

# 220C

## Volumetric Meter Composite Body Protected Dial – Class C Reed and HRI AMR pre-equipment



### Main Features

#### DN15, PN16

Ultra light and easy to handle

Accuracy better than class C requirements

Conforms to the latest OIML standard

Pre-equipped as standard for both Reed and HRI AMR interfaces

Tamperproof design

Designed for tropical installation conditions

Extreme resistance to water hammer

### Application

The 220C meter has been specially designed for operators anxious to improve the reliability and meter efficiency of their networks. The 220C piston meter benefits from Sensus' long experience in the manufacture of high-performance meters.

The 220C design meets particularly the requirements of markets with high expectations. Theft of the meter is discouraged by its design without a brass body. Its tamperproof design assures at any time the correct reading of the actual water consumption and its super strong composite body makes its installation safe, even in a tropical environment.

The dial is housed in a case filled with lubricant which means it is protected from any impurities in the network. It can be read perfectly under all conditions and is not affected by fogging or the build up of algae.

Through its dual AMR pre-equipment, with both Reed and HRI interfaces, the 220C can be used in any network where a reliable and cost effective AMR system is required. Both AMR solutions are retrofittable and can be added at any time after the meter has been installed.

### Options Available

HRI electronic sensor (Data Unit, Pulse Unit, Sensus((S))cout)

Reed switch

Connectors

Non-return valve

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## Meter Design

The 220C body, made of a composite material based on a polymer with glass fibres, provides exceptional strength and weathering behaviour.

Special attention has been paid to the strength of the threads ensuring that the meter may be installed in existing installations without the danger of thread damage.

## Reliability

Thanks the use of the composite body with generous wall thickness the 220C meter offers high protection against weathering, water hammer and accidental heat exposure. The meter will retain all its mechanical properties irrespective of the installation environment. The internal components, made of high-grade polymers, have been designed to preserve the initial performance of the meter for many years of operation. All materials are suitable for potable water and won't affect the organoleptic properties of drinking water.

## Register

The register's roller counter is immersed in a lubricant, ensuring optimum operation and protection. This technique prevents any condensation and enables perfect legibility of the counter under all conditions, irrespective of the water quality.

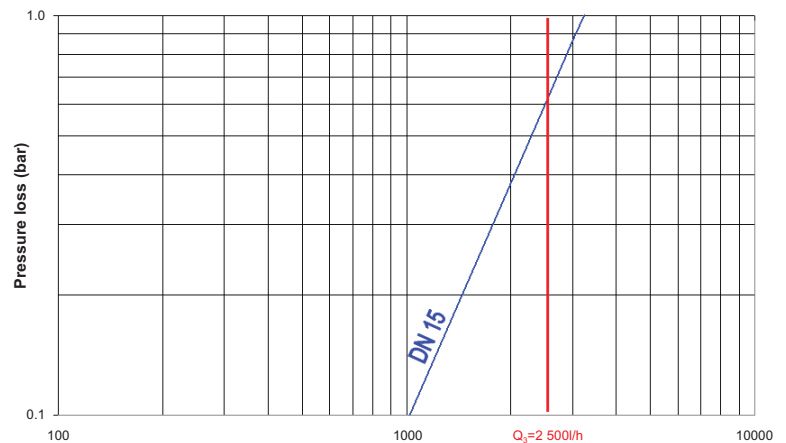
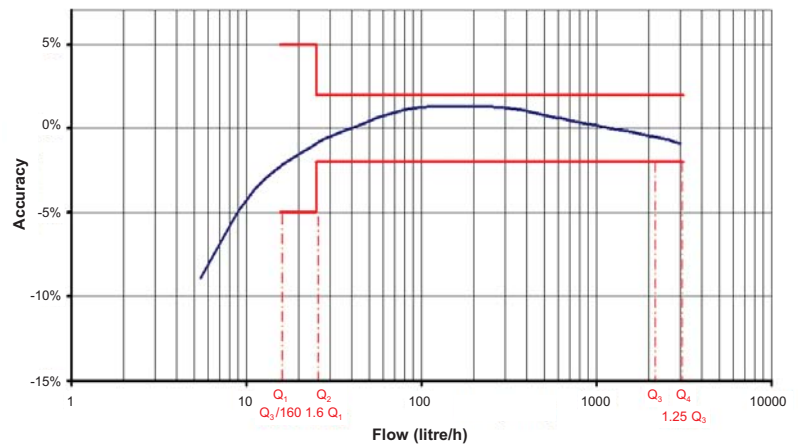
The counter is protected by a very thick polymer dial face designed to withstand environmental influences without cracking or discolouring.

## Tampering protection

A key requirement in the design of the 220C meter was to produce a tamper-proof meter:

- Having no magnetic transmission, the meter is not affected by external magnets placed near the meter.
- The use of a robust composite body combined with a thick polycarbonate window prevents any mechanical tampering (commonly through the use of a screw-clamp or a hot needle).
- Meter sealing is achieved by means of a non-removable plastic seal. Provision is made for an optional wire and lead seal.

## Accuracy Curve



## Typical Head loss Curve



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## Compliance

The 220C already complies with the new International Organisation of Legal Metrology (OIML) recommendation 49/1 - 3 (2006 revision).

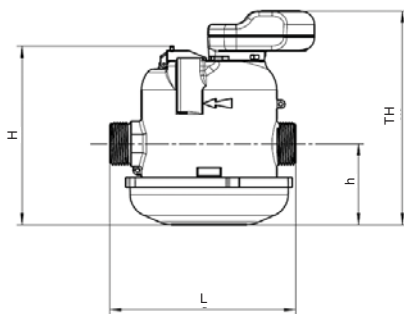
The 220C DN15 meter has a permanent flow rate ( $Q_3$ ) of 2 500 l/h and a metrological ratio  $Q_3 / Q_1$  of 160 which is the equivalent of a class C meter as defined by the old ISO 4064 metrological standards.

## Installation and Maintenance Instructions

(refer to installation instructions MD 1001 for more detailed information)

1. The meter may be installed horizontally, vertically or at an any angle without loss of accuracy
2. The installation of upstream and downstream valves is recommended to facilitate maintenance of the meter
3. Flush the pipe work thoroughly to clear all impurities
4. Remove the two caps protecting the threads and place washers with connectors (not supplied) on the two ends
5. Check the direction of flow through the meter by the arrow on the body. Ensure that the meter is installed appropriately
6. First tighten the inlet nut on the meter by hand
7. Fit and tighten by hand the nut on the outlet. Tighten both nuts with a spanner using minimal force
8. Open the upstream stop-valve slowly and then completely; then draw water at intervals
9. Check for flow through the meter and check for leakage at the connections

## Dimensions and Weights



## Performance Data

### Metrological Characteristics (OIML Recommendation R49/ 1 to 3 (2006))

Nominal size	DN	mm	15
Permanent flowrate	$Q_3$	$m^3/h$	2.5
Ratio $Q_3 / Q_1$			160
Overload flowrate	$Q_4$	$m^3/h$	3.125
Minimum flowrate (tolerance $\pm 5\%$ )	$Q_1$	l/h	15.6
Transitional flowrate (tolerance $\pm 2\%$ )	$Q_2$	l/h	25.0

### Operational Characteristics (manufacturer's data)

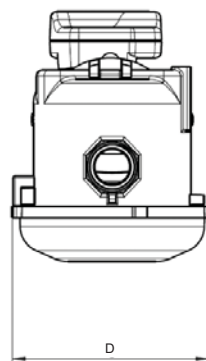
Nominal size	DN	mm	15
Starting flowrate		l/h	3
Minimum flowrate		l/h	6
Transitional flowrate		l/h	15
Maximum registration		$m^3$	$10^4$
Lowest resolution		l	0.02
Pressure loss at $Q_3$		bar	0.6
Pressure Class	PN	bar	16

## Dimensions and Weights

### Dimensional characteristics

Nominal size	DN	mm	15
Length	L	mm	115 <sup>(1)</sup>
Width	W	mm	105
Total height	H	mm	110.5
Total height with assembled HRI	TH	mm	132.3
Height to pipe axis	h	mm	50.0
Piping dimension		inch	$\frac{1}{2}$
Tail piece	Diameter	inch	G $\frac{3}{4}$ "B
thread		mm	26.44
	Pitch		1.814
Weight		kg	0.5

<sup>(1)</sup> For other dimensions contact your sales office



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## AMR Options

The 220C meter can be equipped with either a reed switch and/or with the Sensus advanced HRI modules. Both interfaces can be fitted in the field on already installed water meters or ordered factory fitted to the meter.

The Reed switch guarantees a cost effective pulse output with a pulse resolution of 2 pulses/litre.

For more advanced applications the 220C can be equipped with a HRI module. Some of the advantages of the HRI module are:

- Detection of reverse flow and therefore exact remote duplication of the counter reading.
- The inductive interface does not suffer from reed switch bounce and, unlike a reed switch; the pulse output is not affected by magnets placed near the meter.
- The pulse value is programmable.

**Different modules with integrated functions are available:**

### 1. HRI Pulse Unit (A-version)

The litre pointer activates the HRI allowing a basic resolution of one litre per pulse. The output pulse value can be factory set using the divisor D (e.g. D = 100 means 1 pulse per 100 litres).

The possible pulse output D values are (amongst others):

1 / 10 / 100 / 1000 / 2.5 / 25 / 250

### 2. HRI Data Unit (B-version)

The HRI Data Unit is a data interface which provides an accurate meter reading as well as the serial or customer ID. The pulse output as described above is also included.

The HRI Data Unit can be connected to a M-Bus network for remote read or a MiniPad for mobile inductive read (MiniBus), both in accordance with the IEC 870.

HRI Data Unit with Sensus protocol can also be supplied on request.

### 3. Sensus((S))cout Radio Unit

The integrated Sensus((S))cout radio module in conjunction with the reliable HRI sensing technology provides the option of an easy and quick remote reading capability through a mobile or fixed radio network.

For any additional information about the HRI, please refer to the data sheets LS 8100 and LS 3300.



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