

405S

Dry dial multijet water meter

NEW HRI COMPATIBILITY



Main Characteristics

- DN 15 and 40 PN16
- Multijet, Class B in horizontal position
- Magnetic transmission
- Maximum water temperature 40°C
- Removable measuring mechanism
- Insensitive to upstream disruptive elements
- > 355° orientable register
- > High resistance to water impurities
- > Plastic register with wiper (DN15 & 20) or IP 68 Cu/Glass register (DN 15 to 40)
- > Pre-equipped with HRI (DN15 & 20) or Reed (DN 25 to 40) AMR interface
- > In option it may be equipped with a removable bonnet for quick and easy maintenance

Application

The 405S is a dry dial multijet water meter with a protected magnetic transmission between the measuring element and the totalizer. It is a PN 16 meter suited to hard network conditions

- > Its reliability, resistance to bad water quality and noiseless operation will satisfy both end users and network managers

Options available

- > Opto-encoder register for remote reading
- > HRI electronic sensor (Pulse Unit or Data Unit) for DN 15 & 20 meters
- > Reed pulser for DN25 to 40 meters
- > Cu/Glass register for DN15 & 20 meters

Sensus Metering Systems
11 The Quadrangle, Abbey Park, Romsey,
Hampshire SO51 9DL UK
T +44 (0)1794 526100 F +44 (0)1794 526101

Sensus Metering Systems GmbH Ludwigshafen
Industriestrasse 16, 67063 Ludwigshafen
T: +49 (0) 621-6904-0 F: +49 (0) 621-6904-1409

info.int@sensus.com www.sensus.com

L D 1430 INT • Page 1 / 4



Accuracy

The special design of this meter combined with the precision of the plastic parts injected by own Sensus Metering Systems injection department results in an accuracy curve overpassing the requirements for the ISO 4064 standard.

The meter will remain its metrological characteristics even if it is subject to bad water quality charged with sand or other particles.

Reliability

Foreign matters present in water can be filtered first by the tubular strainer, then by the seat strainer. The smallest particles can go through the meter without damage.

All the gears are situated in the dry part of the meter (totalizer), which removes any risk of blockage due to suspended matter in the water.

The 405S water meter keeps its metrological accuracy for many years of operation, even in very difficult working conditions.

Legibility

The display on 8 drums (5 for m³, 3 for litres) and 1 pointer ensures perfect readability. The lowest resolution is 0.05 litres. The dial has a central disc whose rotation indicates the passage of water. This indicator can be used to reveal a downstream leak.

The plastic dial is equipped with a wiper for optimum legibility under all conditions. The 405 S water meter operates in horizontal position and its dry dial can rotate up to 355°.

The dial can therefore be easily read under all conditions of use.

As an option, the meter can be supplied with a copper-glass register, making it perfectly water-tight (IP 68)

Option



In option the 405S meter may be equipped with a removable bayonet bonnet sealed by a plastic plug.

With this bonnet, the meter can be opened and the measuring insert easily replaced or cleaned.

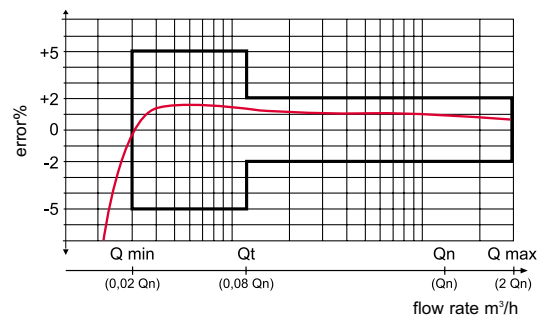
Opto-electronic encoder

The system used for reading the meter index consists of detecting the individual position of each counter drum by means of an optical system positioned either side of each one, and reconstructing the complete index of the counter. A set of 5 infrared light transmitters is positioned on one side of the drums, facing 5 receivers on the other side. Depending on the position of the drums which have slots in them of different lengths, accurately located with respect to the figures, the exact position of each one is detected according to the receivers energised. This technology makes it possible to get rid of any mechanical contact disrupting the operation of the system by too much friction (which would lead to damping of the meter and therefore under-metering) and avoid any poor electrical contact due to lack of pressure or oxidation occurring there.

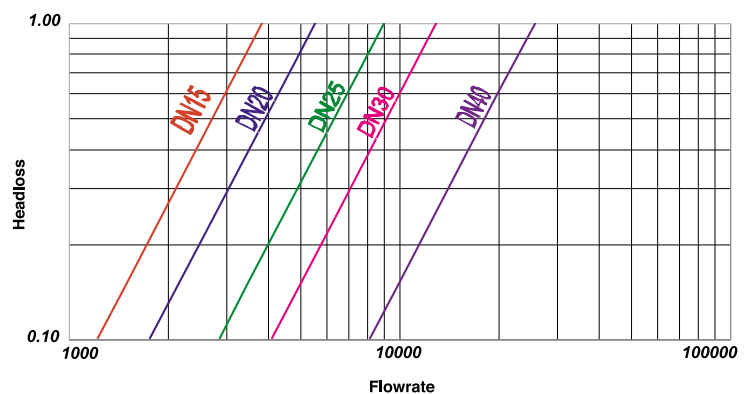
The opto-electronic encoder therefore doesn't impair the metrology of the meter in any way. In addition, it operates without a battery and its electronic circuit, in which the serial number of the meter is programmed, is activated only during reading.

The energy is supplied by the remote reading means: the radio module, the M-Bus network or the portable inductive reading system.

Typical accuracy curve



Typical head loss curve

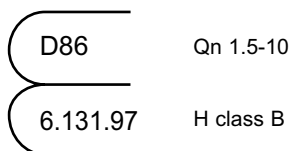


405S

Compliance

The 405S water meter complies with the prescription of the regulation n°49 of the OIML, to the ISO standard 4064/1-1977 and to the EC Council Directive 75/33.

It has been approved according to EC pattern approval under number:



Marking

An arrow on both sides of the body shows the direction of flow

The year of manufacture and the individual meter number are engraved on the cover

The manufacturer's name, the type of meter, the nominal flowrate, the metrological class and the EC pattern approval number are printed on the dial

Installation and operating instruction

The 405S meter must be installed in a low point of the pipeline, with the arrow cast on the body showing direction of the water flow. Before fitting the water meter, all pipework must be flushed out to remove all impurities.

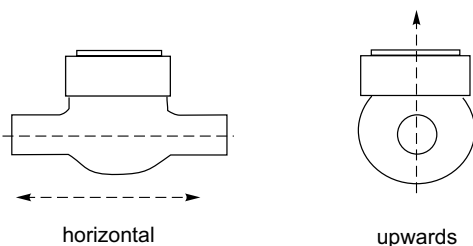
An upstream stop valve is recommended to allow installation and removal of the water meter.

During tightening, the meter must be maintained in position with a standard tool using the flat on the meter body.

When connecting the meter with the water network, the upstream valve must be opened slowly so that the water fills the meter as smoothly as possible.

No special maintenance is required.

Installation positions



Technical characteristics

Metrological Characteristics - EEC Directive 75/33

Nominal diameter	DN	mm	15	20	25	30	40
Nominal flowrate	Qn	m ³ /h	1,5	2,5	3,5	6	10
Maximum flowrate	Qmax	m ³ /h	3	5	7	12	20
Minimal flowrate (measuring range ±5%)	Qmin	l/h	30	50	70	120	200
Transition flowrate (measuring range ±2%)	Qt	l/h	120	200	280	480	800

Operational Characteristics

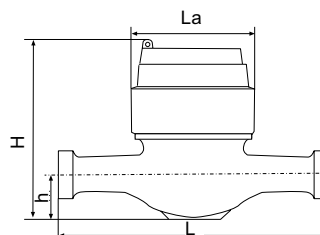
Nominal Diameter	DN	mm	15	20	25	30	40
Starting flowrate		l/h	10	15	20	20	40
Maximum registration		m ³	10 ⁵	10 ⁵	10 ⁵	10 ⁵	10 ⁵
Lowest resolution		litre	0,05	0,05	0,05	0,05	0,05
Pressure loss at Qmax		bar	0,6	0,8	0,6	0,85	0,6
Working pressure		bar	16	16	16	16	16

Sizes and weight

Nominal diameter	DN	mm	15	20	25	30	40
Length	L	mm	170 ⁽¹⁾	190	260	260	300
Width	La	mm	82	82	102	102	136
Total Height	H	mm	104	104	142	142	160
Height from base to centreline	h	mm	28	28	48	48	63
Thread	diameter	inch	G3/4"B	G1"B	G1"1/4B	G1"1/2B	G2"B
		mm	26,44	33,25	41,91	47,8	59,61
		thread	mm	1,814	2,309	2,309	2,309
Weight		kg	0,9	1,1	2,3	2,3	4,3

(1) Also available in length 165 and 190 mm

Dimensions



405S

HRI fitting



The HRI is a universal electronic sensor, which is available in two versions. The HRI Pulse Unit is a high resolution pulser, which detects the flow direction. The Data Unit version emits "data" type information.

The dial of the 405S is equipped as standard with a pointer able to activate the HRI sensor.

Two versions:

(1) **HRI Pulse Unit** The use of the decilitre pointer for activating the HRI allows a basic resolution of one litre per pulse. The final value of the pulse can be set using the divisor D (e.g. D=100 means 1 pulse per 100 litres).

The possible D values are: 1 / 10 / 100 / 1000.

2 - **HRI Data Unit** The design of the HRI Data Unit integrates a data interface to read the index of the meter as well as the serial or customer number. The D value of the divisor, the serial/subscriber number and the starting index are programmable. This version also allows a pulse signal to be emitted simultaneously (4 wire connection).

The HRI Data Unit can be connected to an M-Bus network or read through an inductive device (MiniBus) in accordance with the IEC 870 protocol.

Ordering information

ID N°	Meter name / Designation	DN	Body length (mm)	Threads	Qn	Metr. class	Specials
88129350	405S 015 L165G3/4 Q1,5-BH E ⁽¹⁾⁽²⁾	15	165	3/4"	1.5	B-H	HRI pre-equipped
88129361	405S 015 L190G3/4 Q1,5-BH E ⁽¹⁾⁽²⁾	15	190	3/4"	1.5	B-H	HRI pre-equipped
88129556	405S 020 L190G1 Q2,5-BH E ⁽¹⁾⁽²⁾	20	190	1"	2.5	B-H	HRI pre-equipped
88129560	405S 020 L190G1 Q2,5-BH E NR ⁽¹⁾⁽²⁾	20	190	1"	2.5	B-H	Cu/Glass register HRI pre-equipped
88129722	405S 025 L260G11/4 Q3,5-BH E ⁽²⁾	25	260	11/4"	3.5	B-H	Cu/Glass register
88129704	405S 025 L260G11/4 Q3,5-BH E V100 ⁽²⁾⁽³⁾	25	260	11/4"	3.5	B-H	Copper/Glass register pre-equipped for Reed pulser (100 l/pulse)
88129726	405S 025 L260G11/4 Q3,5-BH E K100 ⁽²⁾⁽³⁾	25	260	11/4"	3.5	B-H	Copper/Glass register equipped with Reed pulser (100 l/pulse)
88129822	405S 030 L260G11/2 Q6-BH E ⁽²⁾	30	260	11/2"	6	B-H	Cu/Glass register
88129830	405S 030 L260G11/2 Q6-BH E V100 ⁽²⁾⁽³⁾	30	260	11/2"	6	B-H	Copper/Glass register pre-equipped for Reed pulser (100 l/pulse)
88129828	405S 030 L260G11/2 Q6-BH E K100 ⁽²⁾⁽³⁾	30	260	11/2"	6	B-H	Copper/Glass register equipped with Reed pulser (100 l/pulse)
88129922	405S 040 L300G2 Q10-BH E ⁽²⁾	40	300	2"	10	B-H	Cu/Glass register
88129904	405S 040 L300G2 Q10-BH E V100 ⁽²⁾⁽³⁾	40	300	2"	10	B-H	Copper/Glass register pre-equipped for Reed pulser (100 l/pulse)
88129926	405S 040 L300G2 Q10-BH E K100 ⁽²⁾⁽³⁾	40	300	2"	10	B-H	Copper/Glass register equipped with Reed pulser (100 l/pulse)

405S meter for AMR applications

Upon request	405S meter ⁽⁵⁾ (Qn 1,5 oder 2,5) with factory assembled HRI for remote reading (M-Bus oder Mini-Bus)	Upon request
Upon request	405S meter ⁽⁵⁾ (Qn 1,5 oder 2,5) with factory assembled HRI for balanced ⁽⁴⁾ pulse output	Upon request

Accessories

68113750A	HRI Pulse Unit ⁽⁵⁾ (type A1/D1) for balanced ⁽⁴⁾ pulse output with assembly parts	
68113750B	HRI Data Unit ⁽⁵⁾ (type B1/D1) for remote reading (M-Bus oder Mini-Bus) with assembly parts	
68110614	Potential free reed pulser with seals	

(1) Copper/Glass register upon request

(2) Opto-Encoder register upon request

(3) Pulse value of 1000 l/pulse upon request

(4) Reverse flow pulses are balanced by an equivalent number of forward flow pulses

(5) Only for HRI pre-equipped meters

405S