



## Inline positive displacement (PD) flowmeter or flow threshold detector

- Indication, monitoring, transmitting and On/Off control in one device
- Selectable outputs (transistor or relay)
- Automatic calibration using Teach-In
- Process value output: 4...20 mA

Product variants described in the data sheet may differ from the product presentation and description.

### Can be combined with



#### Typ 8792

Digitaler elektro-pneumatischer Stellungsregler: Positioner Side-Control



#### Typ 2300

Pneumatisch betätigtes 2-way-Schrägsitz-Regelventil ELEMENT



#### Typ 8644

Elektropneumatisches Automatisierungssystem AirLINE

### Type description

The device Type SE32 + S077 is specially designed for continuous flow measurement of highly viscous fluids like glue, honey or oil. The device is provided as positive displacement (PD) flowmeter or flow threshold detector.

The device is made up of a compact Inline sensor-fitting with oval gears (Type S077) and a transmitter with display (Type SE32). The device is quickly and easily assembled thanks to a bayonet mounting and locking system. The Bürkert "Inline quarter-turn" technology ensures a leakage-free operation.

The Bürkert designed sensor-fitting system ensures simple installation of the devices into all pipelines from DN 15...DN 100.

The device is available with freely configurable switching outputs (transistor or relay) or with 4...20 mA process value output. The switching outputs enable the direct switching of valves and the establishment of a simple On/Off control circuit within a monitoring system. The switching points can be configured with the 3 keys directly at the display.



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## 1. General technical data

### Note:

If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of 36 V DC.

### Product properties

#### Material

Make sure the device materials are compatible with the fluid you are using.  
Further information can be found in chapter **"3.1. Bürkert resistApp"** on page 6.

Further information on the materials can be found in chapter **"3.2. Material specifications"** on page 6.

#### Non wetted parts

Front panel film	Polyester
Cover	PC, glass fibre reinforced
Housing	PC, glass fibre reinforced
Screw	Stainless steel
Bayonet system	PC
Female cable plug/male fixed plug	<ul style="list-style-type: none"> <li>Body, contact holders and cable gland in PA</li> <li>Cable gland seal and flat seal in NBR</li> </ul>
Fixed connector	PA or PA and nickel-plated brass (CuZn)

#### Wetted parts

Axis	Stainless steel 316L (1.4401)
Oval gear	Stainless steel 316L (1.4401)
Sensor-fitting body	Aluminium, stainless steel 316L (1.4401)
Cover	Aluminium, stainless steel 316L (1.4401)
Seal	FKM or FEP/PTFE encapsulated
Display	8-digit LCD with backlighting
Compatibility	Any pipe from DN 15...DN 100 which is fitted with Bürkert S077 Inline sensor-fitting. For the selection of the nominal diameter of the Inline sensor-fittings, see <b>data sheet Type S077</b> ▶.
Pipe diameter	DN 15...DN 100
Dimensions	Further information can be found in chapter <b>"4. Dimensions"</b> on page 7.
Measuring principle	Oval gear
Measuring range	<ul style="list-style-type: none"> <li>Viscosity &gt; 5 mPa.s: 2...1200 l/min (0.53...320 gpm)</li> <li>Viscosity &lt; 5 mPa.s: 3...616 l/min (0.78...320 gpm)</li> </ul>

### Performance data

Measurement deviation	<ul style="list-style-type: none"> <li>Teach-in or specific K factor, engraved on the Inline sensor-fitting: <math>\pm 0.5\%</math> of the measured value at Teach-In flow rate value</li> <li>Standard K factor: <math>\pm 1\%</math> of the measured value</li> </ul>
Repeatability	$\pm 0.03\%$ of the measured value <sup>1)</sup>
4...20 mA output uncertainty	$\pm 0.5\%$ of current range
Operating mode	Threshold: window or hysteresis

### Electrical data

Operating voltage	12...36 V DC $\pm 10\%$ , filtered and regulated Connection to main supply: permanent (through external SELV (Safety Extra Low Voltage) and LPS (Limited Power Source) power supply)
Power source (not supplied)	Limited power source according to UL/EN 62368-1 standards or limited energy circuit according to UL/EN 61010-1 paragraph 9.4
Protection against DC polarity reversal	Yes
Current consumption	$\leq 80$ mA (no load)

Output	<ul style="list-style-type: none"> <li>• Transistor                             <ul style="list-style-type: none"> <li>– NPN and/or PNP, open collector</li> <li>– 700 mA max. (500 mA max. per transistor if both transistor outputs are wired)</li> <li>– frequency: 0...300 Hz</li> <li>– operation and thresholds can be parametered</li> <li>– NPN-output: 0.2...36 V DC</li> <li>– PNP-output: power supply</li> <li>– protection against short circuits</li> </ul> </li> <li>• Relay                             <ul style="list-style-type: none"> <li>– operation and thresholds can be parametered</li> <li>– non UL device:                                     <ul style="list-style-type: none"> <li>– single relay output: 250 V AC/3 A or 30 V DC/3 A</li> <li>– relay output and 4...20 mA current output: 48 V AC/3 A or 30 V DC/3 A</li> </ul> </li> <li>– UL device: 30 V AC/42 V<sub>peak</sub>/3 A or 60 V DC/1 A</li> </ul> </li> <li>• Process value                             <ul style="list-style-type: none"> <li>– 4...20 mA, galvanic insulation</li> <li>– loop impedance max.: 1300 Ω at 36 V DC, 1000 Ω at 30 V DC, 700 Ω at 24 V DC, 450 Ω at 18 V DC, 200 Ω at 12 V DC</li> <li>– response time (10...90 %): 3 s with filter 2 (default setting)</li> </ul> </li> </ul>
Voltage supply cable	<p>Max. 100 m length, shielded</p> <ul style="list-style-type: none"> <li>• For female cable plug (supplied):                             <ul style="list-style-type: none"> <li>– external diameter of wire: 6...7 mm</li> <li>– cross section of wires: 0.25...1.5 mm<sup>2</sup></li> </ul> </li> <li>• For 5-pin M12 female connector (not supplied):                             <ul style="list-style-type: none"> <li>– external diameter of wire: 3...6.5 mm</li> <li>– cross section of wires: max. 0.75 mm<sup>2</sup></li> </ul> </li> <li>• For 8-pin M12 female connector (not supplied):                             <ul style="list-style-type: none"> <li>– external diameter of wire: 5.9 mm</li> <li>– cross section of wires: 0.25 mm<sup>2</sup></li> </ul> </li> </ul>
<b>Medium data</b>	
Fluid temperature	<p>With Inline sensor-fitting Type S077 in:</p> <ul style="list-style-type: none"> <li>• Aluminium: -20...+80 °C (-4...+176 °F)</li> <li>• Stainless steel: -20...+120 °C (-4...+248 °F)</li> </ul> <p>See <b>data sheet Type S077</b> ► for more information.</p>
Fluid pressure	<p>With Inline sensor-fitting Type S077 with:</p> <ul style="list-style-type: none"> <li>• DN 15: max. 55 bar (798.05 PSI) (threaded process connection)</li> <li>• DN 25: max. 55 bar (798.05 PSI)<sup>1)</sup></li> <li>• DN 40 or DN 50: max. 18 bar (261.18 PSI)</li> <li>• DN 80: max. 12 bar (174.12 PSI)</li> <li>• DN 100: max. 10 bar (145.1 PSI)</li> </ul> <p>See <b>data sheet Type S077</b> ► for more information.</p>
Viscosity	Max. 1 Pa.s (higher on request)
Rate of solid particles	0 %
<b>Process/Pipe connection &amp; communication</b>	
Pipe connection	<p>With Inline sensor-fitting Type S077 with:</p> <ul style="list-style-type: none"> <li>• Thread: ½", 1", 1½", 2", 3" (G or NPT)</li> <li>• Flange:                             <ul style="list-style-type: none"> <li>– 25, 40, 50, 80 or 100 mm DIN PN 16 flange</li> <li>– 1", 1½", 2", 3" or 4" ANSI 150LB flange</li> </ul> </li> </ul> <p>See <b>data sheet Type S077</b> ► for more information.</p>
Electrical connection	Cable plug according to DIN EN 175301-803, free positionable 5-pin M12 male connector or 8-pin M12 male connector

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**Approvals and conformities**

**Directives**

CE directive	Further information on the CE Directive can be found in chapter <b>“2.3. Standards” on page 5.</b>
Pressure equipment directive	Complying with article 4, paragraph 1 of 2014/68/EU directive Further information on the pressure equipment directive can be found in chapter <b>“2.4. Pressure Equipment Directive (PED)” on page 5.</b>

North America (USA/Canada)	UL Recognized for the USA and Canada
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**Environment and installation**

Ambient temperature	Operation and storage: 0...+60 °C (+32...+140 °F)
Relative air humidity	≤ 80 %, without condensation
Height above sea level	Max. 2000 m
Operating condition	Continuous
Equipment mobility	Fixed
Application range	Indoor and outdoor Protect the device against electromagnetic interference, ultraviolet rays and, when installed outdoors, against the effects of climatic conditions.
Degree of protection <sup>2)</sup> according to IEC/EN 60529	IP65 with device wired and plugs mounted and tightened
Installation category	Category I according to UL/EN 61010-1
Pollution degree	Degree 2 according to UL/EN 61010-1

1.) Or in accordance to the value of the used flanges  
2.) Not evaluated by UL

**2. Approvals and conformities**

**2.1. General notes**

- The approvals and conformities listed below must be stated when making enquiries. This is the only way to ensure that the product complies with all required specifications.
- Not all available variants of the device can be supplied with the below mentioned approvals or conformities.

**2.2. Conformity**

In accordance with the Declaration of Conformity, the product is compliant with the EU Directives.

**2.3. Standards**

The applied standards which are used to demonstrate compliance with the EU Directives are listed in the EU-Type Examination Certificate and/or the EU Declaration of Conformity.

**2.4. Pressure Equipment Directive (PED)**

The device conforms to article 4, paragraph 1 of the Pressure Equipment Directive (PED) 2014/68/EU under the following conditions:

**Device used on a pipe**

**Note:**

- The data in the table is independent of the chemical compatibility of the material and the fluid.
- PS = maximum admissible pressure (in bar), DN = nominal diameter of the pipe

Type of fluid	Conditions
Fluid group 1, article 4, paragraph 1.c.i	DN ≤ 25
Fluid group 2, article 4, paragraph 1.c.i	DN ≤ 32 or PS*DN ≤ 1000
Fluid group 1, article 4, paragraph 1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, paragraph 1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000

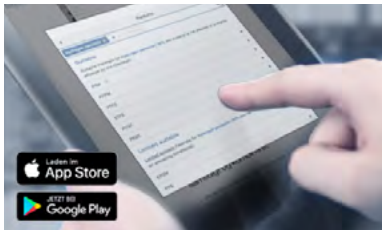
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### 2.5. North America (USA/Canada)

Approval	Description
	<p><b>Optional: UL Recognized for the USA and Canada</b>                      The products are UL Recognized for the USA and Canada according to:</p> <ul style="list-style-type: none"> <li>• UL 61010-1</li> <li>• CAN/CSA-C22.2 No. 61010-1</li> </ul>

## 3. Materials

### 3.1. Bürkert resistApp

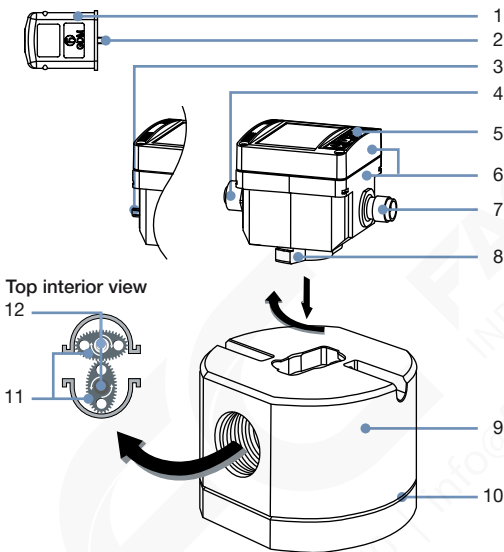


**Bürkert resistApp – Chemical resistance chart**

You want to ensure the reliability and durability of the materials in your individual application case? Verify your combination of media and materials on our website or in our resistApp.

[Start chemical resistance check](#)

### 3.2. Material specifications



No.	Element	Material
1	Female cable plug (DIN EN 175301-803)	<ul style="list-style-type: none"> <li>• Body, contact holders and cable gland in PA</li> <li>• Cable gland seal and flat seal in NBR</li> </ul>
2	Screws	Stainless steel
3	Electrical contact	Sn
4	M12 male connector	PA and nickel-plated brass
5	Front panel folio	Polyester
6	Housing, cover	PC, glass fibre reinforced
7	M12 male connector	PA
8	Quarter turn system	PC
9	Sensor-fitting body	Aluminium or stainless steel (316L)
10	Seal	FKM or FEP/PTFE encapsulated
11	Oval gear	PPS, aluminium or stainless steel (316L)
12	Axis	Stainless steel (316L)

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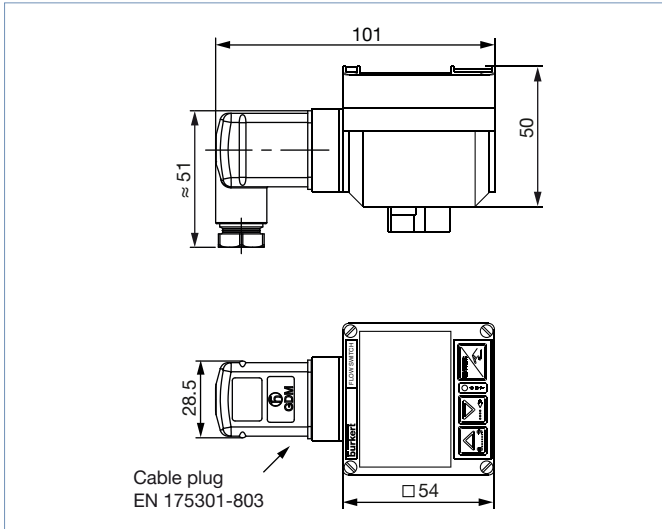
## 4. Dimensions

### 4.1. Transmitter SE32

With cable plug (DIN EN 175301-803)

**Note:**

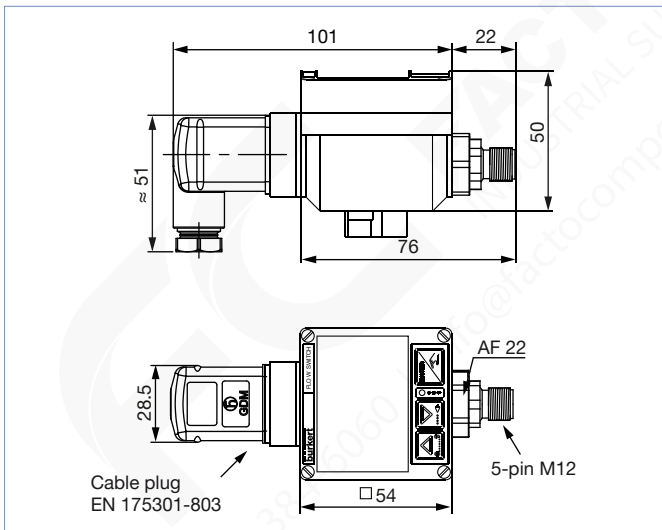
Dimensions in mm, unless otherwise stated



With Cable plug (DIN EN 175301-803) and free positionable 5-pin M12 male connector

**Note:**

Dimensions in mm, unless otherwise stated

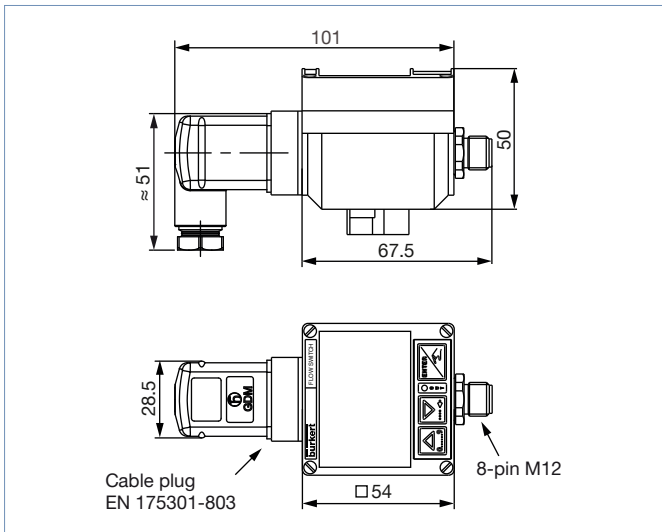


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With cable plug (DIN EN 175301-803) and 8-pin M12 male connector

**Note:**

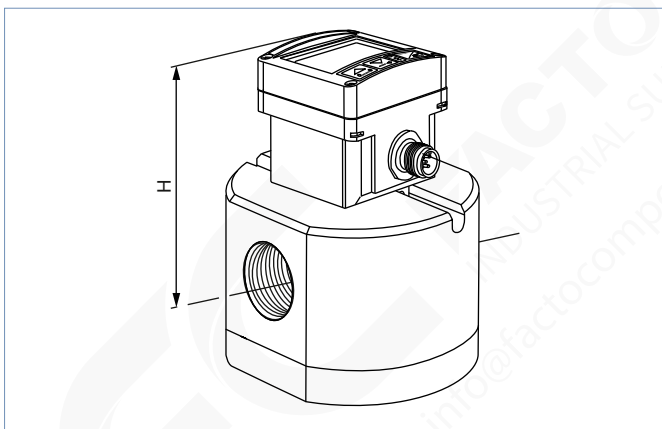
Dimensions in mm, unless otherwise stated



**4.2. Transmitter Type SE32 mounted in an Inline sensor-fitting Type S077**

**Note:**

Dimensions in mm, unless otherwise stated



DN	H
15	71
25	80
40	82
50	102
80	152
100	168

DN 15 DN 25 DN 40 DN 50 DN 80

Threaded connection

DN 25 DN 40 DN 50 DN 80 DN 100

Flanged connection



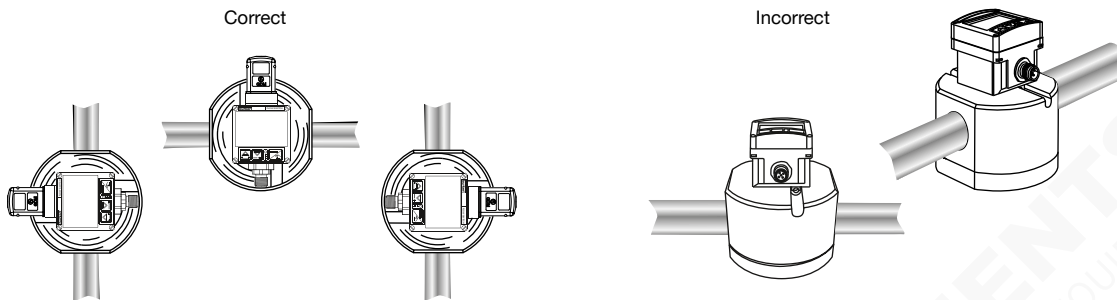
## 5. Product installation

### 5.1. Installation notes

#### Note:

The device is not suitable for use in gaseous media and steam.

The sensor fitting can be installed in any orientation as long as **the rotor shafts are always in a horizontal plane.**



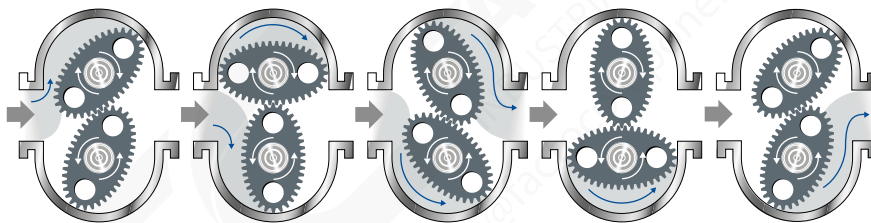
The following installation conditions must also be observed:

- The pipe always has to be filled with fluid at all times near the device.
- The pipe design must be such that no air bubbles or cavitation can form within the medium near the device at any time.
- We recommend the installation of a 250 µm strainer as close as possible to the inlet side of the meter, to prevent damage from particles,
- Air purges can damage the appliance and should therefore be avoided.

## 6. Product operation

### 6.1. Measuring principle

When liquid flows through the pipe, the rotors turn. This rotation produces a measuring signal in the associated Hall sensor. The rotation frequency of this signal is proportional to the flow velocity of the fluid. The volume of the fluid being transferred in this way is exactly determined through the sensor geometry.



A conversion coefficient, specific to each meter size, enables the conversion of this frequency into a flow rate. The standard K factor depending on the meter size is available in the flowmeter's operating instructions, see **Type S077** ▶. To improve the measurement deviation, a device-specific K factor is given on the device label.

The electrical connection is provided via a cable plug according to DIN EN 175301-803 and/or a M12 multipin plug.

## 6.2. Functional overview

The display is used to:

- read the value of certain parameters such as the measured flow rate
- parameterize the device by means of 3 keys
- read the configuration of the device
- get notification of some events.

Display and operating keys	No.	Description
	1	Shows if the relay is open or closed
	2	Means that the access to the parameters and test menus is protected through a code
	3	Bar graph is running in each mode, except during a Teach-In procedure
	4	“Confirm” key: <ul style="list-style-type: none"> <li>• to confirm the function displayed</li> <li>• to confirm the parameters set</li> </ul>
	5	Shows the status of the on/off output (red LED)
	6	“Next” key: <ul style="list-style-type: none"> <li>• to select the digit at the left</li> <li>• to go to the next function</li> </ul>
	7	“Back” key: <ul style="list-style-type: none"> <li>• to change the value (0...9) of the selected digit</li> <li>• to go back to the previous function</li> </ul>

The device can be calibrated by means of the K-factor (conversion coefficient), or via the Teach-In function. User adjustments, such as engineering units, output, filter, bargraph are carried out on site.

The device has 2 operating levels:

- the process level
- the configuration level, which comprises the parameters and the test menus

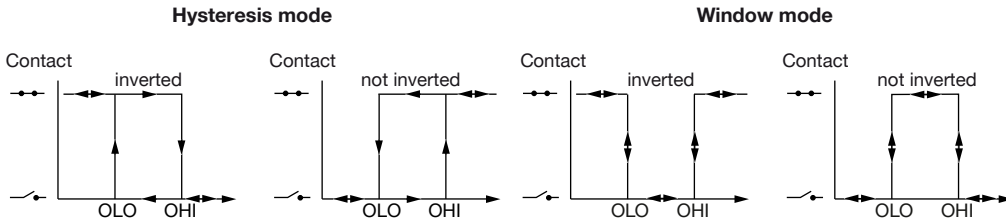
Operating level	Functions
Process	<ul style="list-style-type: none"> <li>• Indication of                             <ul style="list-style-type: none"> <li>– the value of the measured flow rate</li> <li>– switching thresholds (high and low value)</li> <li>– the value of the 4...20 mA output (flowmeter only)</li> </ul> </li> <li>• Access to the parameters and test menus of the configuration level</li> </ul>
Configuration - parameters menu	<ul style="list-style-type: none"> <li>• To make the settings needed for operation:                             <ul style="list-style-type: none"> <li>– engineering units (international measuring units)</li> <li>– K-factor/Teach-In function</li> <li>– 4...20-mA-current output (flowmeter only)</li> <li>– selection of switching mode: window, hysteresis (see chapter “6.3. Function modes” on page 11)</li> <li>– selection of threshold value (see chapter “6.3. Function modes” on page 11)</li> <li>– delay</li> <li>– filter</li> <li>– 10-segment bargraph (select min. and max. value)</li> </ul> </li> <li>• Additional parameter definition                             <ul style="list-style-type: none"> <li>– backlighting</li> <li>– password protects the access to the parameters and test menus</li> </ul> </li> </ul>
Configuration - test menu	<ul style="list-style-type: none"> <li>• To test the configuration made in the parameters menu with entering of a theoretical value</li> <li>• To read the frequency of the measured signal</li> <li>• To adjust the 4...20 mA current output</li> </ul>

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### 6.3. Function modes

#### Flow threshold detector with standard On/Off output

- 2 switching modes for the output, either hysteresis or window, inverted or not



- Configurable delay before switching
- Possible outputs depending on the variant: relay, transistor NPN, transistor PNP

#### Flow transmitter with current output for the measurement value

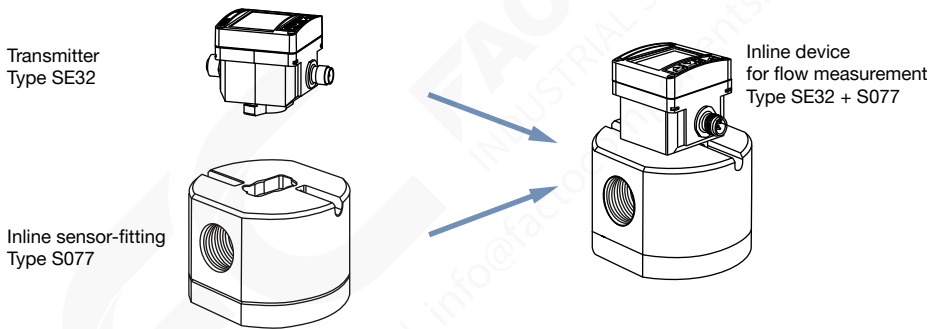
- 4...20 mA output
- 4...20 mA output + relay output

## 7. Product design and assembly

### 7.1. Product assembly

**Note:**

- The device Type SE32 + S077 is made up of a Bürkert Inline sensor-fitting Type S077 equipped with a sensor with oval gears and a transmitter Type SE32.
- The Inline sensor-fitting Type S077 ensures simple installation into pipes from DN 15...DN 100. The transmitter Type SE32 can be mounted on any Inline sensor-fitting Type S077 and fastened with a bayonet catch, see **data sheet Type S077** ▶ for more information.




## 8. Networking and combination with other Bürkert products

Example:



## 9. Ordering information

### 9.1. Bürkert eShop



**Bürkert eShop – Easy ordering and quick delivery**

You want to find your desired Bürkert product or spare part quickly and order directly? Our online shop is available for you 24/7. Sign up and enjoy all the benefits.

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### 9.2. Recommendation regarding product selection

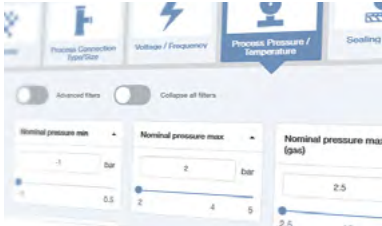
A complete flowmeter Type SE32 + S077 consists of a flow transmitter Type SE32 and an Inline sensor-fitting Type S077.

See **data sheet Type S077** ▶ for more information.

Two different components must be ordered in order to select a complete device. The following information is required:

- **Article no.** of the compact Type SE32 flow transmitter (see chapter “9.4. Ordering chart” on page 13)
- **Article no.** of the selected Type S077 Inline sensor-fitting (see **data sheet Type S077** ▶)

### 9.3. Bürkert product filter



**Bürkert product filter – Get quickly to the right product**

You want to select products comfortably based on your technical requirements? Use the Bürkert product filter and find suitable articles for your application quickly and easily.

[Try out our product filter](#)

### 9.4. Ordering chart

#### Threshold detector Type SE32

Operating voltage	Output	UL approval	Electrical connection	Article no.
12...36 V DC	1 x transistor NPN	No	Female cable plug DIN EN 175301-803	436474
		UL Recognized		570475
	1 x transistor PNP	No	Free positionable 5-pin M12 male connector	434871
		UL Recognized		570474
	2 x transistors NPN/PNP	No	Free positionable 5-pin M12 male connector	436473
		UL Recognized		553431
	Relay	No	Free positionable 5-pin M12 male connector and female cable plug DIN EN 175301-803	436475
		UL Recognized		570476

#### Transmitter Type SE32

Operating voltage	Output	UL approval	Electrical connection	Article no.
12...36 V DC	4...20 mA + relay	No	8-pin M12 male connector and female cable plug DIN EN 175301-803	560547
		UL Recognized		570488
		No	Free positionable 5-pin M12 male connector and female cable plug DIN EN 175301-803	560402
		UL Recognized		570486
	4...20 mA	No	Free positionable 5-pin M12 male connector	560403
		UL Recognized		570487

### 9.5. Ordering chart accessories

Description	Article no.
<b>Electrical connection</b>	
M12 female connector with plastic threaded clamping ring, 5-pin, straight, to be wired	917116
M12 female connector with moulded cable (shielded), 5-pin, straight, cable length: 2 m	438680
M12 female connector with plastic threaded clamping ring, 8-pin, straight, to be wired	444799
M12 female connector with moulded cable (shielded), 8-pin, straight, cable length: 2 m	444800
Female cable plug, 4-pin (3 conductors + protective conductor), form A according to DIN EN 175301-803, with cable gland ( <b>Type 2518</b> ▶)	572264
Female cable plug 32 mm, 4-pin (3 conductors + protective conductor), form A according to DIN EN 175301-803, with NPT 1/2" reduction without cable gland ( <b>Type 2509</b> ▶)	162673

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