



ELM

ElectroMagnetic Inductive Flowmeter

Description

An electrically conductive medium induces a voltage while flowing through an arranged magnetic field in accordance to the Faraday's induction law.

A magnetic inductive flowmeter consists of an isolated lining tube, flow through by a conductive liquid, a magnetic field coil and two electrodes. The electrode measuring-circuit voltage is proportional to the flow velocity and therefore to the volume flow.

The electrode voltage is detected by a transmitter and converted into standard electrical signals as 4-20 mA or pulses.

The magnetic-inductive flow sensor EP is used to measure the volume flow of liquids, slurries, pastes and other electrically conductive media without any pressure drop.

Pressure, temperature, density and viscosity do not affect the volume measurements.

Portions of solid particles and small gas bubbles should be avoided.

Sizes and pipe connections

The ELM is available in wafer design, suitable for fitting between the following flanges:

DN25, DN32, DN40 and DN50	EN 1092-1 PN40
DN65, DN80, DN100, DN150 and DN200	EN 1092-1 PN16
1", 1¼", 1½" and 2"	ASME B16.5 Class 300
2½", 3", 4" 6" and 8"	ASME B16.5 Class 150

Pressure / temperature limits

Maximum process pressure	DN25 - DN50	PN40
	DN65 - DN200	PN16
Maximum process temperature	150 °C	
Minimum process temperature	-20 °C	
Maximum electronics ambient temperature	60 °C	

Technical data

IP rating	IP67 (EN60529)
Power supply	24 Vdc 10 W
Outputs	1 x 0/4 - 20 mA active with galvanic isolation
	1 x Pulse/state passive, with galvanic isolation. 24 V, 60 mA
Communication	HART® (optional)
Diagnosis functions	Empty pipe detection, coil current monitoring

Performance

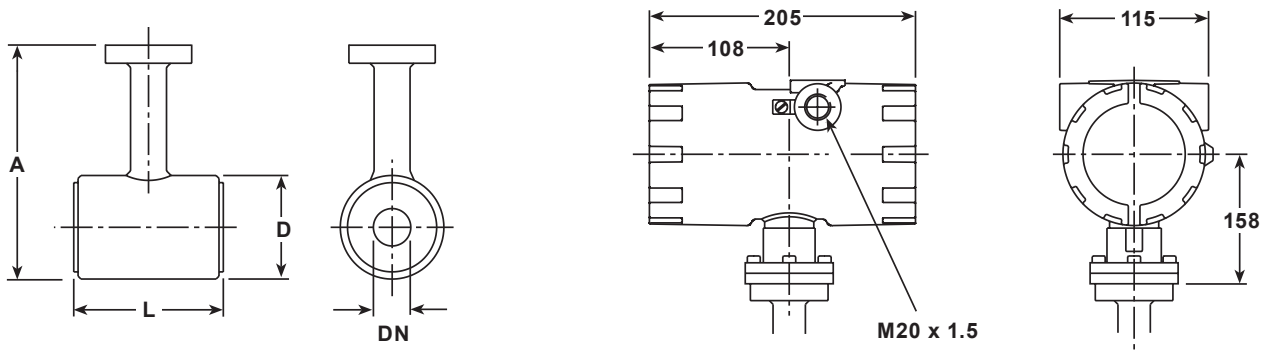
Uncertainty	±0.3% of measured value ±0.01% (Q at 10 m/s) under reference conditions
Repeatability	±0.15% of measured value ±0.005% (Q at 10 m/s) under reference conditions
Conductivity	>= 5 µS/cm
	>= 20 µS/cm with demineralized water



Materials

Flowmeter body	Steel coated / painted
Lining	PTFE
Electrodes	Hastelloy C4
Electronics housing	Die cast aluminium, painted

Dimensions / weights (approximate in mm and kg)



Size	Dimensions			Weight *		
	D	A	L			
PN40 and ASME 300	DN25	1"	72	158	104	2
	DN32	1¼"	82	168	124	2
	DN40	1½"	92	179	124	2
	DN50	2"	107	192	124	3
PN16 and ASME 150	DN65	2½"	127	212	124	3
	DN80	3"	142	227	124	4
	DN100	4"	162	247	124	4
	DN150	6"	218	303	154	8
	DN200	8"	274	359	219	10

* Please note: 2.4 kg must be added to account for the transmitter.

Sizing information

Size	Litres / sec		m³ / h		
	Q min	Q max	Q min	Q max	
DN25	1"	0.24	4.89	0.88	17.6
DN32	1¼"	0.40	8.03	1.45	28.9
DN40	1½"	0.54	10.75	1.94	38.7
DN50	2"	0.87	17.33	3.12	62.4
DN65	2½"	1.56	31.11	5.61	112.00
DN80	3"	2.27	45.28	8.17	163.00
DN100	4"	4.00	80.00	14.42	288.00
DN150	6"	9.00	186.00	33.96	671.00
DN200	8"	17.00	330.00	59.99	1188.00

Please note that Min/Max figures are typical based on reference flow conditions. Actual min/max values will be listed on product label and will be confirmed at time of order.

How to order

Category	Description	Suffix code	
Product		ELM	
Lining material	PTFE -20 °C to 150 °C (-4 °F to 302 °F)	P	
Size	DN25 ----- DN32 ----- DN40 ----- DN50	1" ----- 1¼" ----- 1½" ----- 2" ----- ASME Class 300	
	DN65 ----- DN80 ----- DN100 ----- DN150 ----- DN200	2½" ----- 3" ----- 4" ----- 6" ----- 8" ----- ASME Class 150	
	Flange material	Wafer type design	0
	Electrode material	Hastelloy C-4 including grounding electrode	HH
	Transmitter mounting	Integrated transmitter	1
	Approval certification	Without	0
		Inspection/material certificate 3.1 DIN/EN 10204: 2004	B
	Mounting	Integrated	B
	Display and control unit	Integrated	1
	Power supply	24 Vdc (±15%)	4
Output	Current output 1: 0(4)-20 mA ----- Pulse output: Passive Um = 24 Vdc ----- State output: Passive Um = 24 Vdc	F	
	Current output 1: 4-20 mA with HART® protocol ----- Pulse output: Passive Um = 24 Vdc ----- State output: Passive Um = 24 Vdc	G	
	Branding	Spirax Sarco	0BX

Selection:

Grey = Standard

ELM
P
0325
0
HH
1
0
B
1
4
F
0BX

Selection example: **ELM** - **P** - **0325** - **0** **HH** **1** - **0** - **B** **1** **4** - **F** - **0BX**

How to order example:

1 off Spirax Sarco ELM-P-0325-0HH1-0-B14-F-0BX electromagnetic inductive flowmeter for installation between EN 1092 PN16 flanges.