

SFX-800



- electromagnetic flow meter
- 0.5% F.S measuring accuracy
- communication: RS-485 Modbus, HART
- outputs: 4-20 mA, pulse, relay
- measuring the flow of fluid in the forward and reverse directions
- unaffected by the temperature, pressure, density of the liquid
- no pressure loss
- readings that are unaffected by changes in density or viscosity

The electromagnetic flow meter SimFlux **SFX-800** is designed based on the Faraday electromagnetic induction principle and are used to directly measure the flow rate of conductive liquids in closed pipelines. During on-site monitoring and display, standard current signals, pulse signals, and RS-485 digital signals can be output for recording, adjustment, and control, achieving automatic detection and control. It can be widely used in industries such as tap water, chemical industry, coal, environmental protection, light textile, metallurgy, paper making, etc.

APPLICATIONS

- Tap water and waste water systems
- Chemical industry
- Coal mining
- Environmental protection
- Light textile
- Reservoirs

OPERATING PRINCIPLE

The operating principle of electromagnetic flowmeter is based on Faraday's law of electromagnetic induction. The two electromagnetic coils at the upper and lower ends as shown in Figure 1 generate a constant or alternating magnetic field. When the conductive medium flows through the electromagnetic flowmeter, the induced electromotive force can be detected between the left and right electrodes on the wall of the flowmeter tube. The magnitude of the induced electromotive force is proportional to the electrically conductive medium flow rate, the magnetic induction density of the magnetic field, and the width of the conductor (the inner diameter of the flowmeter measuring tube), and the flow rate of the medium can be obtained by calculation. The induced electromotive force equation is as follows:

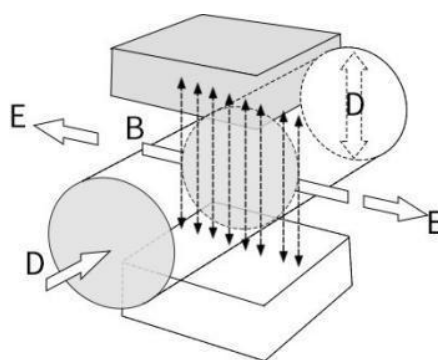


Fig. 1

$$E = K \times B \times V \times D$$

where:

- E** - induced electromotive force
- K** - meter constant
- B** - magnetic induction density
- V** - average flow speed in cross-section of measuring tube
- D** - inner diameter of measuring tube

When measuring the flow, the fluid flows through a magnetic field which is perpendicular to the flow direction. The flow of conductive fluid induces a potential proportional to the average flow velocity, thus requiring the conductivity of the measured flowing liquid to be higher than the minimum conductivity. The induced voltage signal is detected by two electrodes and transmitted to the converter via a cable. After a series of analog and digital signal processing, the accumulated flow and real-time flow are displayed on the display of the converter.

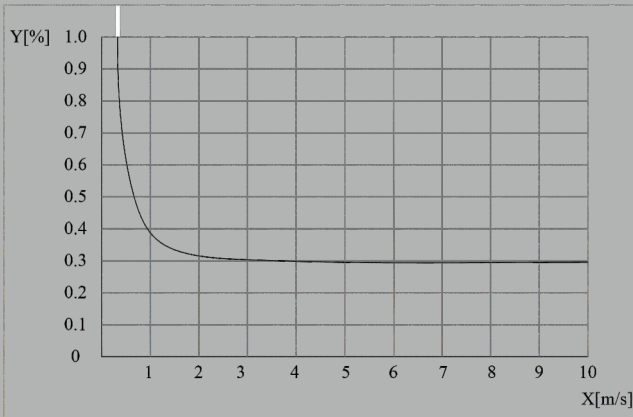


TECHNICAL DATA

Input			
Measured variable	direct measured variables: flow velocity calculated measured variables: volume flow, mass flow		
Velocity of flow	typically velocity of flow: 0.5 m/s - 5 m/s		
Nominal diameter	DN10 - DN1000		
Flow range	Nominal diameter	Min value (m³/h)	Max value (m³/h)
	DN10	0.14	1.4
	DN15	0.32	3.2
	DN20	0.56	5.6
	DN25	0.88	8.8
	DN32	1.4	14
	DN40	2.3	23
	DN50	3.5	35
	DN65	6	60
	DN80	9	90
	DN100	14	140
	DN125	22	220
	DN150	32	320
	DN200	56	560
	DN250	88	880
	DN300	127	1270
	DN350	173	1730
	DN400	226	2260
	DN450	286	2860
	DN500	353	3530
	DN600	509	5090
	DN700	693	6930
	DN800	905	9050
	DN900	1150	11500
	DN1000	1410	14100
Range ratio	1:10		

Output	
Current output	function: measurement of volume and quality (in the case of constant density) setting: scope 4-20 mA (max 20 mA, min 4 mA) internal voltage: 24V DC loading: $\leq 750 \Omega$
Pulse output	basis: $F_{max} \leq 5000 \text{ Hz}$ output pulse width: 0.1 - 2000 ms (this value is lower than the maximum duty cycle, with a maximum duty cycle of 1:1) pulse coefficient: 0.001 - 100000 /unit passive: $U_{Outer} \leq 30V \text{ DC}$ active: $U_{Internal} \leq 24V \text{ DC}$; $I \leq 4.52 \text{ mA}$
Communications	RS-485 serial / Modbus RTU, Hart communication protocol (optional)
Relay	2 channels SPST, 250VAC/3A (remote type optional)

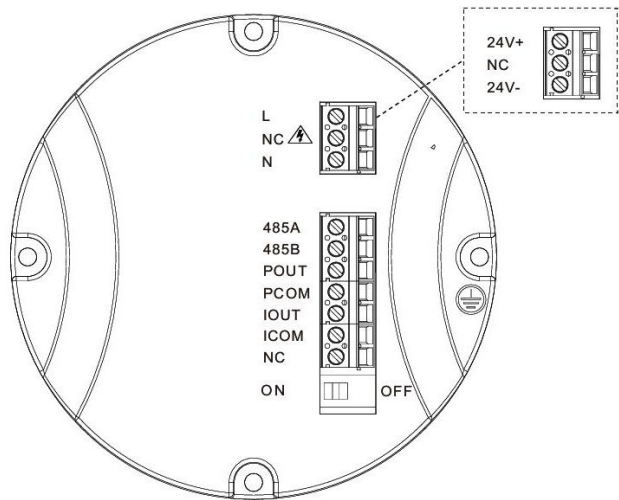


Power supply	
Supply voltage	100V AC - 240V AC; 50/60Hz 20V DC - 28V DC
Power consumption	≤ 15 W
Performance characteristics	
Reference operating conditions	medium: water temperature: 20°C pressure: 0.1 MPa installation requirements: inlet run ≥ 10DN, outlet run ≥ 5DN
Accuracy	measurement value ± 0.5% (flow velocity 0.5 m/s - 5 m/s)
Repeatability	0.16%
Maximum measured error	 X[m/s]: velocity of flow Y[%]: actual measured value deviation
Process	
Medium temperature range	chloroprene rubber (CR): -10°C - +70°C polyurethane rubber (PU): -10°C - +60°C PTFE/FEP: -10°C - +120°C
Pressure rating (high pressure can be customized)	PN6, PN10, PN16, PN25 (only DN10-DN800 are available), PN40 (only DN10-DN500 are available), PN63 (only DN10-DN300 are available) note: if there are differences in the selection of individual specifications, the label shall prevail, and high-pressure can be customized)
Conductivity	≥ 50 μS/cm
Buried depth	not deeper than 5 meters (only for remote type sensors with IP 68 protection)
Immersion depth	not deeper than 3 meters (only for remote type sensors with IP 68 protection)
Terminals	screw type terminal block, maximum wire diameter 2.5 mm ²
Cable entries	M20x1.5 cable gland
Signal cable	apply only to remote type
Environment	
Ambient temperature	integrated type: -10°C - +55°C remote type: -20°C - +60°C
Storage temperature	-20°C - +55°C
Ingress protection	integrated type: standard IP 65; high protection IP 66 / IP 67 option (cable requirements: choose armored shielded cable, core: diagonal 2 * 2 * 0.75 or 1.5 * 2/2.5 * 2; wire diameter 8 mm - 12 mm) remote type: IP 68 (sensor); IP 65 (converter)



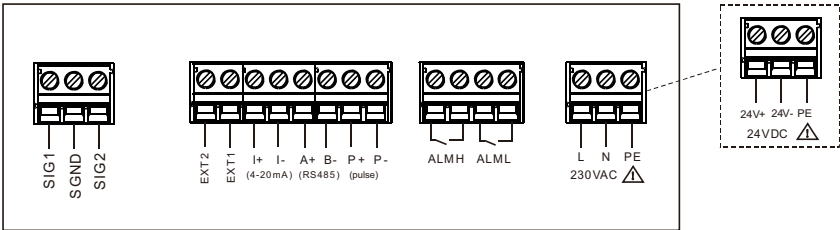
WIRING TERMINALS

1. **Integrated type:** sensor and converter are integrated in structure.



Terminal	Description
L, N	100V - 240V AC power supply
24V+, 24V-	24V DC power supply
485A, 485B	RS-485 serial communication
IOU, ICOM	(4-20) mA output
POUT, PCOM	Pulse output
	Converter instrument protection grounding

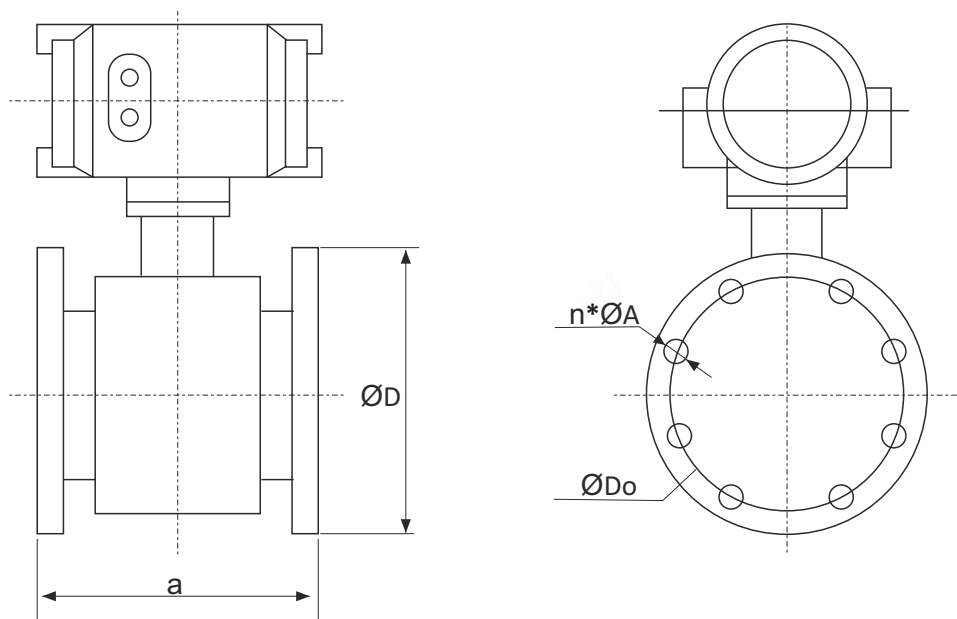
2. **Remote type:** sensor and converter are installed separately and connected through signal cables.



Terminal	Description
SIG1, SIG2, SGND	Sensor signal
EXT1, EXT2	Excitation signal
I+, I-	(4-20) mA, output
A+, B-	RS-485 serial communication
P+, P-	Pulse output
ALMH, ALML	Relay output (optional)
L, N	100V - 240V AC power supply
24V+, 24V-	24V DC power supply
PE	Ground



DIMENSIONS (for version according to: EN 1092-1, PN16, units: mm)



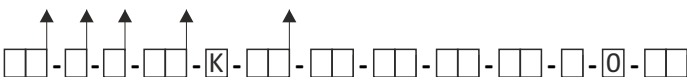
DN	a	f D	f Do	n*f A	Weight ca.	Pressure resistance
10	200	90	60	4*14	7 kg	1.6 MPa
15	200	95	65	4*14	7 kg	1.6 MPa
20	200	105	75	4*14	8 kg	1.6 MPa
25	200	115	85	4*14	8 kg	1.6 MPa
32	200	140	100	4*18	9 kg	1.6 MPa
40	200	150	110	4*18	11 kg	1.6 MPa
50	200	165	125	4*18	12 kg	1.6 MPa
65	200	185	145	4*18	14 kg	1.6 MPa
80	200	200	160	8*18	15 kg	1.6 MPa
100	250	220	180	8*18	20 kg	1.6 MPa
125	250	250	210	8*18	24 kg	1.6 MPa
150	300	285	240	8*22	30 kg	1.6 MPa
200	350	340	295	12*22	46 kg	1.6 MPa
250	450	405	355	12*26	67 kg	1.6 MPa
300	500	460	410	12*26	74 kg	1.6 MPa
350	550	520	470	16*26	103 kg	1.6 MPa
400	600	580	525	16*30	131 kg	1.6 MPa
450	600	640	585	20*30	160 kg	1.6 MPa
500	600	715	650	20*33	200 kg	1.6 MPa
600	600	840	770	20*36	256 kg	1.6 MPa
700	700	910	840	24*36	300 kg	1.6 MPa
800	800	1025	950	24*39	360 kg	1.6 MPa
900	900	1125	1050	28*39	450 kg	1.6 MPa
1000	1000	1255	1170	28*42	550 kg	1.6 MPa



ORDERING

SFX-800- - - -K- - - - -0-

[illegible]

SFX-800-

Electrode material							
316L stainless steel	M3						
Hastelloy B	MF						
Hastelloy C	MG						
Ti	T1						
Ta	T2						
Platinum Iridium Alloy PT	MH						
WC	MJ						
Lining material							
PTFE	N6						
Chloroprene rubber (CR)	N1						
Polyurethane rubber (PU)	N2						
Teflon F46/FEP	N7						
Electrical interface, housing material and protection level							
Integrated type, M20×1.5 cable gland, aluminum alloy, IP 65	WA						
Integrated type, M20×1.5 cable gland, aluminum alloy, IP 66/67	W5						
Remote type, M20×1.5 cable gland, aluminum alloy, IP 68	WC						
Cable length for the remote type							
0 m				00			
10 m				10			
15 m				15			
20 m				20			
25 m				25			
30 m				30			
other				XX			
Language							
English				2			
Spanish				4			
Polish				6			
Accessories							
Paired with Carbon Steel Flange						PB	
Paired with 304SS Flange						PC	
Paired with SS316L Grounding Ring						PE	

