

IFC 100 / IFC 300

Electromagnetic flow converters
for the OPTIFLUX series



KROHNE

▶ *achieve more*

- ▶ The most innovative converter line
- ▶ IFC 100 for all standard applications
- ▶ IFC 300 – the high-end device even for difficult applications
- ▶ Outstanding application diagnostics
- ▶ Including conductivity measurement

Achieve more with KROHNE.

Welcome to KROHNE. As a leading company in the area of process measuring technology, our range of products and complete solutions mean that we are at home in a wide variety of sectors – worldwide.

Since 1921, the name KROHNE has stood for innovative and reliable solutions covering every aspect of process instrumentation. Our range of products now almost completely covers this area, from measurements at single points to complete solutions for systems. Comprehensive consulting services round out the portfolio.

At KROHNE, day in and day out more than 100 engineers devote their entire know-how and experience to the development of new products. Committed employees give their all to further advance the heart of every KROHNE measuring device – the electronics unit. Thanks to a keen sense of innovation and superior quality standards, it is always hugely successful. For example, at the Duisburg headquarters alone, where the electronics for the entire product range are developed and manufactured, a whole series of groundbreaking innovations such as the TIV 30 and the SC 100A converter, introduced in 1985, got their start.

After all, at Interkama 2004, KROHNE presented an astounded trade world with an electronic unit in the form of the IFC 300 electromagnetic converter which is suitable for all measuring tasks as well as for use in the most difficult applications.

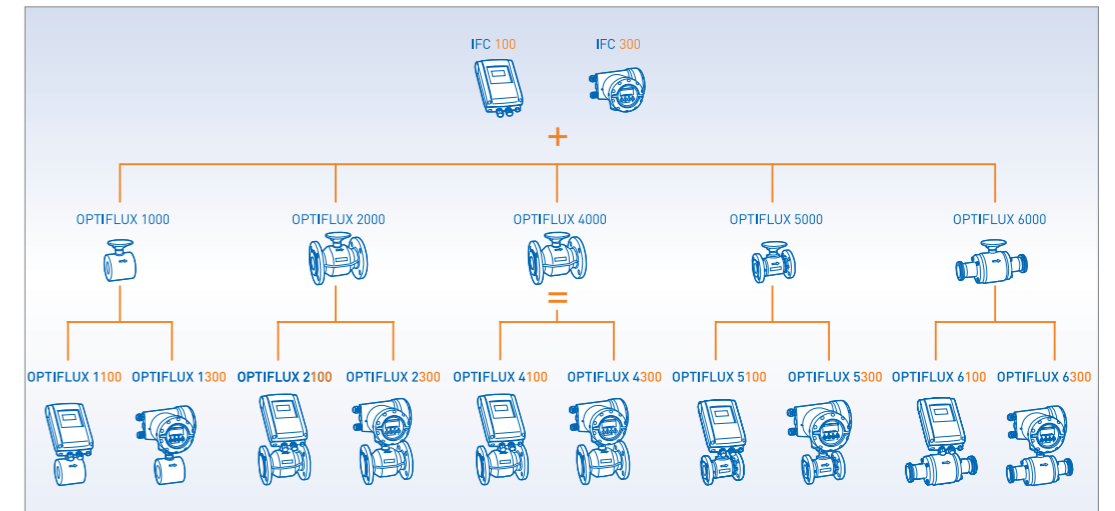
At the end of 2007, KROHNE launched the IFC 100, smaller brother to the IFC 300, a universally usable device which is not only extraordinary in terms of measuring accuracy and diagnostics but also defines a new benchmark when it comes to price-performance ratio. Another plus: The IFC 100 is reverse compatible, which means that you can easily upgrade the older IFC 010 converter to the IFC 100.



Many combinations for one individual solution.

Both the IFC 100 and the IFC 300 can be freely combined with our entire standard series of electromagnetic flowmeters.

This modularity is also reflected in the names of the devices: In other words, the device name is made up of the name of the sensor as well as the name of the converter. For example: the OPTIFLUX 1300 is a combination of the OPTIFLUX 1000 sensor and the IFC 300 converter.



Performance squared.



IFC 300 – when it matters.

Since its introduction in 2004, the IFC 300 has proven itself in a variety of industries. It is the first choice, especially for critical applications. The high-end device even reliably masters the measurement of media with high solid content or flow measurement involving rapid changes in media.

Typical applications for the IFC 300

- Products with minimal conductivity, high solid content or air pockets
- Inhomogeneous, abrasive and corrosive products
- Rapid product change
- Sudden change in pH value
- Pulsed or vortex flows

IFC 100 – when cost-effectiveness is the priority.

The IFC 100 was designed for applications requiring an economical measuring solution with a high level of technology. The new converter is suited to simple applications in the water and wastewater industries as well as demanding standard applications in chemistry. The device is also used in industries such as the food and beverage industry, in pharmacy and in power plants.

Typical applications for the IFC 100

- Can be used for all standard applications, e. g. for
- Water and wastewater measurements
 - Corrosive and abrasive media
 - Chemically aggressive media
 - Hygienic applications

	IFC 100	IFC 300
Diagnostics		
Conductivity	x	x
Deposits on electrodes/ short-circuit corrosion	x	x
Temperature	x	x
Accuracy test	-	x
Flow profile	-	x
Gas bubbles/solids	x	x
Partial filling	-	x
Communication		
HART	x	x
Profibus	pending	optional
Fieldbus	pending	optional
Inputs/Outputs		
Current (incl. HART), active, passive	x	x
Pulse/frequency	x	x
Status/limit switch	x	x
Control input	-	x
Approval		
EEx	pending	optional
FM	pending	optional
CSA	pending	optional
SAA	pending	optional
TIIS	pending	optional
OIML	-	x
Other features		
Accuracy	±0.3% of measured value	±0.15% of measured value
Nominal diameters	DN 2.5...1200	DN 2.5...3000
Downward compatibility	x	x
Virtual grounding	-	x
Housing variants		
Compact (C)	x	x
Wall (W)	x	x
Rack (R)	-	x
Field (F)	-	x

x = available

- = unavailable

Everything under control – the KROHNE diagnostics package.

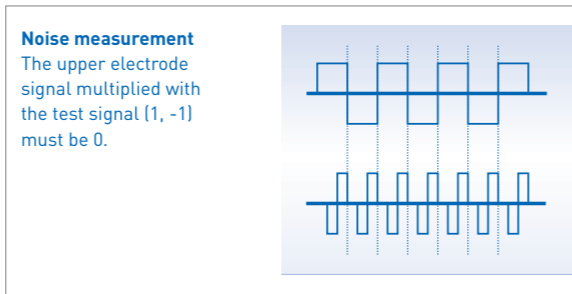
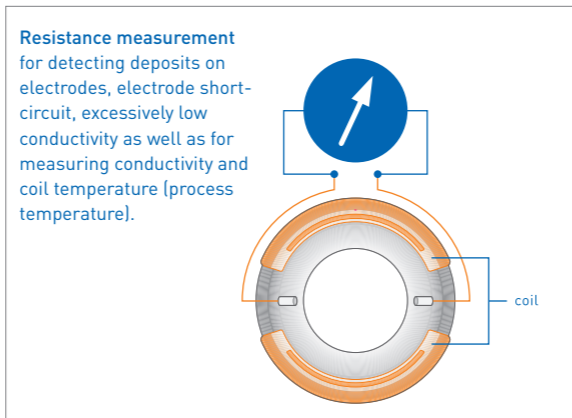
From optimum process monitoring to the optimum process.

As the first and to date only manufacturer, KROHNE offers its customers a comprehensive application and process diagnostics package far beyond what device diagnostics normally offer. In practice, that means that the devices continually measure all decisive parameters and convey information about the condition of the device, the quality of the measured value and potential application errors. This gives the user a precise overview of the process at any given time – thus fulfilling from A to Z the constantly increasing requirements of an optimal process.

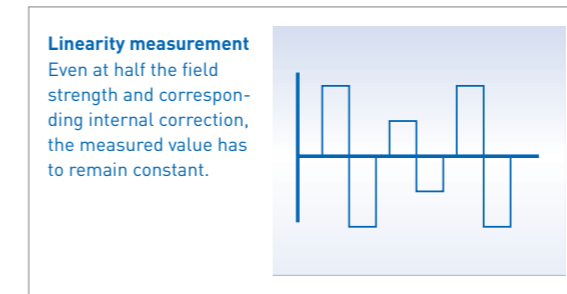
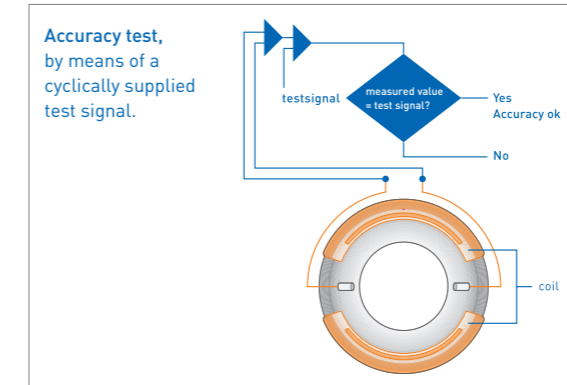
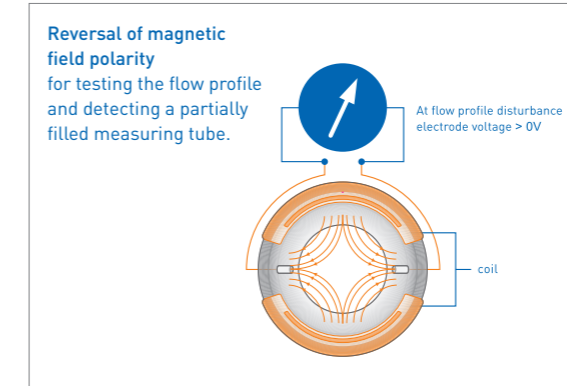
With its resistance measurement and noise measurement, the IFC 100 lays the foundation for even more process transparency and reliably reports about

- Gas bubbles and detection of solids
- Changing or excessively low conductivity (e.g. during change of media or empty tube)
- Deposits on electrodes
- Electrode corrosion
- Too high media or ambient temperature.

Diagnostic functions IFC 100/IFC 300



Diagnostic functions IFC 300



For those who want to know more.

The IFC 300 diagnostics concept is by far the most advanced currently available on the market. On top of what the IFC 100 can do, the IFC 300 can detect the following states through the reversal of magnetic field polarity, test signal supply and cyclical halving of the field current of the magnetic coils:

- Disturbances caused to the flow profile through damage to the liner or incorrect installation, such as directly behind a tube elbow
- Partial filling of measuring tube
- Exceeding the specified measuring error-limits
- Linearity deviations
- Strong, external magnetic fields

Small details – big impact.

IFC 100: New Economy.

The IFC 100 offers a broad performance range at a very good price-performance ratio. In addition to its high measuring accuracy and excellent measuring performance, the converter features a diagnostics package and conductivity measurement.

IFC 300: No demand too high.

With its optimized technical features and the expanded 3x100% diagnostics package, the IFC 300 is a real high-end device for demanding applications which meets the challenges of the process industry in a previously unheard of way. The IFC 300 gives the user a versatile converter featuring high interference and noise suppression. The IFC 300 thus not only increases the safety and availability of the system but also its efficiency.

The optionally available virtual grounding feature on the IFC 300 provides the user with additional cost advantages. For applications in which there are larger electrical potentials in the medium, electrochemical reactions on the grounding electrodes or grounding rings can lead to damage, which in turn can lead to leaks. With virtual grounding there is no connection to the ground. That means there is no longer any need for grounding electrodes or grounding rings. This results in enormous cost savings, especially when it comes to aggressive media for which special materials must be used and when it comes to large sizes. In addition, the lack of grounding electrodes and grounding rings significantly increases process reliability.



Virtual Grounding



As individual as you need it to be.



Details that make the difference.

User friendliness has always been a top priority at KROHNE. When installing the IFC 100 and IFC 300 converters, it is already possible to select from various versions the device best suited to the needs of the user.

The IFC 100 C in the 0° version, for example, is ideal for installation in vertical pipelines. The 45° version, on the other hand, is the preferred solution for horizontal pipelines. Both housing versions can be rotated in 90° increments, allowing for customer-specific installation.

If, due to the effects of temperature, vibration or difficult-to-access places, the converter has to be installed separately, the energy supply and signal processing of both the IFC 100 and the IFC 300 are realized via a signal cable between the sensor and the converter. For the separate version, the IFC 300 is available with the field housing, wall housing or as a 19" rack variant.

It is even possible to change the electronics unit during operation as all of the setting parameters are saved to a backplane. It is therefore not necessary to reparameterize the unit.

Simply convenient, simply well thought-out – the KROHNE operating concept.

The IFC 100 and IFC 300 converters' display and operating concept are impressive too: they feature an intelligent user interface and especially user-friendly operating elements.

For example, both the IFC 100 and the IFC 300 can be easily set using four keys. The intuitive navigation, several standard integrated operating languages and a large illuminated display make operating the two converters easy, even with poor visibility conditions.

Another practical feature is that thanks to the externally positioned keys on the IFC 100 and the optical keys on the IFC 300, the device does not have to be opened, meaning that it is protected from dirt and dust. And, using the quick setup menu, the user can quickly adapt the measuring device to the desired application.



Inputs and outputs: Simple and modular. It's your choice.

Simply good.

The IFC 100 comes with the following outputs:

- Analog output with HART®
- Pulse or frequency output
- Binary status output

The common interfaces Foundation Fieldbus, Profibus PA, Profibus DP and Modbus are optionally available.

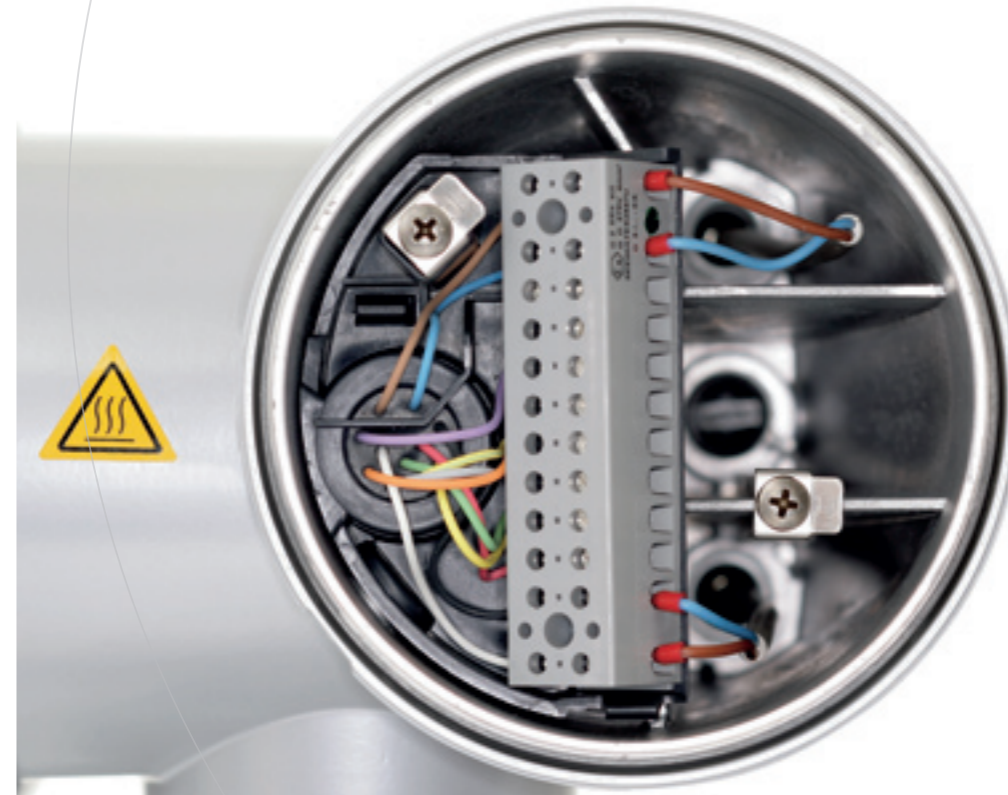
The device can be operated using any common supply voltage.



Versatility redefined.

Here too, the IFC 300 goes one step further. It is available in three variants: Basic I/O, Ex-i-I/O and modular I/O. The Basic I/O variant is the most frequently used and meets all the typical requirements. The other two variants can cover any imaginable input/output communications. Active or passive, one analog output or three, 0 or 4-20 mA inputs – anything is possible.

Even in terms of the communication interfaces, the IFC 300 leaves nothing to be desired. The HART® interface is, of course, standard. Options include a choice between Foundation Fieldbus, Profibus PA, Profibus DP or Modbus. The converter can be individually tailored to meet your needs, which means you will always get the ideal device for your specific process.



Operating conditions IFC 100 / 300

	IFC 100	IFC 300
Process conditions	Refer to sensor data sheet	Refer to sensor data sheet
Ambient temperature	-40...+65°C/-40...+149°F	-40...+65°C/-40...+149°F
Process temperature	Refer to sensor data sheet	Refer to sensor data sheet
Storage temperature	-50...+70°C/-58...+158°F	-50...+70°C/-58...158°F
Electrical conductivity	≥ 5 μS/cm (water ≥ 20 μS/cm)	≥ 1 μS/cm (water ≥ 20 μS/cm)

Technical data IFC 100 / 300

	IFC 100	IFC 300
Measuring accuracy	±0.3% of measured value	±0.2% of measured value
Repeatability	±0.1%	±0.1%
Outputs	Current, Pulse, Status out	Current, Pulse, Status out
Input connections	-	Binary
Communication	HART	HART, FF, PA, DP, Modbus
Auxiliary power supply	100...230 VAC; 11...31 VDC; 20.5...26 VAC/DC*	85...250 VAC; 11...31 VDC; 20.5...26 VAC/DC
Protection category:		
Compact (C)	IP66,67; NEMA 4X,6	IP66,67; NEMA 4,4X,6
Field (F)	-	IP66,67; NEMA 4,4X,6
Wall (W)	IP66,67; NEMA 4X,6	IP65; NEMA 4,4X
19" rack (R)	-	IP20; NEMA 1

* pending

KROHNE measuring technology

Product overview

- Electromagnetic flowmeters
- Variable area flowmeters
- Ultrasonic flowmeters
- Mass flowmeters
- Vortex flowmeters
- Flow controllers
- Level measuring instruments
- Temperature measuring instruments
- Pressure measuring instruments
- Analysis
- Oil and gas industry



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