

# IZAR MBUS COMPACT i

User guide



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## 1 PRODUCT DESCRIPTION

### 1.1 BRIEF DESCRIPTION

IZAR MBUS COMPACT i is an M-Bus pulse emitter enabling billing, monitoring and management/follow-up of installation. It takes into account the direction of flow and enables the fraud detection thanks to alarms (cable cut-off, unclipping).

IZAR MBUS COMPACT i features a clamping ring for totally secured mounting (sealable cam) and easy reinstallation on another meter.

It is equipped with a battery with a lifetime of up to 15 years.

IZAR MBUS COMPACT i is available in a 2 non-polarized wires version, 2 m long. It provides information using M-Bus protocol (EN 13757).

**M-Bus**

M-Bus output (EN 13757)

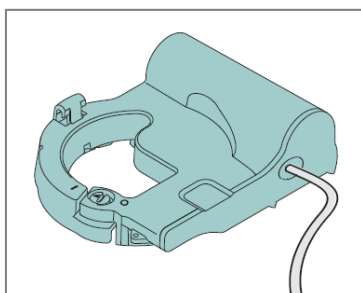


fig.1

### 1.2 COMPATIBILITY WITH DIEHL METERING METERS

IZAR MBUS COMPACT i is compatible with all the meters of the inductive Diehl Metering modular range. Meters equipped with this modular concept have a grey ring (red for hot water) and are marked « Ti » or « Ha+Ti ».

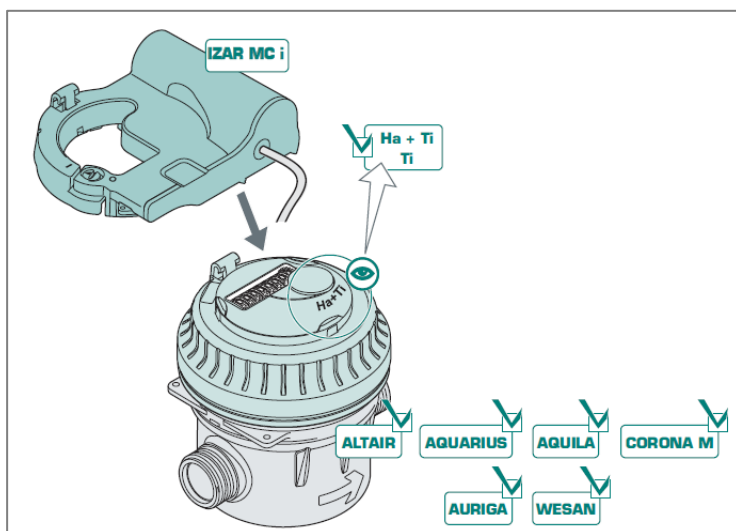


fig.2

## 2 OPERATION

### 2.1 OPERATING PRINCIPLE

IZAR MBUS COMPACT i is a ring equipped with a sensor based on the inductive principle and with a specific electronic system that exploits the information to be transmitted in the form of M-Bus signal (non-polarized).

The inductive system featured in IZAR MBUS COMPACT i is actuated using a metal half disc located in the modular register of the Diehl Metering water meter.



fig.3

## 2.2 TECHNICAL SPECIFICATIONS

### 2.2.1 CHARACTERISTICS OF THE M-BUS OUTPUT

- Complies with M-Bus norms (EN 13757)
- Galvanic insulation
- Protected against polarity reversal
- 2-wires cable (2 meters long)
- Absorbed current : 1 only load M-Bus (~1.5mA)
- Baud rates : 300 or 2,400 bauds (automatic detection)
- M-Bus protocol

### 2.2.2 FUNCTIONALITIES

IZAR MBUS COMPACT i enables the reading of several information types in order to ensure management/follow-up of installation, billing and meters monitoring.

The functions are:

- « Firmware » version
- Remaining battery lifetime
- Primary address (production identifier)
- Secondary address
- Manufacturer code is defined to « DME »
- Media type (cold water or hot water)
- Meter pulse weight and unit
- Current meter index
- Historical index :
  - 24 values registered in the module: monthly, weekly or daily
- Positive index :
  - Register recording the entire volume in the positive direction since the start up
- Negative index
  - Register recording the entire volume in the negative direction since the start up
- Flag of flow direction (positive or negative)
- Error flags and alarms events management (with historical events in the module)
  - Unclipping (current or historical)
  - Sensor fraud (current or historical)
  - Low battery (< 1 year)
  - Backflow exceeding a threshold (historical)
  - Leakage (consumption over several days) (historical)
  - Overflow (current or historical)
  - Underflow (current or historical)

- Meter without consumption (current or historical)
- Cable cut-off (historical)
- Flowrate management
- Current flowrate (with integration period 1...60min)
- Calculated flowrate (since the start-up or the last reset) :
  - Minimal (only positive flow direction)
  - Maximal (only positive flow direction)
  - Average; calculated only when there is a positive flowrate (superior to 0)

### 2.2.3 M-BUS INFORMATION READING

IZAR MBUS COMPACT i module has several types of frames allowing access to all the functions available in the module.

These frames are selected with an application reset (APL\_RST) followed by a subcode detailed in the table below.

Application Reset-Subcode	Telegram data
<b>0x00</b> „All“	Current volume Current backward volume Current date and time (type F) Last history values (storage number = 1) - Date (type G) - Volume Error flags
<b>0x30</b> „Historical values“	Date last history value (type G) Up to 24 values (inverse compact profile) - Volume (1...24)
<b>0x32</b> „back flow events“	Backflow event (storage number = 1 ... 5) - Start date (type F) - Volume  Up to 5 events, Storage 1 being the most recent
<b>0x33</b> „Leakage events“	Leakage event (storage number = 1 ... 5) - Start date (type F) - Volume  Up to 5 events, Storage 1 being the most recent
<b>0x34</b> „Overflow events“	Overflow event (storage number = 1 ... 5) - Start date (type F) - Volume  Up to 5 events, Storage 1 being the most recent

Application Reset-Subcode	Telegram data
<b>0x35</b> „Underflow events“	Underflow event (storage number = 1 ... 5) <ul style="list-style-type: none"> <li>Start date (type F)</li> <li>Volume</li> </ul> <p>Up to 5 events, Storage 1 being the most recent</p>
<b>0x36</b> „Mechanical tampering event“	Mechanical tampering event <ul style="list-style-type: none"> <li>Manufacturer specific data (DIF = 0x0F)</li> <li>DM function block Header (0xA5, 0x11, 0x40)</li> <li>Number of events (0...5)</li> <li>Up to 5 Start dates (type F)</li> </ul> <p>Up to 5 events, First date being the most recent</p>
<b>0x50</b> „Instant values“	Current forward volume Current backward volume Current flowrate Max flowrate Min flowrate Average flowrate Remaining battery lifetime
<b>0x80</b> „Installation and startup“	Firmware version Production number Hardware version Meter sensor type (5 or 7 mm)

## 2.2.4 ENVIRONMENTAL SPECIFICATIONS

Storage temperatures	-20°C to +70°C
Operating temperatures	-15°C to +55°C
Degree of protection	IP 68

## 2.2.5 BATTERY LIFETIME

The battery lifetime can reach up to 15 years when the temperatures are distributed within the ranges given below:

Temperatures range	% of operating time
-15°C to 0°C	10% of the time
0°C to +30°C	80% of the time
+30°C to +55°C	10% of the time

**NB:** an extended use at high temperatures will cause a loss of battery autonomy. If, for example, the module is permanently at +55°C, the life expectancy is reduced to less than 10 years.

## 2.3 DIMENSIONS

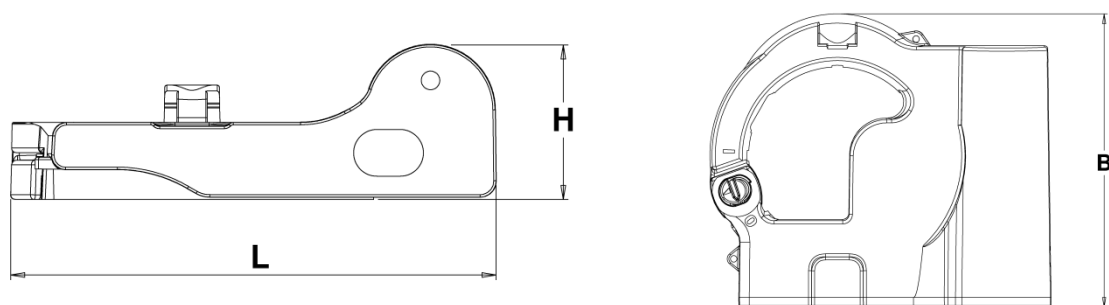


fig.4

IZAR MBUS COMPACT i			
Length	L	mm	100
Height	H	mm	33
Width	B	mm	100

## 3 INSTALLATION AND CONNECTION

### 3.1 IDENTIFICATION

Make sure that IZAR MBUS COMPACT i is compatible with the meter on which it is mounted (marked « Ti » or « Ha + Ti »).

### 3.2 INSTALLATION

- Remove the cover on the meter by hand or by pushing out the metal hinge pin (fig.5).
- Carefully clean the top of the register to remove any traces of soiling.

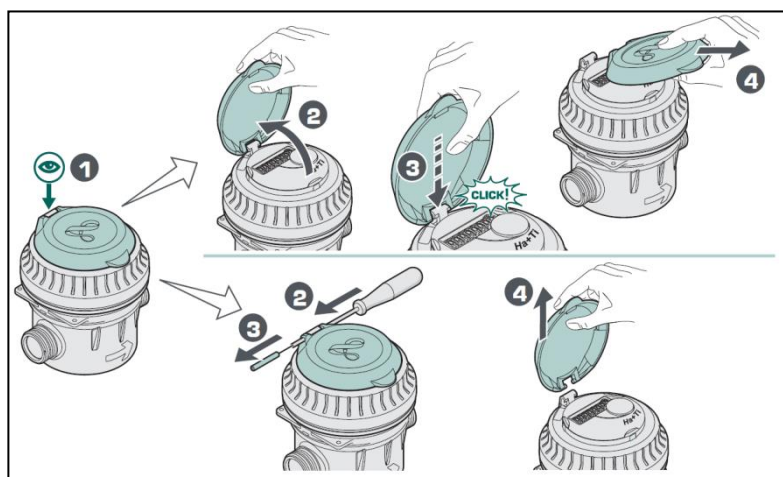


fig.5

- Position IZAR MBUS COMPACT i by aligning the hinges up with each other (fig.6).
- Press the ring onto the meter *with your hand only*, until it clicks into place. Do not use a mallet or hammer. This is an electronic component to be handled with care.

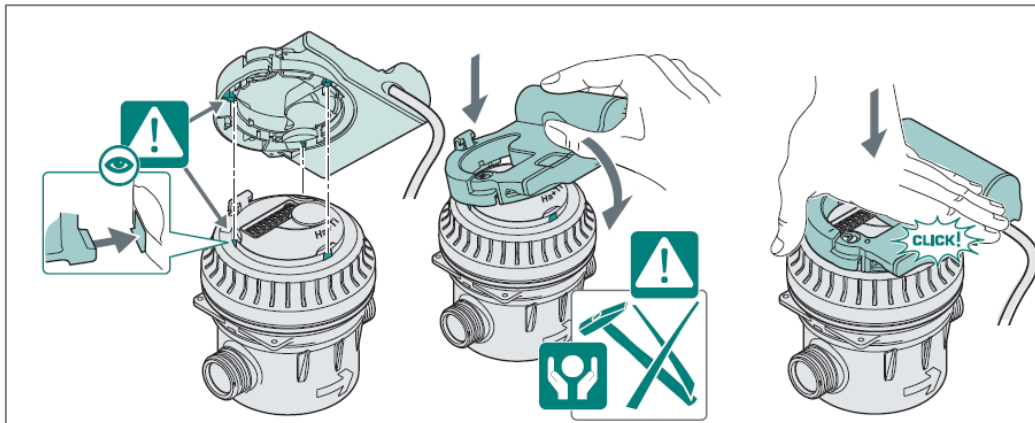


fig.6

### 3.3 SECURING SYSTEM

- A screw tightens and loosens the ring on the meter (fig.7). This system secures the assembly while making it possible to remove the ring without damaging the hooks.
- Put the sealing label (delivered with the pulse emitter) on the lock screw.

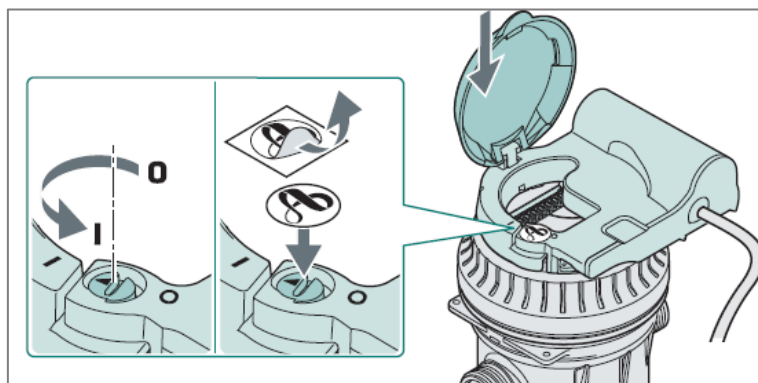


fig.7

### 3.4 CONNECTING THE 2 WIRES

IZAR MBUS COMPACT i is connected to any master M-Bus Center via the 2 non-polarized white and brown wires.

Unshielded flexible cable composed of 2 non-polarized wires (0.34 mm<sup>2</sup>):  
Brown / White: M-Bus output



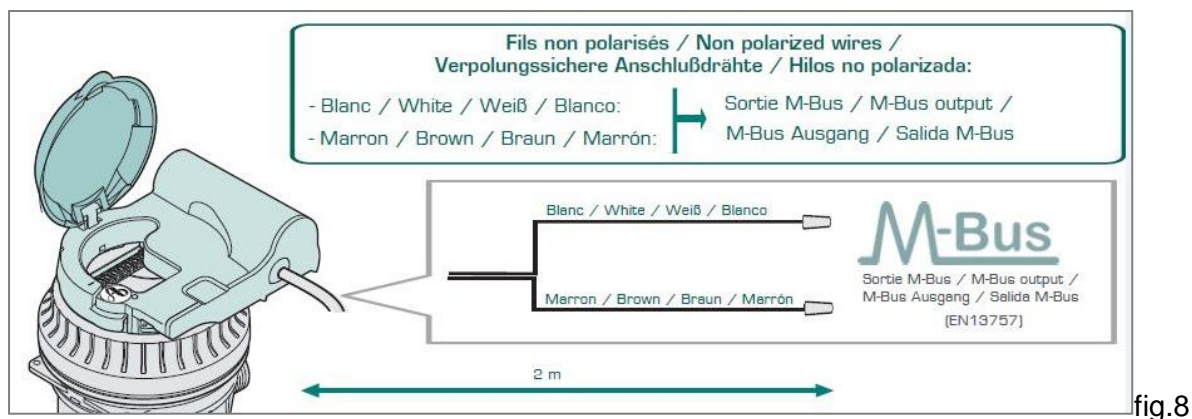


fig.8

The cable has 2 insulated conductors in a protective sheath with metal end caps. This makes it easy to connect to any device with a terminal block.

Ensure that the connected device is compatible with the main features of IZAR MBUS COMPACT i.

### 3.5 CONFIGURATION

IZAR MBUS COMPACT i must be programmed on site via the M-Bus link and using the IZAR@MOBILE 2 SET Expert software.

## 4 MAINTENANCE

IZAR MBUS COMPACT i doesn't require any specific maintenance.

Do not clean it with solvents or abrasive cleaners, as these would damage the plastic shell. If necessary, use a cloth or damp sponge.

Storage: The product should be stored in a dry place at a temperature between -20°C and +70°C.



Prolonged storage at high temperatures may cause a significant loss of battery life.

## 5 REGULATIONS

The product complies with the current European directives as indicated on the EU Declaration of conformity, delivered with the product and available at Diehl Metering and [www.diehl.com/metering](http://www.diehl.com/metering)

### Recycling



The transposed European Directives on waste batteries and waste electrical and electronic equipment supervise the actions necessary to limit the negative impact of the product end of life.

This product is subject to special collection and disposal. It should be deposited at an appropriate facility to enable recovery and recycling. For further details about recycling this product, please contact your Diehl Metering agency.

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