KROHNE

measure the facts

Optiflux 1000

Electromagnetic flow sensor in sandwich design

- Lightweight and compact
- Excellent price to performance ratio
- Quick and easy to install

Reliable and cost-effective solution

The flangeless OPTIFLUX 1000 electromagnetic flow sensor is compact and lightweight. The design is robust with the highly chemically resistant PTFE liner.

This device is a cost-effective and reliable solution for a wide range of applications and industries varying from water and wastewater, agriculture, utilities and from fire-fighting to machine building.

Highlights

- Sandwich design
- Compact and ease of installation
- Excellent price to performance ratio
- No moving parts, no maintenance
- Bidirectional flow measurement

Industries and applications

- Machine building - mixing, batching, pump control, dosing and filtration systems
- Energy, HVAC - water flow monitoring
- Water and Waste water - distribution lines and treatment plants
- Effluent treatment plants - measurement of water, chemicals, effluent
- Process industries - measurement of water, chemicals, effluent
- Food and Beverages - measurement of milk, juices, concentrates, water etc.

Measuring Principle – Faraday's law

An electrically conductive fluid flows inside an electrically insulated pipe through a magnetic field. This magnetic field is generated by a current, flowing through a pair of field coils. Inside the fluid, a voltage U is generated:

U = V * K* B * D

Where

V = Mean flow velocity

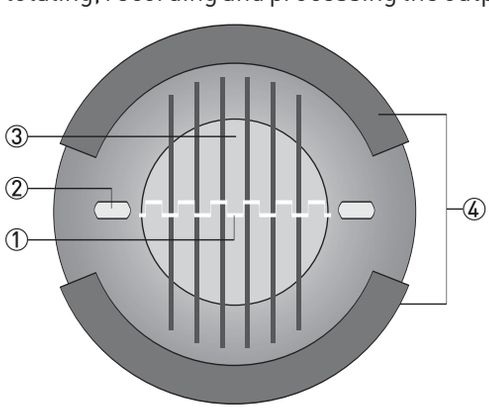
K = Meter constant / correction factor for geometry

B = Magnetic field strength

D = Inner diameter of flowmeter

The signal voltage U is picked up by electrodes and is directly proportional to the mean flow velocity V and thus the flow rate Q. The generated signal voltage is very low.

Signal converter is used to amplify this signal voltage, filter it (separate from noise) and convert it into signals for totaling, recording and processing the output.



1. Voltage (induced voltage is directly proportional to flow velocity)
2. Electrodes
3. Magnetic field
4. Field coils

Technical data

Measuring system

Measuring principle	Faraday's law of electromagnetic induction
Application range	Electrically conductive fluids
Measured value	Volumetric flow and Velocity

Design

Features	Sandwich design
	PTFE liner ; other liners available optionally
	Light weight and compact design
Modular construction	The measurement system, consisting of a flow sensor and a signal converter, is available in compact or separate version. More information about the signal converter can be found in the technical data sheet of the signal converter.
Nominal diameter	1" .... 6" / DN 25 .... DN 150
Measurement range	-12...12 m/s / -40...40 ft/s

Measuring accuracy

Measuring error (with signal converter)	IFC 050 converter – DN 25 ... DN 150 / 1" ... 6" ±0.5% of mv
	IFC 100 converter – DN 25 ... DN 150 / 1" ... 6" ±0.5% of mv
	IFC 300 converter – DN 25 ... DN 150 / 1" ... 6" ±0.3% of mv + 1mm/s
Special calibration	Higher accuracy available on request
Repeatability	±0.1% of mv

Operating conditions

Temperature	
Process temperature	PTFE: -40...+180°C / -40...+356°F for remote version
	PTFE: -40...+90°C / -46...+194°F for compact version
Pressure	
Operating pressure	Up to 16 Bar / 230 psi
	Mating flanges: ANSI 150, ANSI 300, PN40, PN16
Pressure loss	Negligible

Chemical properties	
Physical condition	Liquids
Electrical conductivity	Water ≥ 20 µS/cm
	Process fluids ≥ 5 µS/cm
Permissible gas content	≤ 5% by volume
Permissible solid content	≤ 10% by volume

Installation conditions

Installation	Take care that flow sensor is fully filled
Flow direction	Forward and reverse
	Arrow on flow sensor indicates positive flow direction
Inlet straight run	≥ 5 DN
Outlet straight run	≥ 2 DN

Materials

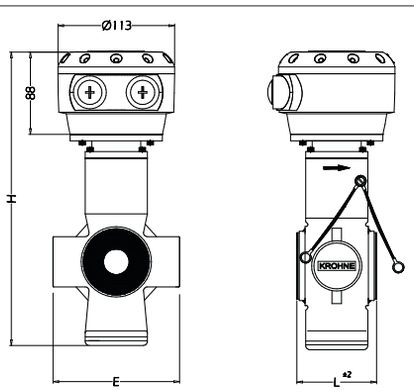
Measuring tube	SS 304
Liner	PTFE for 1" ... 6" / DN 25 ... DN 150
	Other liners available on request
Sensor housing	SS316 PU painted
Process connection	For installation between ANSI 150, ANSI 300, DIN flanges
Measuring electrodes	Hastelloy C, SS316, SS316L
Grounding rings	SS 316
	Optional: SS 316L, Hastelloy C
Connection box (only for remote versions)	Standard: Die-cast Aluminum PU painted
	Optional: Stainless steel
Cable entry	M 20 x 1.5, fitted with blind plugs

Electrical connections

Signal Cable	Only for remote versions
Type DS	Standard cable: Double shielded Standard length: 10 m Maximum: 150 m / 495ft (depending on electrical conductivity)

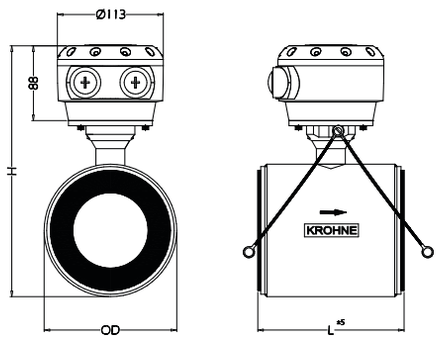
Approvals and Certifications	
Protection category according to IEC 529 / EN 60529	Standard: IP 66 / 67 (NEMA 4 / 4X) Optional: IP 68 / NEMA 6P

Dimensions and weights



Meter size: 1" / DN25 and 1 ½" / DN40

Meter size	E	H	L	Approx weight (kg)	Approx weight (lb)
DN25	115	260	75	2.5	5.5
DN40	135	275	85	3.5	7.7



Meter size: 2" to 6" / DN50 to DN 150

Meter size	OD	H	L	Approx weight (kg)	Approx weight (lb)
DN50	120	252	120	5	11
DN80	133	265	150	6	13
DN100	162	294	200	8	17.5
DN150	219	350	200	12	26.5

Use 1 ½", 2" and 2 ½" flanges to install flowmeter size 1", 1 ½" and 2" respectively.

Note: The subject flow meters cannot be used as a weight or measures under the Legal Metrology Act. Specifications subject to changes without prior notice DOC#FMKRH/1017/2318/V3.R0

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