

Electronic Flow Monitor

Series VE



Electronic Flow Monitors, Series VE

Know your flow

The electronic flow monitor VE monitors liquid flows for failure to reach a specified flow rate. It works on the calorimetric principle and has no moving parts even flows with entrained solids can be checked. The monitor is of robust design, is uncomplicated to operate and is highly reliable. It affords you a dependable and inexpensive way of protecting your installations and machines from expensive damage.

The flow monitor screws easily and directly into the process line by means of a connecting thread. Since the measuring probe is available in two lengths it covers a wide range of pipe sizes and wall thicknesses.

In addition, the flow monitor is available in two versions:

- **the VES compact version**

Here the flow sensor and the corresponding evaluation electronics form a single unit. This means that flow can be monitored directly at the point of measurement.

- **the VEG separate version**

The flow sensor installed in the pipe is connected to the evaluation electronics by a connecting lead. The electronics unit has been designed for installation on a mounting rail. This means that several points of measurement can be monitored from a central location.

Typical areas of application:

- Protection for pumps against dry running
- Monitoring lubrication circuits
- Cooling and heating circuits
- Air-conditioning units
- Monitoring for pipe breaks
- Monitoring for leaks

With following advantages:

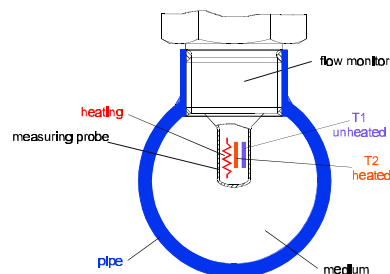
- No moving parts in the flow
- Switching possible at very low flow
- High pressure capability
- Can be used for a wide range of pipe sizes

How it works

The electronic flow monitor works on the principle of the detection of temperature differences.

The cylindrical measuring probe contains two temperature sensors. These have optimum heat-conducting contact with the medium and at the same time are thermally well insulated from each other.

One sensor is heated with a constant electrical power while the other sensor is not heated and thus takes on the temperature of the medium. When the medium is not in motion the temperature difference between the two sensors stabilizes at a constant level.



If the medium is flowing it cools down the heated sensor. The changing temperature difference between the two sensors depends on the velocity and thus is a parameter for monitoring the minimum flow rate specified.

This proportional variable is sent to a comparator which controls a transistor output signal.

With the aid of a potentiometer the output signal is set to the flow limit desired. When flow rate fails to reach this limit the transistor output signal is activated. A six position LED array displays the proximity to the alarm point which has been specified.

Working range

Set point range (coverage water: 1...150 cm/s; oil: 3...300 cm/s)

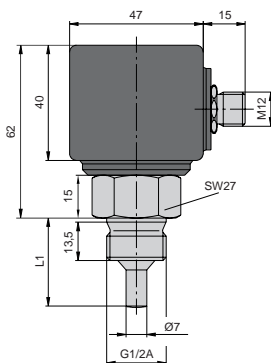
Diameter	DN 15	DN 20	DN 25	DN 32	DN 40	DN 50	DN 65	DN 80	DN 100	DN 150
Water [l/min]	0,1...18	0,2...33	0,3...52	0,6...91	0,8...124	1,3...199	2,2...335	3,1...462	5,2...784	11,4...1707
Oil* [l/min]	0,4...36	0,7...66	1...105	2...182	2,5...247	4...397	6,7...670	9,2...920	15,7...1568	34...3414

* Oil mean viscosity (approx. 80 mm²/s at 20 °C)

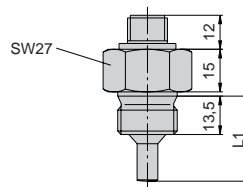
Technical data

Type	Compact version		Separate version	
Order code	VES08	VES09	VEG08	VEG09
Length of measuring probe L1	31 mm	48 mm	31 mm	48 mm
Temperature gradient	4 °C/s			
Stand-by time	approx. 8...12 s			
Max. pressure	200 bar			
Medium temperature	-20 to +85 °C			
Process connection	½" BSP male			
Protection class	IP 67			
Display	6 LEDs: 1 red = alarm 2 yellow = switching point 3 - 6 green = flow			
Material sensor	medium tangent: stainless steel 1.4571		not medium tangent: brass nickel-plated	
Electrical connection	4 pin sensor plug M12x1 according IEC 947-5-2			
			Flow control amplifier	
Order code	—		EU3011V0000126	EU3011V0000240
Power supply	24 VDC ±10 %		24 VDC ±20 % (standard)	230 VAC +10/-20 % (upon request)
Current consumption	70 mA		80 mA	35 mA
Output signal	PNP, open collector		Relay, close contact	Relay, change over contact
Max. switching voltage; current	400 mA (25 °C)		230 VAC / 250 VDC; 1 A	230 VAC / 60 VDC; 4 A
Max. switching capacity			125 VA / 60 W	1000 VA / 60 W
Material electronic housing	PBT		PC-GF	

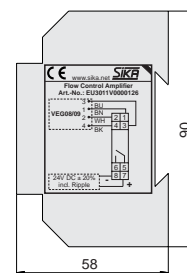
Installation dimensions



VES (compact version)


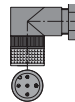


VEG (separate version)



Flow control amplifier EU3011V0000126



Accessory part	Length	Order code	
Connection cable with 4 pin cable socket M12x1, angle type molded lead, sheathing material PUR, screened, (T _{max} = 80°C)	3 m 5 m 10 m	XVT 2053 XVT 2009 XVT 2070	
4-Pin cable socket M12x1 angle type unassembled		VT 1331	

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Subject to technical modification

