Australian Government
Department of Industry, Innovation and Science

National Measurement Institute

36 Bradfield Road, West Lindfield NSW 2070

Supplementary Certificate of Approval

NMI S782

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.

Rice Lake Model 880-3A Digital Indicator

submitted by Associated Scale Services Pty Ltd
Unit 4, 47 Learoyd Road
Acacia Ridge QLD 4110

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 becomes subject to review on 1/11/24, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variants 1 to 2 approved – certificate issued	11/10/19

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI S782' and only by persons authorised by the submittor.

Instruments incorporating a component purporting to comply with this approval shall be marked 'NMI S782' in addition to the approval number of the instrument, 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.

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 S782

1. Description of Pattern approved on 11/10/19

A Rice Lake model 880-3A 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 10000 verification scale intervals; or
- A class (IIII) weighing instrument with a single weighing range of up to 1000 verification scale intervals; or
- A class (III) multi-interval weighing instrument with up to two partial weighing ranges (each with its own verification scale interval) in which case it is approved for use with up to 10 000 verification scale intervals per partial weighing range; or
- A class (IIII) multi-interval weighing instrument with up to two partial weighing ranges (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 range.
- A class (III) multiple range weighing instrument with up to two weighing ranges, in which case it is approved for use with up to 10 000 verification scale intervals per weighing range.
- A class (IIII) multiple range weighing instrument with up to two 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 light emitting diode (LED) type display for display of the weight value.

TABLE 1 – Specifications

Maximum number of verification scale intervals	10 000 (class (III)) 1000 (class (IIII))
Minimum sensitivity	1 µV/scale interval
Excitation voltage	10 V DC
Maximum excitation current	476 mA
Fraction of maximum permissible error	$p_i = 0.5$
Minimum load cell impedance	21 Ω
Maximum load cell impedance	1050 Ω
Measuring range minimum voltage	0 mV
Measuring range maximum voltage	45 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 (*)	391 m/mm^2 (6-wire only)

(*) Additional connection cable between indicator and load cell or load cell junction box.

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.

The pattern may be fitted with output sockets (output interfacing capability) for the connection of auxiliary and/or peripheral devices (see clause 1.7 below).

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 subtractive taring device of up to the maximum capacity of the instrument may be fitted. A pre-set taring device (keyboard-entered and/or stored) of up to the maximum capacity (or of up to the Max_1 for multi-interval instruments) may also be fitted.

1.3 Alternative Units

Use of units other than tonnes (t) or kilograms (kg) is not approved for trade use.

1.4 Linearisation Facility

Instruments are fitted with a linearisation correction facility having up to five points.

1.5 Display Check

A display check is initiated whenever power is applied.

1.6 Power Supply

The instrument operates from mains AC power (100 - 240 V AC, 50/60 Hz) or a 9 – 36 V DC supply.

1.7 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/RS485, Ethernet, USB, Bluetooth, analogue outputs, digital inputs/outputs, Profinet, Profibus, EtherNet/IP, DeviceNet, ModBus TCP and EtherCAT.

1.8 Additional Features

Instruments may be fitted with a number of additional functions including set-point facility and accumulator.

The additional functions (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.

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.

Data from the storage device shall only be used for trade if the format of the output complies with NMI General Supplementary Certificates No S1/0B.

1.9 Verification Provision

Provision is made for the application of a verification mark.

1.10 Sealing Provision

Provision is made for access to the calibration switch within the instrument to be sealed by means of using a ‘lead and wire’ type seal with drilled screws, or placing destructible labels over an access hole to the calibration switch and the opposite sides of a join in the instrument housing as shown in Figure 4a.

Alternatively the indicator is sealed by recording the audit trail counter on verification.

Access to allow changing of set-up parameters including calibration parameters must be protected by a passcode.

The indicator automatically increments a configuration and/or calibration value (audit trail number) each time the indicator is re-configured and/or calibrated.

The value(s) of these counters may be recorded on a destructible adhesive label attached to the instrument (e.g. as CONFIG x, CAL y).

Any subsequent alteration to the calibration or configuration will be evident as the recorded values and the current counter values will differ.

The instructions for accessing the configuration and calibration audit trail are as follows (starting from the normal weighing mode):

- Press the ‘Menu’ key and then AUDIT is displayed.
- Press the ▼key and then LRV is displayed.

- Press the ▶key once while ‘CALIB’ is displayed and then press the ▼key. The ‘CAL’ counter value is displayed; or
- Press the ▶key twice while ‘CFG’ is displayed and then press the ▼key The ‘CONFIG’ counter value is displayed.
- Press the ‘Menu’ key to return to the normal weighing mode.

1.11 Descriptive Markings and Notices

Instruments carry the following markings:

Manufacturer’s mark, or name written in full	Rice Lake Weighing Systems
Name or mark of manufacturer’s agent	Associated Scale Services
Indication of accuracy class	(III) or (IIII)
Maximum capacity	*Max* ..... kg #1
Minimum capacity	*Min* ..... kg #1
Verification scale interval	*e* = ... kg #1
Serial number of the instrument	…….....
Pattern approval mark for the indicator	NMI S782
Pattern approval mark for other components	..... #2

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

#2 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 …. / …. kg
Verification scale interval	*e* = ….. / …. 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	R1	R2
Max	…. kg	…. kg
Min	…. kg	…. kg
e =	…. kg	…. kg

1.12 Software Version

The non-legally relevant software is designated version Vx.xx.xx and the legally relevant software is designated version LR V1.00.

The non-legally relevant software version number appears in the switch-on display sequence when the power is first applied to the instrument.

The instructions for accessing the legally relevant version are as follows (starting from the normal weighing mode):

- Press the ‘Menu’ key and then AUDIT is displayed.
- Press the ▼key. The legally relevant version is displayed**.**
- Press the ‘Menu’ key to return to the normal weighing mode.

2. Description of Variant 1 approved on 11/10/19

The Rice Lake model 880-3D (Figure 2) which is similar to the pattern but without numeric keyboard.

3. Description of Variant 2 approved on 11/10/19

The Rice Lake model 880-2D (Figure 3) which is similar to variant 1 but in a panel mount version.

3.1 Sealing Provision

Provision is made for the calibration adjustments and configuration parameters to be sealed by means of using destructible labels placed over the sides of a join in the instrument housing as shown in Figure 4b.

TEST PROCEDURE

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 …, apply e_1 for zero adjustment, and maximum permissible errors apply e_1, e_2 …, as applicable for the load.

FIGURE S782 – 1

Rice Lake Model 880-3A Indicator (Pattern)

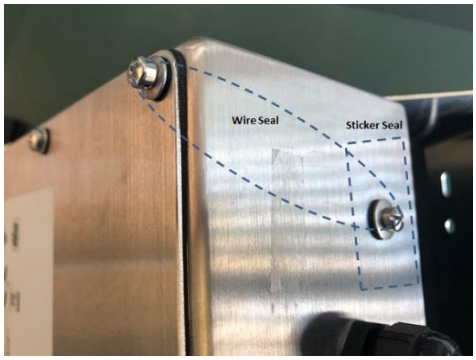
FIGURE S782 – 2

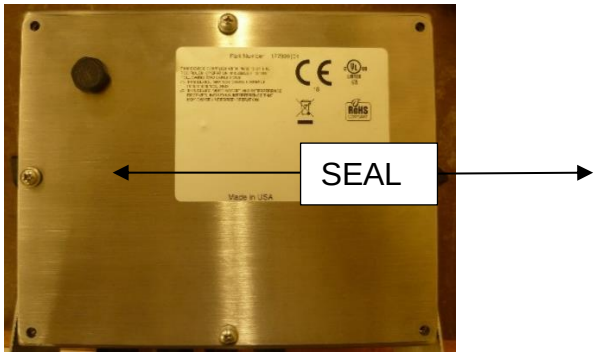
Rice Lake Model 880-3D Indicator (Variant 1)

FIGURE S782 – 3

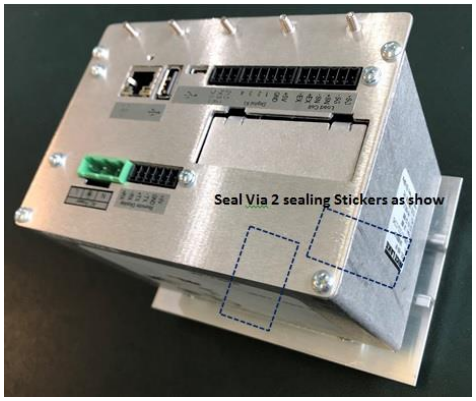
Rice Lake Model 880-2D Indicator (Variant 2)

FIGURE S782 – 4





(a) Sealing of Rice Lake Model 880-3A/3D Indicator



(b) Sealing of Rice Lake Model 880-2D Indicator

Typical Sealing Arrangements

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