracy	
at 20 °C <sup>a</sup>	±0.4% MSP <sup>b</sup>
at -20 to +100 °C <sup>c</sup>	±1% MSP

<sup>a</sup> Includes: linearity, hysteresis, repeatability, deviation of measuring range initial value, and measuring range end value.

<sup>b</sup> MSP = measuring span.

<sup>c</sup> Includes: linearity, hysteresis, repeatability, deviation of measuring range initial value, and measuring range end value, thermal effect on measuring range start and measuring span.

### 4.2.5 Digital input

Type	Logic input (external voltage supply)
Function	Reset totalizer, start/stop batch, measured value suppression
Switching voltage $V_{DI}$	DC $-30\text{ V} \leq V_{DI} \leq +60\text{ V}$
Protection	Against polarity and voltage peaks
Internal resistance	> 100 k $\Omega$
Switching thresholds	PLC level: logic level "0" < 7 V, logic level "1" > 15 V

## 4.3 Outputs

### 4.3.1 Analog output

#### Current output

Function	Output of the flow process values, temperature or pressure (optional), output of a signal for error message
Signal range	4 to 20 mA
Signal limits	3.8 to 20.5 mA
Error message	3.4 or 22 mA
Temperature influence	75 ppm/K
Burden	≤ 500 $\Omega$
Burden influence	≤ ±0.02% per 100 $\Omega$

#### Voltage output

Function	Output of the flow process values, temperature or pressure (optional), output of a signal for error message
Signal range	DC 0 to 10 V
Signal limits	DC 0 to 10.3 V
Error message	DC 0 or 11 V
Temperature influence	75 ppm/K
Burden	≥ 2000 $\Omega$
Burden influence	≤ ±15 mV

## 4 Technical data

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### 4.3.2 Digital output

Type	Transistor output as switching output or pulse output (I/O Pin 1 only)
Protection	Against polarity reversal, short circuiting and overload
Output signal	Push-pull, PNP, NPN
Ampacity	≤ 200 mA
Voltage drop	≤ 3 V

#### Switching output

Function	
Output signal	Limit value switch, batch active, batch error, device error
Limit value monitoring function	
Input signals	Flow, temperature or pressure (optional)
Configuration	Hysteresis (NO contact/NC contact), window (NO contact/NC contact), switch-on and switch-off delay
Switching points	
For hysteresis function	Configurable
For window function	Configurable
Switch-on and switch-off delay	0 to 100 s

#### Pulse output

Function	Output of the flow process value
Pulse frequency	0 to 10 kHz
Duty cycle	50%
Output value at nominal width	Pulses per unit (configurable)
DN 15 (Low-flow calibration)	10000
DN 15	4800
DN 20	2850
DN 25	1875
DN 32	1150

### 4.4 Interfaces

#### 4.4.1 Bluetooth

Communication	Via (mobile) end device with JUMO smartCONNECT app
Authentication	Via Bluetooth radio module and NFC tag
Connection status (configurable)	
Permanently	Active
Temporarily	Restricted (via NFC)
Range	10 m under reference conditions
Radio frequency	
Bluetooth radio module	2.45 GHz
NFC tag	13.56 MHz
Max. transmission power	
Bluetooth radio module	0 dBm
NFC tag	-
smartCONNECT app	
Function	Transfer of configuration data and device information
System requirements	
iOS device	iPhone 7 or later (recommended) with iOS 13
Android device	Android 8.0 or later

#### 4.4.2 IO-Link

Communication	Via end device with IO-Link master and device description file (IODD)
Communication interface	IO-Link device V 1.1.2, downward compatible with V 1.0
Data transfer rate (baud rate)	COM 3 (230.4 kBaud)
Max. cable length	20 m, unshielded
Min. cycle time	5 ms
Function	Transfer of process data, configuration data and device information

### 4.5 Display

Type	TFT display
Size	
Display area	35.04 × 28.03 mm
Screen size (diagonal)	1.77"
Resolution	128 × 160 RGB
Brightness	16 levels (configurable)
Rotation	0°, 90°, 180°, 270° (configurable)

## 4 Technical data

### 4.6 Environmental influences

Admissible ambient temperature At a medium temperature $\leq 80\text{ }^{\circ}\text{C}$ At medium temperature of $> 80\text{ }^{\circ}\text{C}$	DIN 60068-2-1, DIN 60068-2-2 -20 to $+60\text{ }^{\circ}\text{C}$ -20 to $+45\text{ }^{\circ}\text{C}$
Admissible storage temperature	-20 to $+60\text{ }^{\circ}\text{C}$
Climatic conditions Climate class Temperature range Relative humidity	DIN EN 60721-3-1, DIN EN 60721-3-3, DIN EN 60068-2-78 3K6 -20 to $+55\text{ }^{\circ}\text{C}$ $\leq 100\%$ – Condensation on device outer shell
Protection type	DIN EN 60529, EN 50102 IP65, IP67
Electromagnetic compatibility (EMC) Interference emission Interference immunity	DIN EN 61326-1, DIN EN 61326-2-3 Class B <sup>a</sup> Industrial requirements
Vibration resistance Vibration resistance Shock resistance	DIN EN 60068-2-6, DIN EN 60068-2-27 5 g at 10 to 2000 Hz 20 g over 11 ms
Pressure Equipment Directive Group 1 fluids - DN $\leq 25$ Group 2 fluids - DN $\leq 32$ Group 1 fluids	2014/68/EU Sound engineering practice acc. to Art. 4, para. 3 i. c. w. Art. 4 para. 1c.i Sound engineering practice acc. to Art. 4, para. 3 i. c. w. Art. 4 para. 1c.i Sound engineering practice acc. to Art. 4, para. 3 i. c. w. Art. 4 para. 1c.ii

<sup>a</sup> The product is suitable for industrial use as well as for households and small businesses.

### 4.7 Mechanical features

#### 4.7.1 Materials

Housing	PA66-GF25
Display cover	PMMA
Components in contact with the medium Measuring tube Transducer Seals Process connection, transducer	PPSU PEEK EPDM or FKM (optionally)
Approvals Components in contact with the medium	Drinking water certified materials (when using EPDM seals)

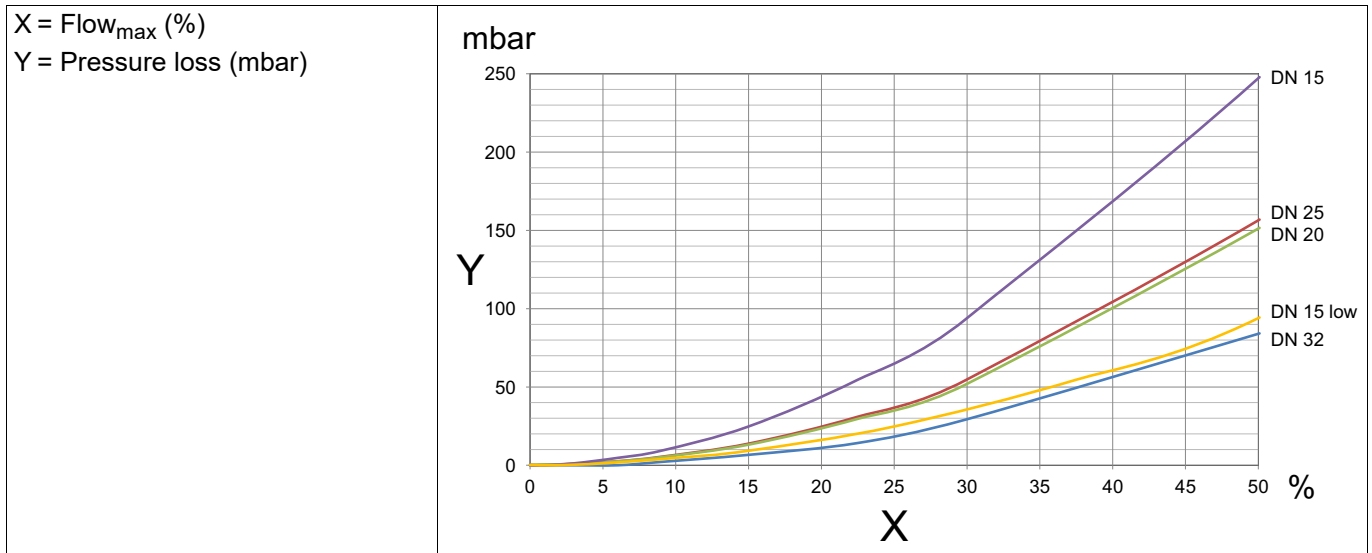


## 4.7.2 Nominal pressure

Nominal pressure levels	PN 16
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## 4.7.3 Pressure loss diagram

Created under reference conditions ⇒ "Reference conditions", Page 12.



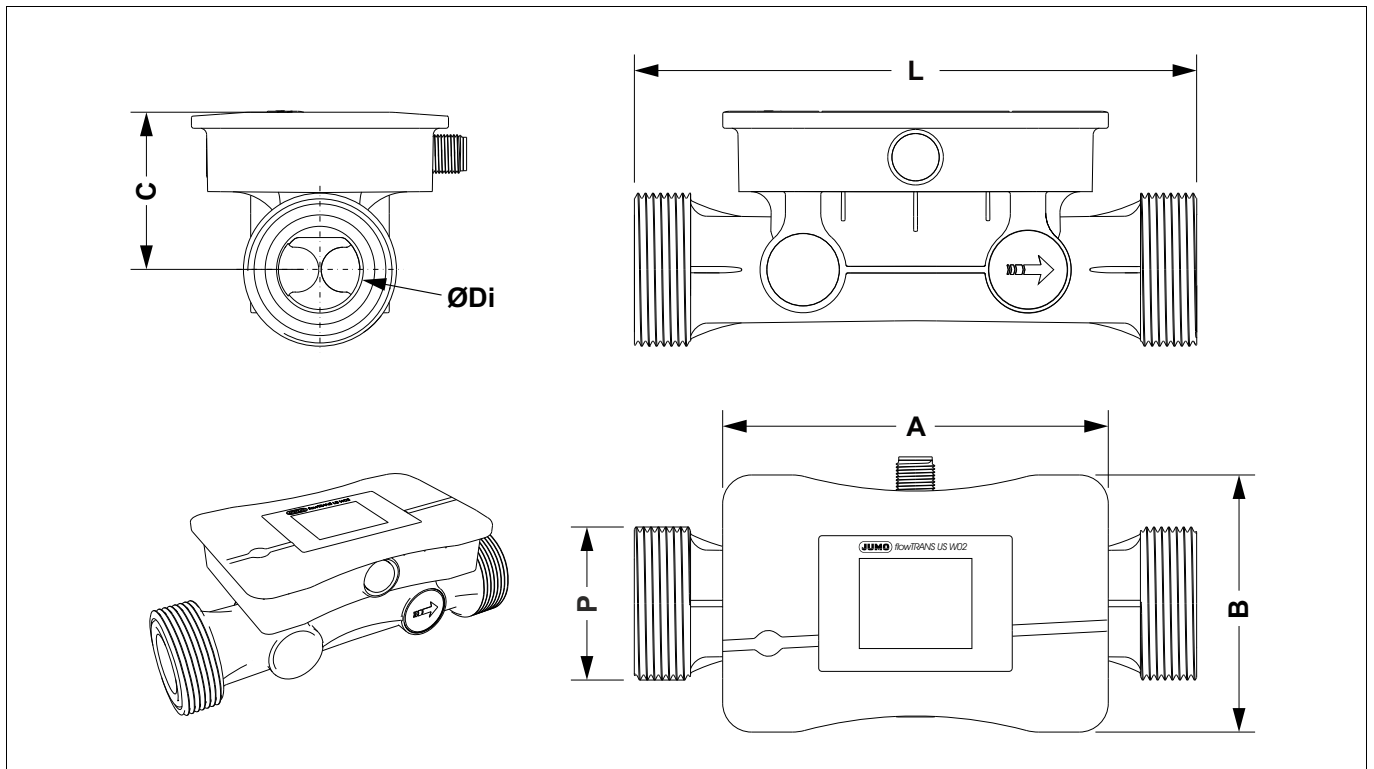
## 4.8 Measurement media

Medium type	Conductive or non-conductive liquids
Viscosity	≤ 100 mPas
Foreign matter content	
Solids	≤ 5 % vol
Gases	≤ 1 % vol
Medium temperature	
Temperature range	-20 to +95 °C
Within the accuracy specifications	-20 to +80 °C
Outside of the accuracy specifications <sup>a</sup>	> 80 to 95 °C

<sup>a</sup> Return to the accuracy specifications after cooling down.

## 4 Technical data

### 4.9 Dimensions



Nominal width	ØDi [mm]	P	A [mm]	B [mm]	C [mm]	L [mm]
DN 15	16.5	G 1"	120	80	43.5	160
DN 20	21.5	G 1 1/4"			46	165
DN 25	27	G 1 1/2"			49	175
DN 32	34	G 2"			52.5	185

# 5 Acceptance of goods, storage, and transport

---

## 5.1 Scope of delivery

1× JUMO flowTRANS US W02 – Device in the ordered version, including calibration certificate
2× O-ring (seal for the process connection) in the ordered version
1× JUMO flowTRANS US W02 operating manual

## 5.2 Checking the delivery

- Ensure that the packaging and its contents are undamaged.
- Check the delivery for completeness against the packing slip and order details.
- Inform the supplier immediately if there is any damage.
- Store damaged parts until clarification is received from the supplier.

## 5.3 Storage

Improper storage may result in damage to the device.

- Store the device in a dry and dust-free environment.
- Observe the device storage temperature range.

## 5.4 Packaging and transport

If the device is not protected properly against external influences, it may become damaged during transport.

- Transport the device in an impact-proof packaging solution that protects it against moisture and dirt.
- Also comply with the admissible storage temperatures while the device is being transported.
- Protect all electrical and mechanical connections from damage.

# 6 Installation

## 6.1 Prepare installation

### Requirements:

- Check the environmental influences to which the device will be exposed.
- De-energize the system and secure it against being switched on again.
- Stop medium circulation in the plant.
- Drain and flush the pipe.
- Wear suitable protective equipment.
- Correctly prepare the pipe for installation.
- Use only suitable tools when working on the device and plant.

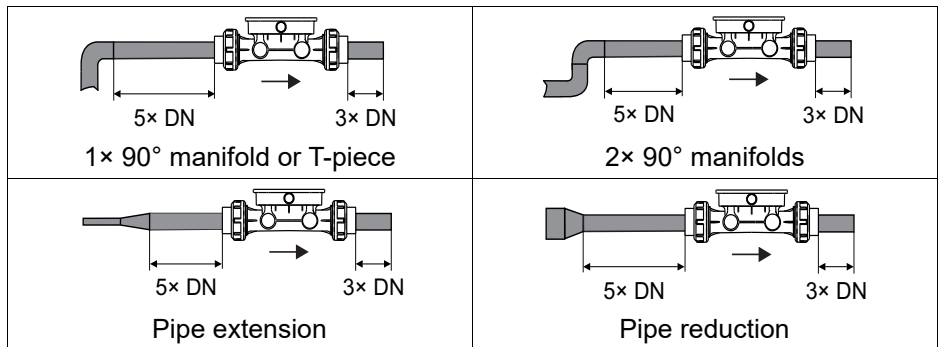
### Inlet and outlet sections

To calm the flow in the pipeline, the specified inlet and outlet sections are required at the very least.

For increased accuracy, the inlet and outlet sections can be made longer.

DN = Nominal pipe width

→ = Flow direction



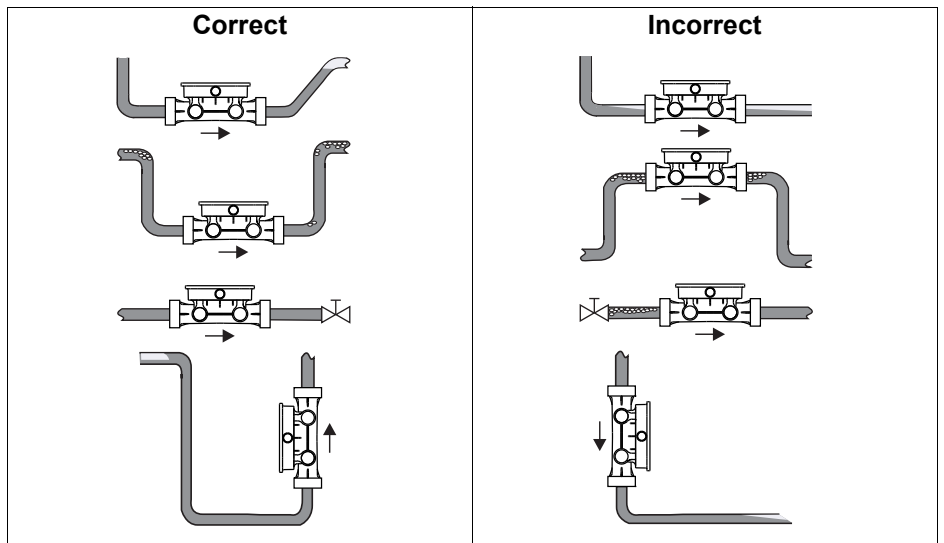
### Installation position

Mount the device in either the horizontal or vertical pipe.

#### Requirements:

- The pipe around the transducers must be filled.
- The flow direction should be upwards for vertical mounting.
- Avoid the formation of air bubbles in the pipe and right at the device.

→ = Flow direction



## Avoid mechanical strain

Ensure that the center lines of both ends of the pipes align before installing in the pipe (3).

Align the ends of the pipes parallel and at an angle to one another.

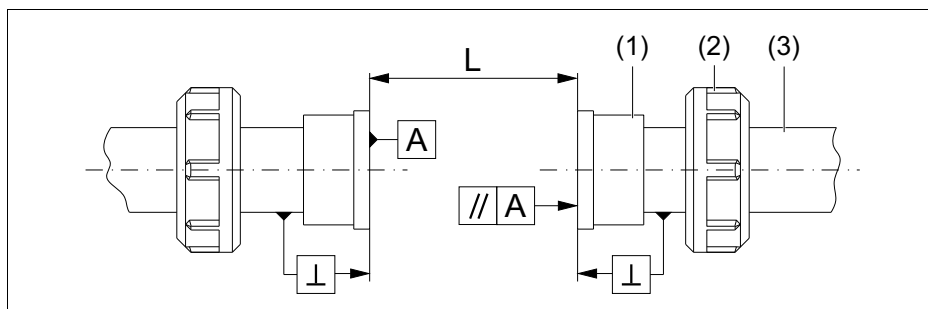
Adhere to the insertion length  $L$  of the device.

Installation accessories are available from the manufacturer.

Each mounting set contains two union ends (1) and two union nuts (2). Select the correct set for the nominal width and pipe material in question.

For the table of dimensions for the mounting sets, please see:

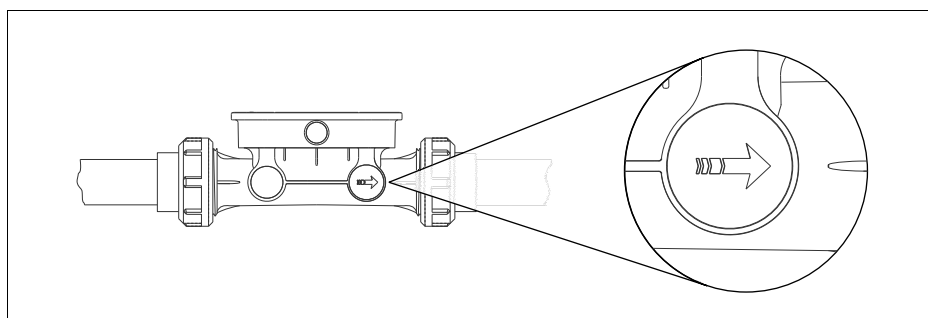
⇒ [Data sheet](#).



Nominal width	Insertion length $L$ [mm]
DN 15	160
DN 20	165
DN 25	175
DN 32	185

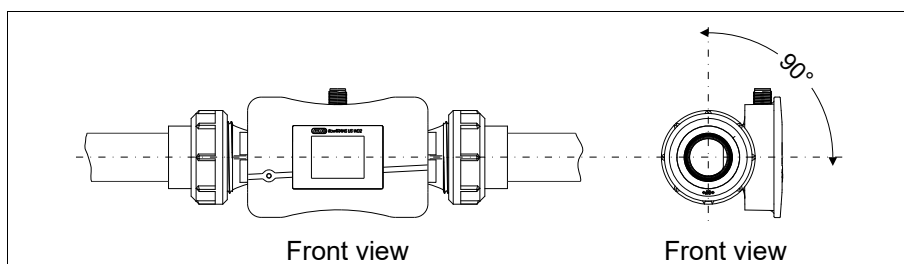
## Flow direction

The positive flow direction ( $\rightarrow$ ) is shown on the transducer covers on both sides of the device and must be observed during installation, in accordance with the application in question.



## Alignment of the housing for electronic components

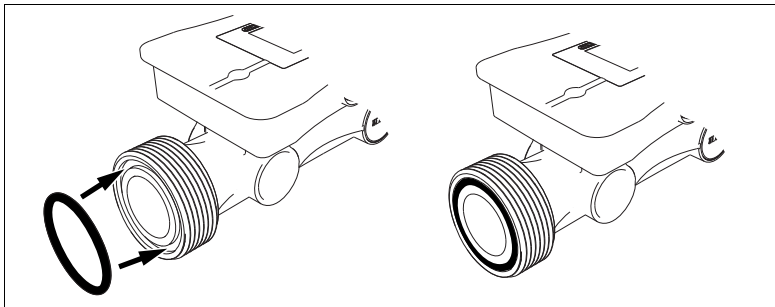
**CAUTION!** Protect the electronics housing from heating up by hot media. Install the electronics housing oriented  $90^\circ$  to the side at medium temperatures  $> 60^\circ\text{C}$  ( $140^\circ\text{F}$ ).



# 6 Installation

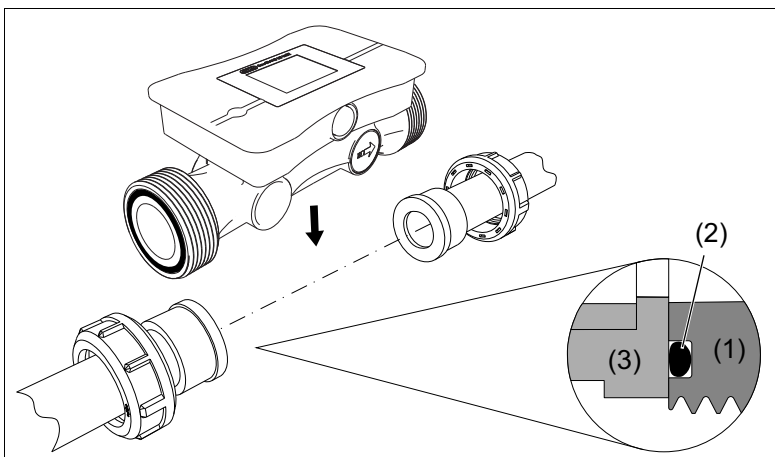
## 6.2 Installing the device

1. Insert the O-rings supplied into the sealing ring grooves in the two process connections.

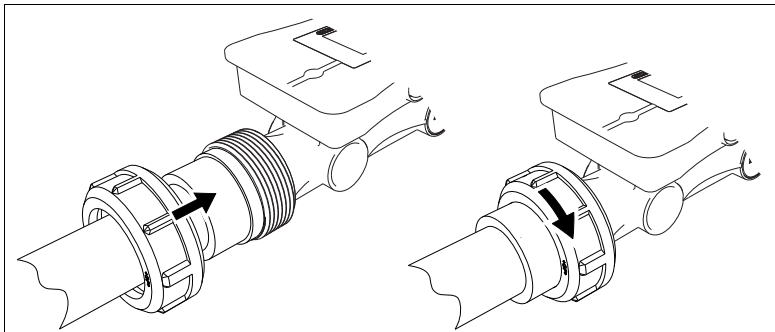


2. Install the device between the two union ends of the mounting set.

Ensure that the O-rings (2) between the process connections (1) and union ends (3) are correctly positioned.



3. Manually screw union nuts on both ends of the pipe to the process connections on the device.



4. Switch on the plant, fill the pipe and check the tightness of the process connections under operating conditions.

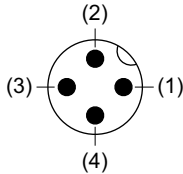
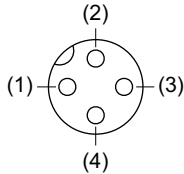
The device is now installed in the pipe.

## 7.1 Preparing the electrical connection

### Requirements:

- Switch off the plant's voltage and secure it so that it cannot switch on again.
- Correctly prepare the connections for the voltage supply and signal processing. The device must be equipped with an electrical circuit that meets the requirements of DIN EN 61010-1 with regard to "Limited-energy circuits".
- Voltage supply: DC 18 to 30 V SELV, PELV.
- Use a cable that has a temperature resistance suitable for the process.
- Do not lay the cable near high-voltage or high-frequency cables; if you cannot avoid doing so, maintain a minimum gap of 30 cm.

### 7.1.1 Pin assignment of the M12 connector

Connection	Device	Connecting cable <sup>a</sup>
Pin assignment and color coding <sup>b</sup> Figure  Voltage supply V+ (DC 24 V) I/O Pin 2 <sup>c</sup> GND IO-Link, I/O Pin 1 <sup>d</sup>	 (1) (2) (3) (4)	 (1) – BN (brown) (2) – WH (white) (3) – BU (blue) (4) – BK (black)
Connection type	Plug connector M12	Plug connector M12 with screw locking

<sup>a</sup> Connecting cable for plug connector M12⇒ "Accessories", Page 44.

<sup>b</sup> The color coding is only valid for A-coded standard cables!

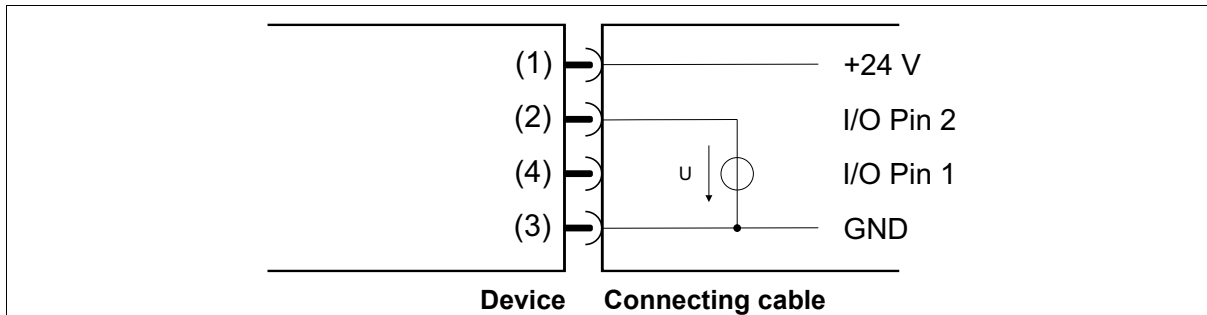
<sup>c</sup> Configurable as: Digital input, digital output, analog output

<sup>d</sup> Configurable as: IO-Link, digital output, analog output

# 7 Electrical connection

## 7.1.2 Connecting the digital input

PLC level: logic level "0" < 7 V, logic level "1" > 15 V

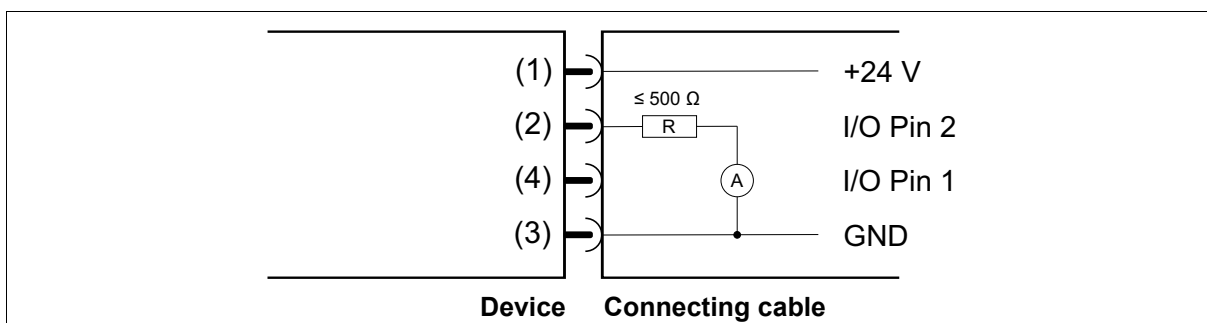


## 7.1.3 Connection of analog output

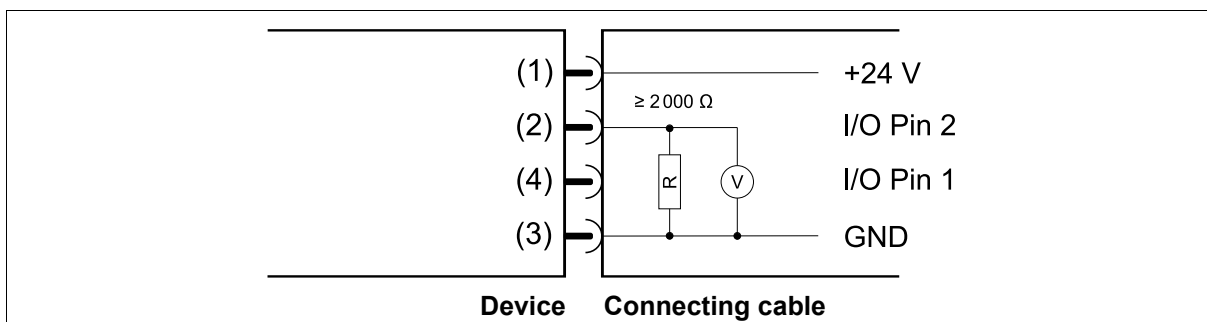
I/O Pin 1 and/or I/O Pin 2 can be configured as analog output.

The connection examples for I/O Pin 2 also apply to I/O Pin 1.

### Current output – 4 to 20 mA



### Voltage output – 0 to 10 V





# 7 Electrical connection

## 7.1.4 Connection of digital output

I/O Pin 1 and/or I/O Pin 2 can be configured as digital output.

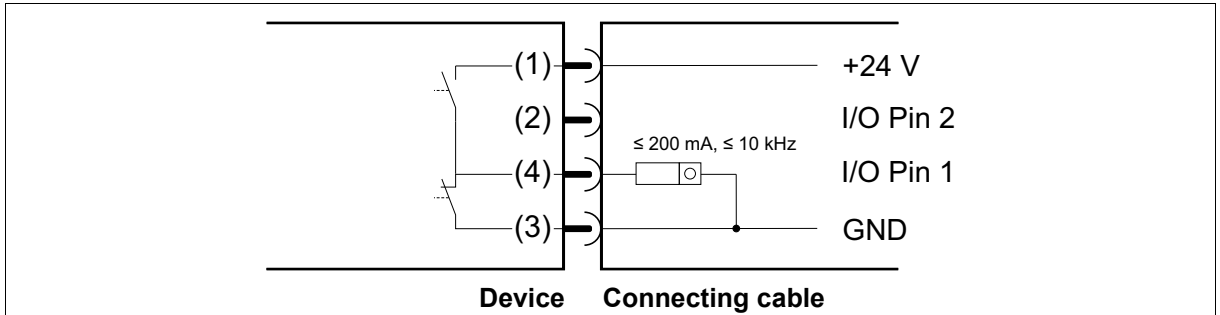
I/O Pin 1 can be configured as switching or pulse output; I/O Pin 2 can be configured as switching output.

### Requirements:

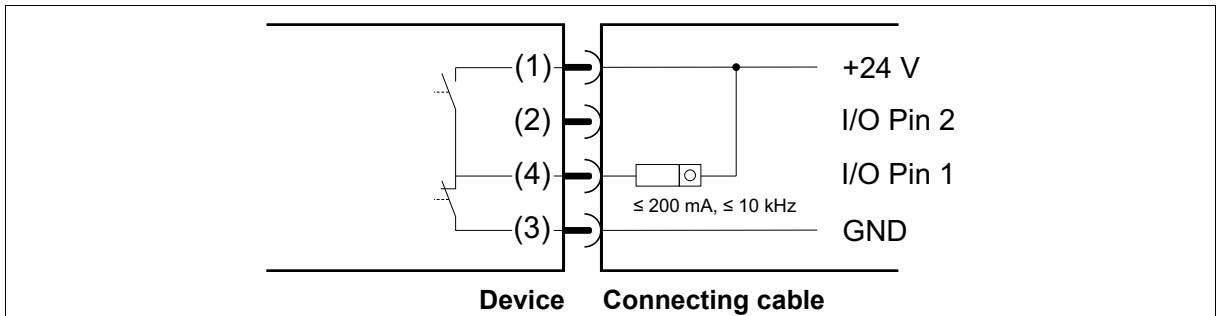
- Connect an unused current output to GND.
- Leave an unused voltage output open.

The connection examples for I/O Pin 1 also apply to I/O Pin 2.

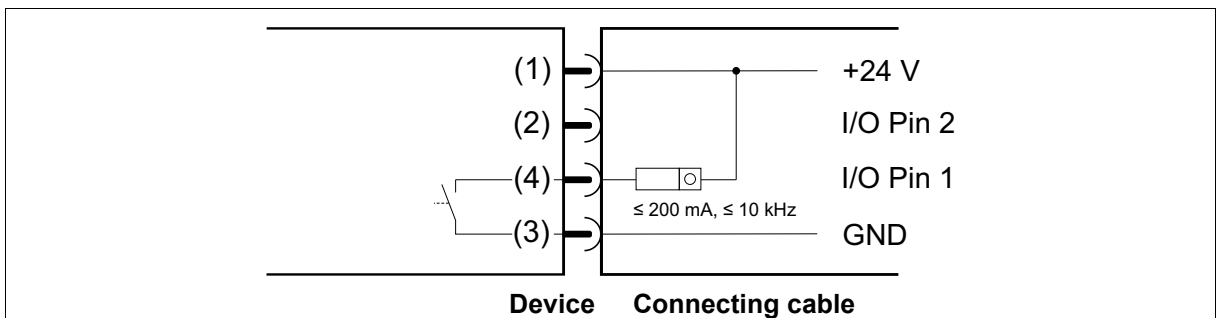
### Digital output – push-pull (example 1)



### Digital output – push-pull (example 2)

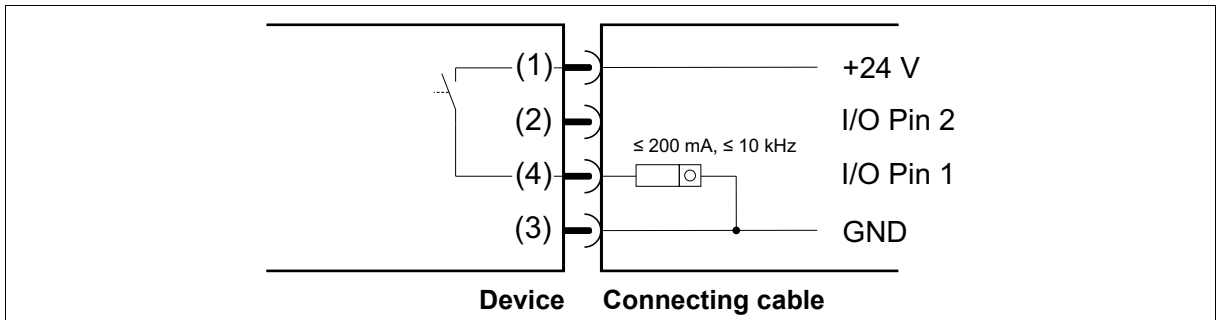


### Digital output – NPN



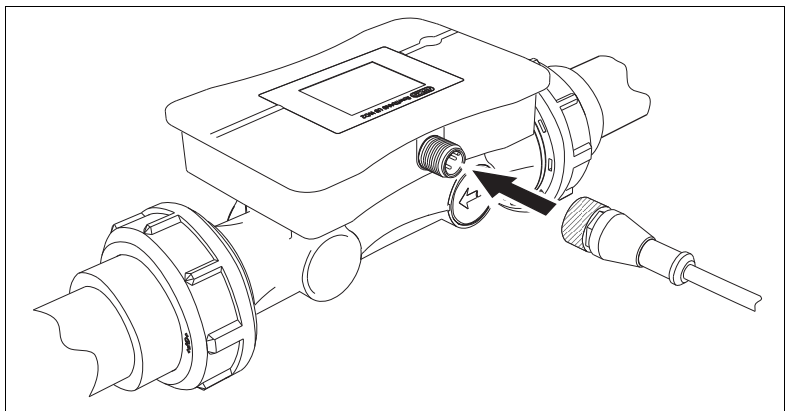
# 7 Electrical connection

## Digital output – PNP



## 7.2 Connecting the device

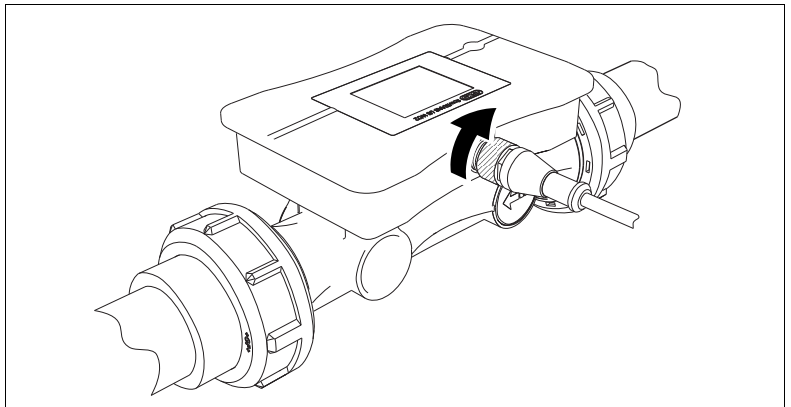
1. Insert the connecting cable into the M12 plug connection.



2. Manually screw the union nut of the connecting cable onto the M12 plug connection on the device

If using the connecting cable provided by the manufacturer, tighten the union nut using an SW13 open-end wrench.

Maximum tightening torque:  
0.4 Nm.



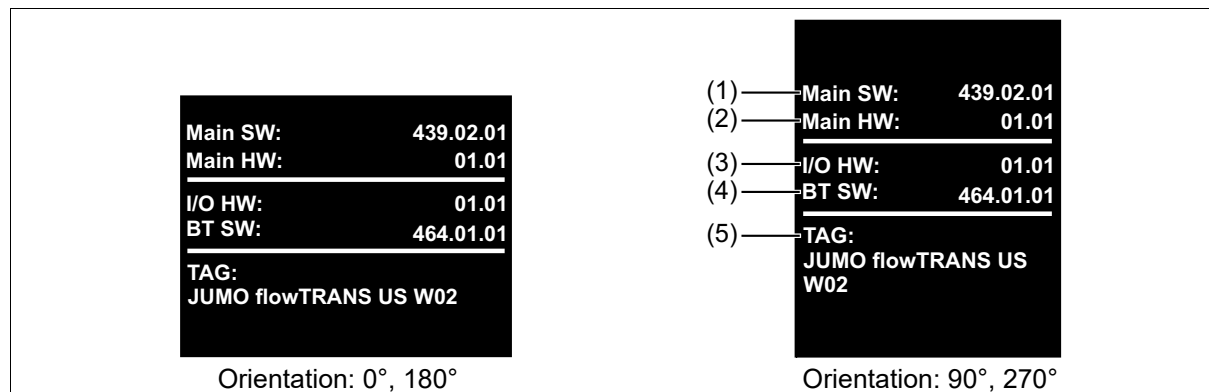
3. Connect the connecting cable to the device that is processing the signals and to the voltage supply. Route the cable so that it is protected against mechanical strain.

The device is ready for operation as soon as the voltage supply is established. ⇒ "Startup display", Page 27.

## 8.1 Display elements

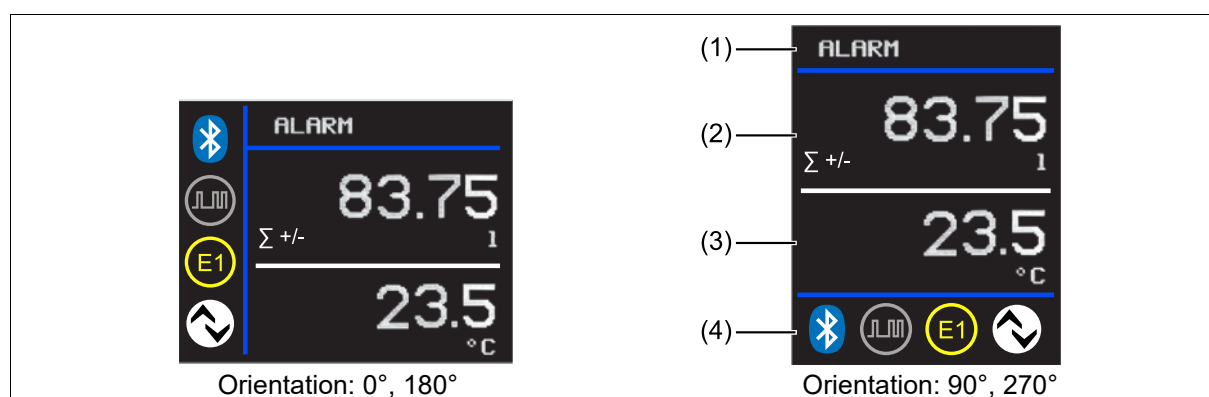
### 8.1.1 Startup display

The startup display appears on the display as soon as the voltage supply to the device is established. The startup display switches to the process display after approximately five seconds.



Pos.	Designation	Description
1	<b>Startup display</b>	Shows the device software version.
2, 3		Shows the device hardware version.
4		Shows the Bluetooth module software version.
5		Shows the device TAG (application-spec. marking).

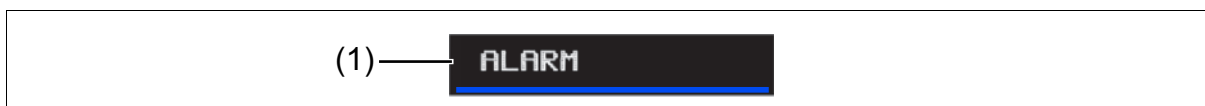
### 8.1.2 Process display



Pos.	Designation	Description
1	<b>Status bar</b>	Shows information about the device status.
2, 3	<b>Process value display 1, Process value display 2</b>	Show the following values and messages: <ul style="list-style-type: none"> <li>Both configured process values (actual values)</li> <li>the process value system units</li> <li>the totalizer for the totalizer function</li> <li>The fill volume or residual volume for the batch function</li> <li>Error messages ⇒ "Troubleshooting", Page 40</li> </ul>
4	<b>Toolbar</b>	Shows: <ul style="list-style-type: none"> <li>The configuration and status of I/O Pin 1 and I/O Pin 2</li> <li>The configuration and status of the interface connections</li> </ul>

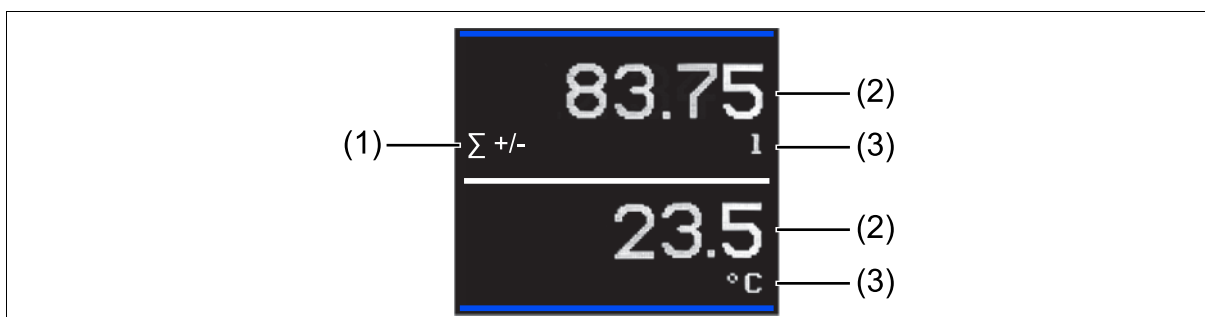
# 8 Operation

## Status bar



Pos.	Symbol, display	Description
1	ALARM	Shows a device error or a warning.
	BATCH	Shows an active batch operation.
	SIM	Shows an input that is in simulation mode.

## Process value display 1, Process value display 2



## Totalizer, totalizer transmission

Only appears when the totalizer function is active.

Pos.	Symbol, display	Description
1		Shows negative count mode of the totalizer.
		Shows positive count mode of the totalizer.
		Shows balanced count mode of the totalizer.

## Batch

Only appears when the batch function is active.

Pos.	Symbol, display	Description
1		Shows the fill volume.
		Shows the remaining volume.

## Process value (5-digit)

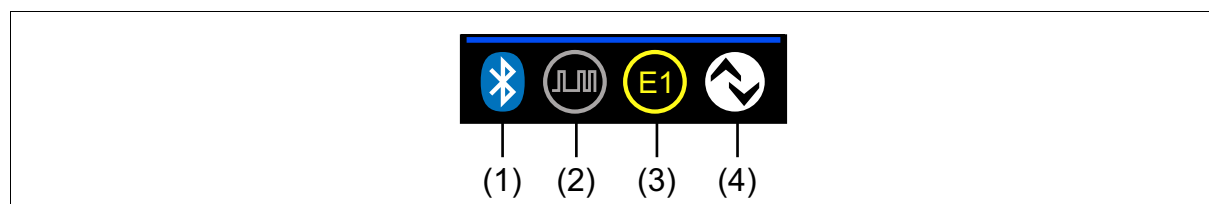
If the process value exceeds the 5-digit display range, the number of decimal places for the process value is reduced.

Pos.	Symbol, display	Description
2	12345	Shows the positive process value.
	-12345	Shows the negative process value.

## System unit

Pos.	Symbol, display	Description
3	l/s, m <sup>3</sup> /h, ft <sup>3</sup> /min, l/min, ft <sup>3</sup> /h, usgal/min, impgal/min, l/h, cm <sup>3</sup> /s, usgal/h, impgal/h, °C, °F, mbar, bar, psi, m/s, %, l, usgal, impgal, m <sup>3</sup> , ft <sup>3</sup>	Shows the configured system unit of the process value.

## Toolbar



## Interface connections





Pos.	Symbol, display	Description
1		Interface connection: Bluetooth Status: Inactive
		Interface connection: Bluetooth Flashing status: Wait for connection to establish. Permanent status: Active
4		Interface connection: IO-Link Status: Inactive
		Interface connection: IO-Link Status: Active
		Interface connection: RS485/digiLine Status: Inactive
		Interface connection: RS485/digiLine Status: Active

## 8 Operation

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### I/O Pin 1

Shows the configuration, function and status of the device **I/O Pin 1**.

Pos.	Symbol, display	Description
2		Configuration: IO-Link
		Configuration: Analog output
		Configuration: Digital output Function: Switching output, pulse output Status: Inactive (switching output)
		Configuration: Digital output Function: Switching output Status: Active

### I/O Pin 2

Shows the configuration, function and status of the device **I/O Pin 2**.

Pos.	Symbol, display	Description
3		Configuration: Analog output
		Configuration: Digital output Function: Switching output Status: Inactive
		Configuration: Digital output Function: Switching output Status: Active
		Configuration: Digital input Status: Inactive
		Configuration: Digital input Status: Active

## 8.2 Interfaces

### 8.2.1 Bluetooth

The JUMO smartCONNECT app allows the device to be configured and its parameters to be set using an end device. Configuration data and device information are transmitted via Bluetooth. The Bluetooth radio module of the device is permanently active during initial startup.

The app is available for free download from the [manufacturer's websites](#) or alternatively using the QR code:



### 8.2.2 IO-Link

IO-Link enables configuration and parameter setting for the device using an end device. Process data, configuration data and device information are transmitted using a standard IO-Link master.

The user software of the IO-Link master requires a device description file (IODD) for this, which is assigned to the device ID ⇒ "Device ID", Page 11.

The device IODD collection is available for free download from the [manufacturer's websites](#) or alternatively directly via <http://ioddfinder.io-link.com>.

# 9 Configuration


## 9.1 Default settings

The parameter list is based on the JUMO smartCONNECT app operating menu. The table headings locate the respective parameters in the app operating menu.

### Sensor > display

Parameter	Value	Default setting	Description
Language	German; English; French; Spanish	German	National language for the process display device text.
Process value 1, process value 2	No signal, flow, temperature, pressure, sound velocity, signal strength, fill volume, residual volume, totalizer 1 volume, totalizer 1 volume carry-over, totalizer 2 volume, totalizer 2 volume carry-over	Flow, temperature	Parameter output values (can be configured independently of one another).
Brightness	0 to 15	8	Brightness of the process display backlight.
Rotation	0°, 90°, 180°, 270°	0°	Process display alignment

### Sensor

Parameter	Value	Default setting	Description
Application-specific marking		JUMO flowTRANS US W02	TAG designation (text input with max. 32 characters possible).
Bluetooth mode 	Restricted (via NFC), active	Active	Status of the Bluetooth connection.
Default settings	Inactive, reset	Inactive	Resets the device to default settings.

#### Bluetooth mode

The Bluetooth radio module of the device is permanently active at initial startup and can be deactivated using the value **Restricted (via NFC)**. In this mode, an NFC tag temporarily activates the Bluetooth radio module and starts the automatic connection setup between the device and the end device. To achieve this, touch the NFC tag of the device near the TFT display with the end device.

### System units

Parameter	Value	Default setting	Description
Flow	l/s, l/min, l/h, cm <sup>3</sup> /s, m <sup>3</sup> /h, ft <sup>3</sup> /min, ft <sup>3</sup> /h, usgal/min, usgal/h, imp.gal/min, imp.gal/h	l/min	System unit for these parameters.
Volume	cm <sup>3</sup> , l, m <sup>3</sup> , ft <sup>3</sup> , usgal, imp.gal	l	System unit for these parameters.
Pressure	bar, mbar, psi	bar	System unit for these parameters.



## 9 Configuration

Parameter	Value	Default setting	Description
Totalizer	cm <sup>3</sup> , l, m <sup>3</sup> , ft <sup>3</sup> , us-gal, imp.gal	l	System unit for these parameters.
Temperature	°C, °F	C	Unit for this parameter in the process value display The output signal is always output in °C regardless of this setting.

### Input/output 1

Parameter	Value	Default setting	Description
I/O Pin 1	IO-Link, analog output, digital output	IO-Link	Parameter function.

### Input/output 1 > IO-Link

Parameter	Value	Default setting	Description
Application-specific marking		JUMO flowTRANS US W02	TAG designation (text input with max. 32 characters possible).
System designation		***	TAG designation (text input with max. 32 characters possible).
Location identification code		***	TAG designation (text input with max. 32 characters possible).
Process data format	Floating point, whole number	Floating point	IO-Link output format of process data.
Activate event	Inactive; Process Data (PD) invalid; Device (D) defective; D defective & PD invalid; Application-spec. Events (AE); AE & PD invalid; AE & D defective; AE, D defective & PD invalid	Inactive	Events are passed on to the IO-Link master. Determine measures on an application-specific basis.

### Input/output 1 > analog output 1

Parameter	Value	Default setting	Description
Function	Inactive, current output, voltage output	Current output	Parameter function. Parameter <b>I/O Pin 1</b> must be configured as an <b>analog output</b> .
Output signal	Flow, temperature, pressure	Flow	Parameter output signal.
Scaling start	Input range: -99999 to 99999	0.000	Process value for the current output (4 mA) or the voltage output (0 V).
Scaling end	Input range: -99999 to 99999	Max device measuring range	Process value for the current output (20 mA) or the voltage output (10 V).

## 9 Configuration

Parameter	Value	Default setting	Description
Error behavior	Low, high, frozen, substitute value	Low	Output signal in the event of a malfunction Low: 3.4 mA or 0 V High: 22 mA or 11 V Frozen: Last valid value Replacement value: Specified replacement value
Replacement value	Input range: 0.000 to 22.00	3.4	Parameter <b>error behavior</b> must be configured as a replacement value. Input range: 3.4 to 22 mA (current output) 0 to 11 V (voltage output)


### Input/output 1 > digital output 1

Parameter	Value	Default setting	Description
Function	Inactive, switching output, pulse output	Pulse output	Parameter function. Parameter <b>I/O Pin 1</b> must be configured as a <b>digital output</b> .

### Input/output 1 > digital output 1 > switching output

Parameter	Value	Default setting	Description
Output signal	Limit value switch, batch active, batch error, device error	Limit value switch	Parameter function. Parameter <b>I/O Pin 1</b> must be configured as a <b>digital output</b> . Parameter <b>function</b> of digital output 1 must be configured as a <b>switching output</b> value.
Inversion	On, Off	Off	Inverts the output signal.
Output signal type	p-switching, n-switching, push-pull	Push-pull	Parameter function.
Limit value monitoring function	Inactive, hysteresis function NO contact (NO), Hysteresis function NC contact (NC), window function NO contact (NO), window function NC contact (NC)	Inactive	Parameter function. Inactive: Switching output function inactive.
Limit value monitoring function signal	Flow, temperature, pressure	Flow	Process value signal of the limit value monitoring function
Switching point/window high	Input range: -99999 to 99999	75	Process value of the limit value monitoring function signal.
Release point/window low	Input range: -99999 to 99999	50	Process value of the limit value monitoring function signal.
Switch-on delay	Input range: 0.000 to 100.0	0.000	Input value in s.

## 9 Configuration

Parameter	Value	Default setting	Description
Switch-off delay	Input range: 0.000 to 100.0	0.000	Input value in s.
Error behavior 	Inactive, active, frozen	Inactive	Behavior of the output signal in case of a malfunction

### Error behavior

**Inaktiv** value: If the **function** parameter of digital output 1 is configured as a **switching output** value, a process value error sets the **switching output** to **inactive**.

**Frozen** value: If the **function** parameter of digital output von 1 is configured as a **switching output** value, a process value does not have any influence on the configuration of the **switching output** value.

### Input/output 1 > digital output 1 > pulse output

Parameter	Value	Default setting	Description
Output signal type	p-switching, n-switching, push-pull	Push-pull	Parameter function. Parameter <b>I/O Pin 1</b> must be configured as a <b>digital output</b> . Parameter <b>function</b> of digital output 1 must be configured as a <b>pulse output</b> value.
Pulses per unit	Input range: 1 to 100000	Output value at nominal width	Output value in pulses per volume unit (system unit of the <b>volume</b> parameter).

### Input/output 2

Parameter	Value	Default setting	Description
I/O Pin 2	Analog, digital output, digital input	Digital output	Parameter function.

### Input/output 2 > analog output 2

Parameter	Value	Default setting	Description
Function	Inactive, current output, voltage output	Current output	Parameter function. Parameter <b>I/O Pin 2</b> must be configured as an <b>analog output</b> value.
Output signal	Flow, temperature, pressure	Flow	Parameter output signal.
Scaling start	Input range: -99999 to 99999	0.000	Process value for the current output (4 mA) or the voltage output (0 V).
Scaling end	Input range: -99999 to 99999	Max device measuring range	Process value for the current output (20 mA) or the voltage output (10 V).
Error behavior	Low, high, frozen, substitute value	Low	Output signal in the event of a malfunction Low: 3.4 mA or 0 V High: 22 mA or 11 V Frozen: Last valid value Replacement value: Input value for the parameter <b>replacement value</b>


## 9 Configuration

Parameter	Value	Default setting	Description
Replacement value	Input range: 0.000 to 22.00	3.4	Parameter <b>error behaviour</b> must be configured as a <b>replacement value</b> value. Input range: 3.4 to 22 mA (current output) 0 to 11 V (voltage output)

### Input/output 2 > digital output 2

Parameter	Value	Default setting	Description
Function	Inactive, switching output,	Switching output	Parameter function. Parameter <b>I/O Pin 2</b> must be configured as a <b>digital output</b> value.

### Input/output 2 > digital output 2 > switching output

Parameter	Value	Default setting	Description
Output signal	Limit value switch, batch active, batch error, device error	Limit value switch	Parameter function. Parameter <b>I/O Pin 2</b> must be configured as a <b>digital output</b> value. Parameter <b>function</b> of digital output 2 must be configured as a <b>switching output</b> value.
Inversion	On, Off	Off	Inverts the output signal.
Output signal type	p-switching, n-switching, push-pull	Push-pull	Parameter function.
Limit value monitoring function	Inactive, hysteresis function NO contact (NO), Hysteresis function NC contact (NC), window function NO contact (NO), window function NC contact (NC)	Hysteresis function, NO contact	Parameter function. Inactive: Switching output function inactive.
Limit value monitoring function signal	Flow, temperature, pressure	Flow	Process value signal of the limit value monitoring function
Switching point/window high	Input range: -99999 to 99999	75	Process value of the limit value monitoring function signal.
Release point/window low	Input range: -99999 to 99999	50	Process value of the limit value monitoring function signal.
Switch-on delay	Input range: 0.000 to 100.0	0.000	Input value in s.
Switch-off delay	Input range: 0.000 to 100.0	0.000	Input value in s.
Error behavior 	Inactive, active, frozen	Inactive	Behavior of the output signal in case of a malfunction

## Error behavior

**Inactive** value: If the **function** parameter of digital output 2 is configured as a **switching output**, a process value error sets this value to **inactive**.

**Frozen** value: If the **function** parameter of digital output von 1 is configured as a **switching output** value, a process value does not have any influence on the configuration of this value.

## Input/output 2 > digital input

Parameter	Value	Default setting	Description
Function	Inactive, reset all totalizers, start/stop batch, measured value suppression	Inactive	Function of the parameter in the event of signaling at the digital input.
Inversion	On, Off	Off	Inverts the input signal.

## Measurands > flow

Parameter	Value	Default setting	Description
Filter time constant	Input range: 0.000 to 25.00	0.450	Optimization of measured value updating The larger the value of the filter time constant, the slower is the change in measured value at the output. Response time $t_{90}$ with default setting: $\leq 2$ s.
Low flow limit value	Input range: 0.000 to 10.00	0.050	Input value in % of $m_{max}$ measuring range of nominal width (DN) of the device. No process value is output below the limit value.
Low flow hysteresis	Input range: 0.000 to 50.00	10	Input value in % of the low flow. Sets hysteresis of low flow.
Inversion	On, Off	Off	Inverts the flow signal, e.g. if the device has been installed in negative flow direction.
Characteristic line	Standard, user-defined 1 to 9	Standard	Standard: Water User-defined 1 to 9: Not defined

## Measurands > flow > fine adjustment

Parameter	Value	Default setting	Description
Function	On, Off	Off	Parameter function
Actual start value	Input range: -99999 to 99999	0.000	Input value for fine adjustment. Alternatively: parameter <b>adoption of actual start value</b>
Actual end value	Input range: -99999 to 99999	100.0	Input value for fine adjustment. Alternatively: parameter <b>adoption of actual end value</b>
Target start value	Input range: -99999 to 99999	0.000	Input value for fine adjustment.
TARGET end value	Input range: -99999 to 99999	100.0	Input value for fine adjustment.

## 9 Configuration

Parameter	Value	Default setting	Description
Set ACTUAL start value	Inactive, adopt actual start value	Inactive	Travel to actual starting value and use <b>adopt actual start value</b> to adopt the measured flow value. Alternatively: parameter <b>actual start value</b>
Set actual end value	Inactive, adopt actual end value	Inactive	Travel to actual end value and use <b>adopt actual end value</b> to adopt the measured flow value. Alternatively: Parameter <b>actual end value</b>

### Measurands > temperature

Parameter	Value	Default setting	Description
Filter time constant	Input range: 0.000 to 25.00	1,000	Optimization of measured value updating The larger the value of the filter time constant, the slower is the change in measured value at the output.
Offset	Input range: -10.00 to 10.00	0.000	Input value in °C Offset correction for zero point adjustment.

### Measurands > pressure

Parameter	Value	Default setting	Description
Filter time constant	Input range: 0.000 to 25.00	1,000	Optimization of measured value updating The larger the value of the filter time constant, the slower is the change in measured value at the output.
Offset	Input range: -10000 to 10000	0.000	Offset correction for zero point adjustment.

### Totalizer

Parameter	Value	Default setting	Description
Counting mode totalizer 1	Positive, negative, balanced	Positive	Integrate the flow shares depending on the counting modes.
Counting mode totalizer 2	Positive, negative, balanced	Balanced	Positive: Only positive flow shares. Negative: Only negative flow shares. Balanced: Positive and negative flow shares.
Reset all totalizers	Inactive, reset	Inactive	All totalizers and carryovers are reset.

### Batch

Parameter	Value	Default setting	Description
Volume	Input range: 0.000 to 99999	100.0	Input value of the volume to be filled in the system unit of the totalizer.
Max. batch time	Input range: 0 to 9999	0	Input value in s. If the input value is exceeded, the batch is aborted.

### Simulation > flow

Parameter	Value	Default setting	Description
Simulation	On, Off	Off	Parameter function.
Value	Input range: -99999 to 99999	0.000	Input value for the simulation.

### Simulation > temperature

Parameter	Value	Default setting	Description
Simulation	On, Off	Off	Parameter function.
Value	Input range: -99999 to 99999	0.000	Input value for the simulation.

### Simulation > pressure

Parameter	Value	Default setting	Description
Simulation	On, Off	Off	Parameter function.
Value	Input range: -99999 to 99999	0.000	Input value for the simulation.

# 10 Troubleshooting


## 10.1 Process value error

Process value errors are displayed flashing instead of the process value. With error messages in line with the NAMUR classification NE 107, process value errors are supplemented by symbols and a two-line message (alternating with the process display).

Message	Cause	Remedy
----	No process value signal is configured.	Configure a process value signal.
	The process value signal is faulty.	At device restart: Wait for initialization (max. 15 s) At device restart, and with the batch function activated: Execute batch.
	Internal device error	Contact the manufacturer.
+++++	The temperature sensor is faulty.	Contact the manufacturer.
<<<<<	The measuring range was fallen below.	Operate the device within the device specifications.
>>>>>	The measuring range was exceeded.	Operate the device within the device specifications.


## 10.2 Error messages in line with NAMUR

Error messages in line with NAMUR classification NE 107 are displayed by symbols and a two-line message (alternating with the process display).


Symbol	Designation
	<b>Error/failure</b>

Message	Cause	Remedy
Internal error (TDC comm.)	The device is faulty.	Contact the manufacturer.
Flow invalid	Too many air bubbles in the system.	Bleed the system.
	The measuring range was exceeded.	Adhere to the measuring range.
	The sensor is faulty.	Contact the manufacturer.
Temperature invalid	The measuring range has been fallen below/exceeded.	Comply with measuring range.
	The sensor is faulty.	Contact the manufacturer.
Pressure invalid	The measuring range has been fallen below/exceeded.	Comply with measuring range.
	The sensor is faulty.	Contact the manufacturer.
Configuration corrupted	The configuration data in the EEPROM are damaged.	Transfer the configuration data to the device again.
Device not calibrated	The device is not calibrated	Contact the manufacturer.
	The device is faulty.	



Symbol	Designation
	<b>Functional check</b>


Message	Cause	Remedy
Simulation active	Simulation mode is active.	Deactivate simulation mode. Alternatively: Restart device.

Symbol	Designation
	<b>Outside the specification</b>

Message	Cause	Remedy
Outside the specification	The device is operated outside the device specifications.	Operate the device within the device specifications.
Undervoltage	The voltage supply to the device is insufficient.	Check the voltage supply to the device.
Overload at C/Q or DO	The switching outputs are overloaded.	Check the connection and load of the switching outputs.
Error analog output	The burden at the analog output is too high.	Observe the specified values for the burden of the analog output.
Max. pulse freq. exceeded	The maximum output frequency of the pulse output has been exceeded.	Check the configuration of the pulse output.
Empty conduit	The meter run is empty.	Fill the meter run or the system.
Air bubbles detected	Air bubbles have been detected in the system.	Bleed the system.

## 10.3 Error messages outside NAMUR

Error messages outside NAMUR classification NE 107 are displayed by symbols and a two-line message (alternating with the process display).

Symbol	Designation
	<b>Caution</b>

Message	Cause	Remedy
Batch error	The maximum batch time has been exceeded.	Check the filling volume of the batch and restart the process.
	A measurement error occurred during the batch.	Check the process for measurement errors and restart the process.

# 11 Maintenance and cleaning

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## 11.1 Cleaning device housing

The device housing can be cleaned when the device has been installed.

Clean the device with a cloth dampened with water.

## 11.2 Cleaning parts that come into contact with the medium and replacing O-rings

### Requirements:

- Uninstall the device ⇒ "Uninstalling the device", Page 43.
- Wear suitable protective equipment.
- Provide a cleaning area for flushing all parts that come into contact with the medium.

1. **CAUTION!** Do not damage the sealing ring grooves of the process connections when removing the O-rings.

Remove the O-rings from the sealing ring grooves of the process connections.

2. Flush all parts that come into contact with the medium thoroughly with water.
3. Check the O-rings for damage and replace them if necessary.
4. Insert the O-rings into the sealing ring grooves of the two process connections.
5. Install the device ⇒ "Installing the device", Page 22.

## 11.3 Decontaminating the device

### Requirements:

- Uninstall the device ⇒ "Uninstalling the device", Page 43
- Wear suitable protective equipment.
- Have a suitable cleaning agent ready.
- Provide a cleaning area for flushing and neutralizing all parts that come into contact with the medium according to the safety data sheet for the hazardous substance.

1. **CAUTION!** Do not damage the sealing ring grooves of the process connections when removing the O-rings.

Remove the two O-rings from the sealing ring grooves.

2. **CAUTION!** Use only cleaning agents that are compatible with the materials used to make the device. Thoroughly flush and neutralize all parts that come into contact with the medium using a suitable cleaning agent according to the safety data sheet for the hazardous substance.
3. In the event of disposal: ⇒ "Disposal", Page 43.
4. In the event of continued use: Check the O-rings for damage and replace them if necessary.
5. Insert the O-rings into the sealing ring grooves of the two process connections.
6. Install the device ⇒ "Installing the device", Page 22.

## 12.1 Uninstalling the device

### Requirements:

- Switch off the plant's voltage and secure it so that it cannot switch on again.
- Stop medium circulation in the plant.
- Drain and flush the pipe.
- Wear suitable protective equipment.
- Provide a clean and dry storage area.

1. Manually loosen the union nut of the connecting cable from the M12 plug connection on the device.  
When using the connection cable provided by the manufacturer, loosen the union nut with an SW13 open-end wrench.
2. Pull the connecting cable out of the M12 plug connection and remove from the working area.
3. Manually loosen the union nuts from the process connections on the device and slide over the ends of the pipe.
4. **CAUTION!** Make sure that the O-rings remain in the sealing ring grooves of the process connections of the device.  
Carefully remove the device from the plant and put in a clean and dry place.

## 12.2 Returning devices

### Requirements:

- Clean the device housing ⇒ "Cleaning device housing", Page 42.
  - Clean the parts that come into contact with the medium ⇒ "Cleaning parts that come into contact with the medium and replacing O-rings", Page 42.
  - Decontaminate the device ⇒ "Decontaminating the device", Page 42.
1. The [supplementary sheet for product returns \(http://productreturn.jumo.info\)](http://productreturn.jumo.info) must first be completed correctly and signed. Then enclose it with the shipping documents and attach it to the packaging, ideally on the outside.
  2. Use the original packaging or a suitably secure container for sending the device.

## 12.3 Disposal

### Requirements:

- Clean the device housing ⇒ "Cleaning device housing", Page 42.
- Clean the parts that come into contact with the medium ⇒ "Cleaning parts that come into contact with the medium and replacing O-rings", Page 42.
- Decontaminate the device ⇒ "Decontaminating the device", Page 42.



### DISPOSAL


Devices and/or replaced parts should not be placed in the trash at the end of their service life as they consist of materials that can be recycled by specialist recycling plants.

Dispose of the device and the packaging material in a responsible and environmentally friendly manner.

For this purpose, observe the country-specific laws and regulations for waste treatment and disposal.

# 13 Accessories

Designation	Part no.
Mounting set	
PVC DN 15 with PP nut	00750871
PVC DN 20 with PP nut	00750872
PVC DN 25 with PP nut	00750874
PVC DN 32 with PP nut	00750876
PP socket welding DN 15	00750888
PP socket welding DN 20	00750890
PP socket welding DN 25	00750927
PP socket welding DN 32	00750926
PP butt welding DN 15	00750878
PP butt welding DN 20	00750881
PP butt welding DN 25	00750884
PP butt welding DN 32	00750887
Stainless steel DN 15 with PP nut	00750923
Stainless steel DN 20 with PP nut	00750920
Stainless steel DN 25 with PP nut	00750919
Stainless steel DN 32 with PP nut	00750918
PVC DN 10 with PP nut	00750869
Stainless steel DN 10 with PP nut	00750924
Connecting cable for plug connector M12	
Cable socket, straight, 4-pole, M12 × 1, 2m	00404585
Cable socket, angled, 4-pole, M12 × 1, 2m	00409334
TMG IO-Link Device Tool	00694070

						
产品组别 Product group: 406051	产品中有害物质的名称及含量 <b>China EEP Hazardous Substances Information</b>					
部件名称 Component Name						
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
外壳 Housing (Gehäuse)	○	○	○	○	○	○
过程连接 Process connection (Prozessanschluss)	○	○	○	○	○	○
螺母 Nuts (Mutter)	○	○	○	○	○	○
螺栓 Screw (Schraube)	○	○	○	○	○	○
电路板 Circuit boards (Leiterplatte)	X	○	○	○	○	○
<p>本表格依据SJ/T 11364的规定编制。                  This table is prepared in accordance with the provisions SJ/T 11364.                  ○：表示该有害物质在该部件所有均质材料中的含量均在GB/T 26572规定的限量要求以下。                  Indicate the hazardous substances in all homogeneous materials for the part are below the limit of the GB/T 26572.                  ×：表示该有害物质至少在该部件的某一均质材料中的含量超出GB/T 26572规定的限量要求。                  Indicate the hazardous substances in at least one homogeneous material of the part exceed the limit of the GB/T 26572.</p>						

## 14 China RoHS

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