Australian Government
Department of Industry, Science and Resources

National Measurement Institute

36 Bradfield Road, West Lindfield NSW 2070

Certificate of Approval

NMI 14/3/33

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 Intelis Model X61 DN20 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 to 3 approved – interim certificate issued	22/07/16
1	Pattern & variants 1 to 3 approved – certificate issued	24/08/16
2	Variants 4 and 5 approved – certificate issued	28/03/18
3	Pattern amended (software) & variant 6 approved – certificate issued	31/05/19
4	Pattern amended (software) & variants 7 and 8 approved – certificate issued	11/01/21
5	Variant 9 approved – certificate issued	08/12/23

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 14/3/33' 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 14/3/33

1. Description of Pattern

approved on 22/07/16
amended on 31/05/19
amended on 11/01/21

An Itron Intelis model X61 DN20 water meter (Table 1 and Figure 1) intended for the metering of cold potable water supplies for trade.

1.1 Field of Operation

The field of operation of the Itron Intelis model X61 DN20 water meter is determined by the following characteristics:

Minimum flow rate, Q_1:	0.020 m^3/h
Transitional flow rate, Q_2:	0.032 m^3/h
Maximum continuous flow rate, Q_3:	4 m^3/h
Flow rate ratio, Q_3/Q_1:	200
Maximum admissible temperature:	30°C
Limiting condition (water temperature):	50°C
Maximum admissible pressure:	1600 kPa
Pressure loss class:	ΔP63
Accuracy class:	2
Flow profile sensitivity class:	U0/D0
Electromagnetic class:	E1 & E2 (industrial)
Environmental class:	B, O & M (indoor, outdoor and mobile)
Orientation:	All positions
Flow Direction:	Forward
Power supply:	3.6 V Lithium Battery

1.2 Features/Functions

The pattern consists of an ultrasonic flow sensor and an indicating device, incorporating the flow computer, and has features/functions as listed below:

Connection type:	Threaded end connections designed for NSW, WA, SA, QLD and VIC
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:	Wireless 433 MHz RF communications Optical communications port
Material:	Body: brass Indicating device: composite material
Meter length:	154 mm

A dual check valve.

1.3 Conditions

1.3.1 Installation Conditions:

No flow straightener or flow conditioner is required.

The flow profile class is U0/D0 (Accuracy Class 2).

An optional strainer may be fitted.

1.4 Water Quality

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

1.5 Software Version

The pattern is approved with the firmware versions specified in Table 1.

TABLE 1 – Firmware versions

Product version	**Firmware versions**
Intelis Pulse	01.01
Intelis Encoder	01.01
Intelis RF	06.10

Note: Variant 8 specifies alternative approved firmware versions.

1.6 Verification Provision

Provision is made for the application of a verification mark.

1.7 Sealing Provision

The meter is mechanically sealed via the indicating device and flow computer being snap fitted to the brass body, such that attempts to mechanically access the meter will result in evidence of tampering.

1.8 Descriptive Markings

Instruments shall be marked with the following data, either grouped or distributed on the casing, the indicating device dial or an identification plate:

Manufacturer's name or mark	...
Serial number	...
Pattern approval number	NMI 14/3/33
Numerical value of maximum continuous flow rate, Q_3	...
Flow rate ratio, Q_3/Q_1	...
Unit of measurement	m^3
Maximum pressure loss / pressure loss class (1)	... kPa or ΔP63
Maximum admissible pressure (2)	... kPa
Maximum admissible temperature (3)	T30
Orientation (4)	...
Flow profile sensitivity class (5)	U0/D0
Direction of flow	→ or similar
Accuracy class (6)	2

(1) Optional for meters with pressure loss class ΔP63

(2) Optional for meters with MAP = 1400 kPa

(3) Optional for T30 meters

(4) Optional for meters approved for all orientations

(5) Optional for U0/D0 class 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	E1/E2
Environmental class	B/O/M
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 22/07/16

The meter may be fitted with M-Bus communications (instead of the RF communications of the pattern) in which case the meter has firmware version as per Table 5.

3. Description of Variant 2 approved on 22/07/16

The Itron Intelis model X61 water meter having the same technical characteristics as the pattern except with the flow rates as listed below in Table 2.

TABLE 2 – Flow Rates

Meter size	**DN20**			
Minimum flow rate Q_1 (m^3/h)	0.016	0.012	0.010	0.006
Transitional flow rate Q_2 (m^3/h)	0.026	0.020	0.016	0.010
Maximum continuous flow rate Q_3 (m^3/h)	4			
Overload flow rate Q_4 (m^3/h)	5			
Ratio Q_3/Q_1	250	315	400	630
Verification scale interval (m^3)	0.001			

4. Description of Variant 3 approved on 22/07/16

The Itron Intelis model X61 water meter having the same technical characteristics as the pattern except supplied with DN15 sized threaded end connections.

5. Description of Variant 4 approved on 28/03/18

The Itron Intelis model X61 water meter may be fitted with a pulse output (Figure 4) instead of wireless RF communications. The pulse output is specified in Table 3.

TABLE 3 – Pulse Output

Meter Display Resolution	**Pulse Output Weight**
0.1 m^3	100 litres
0.01 m^3	10 litres
0.001 m^3	1 litre
0.0001 m^3	0.1 litre

6. Description of Variant 5 approved on 28/03/18

The Itron Intelis model X61 water meter (Figures 5 to 7) is approved with the alternative sizes, flowrates and technical characteristics specified in Table 4.

TABLE 4 – Meter Sizes

Meter size	**DN25**	**DN32**	**DN40**
Maximum continuous flow rate Q_3 (m^3/h)	6.3	10	16
Overload flow rate Q_4 (m^3/h)	7.875	12.5	20
Ratio Q_3/Q_1	160, 200, 250, 315 and 400		
Ratio Q_2/Q_1	1.6		
Pressure loss class	ΔP40	ΔP63	ΔP40
Verification scale interval (m^3)	0.001	0.001	0.001
Meter length (mm)	178	190	232
Connection type	Threaded / Ball Seat / Groove Seat	Oval flange	Oval flange

7. Description of Variant 6 approved on 31/05/19

The Pattern (Itron Intelis model X61 water meter) and Variants may be fitted with an Intelis Encoder output instead of a Pulse Output (Variant 4).

8. Description of Variant 7 approved on 11/01/21

The Pattern and Variants may be fitted with radian or wired output communications.

9. Description of Variant 8 approved on 11/01/21

The Pattern and Variants are approved with the firmware versions specified in Table 5, the firmware of the Pattern is included in **bold** for completeness.

TABLE 5 – Firmware versions

Product version	**Firmware versions**
Intelis Pulse	**01.01**
Intelis Encoder	**01.01**
Intelis RF	09.13, 08.12, **06.10**
Intelis M-Bus	05.09, 04.08, 02.06
Intelis wM-Bus	03.05

10. Description of Variant 9 approved on 08/12/23

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

TEST PROCEDURE No 14/3/33

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

Water meters shall be verified in accordance with NITP 14 *National Instrument Test Procedures for Utility Meters*.

The following exceptions apply for accuracy class 2 meters:

- The working water temperature range for verification is dependent on the temperature class of the meter as follows:

  T30, T50: 20 °C ± 10 °C;

  T70 to T180: 20 °C ± 10 °C and 50 °C ± 10 °C;

  T30/70 to T30/180: 50 °C ± 10 °C.

- Where a meter is tested with a working water temperature greater than 30 °C, the maximum permissible errors shall be:

  ±5% within the flowrate range $Q_1 \leq Q < Q_2$; and

  ±3% within the flowrate range $Q_2 \leq Q \leq Q_4$.

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

FIGURE 14/3/33 – 1

Itron Intelis Model X61 DN20 Water Meter (pattern)

FIGURE 14/3/33 – 2

Showing Display and Markings Itron Intelis Model X61 (RF markings, pattern)

FIGURE 14/3/33 – 3

Showing Display & Markings Itron Intelis Model X61 (M-Bus markings, Variant 1)

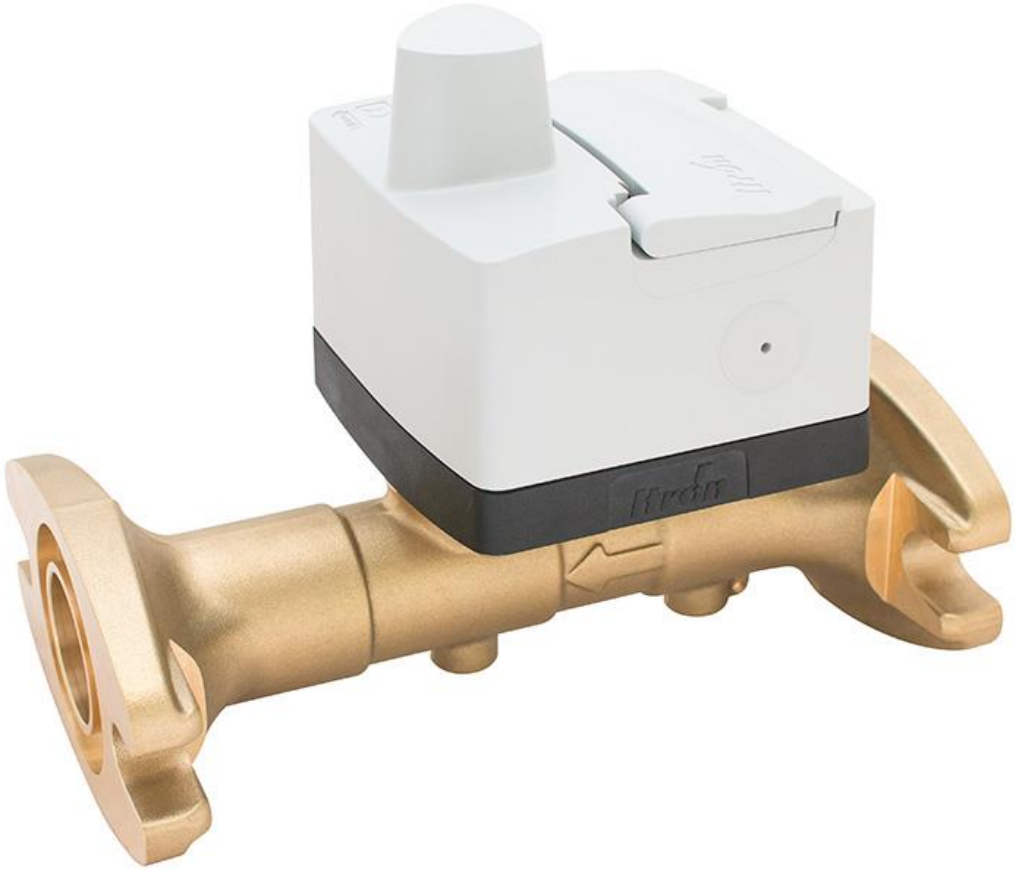
FIGURE 14/3/33 – 4

Showing the pulse output module (Variant 4)

FIGURE 14/3/33 – 5

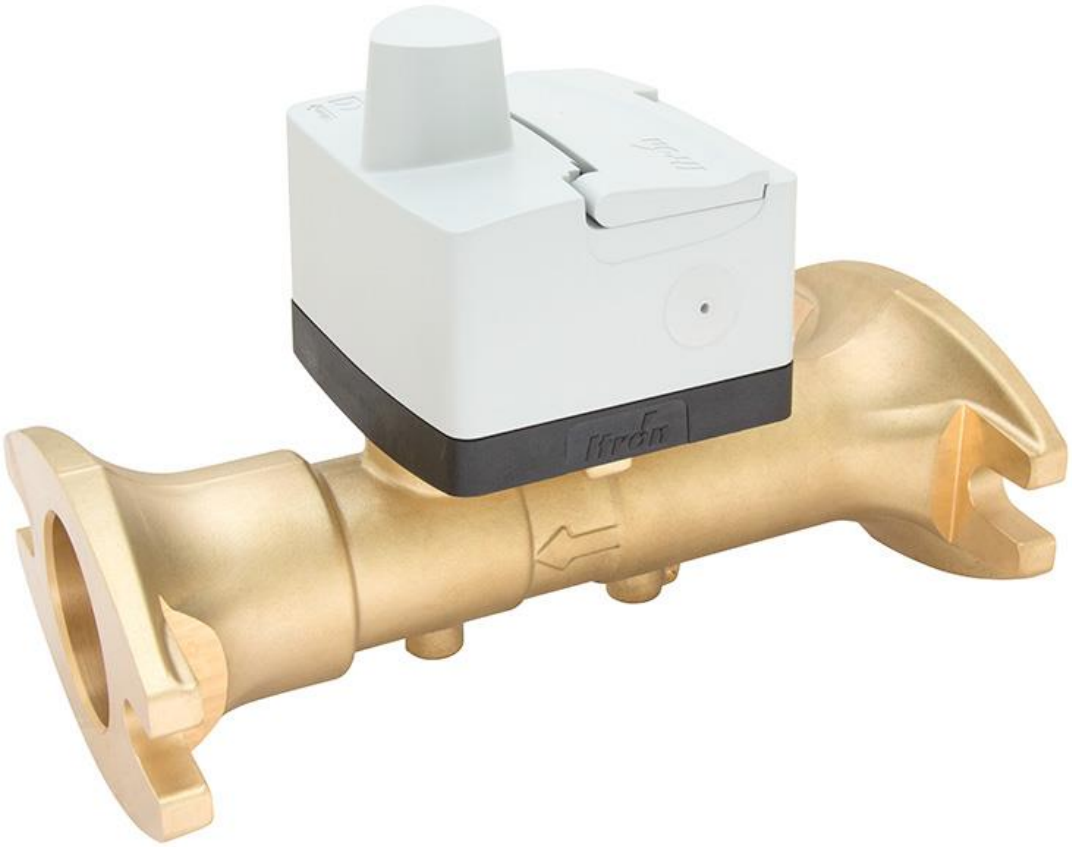
Showing the DN25 Variant (Variant 5)

FIGURE 14/3/33 – 6



Showing the DN32 Variant (Variant 5)

FIGURE 14/3/33 – 7



Showing the DN40 Variant (Variant 5)

~ End of Document ~