

Flowmeter with paddle wheel / flow transmitter



- 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
- Flow threshold detector

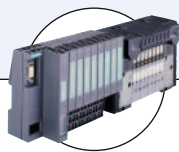
Type 8032/SE32 can be combined with...



Type 2300 (8692)
ELEMENT control valve system



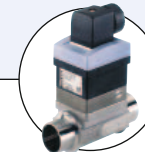
Type 8792
Positioner SideControl



Type 8644
Valve islands



Type 8041
Flowmeter
(only with SE32 remote)



Type 8030
Flowmeter
(only with SE32 remote)

This intelligent flowmeter/transmitter/threshold detector with display is designed for use in clear, neutral or aggressive liquids 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 8032 compact version (SE32 transmitter + S030 sensor-fitting) is available with On/Off output or with process value output.

The remote version (SE32 Transmitter) has a transistor output.

The connection of the compact version to the process in the piping is done with standard INLINE sensor-fittings.

General data																							
Compatibility	Any pipe from DN06...DN65 which are fitted with Bürkert S030 INLINE sensor-fitting (see corresponding datasheet)																						
Materials	<table border="0"> <tr> <td>Housing, cover</td> <td>PC, glass fibre reinforced</td> </tr> <tr> <td>Front panel folio</td> <td>Polyester</td> </tr> <tr> <td>Screws</td> <td>Stainless steel</td> </tr> <tr> <td>Cable plug</td> <td>PA</td> </tr> <tr> <td>Fixed connector M12</td> <td>PA or CuZn, nickel-plated</td> </tr> <tr> <td>Wetted parts materials</td> <td></td> </tr> <tr> <td>Fitting, sensor armature</td> <td>Brass, stainless steel, PVC, PP or PVDF</td> </tr> <tr> <td>Seal</td> <td>FKM or EPDM (depending on S030 version)</td> </tr> <tr> <td>Axis and bearings</td> <td>Ceramics</td> </tr> <tr> <td>Paddle wheel</td> <td>PVDF</td> </tr> <tr> <td>Wall-mounted holder</td> <td>PVC</td> </tr> </table>	Housing, cover	PC, glass fibre reinforced	Front panel folio	Polyester	Screws	Stainless steel	Cable plug	PA	Fixed connector M12	PA or CuZn, nickel-plated	Wetted parts materials		Fitting, sensor armature	Brass, stainless steel, PVC, PP or PVDF	Seal	FKM or EPDM (depending on S030 version)	Axis and bearings	Ceramics	Paddle wheel	PVDF	Wall-mounted holder	PVC
Housing, cover	PC, glass fibre reinforced																						
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Seal	FKM or EPDM (depending on S030 version)																						
Axis and bearings	Ceramics																						
Paddle wheel	PVDF																						
Wall-mounted holder	PVC																						
Display	8-digit LCD with backlighting																						
Electrical connections																							
Compact version	Cable plug acc. to EN 175301-803, free positionable 5 pin M12 male fixed connector or 8 pin M12 male fixed connector																						
Wall-mounted version	Free positionable 5 pin M12 male fixed connector and 4 pin M12 female fixed connector																						
Panel-mounted version	Terminal strips																						
Connection cable																							
Voltage supply cable	shielded																						
Remote sensor connection	max. 100 m length max. 50 m length, 0.5 mm ² max. cross section																						
Environment																							
Ambient temperature																							
Compact version	-10...+60 °C (+14...+140 °F) (operating and storage)																						
Remote version	0...+60 °C (+32...+140 °F) (operating and storage)																						
Relative humidity	≤ 80 %, without condensation																						

Complete device data (S030 sensor-fitting + SE32 transmitter)	
Pipe diameter	DN06...DN65
Measuring range	0.3...10 m/s
Medium temperature with sensor-fitting in PVC/ PP PVDF, brass or stainless steel	0...+50 °C (+32...+122 °F) / 0...+80 °C (+32...+176 °F) -15...+100 °C (+5...+212 °F)
Medium pressure max.	PN10 (145 PSI) (with plastic sensor-fitting) - PN16 (232 PSI) (with metal sensor-fitting) - see pressure/temperature chart
Viscosity / Particles rate	300 cSt max. / 1 % max. (particle size 0.5 mm max.)
Measurement deviation ²⁾ Teach-In Standard K-factor	±1 % of the measured value ¹⁾ (at Teach-In flow rate value) ±3 % of the measured value ¹⁾
Operating mode	Threshold: window or hysteresis
Linearity	±0.5 % of F.S.* ¹⁾
Repeatability	±0.4 % of the measured value ¹⁾
Electrical data	
Power supply Compact version Remote version	filtered and regulated 12...36 V DC ±10 %, Depends on the measuring device: 8041: 18...30 V DC 8020, 8030: 12...30 V DC other: min. 12 V DC, max. 30 V DC
Characteristics of the power source (not provided) of UL recognized devices	Limited power source (according to § 9.4 of the UL61010-1 standard) or, Class 2 type power source (according to the 1310/1585 and 60950-1 standards)
Current consumption Compact version Remote version	≤ 80 mA (without load) ≤ 80 mA (without load) + consumption of the sensor
Input Frequency (remote version)	Pulse signal: 2...400 Hz input impedance: 10 kW (to be connected to a flow rate sensor with an NPN transistor output or a push-pull output)
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 (30 V DC max for remote version) PNP-output: power supply
Relay (compact version)	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 (compact version)	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)
4...20 mA output uncertainty	±0.5 %

¹⁾ Under reference conditions i.e. measuring fluid = water, ambient and water temperature = 20 °C (68 °F), while maintaining the minimum inlet and outlet distances and the appropriate internal diameters of the pipes.

* F.S. = Full scale (10 m/s)

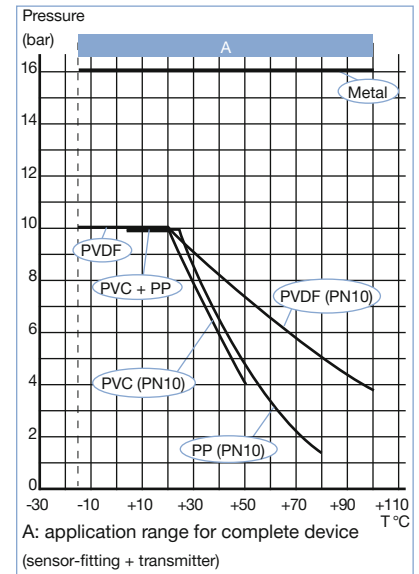
²⁾ = "measurement bias" as defined in the standard JCGM 200:2012


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.

Pressure/temperature chart



Standards, directives and certifications	
Protection class Compact and wall-mounted version	IP65 (according to EN 60529) with device wired and connectors plugged-in and tightened or sealed
Panel-mounted version	IP54, for the front plate, IP20, for the rear side, inside the cabinet
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 (S030 sensor-fitting, DN06...DN65, in PVC, PP, PVDF, stainless steel or brass)	Complying with article 4, §1 of 2014/68/EU directive*
Certification 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

* 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

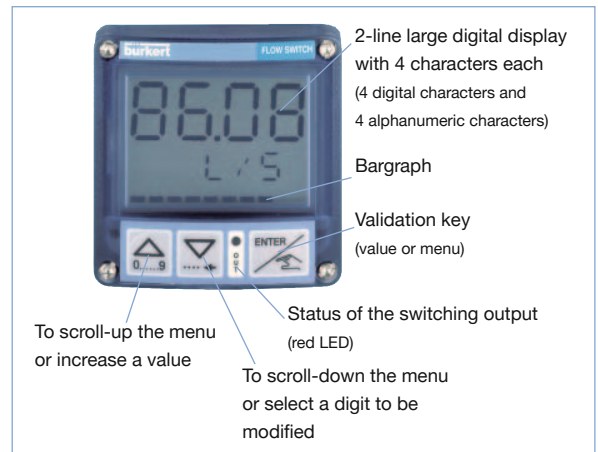
- measured flow
- high threshold value
- low threshold value

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

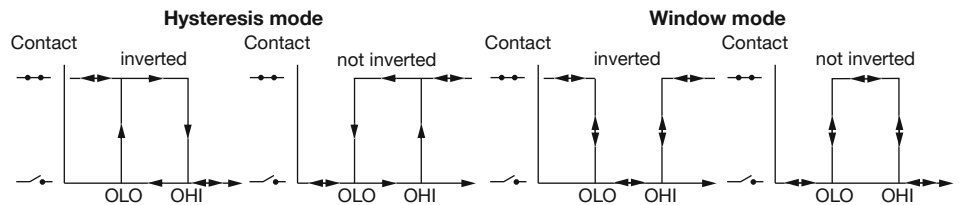
- switching threshold test with flow simulation
- Calibration of the 4...20 mA current output



Main Features

8032/SE32 with standard On/Off output

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



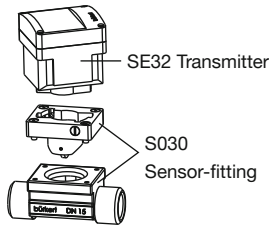
- Configurable delay before switching
- Possible outputs depending on the version: relay, transistor NPN, transistor PNP

8032/SE32 with current output for the measurement value

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

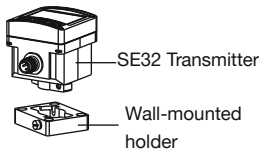
Design and operating principle

Type 8032 compact version



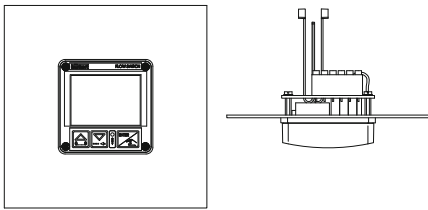
The 8032 device is made up of a compact INLINE sensor-fitting (S030) equipped with a sensor with paddle wheel and a transmitter (SE32).
 When liquid flows through the pipe, the paddle wheel with 4 inserted magnets is set in rotation, producing a measuring signal in the sensor (Hall sensor).
 The frequency modulated induced voltage is proportional to the flow velocity of the fluid. A K-factor (available in the instruction manual of the S030 sensor-fitting), specific to each pipe (size and material) enables the conversion of this frequency into flow rate.
 The electrical connection is provided via a cable plug according to EN 175301-803 and/or a M12 multipin connector.

Wall-mounted version



The wall-mounted variant is built up with an SE32 transmitter associated to a wall-mounted holder. It must be connected to a remote flow rate sensor with an NPN transistor output or a push-pull output. The SE32 transmitter detects the pulses sent by the connected sensor. The pulse frequency is proportional to the flow rate. A K-factor specific to each flow rate sensor enables the conversion of this frequency into a flow rate.
 The electrical connection is provided via two M12 multipin connectors.

Panel-mounted version



The panel-mounted variant is made up of an SE32 transmitter and a protection plate. It must be connected to a remote flow rate sensor with an NPN transistor output or a push-pull output. The transmitter SE32 detects the pulses sent by the connected sensor. The pulse frequency is proportional to the flow rate. A K-factor specific to each flow rate sensor enables the conversion of this frequency into a flow rate.
 The electrical connection is provided via a terminal strip located on the protection plate.

Installation for compact version

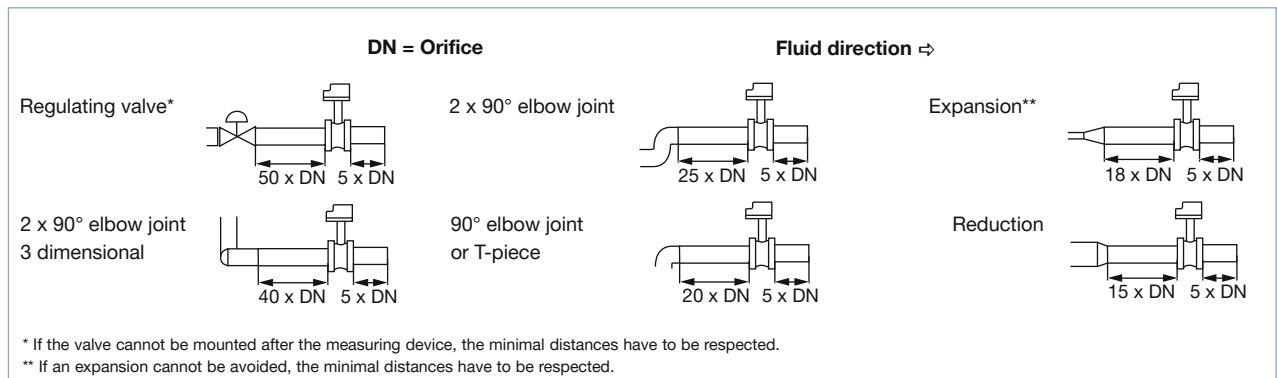


The sensor-fitting (S030) ensures simple installation into pipes from DN06...DN65. The SE32 transmitter can easily be installed into any Bürkert INLINE sensor-fitting system (S030), by means of a quarter turn.

Minimum straight upstream and downstream distances must be observed. According to the pipe's design, necessary distances can be bigger or use a flow conditioner to obtain the best accuracy.
 For more information, please refer to EN ISO 5167-1.

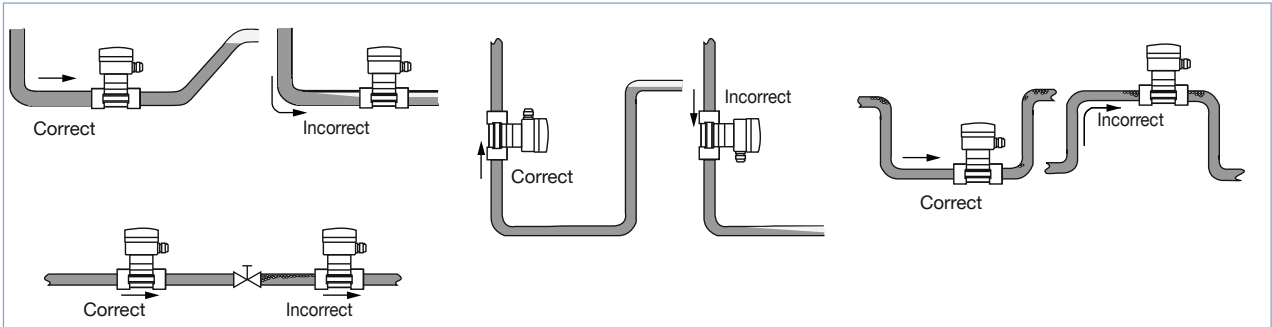
EN ISO 5167-1 prescribes the straight inlet and outlet distances that must be complied with when installing fittings in pipe lines in order to achieve calm flow conditions. The most important layouts that could lead to turbulence in the flow are shown below, together with the associated prescribed minimum inlet and outlet distances.

These ensure calm, problem-free measurement conditions at the measurement point.



Installation for compact version (continued)

The flowmeter can be installed into either horizontal or vertical pipes.



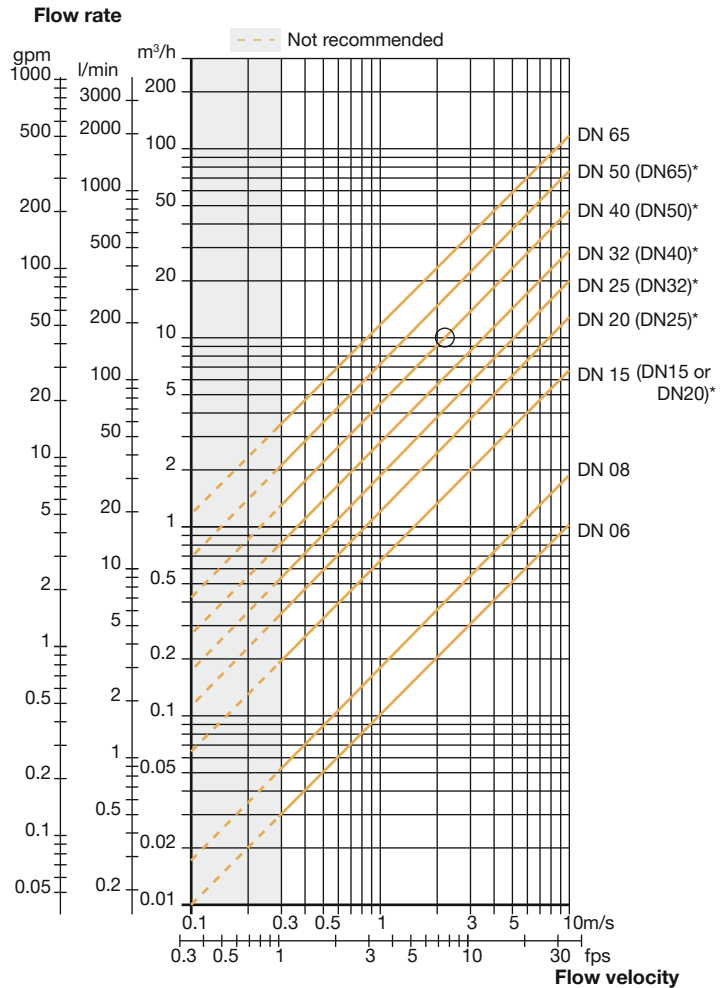
Pressure and temperature ratings must be respected according to the selected sensor-fitting material. The suitable pipe size is selected using the diagram Flow/Velocity/DN. The flowmeter is not designed for gas flow measurement.

Selection of sensor-fitting/pipe size

Example:

- Specification of nominal flow: 10 m³/h
- Ideal flow velocity: 2...3 m/s

For these specifications, the diagram indicates a pipe size of DN40 [or DN50 for (*) mentioned sensor-fittings]

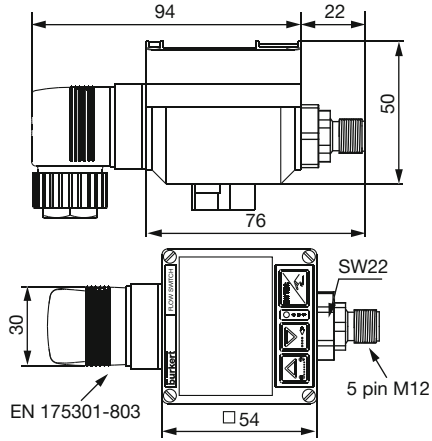


* for following sensor-fittings with:
 - external threads acc. to SMS 1145
 - weld ends acc. to SMS 3008, BS4825-1/ASME BPE/DIN 11866 series C or DIN 11850 series 2/DIN 11866 series A/DIN EN 10357 series A
 - Clamp acc. to SMS 3017, BS4825-3/ASME BPE or DIN 32676 series A

Dimensions [mm]

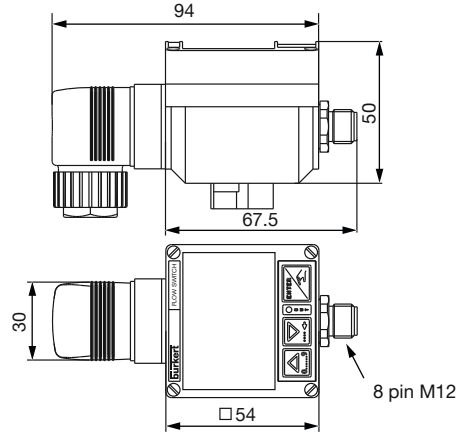
8032 compact

Free positionable 5 pin M12 male fixed connector

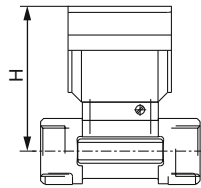


8032 compact

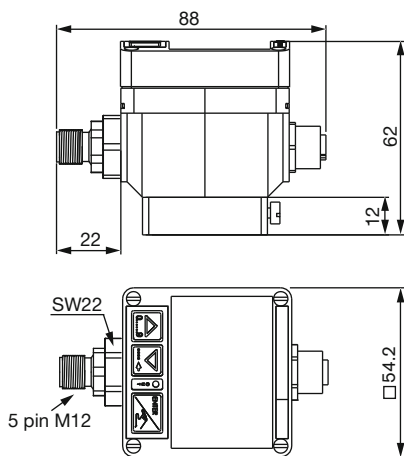
Free positionable 8 pin M12 male fixed connector



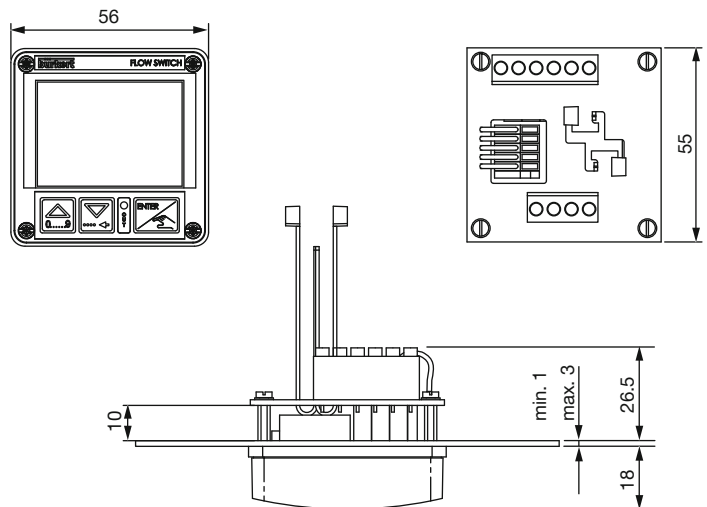
DN	H with S030 sensor-fitting
06	79.5
08	79.5
15	84.5
20	82.0
25	82.2
32	85.8
40	89.6
50	95.7
65	95.7



SE32 wall-mounted



SE32 panel mounted



Ordering information and chart

Type 8032 compact version

A complete 8032 flowmeter/threshold detector consists of a compact SE32 flow transmitter and a Bürkert S030 INLINE sensor-fitting.

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

- **Item no.** of the desired compact **SE32** flow transmitter (see ordering chart, below)
- **Item no.** of the selected **S030** INLINE sensor-fitting (see separate data sheet)



→ You have always 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	Item no.
Flow threshold detector	12...36 V DC	1 x transistor NPN	No	Cable plug EN 175301-803*	436 474
		1 x transistor PNP	No	Cable plug EN 175301-803*	434 871
		2 x transistors NPN/PNP	No	Free positionable 5 pin M12 male fixed connector	436 473
			Recognized	Free positionable 5 pin M12 male fixed connector	553 431
		Relay	No	Free positionable 5 pin M12 male fixed connector and cable plug EN 175301-803*	436 475
Flow transmitter	12...36 V DC	4...20 mA + relay	No	8 pin M12 male fixed connector and cable plug EN 175301-803*	560 547
			No	Free positionable 5 pin M12 male fixed connector and cable plug EN 175301-803*	560 402
		4...20 mA	No	Free positionable 5 pin M12 male fixed connector	560 403

* Europe/Asia (G/Rc): M16 x 1.5 mm cable plug
USA/CDN (NPT): NPT½" cable plug

Type SE32 wall- or panel- mounted version

A remote SE32 flow transmitter must be connected to a flow rate sensor with an NPN transistor output or a push-pull output.

Type SE32 remote flow transmitter

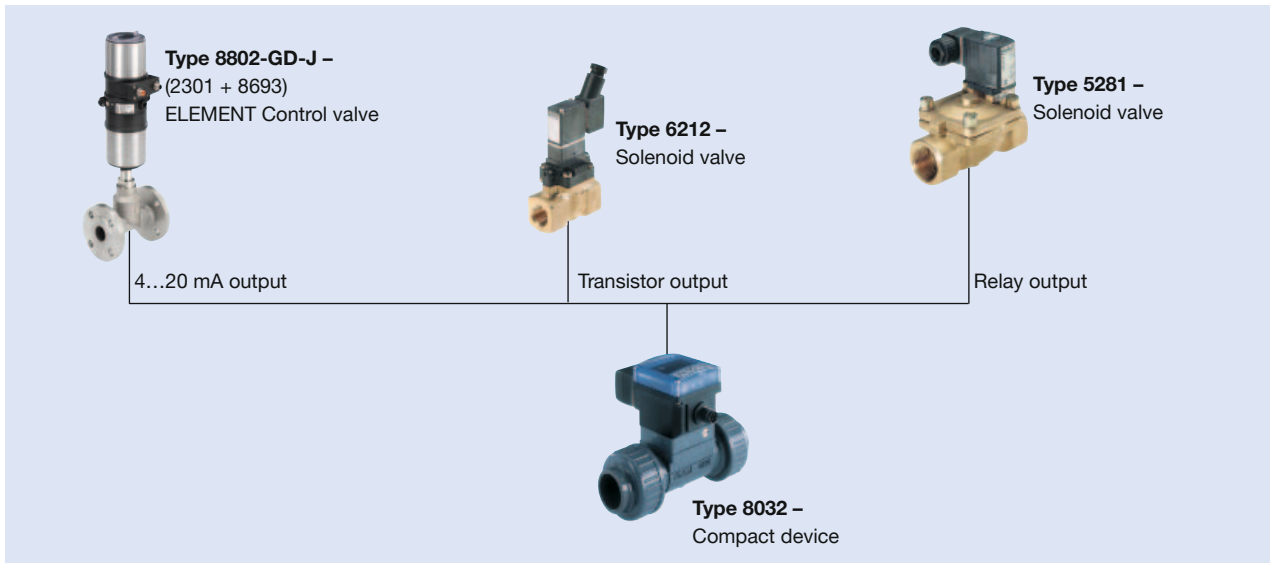
Specification	Voltage supply	Input	Output	UL certification	Electrical connection	Item no.
Wall-mounted	12...30 V DC	Frequency	2 x transistors NPN/PNP	No	Free positionable 5 pin M12 male fixed connector and 4 pin M12 female fixed connector	448 861
Panel-mounted	12...30 V DC	Frequency	2 x transistors NPN/PNP	No	Terminals strips	558 181

Ordering chart -accessories (has to be ordered separately)

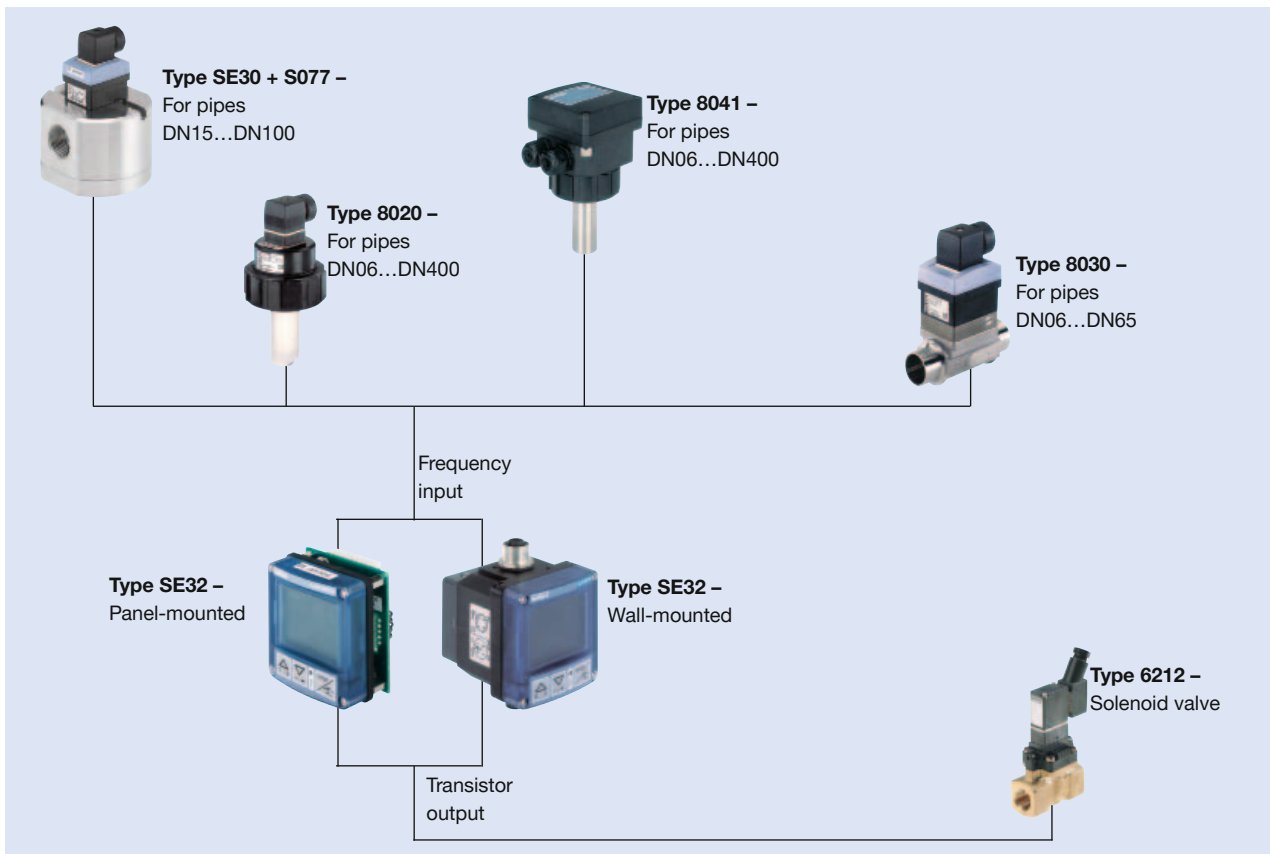
Specification	Item no.
4 pin male M12 cable plug with plastic threaded locking ring, for remote version	448 856
4 pin male M12 cable plug moulded on cable (2 m, shielded), for remote version	448 857
5 pin M12 female straight cable plug with plastic threaded locking ring, to be wired	917 116
5 pin M12 female straight cable plug moulded on cable (2 m, shielded)	438 680
8 pin M12 female straight cable plug with plastic threaded locking ring, to be wired	444 799
8 pin M12 female straight cable plug moulded on cable (2 m, shielded)	444 800
Cable plug EN 175301-803 with cable gland (Type 2508)	438 811
Cable plug EN 175301-803 with NPT½" reduction without cable gland (Type 2509)	162 673

Interconnection possibilities with other Bürkert devices

Compact version



Wall-or panel- mounted version



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

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1704/13_EU-en_00891781

DTS 1000011084 EN Version: R Status: RL (released | freigegeben | validé) printed: 10.01.2018