

# Battery-powered signal converter For magnetic-inductive flow meters Model FLC-406

WIKA data sheet FL 20.08

## Applications

- Water and wastewater
- Water treatment and distribution
- Leakage detection systems
- Applications without access to the power supply network
- Water revenue and bulk metering

## Special features

- Approved for custody transfer (MID MI-001, OIML R49)
- Available as a compact or separated version
- Battery-powered (standard), DC 12 ... 24 V (optional)
- Module for pressure and temperature readout available



Signal converter, model FLC-406

## Description

The model FLC-406 is a battery-powered signal converter which is perfectly suited for applications without access to mains supply. A battery life of up to 10 years enables maintenance-free and economical operation.

The model FLC-406 can be combined with all magnetic-inductive flow meters from WIKA.

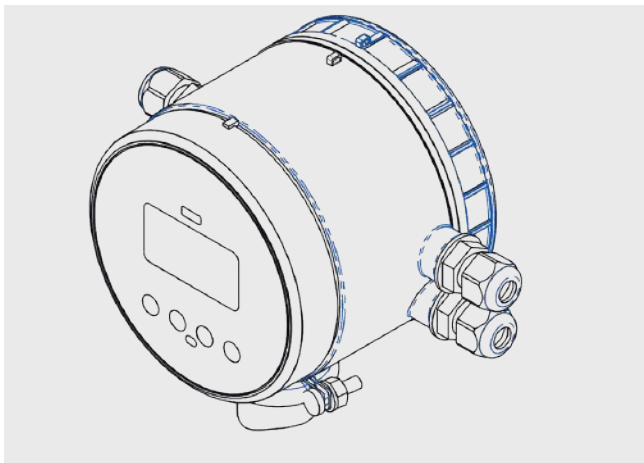
With the model FLC-2300 flow meters, even low flow velocities from 0.015 m/s can be measured without problems.

The integrated EEPROM memory ("electrically erasable programmable read-only memory") ensures high data security. Up to 100,000 data sets can be saved.

With the supplied software, the model FLC-406 can communicate via IrCOM or Modbus RS-485 interface with a PC, laptop or mobile device to program the signal converter and to manage and download measured values. A multi-level password system guarantees data access for authorised users only.

## Instrument versions

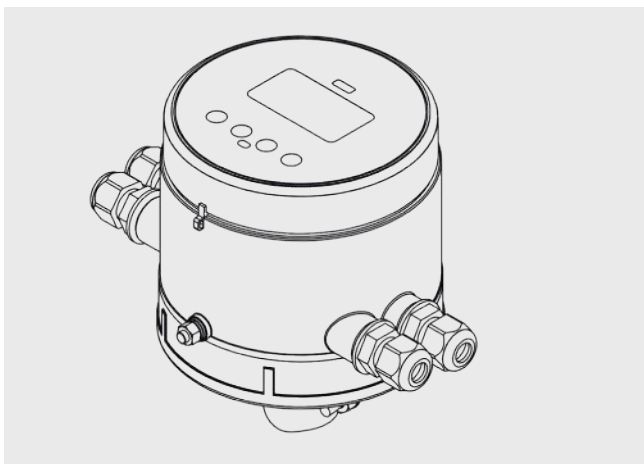
Model FLC-406, radial mount



Model FLC-1222 in combination with model FLC-406, radial mount



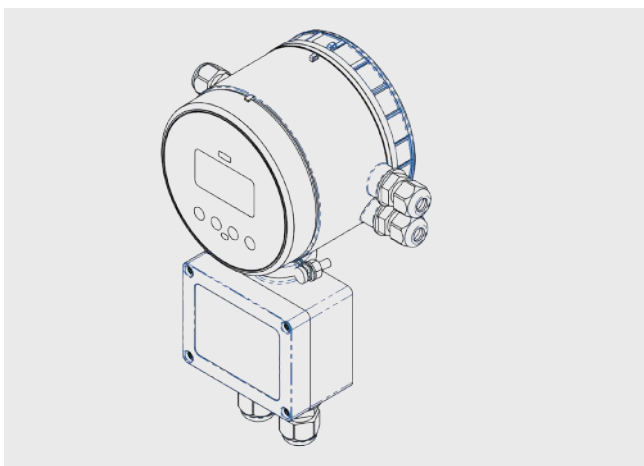
Model FLC-406, back mount



Model FLC-2300 in combination with model FLC-406, back mount



Model FLC-406, separated version



## Specifications

Specifications	
<b>Outputs</b>	<ul style="list-style-type: none"> <li>■ 2 pulse outputs (MOS), galvanically isolated</li> <li>■ 4 ... 20 mA, loop-powered (option)</li> </ul>
<b>Voltage supply</b>	<ul style="list-style-type: none"> <li>■ Battery-powered, 2 x 3.6 V lithium battery <sup>1)</sup></li> <li>■ DC 12 ... 24 V (optional)</li> </ul>
<b>Battery</b>	Lithium-ion battery
<b>Battery life</b>	Up to 10 years
<b>Accuracy</b>	<ul style="list-style-type: none"> <li>■ 0.2 % of the flow rate <math>\pm 2</math> mm/s</li> <li>■ 2 % of the flow rate <math>\pm 2</math> mm/s (for insertion flow meter versions)</li> </ul>
<b>Cable entry</b>	<ul style="list-style-type: none"> <li>■ 4 x PG9 gland</li> <li>■ 2 x cable gland M20 x 1.5, junction box (for separated version)</li> </ul>
<b>Communication</b>	IrCOM interface
<b>Temperature ranges</b>	
Medium	-25 ... +80 °C [-13 ... +176 °F]
Ambient	-20 ... +60 °C [-4 ... +140 °F]
Storage	-40 ... +70 °C [-22 ... +158 °F]
<b>Body Materials</b>	<ul style="list-style-type: none"> <li>■ Case from technopolymer, with aluminium base in the compact version</li> <li>■ Wall bracket from galvanised carbon steel for the separated version</li> </ul>
<b>Flow velocity</b>	0.015 m/s ... 10 m/s
<b>Sampling rate</b>	<ul style="list-style-type: none"> <li>■ Standard: 1/60 Hz ... 1/5 Hz (default: 1/15 Hz)</li> <li>■ Max.: 3.125 Hz</li> </ul>
<b>Digital filters</b>	<ul style="list-style-type: none"> <li>■ Dampening</li> <li>■ Switch-off at low flow velocity (standard: 0.05 m/s)</li> <li>■ Bypass filter</li> <li>■ Peak value filter</li> </ul>
<b>Ingress protection per EN 60529</b>	IP68 (continuous immersion to 1.5 m) for back mount compact version
<b>Custody transfer</b>	Approved for custody transfer (MID MI-001, OIML R49)

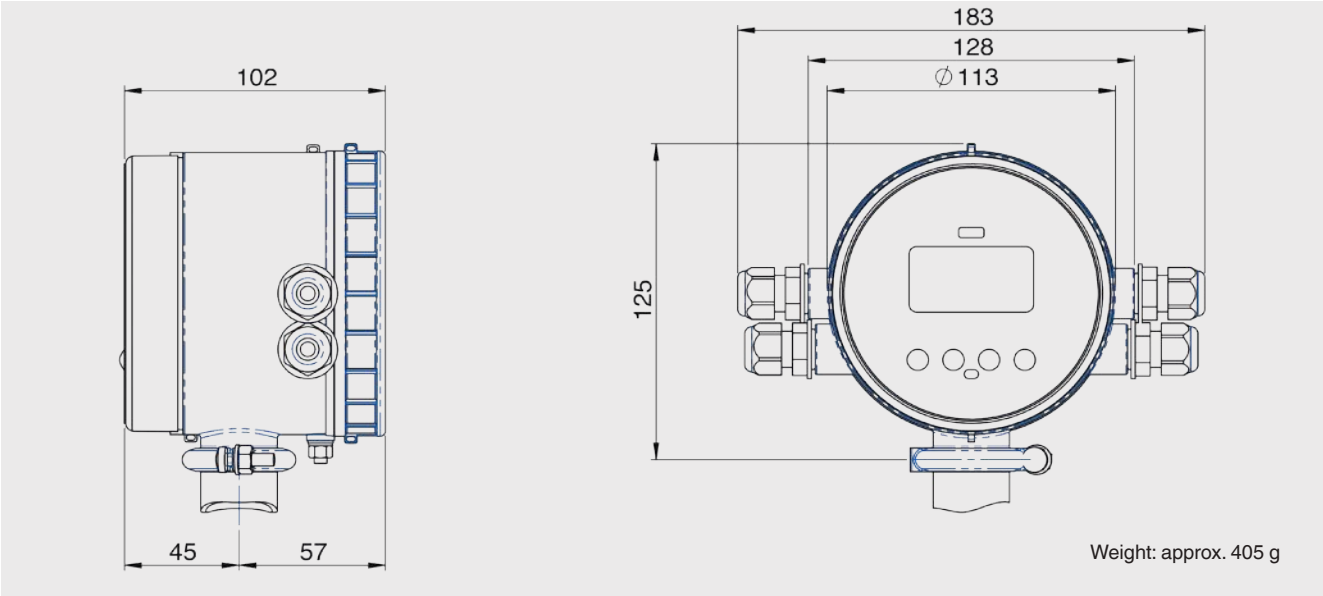
1) Lithium batteries are subject to special transport regulations in accordance with the United Nations recommendations on the transport of dangerous goods, UN 3090 and UN 3091. Special transport documentation is required to comply with these regulations. This can affect both the time and cost of transport.

Instrument construction	
<b>Integration</b>	<ul style="list-style-type: none"> <li>■ Compact version</li> <li>■ Separated version, with factory-fitted cable in 5 ... 30 m [16.4 ... 98.4 ft]</li> </ul>
<b>LC display</b>	8 digits and 5 decimal places with overflow counter
Displayed information	<ul style="list-style-type: none"> <li>■ Actual flow</li> <li>■ Positive totaliser T+ (total)</li> <li>■ Negative totaliser T- (total)</li> <li>■ Positive totaliser P+ (partial)</li> <li>■ Negative totaliser P- (partial)</li> <li>■ Net totaliser (NET)</li> <li>■ Date and time</li> <li>■ Signal converter temperature</li> <li>■ Process pressure and temperature (optional)</li> </ul>
<b>Keys</b>	4 keys
<b>Flow totalisers</b>	5 (2 positive, 2 negative, 1 net flow)
<b>Additional modules</b>	<ul style="list-style-type: none"> <li>■ GSM/GPRS module</li> <li>■ Pressure readout module</li> <li>■ Temperature readout module</li> <li>■ Energy metering</li> </ul>

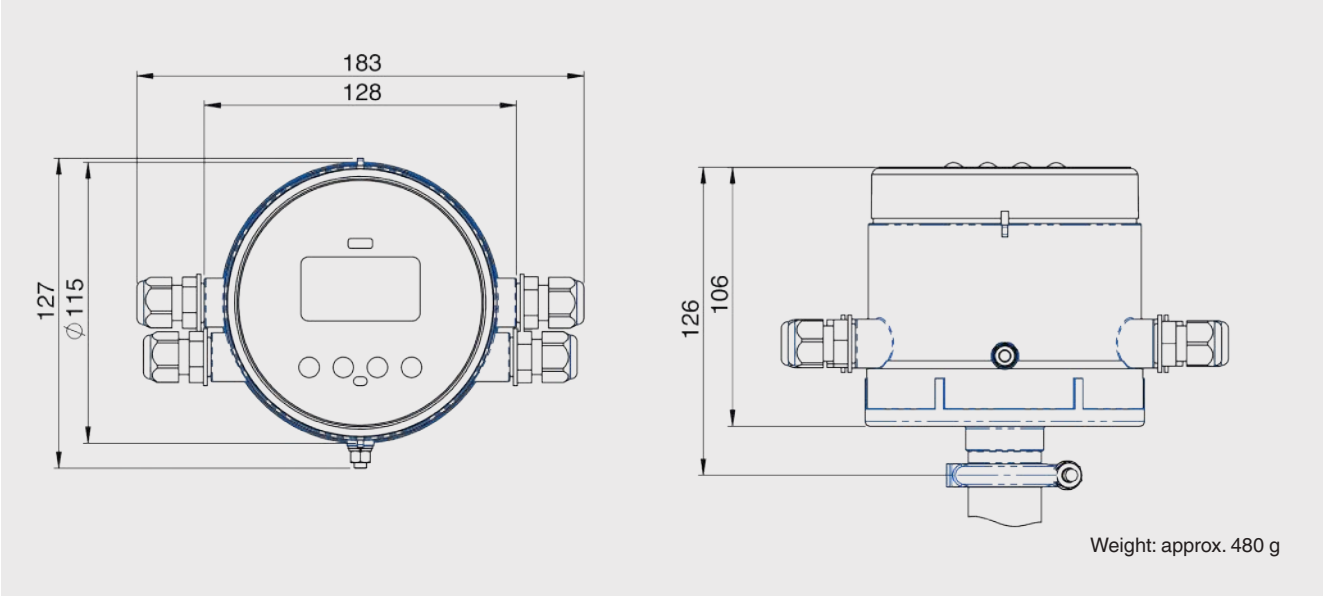
Software			
<b>Software functions</b>	<ul style="list-style-type: none"> <li>■ Commissioning</li> <li>■ Data printout</li> <li>■ Data export (CSV files)</li> <li>■ Firmware update</li> <li>■ Read the flow rate</li> <li>■ Read and write all non-volatile parameters</li> <li>■ Download the internal data logger</li> <li>■ Displaying the event logger</li> </ul>		
<b>Selectable flow units</b>	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <ul style="list-style-type: none"> <li>■ m</li> <li>■ m<sup>3</sup></li> <li>■ l</li> </ul> </td> <td style="width: 50%; vertical-align: top;"> <ul style="list-style-type: none"> <li>■ ml</li> <li>■ ft<sup>3</sup></li> <li>■ gal</li> </ul> </td> </tr> </table>	<ul style="list-style-type: none"> <li>■ m</li> <li>■ m<sup>3</sup></li> <li>■ l</li> </ul>	<ul style="list-style-type: none"> <li>■ ml</li> <li>■ ft<sup>3</sup></li> <li>■ gal</li> </ul>
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<b>Display of date and time</b>	Yes		
<b>Process data memory</b>	Storage frequency between 1 ... 120 minutes (standard: 15 minutes), max. 100,000 data sets		
<b>Alarms and status display</b>	Status indication on the display, alarms are recorded in the data logger		
<b>Possible alarms</b>	<ul style="list-style-type: none"> <li>■ Excitation failure</li> <li>■ Empty-pipe alarm on the 4th electrode</li> <li>■ Empty-pipe alarm on the measuring electrode</li> <li>■ Temperature too high</li> <li>■ Battery level</li> <li>■ Pulse overlapped</li> <li>■ Wet PCB</li> </ul>		
<b>Data protection</b>	<ul style="list-style-type: none"> <li>■ Password protection available</li> <li>■ Automatic firmware check and recovery during updates</li> </ul>		
<b>External test</b>	Field test instrument available for verification of calibrations and for checking the electronics		

# Dimensions in mm

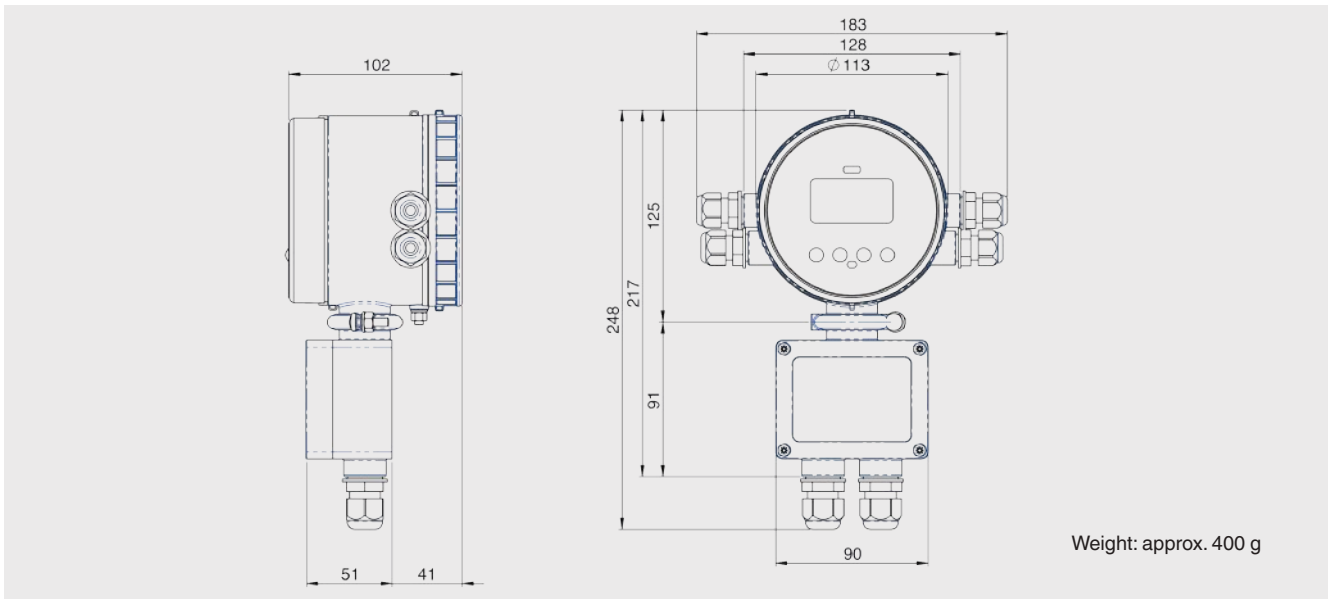
## Radial mount version



## Back mount version



## Separated version



## Approvals

Logo	Description	Country
CE	<b>EU declaration of conformity</b>	European Union
	EMC directive EN 61326 emission (group 1, class B) and immunity (industrial application)	
	Low voltage directive	
	<b>Custody transfer</b>	
-	International organisation of legal metrology (OIML)	International
-	Measuring instrument directive (MID)	European Union

Approvals and certificates, see website

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