Australian Government
Department of Industry, Innovation and Science

National Measurement Institute

Supplementary Certificate of Approval

NMI S673

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 480-2A 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 July 2004.

This approval becomes subject to review on 1/11/19, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern approved – certificate issued	20/10/14
1	Variants 1 to 3 approved – certificate issued	25/05/16
2	Pattern & variant 2 amended (software version) – certificate issued	2/12/16

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number ‘NMI S673’ and only by persons authorised by the submittor.

Instruments incorporating a component purporting to comply with this approval shall be marked ‘NMI S673’ in addition to the approval number of the instrument, and only by persons authorised by the submittor.

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*.

Dr A Rawlinson

TECHNICAL SCHEDULE No S673

1. Description of Pattern approved on 20/10/14

A Rice Lake model 480-2A digital mass indicator (Figure 1 and Table 1) which may be configured to form part of:

- A class (III) weighing instrument with a single weighing range of up to 10 000 verification scale intervals; or
- A class (IIII) weighing instrument with a single weighing range of up to 1000 verification scale intervals.

The instrument has a stainless steel enclosure with a light emitting diode (LED) type display for the weight value.

The instrument operates from mains AC power (230 V AC, 50 Hz).

Instruments may be fitted with output sockets (output interfacing capability) for the connection of auxiliary and/or peripheral devices (see clause 1.5 below).

TABLE 1 – Specifications

Maximum number of verification scale intervals	10 000 (class (III)) 1000 (class (IIII))
Minimum sensitivity	0.5 µV / scale interval
Excitation voltage	5 V DC
Maximum excitation current	143 mA
Fraction of maximum permissible error	$p_i = 0.5$
Minimum load cell impedance	35 Ω
Maximum load cell impedance	1140 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-wire or 6-wire shielded

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 subtractive tare device of up to the maximum tare capacity of the instrument may be fitted.

A pre-set and/or automatic subtractive 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 Additional Features

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

1.5 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 NMI General Supplementary Certificate No 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 serial data interface, digital/analogue inputs/outputs and 20 mA current loop.

1.6 Software

The version of the legally relevant software is 01.00.03. Non-legally relevant functionality software is designated as version 01.xx.xx.

The legally relevant software version number (Figure 2) appears in the switch-on display sequence when the power is first applied to the instrument.

1.7 Verification Provision

Provision is made for the application of a verification mark.

1.8 Sealing Provision

Provision is made for access to the calibration switch within the instrument to be sealed using destructible labels placed over an access hole to the calibration switch and opposite sides of a join in the instrument housing as shown in Figure 3.

1.9 Markings and Notices

Instruments carry the following markings:

Manufacturer's mark, or name written in full	Rice Lake Weighing Systems
Mark or name of manufacturer's agent	Associated Scale Services
Indication of accuracy class	(III) or (IIII)
Maximum capacity (for each range)	*Max* ..... kg #1
Minimum capacity (for each range)	*Min* ..... kg #1
Verification scale interval (for each range)	*e* = ... kg #1
Maximum subtractive tare	*T* = - ..... kg #2
Serial number of the instrument	…….....
Pattern approval mark for the indicator	NMI S673
Pattern approval mark for other components	..... #3

#1 These markings shall also be shown near the display of the result if they are not already located there.

#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 carry a notice stating NOT TO BE USED FOR TRADING DIRECT WITH THE PUBLIC, or similar wording.

2. Description of Variant 1 **approved on 25/05/16**

The model 480 Plus-2A which is similar to the pattern but has a numeric keyboard as shown Figure 4.

3. Description of Variant 2 **approved on 25/05/16**

The model 482 -2A which is similar to the pattern but has an LCD display as shown Figure 5. The version of the legally relevant software is 01.00.03. Non-legally relevant functionality software is designated as version 01.xx.xx.

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

Instruments may be fitted with RS-232/RS485 serial data interface, Ethernet/USB interface, digital/analogue inputs/outputs and 20 mA current loop.

4. Description of Variant 3 **approved on 25/05/16**

The model 482 Plus -2A which is similar to variant 2 but has a numeric keyboard as shown Figure 6.

TEST PROCEDURE No S673

Instruments should 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*.

FIGURE S673 – 1

Rice Lake Model 480-2A Digital Indicator (pattern)

FIGURE S673 – 2

Legally Relevant Software Version Number at switch-on

FIGURE S673 – 3

Typical Sealing (pattern and variants)

FIGURE S673 – 4

Rice Lake Model 480 Plus-2A Digital Indicator (variant 1)

FIGURE S673 – 5

Rice Lake Model 482-2A Digital Indicator (variant 2)

FIGURE S673 – 6

Rice Lake Model 482 Plus-2A Digital Indicator (variant 3)

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