Australian Government
National Measurement Institute
Bradfield Road, West Lindfield NSW 2070

Certificate of Approval

No 14/3/3

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.

ACTARIS Model CT5 Water Meter

submitted by Itron Australasia Pty Limited
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 49-1 Water Meters Intended for the Metering of Cold Potable Water and Hot Water*, Parts 1 and 2*, dated April 2009.

This approval becomes subject to review on **1/08/18**, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variants 1 to 6 approved – interim certificate issued	19/07/02
1	Pattern & variants 1 to 6 approved – certificate issued	1/11/02
2	Pattern & variants 1 to 6 reviewed – variant 5 amended – notification of change issued	13/08/07
3	Variant 7 approved – interim certificate issued	29/01/09
4	Variant 7 approved – certificate issued	21/07/09
5	Variant 8 approved – certificate issued	27/10/11
6	Pattern & variants 1 to 7 reviewed & updated – submittor name updated – certificate issued	28/03/13

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI (or NSC) 14/3/3' 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*.

Dr A Rawlinson

TECHNICAL SCHEDULE No 14/3/3

1. Description of Pattern **approved on 19/07/02**

An ACTARIS model CT5 class 2positive displacement meter used to measure water for potable supply for trade. May also be known as Itron meters of the same model.

1.1 Field of Operation

The field of operation of the measuring system is determined by the following characteristics:

- Maximum continuous flow rate, Q_3 4.0 kL/h
- Flow rate ratio, Q_3/Q_1 200
- Maximum admissible temperature 30°C
- Limiting condition (water temperature) 50°C
- Maximum admissible pressure 1400 kPa
- Accuracy class 2

1.2 Features/Functions

A positive displacement piston-type class 2 water meter of a size which is normally connected to a 20 mm pipe and is approved for metering domestic supplies and has features/functions as listed below:

- Threaded end connections as normally used in SA (1¼ BSP).
- A mechanical digital indicator having a series of eight aligned digits giving a maximum display of 99999.999 kL in 1 L increments (Figure 2).
- Provision for a pulse output of 1 litre per pulse.
- Meter length: 140 mm.
- Minimum straight length of inlet pipe: 0 mm.
- Minimum straight length of outlet pipe: 0 mm.
- Single check valve.

1.3 Markings

Instruments are marked with the following data, either grouped or distributed on the casing, the indicating device dial, an identification plate or the cover if it is not detachable:

Manufacturer's name or mark	...
Serial number	...
Pattern approval mark	NMI (or NSC) No 14/3/3
Numerical value of maximum continuous flow rate, Q_3	...
Flow rate ratio, Q_3/Q_1	...
Unit of measurement	kL or m^3
Direction of flow	→ or similar
Accuracy class	... (#)

(#) Optional for class 2 meters.

1.4 Verification Provision

Provision is made for the application of a verification mark.

1.5 Sealing Provision

The pattern (model CT5) has a plastic cover clamped over the indicator (register) which prevents dismantling or modification of the instrument without damaging the cover.

2. Description of Variant 1 approved on 19/07/02

An ACTARIS (or Itron) model TD8 class 2 positive displacement meter (Figure 3) which is similar to the pattern (model CT5) except for the following:

- A mechanical indicator with digital display having a series of eight aligned digits giving a maximum display of 9999.9999 kL in 0.1 L increments (Figure 4).
- Provision for a pulse output of 0.1 litre per pulse.

2.1 Sealing Provision

The model TD8 has a copper pin inserted through the body of the meter and the screw-on cover over the indicator (register); the pin is then sealed (Figure 5) to prevent removal of the cover.

3. Description of Variant 2 approved on 19/07/02

With threaded end connections as normally used in QLD, VIC, TAS, WA and NT.

4. Description of Variant 3 approved on 19/07/02

With threaded end connections as normally used in NSW and ACT (ball seat).

5. Description of Variant 4 approved on 19/07/02

With dual check valves.

6. Description of Variant 5 approved on 19/07/02

With various meter lengths.

7. Description of Variant 6 approved on 19/07/02

With a manifold configuration (Figure 6).

8. Description of Variant 7 approved on 29/01/09

The pattern and variants now with the indicator housing (known as type TVM) made of copper and glass (Figure 7) rather than made of plastic (known as type TSN housing).

9. Description of Variant 8 approved on 27/10/11

The pattern and variants now with certain measuring chamber modifications.

Instruments may be known as ACTARIS model CT5, ACTARIS model TD8, Itron model TD8 or Itron model P50.

9.1 Field of Operation

The field of operation of the measuring system is determined by the following characteristics:

- Maximum continuous flow rate, Q_3 4.0 kL/h
- Flow rate ratio, Q_3/Q_1 200, 250, 315 and 400
- Maximum admissible temperature 30 °C
- Limiting condition (water temperature) 50 °C
- Maximum admissible pressure 1400 (#1) or 1600 (#2) kPa
- Accuracy class 2

(#1) Optional to be included in markings

(#2) Mandatory to be included in markings

TEST PROCEDURE No 14/3/3

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).

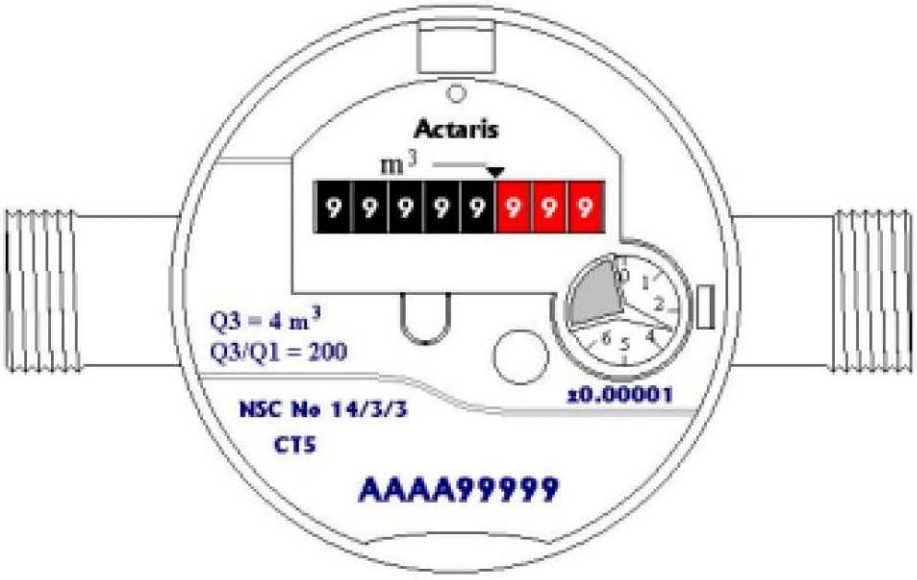
Water meters shall be verified in accordance with NITP 14 *National Instrument Test Procedures for Utility Meters*.

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

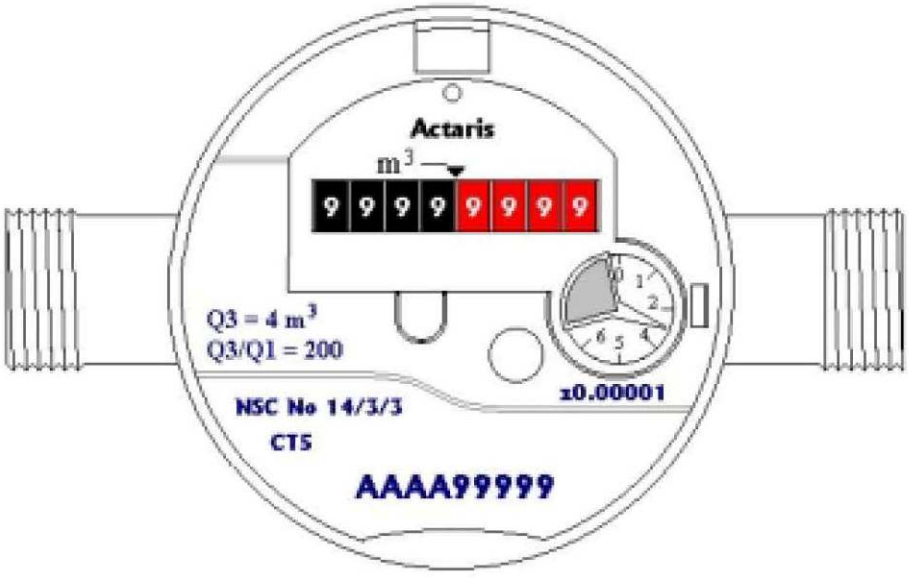
FIGURE 14/3/3 – 1

ACTARIS Model CT5 Water Meter – The Pattern

FIGURE 14/3/3 – 2



(a) 99999.999 Display (“5:3 register”)



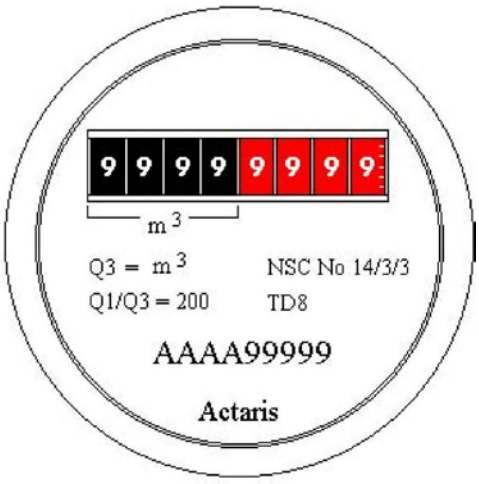
(b) 9999.9999 Display (“4:4 register”)

ACTARIS Model CT5 Water Meter Alternate Displays – The Pattern

FIGURE 14/3/3 – 3

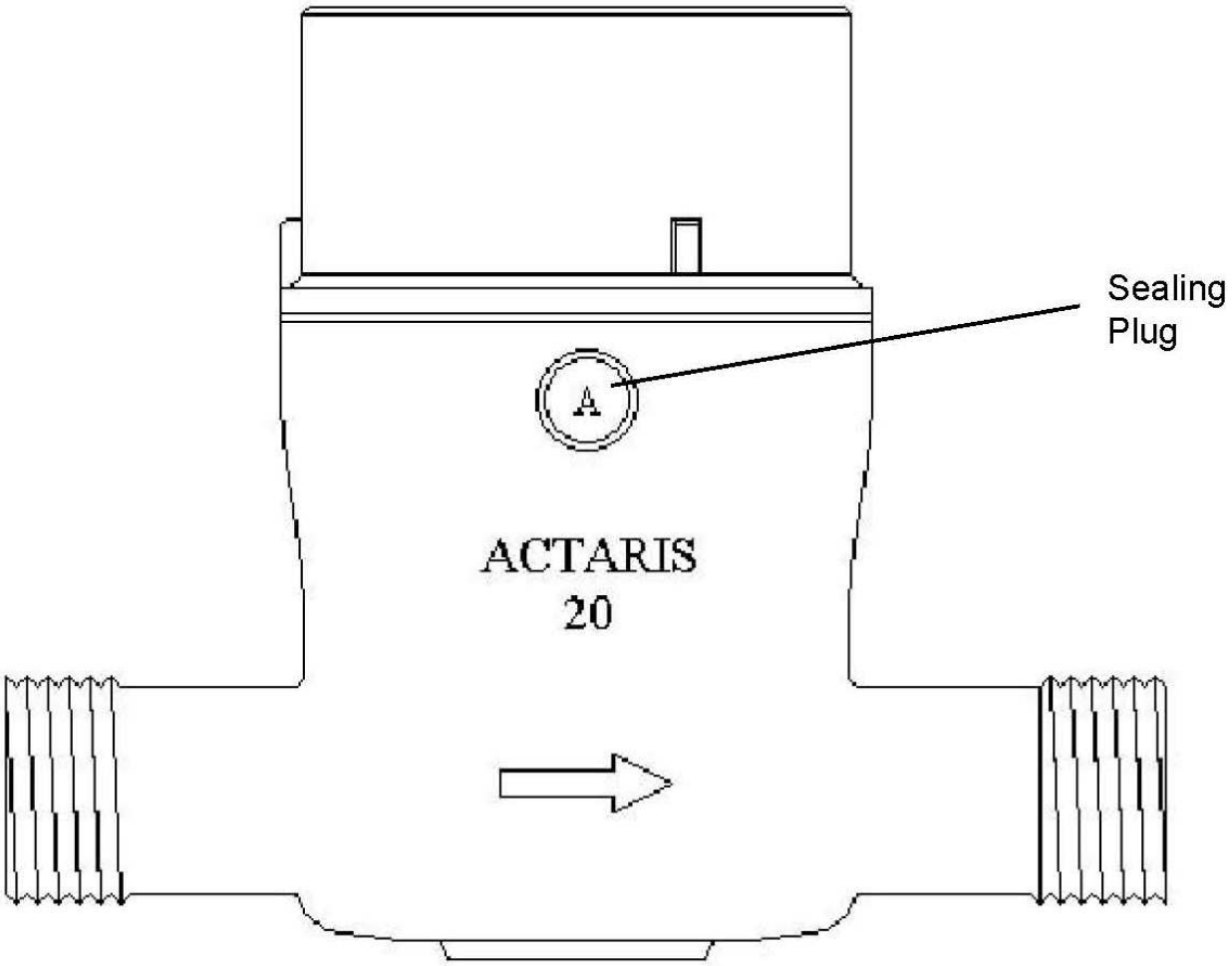
ACTARIS Model TD8 Water Meter – Variant 1

FIGURE 14/3/3 – 4



ACTARIS Model TD8 Water Meter Display (“4:4 register”) – Variant 1

FIGURE 14/3/3 – 5



Sealing Provision for ACTARIS Model TD8 Water Meter) – Variant 1

FIGURE 14/3/3 – 6

ACTARIS Model CT5 Water Meter With Manifold Configuration – Variant 6

FIGURE 14/3/3 – 7

ACTARIS Model CT5 Water Meter (Single Check Valve Version)
With Type TVM Indicator Housing – Variant 7

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