

INLINE flowmeter for continuous flow measurement



Type 8030 can be combined with...



Type 8611
eControl
universal controller



Type 8025
Flow transmitter



Type 8619
multiCELL
transmitter/controller



Type 8802
ELEMENT
control valve system

- Economic integration in pipe systems without any additional piping
- 3-wire frequency pulse version to directly interface with PLC's (both PNP and NPN)
- Connection to Bürkert devices in remote versions

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

The flowmeter is made up of a compact sensor-fitting (S030) and a transmitter (SE30) quickly and easily connected together by a quarter-turn. The Bürkert designed sensor-fitting system ensures simple installation of the devices into all pipes from DN06... DN65. The flowmeter produces a frequency signal, proportional to the flow rate, which can easily be transmitted and processed by a Bürkert transmitter/controller.

General technical data	
Compatibility	With Bürkert S030 INLINE sensor-fittings (see corresponding datasheet)
Materials	Housing, cover, male connector: PC Cable plug / seal / screws: PA / NBR / Stainless steel Wetted parts materials: Brass, stainless steel 1.4404/316L, PVC, PP, PVDF Sensor-fitting, sensor armature: PVDF Paddle wheel: Ceramics / FKM or EPDM (depending on sensor-fitting version) Axis, bearing / Seal:
Electrical connection	Cable plug EN 175301-803 (Type 2508)
Connection cable	max. 1.5 mm ² cross section; max. 50 m length, shielded
Complete device data (sensor-fitting S030 + transmitter SE30)	
Pipe diameter	DN06...DN65
Measuring range	0.3...10 m/s
Fluid temperature with sensor-fitting in	PVC / PP: 0...+50 °C (+32...+122 °F) / 0...+80 °C (+32...+176 °F) Stainless steel, brass, PVDF: -15...+100 °C (+5...+212 °F)
Fluid pressure max.	PN10 (with plastic sensor-fitting), PN16 (with metal sensor-fitting); (PN40 on request, see S030 datasheet) - see pressure/temperature chart
Viscosity / Pollution	300 cSt. max. / max. 1 % (Size of particles 0.5 mm max.)
Measurement deviation²	Teach-In: ± 1 % of Reading ¹⁾ (at the teach flow rate value) Standard K-factor: ± 2.5 % of Reading ¹⁾
Linearity	± 0.5 % of F.S.* ¹⁾
Repeatability	± 0.4 % of Reading ¹⁾
Environment	
Ambient temperature	-15...+60 °C (+5...+140 °F) (operating and storage)
Relative humidity	≤ 80 %, without condensation

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

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 diameter of the pipes.

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

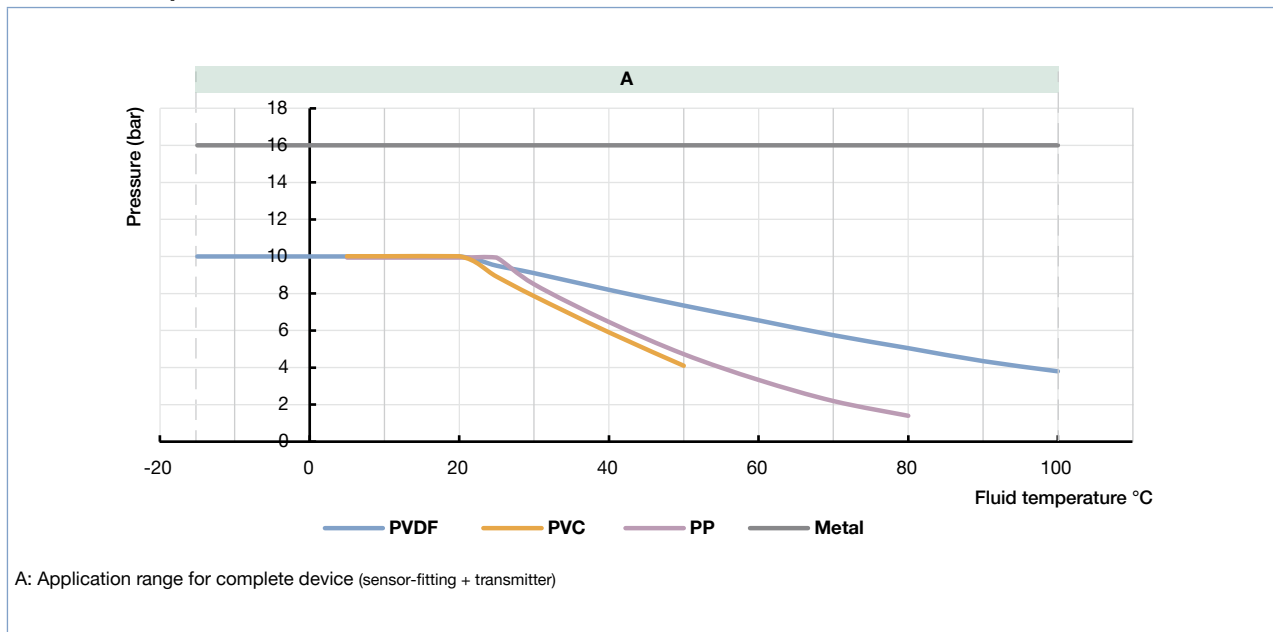
Electrical data	
Operating voltage	12...36 V DC filtered and regulated (via Bürkert transmitter the device is connected for "Low Power" version)
Current consumption	with sensor
Hall version	≤ 30 mA
Hall "Low power" version	≤ 0.8 mA
Output: Frequency	
Hall version	2 transistors NPN and PNP, open collector, max. 100 mA, frequency: 0...300 Hz; duty cycle ½ ± 10 % NPN output: 0.2...36 V DC PNP output: supply voltage
Hall "Low Power" version	1 transistor NPN, open collector, max. 10 mA, frequency: 0...300 Hz; duty cycle ½ ± 10 %
Reversed polarity of DC	Protected
Standards, directives and certifications	
Protection class	IP65 with connector plugged-in 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 (S030 sensor-fitting, DN06... DN65, in PVC, PP, PVDF, stainless steel or brass)	Complying with article 4, §1 of 2014/68/EU directive*

* 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

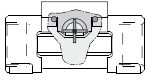
⚠ If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of 36 V DC.

Pressure/temperature chart



Design and operating principle

The 8030 device is made up of a compact INLINE sensor-fitting (S030) equipped with a sensor with paddle wheel and a transmitter (SE30). In a 3-wire system, the signal can be displayed or processed directly. The output signal is provided via cable plug according to EN 175301-803.



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 conversion coefficient (K-factor in Pulse/l available in the instruction manual of the sensor-fitting), specific to each pipe (size and material) enables the conversion of this frequency into flow rate

Two transmitter versions with frequency output are available:

- 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. Can only be connected to remote versions of flow transmitters Type 8025/8032.

Installation

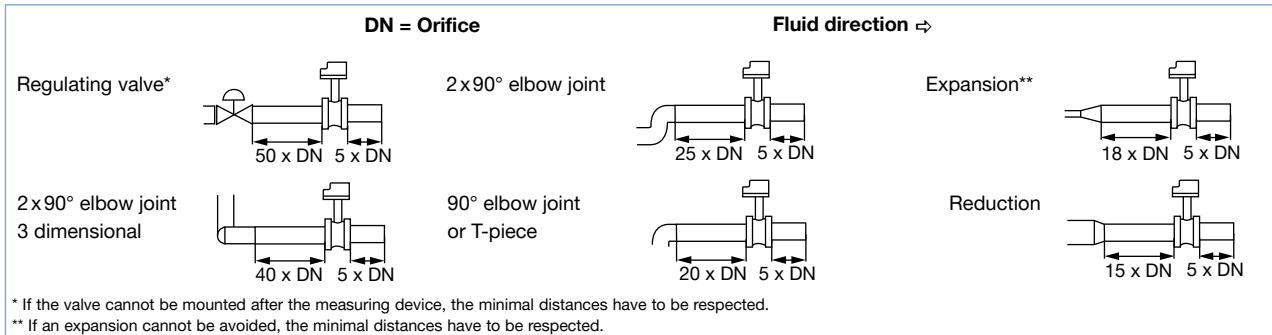


The sensor-fitting (S030) ensures simple installation into pipes from DN06...DN65. The transmitter SE30 can easily be installed into any Bürkert INLINE sensor-fitting system (S030), by means of a quarter-turn.

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.

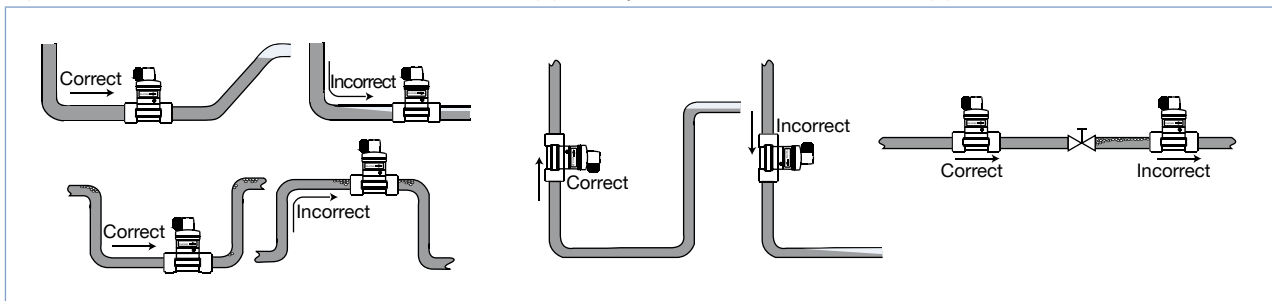
EN ISO 5167-1 prescribes the straight inlet and outlet distances that must be complied with when installing sensor-fittings in pipe lines in order to achieve calm flow conditions. The most important layouts that could lead to turbulence in the flow are shown below, together with the associated prescribed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

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



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.



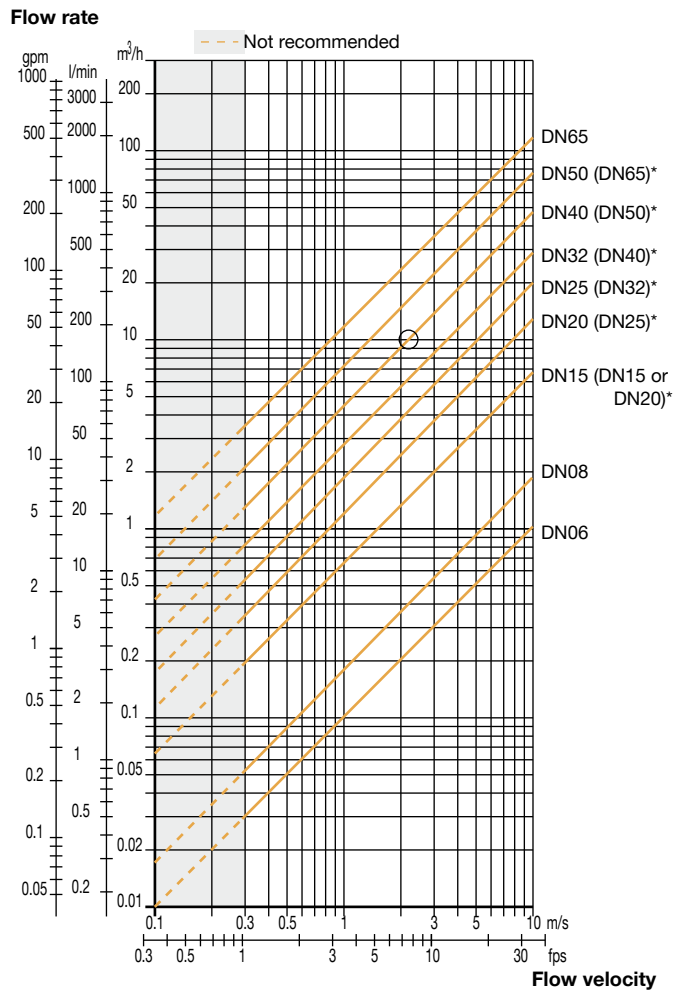
Pressure and temperature ratings must be respected according to the selected sensor-fitting material. The suitable pipe size is selected using the diagram flow rate/velocity/DN. The flowmeter is not designed for gas and steam flow measurement.

Diagram flow rate/velocity/DN

Example:

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

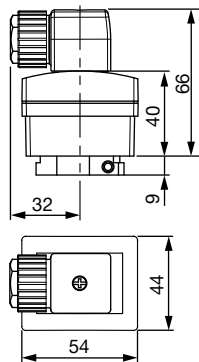
For these specifications, the diagram indicates a pipe size of DN40 (or DN50 for (*) mentioned sensor-fittings)



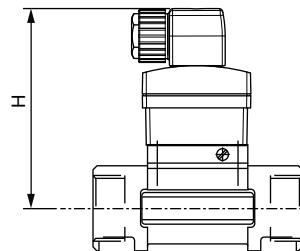
- * for following sensor-fittings with:
- external threads acc. to SMS 1145
 - weld ends acc. to SMS 3008, BS4825-1/ASME BPE/DIN 11866 series C or DIN 11850 series 2/DIN 11866 series A/DIN EN 10357 series A
 - Clamp acc. to SMS 3017, BS 4825-3/ASME BPE or DIN 32676 series A

Dimensions [mm] of 8030 flowmeter

Transmitter SE30



Flowmeter



DN	H with S030 sensor-fitting
06	95.5
08	95.5
15	100.5
20	98.0
25	98.0
32	102.0
40	105.5
50	112.0
65	112.0

Ordering chart for flowmeter Type 8030



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

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



- **Article no.** of the desired **SE30** flow transmitter (see ordering chart, below)
- **Article no.** of the selected **S030** INLINE sensor-fitting (DN06...DN65, see separate datasheet)

You have to order the two components separately.

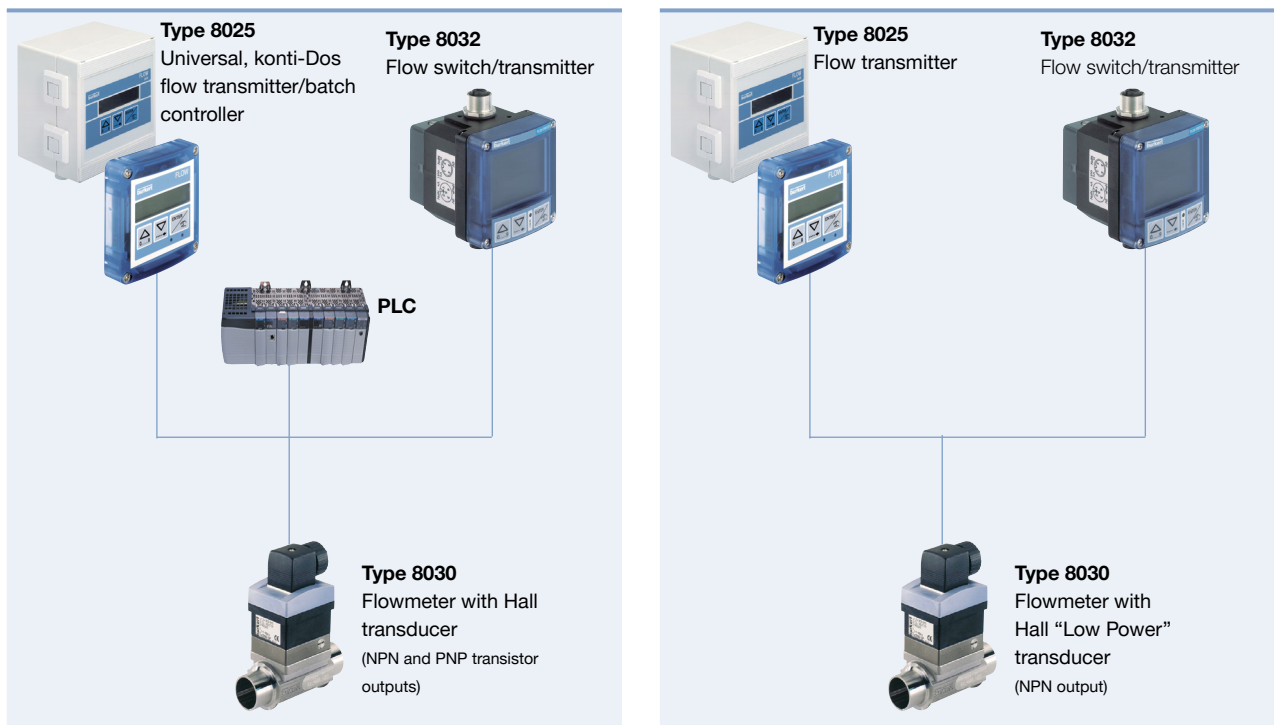
SE30 flow transmitter

Description	Voltage supply	Output	Electrical connection	Article no.
Hall version flowmeter (connectable to Type 8025 universal transmitter, batch controller or konti-Dos; 8032; 8619; PLC)	12...36 V DC	Frequency, 2 transistors NPN and PNP	Cable plug EN 175301-803	423913 
Hall "Low Power" version flowmeter (connectable to Types 8025, 8032 transmitter)	from associated transmitter	Frequency, 1 transistor NPN	Cable plug EN 175301-803	423914 

Ordering chart for accessories (has to be ordered separately)

Specifications	Article no.
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 products



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

Subject to alteration.
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