

Positive displacement flowmeter



- Configurable outputs: one or two transistor output(s) and single or dual 4...20 mA analog 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 of actual flow

Type SE36 + S077 can be combined with...



Type 6213
Solenoid valve



Type 8619
multiCELL
transmitter/controller



Type 8611
Universal process
controller eCONTROL



Type 8644
Valve islands



Type 2101 (8692)
ELEMENT control
valve system



Type 2030
On/Off diaphragm
valve

This positive displacement flowmeter is designed for use with highly viscous fluid like glue, honey.

The device 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).

The device 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.

General data	
Compatibility	With INLINE sensor-fitting S077 (see corresponding data-sheet)
Materials	See exploded view, on next page
Housing	Stainless steel 1.4404, PPS
Cover	PC
Seals	EPDM, silicone
Screws	Stainless steel
Fixed connector mounting plate	Stainless steel 1.4404 (316L)
Fixed connector	Brass nickel plated (stainless steel on request)
Display/configuration module	PC
Navigation key	PBT
Quarter turn system	PC
Wetted parts	
Sensor-fitting body	Aluminium or stainless steel (316L)
Rotor	PPS, aluminium or stainless steel (316L)
Shaft	Stainless steel (316L)
Seals	FKM or FEP/PTFE encapsulated
Display/configuration module (accessories)	Grey dot matrix 128 x 64 with backlighting
Electrical connections	
2 or 3 outputs transmitter	1 x 5-pin M12 male fixed connector
4 outputs transmitter	1 x 5-pin M12 male and 1 x 5-pin M12 female fixed connectors
Connection cable	Shielded cable
Environment	
Ambient temperature	0...+60°C (+32...+140°F) (operating and storage)
Relative humidity	≤ 85%, without condensation

Complete device data (Sensor-fitting S077 + transmitter SE36)	
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)
Medium temperature with body in aluminium / in stainless steel	-20...+80°C (-4...+176°F) / -20...+120°C (-4...+248°F)
Medium 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	
2 or 3 outputs transmitter (2-wire)	14...36 V DC, filtered and regulated
4 outputs transmitter (3-wire)	12...36 V DC, filtered and regulated
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 with sensor	≤ 1 A (with transistors load)
2 or 3 outputs transmitter (2-wire)	≤ 25 mA (at 14 V DC without transistors load, with current loop)
4 outputs transmitter (3-wire)	≤ 5 mA (at 12 V DC without transistors load, without current loop)
Power consumption	40 W max.
Protection	Reversed polarity of DC: protected Voltage peak: protected Short circuit: protected for transistor outputs
Output	
Transistor	
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	
1 current output (transmitter 2-wire)	4...20 mA adjustable as sourcing or sinking (in the same mode as transistor), 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 W at 36 V DC; 610 Ω at 24 V DC; 100 Ω at 12 V DC
4...20 mA output uncertainty	±1%
Standards, directives and certifications	
Protection class	IP65, IP67 with device wired and M12 cable plug mounted and tightened and cover fully screwed down
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 (Sensor-fitting S077, DN15... DN100, in aluminium or stainless steel)	Complying with article 4, §1 of 2014/68/EU directive*
Certification (only for SE36)	
UL-Recognized for US and Canada 	UL61010-1 + CAN/CSA-C22.2 No.61010-1

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

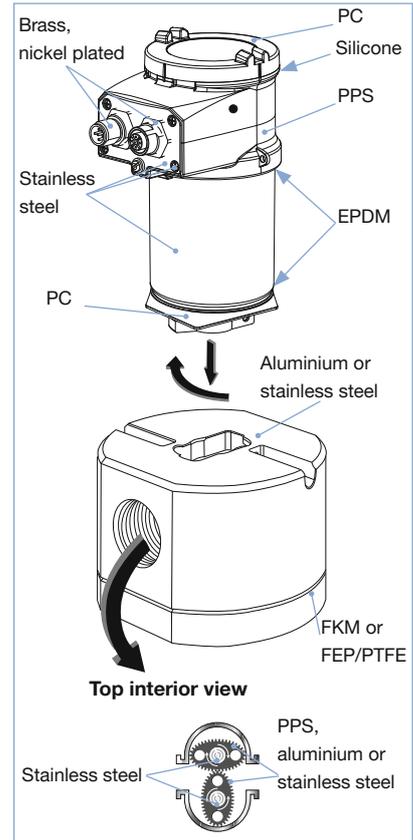
* F.S. = Full scale (10 m/s)

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



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

Materials view

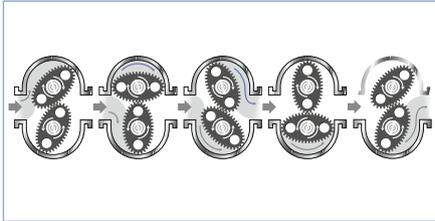
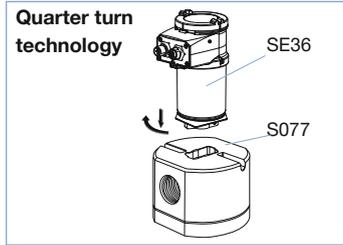


* For the 2014/68/EU pressure directive, the device can only be used under the following conditions (depends on max. pressure, pipe diameter and fluid).

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

Design and operating principle

The device SE36 + S077 is made up of a compact INLINE sensor-fitting (S077) equipped with a sensor with integrated measurement oval rotor and an enclosure with cover, containing the electronic module (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, enter information to be displayed, enter access codes, adjust 4...20 mA output(s) ...) and also for visualizing continuously the measured and processed data.



When liquid flows through the pipe, the rotors turn. This rotation produces a measuring signal in the associated hall 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. 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

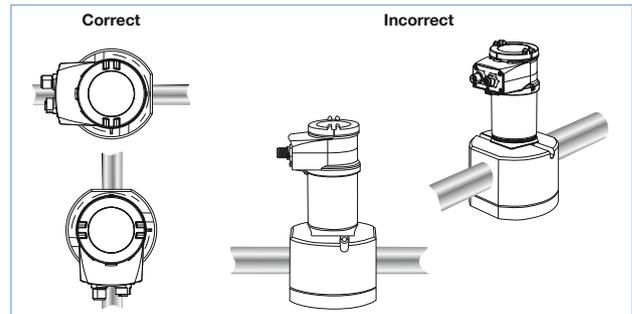
The electronic component converts the measured signal into several outputs (according to the flowmeter version) and displays the actual value. Totalizers are used to obtain the volume of fluid passed through the pipe.

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 (SE36) is quickly and easily connected to the sensor-fitting (S077) by a quarter turn



Dimensions [mm] of flowmeter SE36 + S077

Transmitter SE36

Flowmeter SE36 + S077

DN	H
15	154
25	163
40	175
50	185
80	235
100	251

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

Ordering information for compact flowmeter Type SE36 + S077

A complete flowmeter consists of a compact flow ELEMENT transmitter Type SE36, a removable display/configuration module and a Bürkert INLINE sensor-fitting Type S077.

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

- Item no. of the desired compact flow transmitter **Type SE36** (see ordering chart on p. 5)
- Item no. of the selected INLINE sensor-fitting **Type S077** (see separate datasheet)

You always have to order the two components separately.



Attention!

When you order devices without the display/configuration module, please take care that you also order at least one display/configuration module for the operation.

Order no. of the removable display/configuration module (see ordering chart on p.5)

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

Example

Compact transmitter with display/
configuration module Type SE36



Compact transmitter without display/
configuration module Type SE36



+

Removable display/configu-
ration module



INLINE sensor-fitting Type S077



Complete flowmeter Type SE36 + S077



Ordering chart for compact flow transmitter Type SE36

Specification	Voltage supply	Output	Electrical connection	UL certification	Item no. without display/ configuration module	Item no. with display/ configuration module
2 outputs	14...36 V DC	1 x transistor NPN + 1 x 4...20 mA (2 wires)	5-pin M12 male fixed connector	No	560 880	561 880
				 Recognized	560 883	561 883
3 outputs	14...36 V DC	2 x transistors NPN/PNP + 1 x 4...20 mA (2 wires)	5-pin M12 male fixed connector	No	560 881	561 881
				 Recognized	560 884	561 884
4 outputs	12...36 V DC	2 x transistors NPN/PNP + 2 x 4...20 mA (2 wires)	5-pin M12 male and 5-pin M12 female fixed connectors	No	560 882	561 882
				 Recognized	560 885	561 885

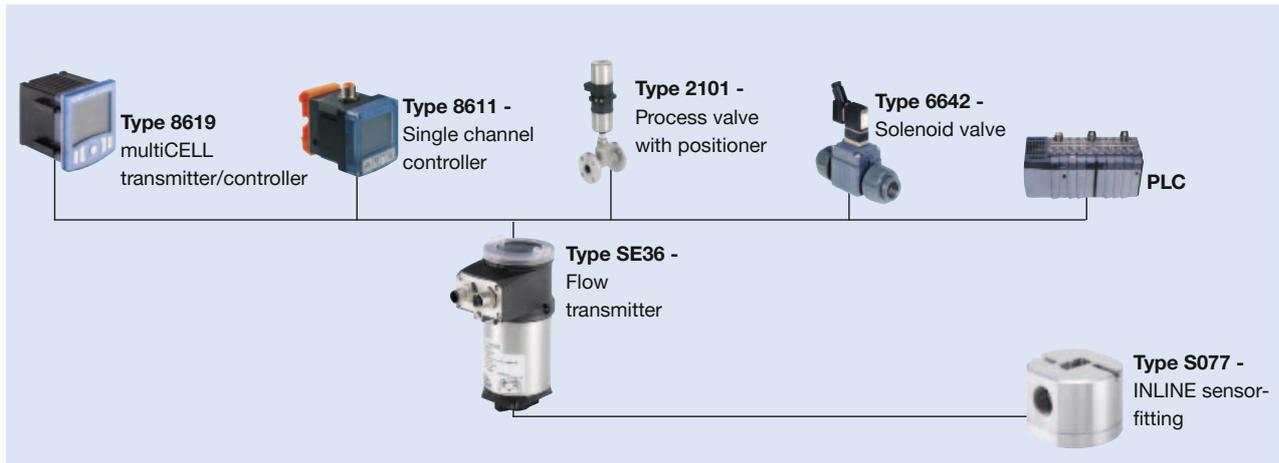
Note: Order separately (see accessories)

- M12 cable plugs (only female for one 4...20 mA output, 1 male + 1 female for two 4...20 mA outputs flowmeter)

Ordering chart - accessories (has to be ordered separately)

Specification	Item no.
Removable display/configuration module (with instruction sheet)	559 168
Blind cover with seal (1 screw cover with EPDM seal + 1 quarter turn closing cover with silicone seal)	560 948
Transparent cover with seal (1 screw cover with EPDM seal + 1 quarter turn closing cover with silicone seal)	561 843
 5 pin M12 female straight cable plug with plastic threaded locking ring, to be wired	917 116
 5 pin M12 male straight cable plug with plastic threaded locking ring, to be wired	560 946
 5 pin M12 female straight cable plug moulded on cable (2 m, shielded)	438 680
 5 pin M12 male straight cable plug moulded on cable (2 m, shielded)	559 177

Interconnection possibilities with other Bürkert devices



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

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