

hidroconta
metering technology

WHEN WATER COUNTS



water meter

nautilus

hidroconta.com



High precision
R500

Ultrasonic
technology

Nominal pressure
PN 16

Convertible into a
Smart meter

Manufactured in
**stainless steel or
ductile cast iron**

Installation
UO/DO*

REV16

Ultrasonic design

Ultrasonic flow meter NAUTILUS
“a state-of-the-art technology that guarantees reading accuracy (R500)”.

In contrast to a mechanical WOLTMANN water meter, the NAUTILUS ultrasonic flow meter has a **static design, with no moving parts**. The advantage is clear, wear and breakage due to suspended solids are eliminated and the measurement accuracy is maintained over time.

NAUTILUS is ideal for flow measurement in **water supply systems, agriculture or industrial installations**. Together with our IRIS TELELECTURA solutions, it is the best solution for efficient control of water resources (page 6).

The **twin-beam technology** optimises the equipment’s battery, offering an **autonomy of more than 10 years**. Continuous, maintenance-free flow monitoring is now possible.

Technical specifications

- ✓ Maximum working pressure: 1.6 MPa
- ✓ Temperature: T50
- ✓ Accuracy: Class 2
- ✓ Battery life: 10 years
- ✓ Protection: IP68
- ✓ Ambient Operating Temperature: -20°C/55°C
- ✓ Pressure drop: Δp_{16}
- ✓ Data storage: 7x24h, 365 days and 72 months data storage.
- ✓ Output: RS485 MODBUS, pulse open collector.

Water meter outputs

OPEN COLLECTOR

Supported voltage range 12 -24V (recommended at 24V)

Pulse width 100 ms

Maximum current for contact closure 200mA

White wire  Pulse output +

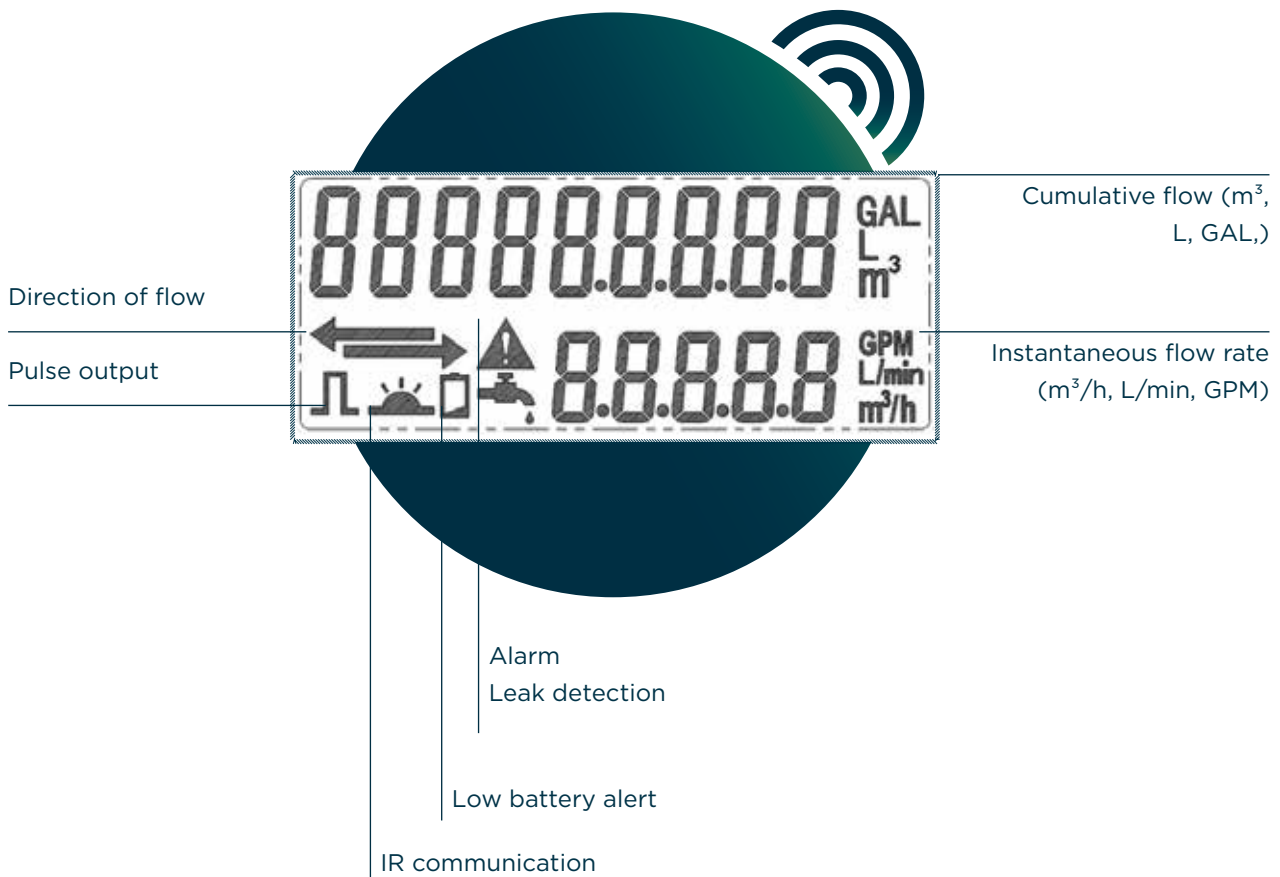
Black wire  Pulse output -

OTHER

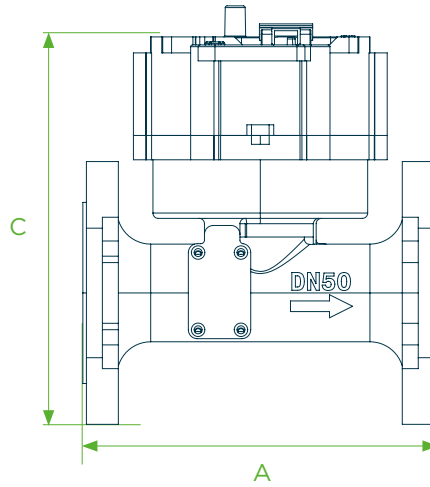
Green wire  RS485A +

Yellow wire  RS485B -

Dial 



Dimensions



DIAMETER		A	C	WEIGHT	CONNECTIONS	MATERIAL
mm	in	mm	mm	Kg	Flanges conforming to EN 1092-1	
50	2"	200	204	6,7		Ductile cast iron
65	2-1/2"	200	305	7,0		Stainless steel
80	3"	225	236	10,6		Ductile cast iron
100	4"	250	256	15,0		Ductile cast iron
125	5"	250	276	17,2		Stainless steel
150	6"	300	300	21,3		Ductile cast iron
200	8"	350	342	36,0		Ductile cast iron
250	10	450	397	55,0		Stainless steel
300	12	500	448	78,0		Stainless steel
350	14	500	552	102,0		Stainless steel
400	16	600	584	130,0	Stainless steel	

Packing

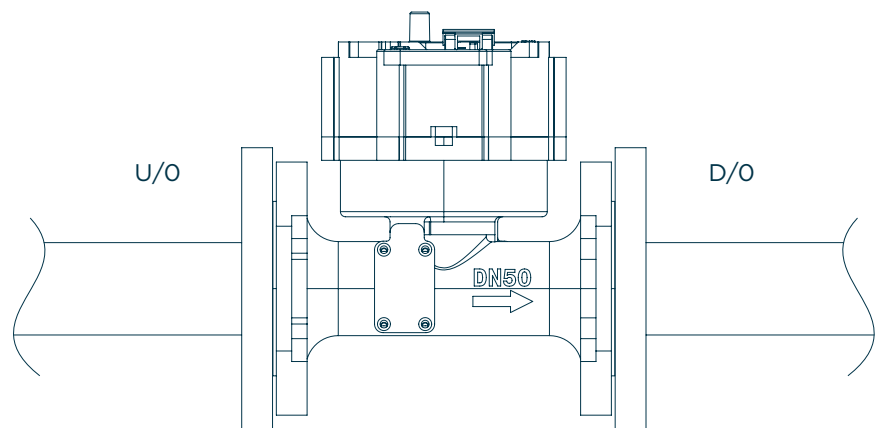


DIAMETER		PCS. PER BOX	DIMENSIONS PER BOX (CM)			GROSS WEIGHT
mm	in		Length	Width	Height	Kg
50	2"	1	24,5	32,3	37	11
65	2-1/2"	1	25	32,5	32,2	12
80	3"	1	24,2	33,0	37,8	14
100	4"	1	29,8	37,5	44	18,50
125	5"	1	30,0	37,8	43,5	19
150	6"	1	33,0	42,5	48	26
200	8"	1	45,3	43,0	46,5	43,5
250	10	1	-	-	-	-
300	12	1	57,4	78,3	58,5	-
350	14	1	-	-	-	-
400	16	1	-	-	-	-

Installation diagrams*



DIAMETER		INSTALLATION CONDITIONS
mm	in	
50	2"	U0/DO
65	2-1/2"	U0/DO
80	3"	U0/DO
100	4"	U0/DO
125	5"	U0/DO
150	6"	U0/DO
200	8"	U0/DO
250	10	U5/D3
300	12	U5/D3
350	14	U5/D3
400	16	U5/D3



REV:16

Installation instructions

The optimum installation of the flow meter is vertically upstream of the flow (or diagonally upstream) or horizontally downstream of the flow (or diagonally downstream) to avoid the pipe being partially empty. Avoid high points of the pipe as air accumulation may be found at these points which will cause inaccuracy in the reading.

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

To install the meter, follow the steps below:

1. Section the piping to leave space for installing, please refer to the flow meter dimensions first.
2. Fix the flanges to the pipes.
3. Add a gasket between the flange and the pipe, then keep it concentric, use the screws for tightening.

Working conditions

WATER TEMPERATURE RANGE

-20 °C - 55 °C

MAXIMUM PRESSURE

≤ 16 bar

Maximum permissible error

RANGE

ERROR (%)

$Q_1 \leq Q < Q_2$

± 5%

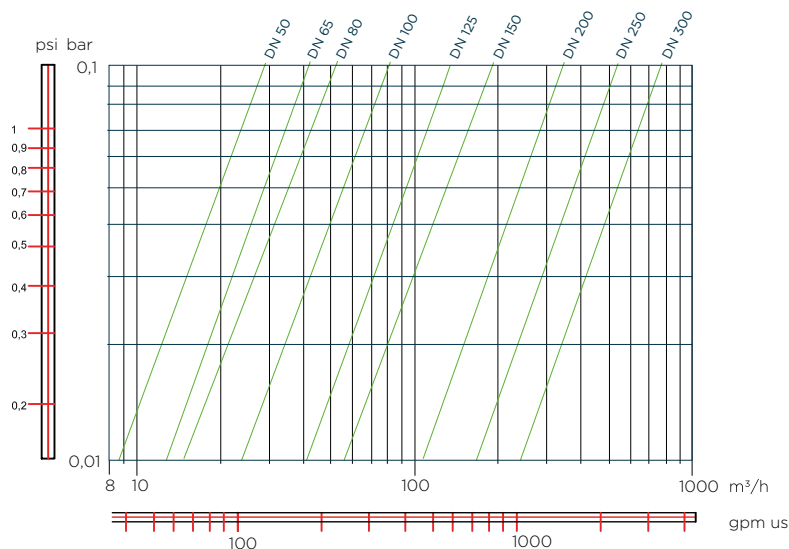
$Q_2 \leq Q \leq Q_4$

± 2%

Technical specifications

CALIBRE		Q ₄	Q ₃	Q ₂	Q ₁	STARTING FLOW RATE	MINIMUM READING	MAXIMUM READING	RATIO	MATERIAL
mm	in	m ³ /h		l/h		l/h		m ³		
50	2"	50	40	128	80	10	0,0001	999.999.999	R500	Ductile cast iron
65	2-1/2"	79	63	202	126	19	0,0001	999.999.999	R500	Stainless steel
80	3"	79	63	202	126	20	0,0001	999.999.999	R500	Ductile cast iron
100	4"	125	100	320	200	31	0,0001	999.999.999	R500	Ductile cast iron
125	5"	200	160	512	320	44	0,0001	999.999.999	R500	Stainless steel
150	6"	313	250	800	500	69	0,0001	999.999.999	R500	Ductile cast iron
200	8"	500	400	1.280	800	122	0,0001	999.999.999	R500	Ductile cast iron
250	10	1.250	1.000	6.400	4.000	191	0,0001	999.999.999	R250	Stainless steel
300	12	2.000	1.600	10.240	6.400	275	0,0001	999.999.999	R250	Stainless steel
350	14	2.500	2.000	12.800	8.000	682	0,0001	999.999.999	R250	Stainless steel
400	16	3.125	2.500	16.000	10.000	859	0,0001	999.999.999	R250	Stainless steel

Pressure loss curve



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.



LoRaWAN		
Modulation	CSS	CSS
Frequency	Banda ISM EU868*	Banda ISM 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
Standard	LoRa-Alliance	LoRa-Alliance

NB-IoT	
Bands	LTE NB2/B1/B2/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 wireless	
	868 MHz
	OMS T1 y C1



Alarms

🔔 Reverse flow alarm:

Reverse flow detection. Only available for the inductive pulse version. Configuration adjusted by communications.

🔔 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.

🔔 Water meter tampering alarm (tampering):

The alarm is triggered in case the device is not mounted on the meter. Only available for the inductive pulse version.

🔔 Battery status alarm:

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

REVISI6

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.

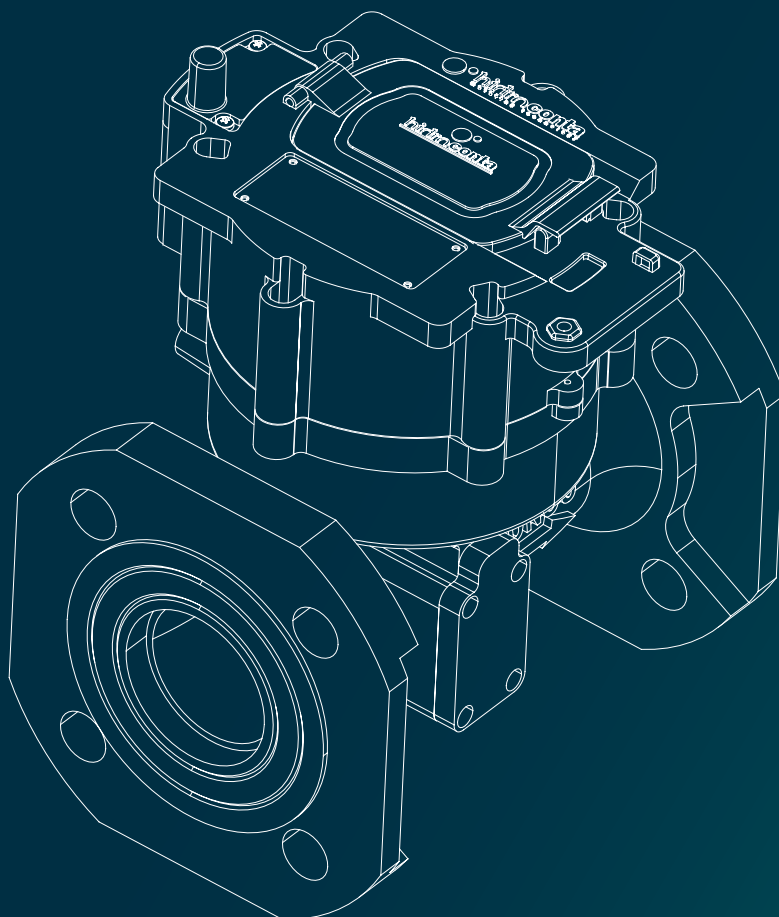
MODE	AUTONOMY	COMUNICACION	DATA HISTORY RECORD
Normal -24	12 years	24 h	1 h
Normal -8	TBD	8 h	1 h
Medium	TBD	12 h	30 min
Extreme	TBD	6 h	15 min

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

7

hidroconta
metering technology

WHEN WATER COUNTS



water meter

nautilus

Ctra. Sta Catalina, 60
Murcia (30012) España
T: +34 968 26 77 88



ER-0362/2000



Hidroconta se exime de responsabilidad respecto a errores de la información expuesta en este documento, la cual podrá ser modificada sin previo aviso. Todos los derechos están reservados.
© Copyright. 2023 HIDROCONTA, S.A.U.

hidroconta.com