

## Positive displacement flowmeter



- Configurable outputs: one or two transistor output(s) and single or dual 4...20 mA current output(s)
- Removable backlit display of flow rate and/or 2 two totalized volumes
- Automatic-calibration: Teach-In, simulation of outputs signals provided without the need for real flow

Type SE36 + S077 can be combined with...



**Type 6213**  
Solenoid valve



**Type 8619**  
multiCELL transmitter/controller



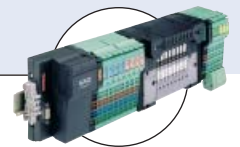
**Type 8611**  
eCONTROL Universal controller



**Type 2101 (8692)**  
Continuous TopControl system



**Type 2030**  
On/Off Diaphragm valve



**Type 8644**  
Valve islands

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

The flowmeter can operate without the display, but it will be required for configuring the flowmeter (i.e. set parameters, restore default parameters, configure information to be displayed, programme access code, adjust 4...20 mA output(s)...) and also for visualizing continuously the measured and processed data.

The device converts the measured signal, displays different values in different units (if display mounted) and computes the output signals. 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	
<b>Compatibility</b>	With INLINE sensor fittings S077 (see corresponding data sheet)
<b>Materials</b>	See exploded view, on next page
Housing	Stainless steel 1.4561, 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	PC
Navigation key	PBT
Quarter-Turn system	PC
Wetted parts materials	
Sensor fitting body	Aluminium or stainless steel (316L)
Rotor	PPS, aluminium or stainless steel (316L)
Shaft / Seal	Stainless steel (316L) / FKM or FEP/PTFE encapsulated
<b>Display</b>	Grey dot matrix 128 x 64 with backlighting
<b>Electrical connections</b>	
2 or 3 outputs flowmeter	1 x 5-pin M12 male fixed connector
4 outputs flowmeter	1 x 5-pin M12 male and 1 x 5-pin M12 female fixed connectors
<b>Voltage supply cable</b>	max. 50 m, shielded, 1,5 mm <sup>2</sup> max. cross-section

## Complete device data (sensor fitting S077 + electronic module SE36)

<b>Pipe diameter</b>	DN15...DN100
Thread connection	1/2"; 1"; 1 1/2"; 2"; 3" (G or NPT)
Flange connection	25; 40; 50; 80 or 100 mm DIN PN16 flange 1"; 1 1/2"; 2"; 3" or 4" ANSI 150LB flange
<b>Measuring range</b>	
Viscosity > 5 mPa.s	2...1200 l/min (0.53...320 gpm)
Viscosity < 5 mPa.s	3...616 l/min (0.78...320 gpm)
<b>Medium temperature with body in aluminium / in stainless steel</b>	-20...+80°C (-4...+176°F) / -20...+120°C (-4...+248°F)
<b>Fluid pressure max.</b>	
DN15	55 bar (798.05 PSI) (threaded process connection)
DN25 / DN40 or DN50	55 bar (798.05 PSI) <sup>1)</sup> / 18 bar (261.18 PSI)
DN80 / DN100	12 bar (174.12 PSI) / 10 bar (145.1 PSI)
<b>Viscosity</b>	1 Pa.s max. (higher on request)
<b>Measurement deviation</b>	±1% of Reading (if "standard" K-factor is used) ±0.5% of Reading (if "specific" K-factor is used, on label of the product)
<b>Repeatability</b>	±0.03% of Reading

<sup>1)</sup> or in accordance to the value of the used flanges

## Electrical data

<b>Operating voltage</b>	
2 or 3 outputs flowmeter (2-wire)	14...36 V DC, filtered and regulated
4 outputs flowmeter (3-wire)	12...36 V DC, filtered and regulated
<b>Characteristics of the power source (not provided) of UL recognized devices</b>	Limited power source (according to § 9.3 of the UL61010-1 standard) or, Class 2 type power source (according to the 1310/1585 and 60950-1 standards)
<b>Current consumption</b> with sensor	≤ 1 A (with transistor loads)
2 or 3 outputs flowmeter (2-wire)	≤ 25 mA (at 14 V DC without transistors load, with current loop)
4 outputs flowmeter (3-wire)	≤ 5 mA (at 12 V DC without transistors load, without current loop)
<b>Power consumption</b>	40 W max.
<b>Reversed polarity of DC</b>	Protected
<b>Voltage peak</b>	Protected
<b>Short circuit</b>	Protected for transistor outputs
<b>Output</b>	
Transistor	
1 Transistor output (Flowmeter 2-wire)	NPN, open collector, 1...36 V DC, max. 700 mA
2 Transistor outputs (Flowmeter 2 or 3-wire)	Configurable 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 (Flowmeter 2-wire)	4...20 mA configurable as sourcing or sinking (in the same mode as transistors), max. loop impedance: 1100 Ω at 36 V DC; 610 Ω at 24 V DC; 180 Ω at 14 V DC
2 Current outputs (Flowmeter 3-wire)	max. loop impedance: 1100 Ω at 36 V DC; 610 Ω at 24 V DC; 100 Ω at 12 V DC

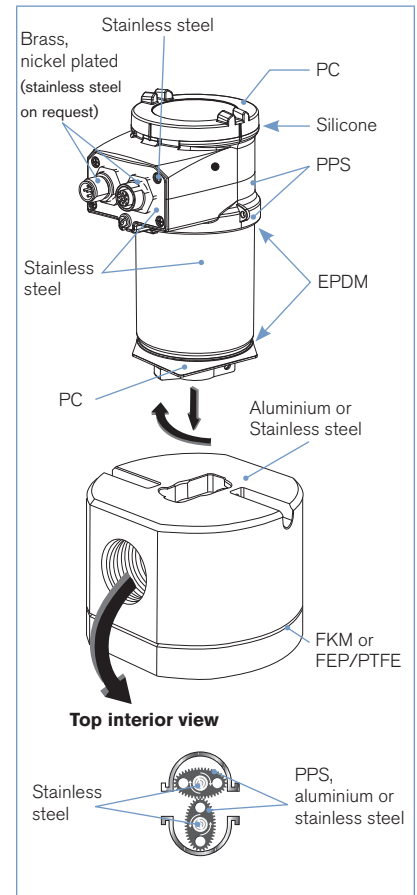
## Environment

<b>Ambient temperature</b>	0...+60°C (+32...+140°F) (operating and storage)
<b>Relative humidity</b>	≤ 80%, without condensation

## Standards, directives and approvals

<b>Protection class</b>	IP65 and IP67 with M12 cable plug mounted and tightened and cover fully screwed down
<b>Standard and directives CE</b>	
EMC	EN 61000-6-2, EN 61000-6-3
Pressure (Sensor fitting S077, DN15... DN100, in aluminium or stainless steel)	Complying with article 3 of Chap. 3 from 97/23/CE directive.* (without CE mark)
Vibration	EN 60068-2-6
Shock	EN 60068-2-27
<b>Approvals (only for SE36)</b>	
UL-Recognized for US and Canada	UL61010-1 + CAN/CSA-C22.2 No.61010-1

## Materials view



\* For the 97/23/CE pressure directive, the device can only be used under following conditions (dependent on max. pressure, pipe diameter and fluid).

Type of fluid	Conditions
Fluid group 1, §1.3.a	Forbidden
Fluid group 2, §1.3.a	DN ≤ 32, or DN > 32 and PN*DN ≤ 1000
Fluid group 1, §1.3.b	PN*DN ≤ 2000
Fluid group 2, §1.3.b	DN ≤ 200

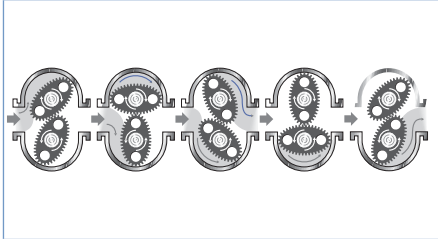
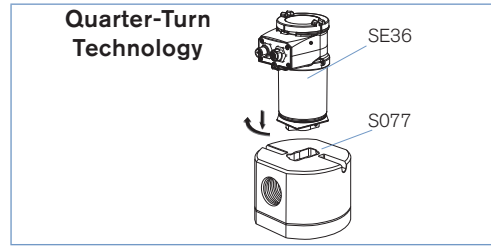
## Design and principle of operation

The flowmeter is built up with an electronic module SE36 associated to a sensor fitting S077 with integrated measurement oval rotor.

This connection is made by means of a Quarter-Turn.

The transmitter is made of an enclosure with cover, containing the electronic module. A removable display completes the flowmeter

The output signal is provided via one or two M12 fixed connectors.



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

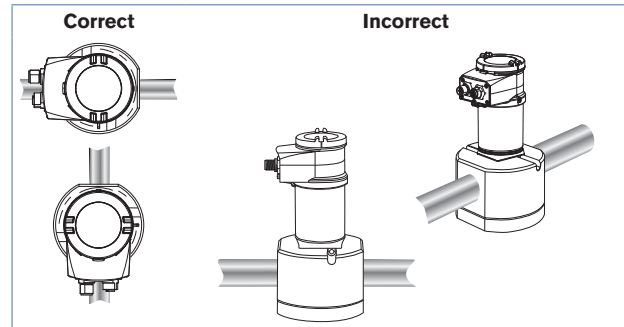
The device is available with:

- 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)

## 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 air purge of the system which would cause damages and to prevent damage from dirt or foreign matter, we strongly recommend the installation of a 250 µm strainer as close as possible to the inlet side of the meter.



## Dimensions [mm]

**Electronics SE36**

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 complete flowmeter Type SE36 + S077

A complete flowmeter consists of a ELEMENT electronics Type SE36, a removable display/setting 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 electronics **Type SE36** (see ordering chart on p. 5)
- Item no. of the selected INLINE sensor fitting **Type S077** (see separate data sheet- has to be ordered separately)



You have always to order separately two components.


**Attention!**

When you order devices without display, please take care that you also order at least one display module for the operation.  
Order no. of the removable display/setting 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 data sheet.

**Example**


**Electronic module  
with display Type SE36**



**Electronic module  
without display Type SE36**




**Removable  
display/setting module**




+

**INLINE sensor fitting  
Type S077**






More  
info.

**Complete flowmeter**







**Ordering chart for electronics Type SE36**

Specifications	Operating voltage	Output	Electrical connection	UL Approval	Item no.	
					without display	with display
2 outputs	14...36 V DC	1 x transistor + 1 x 4...20 mA (2-wire)	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 + 1 x 4...20 mA (2-wire)	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 + 2 x 4...20 mA (3-wire)	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 single 4...20 mA, 1 male + 1 female for dual 4...20 mA flowmeter)

**Ordering chart for accessories** (has to be ordered separately)

Description	Item no.
Removable display/setting module (with instruction sheet)	559 168
Blind cover with EPDM seal	560 948
Transparent cover with EPDM 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 products**



**Type 8619** multiCELL Transmitter/Controller

**Type 8611 -** Universal process controller eCONTROL

**Type 2101 -** Process Valve with positioner

**Type 6642 -** Solenoid valve

**PLC**

**Type SE36 -** Flow transmitter

**Type S077 -** INLINE sensor fitting

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[www.burkert.com](http://www.burkert.com)

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

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