

Positive displacement flowmeter / 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

Type SE32 + S077 can be combined with...



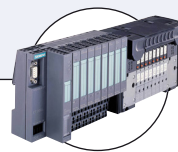
Type 2300 (8692)
ELEMENT control
valve system



Type 8619
multiCELL
transmitter/controller



Type 8792
Positioner
SideControl




Type 8644
Valve islands

This positive displacement flowmeter/threshold detector with display is designed for use with highly viscous fluid like glue, honey or oil and specially to switch a valve and to establish a monitoring system or an On/Off control loop.

The switching points can be configured with the 3 keys below the display.

The flowmeter is available with On/Off output or with process value outputs.

General data	
Compatibility	With INLINE sensor-fitting S077 (see corresponding data-sheet)
Materials	Housing, cover Front panel folio Screws Cable plug, fixed connector M12 Wetted parts materials Sensor-fitting body Rotor Shaft Seals
	PC, glass fibre reinforced Polyester Stainless steel PA Aluminium or stainless steel (316L) PPS, aluminium or stainless steel (316L) Stainless steel (316L) FKM or FEP/PTFE encapsulated
Display	8-digit LCD with backlighting
Electrical connections	Cable plug acc. to EN 175301-803, free positionable 5 pin M12 male fixed connector or 8 pin M12 male fixed connector
Connection cable	shielded
Voltage supply cable	max. 100 m length
Environment	
Ambient temperature	0...+60 °C (+32...+140 °F) (operating and storage)
Relative humidity	≤80 %, without condensation

Complete device data (Sensor-fitting S077 + transmitter SE32)	
Pipe diameter	DN15...DN100
Thread connection	½"; 1"; 1½"; 2"; 3" (G or NPT)
Flange connection	25; 40; 50; 80 or 100 mm DIN PN16 flange 1"; 1½"; 2"; 3" or 4" ANSI 150LB flange
Measuring range	
Viscosity > 5 mPa.s	2 ... 1200 l/min (0.53... 320 gpm)
Viscosity < 5 mPa.s	3 ... 616 l/min (0.78... 320 gpm)
Fluid temperature with body in aluminium / in stainless steel	-20 ... + 80 °C (-4... + 176 °F) / -20 ... + 120 °C (-4... + 248 °F)
Fluid pressure max.	
DN15	55 bar (798.05 PSI) (threaded process connection)
DN25 / DN40 or DN50	55 bar (798.05 PSI) ¹⁾ / 18 bar (261.18 PSI)
DN80 / DN100	12 bar (174.12 PSI) / 10 bar (145.1 PSI)
Viscosity	1 Pa.s max. (higher on request)
Measurement deviation²⁾	± 1 % of the measured value (if "standard" K-factor is used) ± 0.5 % of the measured value (if "specific" K-factor is used, on label of the product)
Repeatability	± 0.03 % of the measured value
Electrical data	
Power supply	filtered and regulated 12...36 V DC ± 10 %
Current consumption	≤ 90 mA (without load)
Protection	Reversed polarity of DC: protected Short circuit: protected for transistor outputs
Output	
Transistor	NPN and/or PNP (configurable), open collector, 700 mA max., 500 mA max. per transistor if both transistor outputs are wired, 0...300 Hz NPN-output: 0.2...36 V DC PNP-output: power supply
Relay	3 A/250 V AC or 3 A/30 V DC; [3 A/48 V AC or 3 A/30 V DC] ³⁾
Process value	4...20 mA, galvanic insulation, max. loop impedance: 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;
Response time (10 %...90 %)	3 sec with filter 2 (default setting)
Uncertainty of measurement (4...20 mA output)	± 0.5 %
Standards, directives and certifications	
Protection class	IP65 (according to EN 60529) with device wired and connectors mounted and tightened
Standards and directives CE	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
Pressure (S077 sensor-fitting, DN15... DN100, in aluminium or stainless steel)	Complying with article 4, §1 of 2014/68/EU directive*
Certification (only for SE32) UL-Recognized for US and Canada 	UL61010-1 + CAN/CSA-C22.2 No.61010-1
Specific technical data of UL-recognized products for US and Canada	
Ambient temperature	0...+ 40 °C (+ 32...+ 104 °F)
Height above sea level	max. 2000 m
Intended for an inner pollution	Grade of pollution 2 according to EN 61010-1
Installation category	Category I according to UL61010-1

¹⁾ or in accordance to the value of the used flanges

²⁾ = "measurement bias" as defined in the standard JCGM 200:2012

³⁾ if 4...20 mA and relay



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.

* For the 2014/68/EU pressure directive, the device can only be used under the following conditions (depends on max. pressure, pipe diameter and fluid).

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

Operation and display

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.

▶ Indication in operating mode/Display

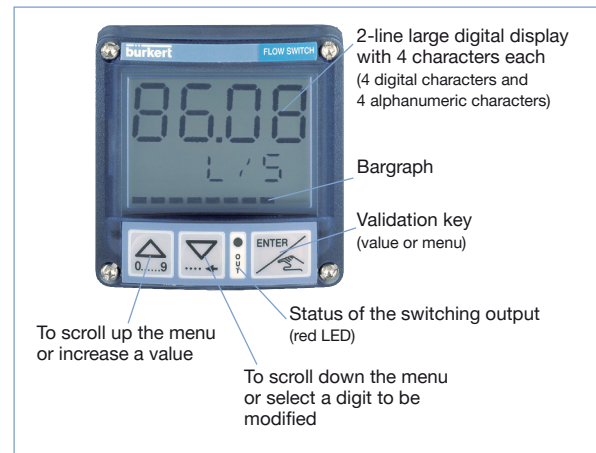
- measured flow
- high threshold value
- low threshold value

▶ Parameter definition

- engineering units (International measuring units)
- K-factor/Teach-In function
- selection of switching mode: window, hysteresis (see main features)
- selection of threshold value (see main features)
- delay
- filter
- 10-segment bargraph (select min. and max. value)
- Password protects the access to the menu

▶ Test

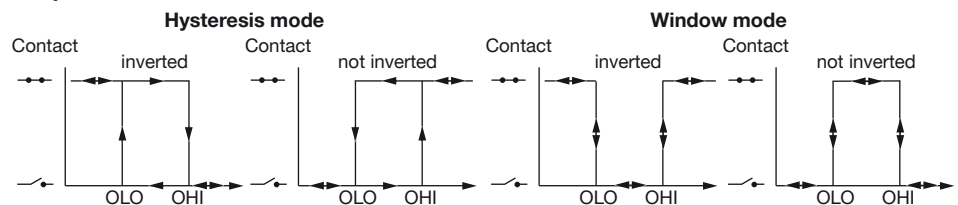
- switching threshold test with flow simulation
- Calibration of the 4...20 mA current output



Main Features

SE32 with standard On/Off output

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



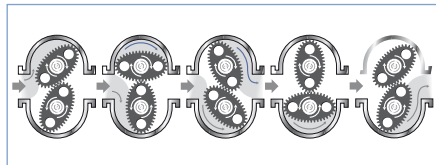
- Configurable delay before switching
- Possible outputs depending on the version: relay, transistor NPN, transistor PNP

SE32 with current output for the measurement value

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

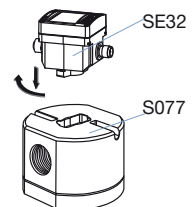
Design and operating principle

The device SE32 + S077 is made up of a compact INLINE sensor-fitting (S077) equipped with a sensor with integrated measurement oval rotor and a transmitter (SE32) with display.



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

Quarter turn technology



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 instruction manual of the sensor-fitting S077, or to improve the measurement deviation, a specific K-factor is given with each device on its label.

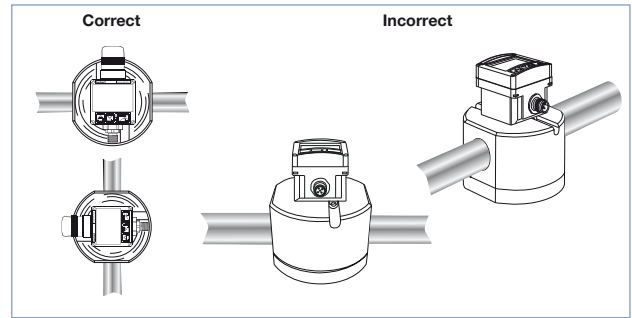
The electrical connection is provided via a cable plug according to EN 175301 - 803 and/or a M12 multipin connector.

Installation

The sensor-fitting can be installed in any orientation as long as **the rotor shafts are always in a horizontal plane** (see figures to the right).

The pipe must be filled with liquid and free from air bubbles. Avoid cleaning the system with air pressure to prevent damage and to prevent damage from dirt or foreign matter we strongly recommend the installation of a 250 µm filter as close as possible to the sensor fitting.

The transmitter (SE32) is quickly and easily connected to the sensor-fitting (S077) by means of a quarter turn.



Dimensions [mm]

Transmitter SE32

Flowmeter SE32 + S077

DN	H
15	71
25	80
40	92
50	102
80	152
100	168

DN15	DN25	DN40	DN50	DN80
Threaded connection				
DN25	DN40	DN50	DN80	DN100
Flanged connection				

Ordering information and chart for a complete flowmeter/threshold detector

A complete flowmeter/threshold detector consists of a compact SE32 flow transmitter and a S077 INLINE sensor-fitting.

The following information is necessary for the selection of a complete device:

- **Article no.** of the desired compact **SE32** flow transmitter (see ordering chart, below)
- **Article no.** of the selected **S077** INLINE sensor-fitting (see separate data sheet)

More info.

→ You have to order the two components separately.

When you click on the orange box "More info.", you will come to our website for the resp. product where you can download the datasheet.

Type SE32 compact flow transmitter

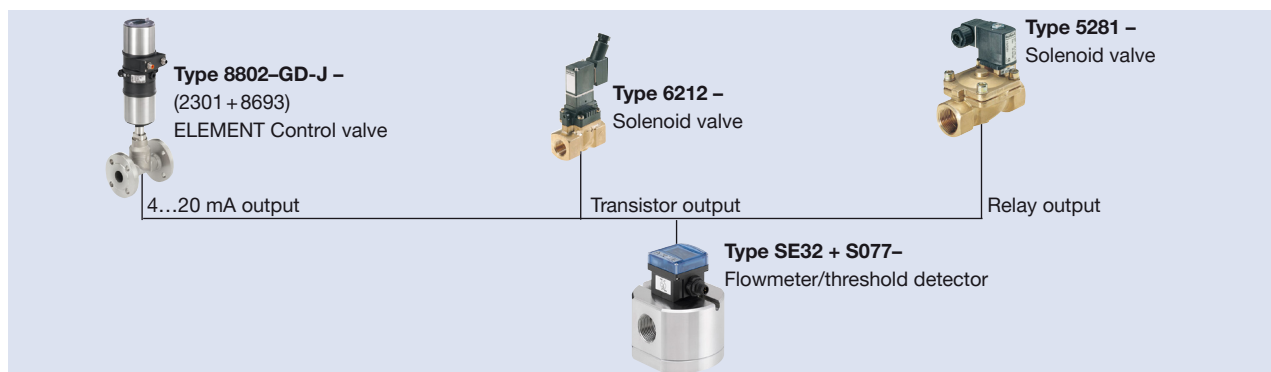
Specification	Voltage supply	Output	UL certification	Electrical connection	Article no.
Flow threshold detector	12...36 V DC	1 x transistor NPN	No	Cable plug EN 175301 - 803*	436474
		1 x transistor PNP	No	Cable plug EN 175301 - 803*	434871
		2 x transistors NPN/PNP	No	Free positionable 5 pin M12 male fixed connector	436473
			Recognized	Free positionable 5 pin M12 male fixed connector	553431
Flow transmitter	12...36 V DC	4...20 mA + relay	No	Free positionable 5 pin M12 male fixed connector and cable plug EN 175301 - 803*	436475
			No	8 pin M12 male fixed connector and cable plug EN 175301 - 803*	560547
		4...20 mA	No	Free positionable 5 pin M12 male fixed connector and cable plug EN 175301 - 803*	560402
				Free positionable 5 pin M12 male fixed connector	560403

* Europe/Asia (G/Rc): M16 x 1.5 mm cable plug USA/CDN (NPT): NPT 1/2" cable plug

Ordering chart - accessories (has to be ordered separately)

Specification	Article no.
5 pin M12 female straight cable plug with plastic threaded locking ring, to be wired	917116
5 pin M12 female straight cable plug moulded on cable (2 m, shielded)	438680
8 pin M12 female straight cable plug with plastic threaded locking ring, to be wired	444799
8 pin M12 female straight cable plug moulded on cable (2 m, shielded)	444800
Cable plug EN 175301 - 803 with cable gland (Type 2508)	438811
Cable plug EN 175301 - 803 with NPT 1/2" reduction without cable gland (Type 2509)	162673

Interconnection possibilities with other Bürkert devices



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www.burkert.com

In case of special application conditions, please consult for advice.

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