

Klinger BL-FRC

Thermal flowswitch

Klinger BL-FRC is a thermal mass flow switch, based on the thermal dispersion principle, which can be used for flow detection at Liquid and gasses.

Principle

The principle describes how a heated body is cooled in a gas stream, and we hear it mentioned daily on both TV and radio in connection with the weather forecast. Here we often talk about what the cooling of the wind will mean for our perception of the temperature - and how a strong wind can give us the feeling that it is much colder than it really is.

In practice, it is possible to use this phenomenon to measure the flow. This is done by controlling the heating of a body in the flowing medium, the heating being controlled so that there is always a constant differential temperature with an identically designed reference body. The power to be used for the heating will then be proportional to the mass flow of the medium.

BL-FRC is a compact unit with the two temperature sensors (bodies) located at the tip of an insertion sensor, which must be placed where the flow is desired to be monitored.

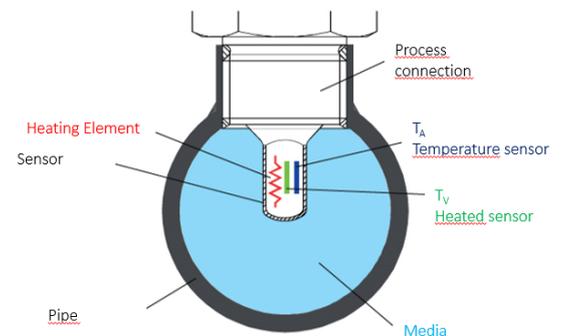
This means that the sensor part itself will only be a slight restriction in the pipe system, and therefore it will be suitable for working at very low operating pressures.

The main disadvantage of the measuring principle is that it is a measurement at a point, which means that the optimum accuracy can only be achieved where the speed profile of the product is defined. For this type of meter - more than any other - you need longer straight pipe lengths before the meter, the longer the better for correct measurement.

Application

Klinger BL-FRC can be used in applications/Pipe sizes DN10mm to DN300mm – in a very large measuring range - typically a span of 100: 1.

A feature that makes the meter suitable for tasks where both high flow monitoring and leak detection are desired.



Klinger BL-FRC for easy flow detection:

- Can be used to Liquid and Gasses
- Large measuring range, typically 100:1
- Easy to install
- Adjustable setpunkt
- LED indicator for actual flowrate

Technical data

Klinger BL-FRC are made for mounting directly on the measuring point, as a compact unit that is screwed into the pipe at the measuring point.

The sensor is made of stainless steel, either 304 or 316 and the entire unit can withstand temperatures up to 100°C

The Sensor power are adapted to a certain pipediemnsion, that has to be informed when ordering:

- Type 1: DN10...DN32
- Type 2: DN40...DN100
- Type 3: DN125...DN200
- Type 4: DN250...DN300

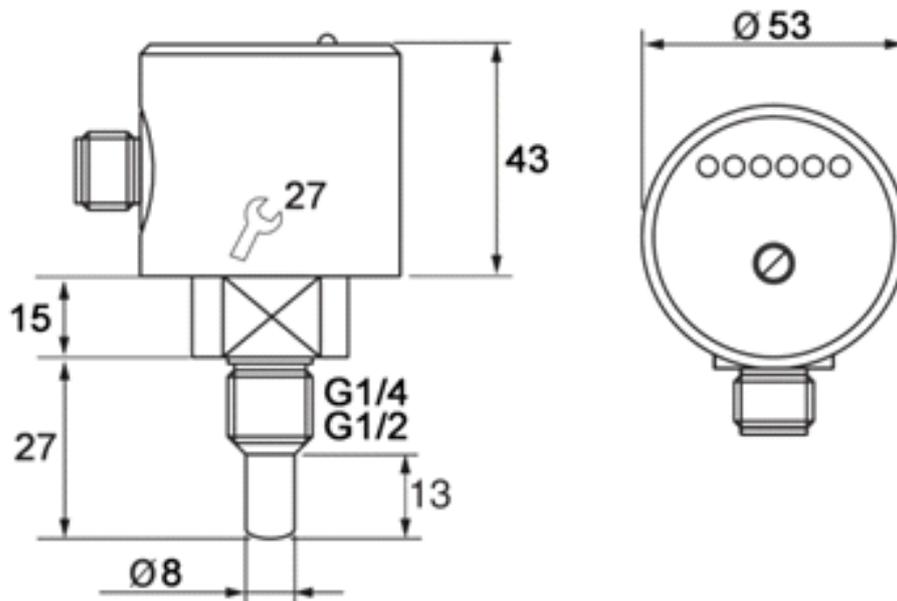


Range	1...150cm/s (Water)
	3...300cm/s (Oil)
	20...2000 (Air)
Output	NPN
	PNP
	Relay (SPDT)
Process Connection	Thread G1/4" or G1/2"
	Other - on request
Power Supply	24V ± 20% DC
Load	Max. 400mA (PNP or NPN type) Max. 1A@48VAC/DC (Relay type)
Consumption	Max. 80mA
Flow indication	6 pcs Coloured LED
Setpoint adjustment	Potentiometer
Media Pressure	max. 100bar
Media Temperature (Changes)	≤4°C/s
Response time	1...13s, typical value 2s
Initialising	app. 8s
Electrical Protection	Polarity
	Short Circuit
	Overload
Ingress protection	Ip67
Media Temperature	-20...+100°C
Ambient Temperature	-20...+80°C
Storage Temperature	-20...+100°C
Elektrical Connection	M12x1,5 stik (male)
Repeatability	±2%
Wetted Parts	Stainless Steel 304 or 316



Dimensions

Compact unit



Electrical Connection:
M12x1,5 - 5 pin version

Sensor:

- Wetted Parts Stainless Steel (304 or 316)
- Threaded Connection G $\frac{1}{4}$ or G $\frac{1}{2}$

LED-Indication

Klinger BL-FRC use 6 coloured LED' for flow indication

○	Red LED on:	○	yellow LED on:	○	yellow and green LED on:
○	The flow rate is lower than the set setpoint.	○	The flow rate is equal to the set setpoint.	○	The flow rate is greater than the set setpoint.
○	The switch is activated.	○	The switch is not activated.	●	The switch is not activated.
○		○		●	The more green LEDs that are on, the higher flowrate.
●		●		○	

Product Type

Product code						Description
BL-FRC						
Type	A					Insertion version
	B					With display
	C					T-pipe
Process Conn.	G1					Thread G1/2" (Insertion version)
	G2					Thread G1/4" (Insertion version)
	H1					Female Thread (T-pipe)
	H2					Flange (T-pipe)
Power Supply		G				24V DC \pm 20%
Output			P			PNP output (ON OFF (SPDT))
			N			NPN output (ON OFF (SPDT))
			C			Relay output (ON + OFF (SPDT))
Materials			S4			SS304
			S6			SS316
Electrical Connection			C			Plug (M12x1,5)
			Z			Cable
Option for Plug type						

ZI04-	Description					
	ZL					M12x1,5 w. cable (preconfigured)
	SL					M12x1,5 stik (Separate)
Materials		PU				PUR kabel
Cable length			2			2m
			5			5m
			10			10m
Connector type				Z		Straight line
				W		Curved line
(Note: 5-wire cable has to be used for Relay output)						

Note - Pipedimensions has to be informed for correct diemnsions of the weld-in socket

Other Flowswitches

Paddle switch / Insertion



Paddle switch / T-pipe



VA meter

