Organisme notifié n°0071
Notified body

LABORATOIRE NATIONAL DE MÉTROLOGIE ET D'ESSAIS

CERTIFICAT D'EXAMEN UE DE LA CONCEPTION

EU DESIGN EXAMINATION CERTIFICATE

N° LNE - 37882 rév. 4 du 23 juillet 2024

Modifie / Revision le certificat 37882-3

Délivré par **Issued by**	:	Laboratoire national de métrologie et d'essais
En application **In accordance with**	:	Directive 2014/32/UE, Module H1 Directive 2014/32/EU, Module H1
Fabricant **Manufacturer**	:	ITRON FRANCE - 9 rue ampère FRANCE 71031 MACON Cedex
Mandataire **Authorized**	:	
Concernant **In respect of**	:	Compteur d'eau ITRON type IW2 Water meter ITRON type IW2
Caractéristiques **Characteristics**	:	Les principales caractéristiques de la conception approuvée figurent dans l'annexe ci-jointe qui fait partie intégrante du certificat et comprend 12 page(s). Tous les plans, schémas et notices sont déposés au Laboratoire national de métrologie et d'essais sous la référence de dossier P241493 . The principal characteristics of the approved design are set out in the appendix hereto, which forms part of the approval documents and consists of 12 page(s). All the plans, shematic diagrams and documentations are recorded by Laboratoire national de métrologie et d'essais under reference file P241493 .
Valable jusqu'au **Valid until**	:	08 novembre 2031 November 8th, 2031

Ce certificat d'examen UE de la conception est établi selon les dispositions de la section 4 du module H1 de la directive 2014/32/UE et n'est valide qu'en complément du certificat d'approbation de système qualité délivré par le LNE conformément aux modalités décrites par le module H1 de la directive 2014/32/UE.

This EU Design-Examination certificate is based on section 4 of module H1 of the directive 2014/32/EU and is only valid in addition to a valid certificate of quality system approval issued by LNE according module H1 of the council directive 2014/32/EU.

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Portée disponible sur www.cofrac.fr

Pour le Directeur Général
On behalf of the General Director

Laboratoire national de métrologie et d'essais

Signature numérique de Emeric MOREL ID

Responsable du Département Certification Instrumentation

Head of Instrumentation Certification Department

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Annex to EU design examination certificate n° LNE-37882 rev.4

Type designation

These instruments can be marketed with other commercial names which differ only by their presentation.

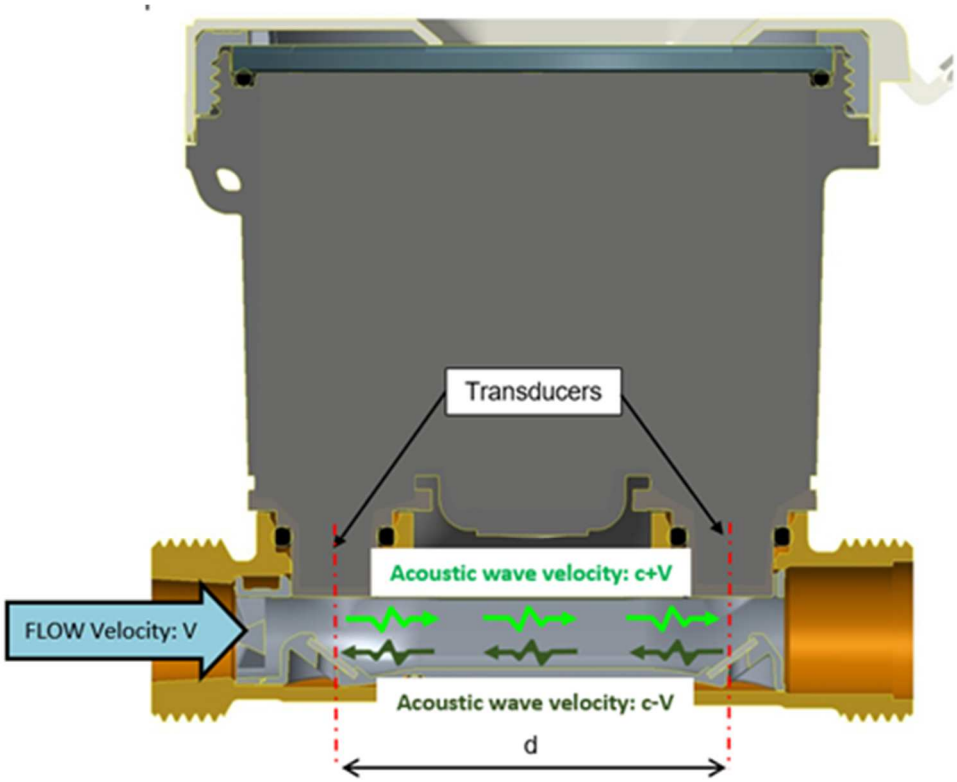
Description

The cold-water meter ITRON type IW2 (commercially named “Intelis wSource”) is a dry register type with ultrasonic measuring technology intended for the measurement of clean water in the field of residential, commercial or industrial use.

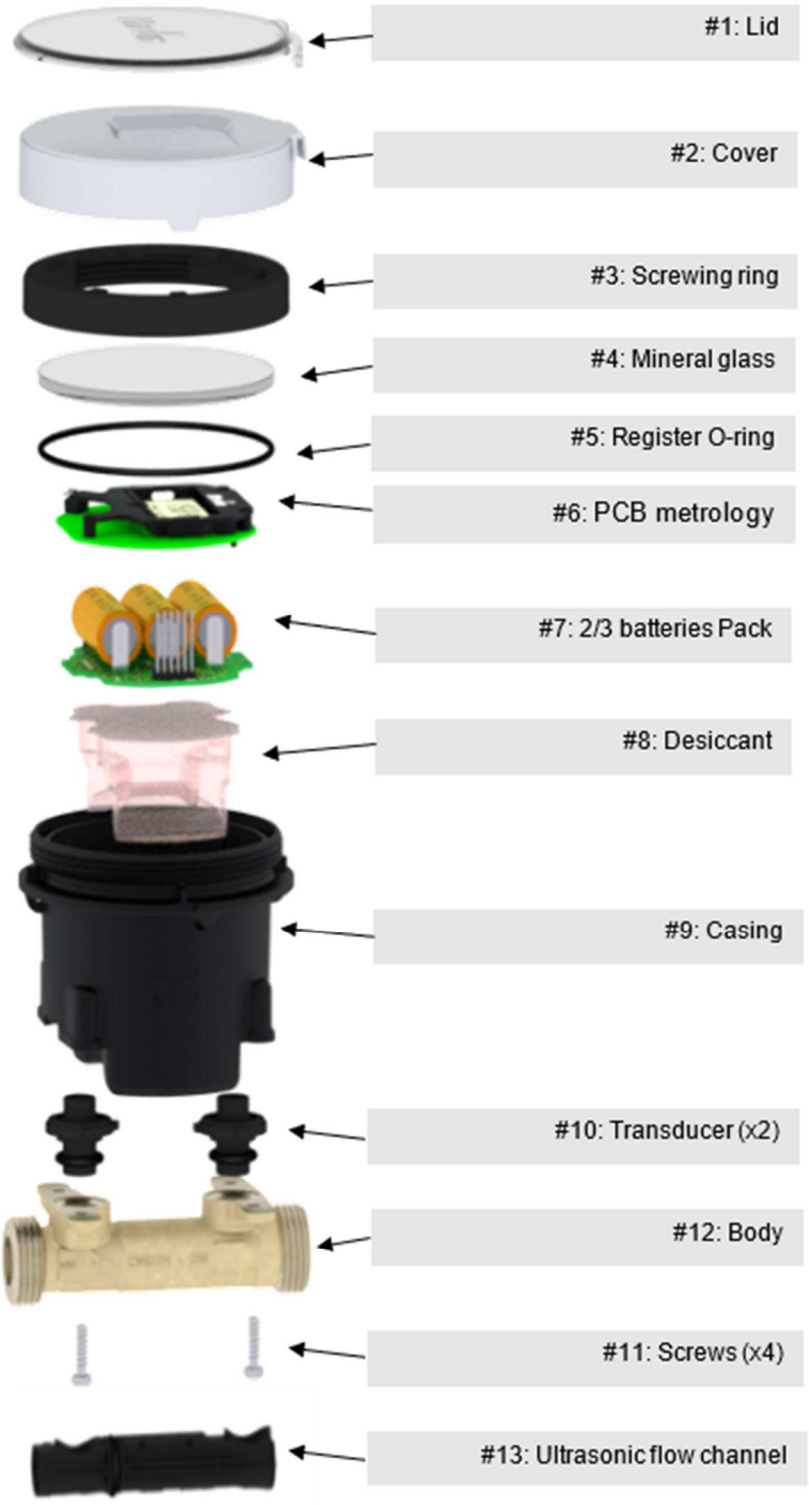
It is composed of :
- a tight dry cavity (register),
- a measuring unit (hydraulic),
- a display.

Electronic register
Electronic register is the housing which contain electronic components, transducers, batteries, display, and communication means.
The main functions of the electronic register are:
- Protect the electronic against moisture and environmental conditions,
- Protect electronics against impact and shocks,
- Interface between the product and the end user (LCD, Data communication…),
- Product aesthetics.

Measuring unit (hydraulic)
The flow measurement is based on acoustic wave time-of-flight principle.
The flow meter body is equipped with 2 ultrasonic transducers and a mirror set to create an ultrasound path.



Indicating device (display)
LCD display is placed below the translucid mineral glass. The glass gives to the display a mechanical protection.
The UV protection is given by the lid which could be manually open and close.
The desiccant enclosed in the tight register with the LCD guarantee to avoid condensation in any field condition during the lifetime of the meter.



ITRON type IW2 exploded view

Annex to EU design examination certificate n° LNE-37882 rev.4

Metrological characteristics

Nominal diameter DN (mm)	DN15		DN20	
Body material	Copper alloy			
Length (mm)	From 105 to 170		From 105 to 190	
Connections	Threads G 3/4"& G 7/8"		Threads G 1"	
Minimum indicating range (m^3)	9 999			
Pulse weight (cm^3)	6	9	9	15
Permanent flowrate Q3 (m^3/h)	1,6	2,5	2,5	4
Overload flowrate Q4 (m^3/h)	2	3,125	3,125	5
Q3/Q1*	630	1000	630	1000
Q2/Q1	1,6			
Orientation	All positions			
Accuracy class	2			
Maximum admissible pressure (bar)	16			
Flow profile sensitivity class	U0D0			
Pressure loss class	ΔP 25	ΔP 40	ΔP 25	ΔP 63
Pressure loss at Q3 (bar)	0,16	0,38	0,17	0,44
Pressure loss class (reversal flow)	ΔP 25	ΔP 63	ΔP 25	ΔP 63
Pressure loss at Q3 (bar) (reversal flow)	0,17	0,42	0,17	0,42
Water temperature range	+0,1°C … +50°C			
Climatic environment	-25°C …+70°C			
Mechanical class	M1			
Electromagnetic class	E2			
Environmental class	B/O			
Reversal flow measurement	Yes (only 04.xx version)			
Power supply	LiMnO2 Battery 3V DC / Voltage range [2,5V – 3,2V] / Lifetime : up to 20 years			
Metrological software version / Checksum	03.xx / 0xF3EC 04.xx / 0xD0A3			

* For a given nominal flowrate (Q3) values of Q3/Q1 lower than those listed in the table are permitted. However, values of this ratio cannot be below 40.
** Pulse weight could be higher for lower ratios.

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Nominal diameter DN (mm)	DN25		DN32
Body material	Copper alloy		
Length (mm)	260		260
Connections	Threads G 1”1/4		Threads G 1”1/2
Minimum indicating range (m^3)	9 999	99 999	
Pulse weight (cm^3)**	23	37	37
Permanent flowrate Q3 (m^3/h)	6,3	10	10
Overload flowrate Q4 (m^3/h)	7,875	12,5	12,5
Q3/Q1*	1000		
Q2/Q1	1,6		
Orientation	All positions		
Accuracy class	2		
Maximum admissible pressure (bar)	16		
Flow profile sensitivity class	U0D0		
Pressure loss class	ΔP 40	ΔP 63	ΔP 63
Pressure loss at Q3 (bar)	0,40	0,63	0,63
Water temperature range	+0.1°C … +50°C		
Climatic environment	-25°C …+70°C		
Mechanical class	M1		
Electromagnetic class	E2		
Environmental class	B/O		
Reversal flow measurement***	No		
Power supply	LiMnO2 Battery 3V DC / Voltage range [2,5V – 3,2V] / Lifetime : up to 20 years		
Metrological software version / Checksum	03.xx / 0xF3EC 04.xx / 0xD0A3		

* For a given nominal flowrate (Q3) values of Q3/Q1 lower than those listed in the table are permitted. However, values of this ratio cannot be below 40.
** Pulse weight could be higher for lower ratios.
*** The water meter is not designed to measure reverse flow but can withstand a reverse flow without any deterioration or change in metrological properties.

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Nominal diameter DN (mm)	DN40	DN50	
Body material	Copper alloy		
Length (mm)	300	270 and 300	
Connections	Threads 2”	Threads G 2” ½ and Flange	
Minimum indicating range (m^3)	99 999		
Pulse weight (cm^3)**	60	60	93
Permanent flowrate Q3 (m^3/h)	16	16	25
Overload flowrate Q4 (m^3/h)	20	20	31,25
Q3/Q1*	1000	630	1000
Q2/Q1	1,6		
Orientation	All positions		
Accuracy class	2		
Maximum admissible pressure (bar)	16		
Flow profile sensitivity class	U0D0		
Pressure loss class	ΔP 40	ΔP 25	ΔP 63
Pressure loss at Q3 (bar)	0,40	0,25	0,63
Water temperature range	+0.1°C … +50°C		
Climatic environment	-25°C …+70°C		
Mechanical class	M1		
Electromagnetic class	E2		
Environmental class	B/O		
Reversal flow measurement***	No		
Power supply	LiMnO2 Battery 3V DC / Voltage range [2,5V – 3,2V] / Lifetime : up to 20 years		
Metrological software version / Checksum	03.xx / 0xF3EC 04.xx / 0xD0A3		

* For a given nominal flowrate (Q3) values of Q3/Q1 lower than those listed in the table are permitted. However, values of this ratio cannot be below 40.
** Pulse weight could be higher for lower ratios.
*** The water meter is not designed to measure reverse flow but can withstand a reverse flow without any deterioration or change in metrological properties.

Annex to EU design examination certificate n° LNE-37882 rev.4

Additional metrological functions not covered by regulations under 2014/32/EU Directive

ITRON type IW2 meter is available in accuracy class 1 according to ISO 4064: 2017.

Nominal diameter DN (mm)	DN15		DN20	
Body material	Copper alloy			
Length (mm)	From 105 to 170		From 105 to 190	
Connections	Threads G 3/4"& G 7/8"		Threads G 1"	
Minimum indicating range (m^3)	9.999			
Pulse weight (cm^3)**	6	9	9	15
Permanent flowrate Q3 (m^3/h)	1,6	2,5	2,5	4
Overload flowrate Q4 (m^3/h)	2	3,125	3,125	5
Q3/Q1*	315	500	315	500
Q2/Q1	1,6			
Orientation	All positions			
Accuracy class	1			
Maximum admissible pressure (bar)	16			
Flow profile sensitivity class	U0D0			
Pressure loss class	ΔP 25	ΔP 40	ΔP 25	ΔP 63
Pressure loss at Q3 (bar)	0,16	0,38	0,17	0,44
Water temperature range	+0.1°C … +50°C			
Climatic environment	-25°C …+70°C			
Mechanical class	M1			
Electromagnetic class	E2			
Environmental class	B/O			
Reversal flow measurement	No			
Power supply	LiMnO2 Battery 3V DC / Voltage range [2,5V – 3,2V] / Lifetime : up to 20 years			
Metrological software version / Checksum	03.xx / 0xF3EC 04.xx / 0xD0A3			

* For a given nominal flowrate (Q3) values of Q3/Q1 lower than those listed in the table are permitted. However, values of this ratio cannot be below 40.

** Pulse weight could be higher for lower ratios.

Interfaces and compatibility conditions

Communication devices are not covered by this certificate.

Special installation conditions

See sensitivity class into the characteristics table.

Special using conditions

No restrictions (all orientations validated)

Special verification conditions

The clean cold-water meter ITRON type IW2 must be tested in horizontal position, at a water temperature within 10 °C and 30 °C at the following flowrates with the associated maximum permissible errors:

	Accuracy class 2 (under 2014/32/EU Directive)	Accuracy class 1 (not under 2014/32/EU Directive)
Between Q1 and 1,1 x Q1	± 5%	± 3%
Between Q2 and 1,1 x Q2	± 2%	± 1%
Between 0,9 x Q3 and Q3	± 2%	± 1%

The tested flowrates must match the Q3, Q3/Q1 and Q2/Q1 values displayed on the water meter ITRON type IW2.

The testing condition shall meet the clauses described in the harmonized standard EN 14154-1 :2005+A2 :2011 §9.2.

If all the errors (of indication) of the water meter have the same sign, at least one of the errors shall not exceed one half of the maximum permissible error.

Software information

Software type

- According to WELMEC Guide 7.2 :

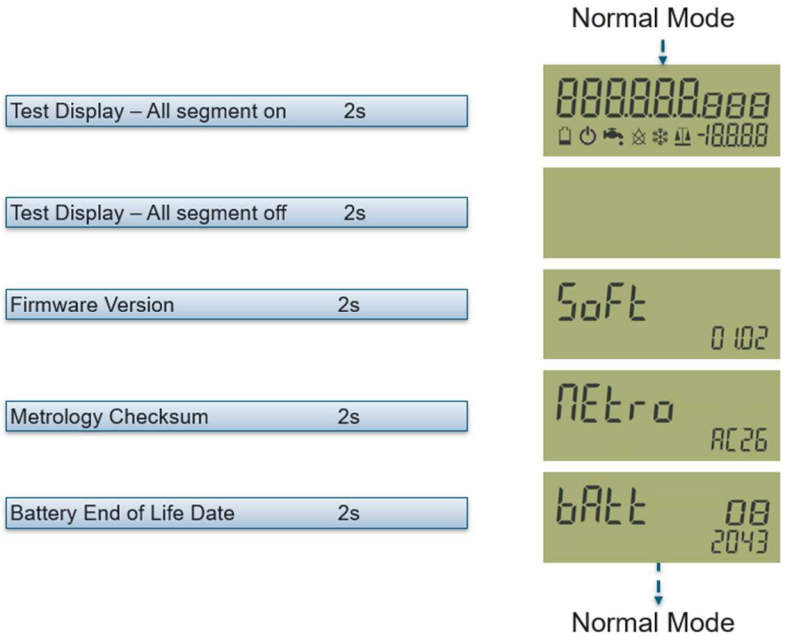
Risk Class C	P ☒	U ☐	L ☐	T ☐	S ☒	D ☒	I ☒ 1

Software identification

- Metrological software versions :
  - 03.xx / Checksum : 0xF3EC
  - 04.xx / Checksum: 0xD0A3

Software integrity verification

- Display Check Mode Sequence is enabled periodically.
  Periodicity of this Sequence is configurable on production between 1 to 5 minutes.
  At the end of the Sequence, Display turns back to normal mode.



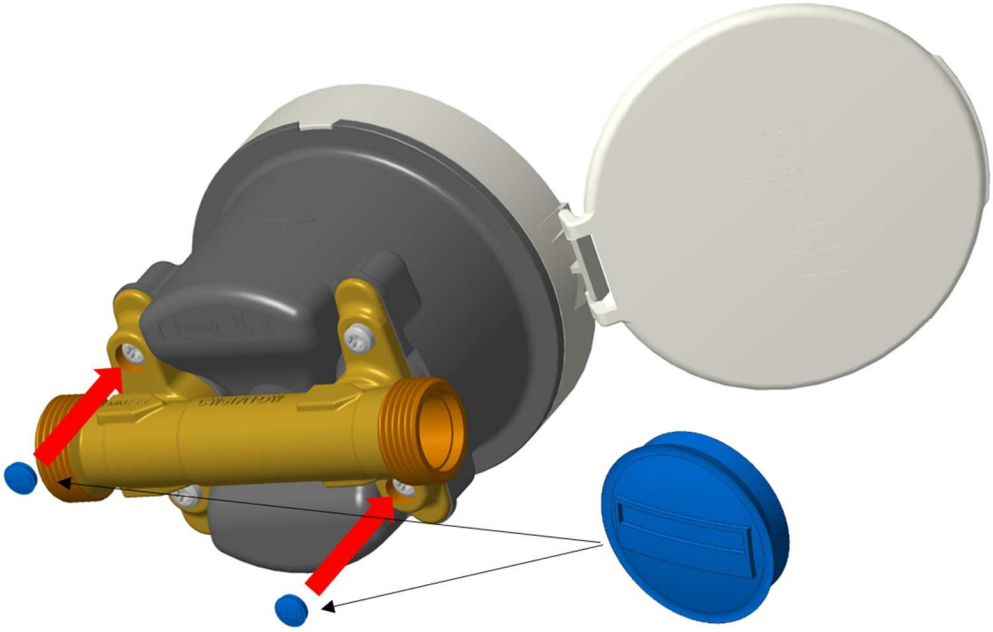
Example of a sequence (actual displayed data may differ)

Software environment description

- Metrology and Water Metering application are managed by the metrological MCU while Radio communication (w-Mbus, OMS, LoRa, Sigfox) are managed by the communication MCU.
- The firmware version is managed as follows: MM – AA:
  - MM digits are dedicated to the Legally relevant part (Metrology).
  - AA digits are dedicated to the Non Legally relevant part (Application).
  Each part is associated with a list of files belonging to this part. Each time a firmware modification is made, the corresponding digits are incremented according to the part it belongs to.
- Interfaces and compatibility :
  Three types of communication are embedded inside the product :
  - Pulse output with a pulse value via a LED which is used in test mode for calibration,
  - NFC communication which allows to configure or to read data inside the product. This communication is protected by a ciphering,
  - Radio communication interface.

Securing and sealing

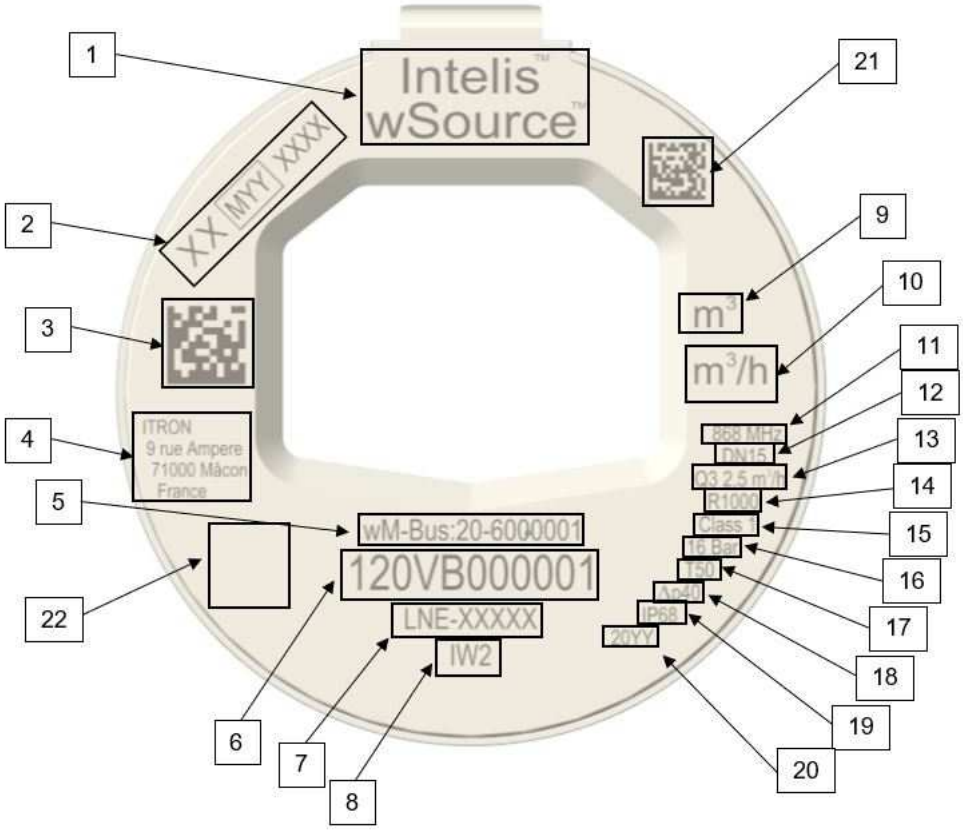
ITRON type IW2 water meter is designed to make the disassembly and PCB access impossible without any visible damage.
The register is linked to the hydraulic area thank to 4 screws. 2 out of the 4 are secured by plastic seals (blue seals in the picture below) which must be damaged for removal.

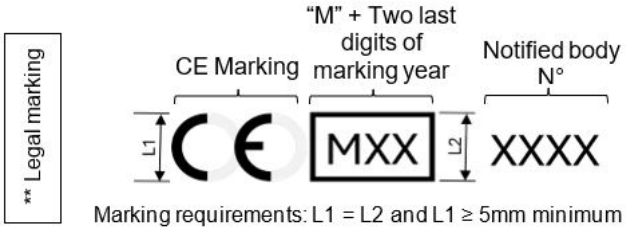


The access to inner critical components as PCBA is secured by several means.
The PCBA cannot be disassembled without removing the cover. The cover is designed to make the dismantling impossible without any visible damage.
The snap hooks between the register and the cover are designed and adjusted to create an important dismantling force. This design linked to the brittle grove of the cover make the fraud attempt visible.

Even if the cover can be removed, an alarm is generated when the overmolded magnet is not anymore detected by the “Hall effect sensor” placed on the PCBA.

Marks and inscriptions





The marking shown here is just an example. Layout and format may be different on final products. Additional customized inscriptions and logos as well as translations into other languages are possible in all cases the marking fulfills the requirements of Directive 2014/32/EU.

	Marking identification
1	Commercial name
2	Local regulatory compliance mark
3	2D customer bar code
4	Manufacturer name and address
5	Communication type & address
6	Serial N°
7	Approval certificate N°
8	Meter Type
9	Volume unit
10	Flow unit
11	Communication frequency
12	MAP (Maximum Admissible Pressure)
13	MAT (Maximum Admissible Temperature)
14	Pressure loss class where it differs from Delta P63
15	IP classification
16	DN size
17	Ratio Q3/Q1
18	Q3 value
19	Accuracy class, where it differs from accuracy class 2
20	Date of production
21	2D production bar code (internal use only)
22	Specific additional marking

Revision history

Revision	Date	Scope
0	08/11/2021	Initial certification
1	22/03/2022	Software modification
2	30/09/2022	Hardware and firmware evolution Editorial modification in marking section
3	28/10/2022	Addition of DN25, DN32, DN40 and DN 50
4	23/07/2024	Reversal flow validation New software version 04.xx