



Australian Government
Department of Industry,
Science and Resources

National Measurement Institute

36 Bradfield Road, West Lindfield NSW 2070

Supplementary Certificate of Approval NMI S822

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.

TScale Model NSW Digital Indicator

submitted by Ausweigh Enterprises Pty Ltd
26/105 Bridge Road
Westmead NSW 2145

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 76, *Non-automatic weighing instruments, Parts 1 and 2*, dated October 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 & variant 1 approved – certificate issued	21/07/22

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI S822' and only by persons authorised by the submitter.

Instruments incorporating a component purporting to comply with this approval shall be marked 'NMI S822' in addition to the approval number of the instrument, 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.

Auxiliary devices used with this instrument shall comply with the requirements of General Supplementary Certificate No S1/0B.

The values of the performance criteria (maximum number of scale intervals etc.) applicable to an instrument incorporating the pattern approved herein shall be within the limits specified herein and in any approval documentation for the other components.

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 S822

1. Description of Pattern **approved on 21/07/22**

A TScale model NSW digital mass indicator (Figure 1) which may be configured to form part of:

- A class III weighing instrument with a single weighing range of up to 7500 verification scale intervals; or
- A class II weighing instrument with a single weighing range of up to 1000 verification scale intervals.
- A class III multi-interval weighing instrument with up to 2 partial weighing intervals (each with its own verification scale interval) in which case it is approved for use with up to 7500 verification scale intervals per partial weighing interval; or
- A class II multi-interval weighing instrument with up to 2 partial weighing intervals (each with its own verification scale interval) in which case it is approved for use with up to 1000 verification scale intervals per partial weighing interval.
- A class III multiple range weighing instrument with up to 2 weighing ranges, in which case it is approved for use with up to 7500 verification scale intervals per weighing range.
- A class II multiple range weighing instrument with up to 2 weighing ranges, in which case it is approved for use with up to 1000 verification scale intervals per weighing range.

The changeover between weighing ranges is automatic.

The instrument has a stainless steel enclosure with a 7 segments LCD display for display of the weight value. The pattern may be fitted with output sockets (output interfacing capability) for the connection of auxiliary and/or peripheral devices (see **clause 1.6** below).

TABLE 1 – Specifications

Maximum number of verification scale intervals	7500 (class III)
	1000 (class II)
Minimum sensitivity	0.5 μV /scale interval
Excitation voltage	5 V DC
Maximum excitation current	116 mA
Fraction of maximum permissible error	$\rho_i = 0.5$
Minimum load cell impedance	43 Ω
Maximum load cell impedance	1600 Ω
Measuring range minimum voltage	0 mV
Measuring range maximum voltage	20 mV
Maximum tare range	-100% Max
Operating temperature range	-10°C to +40°C
Load cell connection	4 or 6 wire plus shield
Maximum value of load cell cable length per wire cross section(*)	461 m/mm ² (6-wire)

(*) Additional connection cable between indicator and load cell or load cell junction box. In case of a 4-wire connection is used, the load cell(s) is (are) connected to the indicator directly without using a junction box or lengthening the load cell(s) cable.

This approval does not include the use of the indicator as an automatic weighing instrument, unless specifically mentioned in a certificate of approval for such an instrument.

1.1 Zero

A zero-tracking device may be fitted.

The initial zero-setting device has a nominal range of not more than 20% of the maximum capacity of the instrument.

The instrument has a semi-automatic zero-setting device with a nominal range of not more than 4% of the maximum capacity of the instrument.

1.2 Tare

A semi-automatic tare device of up to the maximum capacity of the instrument may be fitted.

1.3 Display Check

A display check is initiated whenever power is applied.

1.4 Power Supply

Power may be supplied by either a 12 V AC/DC mains adapter or an optional 6VDC/4Ah rechargeable battery.

Note: The AC/DC mains adaptor supplied for the instrument is a FLYPOWER model PS06H120K0500AD (12 V DC, 0.5 A) adaptor – the submitter should be consulted regarding the acceptability of alternative power supply units.

1.5 Additional Features

The instrument may be fitted with piece counting, unstable loads weighing and manual check weighing devices (o.k./minus/plus). The additional devices (other than the indications of measured mass, i.e. gross, tare, net, totals, displayed either on the indicator or on an auxiliary or peripheral device) are not approved for trade use.

Instruments may also be fitted with an 'unstable loads weighing' or 'animal weighing' or function. This function shall not be used for trade use.

Note: In particular circumstances (e.g. in regard to weighbridge or public weighbridge operation), Trade Measurement legislation or other NMI Certificates of Approval may impose requirements in regard to specific features, methods of operation, or records to be provided (and in what form).

Certain features of this instrument are able to be configured by the installer or user. Whilst NMI believes that an acceptable configuration can be achieved for typical basic modes of operation, it may also be possible for the instrument to be configured to produce unacceptable configurations, and use of some configurations may be inappropriate in different situations. It is the responsibility of the installer and user to ensure that the configuration is acceptable and meets relevant requirements for any particular situation.

1.6 Interfaces

The indicator may be fitted with interfaces for the connection of auxiliary and/or peripheral devices. Any interfaces shall comply with clause 5.3.6 of document NMI R76 (the basic intent of which is that it shall not be possible to alter weighing results via the interfaces).

Any measurement data output from the instrument or its interfaces shall only be used for trade in compliance with Supplementary Certificate No NMI S1/0B (in particular in regard to the data and its format).

Indications other than the indications of measured mass (i.e. gross, tare, net, totals) displayed either on the indicator or on an auxiliary or peripheral device, are not for trade use.

Instruments may be fitted with RS-232 serial data interfaces, Bluetooth, and analogue output.

1.7 Verification Provision








Provision is made for the application of a verification mark.

1.8 Sealing Provision

The instrument calibration is protected by the followings:

- a) The 'CAL' pins on the main circuit board are set to open (Figure 2a), and preventing access to the calibration switch by means of a seal screw (Figure 2b).
- b) The instrument enclosure is sealed by the seal wire that it passes through the seal screw of the instrument enclosure and the seal screw of the calibration switch as shown in Figure 2b.

The status of 'CAL' pins can be checked by opening the instrument enclosure or by the following steps:

- Power off and then switch on the instrument.
- Press the  key during the self-checking sequence. The instrument will show 'pn'.
- Press the ,  and  keys. The instrument will show 'po chk'.
- Press the  key until the instrument shows 'p2 mod'.
- Press the  key to confirm, and press the  key again.
- If the instrument displays 'P3otH', then the 'CAL' pins are set to open and the metrological relevant parameters and calibration are protected, otherwise the 'CAL' pins are linked and the calibration of the instrument is not protected.

1.9 Software Version

The instrument software has two parts, legally relevant software and application software.



The legally relevant software version is designated 2.00 and the application software has version 2.xxy, where xx can be from 00 to 99, and y is optional and used for special application version with value 'a' to 'z'.

The legally relevant software version is displayed during the switch-on display sequence.

The application software version can be displayed by pressing the 'M+' key during the switch-on display sequence.

1.10 Descriptive Markings and Notices

Instruments carry the following markings:

Manufacturer's mark, or name written in full	Tscale Electronics Mfg. (Kunshan) Co., Ltd.
Name or mark of manufacturer's agent	Ausweigh Enterprises Pty Ltd
Model number
Indication of accuracy class	 or 
Maximum capacity	<i>Max</i> g, or kg #1
Minimum capacity	<i>Min</i> g, or kg #1
Verification scale interval	<i>e</i> = g, or kg #1
Maximum subtractive tare	<i>T</i> = - g, or kg #2
Serial number of the instrument
Pattern approval mark for the indicator	NMI S822
Pattern approval mark for other components #3

#1 These markings are shown near the display of the result.

#2 This marking is required if *T* is not equal to *Max*.

#3 May be located separately from the other markings.

In addition, instruments not greater than 100 kg capacity shall carry a notice stating NOT TO BE USED FOR TRADING DIRECT WITH THE PUBLIC, or similar wording.

Note:

For multi-interval instruments the markings shall be as above, with the exception that the 'Maximum capacity' and 'Verification scale interval' shall be marked for both interval ranges, e.g. as follows:

Maximum capacity	Max /g, or kg
Verification scale interval	<i>e</i> = /g, or kg

For multiple range instruments, the maximum capacity, minimum capacity and verification scale interval for each range shall be marked, with an indication of the range to which they apply, e.g.

Range	W1	W2
<i>Max</i>g, or kgg, or kg
<i>Min</i>g, or kgg, or kg
<i>e</i> =g, or kgg, or kg

2. Description of Variant 1

approved on 21/07/22

The Tscale model NTW (Figure 3) has similar parameters and characteristics of the pattern. The differences are as follows:

- The instrument has an ABS (plastic) housing.
- The seal location are as shown in Figure 4.

TEST PROCEDURE No S822

Instruments shall be tested in accordance with any relevant tests specified in the National Instrument Test Procedures.

Maximum Permissible Errors

The maximum permissible errors are specified in Schedule 1 of the *National Trade Measurement Regulations 2009*.

Tests

For multi-interval and multiple range instruments with verification scale intervals of $e_1, e_2 \dots$, apply e_1 for zero adjustment, and maximum permissible errors apply $e_1, e_2 \dots$, as applicable for the load.

FIGURE S822 – 1

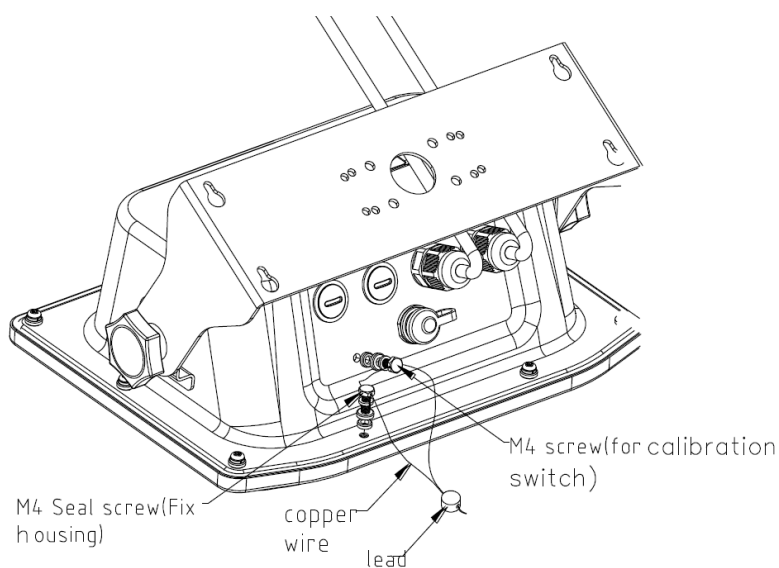


TScale Model NSW Indicator (Pattern)

FIGURE S822 – 2



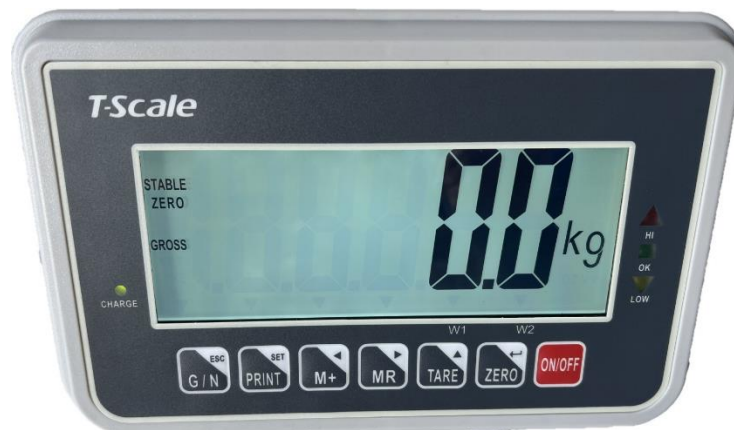
(a) CAL Pins



(b) Seal of Calibration Switch with a Seal Screw

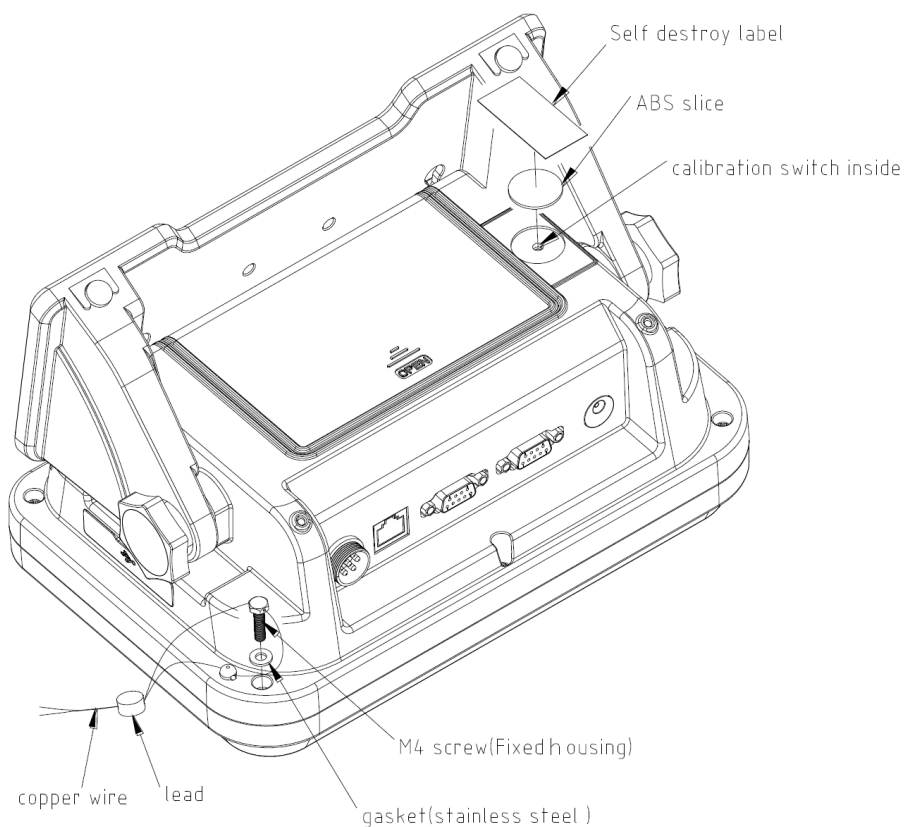
Typical Sealing Method of Model NSW

FIGURE S822 – 3



TScale Model NTW Indicator (Variant 1)

FIGURE S822 – 4



Typical Sealing Method of Model NTW

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