Australian Government
Department of Industry, Science and Resources

National Measurement Institute

36 Bradfield Road, West Lindfield NSW 2070

Certificate of Approval

NMI 14/3/56

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.

EDMI WP-20 DN20 Water Meter

submitted by EDMI Gas Pty Ltd
7 Fowler Road
Dandenong VIC 3175
Australia

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 & Variant 1 provisionally approved – certificate issued	07/10/21
1	Pattern & Variant 1 approved – certificate issued	08/12/21
2	Variant 2 (firmware) approved – certificate issued	05/04/23
3	Pattern (model number), Variants 1 & 2 (firmware, end connections) amended and approved – certificate issued	19/07/23
4	Variant 2 amended (firmware) – certificate issued	30/08/23

Rev	Reason/Details	Date
5	Variant 2 amended (firmware) – certificate issued	01/07/24
6	Variant 1 amended (end connections), Variants 3 and 4 approved – certificate issued	12/08/24

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 14/3/56' and only by persons authorised by the submittor.

Instruments purporting to comply with this approval and marked with the provisional pattern approval number 'NMI P14/3/56' may be re-marked 'NMI 14/3/56' but 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 14/3/56

1. Description of Pattern

provisionally approved on 07/10/21
approved on 08/12/21
amended on 19/07/23

A DN20 sized EDMI WP-20 DN20 Water Meter used to measure cold potable water supplies for trade.

The pattern may also be known by the model number EDMI WP-20-BDNDSA-A water meter. See Variant 1 for more information.

1.1 Field of Operation

The field of operation of the measuring system using the DN20 sized EDMI WP-20-BDNDSA-A model water meter is determined by the following characteristics:

Minimum flow rate, Q_1:	0.0160 kL/h
Transition flow rate, Q_2:	0.0256 kL/h
Maximum continuous flow rate, Q_3:	4.0 kL/h
Overload flow rate, Q_4:	5.0 kL/h
Flow rate ratio, Q_3/Q_1:	250
Temperature class:	T50
Maximum admissible 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 or E2 (industrial)
Environmental class:	B or O (indoor or outdoor)
Orientation:	All positions
Flow Direction:	Forward only
Power supply:	Dual Battery 3.6 V

1.2 Features/Functions

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

Connection type:	Threaded end connections (G1)
Display:	A digital, electronic, liquid crystal display (Figure 2) allowing for a maximum indication range of 999999.999 kL in 0.001 kL increments. The display may be toggled allowing for a verification scale interval of 0.000001 kL.
Communications[(1)]:	NB-IoT; NFC; IR port;
Materials:	Flow tube: DZR brass
	Meter housing: Composite material
Meter length:	154 mm
Non-return device(s):	Dual check valves

(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.

For Accuracy Class 2, 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 with the firmware version: Metrology FW # 7.1.9

1.5 Verification Provision

Provision is made for the application of a verification mark.

1.6 Sealing Provision

The meter is mechanically sealed via several means such that unauthorised attempts to access the meter will result in evidence of tampering. The meter housing is sealed via the use of a wire tie or crimp seal (Figure 3 and Figure 4). The meter is provided with a tamper switch such that if the meter is opened a tamper alarm is raised. The circuit board is potted and battery is fully enclosed.

Access to the IR port is username and password protected during calibration and verification; after which the IR port is switched off preventing access and alteration to the metrology firmware.

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 5):

Manufacturer's name or mark	...
Serial number	...
Pattern approval number	NMI 14/3/56
Numerical value of maximum continuous flow rate, Q_3	...
Flow rate ratio, Q_3/Q_1	...
Unit of measurement	kL
Temperature class (1)	T50
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 and accuracy class 2.5 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 or 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 provisionally approved on 07/10/21 approved on 08/12/21 amended on 19/07/23 amended on 12/08/24

The pattern is approved with the alternative features and functions listed below which are indicated by the water meter model number marked on the meter. The format of the water meter model number is WP-20-123456-7; with the numbers 1 to 7 each representing the selectable range of letter codes listed in Table 1 below and corresponding to the alternative features and functions.

Table 1 – Water Meter Model Numbers, Feature and Functions

Model Number: WP-20-**123456**-**7**		
Model Number Codes		Alternative Features and Functions
1: Sensor Options	**A**	All sensors fitted (Pressure and Leak Detection)
	B	Base with no additional sensors
	P	Pressure Sensor Fitted
	L	Leak Detection Sensor Fitted
2: Battery Options	**S**	Single Battery
	D	Dual Battery
3: SIM Options	**E**	eSIM
	N	4FF - NanoSIM
	T	MFF2 Chip Sim - Telecommunications Network Option 1 (Telstra)
	V	MFF2 Chip Sim - Telecommunications Network Option 2 (Vodafone)
	S	MFF2 Chip Sim - Telecommunications Network Option 3 (Spark)
	X	Wildcard: any compatible Sim option.
4: Valve Options	**A**	Unspecified (used on original samples)
	N	No Check Valve
	S	Single Check Valve
	D	Dual Check Valve
5: Meter Length Options	**S**	Standard Length (DN20:154 mm, DN25:178 mm, DN32:190 mm, DN40:232 mm)
	L	DN20:165 mm
6: Thread/Flange Options	**A**	ANZ G1B
	N	1-inch BSP
	X	Wildcard: any compatible threaded end connection.
	B	DN25 38.86 mm x 14 TPI
	E/F	Oval Flanges DN32/DN40 per AS 3565.1

7: Revision	**A**	Revision A

For example, the pattern has the model number WP-20-BDNDSA-A, specifying the features and functions as follows: base with no additional sensors; dual battery; 4FF – NanoSIM; dual check valves; 154 mm meter length; ANZ G1B thread; Revision A.

3. Description of Variant 2

approved on 05/04/23
amended on 19/07/23
amended on 30/08/23
amended on 01/07/24

The pattern and variants are approved with the alternative firmware versions specified in Table 2.

Table 2 – Approved Firmware Versions

Firmware version number	Notes
Metrology FW # 7.2.1	Supports additional display functions.
Metrology FW # 7.2.4	Supports alternative battery alarm threshold.
Metrology FW # 7.3.0	Provides optimisation of power consumption.
Metrology FW # 7.5.4	Improves bubble detection and other functionality.

4. Description of Variant 3 approved on 12/08/24

The pattern and variants are approved with a range of alternative meter sizes (Figure 6) flowrates and associated characteristics as specified in Table 3 below. The pattern is shown in **Bold** for completeness.

Table 3 - Meter sizes, flowrates and related information

Meter size	**DN20**	**DN25**	**DN32**	**DN40**
Minimum flowrate Q_1 (kL/h)	**0.0160**	0.025	0.040	0.064
Transitional flowrate Q_2 (kL/h)	**0.0256**	0.040	0.064	0.128
Maximum continuous flowrate Q_3 (kL/h)	**4.0**	6.3	10.0	16.0
Overload flowrate Q_4 (kL/h)	**5.0**	7.875	12.5	20.0
Ratio Q_3/Q_1	**250**			
Meter Length (mm)	**154**	178	190	232
Verification scale interval (kL)	**0.000001**	0.000001	0.000001	0.000001

5. Description of Variant 4 approved on 12/08/24

The pattern and variants are approved the following alternative and optional features and functions:

a) DN25 and DN32 sized meters may be fitted with single check valves.

b) Meters of any size may be fitted with a pressure sensor.

c) Meters of any size may be fitted with a vibration sensor.

d) Meters of any size may be powered with a single or dual 3.6 V batteries.

TEST PROCEDURE No 14/3/56

Water meters tested for initial 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 the 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 14/3/56 – 1

The Pattern - EDMI WP-20-BDND-A model Water Meter

FIGURE 14/3/56 – 2

Indicating device

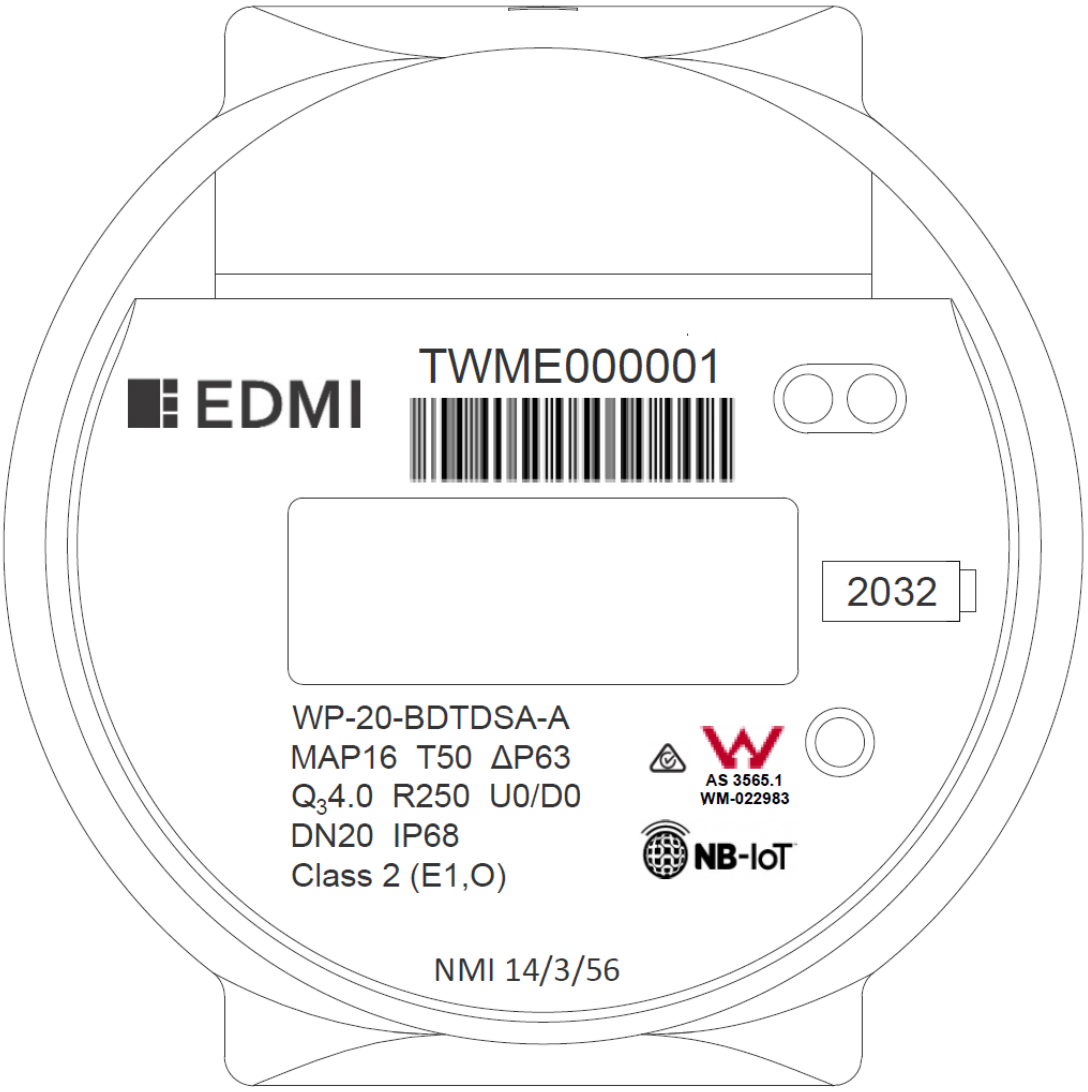
FIGURE 14/3/56 – 3

Mechanical seal

FIGURE 14/3/56 – 4

Mechanical seal

FIGURE 14/3/56 – 5



Required markings

FIGURE 14/3/56 – 6

Meter sizes DN25, DN32 and DN40 – Variant 3

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