Zertifiziertes QM-System
DIN EN ISO 9001
Zertifikat-Nr. 01017

Micro Flow Rate Measuring Transducer

for liquids

KOBOLD

measuring • monitoring • analysing

LFM

Model: LFM..

- Measuring ranges: 0.005 - 0.250 l/min water
- Measuring accuracy: ± 2.5% of reading
- p_{max}: 100 bar; t_{max}: -40 ... +80 °C
- Viscosity range: 0.6 - 6 mm²/s
- Connection: G⅛ female and Swagelok 6 mm
- Material: stainless steel
- Output: pulses

S4

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KOBOLD Messring GmbH
Nordring 22-24
D-65719 Hofheim/Ts.
Head Office:
+49(0)6192 299-0
+49(0)6192 23398
info.de@kobold.com
www.kobold.com

1/04-2016

Areas of Application

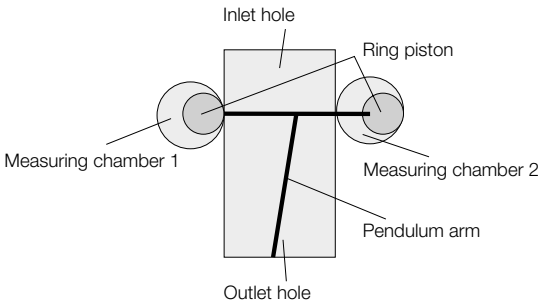
The LFM is a new KOBOLD flow rate measuring transducer suitable for use in filling and batching processes with all types of low viscosity liquids. It can be used for extremely low volumetric flow rates > 0.005 l/min.

Typical Applications

- Additives
- Pharmaceuticals (good cleaning properties)
- Odorants/perfume
- Mains water and demineralised water
- Liquiefied gases
- Food

Method of Operation

The measuring mechanism is based on a dual-ring piston pendulum. The right-hand measuring chamber is opened, and the left-hand chamber closed, by the pendulum arm that is inclined to the right. The pressure of the forced liquid acts on the upper surface of the piston pendulum. The right-hand ring piston is pressed clockwise downwards, and the left-hand ring piston is pressed clockwise upwards by the larger surface (opened measuring chamber) on the right.



Thus the right-hand measuring chamber is closed, and the left-hand chamber opened. The surface on the left is now greater-causing motion in the opposite direction.

This cycle is repeated with continuous flow at a rate proportional to the flow rate 1 ... 230 cycles/s.

A volume of approximately 0.01 cm^3 is displaced per pass.

The built-in carrier frequency transducer senses the oscillating motion of the piston pendulum and pendulum arm without contact through the case, and outputs a digital signal with a frequency proportional to the volumetric flow.

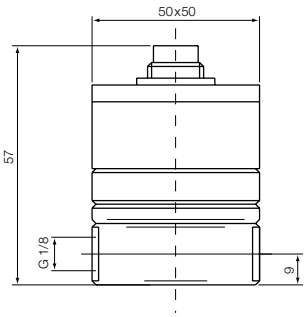
Due to the negligible pendulum mass and minimum friction loss, the LFM detects minimum volumetric flow rates.

Leakage loss is minimised by the piston design, which also provides good linearity and repeatability.

Technical Details

Linearity:	±2.5 % of reading
Repeatability:	±0.1 %
Viscosity range:	0.6 ... 6 mm^2/s
K factor:	approx. 75000 pulses/l
Material:	
Sensor housing:	stainless steel 1.4435
Pendular:	stainless steel 1.4122
Seal:	PTFE, FKM, FFKM
Connection:	G⅛ female thread (output) 6 mm Swagelok (input), NPT thread on request
Filter:	40 µm; filter with 2 x 6 mm Swagelok
Max. pressure:	100 bar
Max. Δp:	300 mbar at 5 cSt/0,25 l/min
Max. temperature:	-40 °C ... +80 °C
Electrical data:	Push-Pull U_{max} = 30 V
Electrical connection:	5-pin M12
Installation position:	vertical, flow rate from bottom to top
Weight (with transducer):	approx. 650 g
Protection:	IP 65

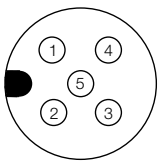
Dimensions [mm]



Electrical connection

5-pin plug M12 SPEEDCON

1 = $+U_B$
2 = n.c./NAMUR- (»N«, »U«)
3 = 0 V (not »N«)
4 = signal Push-Pull (not »N«)
5 = n.c.



Order Details (Example: **LFM-1040V**)

Meas. ranges [l/min]	Material	Model	Gaskets
0.005 - 0.250	1.4435 / 1.4122	**LFM-1040..**	..**V** = FKM ..**T** = PTFE

Digital indicators and transducers see at accessories.

1/04-2016