



Positive displacement flowmeter, ELEMENT design

- 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

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

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

The SE36 + S077 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 SE36 + S077 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.

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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 6.**

Non wetted parts

Housing	Stainless steel 1.4404 (316L), PPS
Cover	Polycarbonate (PC), transparent (opaque on request)
Display/configuration module	PC
Navigation key	PBT
Seals	EPDM, silicone
Screws	Stainless steel 1.4401 (316 (A4))
Fixed connector holder	PPS CF30
Fixed connector	Nickel-plated brass (stainless steel on request)
Grounding terminal and screw	Stainless steel 1.4301 (304 (A2))
Quarter turn system	PC

Wetted parts

Sensor-fitting body	Aluminium or stainless steel (316L)
Seal	FKM or FEP/PTFE encapsulated
Oval gear	PPS, aluminium or stainless steel (316L)
Shaft	Stainless steel (316L)
Dimensions	Detailed information can be found in chapter "4. Dimensions" on page 7
Measuring principle	Oval gear
Compatibility	Any pipe from DN 15...DN 100 which is fitted with Bürkert S077 Inline sensor-fitting. For the selection of the nominal diameter of the Inline sensor-fittings, see data sheet Type S077 ►.
Pipe diameter	DN 15...DN 100
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)

Product accessories

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

Measurement deviation	- With K-factor determined with a teach-in procedure or with the specific K-factor, engraved on the sensor-fitting: $\pm 0.5\%$ of the measured value (at Teach-In flow rate value) - With standard K-factor: $\pm 1\%$ of the measured value
Repeatability	$\pm 0.03\%$ of the measured value
4...20 mA output uncertainty	$\pm 1\%$ 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 "9.5. 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 S070 in:

- Aluminium: -20...+80 °C (-4...+176 °F)
 - Stainless steel: -20...+120 °C (-4...+248 °F)
- See **data sheet Type S077** ► for more information.

Fluid pressure (max.)

With sensor-fitting S077 with:

- DN 15: 55 bar (798.05 PSI) (threaded process connection)
- DN25: 55 bar (798.05 PSI)¹⁾
- DN40 or DN50: 18 bar (261.18 PSI)
- DN80: 12 bar (174.12 PSI)
- DN100: 10 bar (145.1 PSI)

See **data sheet Type S077** ► for more information.

Viscosity

Max. 1 Pa.s (higher on request)

Rate of solid particles

0 %

Process/Port connection & communication

Process connection

- Thread: ½"; 1"; 1½"; 2"; 3" (G or NPT)
- Flange:
 - 25; 40; 50; 80 or 100 mm DIN PN16 flange
 - 1"; 1½"; 2"; 3" or 4" ANSI 150LB flange

See **data sheet Type S077** ► 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**Degree of protection²⁾

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.) Or in accordance to the value of the used flanges.

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:

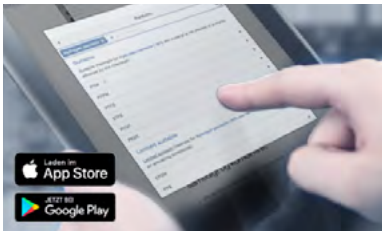
Device used on a pipe**Note:**

- 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

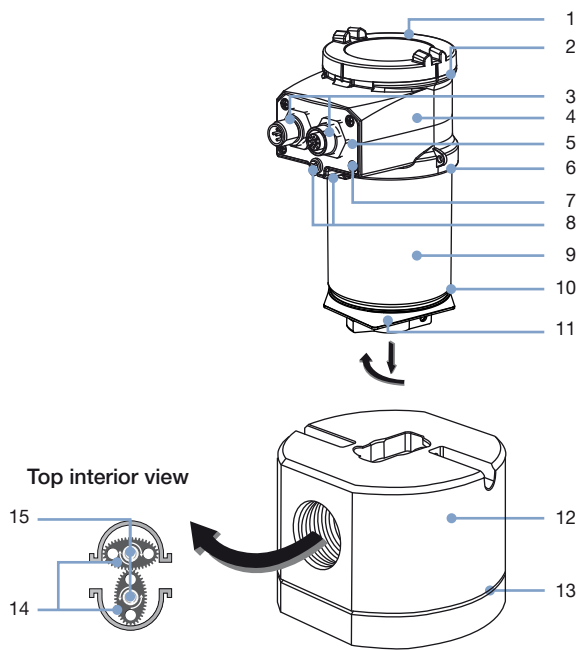


Bürkert resistApp – Chemical Resistance Chart

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

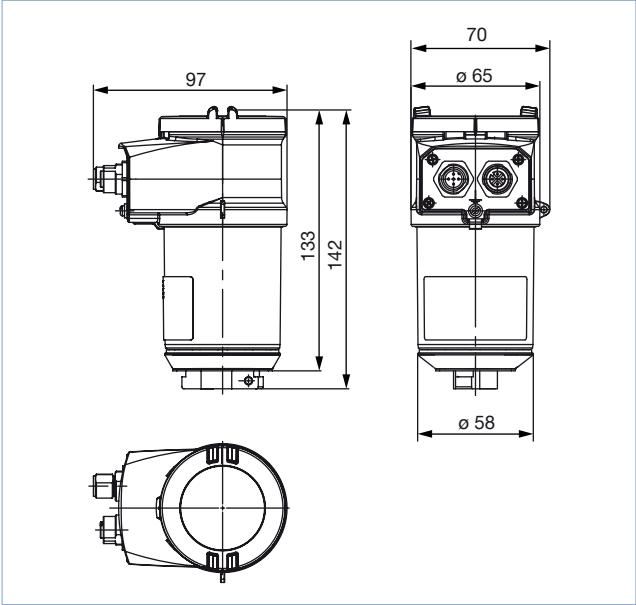


No.	Element	Material
1	Cover	PC
2	Seal	Silicone
3	Fixed connector (female / male M12)	Nickel-plated brass
4	Housing (top)	PPS
5	Fixed connector holder	PPS CF30
6	Seal	EPDM
7	Screws	Stainless steel 1.4301 (304 (A2))
8	Grounding terminal and screw	Stainless steel 1.4401 (316 (A4))
9	Housing (body)	Stainless steel 1.4404 (316L)
10	Seal	EPDM
11	Housing (base)	PPS
12	Sensor-fitting body	Aluminium or stainless steel (316L)
13	Seal	FKM or FEP/PTFE encapsulated
14	Oval gear	PPS, aluminium or stainless steel (316L)
15	Axis	Stainless steel (316L)

4. Dimensions

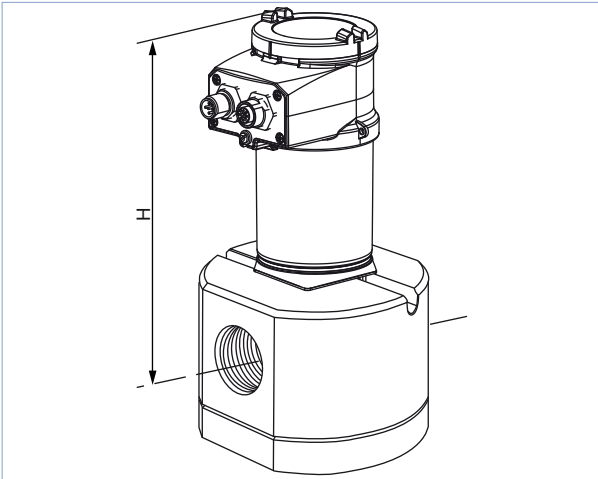
4.1. Transmitter SE36

Note:
Specifications in mm



4.2. Transmitter SE36 mounted in a S077 sensor-fitting

Note:
Specifications in mm



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

DN 15 DN 25 DN 40 DN 50 DN 80

Threaded connection

DN 15 DN 25 DN 40 DN 50 DN 80 DN 100

Flanged connection

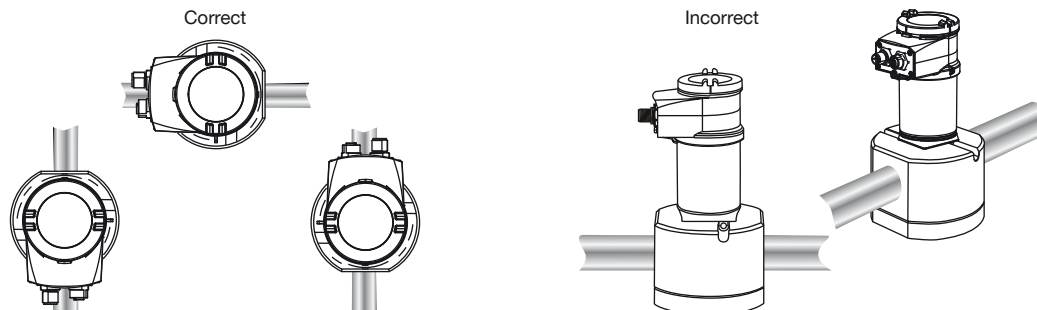
5. Product installation

5.1. Installation notes

Note:

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

The sensor fitting can be installed in any orientation as long as **the rotor shafts are always in a horizontal plane**.



The pipe must be filled with liquid and free from air bubbles. Avoid air purge of the system which would cause damage 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.

6. Product operation

6.1. Measuring principle

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** ►. 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.

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

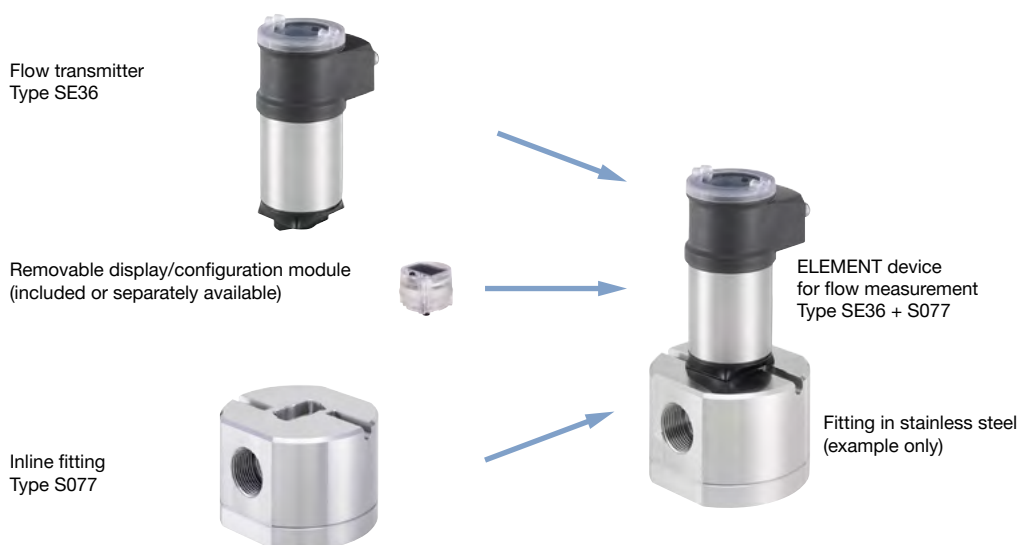
7. Product design and assembly

7.1. Product assembly

Note:

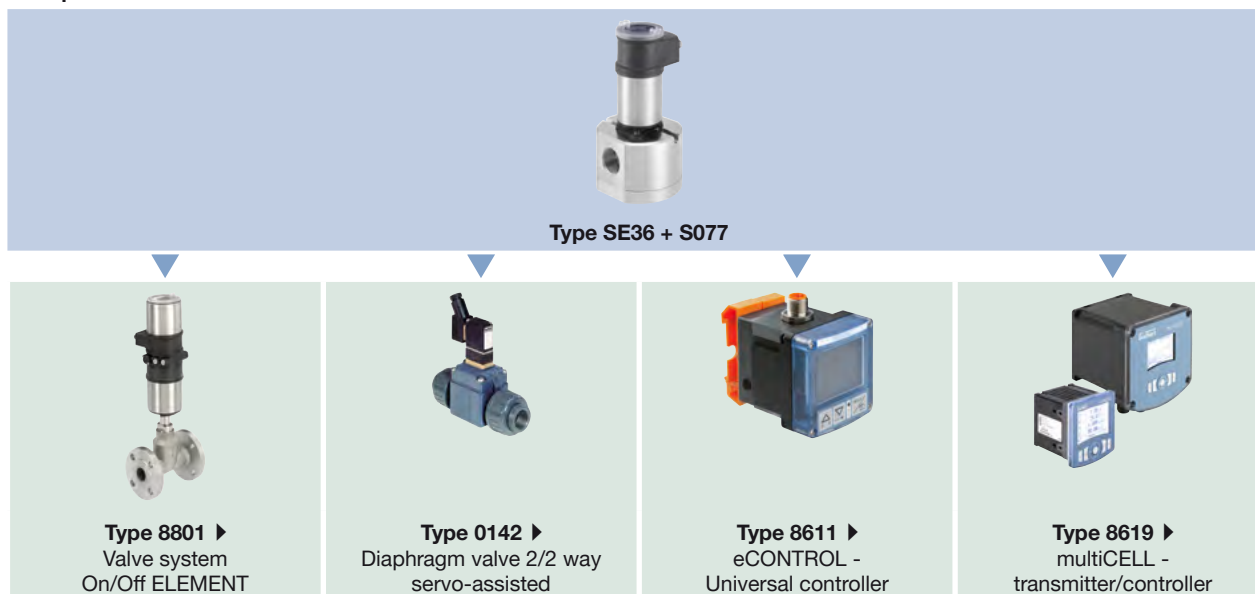
- The device SE36 + S077 is made up of a compact Inline sensor-fitting (S077) equipped with a sensor with oval gear and an enclosure with cover containing the electronic module (transmitter SE36).
A removable display/configuration module completes this flowmeter. The flowmeter can operate without the 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 S077 Inline sensor-fitting ensures simple installation into pipes from DN 15...DN 100. The SE36 transmitter can easily be installed into any Bürkert sensor-fitting system, by means of a quarter turn.

See **data sheet Type S077** ▶ for more information.



8. Networking and combination with other Bürkert products

Example:



9. Ordering information

9.1. Bürkert eShop – Easy ordering and quick delivery



Bürkert eShop – Easy ordering and fast delivery

You want to find your desired Bürkert product or spare part quickly and order directly? Our online shop is available for you 24/7. Sign up and enjoy all the benefits.

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9.2. Recommendation regarding product selection

Note:

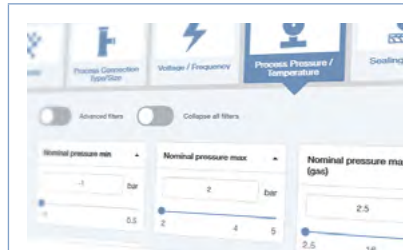
- A SE36 + S077 flowmeter consists of a compact SE36 flow transmitter, a removable display/configuration module and a Bürkert S077 Inline sensor-fitting.
- When you order devices without a display/configuration module, please take care that you also order at least one display/configuration module for parametrising the device (see chapter “9.5. Ordering chart accessories” on page 11).

See **data sheet Type S077** ► 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 “9.4. Ordering chart for flow transmitter Type SE36” on page 11)
- **Article no.** of the removable display/configuration module, if necessary (see chapter “9.5. Ordering chart accessories” on page 11)
- **Article no.** of the selected S077 Inline sensor-fitting (See **data sheet Type S077** ►)

9.3. 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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9.4. 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 “9.5. 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)

9.5. 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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