

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)

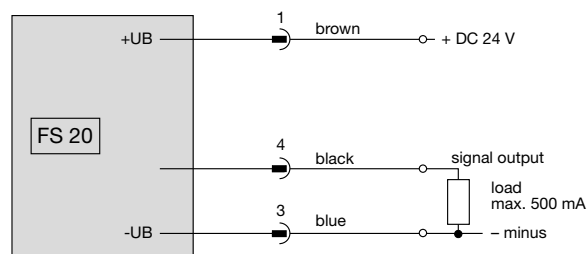
FS20	compact flow monitor with variable push-in type monitoring head
Power supply	
U1	DC 24 V
Flow switch point	
MIN	
MAX	
Media	
A	air, gases
W	water, oil, liquids
Fitting material	
M1	stainless steel 1.4571
Process connection	
00	without flange, threaded installation bush as accessory
Length of shank	
L30	300 mm (standard)
L20	200 mm
Electrical connection	
E12	M12x1, 3-pole
Certification	
T0	without certificate *)
FS20 - U1 MIN W - M1 00 L30 E12 T0	ordering example

*) for detailed information please see section 0.

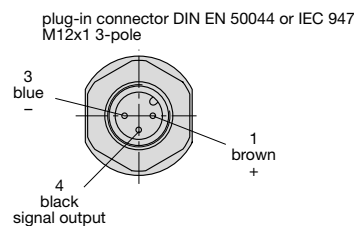


FS20-..

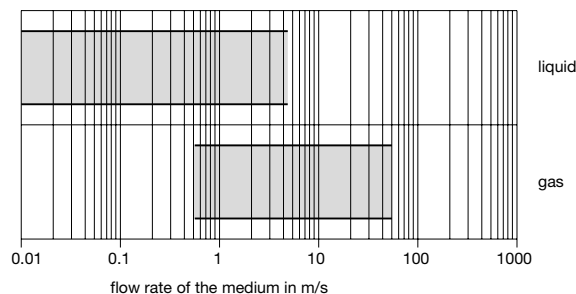
Connection diagram FS20



Electrical connection



Flow rate ranges

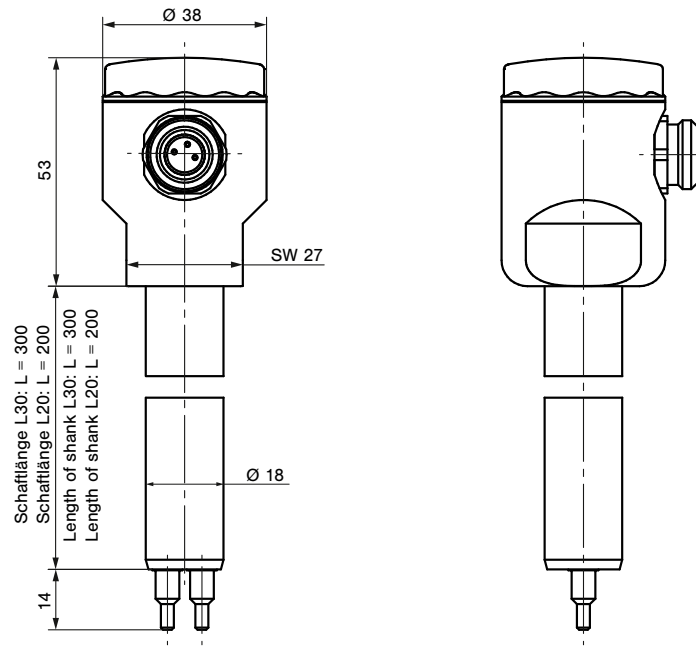


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TECHNICAL DATA (ambient temperature $T_u = 25\text{ °C}/77\text{ °F}$, operating voltage $U_B = \text{DC } 24\text{ V}$)

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
MTTF (SN 29500)		519 years
Flow monitoring		
Flow response level adjustment	air	0,5 ... 50 m/s / 1.64 ... 164 fps standard flow speed referred to 20 °C and 1,01325 bar
	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. 1 s ⁽²⁾
	air	typ. 2 s ⁽³⁾
	oil	typ. 1,5 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) / 200 mm/7.87 in.
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	stainless steel 1.4571 (wetted)
	sensor	stainless steel 1.4571 (wetted)
	connection sensor/fitting	laser welded
	housing	stainless steel 1.4571
	M12 connector	CuZn, nickel-plated
	cap	PA (transparent)
	O-ring	FKM (wetted, plug-in and push-in type)
Weight		approx. 740 g/1.63 lb
<p>⁽¹⁾ of the set value, at constant temperature and flow conditions, and stable thermal conductivity ⁽²⁾ delay with the switch point set to 1,8 m/s and the flow at 2 m/s, after a sudden complete stop ⁽³⁾ delay with the switch point set to 18 m/s and the flow at 20 m/s, 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</p>		

Dimensions



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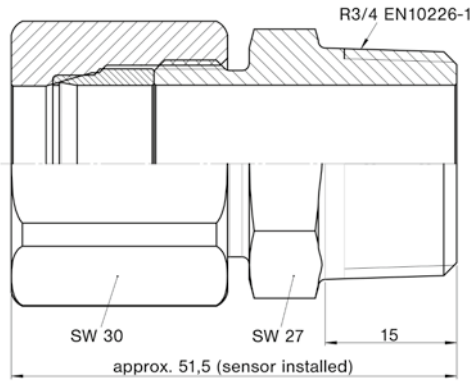
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Threaded installation bush

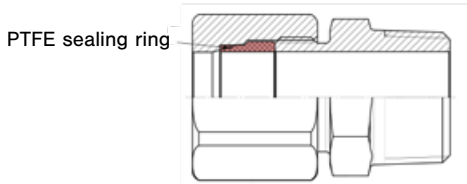


Description and ordering information

Suitable up to 40 bar/580 psi abs. if used with push-in sensors. Please observe assembly instructions and safety guidelines! Metal sealing ring can't be disassembled after assembly.

Type				
VK	threaded installation bush			
Process connection				
	04	thread R3/4"		
Bore				
	D8	18 mm		
Material				
	M1	stainless steel 1.4571		
	M3	Hastelloy C22 2.4602		
	M...	further materials upon request		
VK -	04	D8	M1	ordering example

PTFE sealing ring for threaded installation bush

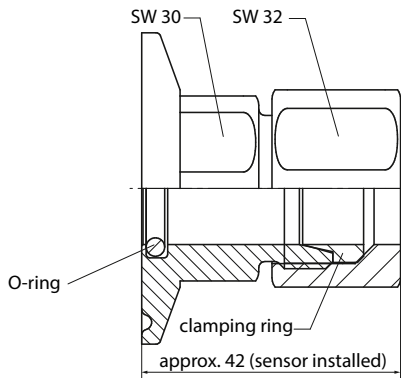


Description and ordering information

Suitable for threaded installation bush VK-04D8. Applicable up to 2 bar/29 psi abs. if used with push-in sensors and threaded installation bush VK.

Ordering no.: Y50005101

Hygiene flange

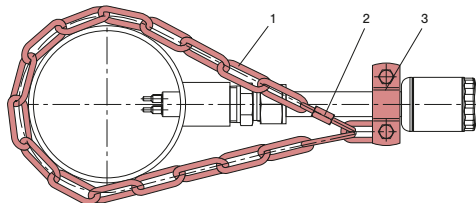


Description and ordering information

Hygiene flange for push-in sensors with front-flush o-ring with FDA approval

Hygiene flange for push-in sensors				
HEF	Hygiene flange			
Process connection				
	TF1	Triclamp DIN 32676		
Material flange and cap nut				
	M1	Stainless steel 1.4571		
	M2	Hastelloy C4 2.4610		
O-ring				
	R1	VMQ (Silicone) blue FDA (standard)		
	R2	VMQ (Silicone) white FDA		
Material clamping ring				
	CR1	Stainless steel 1.4571 PN 25 bar abs.		
	CR2	PTFE PN 5 bar abs.		
	CR3	Hastelloy C4 2.4610 PN 25 bar abs.		
HEF -	TF1 -	M1 -	R1 -	CR1 ordering example

Locking set



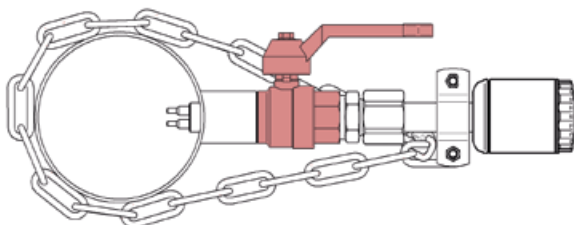
Description and ordering information

Locking set for push-in sensors.

- 1 Chain 4 x 32 DIN 5685 (approx. 1 m)
- 2 Catch for chain NG 5
- 3 Clip with screw and nuts DN15 to DIN 11850

Ordering no.: 0Z122Z000204

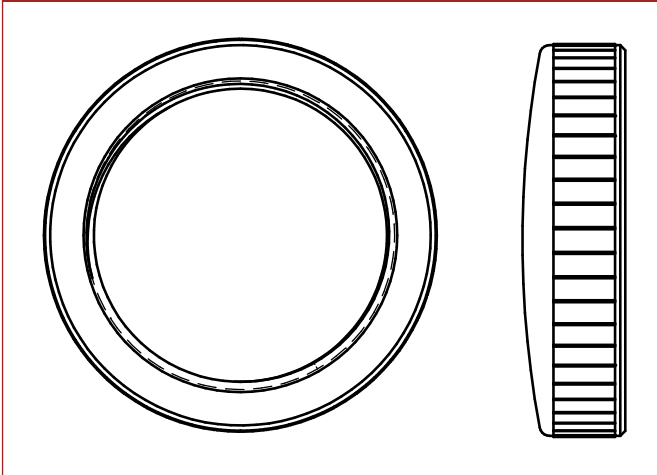
Ball valve for installation under pressure



Description and ordering information

Material (body, ball): Brass nickel plated	Material (body, ball): Stainless steel 1.4408, 1.4401
Material (ball seal): PTFE	Material (ball seal): PTFE
Length: 65 mm	Length: 78 mm
Outside thread: G3/4", L = 13 mm	Outside thread: R3/4", L = 17 mm
Inside thread: G3/4", L = 15 mm	Inside thread: Rp3/4", L = 13 mm
Fluid temperature: -20...120 °C	Fluid temperature: -30...180 °C
Ambient temperature: 0...80 °C	Ambient temperature: 0...80 °C
Pressure: PN 25 bar (up to 80 °C)	Pressure: PN 64 bar (up to 80 °C)
Ordering number: BV-02M3-PI	Ordering number: BV-02M15-PI

Stainless steel cap



Description and ordering information

Protective cap, material stainless steel 1.4571

Ordering no.: Z00025

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

Current carrying capacity: 4 A

Insulation resistance: > 10⁹ Ω

Withstand voltage: 1,5 kV/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

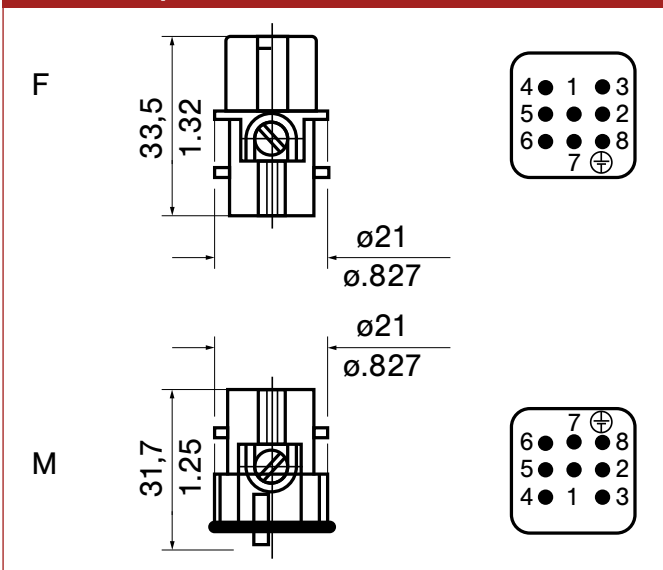
Ordering information

Flow Monitor	
REAW-FS-U1	Coupling relay module to FS10/FS20/FS30
REAW-FS-U1	ordering example

TECHNICAL DATA

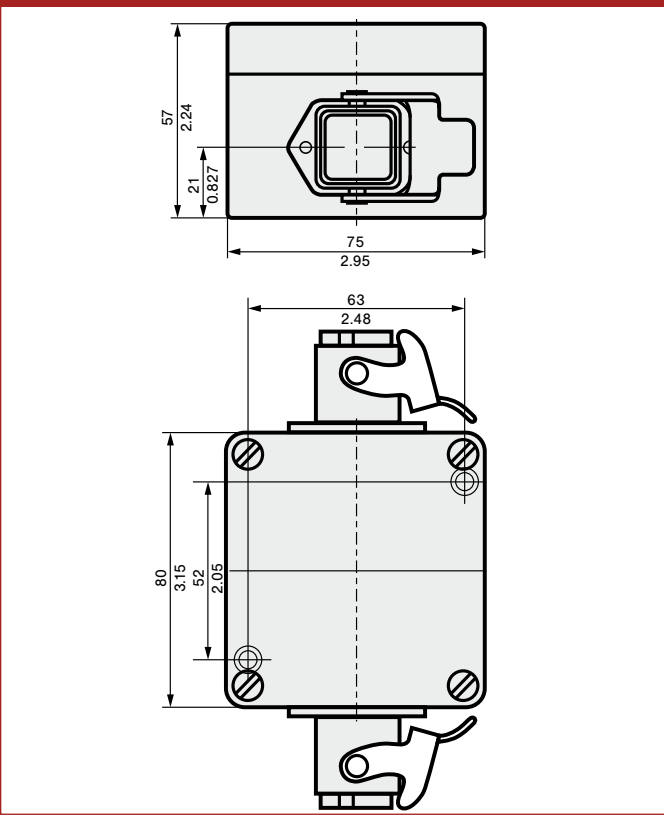
General data		REAW-FS-U1
Temperature range (ambience)		-25 ... +60°C/-13 ... +140°F
Electrical data		
Operating voltage U _s		DC24V (18 ... 32V)
Power consumption		approx. 17mA (relay energized)
Input resistance		ca. 1400 Ohm
Relay outputs		1 SPDT contact, gilded, AC/DC 30V, 5A
Mechanical data		
Degree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

Connector pins

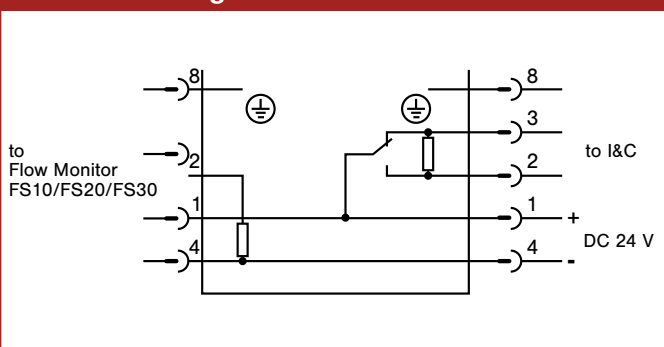


REAW

Dimensions



Connection diagram



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

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