Australian Government
Department of Industry, Science and Resources

National Measurement Institute

36 Bradfield Road, West Lindfield NSW 2070

Certificate of Approval

NMI 14/3/67

Issued by the Chief Metrologist under Regulation 60
of the
National Measurement Regulations 1999

This is to certify that an approval for use for trade has been granted in respect of the instruments herein described.

Itron IW2 Model Water Meter

submitted by Itron Australasia Pty Ltd
8 Rosberg Road
Wingfield SA 5013

NOTE: This Certificate relates to the suitability of the pattern of the instrument for use for trade only in respect of its metrological characteristics. This Certificate does not constitute or imply any guarantee of compliance by the manufacturer or any other person with any requirements regarding safety.

This approval has been granted with reference to document NMI R 49-1 Water Meters Intended for the Metering of Cold Potable Water and Hot Water*, Part 1 Metrological and Technical Requirements*, dated May 2022.

This approval is subject to review at the decision of the Chief Metrologist in accordance with the conditions specified in the document NMI P 106.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & Variants 1 & 2 approved – certificate issued	08/08/23
1	Variants 3, 4 & 5 approved – certificate issued	20/05/25

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 14/3/67' and only by persons authorised by the submittor.

It is the submittor's responsibility to ensure that all instruments marked with this approval number are constructed as described in the documentation lodged with the National Measurement Institute (NMI) and with the relevant Certificate of Approval and Technical Schedule. Failure to comply with this Condition may attract penalties under Section 19B of the National Measurement Act and may result in cancellation or withdrawal of the approval, in accordance with document NMI P 106.

Signed by a person authorised by the Chief Metrologist to exercise their powers under Regulation 60 of the *National Measurement Regulations 1999*.

Darryl Hines
Manager
Policy and Regulatory Services

TECHNICAL SCHEDULE No 14/3/67

1. Description of Pattern approved on 08/08/23

A Itron IW2 model water meter used to measure cold potable water supplies for trade.

1.1 Field of Operation

The field of operation of the measuring using the DN15 IW2 model water meter is determined by the following characteristics:

Minimum flow rate, Q_1:	0.0025 m^3/h
Transition flow rate, Q_2:	0.004 m^3/h
Maximum continuous flow rate, Q_3:	2.5 m^3/h
Overload flow rate, Q_4:	3.125 m^3/h
Flow rate ratio, Q_3/Q_1:	1000
Temperature class:	T50
Maximum admissible temperature:	50 °C
Maximum admissible pressure:	1600 kPa
Pressure loss class:	Δp 40
Accuracy class:	2
Flow profile sensitivity class:	U0/D0
Electromagnetic class:	E2
Environmental class:	B/O
Orientation:	All positions
Flow Direction:	Forward only
Power supply:	Non-replaceable battery

1.2 Features/Functions

The pattern (Figure 1) consists of an ultrasonic flow sensor and electronic indicating device (calculator/indicator) and has features/functions as listed below:

Connection type:	Threaded
Display:	A digital, electronic, liquid crystal display allowing for a maximum indication range of 999,999.999 m^3 in 0.001 m^3 increments
Communications(1):	w-Mbus, OMS, LoRa, Sigfox and pulse output (LED)
Materials:	Flow sensor: Brass
	Flow converter: Plastic
Meter length:	105 mm
Non-return device(s):	Provision for single or dual check valve

(1) The pattern and variants may be fitted and/or configured with the communication options listed in this Certificate. However, the primary indication of volume displayed by the indicating device of the meter is the approved indication of volume.

1.3 Conditions

1.3.1 Installation Conditions:

No flow straightener or flow conditioner is required.

The flow profile sensitivity class is U0/D0.

1.3.2 Water Quality

The meter is approved for use in the metering of potable water supplies.

1.4 Software Version

The pattern is approved for use with firmware versions:

- 03.02 (checksum 0xF3EC)

1.5 Verification Provision

Provision is made for the application of a verification mark.

1.6 Sealing Provision

The meter is designed such that attempts to disassemble or mechanically access the meter cannot be made without causing visual damage. This includes the use of tamper-evident seals which cover two of the four screws which fasten the meter body to the register.

1.7 Descriptive Markings and Notices

Instruments are marked with the following data, either grouped or distributed on the casing, the indicating device dial or an identification plate (Figure 2):

Manufacturer’s name or mark	...
Serial number	...
Pattern approval number	NMI 14/3/67
Numerical value of maximum continuous flow rate, Q_3	...
Flow rate ratio, Q_3/Q_1	...
Unit of measurement	m^3
Temperature class (1)	T50
Maximum admissible pressure (2)	1600 kPa
Pressure loss class (3)	Δp 40
Orientation (4)	…
Flow profile sensitivity class (5)	U0/D0
Direction of flow	→ or similar
Accuracy class (6)	1 or 2

(1) Optional for temperature class T30

(2) Optional for meters with MAP of 1400 kPa or 600 kPa for DN ≥ 500

(3) Optional for pressure loss class Δp 63

(4) Optional for meters approved for all orientations

(5) Optional for U0/D0 meters

(6) Optional for accuracy class 2 meters

For instruments that incorporate electronic devices, the following information can either be physically marked on the instrument or provided electronically via the indicating device or similar means:

Electromagnetic class	E2
Environmental class	B or O
For meters with an external power supply	the voltage and frequency
For battery powered meters	a replacement date or similar indication of expected battery life

2. Description of Variant 1 approved on 08/08/23

The Pattern and Variants are approved with a range of different sizes, flowrates and associated characteristics as specified in Table 1 and Table 2 below. The Pattern is shown in **bold** for completeness.

Q_3 values shall be equal to or less than those stated for the relevant accuracy class and in accordance with NMI R 49-1 (2022), clause 4.1.3. For DN20 sized water meters the value of Q_3 shall be 4.

Q_1 values shall be equal to or more than those stated for the relevant accuracy class.

Q_3/Q_1 ratios shall be equal to or less than those stated and in accordance with NMI R 49-1 (2022), clause 4.1.4. For DN20 sized water meters the minimum value of Q_3/Q_1 shall be 200.

The ratio of Q_2/Q_1 shall be 1.6.

The ratio of Q_4/Q_3 shall be 1.25.

The pressure loss classes stated are the minimum values permitted for the respective meter sizes and classes. Where a Q_3 value is less than that stated for the respective meter size and class, the pressure loss class shall be appropriate for the chosen Q_3 value for the meter.

The following example satisfies the above requirements:

Meter size	DN50
Accuracy Class	2
Minimum Flowrate Q_1 (m^3/h)	0.0254
Transitional Flowrate Q_2 (m^3/h)	0.04
Maximum Continuous Flowrate Q_3 (m^3/h)	16
Overload Flowrate Q_4 (m^3/h)	20
Ratio Q_3/Q_1	630
Pressure Loss Class	Δp 40

Note: The verification scale intervals detailed in Table 1 and Table 2 are the respective display resolutions when the water meter is placed into test mode.

Table 1 - Meter sizes, flowrates and related information

Meter size	DN15	**DN15**	DN20	DN20
Accuracy Class	1	**2**	1	2
Minimum Flowrate Q_1 (m^3/h)	0.005	**0.0025**	0.008	0.0040
Transitional Flowrate Q_2 (m^3/h)	0.008	**0.004**	0.0128	0.0064
Maximum Continuous Flowrate Q_3 (m^3/h)	2.5	**2.5**	4	4
Overload Flowrate Q_4 (m^3/h)	3.125	**3.125**	5	5
Ratio Q_3/Q_1	500	**1000**	500	1000
Minimum Meter Length (mm)	105	**105**	105	105
Maximum Meter Length (mm)	170	**170**	190	190
Maximum Admissible Pressure (kPa)	1600	**1600**	1600	1600
Pressure Loss Class	Δp 40	**Δp 40**	Δp 63	Δp 63
Verification Scale Interval (m^3)	0.000001	**0.000001**	0.000001	0.000001
Connection type	Threaded	**Threaded**	Threaded	Threaded

Table 2 - Meter sizes, flowrates and related information

Meter size	DN25	DN25	DN32	DN40	DN50
Accuracy Class	2	2	2	2	2
Minimum Flowrate Q_1 (m^3/h)	0.0063	0.01	0.01	0.016	0.025
Transitional Flowrate Q_2 (m^3/h)	0.010	0.016	0.016	0.0256	0.04
Maximum Continuous Flowrate Q_3 (m^3/h)	6.3	10	10	16	25
Overload Flowrate Q_4 (m^3/h)	7.875	12.5	12.5	20	31.25
Ratio Q_3/Q_1	1000	1000	1000	1000	1000
Minimum Meter Length (mm)	178	178	190	200	200
Maximum Meter Length (mm)	260	260	260	300	311
Maximum Admissible Pressure (kPa)	1600	1600	1600	1600	1600
Pressure Loss Class	Δp 40	Δp 63	Δp 63	Δp 40	Δp 63
Verification Scale Interval (m^3)	0.000001	0.000001	0.000001	0.000001	0.000001
Connection type	Threaded	Threaded	Threaded or Flanged	Threaded or Flanged	Threaded or Flanged

3. Description of Variant 2 approved on 08/08/23

The pattern and variants are approved with an alternative ‘Version B’ casing (Figure 3) which includes w-Mbus and cellular communication.

4. Description of Variant 3 approved on 20/05/25

The pattern and variants (class 2, sizes DN15 and DN20 only) are approved to measure reverse flow.

5. Description of Variant 4 approved on 20/05/25

The pattern and variants are approved with software version 04.XX (checksum 0xD0A3).

Note: Aspects of the software denoted by 'X' relate to non-legally relevant software.

6. Description of Variant 5 approved on 20/05/25

The pattern and variants are approved with low lead brass as an alternative material for the meter body.

TEST PROCEDURE No 14/3/67

Water meters tested for verification shall comply with the Certificate of Approval, Technical Schedule, and the maximum permissible errors for verification at the operating conditions in effect at the time of verification. Maximum permissible errors for verification of water meters are given in the *National Trade Measurement Regulations 2009* (Cth).

Water meters shall be verified in accordance with the following national instrument test procedures:

- NITP 14.0 – Utility meters – general requirements
- NITP 14.3 – Utility meters – water meters

NOTE: NMI reserves the right to vary this procedure. Any such variation shall be notified in writing by NMI.

FIGURE 14/3/67 – 1

Itron IW2 DN15 Water Meter (the pattern)

FIGURE 14/3/67 – 2

Example of the display/indicating device and required markings

FIGURE 14/3/67 – 3

Version B case housing alternative communications (Variant 2)

~ End of Document ~