

**Description**

Compact single point flow monitor, MIN monitoring option, suitable for water and liquids of similar thermal conductivities, robust design. With standardised screw-in type monitoring head for ease of installation.

**Operating principle**

The FS30 flow monitor operates on the calorimetric measuring principle and employs CP (Constant Power) methodology. If the flow rate falls below a previously set MIN limit value, the FS30 will provide an alarm signal via a plus-switching transistor output (switches on 0 V-level) as well as indication by means of an integral LED. The short-circuit and overload-proof alarm signal may be input for further processing to a controller or connected directly as a command signal to a load circuit such as a pump.

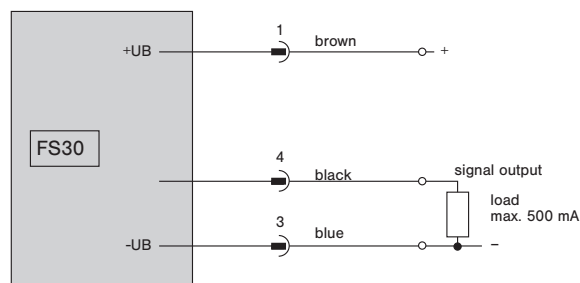
**Features**

- wear-resistant and compact construction in stainless steel 1.4571
- voltage supply: DC 12 V or DC 24 V
- medium: water and similar liquids
- flow rate range: 0.25 ... 3.00 m/s / 0.82 ... 9.84 fps
- switch point steplessly adjustable by means of teach-in function
- visual indication of flow rate below MIN value: yellow LED
- visual indication of power ON: green LED
- signal output with high side power FET switching output (500 mA), short circuit proof and overload-proof
- medium temperature: +1 ... +70 °C/+34 ... +158 °F
- M12 3-pole plug-in electrical connection



FS30-..

**Connection diagram FS30**

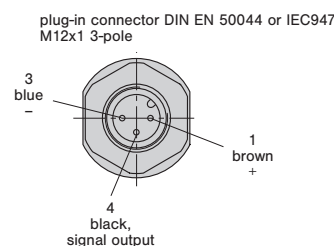


**Ordering information**

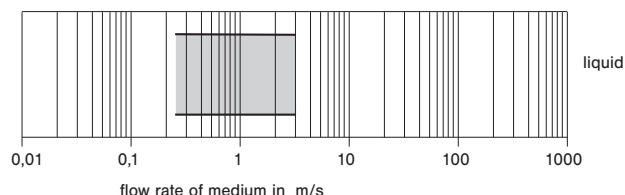
<b>Flow monitor (calorimetric)</b>							
<b>FS30</b>	flow monitor and integral compact housing						
<b>Power supply</b>							
<b>U1</b>	DC 24 V						
<b>U2</b>	DC 12 V (only with process connection 03 – G1A)						
<b>Flow switch point</b>							
<b>MIN</b>							
<b>Process connection</b>							
<b>01</b>	G1/2A (to DIN 3852-A), length = 36 mm/1.42 in. (only with U1 – DC 24 V)						
<b>02</b>	NPT 1/2"-14, length = 36 mm/1.42 in. (only with U1 – DC 24 V)						
<b>03</b>	G1A (to DIN 3852-A), length = 36 mm/1.42 in.						
<b>Media</b>							
<b>W</b>	water and similar liquids						
<b>Material of wetted parts</b>							
<b>M1</b>	stainless steel 1.4571						
<b>Electrical connection</b>							
<b>E12</b>	M12x1, 3-pole						
<b>Certification</b>							
<b>T0</b>	without certificate (standard) *)						
<b>FS10 - U1 MAX 01 W - M1 E12 T0</b>	ordering example						

\*) for detailed information please see section 0.

**Electrical connection**



**Flow rate ranges**

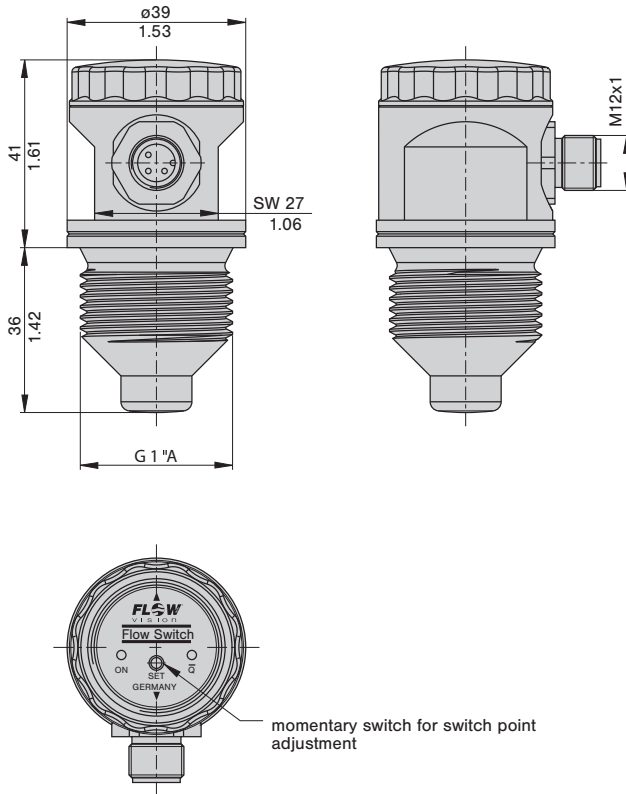


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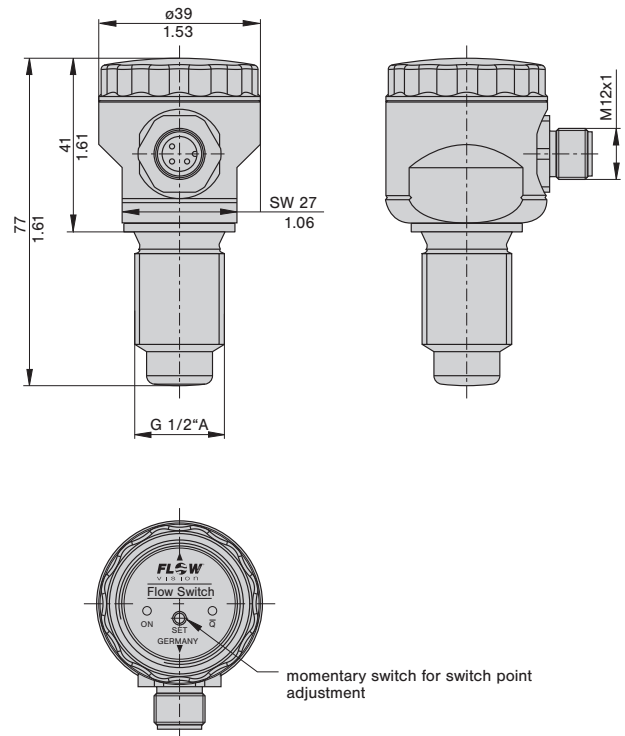
**TECHNICAL DATA**

General data		FS30
Fluid		water, aqueous liquids
Monitoring function	flow rate	switch point (MIN)
	fault indication	LED (yellow) (value below MIN)
	signal output	power FET, high side switch, short circuit proof relay output with coupling relay module REAW (see separate page)
	max. load	500 mA, inductive load max. 100 mA
Temperature range	medium	+1 ... +70 °C/+34 ... +158 °F
	ambient temperature	-15 ... +55 °C/+5 ... +131 °F
<b>Electrical data</b>		
Operating voltage $U_b$		DC 12 V (9 ... 16 V) or DC 24 V (18 ... 32 V)
Power consumption (without load)		approx. 20 ... 100 mA (pulsing)
Status indication		LED (green) (power ON)
Connection to DIN 50044		M12 plug-in connection, 3-pole
<b>Flow monitoring</b>		
Flow response range adjustment		0,25 ... 3,0 m/s / 0.82 ... 9.84 fps
Repeatability <sup>(1)</sup>		< ±10 % of the set value
Response delay <sup>(2)</sup>		5 s
Switch-on delay		15 s (output ON)
Switch point drift through temperature change of the medium		approx. ±1.0 % of the set value/°C / 1.8 % of the set value/°F
<b>Mechanical data</b>		
Type and size of monitoring head	process connection	G1/2A, G1A (both DIN 3852-A) or NPT1/2"
	insertion length	36 mm/1.42 in.
	pressure resistance	16 bar/232 psi
Degree of protection		IP67 (when plugged in)
Materials	fitting (wetted)	stainless steel 1.4571
	housing	stainless steel 1.4571
	M12-connector	CuZn, nickel-plated
	cap	PA
	O-ring	Viton®
Weight		approx. 300 g/0.661 lb
<sup>(1)</sup> Of the preset response value at constant temperature, steady and consistent flow conditions and constant thermal conductivity. <sup>(2)</sup> Delay values measured with a switch point adjustment to 1 m/s / 3.28 fps and an operating flow of 2 m/s / 6.56 fps after a sudden flow stop to 0 m/s / 0 fps.		

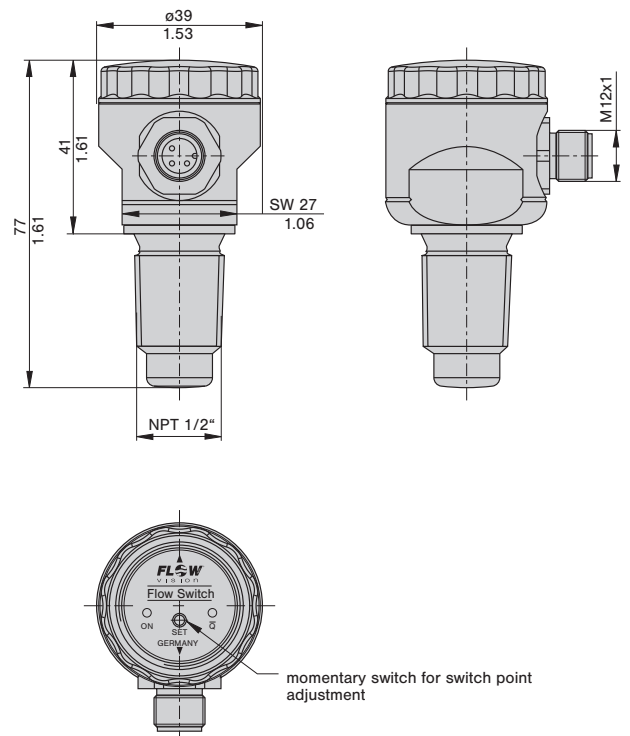
**Dimensions – process connection G1A (FS30-...03...)**



**Dimensions – process connection G1/2A (FS30-...01...)**



**Dimensions – process connection NPT1/2" (FS30-...02...)**



All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.

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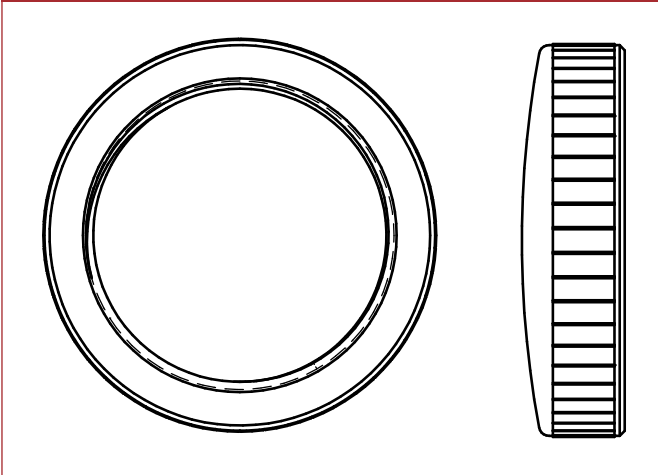
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**Stainless steel cap**

**Description**

Protective cap, material stainless steel 1.4571  
Ordering no.: Z00025



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### Cable type 24 with connectors



### Technical data

#### Cable type 24

**Features:** Protection degree IP67 (only with connector fitted)  
Resistant to chemicals and oils

Temperature range: -25 ... +80 °C/-13 ... +176 °F

Current carrying capacity: 4 A

Insulation resistance: > 10<sup>9</sup> Ω

Withstand voltage: 1,5 kV/60 s

### Description

M12 plug-in electrical connection for connection of supply voltage and switching output.

### Ordering information

#### Cable and cable connector

**Do + Ka type 24 - 5 m** with connector to IEC60947-5-2, 3-pole  
M12 and PUR insulated cable 3x0.34 mm<sup>2</sup> (AWG 22),  
halogen-free

**Do + Ka type 24 - 5 m** ordering example

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**Description**

Coupling relay module for Flow Monitor FS10/FS20/FS30 with connectors to FS10/FS20/FS30 and to I&C. Provides a relay output for FS10/FS20/FS30.

**Features**

- Connections with included Harting connectors
- Wire break detection possible with resistor at relay

**Ordering information**

**Flow Monitor**

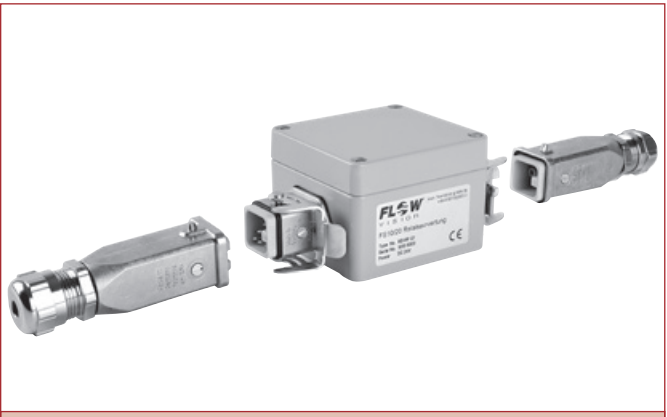
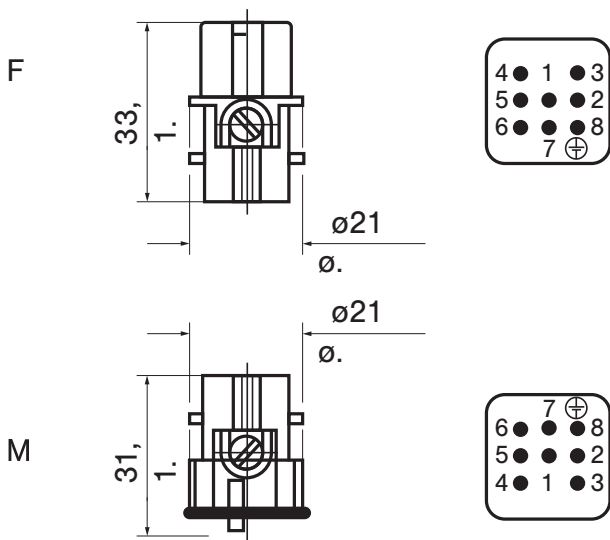
**REAW-FS-U1** Coupling relay module to FS10/FS20/FS30

**REAW-FS-U1** ordering example

**TECHNICAL DATA**

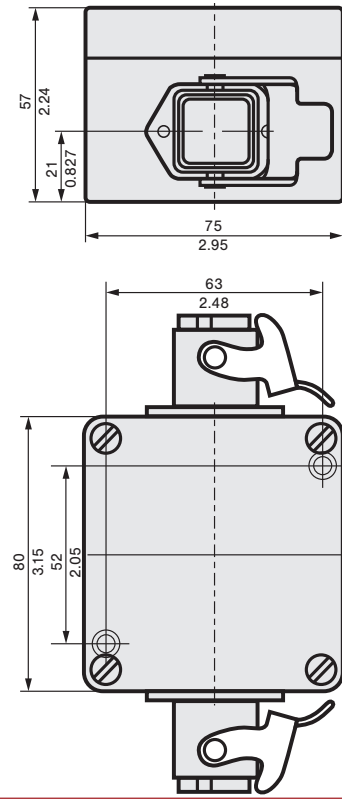
General data		REAW-FS-U1
Temperature range (ambience)		-25 ... +60°C/-13 ... +140°F
Electrical data		
Operating voltage $U_s$		DC24V (18 ... 32V)
Power consumption		approx. 17mA (relay energized)
Input resistance		ca. 1400 Ohm
Relay outputs		1 SPDT contact, gilded, AC/DC 30V, 5A
Mechanical data		
Degree of protection		IP 65 (when plugged in)
Materials	housing	aluminium
	cover	aluminium
	connector	die cast, zinc alloy
	gland	brass, nickel plated

**Connector pins**

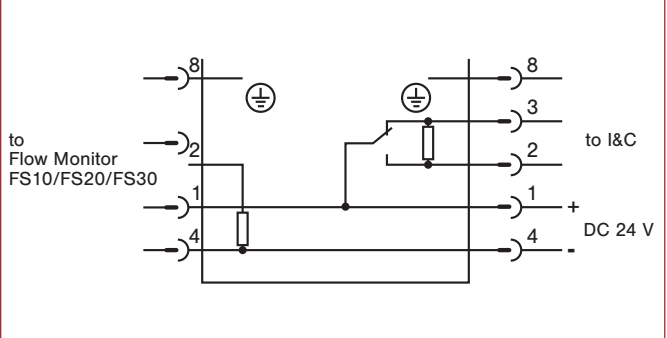


**REAW**

**Dimensions**



**Connection diagram**



This is a metric design and millimeter dimensions take precedence (  $\frac{mm}{inch}$  )