



Inline flowmeter for continuous measurements

- Economic integration in pipe systems without any additional piping
- 3-wire frequency pulse version to directly interface with PLC's (PNP and NPN)
- Connection to Bürkert devices in remote versions
- Version HT for high temperature and pressure (max. 125 °C/max. 40 bar) available

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 8025
Flow transmitter or remote batch controller



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



Type 8802
ELEMENT continuous control valve systems - overview

Type description

The paddle wheel flowmeter is especially designed for use with neutral, slightly aggressive, solid free liquids.

The flowmeter Type 8030/8030-HT is made up of a compact sensor-fitting (S030/S030-HT) and a transmitter (SE30/SE30-HT) quickly and easily connected together by a bayonet catch. The Bürkert designed sensor-fitting system ensures simple installation of the device into all pipelines from DN 06... DN 65.

The flowmeter produces a frequency signal, proportional to the flow velocity, which can be transmitted and processed by a Bürkert transmitter/controller.

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1. General technical data

1.1. About the device

The flowmeter Type 8030 is available with a wide variety of process connection and

- either with an Hall or Hall-“Low Power” transducer



- or with a coil transducer. This version called High Temperature (8030-HT) is intended for flow measurement at high temperatures.



1.2. All versions

The following data applies to all versions mentioned above.

Product properties

Materials

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 7.](#)

Detailed information on the materials can be found in chapter [“3.2. Material specifications” on page 8.](#)

Non wetted parts

Female cable plug	Body, contact holder and cable gland in PA
Screws	Stainless steel

Wetted parts

Seal	FKM or EPDM (depending on the sensor-fitting version S030)
Axis	Ceramics (Al ₂ O ₃)
Dimensions	Detailed information can be found in chapter “4. Dimensions” on page 9.
Measuring principle	Paddle wheel
Pipe diameter	DN 06...DN 65
Compatibility	Any pipe from DN 06...DN 65 which are fitted with Bürkert S030 Inline sensor-fitting. For the selection of the nominal diameter of the Inline sensor-fittings, see data sheet Type S030 ▶.

Performance data

Measurement deviation	<ul style="list-style-type: none"> • Teach-In: $\pm 1\%$ of the measured value^{1.)} (at Teach-In flow rate value) • Standard K-factor: $\pm 2.5\%$ of the measured value^{1.)}
Linearity	$\pm 0.5\%$ of full scale ^{1.)}
Repeatability	$\pm 0.4\%$ of the measured value ^{1.)}

Electrical data

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
Protection against DC polarity reversal	Yes
Voltage supply cable	<ul style="list-style-type: none"> • Cable with maximum operating temperature greater than 80 °C (90 °C for UL-Recognized version) • Max. 50 m length, shielded • External diameter of wire: 5...8 mm • Cross section of wires: 0.25...1.5 mm²

Medium data

Viscosity	300 cSt max.
Rate of solid particles	Max. 1 %
Maximum particle size	0.5 mm

Process/Port connection & communication

Electrical connection	Cable plug acc. to EN 175301-803
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Approvals and certificates**Standards**

Protection class according to IEC/ EN 60529	IP65 with device wired and plugs mounted and tightened
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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 7.
Certification	UL-Recognized for US and Canada (on request)

Environment and installation

Relative air humidity	≤ 80 %, without condensation
Height above sea level	Max. 2000 m
Operating condition	Continuous
Equipment mobility	Fixed
Use	Indoor and outdoor (Protect the device against electromagnetic interference, ultraviolet rays and 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.

1.3. Inline flowmeter with an Hall or Hall-"Low Power" transducer**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****Materials****Non wetted parts**

Housing, cover (male fixed plug)	PC
Female cable plug	Cable gland seal and flat seal in NBR

Wetted parts

Sensor-fitting body, sensor armature	Brass, stainless steel, PVC, PP or PVDF (depending on S030 version)
Bearings	Ceramics (Al ₂ O ₃)
Paddle wheel	PVDF

Measuring range	<ul style="list-style-type: none"> Flow rate: 0.5...1000 l/min (0.13...265 gpm) Flow velocity: 0.3...10 m/s
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Electrical data

Operating voltage	<ul style="list-style-type: none"> Hall version : 12...36 V DC ± 10 %, filtered and regulated Connection to main supply: permanent (through external SELV (Safety Extra Low Voltage) and LPS (Limited Power Source) power supply) Hall "Low Power" version: via the connected Bürkert transmitter
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Current consumption	With sensor <ul style="list-style-type: none"> • Hall version: ≤ 30 mA • Hall "Low Power" version: ≤ 0.8 mA
Outputs	<ul style="list-style-type: none"> • Hall version: <ul style="list-style-type: none"> – 2 transistors, pulse output, NPN and PNP, open collector, max. 100 mA – frequency: 0...300 Hz – NPN output: 0.2...36 V DC – PNP output: supply voltage – duty cycle: $\frac{1}{2} \pm 10\%$ • Hall "Low Power" version: <ul style="list-style-type: none"> – 1 transistor, pulse output, NPN, open collector, max. 10 mA – frequency: 0...300 Hz – duty cycle: $\frac{1}{2} \pm 10\%$
Medium data	
Fluid temperature	With sensor-fitting S030 in: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • plastic: PN 10 • metal: PN 16 (PN 40 on request) See data sheet Type S030 ► for more information.
Process/Port connection & communication	
Process connection	With sensor-fitting S030 in: <ul style="list-style-type: none"> • 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.
Environment and installation	
Ambient temperature	-15...+60 °C (+5...+140 °F) (operation and storage)

1.4. Inline flowmeter with coil transducer for high temperature (version 8030-HT)**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****Materials****Non wetted parts**

Housing, cover (male fixed plug)	PPS, glass fibre reinforced
Female cable plug	Cable gland seal in NBR and flat seal in silicone

Wetted parts

Sensor-fitting body, sensor armature	Stainless steel
Bearings	Iglidur®
Paddle wheel	Stainless steel
Measuring range	<ul style="list-style-type: none"> Flow rate: 0.85...1000 l/min (0.22...265 gpm) Flow velocity: 0.5...10 m/s

Electrical data

Power supply	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)
Current consumption	≤ 10 mA (no load)
Outputs	<ul style="list-style-type: none"> 2 transistors, pulse output, NPN and PNP depending on wiring, open collector, max. 700 mA Frequency: 0...250 Hz NPN output: 0.2...30 V DC PNP output: supply voltage Duty cycle $\frac{1}{2} \pm 10\%$ Protected against overvoltage, polarity reversals and short circuit

Medium data

Fluid temperature	-15...+125 °C (+5...+257 °F)
Fluid pressure (max.)	<ul style="list-style-type: none"> PN 40 (for -15...+90 °C temperature range) PN 25 (for +90...+125 °C temperature range)

Process/Port connection & communication


Process connection	Internal or external thread, weld ends (clamps or flanges on request) Detailed information can be found in the data sheet of the Inline sensor-fittings version high temperature (S030-HT), see data sheet Type S030 ►.
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Environment and installation

Ambient temperature	-15...+80 °C (+5...+176 °F) (operation and storage)
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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 style="list-style-type: none"> • 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	$DN \leq 25$
Fluid group 2, Article 4, Paragraph 1.c.i	$DN \leq 32$ or $PS \cdot DN \leq 1000$
Fluid group 1, Article 4, Paragraph 1.c.ii	$DN \leq 25$ or $PS \cdot DN \leq 2000$
Fluid group 2, Article 4, Paragraph 1.c.ii	$DN \leq 200$ or $PS \leq 10$ or $PS \cdot DN \leq 5000$

3. Materials

3.1. Chemical Resistance Chart – Bürkert resistApp

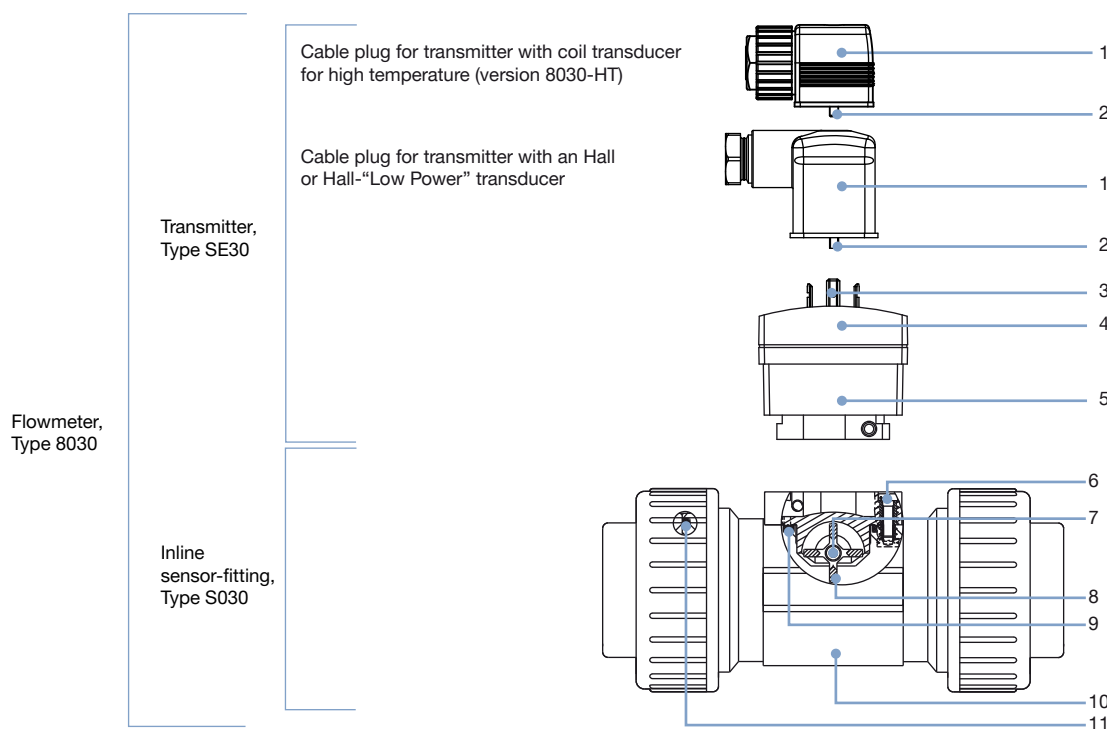


Bürkert resistApp – Chemical Resistance Chart

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

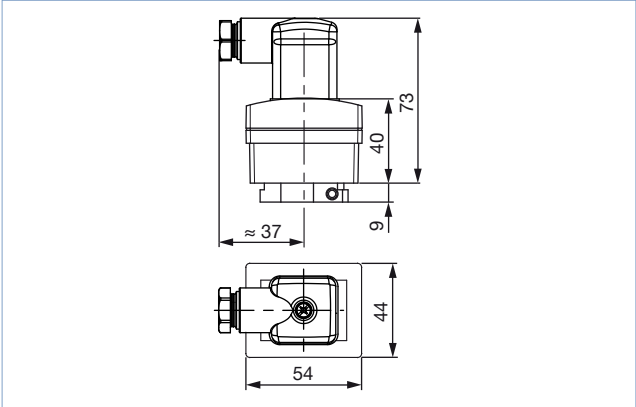


No.	Description	Material
1	Female cable plug (EN 175301-803)	<ul style="list-style-type: none"> Body, contact holder and cable gland in PA Cable gland seal in NBR and flat seal in NBR or silicone (version 8030-HT)
2	Screws	Stainless steel
3	Electrical contact	Sn
4	Cover (male fixed plug)	PC
5	Housing	<ul style="list-style-type: none"> PC or PPS, glass fibre reinforced (for version 8030-HT)
6	Screws	Stainless steel
7	Axis and bearings	<ul style="list-style-type: none"> Axis in ceramics (Al_2O_3) Bearings in: <ul style="list-style-type: none"> ceramics (Al_2O_3) Iglidur® (for version 8030-HT)
8	Paddle wheel	<ul style="list-style-type: none"> PVDF Stainless steel (for version 8030-HT)
9	Seal	FKM or EPDM (depending on the sensor-fitting version S030)
10	Sensor-fitting body	<ul style="list-style-type: none"> Stainless steel (316L - 1.4404), brass ($CuZn_{39}Pb_2$), PVC, PP, PVDF (depending on S030 version) Stainless steel (316L - 1.4404) (8030-HT)
11	Seals	FKM or EPDM (depending on S030 version and only for true union connection with nut and solvent/fusion socket)

4. Dimensions

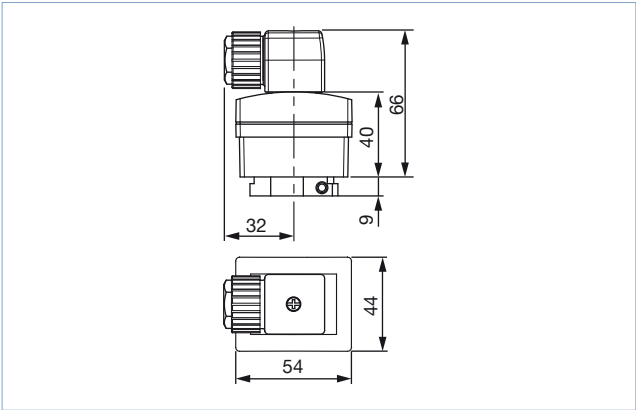
4.1. Transmitter SE30 with an Hall or Hall-“Low Power” transducer

Note:
Specifications in mm



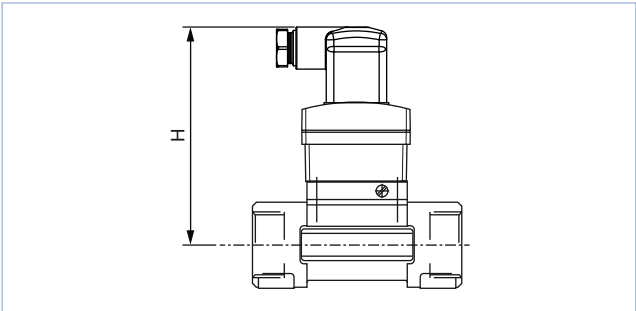
4.2. Transmitter SE30 with coil transducer for high temperature (version SE30-HT)

Note:
Specifications in mm



4.3. Transmitter SE30 with an Hall or Hall-“Low Power” transducer mounted in a S030 sensor-fitting

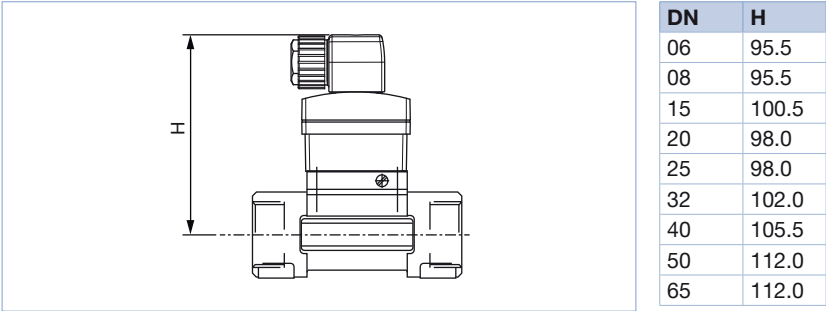
Note:
Specifications in mm



DN	H
06	102.5
08	102.5
15	107.5
20	105.0
25	105.0
32	109.0
40	112.5
50	119.0
65	119.0

4.4. Transmitter SE30-HT mounted in a S030-HT sensor-fitting

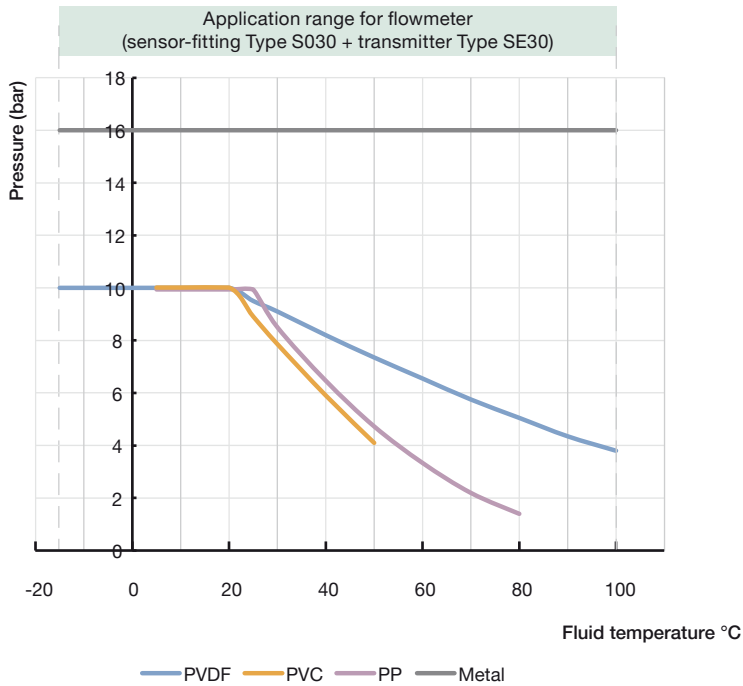
Note:
Specifications in mm

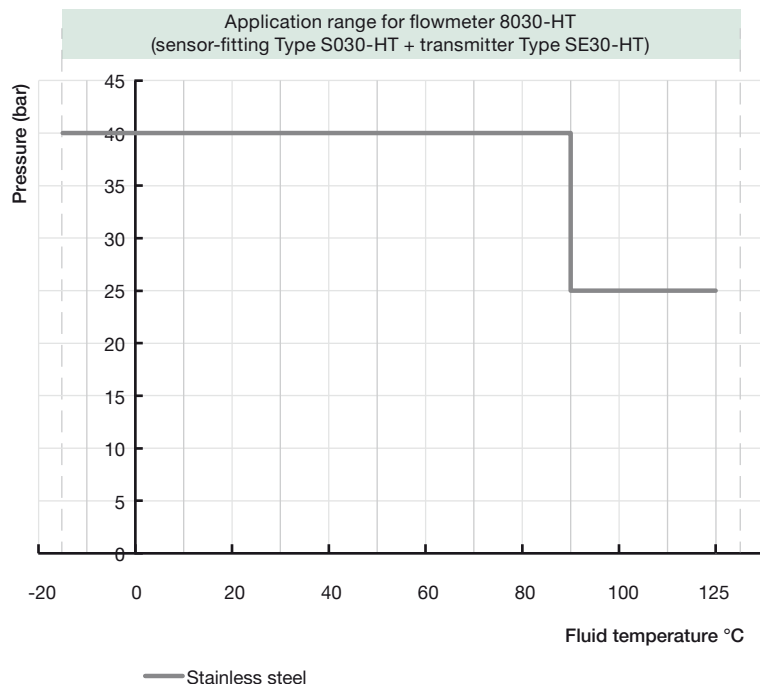


5. Performance specifications

5.1. Pressure temperature diagram

Inline flowmeter with an Hall or Hall-“Low Power” transducer



Inline flowmeter with coil transducer for high temperature (8030-HT)**6. Product installation****6.1. Installation notes****Note:**

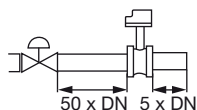
The device is not designed for gas and steam flow measurement.

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.

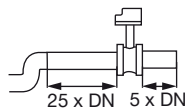
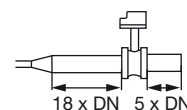
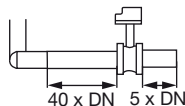
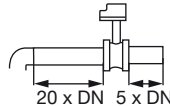
For more information, please refer to EN ISO 5167-1.

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.

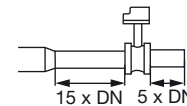
Make sure that the measuring conditions at the point of measurement are calm and problem-free.

DN = Orifice**Fluid direction ⇒**Regulating valve^{1.)}

2 x 90° elbow joint

Expansion^{2.)}2 x 90° elbow joint
3 dimensional90° elbow joint
or T-piece

Reduction



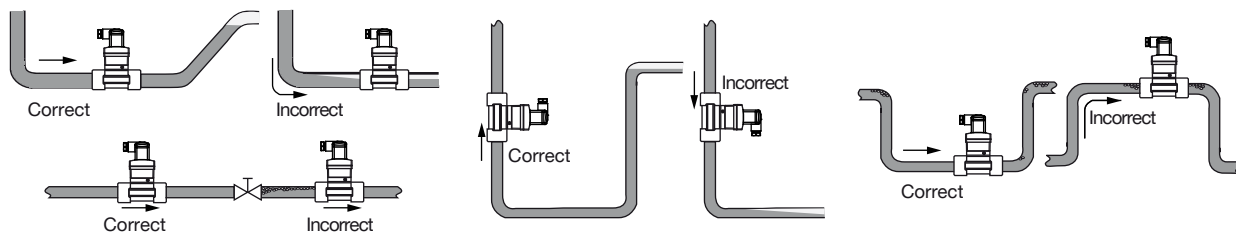
1.) If the valve cannot be mounted after the measuring device, the minimal distances have to be respected.

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 (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/volume.

The electrical connection is provided via a cable plug according to EN 175301-803.

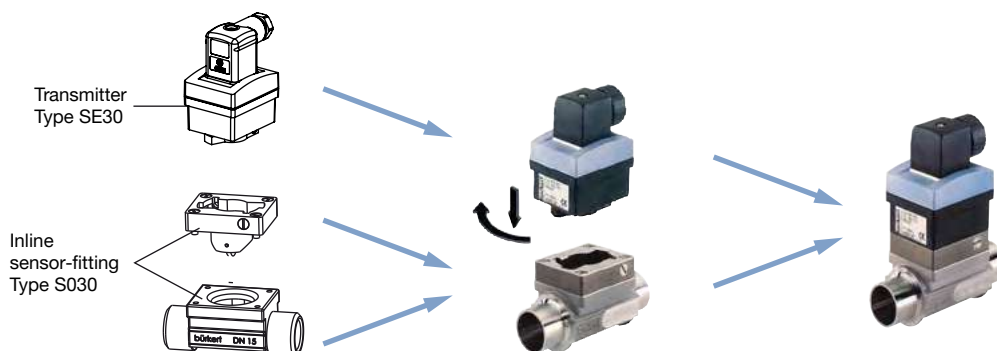
8. Product design and assembly

8.1. Product assembly

Note:

- The 8030 device is made up of a compact Inline sensor-fitting (S030) equipped with a sensor with paddle wheel and a transmitter (SE30).
- The transmitter SE30 is available with frequency output in three versions:
 - with two transistor outputs NPN and PNP. An external power supply of 12...36 V DC is required. It is designed for connection to any system with open collector NPN or PNP frequency input.
 - with one NPN transistor “Low Power” output. An external power supply of 12...36 V DC is required, which is done via the connected remote Bürkert transmitter. Can only be connected to remote versions of flow transmitters Type 8025.
 - for high temperature version (SE30-HT). An external power supply of 12...30 V DC is required. It is designed for connection to any system with open collector NPN or PNP frequency input. In a 3-wire system, the signal can be connected to a display or processed directly.
- The S030 Inline sensor-fitting ensures simple installation into pipes from DN 06...DN 65. The SE30 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:



Type 8030

With Hall transducer (NPN and PNP transistor outputs) or
with coil transducer (pulse signal output $F = KQ^{1.1}$)

With Hall "Low Power" transducer (NPN transistor output)



Type 8025 ▶
Universal flow transmitter/re-
mote batch controller



Type 8619 ▶
multiCELL -
transmitter/controller



Type 8611 ▶
eCONTROL -
Universal controller



Type 8025 ▶
"Low Power" flow transmitter

^{1.1} Output: F = frequency in Hertz, K = K factor of the sensor-fitting (pulse/liter) and Q = flow rate (l/s)

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

A complete 8030 flowmeter consists of a compact SE30 flow transmitter and a Bürkert S030 Inline sensor-fitting.

See **data sheet Type S030 ▶** 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 desired compact SE30 flow transmitter (see chapter "**10.4. Ordering chart of the SE30 flow transmitter**" on [page 14](#))
- **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

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.

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10.4. Ordering chart of the SE30 flow transmitter

Description	Operating voltage	Output	Electrical connection	Article no.
Hall version flowmeter (connectable to Type 8025 universal transmitter, batch controller; 8619; PLC)	12...36 V DC	Frequency, 2 transistors NPN and PNP	Cable plug EN 175301-803	423913 𐀀
Hall "Low Power" version flowmeter (connectable to Type 8025 transmitter)	From associated transmitter	Frequency, 1 transistor NPN		423914 𐀀
High Temperature (SE30-HT) version flowmeter ¹⁾ (connectable to Type 8025 universal transmitter, batch controller; 8619; PLC)	12...36 V DC	Frequency with pulse PNP or NPN, open collector		449694 𐀀

¹⁾ Only to be mounted with Sensor-Fitting in High Temperature version (**S030-HT**)

Further versions on request



Approval

- UL-Recognized for USA and Canada (UL 61010-1 + CAN/CSA-C22.2 No. 61010-1)
 - ATEX for hazardous areas II 1 G/D - II 3 GD, NAMUR or NPN/PNP version
- See **data sheet Type SE30 Ex** ▶ for more information.

10.5. Ordering chart accessories

Description	Article no.
Female cable plug EN 175301-803 with cable gland - see Type 2518 ▶	572264 𐀀
Female cable plug EN 175301-803 with cable gland, flat seal in silicone (only for 8030-HT version) - see Type 2508 ▶	156927 𐀀
Female cable plug EN 175301-803 with NPT ½" reduction without cable gland - see Type 2509 ▶	162673 𐀀

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DTS 1000011081 EN Version: AA Status: RL (released | freigegeben | valide) printed: 04.02.2022

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