

A

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Description

Compact single point flow monitor, MIN or MAX monitoring options, suitable for water, oil, air or media with similar thermal conductivities.

Designed for use in

- ventilation systems with large pipe sizes (DN50 plus)
- cooling equipment with pipes with thick-walled insulation

If the flow rate falls below (MIN-function) or exceeds (MAX-function) the value adjusted by means of potentiometer, the signal output switches to 0 V-level and the yellow LED (Q) lights.

Features

- wear-resistant compact design, with stainless steel 1.4571 monitoring head and housing
- push-in type monitoring head
- switch point steplessly adjustable by means of potentiometer
- fault indication by yellow LED
- status indication by green LED
- media temperature range $-40^{\circ}\text{C} \dots +100^{\circ}\text{C} / -40^{\circ}\text{F} \dots +212^{\circ}\text{F}$
- M12 plug-in electrical connection
- signal output with HighSide-MOSFET output
- protected against short circuits and overloads

Ordering information

Flow monitor (calorimetric)

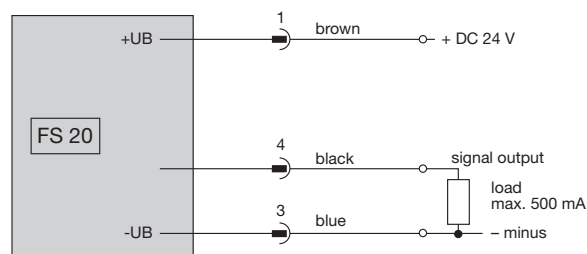
FS20	compact flow monitor with variable push-in type monitoring head						
Power supply							
U1	DC 24 V						
Flow switch point							
MIN							
MAX							
Media							
A	air, gases						
W	water, oil, liquids						
Fitting material							
M1	stainless steel 1.4571						
Process connection							
00	without flange, threaded installation bush as accessory						
Length of shank							
L30	300 mm/11.8 in. (standard) other lengths upon request						
Electrical connection							
E12	M12x1, 3-pole						
Certification							
T0	without certificate *)						
FS10 - U1 MIN W - M1 00 L30 E12 T0	ordering example						

*) for detailed information please see section 0.

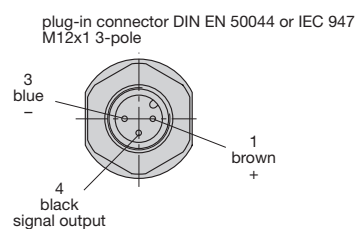


FS20-..

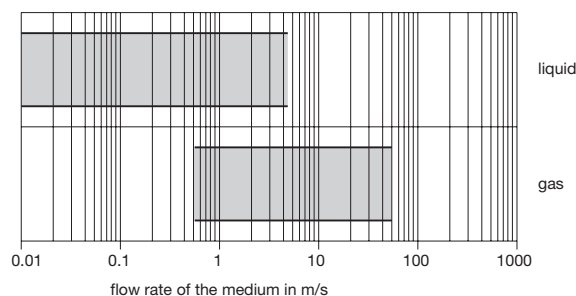
Connection diagram FS20



Electrical connection



Flow rate ranges



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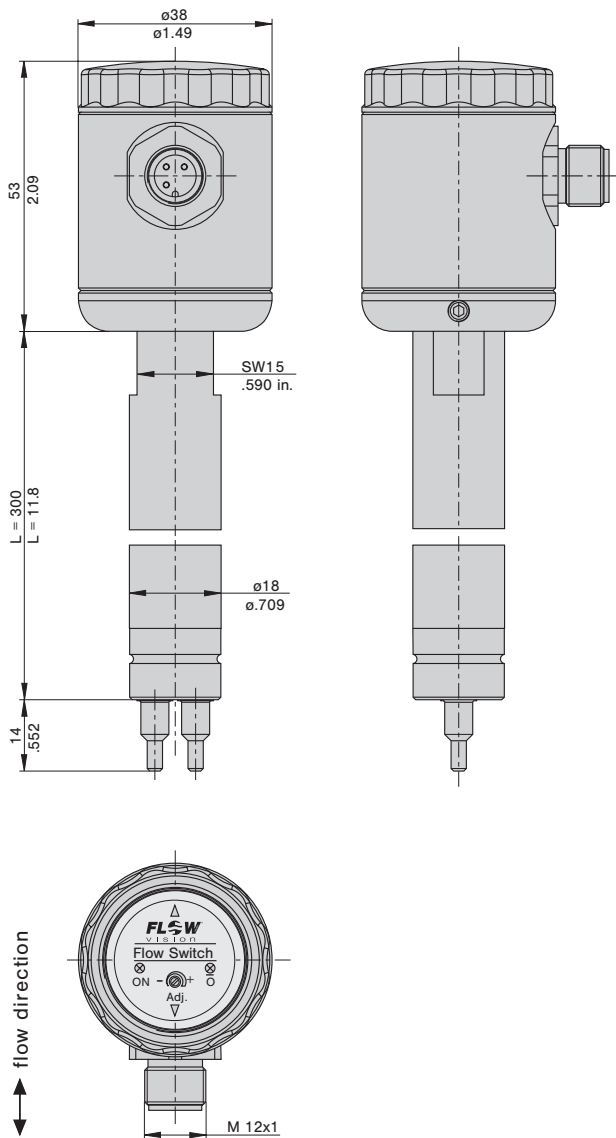
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TECHNICAL DATA (ambient temperature $T_u = 25\text{ °C}/77\text{ °F}$, operating voltage $U_b = \text{DC } 24\text{ V}$)

General data		FS20
Suitable for		liquids, gases
Monitoring function	flow speed	switch point (min/max)
	fault indication	LED (yellow)
	signal output	Power MOSFET, 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	liquid/gas	-40 ... +100 °C/-40 ... +212 °F
	ambience	-25 ... +80 °C/-13 ... +176 °F
Electrical data		
Operating voltage U_b		DC 24 V (18 ... 32 V)
Power consumption (without load)	gases	28 mA \pm 5 %
	liquids	57 mA \pm 3 %
Status indication		LED (green)
Connection to DIN 50044		M 12x1 plug-in connection, 3-pole
Flow monitoring		
Flow response level adjustment	air	0,5 ... 50 m/s / 1.64 ... 164 fps (atmospheric pressure)
	water, oil	0,01 ... 4,5 m/s / 0.0328 ... 14.8 fps
Repeatability ⁽¹⁾		$\leq \pm 3\%$ of the set value
Response delay	water	typ. 2 s ⁽²⁾
	air	typ. 8 s ⁽³⁾
	oil	typ. 5 s ⁽²⁾
Switch point drift because of temperature change of the medium		approx. $\pm 1.0\%$ of the set value/°C / 1.8 % of the set value/°F
Mechanical data (push-in type monitoring head)		
Type of monitoring head		push-in
Diameter of shank		18 mm/0.709 in. without thread
Length of shank		300 mm/11.8 in. (standard)
Length of sensor		14 mm/0.551 in.
Suitable for		liquids, gases
Temperature range (of liquids/gases) *)		-40 °C ... +100 °C/-40 °F ... +212 °F
Pressure resistance of sensor ⁽⁴⁾		100 bar/1450 psi/stainless steel
Pressure resistance when installed with threaded installation bush		25 bar/363 psi
Degree of protection		IP68 (connector, only if plugged in)
Materials (standard)	fitting (wetted)	stainless steel 1.4571
	sensor (wetted)	stainless steel 1.4571
	connection sensor/fitting	laser welded
	housing	stainless steel 1.4571
	M12 connector	CuZn, nickel-plated
	cap	PA (transparent)
	O-ring	Viton (FPM)
Weight		approx. 740 g/1.63 lb
⁽¹⁾ of the set value, at constant temperature and flow conditions, and stable thermal conductivity ⁽²⁾ delay with the switch point set to 1 m/s / 3.28 fps and the flow at 2 m/s / 6.56 fps, after a sudden complete stop ⁽³⁾ delay with the switch point set to 10 m/s / 32.8 fps and the flow at 20 m/s / 65.6 fps, after a sudden complete stop ⁽⁴⁾ admissible operating pressure DIN 2401, measured at max. temperature (= max. medium temperature) *) max. 80 °C in the connector area		

Dimensions (standard length)

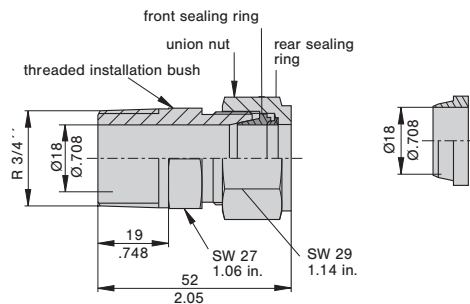


This is a metric design and millimeter dimensions take precedence ($\frac{mm}{inch}$)

Accessories

Threaded installation bush
OZ122Z000196

Teflon sealing ring
OZ122Z000197

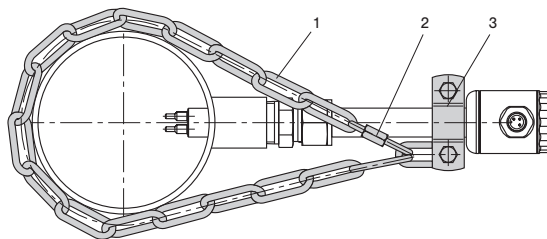


Suitable up to 25 bar/2.5 MPa/363 psi if used with stainless steel MK monitoring head. (Observe instructions for installation.)

Caution: Stainless steel ring is designed to cut into monitoring head. Pressure resistant to 25 bar/2.5 MPa/363 psi. Teflon ring can only be used from 0 to 2 bar/0.2 MPa/29 psi.

Please observe user manual and safety guidelines!

Locking set 01
OZ122Z000204



- 1 chain 4 x 32 DIN 5685 (approx. 1 m/3.28 ft)
- 2 catch for chain NG 5
- 3 clip with screw and nuts DN15 to DIN 11850

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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 °C ... +80 °C / -13 °F ... +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 /
3x5.27 · 10⁻⁴ in.² (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

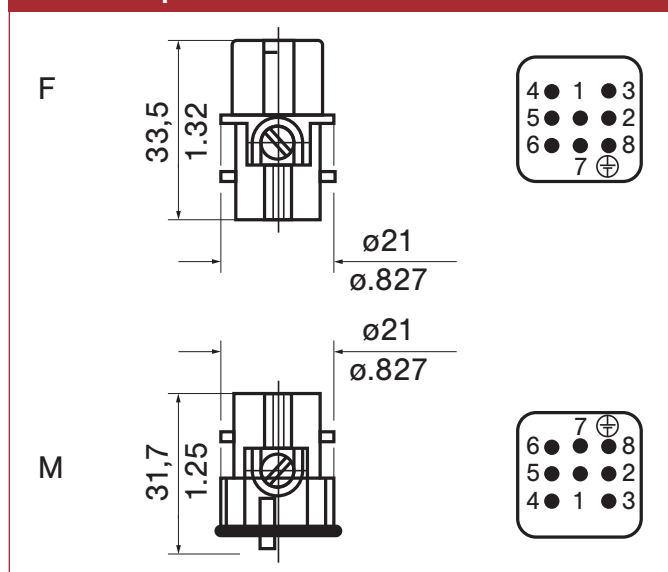
REAW-FS-U1 Coupling relay module to FS10/FS20/FS30

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

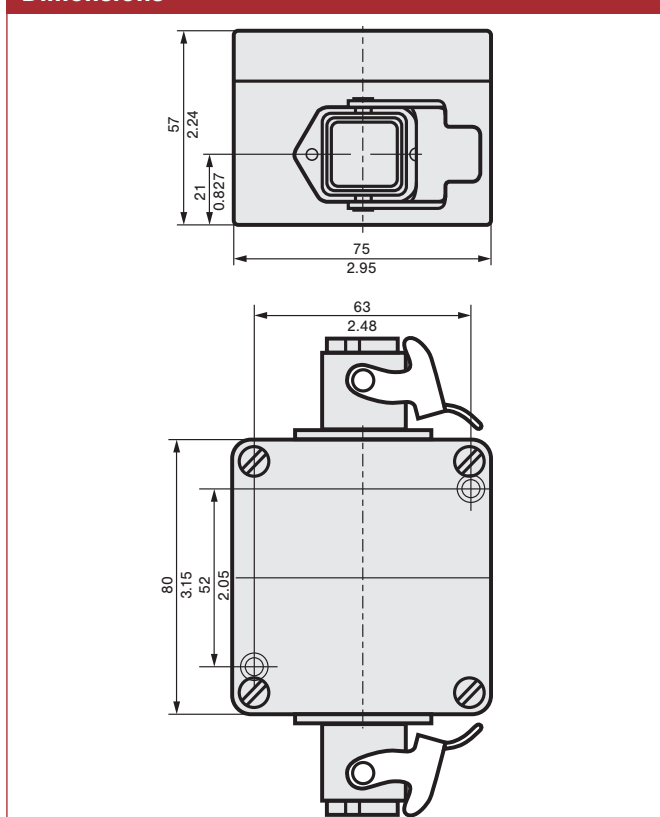
Connector pins



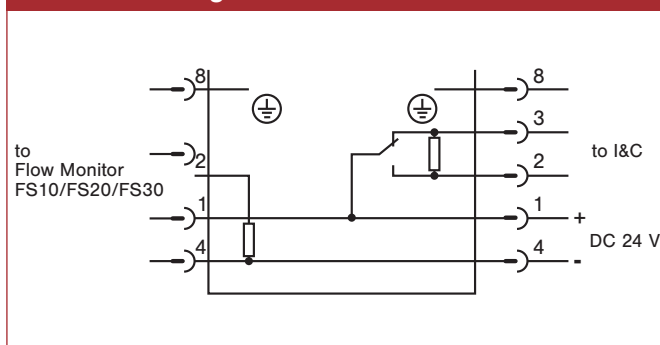
This is a metric design and millimeter dimensions take precedence ($\frac{mm}{inch}$)



Dimensions



Connection diagram



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