

hidroconta
metering technology

WHEN WATER COUNTS



water meter

hidroJet

hidroconta.com



Multi jet
technology

approval
EMEÑE

Magnetic
transmission

Convertible into a
Smart meter

High accuracy
R80H

Pre-equipped for
pulse emitter

Installation
UO/DO

REV8

Hydrodynamic design

The multi-jet technology ensures uniform load distribution over the turbine thanks to the diffuser located at the water inlet. The movement activates the magnetic transmission which will give the final volume reading.

EMEÑE approval

Thanks to the acquired homologation, the low maintenance requirements and the low pressure losses, this product is suitable for the totalisation of water in hydraulic networks for irrigation and public water use.

Technical specifications

- ✓ - Turbine and dial in thermoplastic material.
- ✓ - Clockwork assembly under vacuum to prevent water condensation.
- ✓ - Magnetic transmission protected against external magnetic fields.
- ✓ - Pre-equipped with pulse emitter for remote reading. Quick connection without stopping or disassembling the water meter.
- ✓ - High mechanical and wear resistance.
- ✓ - Accuracy ratio R80 in horizontal and R40 in vertical position.
- ✓ - No need straight sections at the inlet or outlet of the water meter.

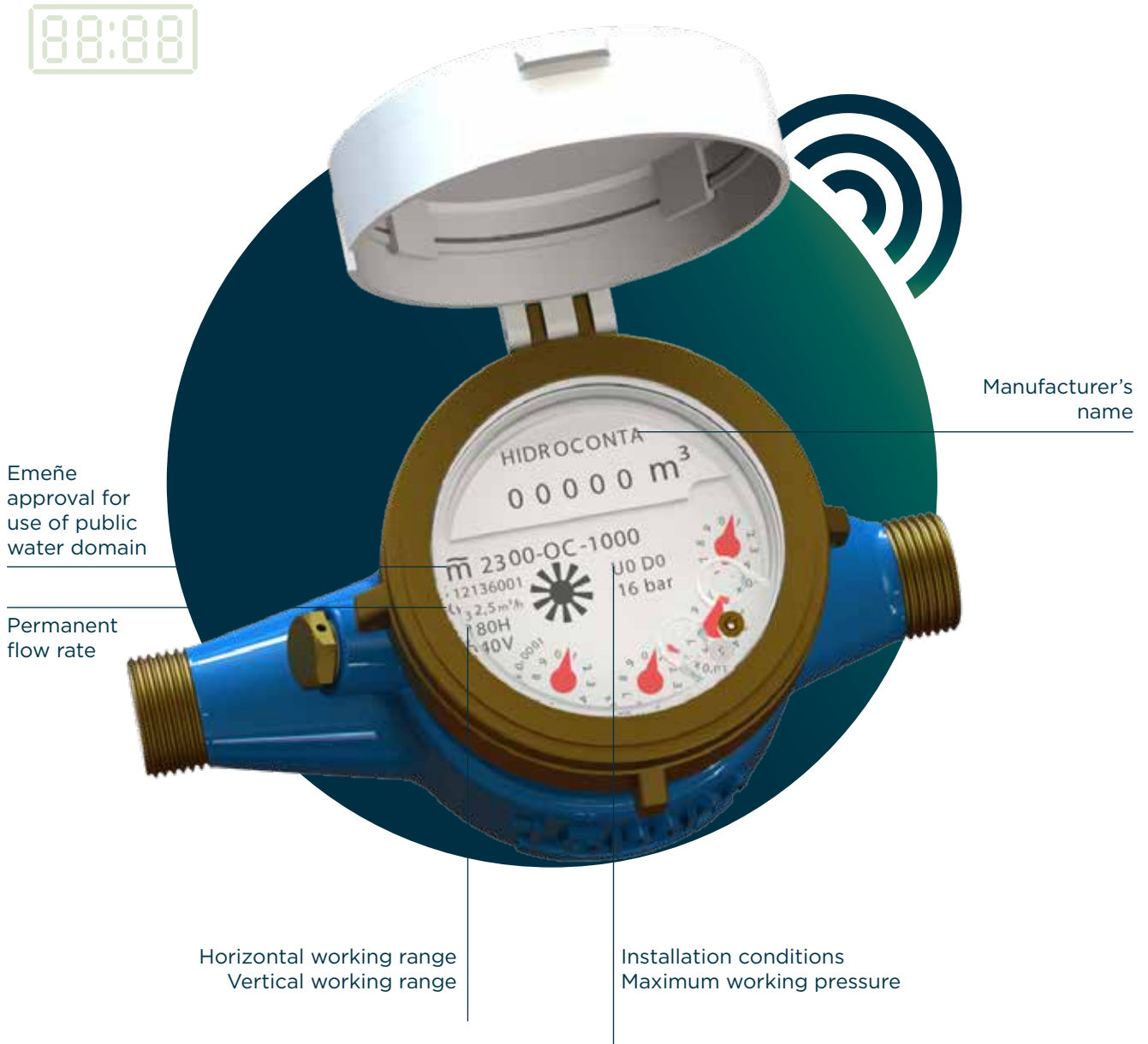
Pre-equipped

The dial of the water meter has a pre-installation that allows the installation of a pulse emitter, without the need to stop the water meter, this will give information about the reading.

High protection

Hidroconta's Hidrojet water meters are designed to avoid external manipulation by magnetic fields. They have a special shielding that covers the dial, which prevents any possible fraud in the transmission and therefore in the result of the reading.

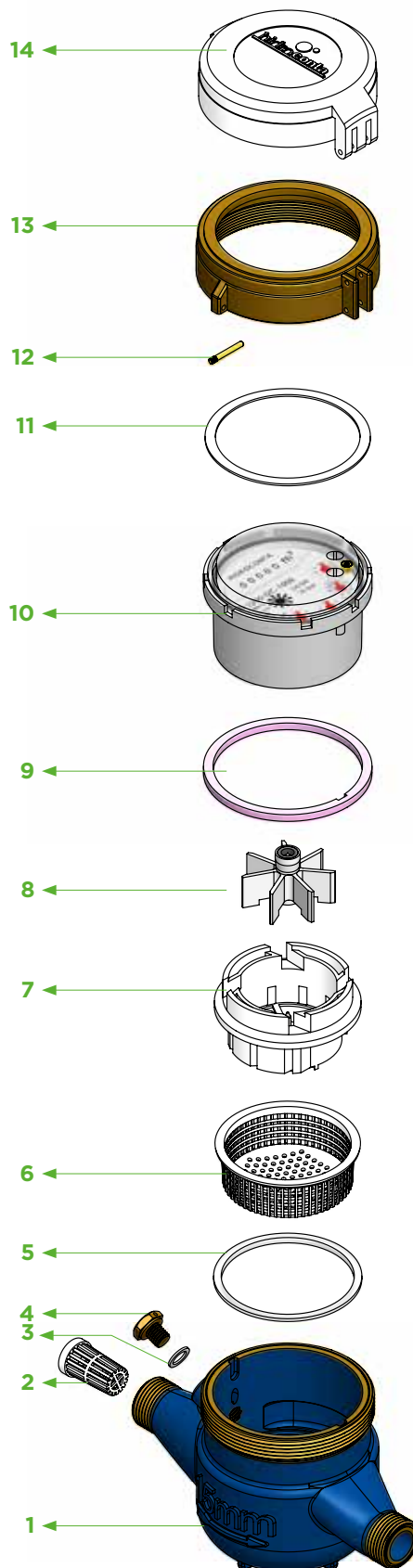
Dial



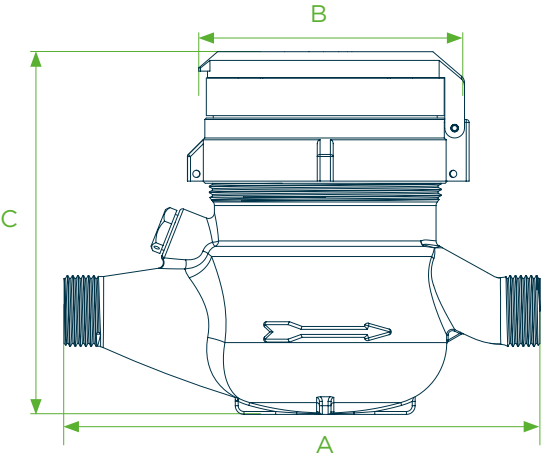
Disassembly



| Nº | DESCRIPTION | MATERIAL |
|----|------------------------------|----------------------------|
| 1 | Body | Grey cast iron / composite |
| 2 | Inlet filter | Plastic |
| 3 | Regulation screw seal | Plastic |
| 4 | Adjusting screw | Brass |
| 5 | Seal | Silicone |
| 6 | Low chamber filter | Plastic |
| 7 | Lower chamber | Assembly |
| 8 | Propeller | Plastic |
| 9 | Flat seal | Silicone |
| 10 | Watch | Assembly |
| 11 | Upper ring | Plastic |
| 12 | Cover shaft | Brass |
| 13 | Upper ring | Brass |
| 14 | Top cover | Plastic |



Dimensions



| CALIBRE | | A | A (with fittings) | B | C | WEIGHT WITH FITTINGS | WEIGHT WITHOUT FITTINGS | THREADED CONNECTIONS | MATERIAL |
|---------|--------|-----|----------------------|-----|-----|----------------------------|-------------------------------|-------------------------|----------------|
| mm | in | mm | | mm | | Kg | | | |
| 15 | 1/2" | 165 | 260 | 94 | 125 | 1,34 | 1,17 | G 3/4" | Grey cast iron |
| | | 165 | 260 | 94 | 130 | 0,63 | 0,58 | | Composite |
| 20 | 3/4" | 195 | 286 | 94 | 125 | 1,56 | 1,36 | G 1" | Grey cast iron |
| | | 195 | 295 | 94 | 130 | 0,71 | 0,62 | | Composite |
| 25 | 1" | 260 | 375 | 100 | 135 | 2,59 | 2,18 | G 1-1/4" | Grey cast iron |
| | | 225 | 345 | 110 | 135 | 1,00 | 0,84 | | Composite |
| 32 | 1-1/4" | 260 | 385 | 100 | 135 | 2,95 | 2,34 | G 1-1/2" | Grey cast iron |
| | | 230 | 352 | 110 | 135 | 1,18 | 0,93 | | Composite |
| 40 | 1-1/2" | 300 | 430 | 125 | 170 | 5,48 | 4,66 | G 2" | Grey cast iron |
| | | 245 | 375 | 125 | 180 | 1,75 | 1,46 | | Composite |
| 50 | 2" | 300 | 450 | 125 | 170 | 6,86 | 5,10 | G 2-1/2" | Grey cast iron |

Packing



| DIAMETER | | PCS. PER BOX | DIMENSIONS PER BOX (CM) | | | GROSS WEIGHT (cast iron water meter) | GROSS WEIGHT (composite water meter) |
|----------|--------|-----------------|-------------------------|-------|--------|--|--|
| mm | in | | Length | Width | Height | Kg | |
| 15 | 1/2" | 1 | 20 | 10 | 13,5 | 1,35 | 0,62 |
| | | 10 | 50 | 22 | 29 | 13,00 | - |
| 20 | 3/4" | 1 | 20 | 10 | 13,5 | 1,49 | 0,72 |
| | | 10 | 50 | 22 | 29 | 15,00 | 6,50 |
| 25 | 1" | 1 | 27 | 14 | 13 | 2,64 | 1,02 |
| | | 5 | 71 | 30 | 14 | 13,50 | 5,60 |
| 32 | 1-1/4" | 1 | 27,5 | 14,5 | 12,5 | 3,03 | 1,14 |
| | | 5 | 71 | 30 | 14,5 | 14,5 | 5,60 |
| 40 | 1-1/2" | 1 | 31,5 | 19,5 | 13,5 | 5,45 | 1,76 |
| | | 2 | 33 | 22 | 30,5 | 11,20 | 3,80 |
| 50 | 2" | 1 | 31,5 | 20 | 14 | 6,93 | - |
| | | 2 | 33 | 22 | 30,5 | 13,50 | - |

Working conditions

WATER TEMPERATURE
RANGE

0,1 °C - 30 °C

MAXIMUM PRESSURE

≤ 16 bar

For cast iron
body

≤ 10 bar

For composite
body

Maximum permissible error

RANGE

ERROR (%)

$Q_1 \leq Q < Q_2$

± 5%

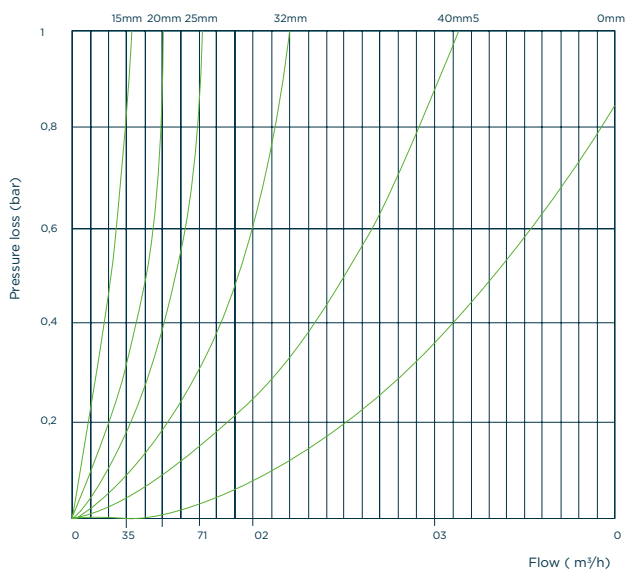
$Q_2 \leq Q \leq Q_4$

± 2%

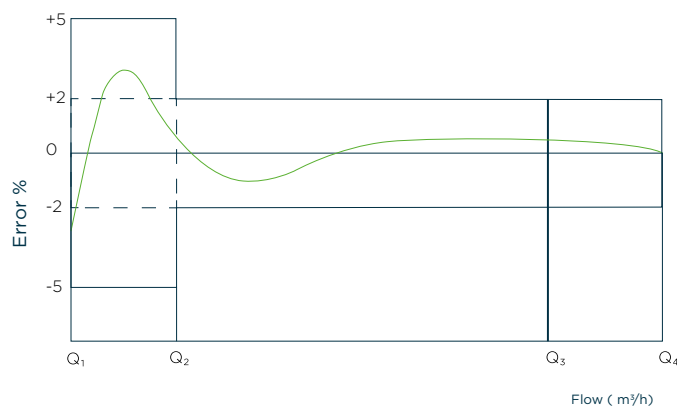
Technical specifications

| CALIBRE | | Q_4 | Q_3 | Q_2 | Q_1 | MINIMUM READING | MAXIMUM READING | RATIO |
|---------|--------|---------|-------|-------|-------|--------------------|--------------------|-------|
| mm | in | m^3/h | | m^3 | | | | |
| 15 | 1/2" | 3,12 | 2,50 | 0,05 | 0,03 | 0,05 | 99.999 | R80H |
| | | | | 0,10 | 0,06 | | | R40V |
| 20 | 3/4" | 5,00 | 4,00 | 0,08 | 0,05 | 0,05 | 99.999 | R80H |
| | | | | 0,16 | 0,10 | | | R40V |
| 25 | 1" | 7,87 | 6,30 | 0,13 | 0,08 | 0,05 | 99.999 | R80H |
| | | | | 0,25 | 0,16 | | | R40V |
| 32 | 1-1/4" | 12,50 | 10,00 | 0,20 | 0,13 | 0,05 | 99.999 | R80H |
| | | | | 0,40 | 0,25 | | | R40V |
| 40 | 1-1/2" | 20,00 | 16,00 | 0,32 | 0,20 | 0,05 | 99.999 | R80H |
| | | | | 0,64 | 0,40 | | | R40V |
| 50 | 2" | 31,25 | 25,00 | 0,50 | 0,31 | 0,05 | 99.999 | R80H |
| | | | | 1,00 | 0,63 | | | R40V |

Pressure loss curve



Flow error curve



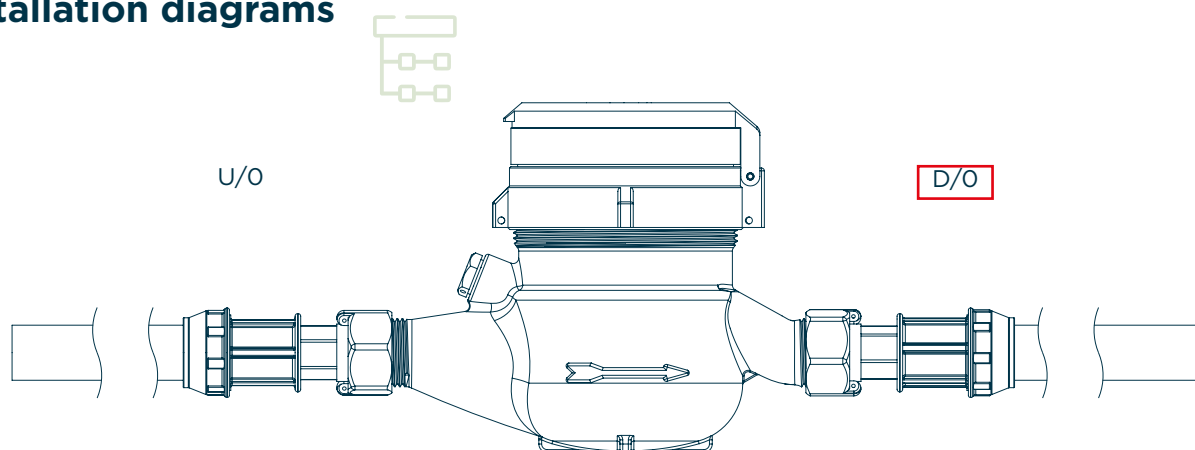
Pulse output



REED SENSOR

| | |
|-------------------------------------|---------------|
| Pulse value | 1 pulse 100L |
| Minimum current for contact closure | 0mA |
| Maximum contact closing current | 100mA |
| Contact closed resistance | < 1 Ω |
| Open contact resistance | $\sim \infty$ |
| Max. withstand voltage | 24V |
| Max. contact stabilisation time | 100 us |
| Contact closed contact duration | 40% of cycle |
| Standard cable length | 1,5 m |

Installation diagrams



REV8

Installation instructions

It is recommended to always place the water meter at a low point in the installation.

Position the water meter so that the arrow corresponds to the direction of water flow.

Do not force the water meter during installation, avoid tensile and torsional stresses.

Water meters must always be filled with water. A minimum pressure of 0.3 bar is recommended at the outlet of the water meter to ensure that it is filled with water. Install at a lower level concerning the slope of the rest of the pipe, this will also eliminate the formation of bubbles inside the pipe.

If air is present in the pipe, it is necessary to install air release valves to avoid erroneous readings.
If the water in the pipe has coarse particles in suspension, it is recommended to install a roughing filter beforehand.

Provide a shut-off valve upstream of the water meter to facilitate maintenance and/or repair.

Before installing a water meter in a new pipe, it is recommended to empty the pipe to remove particles.

The inside diameter of the pipe should be equal to the nominal diameter of the water meter.

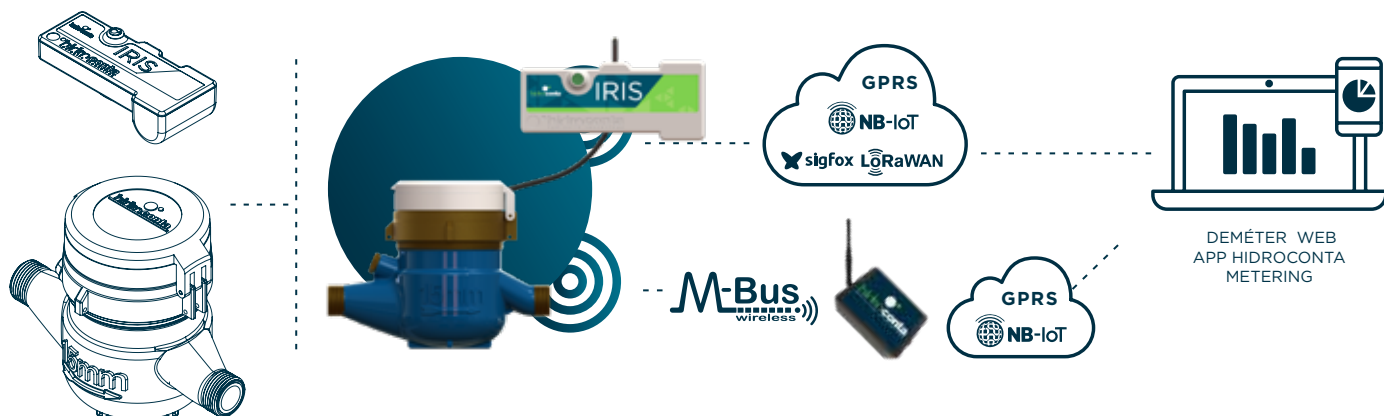
It is not necessary to install straight sections before or after the water meter UO-DO.

Suitable for installation in horizontal position R80H and vertical position R40V.

Automatic meter reading

Adding the IRIS communications module to the water meter will enable automatic remote readings. IRIS devices allow mechanical meters to access the world of IoT communications. Its great versatility allows it to be integrated with a wide range of meters.

The IRIS communications module is integrated with the Demeter system. It supports the integration of a wide range of devices using various communication technologies to suit the needs of the installation.



NB-IoT

| | |
|--------------------|--|
| Belts | LTE NB2/B1/B2/B3/B3/B4/B5/B8/ B12/B13/ B17/B18/B19/ B20/B25/B28/B66/ B70/B85 |
| Transmission power | 23 dBm +/-2dB |
| Firmware Update | Via FOTA |

M-Bus

868 MHz

OMS T1 and C1

LoRaWAN

| Modulation | CSS | CSS |
|-----------------------|-----------------|-------------------------------------|
| Frequency | EU868* ISM band | ISM band US915, AU915, AS923**/ *** |
| Power | 14 dBm | 20 dBm |
| Sensitivity | 168 dBm | 168 dBm |
| Bandwidth | 125 kHz | 125 kHz |
| LoRaWAN Configuration | SF12 | SF12 |
| Bidirectional | Yes/Half-duplex | Yes/Half-duplex |
| Encryption | AES128 | AES128 |
| Standardisation | LoRa-Alliance | LoRa-Alliance |

GPRS

| | |
|--------------------|--|
| Frequency | <ul style="list-style-type: none"> - Quad-band: GSM850, ESM900, DCS1800, PCS1900. - The module can search for these frequency bands automatically. - The frequency bands can be configured by AT command. - GSM Phase 2/2+ compliant |
| Transmission power | Class 4 (2W) on GSM850 and EGSM900 Class 1 (1 W) on DCS 1800 and PCS1900 |
| Bidirectional | Yes/Half-duplex |
| SIM | MFF2 eSIM and nano SIM card supported |

sigfox

| Geographical availability | RC1* | RC2** | RC4*** |
|---------------------------|---|--|--|
| Modulation | BPSK | BPSK | BPSK |
| Frequency | Tx Freq : 868.13MHz Rx Freq : 869.525MHz | Tx Freq : 902.2MHz Rx Freq : 905.2MHz | Tx Freq : 920.8MHz Rx Freq : 922.3MHz |
| Power | 14 dBm (max) @600bps | +24dBm (max.) @600bps | +24dBm (max.) @600bps |
| Sensitivity | -127dBm @600bps | -129dBm(min.) @600bps | -129dBm(min.) @600bps |
| Bandwidth | 100 Hz | 100 Hz | 100 Hz |
| Bidirectional | Limited/Half-duplex | Limited/Half-duplex | Limited/Half-duplex |



Alarms

Leakage alarm:

Detection of continuous consumption for a maximum period of time. Configuration adjusted by communications.

Water meter stopped alarm:

The alarm is activated if no consumption is detected for a maximum period of time. Configuration adjusted by communications.

Under-dimensioned water meter alarm:

Detection of flow rate higher than the overload flow rate for a maximum period of time. Configuration adjusted by communications.

Battery status alarm:

Various battery alarm levels are activated depending on the remaining battery life.

REV8

Functionality



Operating profiles based on the recording consumption and communications records requirements:



- Normal-24: Sending data every 24 hours and recording every hour.
- Normal-8: Sending data every 8 hours and recording every hour.
- Medium: Sending data every 12 hours and recording every 30 minutes.
- Extreme: Sending data every 6 hours and recording every 15 minutes.

| MODE | AUTONOMY | COMUNICACION | DATA HISTORY RECORD |
|------------|----------|--------------|---------------------|
| Normal -24 | 12 years | 24 h | 1 h |
| Normal -8 | TBD | 8 h | 1 h |
| Medium | TBD | 12 h | 30 min |
| Extreme | TBD | 6 h | 15 min |

* TBD (to be determined). 24 maximum storage and sending readings: each sending allows accumulating up to 24 values for each communication interval.

8



1. Which is the difference between dry dial, wet dial and semi-dry water meter dial?

On water meters with dry dial the reading mechanism (clock) is tightly separated from the wet chamber of the meter.

On Wet dial water meter the watch is totally immersed in the fluid.

For water meters with semi-dry dial, the reading mechanism is totally immersed in the fluid but the dial is partially separated and protected by a sealed capsule.

2. What are the ranges of measurement and precision?

The measuring range of the meters is determined by the Directive MID 2014/32 / UE establishing the ratio between the value of the permanent flow (Q3) and that of the minimum flow (Q1). The water meter can measure up to the maximum flow rate (Q4) for short periods of time without deterioration.

The maximum permissible error, positive or negative, in volumes between the transition flow (Q2) (included) and the overload flow (Q4) would be 2% with a water temperature 30 ° C.

The maximum permissible error, positive or negative, in volumes between the minimum flow rate (Q1) and the transition flow (Q2) (excluded) would be 5%.

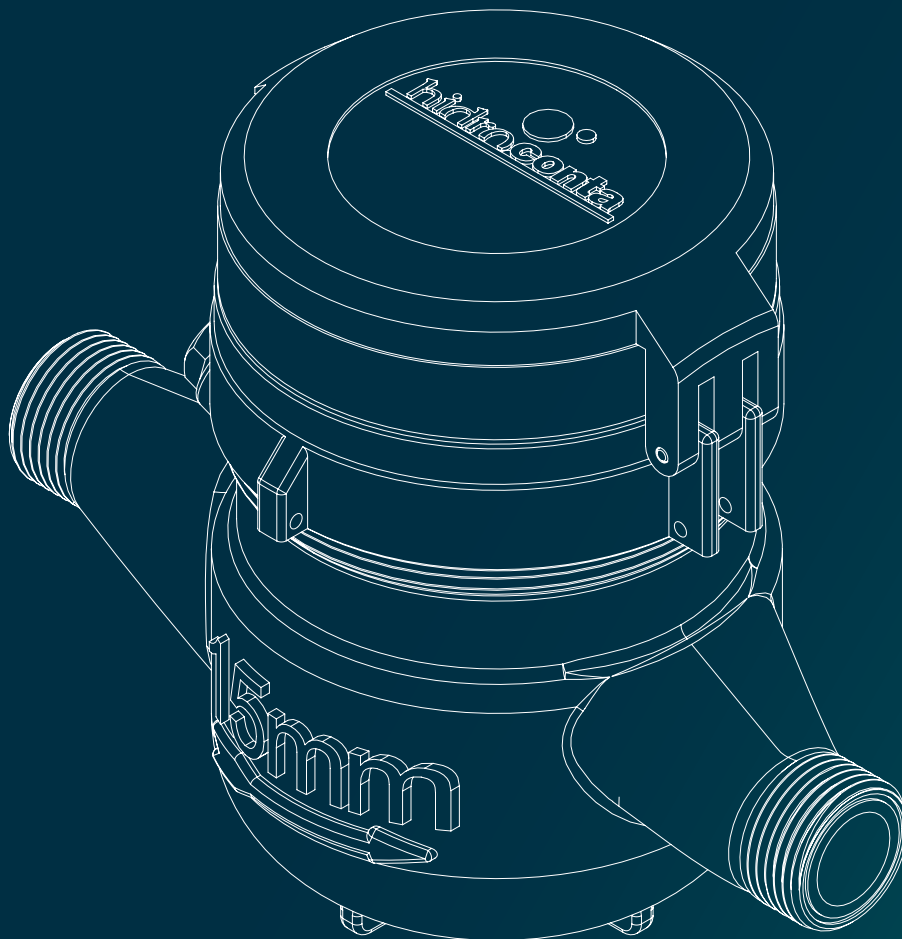
3. The MID directive and its compliance

The MID Directive (2014/32 / EU Measuring Instruments Directive) is a directive of the European Union whose purpose is to harmonize the different aspects of Legal Metrology in the member states.

The most important aspect of this directive is that equipment in possession of a MID certificate can be used in the EU.

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