



Australian Government
Department of Industry,
Innovation and Science

National Measurement Institute

36 Bradfield Road, West Lindfield NSW 2070

Certificate of Approval NMI 14/3/51

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.

Yarra Valley Water DM201 Ultrasonic Water Meter

submitted by Yarra Valley Water Corporation
25 Lucknow Street
Mitcham VIC 3132

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 September 2015.

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 and Variant 1 provisionally approved – certificate issued	25/06/20
1	Pattern approved, Variant 1 updated and approved – certificate issued	11/12/20

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 14/3/51' and only by persons authorised by the submitter.

It is the submitter'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 14/3/51

1. Description of Pattern

approved on 25/06/20

A DN20 sized Yarra Valley Water DM201 Ultrasonic Water Meter used to measure cold potable water supplies for trade.

1.1 Field of Operation

The field of operation of the measuring system using the DN20 sized Yarra Valley Water DM201 Ultrasonic Water Meter is determined by the following characteristics:

Minimum flow rate, Q ₁ :	0.016 m ³ /h
Transition flow rate, Q ₂ :	0.026 m ³ /h
Maximum continuous flow rate, Q ₃ :	4.0 m ³ /h
Overload flow rate, Q ₄ :	5.0 m ³ /h
Flow rate ratio, Q ₃ /Q ₁ :	250
Temperature class:	T30
Maximum admissible temperature:	30 °C
Limiting condition (water temperature):	50 °C
Maximum admissible pressure:	1600 kPa
Pressure loss class:	Δp 63
Accuracy class:	2
Flow profile sensitivity class:	U0/D0
Electromagnetic class:	E1 (residential, commercial & light industrial)
Environmental class:	B, O & M (indoors, outdoors or mobile)
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 an indicating flow computer (calculator/indicator) and has features/functions as listed below:

- Connection type: Threaded end connections.
- Display: A digital, electronic, liquid crystal display (Figure 2) allowing for a maximum indication range of 99,999.999 kL in increments of 0.001 kL.
The display may be placed into a verification display mode allowing for a verification scale interval of 0.010 L.
- Materials: Flow tube: brass
Meter housing: composite material
- Meter length: 154 mm
- Non-return device(s): Two check valves in a double check valve arrangement

1.3 Conditions

1.3.1 Installation Conditions:

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

The meter design includes an integral flow straightener.

1.3.2 Water Quality

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

1.4 Software Version

The pattern is approved for use with the metrology firmware version v1.3.0.

1.5 Verification Provision

Provision is made for the application of a verification mark.

1.6 Sealing Provision

The meter incorporates the following mechanical and electronic sealing provisions:

- The meter installation process requires the application of a meter lock (Figure 3) with security screws, which deters a person from disconnecting the inlet utility water connection to the water meter.
- The screws connecting the lower housing to the upper housing and are sealed with fitted with tamper evidence plastic plugs at manufacture. Their location combined with the use of a meter lock, prevents physical access to the meter without leaving physical evidence of tampering.
- The meter includes tamper detection alarms.
- Following verification, the metrology firmware is electronically sealed and write protected.

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 4):

Manufacturer's name or mark	Yarra Valley Water
Serial number	...
Pattern approval number	NMI 14/3/51
Numerical value of maximum continuous flow rate, Q_3 ...	
Flow rate ratio, Q_3/Q_1	...
Unit of measurement	m^3
Temperature class ⁽¹⁾	T30
Maximum admissible pressure ⁽²⁾	1600 kPa
Pressure loss class ⁽³⁾	63 kPa or Δp 63
Orientation ⁽⁴⁾	...
Flow profile sensitive class ⁽⁵⁾	U0/D0
Direction of flow	→ or similar
Accuracy class ⁽⁶⁾	2

⁽¹⁾ Optional for temperature class T30 meters

⁽²⁾ Optional for meters with MAP = 1400 kPa

⁽³⁾ Optional for pressure loss class Δp 63

⁽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
Environmental class	B, O or 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 25/06/20
amended on 11/12/20

The pattern and variants are approved with the following alternative metrology firmware versions:

- v1.3.1
- v1.3.2
- v1.3.3
- v1.3.X

TEST PROCEDURE No 14/3/51

Water meters tested for initial verification shall comply with the Certificate of Approval, Technical Schedule, and the maximum permissible errors for initial and subsequent verifications at the operating conditions in effect at the time of verification. Maximum permissible errors for the initial and subsequent 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*.

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

FIGURE 14/3/51 – 1



Yarra Valley Water DM201 Ultrasonic Water Meter – The Pattern

FIGURE 14/3/51 – 2



Indicating device

FIGURE 14/3/51 – 3



Meter lock

FIGURE 14/3/51 – 4



Required Markings

~ End of Document ~