



Inline flowmeter with paddle wheel, ELEMENT design

- Size of measurement pipes: DN 06 to DN 65
- Configurable outputs: one or two transistor output(s) and one or two 4...20 mA current output(s)
- Removable backlit display/configuration module for indication of flow rate and volume with two flow totalizers
- Automatic calibration using Teach-In, all outputs can be checked without the need for actual flow



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

Can be combined with



Type 8611
eCONTROL - Universal controller



Type 2030
Pneumatically operated 2/2 way diaphragm valve CLASSIC with plastic body



Type 2101
Pneumatically operated 2/2 way globe valve ELEMENT for decentralised automation



Type 8692
Digital electropneumatic Positioner for the integrated mounting on process control valves



Type 8644
Remote Process Actuation Control System AirLINE



Type 8619
multiCELL - Multi-channel and multi-function transmitter/controller

Type description

The flowmeter Type 8036 is a compact device, specially designed for measuring the flow rate in solid-free liquids, in a variety of applications (water, waste water monitoring, chemical processing, etc.).

Type 8036 is available with:

- 2 configurable outputs: one transistor output (NPN) and one 4...20 mA current output (2-wire)
- 3 configurable outputs: two transistor outputs (NPN/PNP) and one 4...20 mA current output (2-wire)
- 4 configurable outputs: two transistor outputs (NPN/PNP) and two 4...20 mA current outputs (3-wire).

Type 8036 converts the measured signal, displays different values in different units (if display/configuration module mounted) and computes the output signals, which are provided via one or two M12 fixed connectors.

Thanks to 1 or 2 transistor outputs, the flowmeter can be used to switch a solenoid valve, activate an alarm and, thanks to 1 or 2 current outputs, establish one or two control loops.

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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

Please make sure the device materials are compatible with the fluid you are using.

Detailed information can be found in chapter **"3.1. Chemical Resistance Chart – Bürkert resistApp"** on page 5.

Non wetted parts

Housing	Stainless steel 1.4404 (316L), PPS
Cover	PC
Display/configuration module	PC
Navigation key	PBT
Seals	EPDM, silicone
Screws	Stainless steel
Fixed connector holder	Stainless steel 1.4404 (316L)
Fixed connector	Brass nickel plated (stainless steel on request)
Quarter turn system	PC

Wetted parts

Sensor-fitting body, sensor armature	Brass, stainless steel, PVC, PP or PVDF (depending on S030 version)
Seal	FKM or EPDM (depending on S030 version)
Axis and bearings	Ceramics (Al ₂ O ₃)
Paddle wheel	PVDF

Dimensions Detailed information can be found in chapter **"4. Dimensions"** on page 6

Measuring principle Paddle wheel

Compatibility Any pipe from DN 06...DN 65 which is fitted with Bürkert S030 Inline sensor-fitting. For the selection of the nominal diameter of the Inline sensor-fittings, see **data sheet Type S030** ▶.

Pipe diameter DN 06...DN 65

Measuring range

- Flow rate: 0.5...1000 l/min (0.13...265 gpm)
- Flow velocity: 0.3...10 m/s

Product accessories

Display/configuration module Grey dot matrix 128 x 64 with backlighting

Performance data

Measurement deviation Teach-In: ± 1 % of the measured value^{1,3} (at Teach-In flow rate value)
Standard K-factor: ± 2.5 % of the measured value^{1,3}

Linearity ± 0.5 % of full scale^{1,3}

Repeatability ± 0.4 % of the measured value^{1,3}

4...20 mA output uncertainty ± 1 % of range

Electrical data

Operating voltage

- 2 or 3 outputs transmitter (2-wire) version: 14...36 V DC, filtered and regulated

- 4 outputs transmitter (3-wire) version: 12...36 V DC, 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 60950-1 standards or limited energy circuit according to UL/EN 61010-1 §9.4

DC reverse polarity protection Yes

Overvoltage protection Yes

Current consumption With sensor

- ≤ 1 A (with transistors load)

- 2 or 3 outputs transmitter (2-wire) version: ≤ 25 mA (at 14 V DC without transistors load, with current loop)

- 4 outputs transmitter (3-wire) version: ≤ 5 mA (at 12 V DC without transistors load, without current loop)

Power consumption Max. 40 W

Outputs

Transistor

Protected against overvoltage, polarity reversals and short circuit

- 1 transistor output (transmitter 2-wire):
 - NPN, open collector
 - 1...36 V DC
 - Max. 700 mA
- 2 transistor outputs (transmitter 2 or 3-wire):
 - Adjustable as sourcing or sinking (respectively both as PNP or NPN), open collector
 - Max. 700 mA
 - 0.5 A max. per transistor if the 2 transistor outputs are wired
 - NPN-output: 1...36 V DC
 - PNP-output: Power supply

Current

4...20 mA adjustable as sourcing or sinking (in the same mode as transistor):

- 1 current output (transmitter 2-wire)
Max. loop impedance: 1100 Ω at 36 V DC; 610 Ω at 24 V DC; 180 Ω at 14 V DC
- 2 current outputs (transmitter 3-wire)
Max. loop impedance: 1100 Ω at 36 V DC; 610 Ω at 24 V DC; 100 Ω at 12 V DC

Voltage supply cable

For the female M12 connector and/or the male M12 connector (not supplied, to order separately, see chapter **“10.5. Ordering chart accessories” on page 11**) use a shielded cable.

- $\varnothing$ 3...6.5 mm
- Cross section of wires: max. 0.75 mm²

Medium data

Fluid temperature

With sensor-fitting S030 in:

- PVC: 0...+50 °C (+32...+122 °F)
- PP: 0...+80 °C (+32...+176 °F)
- PVDF, stainless steel or brass: -15...+100 °C (+5...+212 °F)

See **data sheet Type S030** ► for more information.

Fluid pressure (max.)

With sensor-fitting S030 in:

- plastic: PN 10
- metal: PN 16 (PN 40 on request)

See **data sheet Type S030** ► for more information.

Viscosity

Max. 300 cSt

Rate of solid particles

Max. 1 %

Maximum particle size

0.5 mm

Process/Port connection & communication

Process connection

With sensor-fitting S030 in:

- plastic: true union, spigot or external thread
- metal: internal or external thread, weld ends, Clamp or flange

See **data sheet Type S030** ► for more information.

Electrical connection

- 2 or 3 outputs transmitter (2-wire) version: 1 x 5 pin M12 male fixed connector
- 4 outputs transmitter (3-wire) version: 1 x 5 pin M12 male and 1 x 5 pin M12 female fixed connectors

Approvals and Certificates**Standards**Protection class²⁾

IP65, IP67 (according to IEC/EN 60529), NEMA 4X (according to NEMA250) with device wired and M12 cable plug mounted and tightened and cover fully screwed down

Directives

CE directives

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 equipment directives

Complying with Article 4, Paragraph 1 of 2014/68/EU directive
Detailed information on the pressure equipment directive can be found in chapter **“2.2. Pressure Equipment Directive” on page 5**.

Certification

UL-Recognized for US and Canada

Environment and installation

Ambient temperature	Operation and storage: - 10...+60 °C (+ 14...+ 140 °F)
Relative air humidity	≤ 85 %, 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 against the effects of climatic conditions)
Installation category	Category I according to UL/EN 61010-1
Pollution degree	Degree 2 according to UL/EN 61010-1

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.

2.) Not evaluated by UL

2. Approvals

2.1. Certification UL

Certificate	Description
	UL-Recognized for USA and Canada Products are UL-certified products and comply also with the following standards: • UL 61010-1 • CAN/CSA-C22.2 No.61010-1

2.2. Pressure Equipment Directive

The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 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; 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

3. Materials

3.1. Chemical Resistance Chart – Bürkert resistApp

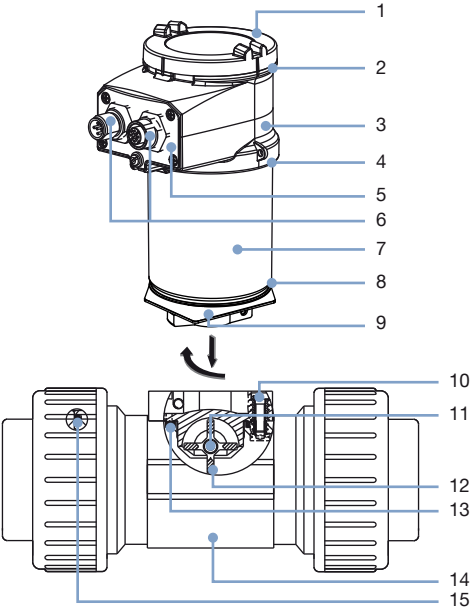


Bürkert resistApp – Chemical Resistance Chart

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

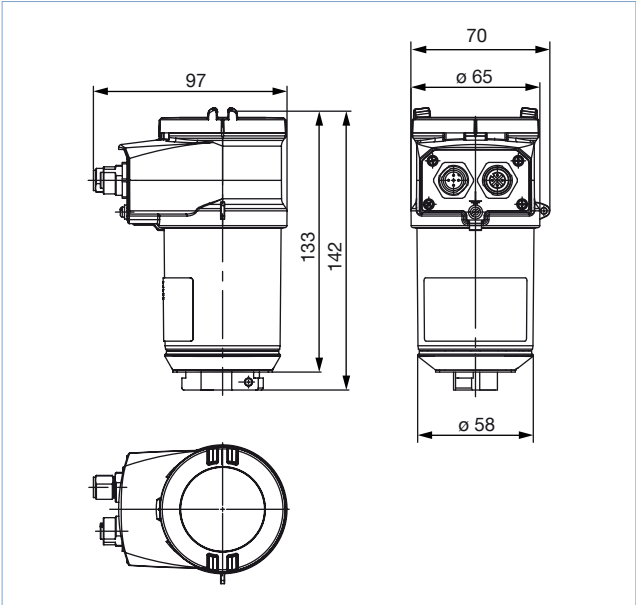


No.	Element	Material
1	Cover	PC
2	Seal	Silicone
3	Housing (top)	PPS
4	Seal	EPDM
5	Fixed connector holder	Stainless steel 1.4404 (316L)
6	M12 fixed connector	Brass nickel plated
7	Housing (body)	Stainless steel 1.4404 (316L)
8	Seal	EPDM
9	Housing (base)	PC
10	Screws	Stainless steel
11	Axis and bearings	Ceramics (Al ₂ O ₃)
12	Paddle wheel	PVDF
13	Seal	FKM or EPDM (depending on the sensor-fitting version S030)
14	Sensor-fitting body	Stainless steel 1.4404 (316L), brass (CuZn ₃₉ Pb ₂), PVC, PP, PVDF (depending on S030 version)
15	Seals	FKM or EPDM (depending on S030 version and only for true union connection with nut and solvent/ fusion socket)

4. Dimensions

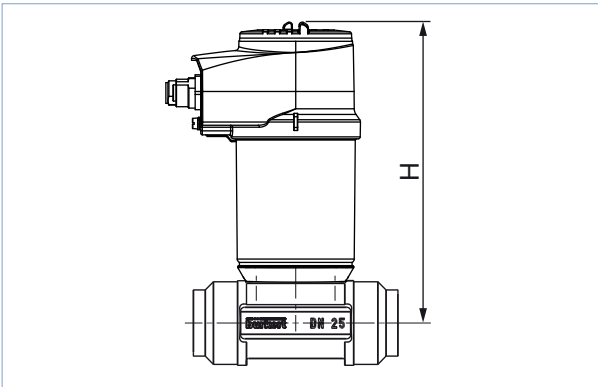
4.1. Transmitter SE36

Note:
Specifications in mm



4.2. Transmitter SE36 mounted in a S030 sensor-fitting

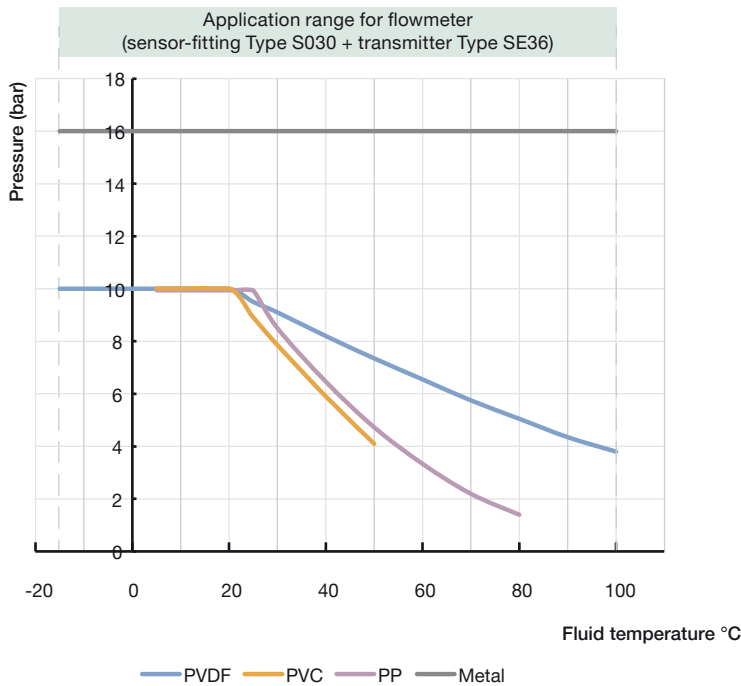
Note:
Specifications in mm



DN	H
06	162
08	162
15	167
20	165
25	165
32	168
40	172
50	179
65	179

5. Performance specifications

5.1. Pressure temperature diagram



6. Product installation

6.1. Installation notes

Note:

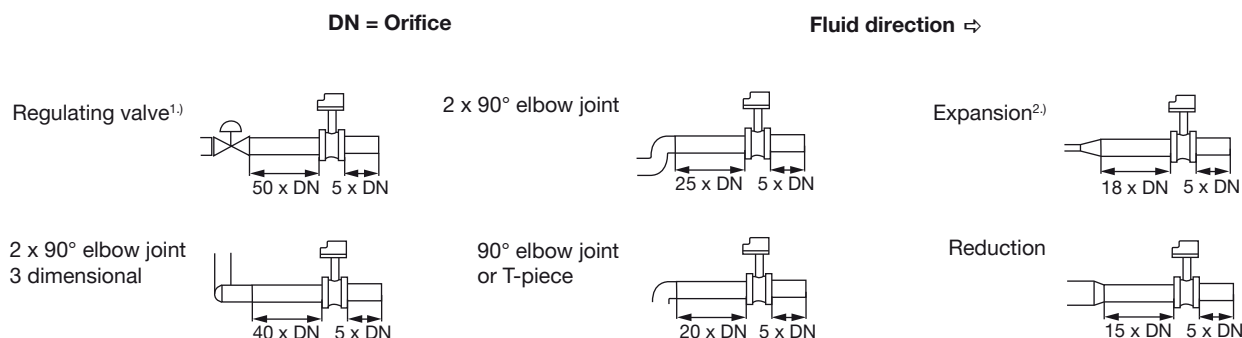
The device is not designed for gas and steam flow measurement.

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.

Make sure that the measuring conditions at the point of measurement are calm and problem-free.

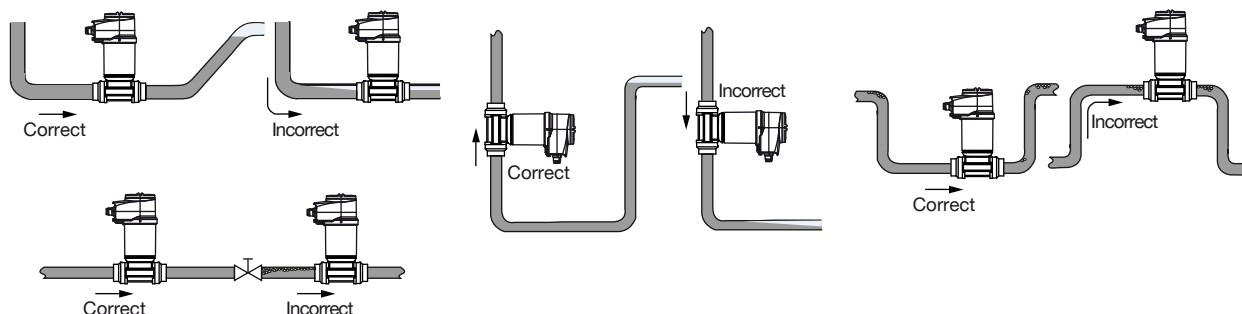


1.) If the valve cannot be mounted after the measuring device, the minimal distances have to be respected.

2.) If an expansion cannot be avoided, the minimal distances have to be respected.
Please note minimum flow velocity

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

Important criteria for this are; ensure that the measurement pipe is fully filled and that the measurement pipe is air bubble free.



Pressure and temperature ratings must be respected according to the selected sensor-fitting material. The suitable pipe size is selected using the diagram for selecting the nominal diameter of the sensor-fitting, see **data sheet Type S030** ▶ for more information.

7. Product operation

7.1. Measuring principle

When liquid flows through the pipe, the paddle wheel with 4 inserted magnets is set in rotation, producing a measuring signal in the sensor (coil or 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 fitting** ▶), specific to each pipe (size and material) enables the conversion of this frequency into a flow rate.

The electronic component converts the measured signal into several outputs (according to the flowmeter version) and displays the actual value. Totalizers are used to obtain the volume of fluid passed through the pipe.

The electrical connection is provided via one or two M12 fixed connectors.

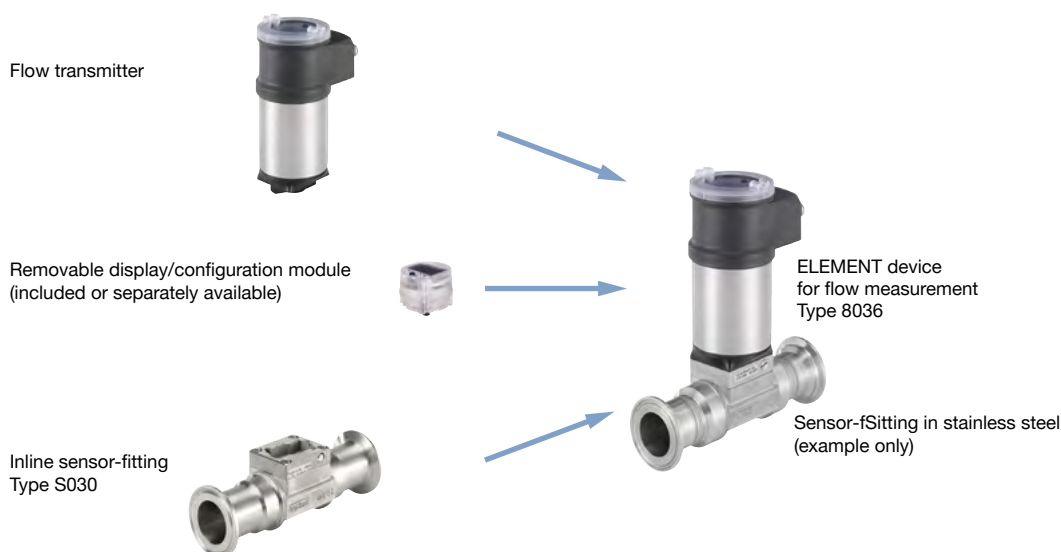
8. Product design and assembly

8.1. Product assembly

Note:

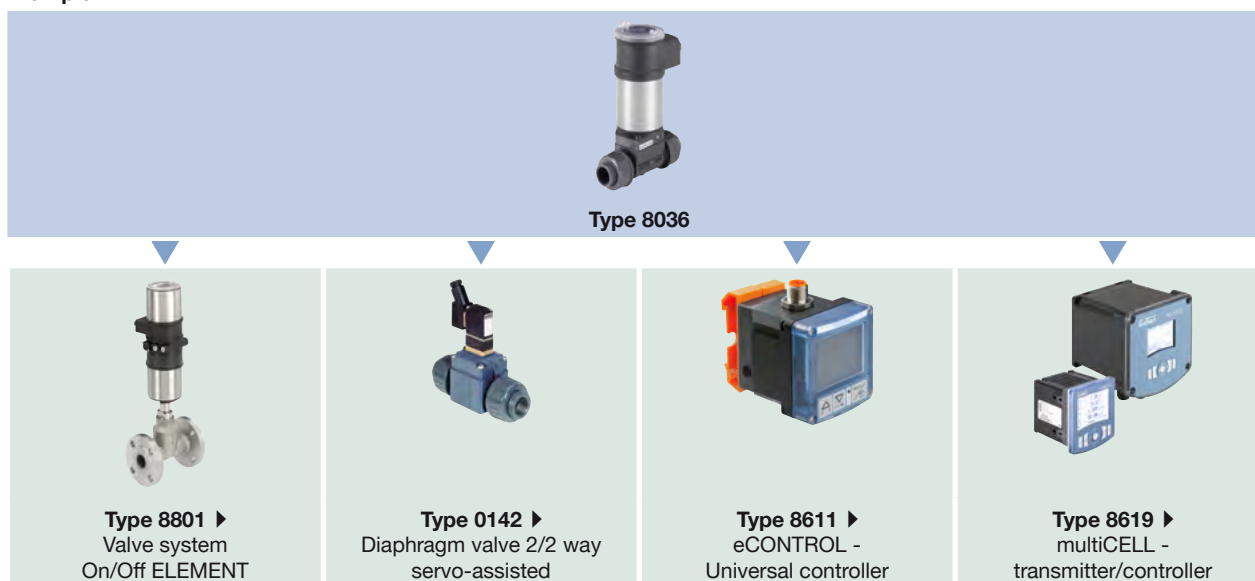
- The 8036 device is made up of a compact Inline sensor-fitting (S030) equipped with a sensor with paddle wheel and an enclosure with cover containing the electronic module (transmitter SE36).
A removable display/configuration module completes this flowmeter. The flowmeter can operate without the display/configuration module, but it will be required for configuration of the device (i.e. set parameters, restore default parameters, configure information to be displayed, enter access codes, adjust 4...20 mA output(s) ...) and also for visualizing continuously the measured and processed data.
- The S030 Inline sensor-fitting ensures simple installation into pipes from DN 06...DN 65. The SE36 transmitter can easily be installed into any Bürkert sensor-fitting system, by means of a quarter turn.

See **data sheet Type S030** ▶ for more information.



9. Networking and combination with other Bürkert products

Example:



10. Ordering information

10.1. Bürkert eShop – Easy ordering and quick delivery



Bürkert eShop – Easy ordering and fast delivery

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10.2. Recommendation regarding product selection

Note:

- A 8036 flowmeter consists of a compact SE36 flow transmitter, a removable display/configuration module and a Bürkert S030 Inline sensor-fitting.
- When you order devices without a display/configuration module, please take care that you also order at least one display/configuration module for parametrising the device (see chapter [“10.5. Ordering chart accessories” on page 11](#)).

See **data sheet Type S030** ► for more information.

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

- **Article no.** of the compact SE36 flow transmitter available with or without display/configuration module (see chapter [“10.4. Ordering chart for flow transmitter Type SE36” on page 11](#))
- **Article no.** of the removable display/configuration module, if necessary (see chapter [“10.5. Ordering chart accessories” on page 11](#))
- **Article no.** of the selected S030 Inline sensor-fitting (See **data sheet Type S030** ►)

10.3. Bürkert product filter



Bürkert product filter – Get quickly to the right product

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10.4. Ordering chart for flow transmitter Type SE36

Note:

- All settings and digital output have to be adjusted with the optional available display/configuration module.
- All following article nos. have a transparent cover as standard.

Operating voltage	Output	UL certification	Electrical connection ^{1.)}	Article no.	
				Without display/ configuration module	With display/ configuration module
14...36 V DC	2 outputs: 1 x transistor NPN + 1 x 4...20 mA (2 wires)	–	5 pin M12 male fixed connector	560880 	561880 
		UL-Recognized		560883 	561883 
	3 outputs: 2 x transistors NPN/PNP + 1 x 4...20 mA (2 wires)	–		560881 	561881 
		UL-Recognized		560884 	561884 
12...36 V DC	4 outputs: 2 x transistors NPN/PNP + 2 x 4...20 mA (3 wires)	–	5 pin M12 male and 5 pin M12 female fixed connectors	560882 	561882 
		UL-Recognized		560885 	561885 

1.) Order separately (see chapter “10.5. Ordering chart accessories” on page 11): M12 cable plugs (only female for one 4...20 mA output, 1 male + 1 female for two 4...20 mA outputs flowmeter)

10.5. Ordering chart accessories

Description	Article no.
Removable display/configuration module (with instruction sheet)	559168 
Opaque cover with seal (1 screw cover with EPDM seal + 1 quarter turn closing cover with silicone seal)	560948 
Transparent cover with seal (1 screw cover with EPDM seal + 1 quarter turn closing cover with silicone seal)	561843 
5 pin M12 female straight cable plug with plastic threaded locking ring, to be wired	917116 
5 pin M12 male straight cable plug with plastic threaded locking ring, to be wired	560946 
5 pin M12 female straight cable plug moulded on cable (2 m, shielded)	438680 
5 pin M12 male straight cable plug moulded on cable (2 m, shielded)	559177 

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