



## IFC 010 Technical Datasheet

### Electromagnetic Flow Converter

- Excellent price performance ratio
- Quick and easy to install and operate
- Basic and fully functional flow converter
- High-speed signal conversion system
- Well readable, backlighted display
- Maintenance-free



## The economical solution

IFC 010 is the economical electromagnetic flowmeter with basic functionality. IFC 010 is designed for a wide range of applications which require simple read-out and data processing.



- ① Easy operation with 5-key display
- ② Available for AC and DC voltage operation

## Highlights

- Favorable price performance ratio
- Maintenance-free
- Quick and easy to install and operate
- Digital signal processing
- High-speed signal conversion system
- Basic and fully functional flow converter
- Several languages as standard
- Modular signal converter: basic version without display; local display and control panel optional
- Well readable, backlit display

## Industries

- Agriculture
- Heating, Ventilation & Air Conditioning (HVAC)
- Machinery
- Power Plants
- Water
- Wastewater

## Applications

- Measurement of homogeneous media
- Water distribution networks and irrigation
- Water purification
- Environmental engineering

## Electromagnetic product range

### OPTIFLUX converters: All converters fit to all sensors



① IFC 300 High-performance solution

② IFC 010 Economical solution

### OPTIFLUX sensors



① OPTIFLUX 1000 Economical solution

② OPTIFLUX 2000 Solution for the water and wastewater industry

③ OPTIFLUX 4000 Standard solution for the process industry

④ OPTIFLUX 5000 Solution with high-tech ceramics

⑤ OPTIFLUX 6000 Sanitary and hygienic solution

### Special-purpose flowmeters



① WATERFLUX 2070 Battery powered watermeter solution

② OPTIFLUX 4040 C 2-wire solution

③ TIDALFLUX 4110 PF Solution for partially filled pipelines

④ BATCHFLUX 5015 C Solution for volumetric filling

⑤ OPTIFLUX 7300 C Electrode-free solution

## Technical data

### Model

C (compact)	IFC 010 C
F (field), W (wall), R (19" rack)	IFC 010 W

### Performance

Maximum deviation (see accuracy curves)	$\pm 0.3\%$ of MV $\pm 2$ mm/s
Repeatability	$\pm 0.1\%$
Full-scale range (see flow table)	$v = 0.3 \dots 12$ m/s / $1 \dots 40$ ft/s

### Conductivity

Min. process liquid conductivity (non-water)	5 $\mu$ S/cm (see flow sensor)
Min. process liquid conductivity (water)	20 $\mu$ S/cm

### Display

With local display	Standard
Without local display (blind)	Option

### Languages

English, French, German	Standard
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### Combinations

OPTIFLUX 1000	DN10...150
OPTIFLUX 2000	DN25...1000
OPTIFLUX 4000	DN10...1000
OPTIFLUX 5000	DN4...100
OPTIFLUX 6000	DN10...150

### Communication

Current, pulse & status output	Standard
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### Verification

MAGCHECK (= external device)	Option
Integrated verification, diagnostics:	
- empty pipe indication	Option
- stabilization (LA/S3 / LA/S2)	Option
- electrode cleaning (LA/S4)	Option

### Power supply

230/240 VAC / 200...260 VAC	Standard
24 VDC, 24, 48, 100, 115/120, 200 VAC	Option
Power consumption	AC: 5 VA / DC: 4.5 W

### Protection category (according to IEC 529 / EN 60 529)

C (compact)	IP 66 / 67 (eq. to NEMA 6)
W (wall)	IP 65 (eq. to NEMA 4/4X)

### Temperature

Process temperature	See flow sensor
Ambient temperature	-25...+60°C / -13...+140°F
Storage temperature	-50...+70°C / -58...+158°F

**Signal cable**

Separate - DS (dep. on conductivity)	5...300 m / 15...1000 ft
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**Cable connection**

M20 x 1.5	Standard
½" NPT	Option
PF ½	Option

**Materials used**

Die-cast aluminum (polyurethane coated), C and W version, bottom plate only	Standard
Polyamide - polycarbonate, C and W, electronics cover only	Standard

## Dimensions and Weights

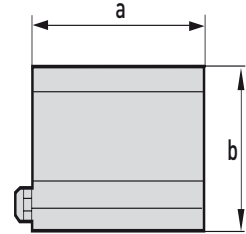
### Dimensions and Weights in mm and kg

Version	Dimensions [mm]			Weights [kg]
	a	b	c	
IFC 010 C	160	105	140	1.60
IFC 010 W	160	258	108	3.80

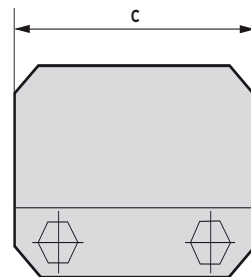
### Dimensions and Weights in inches and lbs

Version	Dimensions [inches]			Weights [lbs]
	a	b	c	
IFC 010 C	6.30	4.20	5.50	3.50
IFC 010 W	6.30	10.20	4.30	8.40

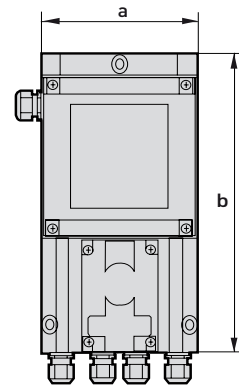
IFC 010 C front



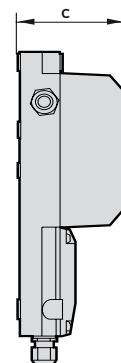
IFC 010 C side



IFC 010 W front



IFC 010 W side



## I/O Specifications

### Overall functionality

Function	Continuous measurement of actual volume flow rate
	Flow direction (forward or reverse)
	Bidirectional flow measurement and totalization
	Direction identified via status output

### Current output

Function	All operating data configurable; galvanically isolated
Settings	Q = 0%: 0 or 4 mA
	Q = 100%: 20 mA
	Q > 100%: 22 mA
	Error identification: 0 / 3.6 / 22 mA
Connection	
Active	$I \leq 22 \text{ mA} / R_L \leq 500 \text{ Ohm}$
Passive	$I \leq 0...500 \text{ Ohm} / U \leq 15...20 \text{ VDC}$
	$I \leq 250...750 \text{ Ohm} / U \leq 20...32 \text{ VDC}$

### Pulse output and Status output

Function	All operating data configurable; galvanically isolated
Settings	Q = 100%: 10 pulses per second, scalable (Standard); 100 or 1000 pulses per second; 10000 pulses per second, scalable
	Pulse width: 50, 100, 200, 500 or 1000 ms or auto or sym.
	Status: On or Off
Connection	
Active	Internal voltage: 15 VDC, from current output
	Load: $I_{\text{max}} < 23 \text{ mA}$ without current output
	Load: $I_{\text{max}} < 3 \text{ mA}$ with current output
Passive	External voltage: $U_{\text{ext}} \leq 30 \text{ VDC} / \leq 24 \text{ VAC}$
	$I_{\text{max}} \leq 150 \text{ mA}$

### Low flow cut-off

On	0...19%
Off	2...20%

### Time constant

Time constant	0.2...99.9 seconds (set in increments of 0.1)
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## Full-scale flowrates

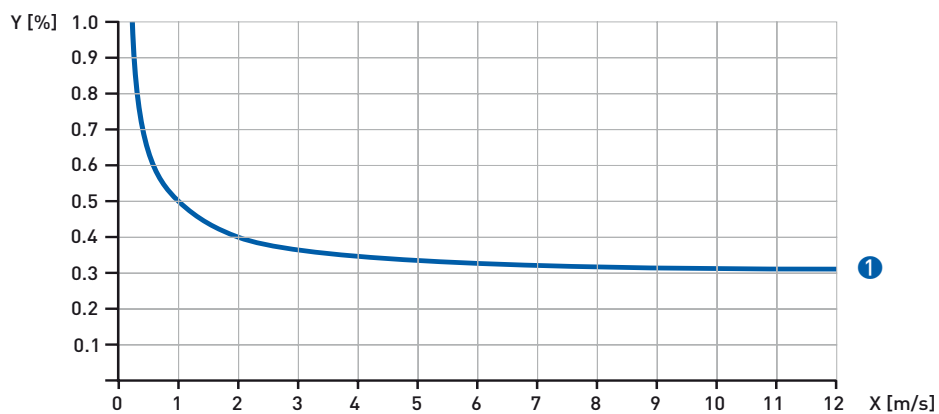
Flowrates in m/s and m<sup>3</sup>/h

v [m/s]	Q <sub>100%</sub> in m <sup>3</sup> /h		
	0.3	3	12
DN [mm]	minimum	nominal	maximum
2.5	0.01	0.05	0.21
4	0.01	0.14	0.54
6	0.03	0.31	1.22
10	0.08	0.85	3.39
15	0.19	1.91	7.63
20	0.34	3.39	13.57
25	0.53	5.30	21.21
32	0.87	8.69	34.74
40	1.36	13.57	54.29
50	2.12	21.21	84.82
65	3.58	35.84	143.35
80	5.43	54.29	217.15
100	8.48	84.82	339.29
125	13.25	132.54	530.15
150	19.09	190.85	763.40
200	33.93	339.30	1357.20
250	53.01	530.13	2120.52
300	76.34	763.41	3053.64
350	103.91	1039.08	4156.32
400	135.72	1357.17	5428.68
450	171.77	1717.65	6870.60
500	212.06	2120.58	8482.32
600	305.37	3053.70	12214.80
700	415.62	4156.20	16624.80
800	542.88	5428.80	21715.20
900	687.06	6870.60	27482.40
1000	848.22	8482.20	33928.80

Flowrates in ft/s and gallons/min

v [ft/s]	Q <sub>100%</sub> in US gallons/min		
	1	10	40
DN [inch]	minimum	nominal	maximum
1/10	0.02	0.23	0.93
1/8	0.06	0.60	2.39
1/4	0.13	1.34	5.38
3/8	0.37	3.73	14.94
1/2	0.84	8.40	33.61
3/4	1.49	14.94	59.76
1	2.33	23.34	93.36
1.25	3.82	38.24	152.97
1.5	5.98	59.75	239.02
2	9.34	93.37	373.47
2.5	15.78	159.79	631.16
3	23.90	239.02	956.09
4	37.35	373.46	1493.84
5	58.35	583.24	2334.17
6	84.03	840.29	3361.17
8	149.39	1493.29	5975.57
10	233.41	2334.09	9336.37
12	336.12	3361.19	13444.77
14	457.59	4574.93	18299.73
16	597.54	5975.44	23901.76
18	756.26	7562.58	30250.34
20	933.86	9336.63	37346.53
24	1344.50	13445.04	53780.15
28	1829.92	18299.20	73196.79
32	2390.23	23902.29	95609.15
36	3025.03	30250.34	121001.37
40	3734.50	37346.00	149384.01

## Accuracy



Y [%]: Deviation of actual measurement value  
X [m/s]: Flow velocity

### Reference conditions

Medium: Water

Temperature: 20°C / 68°F

Pressure: 1 bar / 14.5 psi

Inlet:  $\geq 5DN$

OPTIFLUX version	DN [mm]	DN [inches]	Accuracy	Curve
1010 / 2010 / 4010 / 5010	10...600	3/8...24	0.3% of MV + 2 mm/s	①
2010 / 4010	700...1000	28...40	0.5% of MV + 2 mm/s	as ① + 0.2%





## KROHNE Overview

- Electromagnetic flowmeters
- Variable area flowmeters
- Mass flowmeters
- Ultrasonic flowmeters
- Vortex flowmeters
- Flow controllers
- Level measuring instruments
- Pressure gauges
- Temperature measuring instruments
- Water solutions & analysis
- Oil and gas turnkey solutions

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