



## FlowGuard® FT410

# Magnetic inductive flow meter

*Part no. 1315/[design]/[DN]/[process connection]/ [pressure]/ [pipe cladding]/ [electrodes]/ [protection type]/ [output signal]/ [voltage]*

### Description

The magnetic inductive flowmeter FlowGuard® FT410 is used for bidirectional flow measurement of liquid media, from drinking water to chemically aggressive media, in the temperature range up to 150°C.

In addition to a pulse output for the flow volume, the sensor has a 4 ... 20 mA analog output for the volume flow and an optional Modbus (RS485) or HART output. The LCD display shows the measured values precisely. The process connection can be designed as a flange, thread, sandwich or clamp in accordance with DIN 32676/DIN 11851.

### Product highlights

- Meets the highest demands on measuring accuracy
- Suitable for media temperatures up to 150°C
- Large measuring range from 0.01 m<sup>3</sup>/hour to 12,200 m<sup>3</sup>/hour
- Display available as a 350° rotatable compact version or as a remote panel
- Available as a battery-powered device for field use
- Large selection of process connections and materials
- Robust for measuring liquids with solids e.g. cement

### Areas of application

The FlowGuard® FT410 is used in a variety of industrial applications to precisely measure the flow of liquids. Thanks to its robust design and its ability to deliver reliable and highly precise measurement results under the most demanding operating conditions, it is particularly suitable for use in heating circuits, water and wastewater systems, CIP cleaning processes, biogas plants and the monitoring of cooling liquids, for example in plastics processing, metal workshops or semiconductor production.

## General information

<b>Areas of application</b>	Liquids (min. conductivity capability 20 $\mu$ S/cm)
<b>Device type</b>	Magnetic inductive flow meter
<b>Device type</b>	Compact device or with remote evaluation unit (standard cable length 3 m)
<b>Flow measuring range</b>	0.06 ... 12m/s Bidirectional measurement
<b>Flow measurement accuracy</b>	$\leq$ 0.5% of the measured value Repeatability 0.2%
<b>Media temperature Flow</b>	<b>Compact:</b> Max. 90°C (depending on version) <b>Set down:</b> Max. 150°C (depending on after execution)
<b>Print</b>	PN10, PN16, PN25 PN40, PN64, PN100 150 lb (ANSI), 300 lb (ANSI)
<b>Display</b>	LCD display
<b>Protection class evaluation unit</b>	IP65 or IP67 available
<b>Sensor protection class</b>	IP65, IP67 or IP68 available
<b>Special features</b>	-Blank detection DN15...DN600 -Pressure loss negligible -Additional electrodes for earthing and detection of empty conduits lines
<b>Cable length</b>	Max. 20 m (Other lengths on request)

## Outputs/inputs

<b>Output signal</b>	Pulse output, analog output, digital output
<b>Specification analog signal</b>	4 ... 20mA 2x pulse output/current switch
<b>Digital output specification</b>	Modbus RS485 (M-BUS/MOD-BUS RTU) HARD
<b>Signal output in the event of a fault</b>	<3.5 mA

## Technical data

<b>Diameter</b>	DN4 ... 600 (more Diameter on request)
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## Process connection

Stainless steel flange (EN 1092)  
1.4306/304L or 1.4404/316L  
Sandwich design  
Thread (EN ISO 228-1)  
Dairy pipe fitting  
DIN11851  
Clamp DIN32676

## Material of the pipe cladding

Rubber (hard)-DN25...DN600  
Rubber with drinking water approval  
DN25...DN600  
PTFE- DN10...DN80  
PFA- DN100...DN600  
ETFE- DN100...DN600  
PVDF- DN4...DN20  
RILSAN- DN25...DN600

## Material of the evaluation unit

Stainless steel or steel ST37 (coated)

## Material of the electrodes

Stainless steel DIN 1.4571 (316 Ti)  
Hastelloy C4  
Titanium  
Tantalum

## Electrical data

### Power supply

24 VAC/VDC with po-protection  
230 VAC (50/60 Hz)  
110 VAC (60Hz)

### Power consumption max.

Battery  
4.6 VA

## Further information

### Ambient temperature

0 ... 55°C (evaluation te unit)

### Accessories

Earthing rings  
Modbus board  
Data logger with SD card

## Electrical connection

- Terminal 1 & 2: Analog output 4...20 mA
- Terminal 3 & 4: Pulse output / flow switch 1
- Terminal 5 & 6: RS485
- Terminal 7 & 8: Pulse output / flow switch 2
- Terminal 9 & 10: Reset the volume register
- Terminal 11 & 12: Output voltage 16V/100mA (current supply for switching to active current and pulse outputs)
- Terminal L, N, PE: Power suppl

**Order number**
**Item number** **1315/**
**Device type**

 Compact **K**  
 Remote (03 m cable) **A03**
**Diameter**
**See table 1** **DN04 ... 600**
**Process connection**

 Flange steel ST37 painted (EN 1092) **FSt**  
 Flange stainless steel 1.4306/304L **FE304L**  
 Flange stainless steel 1.4404/316L (EN1092) **FE316L**  
 Sandwich design **S**  
 Thread (EN ISO 228-1) **G**  
 Milk pipe fitting (DIN11851) **M**  
 Clamp (DIN32676) **C**
**Pressure**

 PN10 **10**  
 PN16 **16**  
 PN25 **25**  
 PN40 **40**  
 PN64 **64**  
 PN100 **100**  
 150 lb (ANSI) **150**  
 300 lb (ANSI) **300**
**Material pipe cladding**

 Rubber (hard)-DN25...DN600 **GH**  
 Rubber with drinking water sung- DN25...DN600 **GT**  
 PTFE- DN10...DN80 **PTFE**  
 PFA- DN100...DN600 **PFA**  
 ETFE- DN100...DN600 **ETFE**  
 PVDF- DN4...DN20 **PVDF**  
 RILSAN- DN25...DN600 **RILSAN**
**Material electrodes**

 Stainless steel DIN 1.4571, 316T **ST**  
 Hastelloy C4 **HA**  
 Titanium **TI**  
 Tantalum **TA**
**Protection class**

 IP65 **65**  
 IP67 **67**  
 IP68 **68**  
 IP68 with stainless steel head **68E**
**Output signal**

 Pulse output/ flow **1**  
 Pulse output/current switch  
 mation switch + 4...20 mA  
 Pulse output/ flow **2**  
 switch + RS485  
 Pulse output/ flow **3**  
 switch + 4...20 mA + HART

 Pulse output/ flow **4**  
 switch + 4...20 mA + HART +  
 RS485

**Power supply**

 24 VAC/ VDC with reverse **24**  
 polarity protection  
 230 VAC (50/60 Hz) **230**  
 110 VAC (60Hz) **110**  
 Battery **B**
**Available measuring ranges**

Diameter, in mm	Qmin [m3/h]			Qmax [m3/h]
	1/60 (0,2 m/s)	1/100 (0,12 m/s)	1/200 (0,06 m/s)	- (12 m/s)
DN 4	0,01	-	-	0,6
DN 6	0,02	-	-	1,2
DN 8	0,04	-	-	2,2
DN 10	0,06	0,034	-	3,4
DN 15	0,13	0,076	0,038	7,6
DN 20	0,24	0,142	0,071	14,2
DN 25	0,35	0,21	0,105	21
DN 32	0,6	0,34	0,17	34
DN 40	0,9	0,54	0,27	54
DN 50	1,4	0,84	0,42	84
DN 65	2,4	1,44	0,72	144
DN 80	3,6	2,2	1,1	220
DN 100	5,6	3,4	1,7	340
DN 125	8,9	5,34	2,67	534
DN 150	13	7,6	3,8	760
DN 200	23	13,5	6,75	1350
DN 250	35	21,1	-	2115
DN 300	51	30	-	3050
DN 350	70	41	-	4150
DN 400	90	54	-	5426
DN 500	141	-	-	8480
DN 600	203	-	-	12200

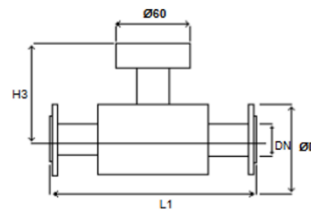
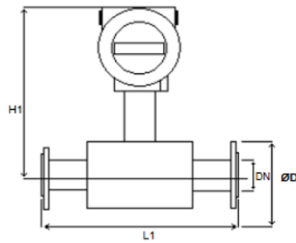
**Dimensions**

Dimensions												
Connection, in mm	Length, in mm					Außendurchmesser, in mm		Gesamthöhe Kompaktgerät, in mm		Gesamthöhe abgesetzt, in mm		
	Flange	Sandwich (DN 25)	Thread	Milk pipe screw connections	Tri Clamp	Sandwich (DN 25)	Thread Milk pipe screw connections Tri Clamp	Flange Sandwich (DN 25)	Threaded milk pipe fittings Tri Clamp	Flange Sandwich (DN 25)	Threaded milk pipe fittings Tri Clamp	
DN	L1	L2	L3	L3	L3	D1	D2	H1	H2	H3	H4	
4	-	-	157 (1/2")	-	-	-	70/-/-	-/182	182/-/-	-/92	92/-/-	
6	-	-	157 (1/2")	-	-	-	70/-/-	-/182	182/-/-	-/92	92/-/-	
8	-	-	157 (1/2")	-	-	-	70/-/-	-/182	182/-/-	-/92	92/-/-	
10	200	90	193 (3/8")	179	189	51	70	173	177	86	90	
15	200	90	196 (1/2")	172	182	51	70	173	177	86	90	
20	200	90	206 (3/4")	176	182	61	80	173	182	86	95	
25	200	90	206 (1")	186	182	71	90	178	187	91	100	
32	200	90	233 (1 1/4")	197	189	82	100	183	192	96	105	
40	200	110	256 (1 1/2")	220	210	92	116	188	200	101	113	
50	200	110	261 (2")	231	217	107	136	196	210	109	123	
65	200	130	-	-	-	127	151	206	218	119	131	
80	200	130	-	-	-	142	177	213	231	126	144	
100	250	200	-	-	-	168	-	226	-	139	-	
125	250	200	-	-	-	194	-	239	-	152	-	
150	300	200	-	-	-	224	-	254	-	167	-	
200	350	200	-	-	-	284	-	284	-	197	-	
250	450	-	-	-	-	-	-	327/-	-	240/-	-	
300	500	-	-	-	-	-	-	352/-	-	265/-	-	
350	550	-	-	-	-	-	-	382/-	-	295/-	-	
400	600	-	-	-	-	-	-	412/-	-	325/-	-	
500	600	-	-	-	-	-	-	892/-	-	797/-	-	
600	600	-	-	-	-	-	-	1025/-	-	930/-	-	

**Flange connection**

Compact device

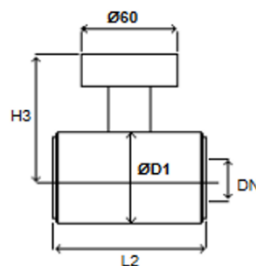
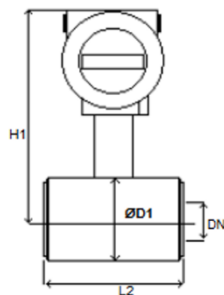
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**Sandwich connection**

Compact device

Weaned



**Screw thread**

Compact device

Weaned

