

A

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		FC04	18
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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.

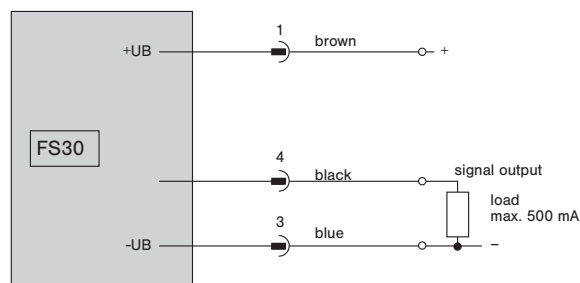
Features

- 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

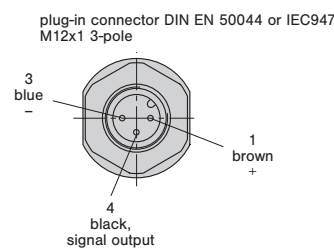


Ordering information

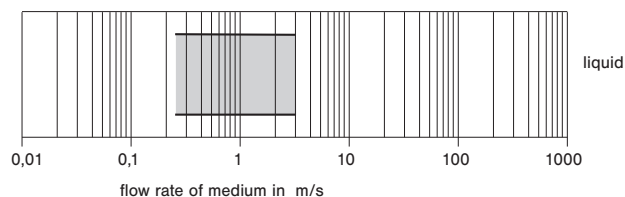
Flow monitor (calorimetric)							
FS30	flow monitor and integral compact housing						
Power supply							
U1	DC 24 V						
U2	DC 12 V (only with process connection 03 – G1A)						
Flow switch point							
MIN							
Process connection							
01	G1/2A (to DIN 3852-A), length = 36 mm/1.42 in. (only with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

*) for detailed information please see section 0.

Electrical connection



Flow rate ranges



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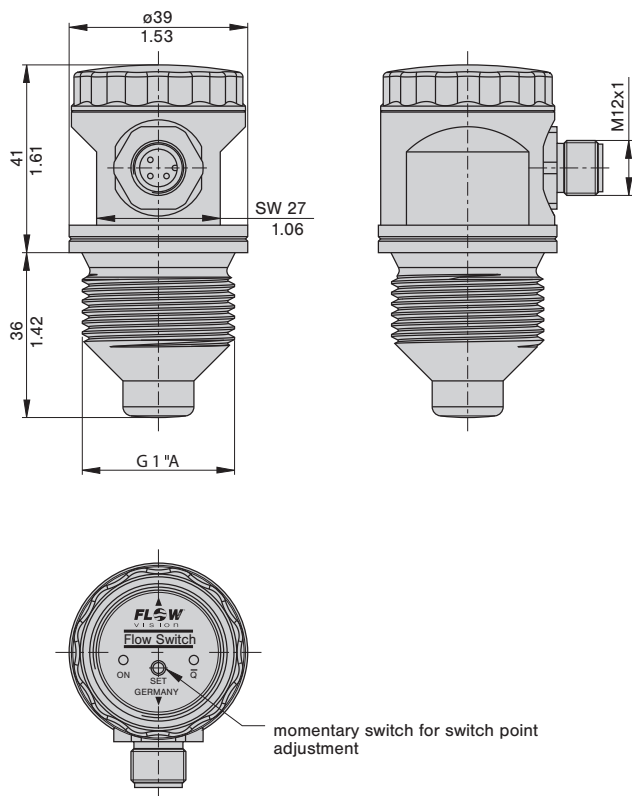
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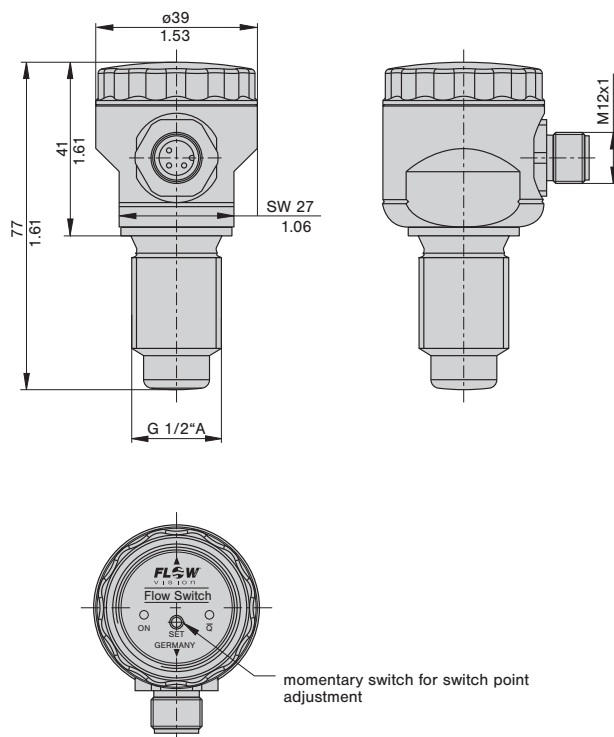
TECHNICAL DATA

General data		FS30
Media		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
Electrical data		
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
Flow monitoring		
Flow response range adjustment		0,25 ... 3,0 m/s / 0.82 ... 9.84 fps
Repeatability ⁽¹⁾		< ±10 % of the set value
Response delay ⁽²⁾		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
Mechanical data		
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
⁽¹⁾ Of the preset response value at constant temperature, steady and consistent flow conditions and constant thermal conductivity. ⁽²⁾ 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.		

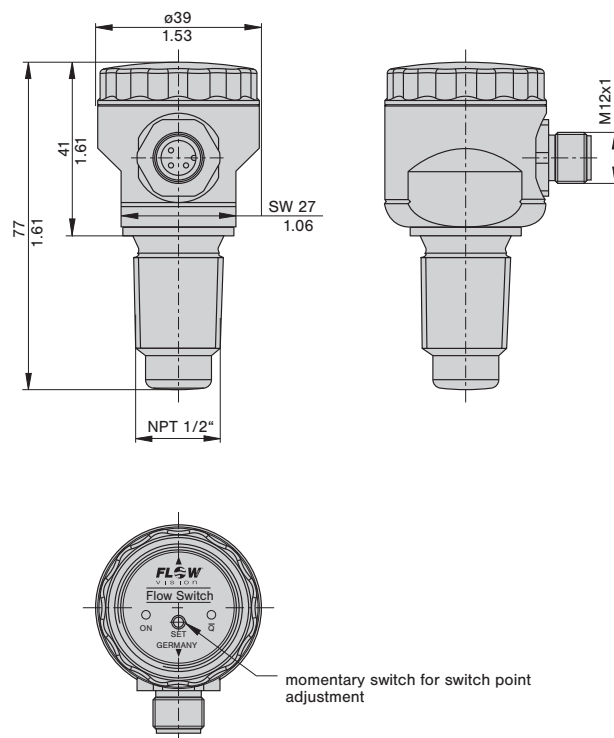
Dimensions – process connection G1A (FS30-...03...)



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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Cable type 24 with connectors



Description

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

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

Contact resistance: ≤ 5 mΩ

Current carrying capacity: 4 A

Insulation resistance: > 10⁹ Ω

Withstand voltage: 2.0 kV_{eff.} / 60 s

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 mm² (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

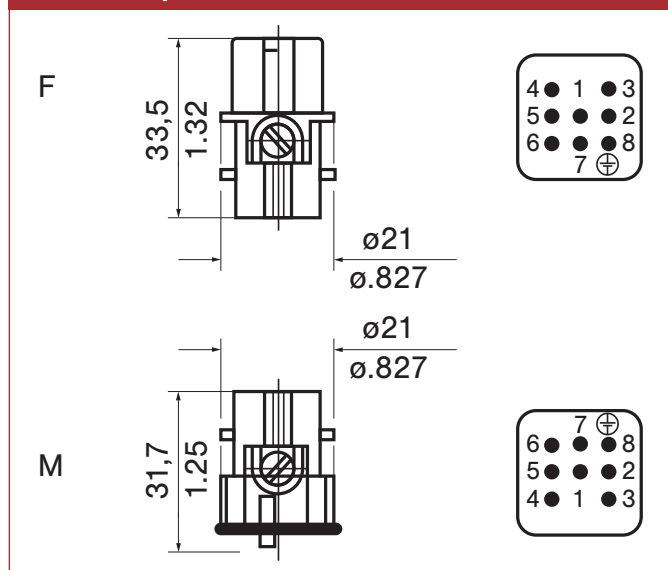
REAW-FS-U1 Coupling relay module to FS10/FS20/FS30

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_B		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

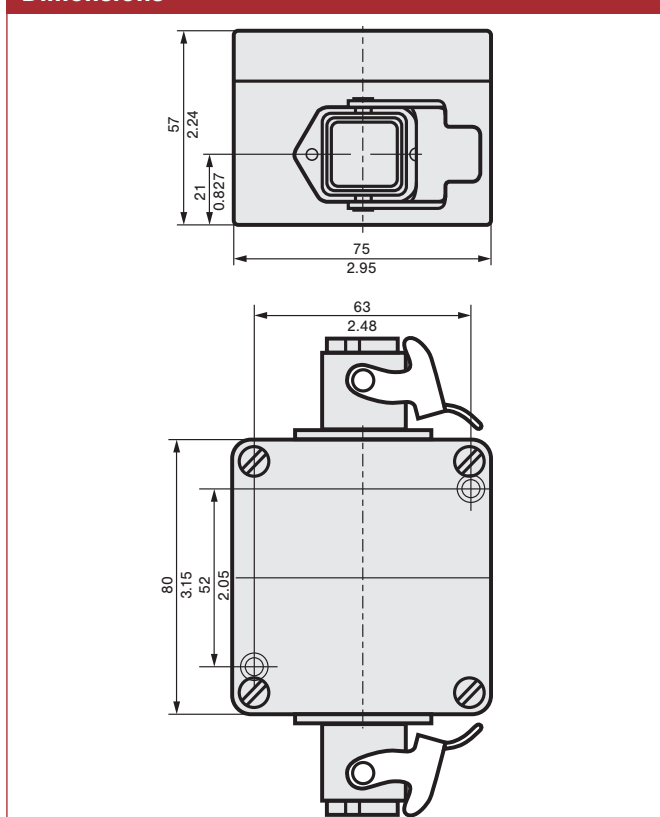
Connector pins



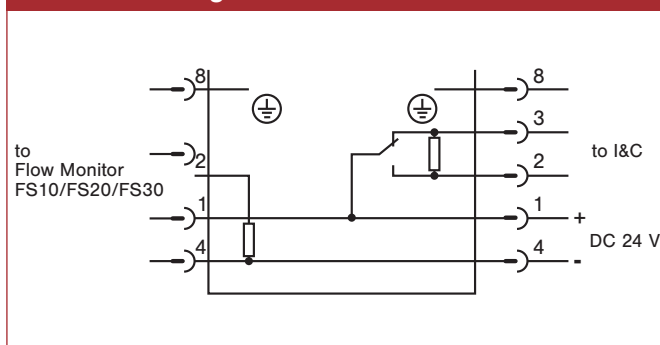
This is a metric design and millimeter dimensions take precedence ($\frac{mm}{inch}$)



Dimensions



Connection diagram



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