



Australian Government
National Measurement
Institute

Bradfield Road, West Lindfield NSW 2070

Cancellation

Supplementary Certificate of Approval No S403

Issued by the Chief Metrologist under Regulation 60
of the
National Measurement Regulations 1999

This is to certify that the approval for use for trade granted in respect of the

Ranger Instruments Model 2100 Digital Indicator

submitted by Rinstrum Pty Ltd
 41 Success Street
 Acacia Ridge QLD 4110

has been cancelled in respect of new instruments as from 1 September 2013.

Signed by a person authorised by the Chief Metrologist
to exercise their powers under Regulation 60 of the
National Measurement Regulations 1999.

A handwritten signature in black ink, appearing to read 'Dr A Rawlinson', with a horizontal line underneath.

Dr A Rawlinson



Australian Government

National Standards Commission

12 Lyonpark Road, North Ryde NSW 2113 Australia

Supplementary Certificate of Approval

No S403

Issued 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

Ranger Instruments Model 2100 Digital Indicator

submitted by Rinstrum Pty Ltd
 (formerly Ranger Instruments Pty Ltd)
 41 Success St
 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.

CONDITIONS OF APPROVAL



This approval becomes subject to review on 1 July 2007, and then every 5 years thereafter.

Instruments purporting to comply with this approval shall be marked NSC No S403 and only by persons authorised by the submitter.

Instruments incorporating a component purporting to comply with this approval shall be marked NSC No S403 in addition to the approval number of the instrument.

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 Commission 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 the Commission's Document NSC P 106.

The Commission reserves the right to examine any instrument or component of an instrument purporting to comply with this approval.

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

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.

DESCRIPTIVE ADVICE

Pattern: approved 12 June 2002

- A Ranger Instruments model 2100 single interval digital indicator.

Technical Schedule No S403 describes the pattern.

Variation: approved 20 August 2002

1. A model 2150 single interval digital indicator.

Technical Schedule No S403 Variation No 1 describes variation 1.

Variation: approved 8 November 2002

2. A model 2100 EX.

Technical Schedule No S403 Variation No 2 describes variation 2.

Variations: approved 27 October 2003

3. A model AWE 3000.
4. The pattern or variations known as other brands (makes) of the same model.

Technical Schedule No S403 Variation No 3 describes variations 3 and 4.

FILING ADVICE

Supplementary Certificate of Approval No S403 dated 13 November 2002 is superseded by this Certificate, and may be destroyed. The documentation for this approval now comprises:

Supplementary Certificate of Approval No S403 dated 2 January 2004
Technical Schedule No S403 dated 27 June 2002 (incl. Table 1 and Test Procedure)
Technical Schedule No S403 Variation No 1 dated 16 September 2002
Technical Schedule No S403 Variation No 2 dated 13 November 2002
Technical Schedule No S403 Variation No 3 dated 2 January 2004 (incl. Notification of Change)
Figure 1 dated 27 June 2002
Figure 2 dated 16 September 2002
Figure 3 dated 2 January 2004

Signed by a person authorised under Regulation 60 of the National Measurement Regulations 1999 to exercise the powers and functions of the Commission under this Regulation.

A handwritten signature in black ink, appearing to be 'J. G. T.', is located to the right of the signature text.

TECHNICAL SCHEDULE No S403

Pattern: Ranger Instruments Model 2100 Digital Indicator.

Submittor: Ranger Instruments Pty Ltd
41 Success St
ACACIA RIDGE QLD 4110



1. Description of Pattern

A Ranger Instruments model 2100 single interval digital indicator (Figure 1 and Table 1) which is approved for use with up to 6000 verification scale intervals.

Instruments may be fitted with output sockets for the connection of auxiliary and/or peripheral devices.

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.

TABLE 1 - Specifications

Maximum number of verification scale intervals	6000
Minimum sensitivity	1.0 μ V/scale interval
Excitation voltage	8 V DC
Maximum excitation current	200 mA

1.1 Zero

Zero is automatically corrected to within $\pm 0.25e$ whenever the instrument comes to rest within $0.5e$ of zero.

The instrument has a semi-automatic zero-setting device (to set the instrument to within $\pm 0.25e$ of zero) with a nominal range of not more than 4% of the maximum capacity of the instrument.

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

1.2 Tare

A semi-automatic subtractive taring device having a capacity 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 Linearisation Facility

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

1.5 Markings

Instruments carry the following markings:

Manufacturer's mark, or name written in full
Indication of accuracy class
Maximum capacity
Minimum capacity
Verification scale interval
Serial number of the instrument
Pattern approval mark for the indicator
Pattern approval mark for other components

Ranger Instruments



Max kg *

Min kg *

e = kg *

.....

NSC No S403

.....



- * These markings are also shown near the display of the result if they are not already located there.

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.

1.6 Additional features

The indicator also has certain additional functions (totalising, setpoints, 'Intelligent Batching', hold functions, 'Live Weight', counting) that may require additional license codes from the manufacturer to be enabled. Some functions can be assigned to a function key of the indicator. 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.

Relay outputs may also be provided by addition of a relay module.

1.7 Power Supply

The instrument requires a 9 to 15 V DC power supply.

Power for the instrument may be supplied by the following methods:

- Using the separate mains adaptor unit "Ranger option 0110" (12 V DC, 500 mA) to supply input power to the indicator.
- Using the model "2100 AC power supply - option 0330" which attaches to the back of the model 2100 indicator (and provides DC power to the indicator).
- Using the model "2100 DC power supply – option 331" (this module accepts a 12-24 V DC supply and converts it to provide suitable DC power to the indicator). This module attaches to the back of the model 2100 indicator, and incorporates filtering to protect against disturbances.
- Using the model "2100 Re-chargeable battery – option 0332" which attaches to the back of the model 2100 indicator (and provides DC power to the indicator). Power to re-charge the battery is provided by the "Ranger option 0121" mains adaptor unit.

1.8 Verification/Certification Provision

Provision is made for the application of a verification/certification mark.

1.9 Sealing Provision

The calibration and set-up modes of the indicator can be secured with a passcode. To ensure that a passcode has been set, press the ZERO and POWER keys together until the word SETUP appears (about 2 seconds); following display of the software version and the calibration event value, the words ENTER and PASS will appear. This indicates that a passcode has been set (the display will then show 000000 and pressing the right most key will exit this sequence).

In addition, a non-resettable calibration event increments each time that any parameter or calibration is changed and saved. The value of the calibration event counter is shown (as C followed by a number) in the display as part of the power-up display sequence, and the value at the time of verification/certification shall be recorded on a destructible adhesive label attached to the instrument.

Any subsequent alteration to the calibration or parameters will be evident as the recorded value and the current calibration event counter value will differ.

TEST PROCEDURE

Instruments should be tested in conjunction with any tests specified in the approval documentation for the instrument to which the pattern is connected, as appropriate, and in accordance with any relevant tests specified in the Uniform Test Procedures.

Maximum Permissible Errors at Verification/Certification

For the weighing range in use, the maximum permissible errors for increasing and decreasing loads on initial verification/certification for loads, m , expressed in verification scale intervals, e , are:

- $\pm 0.5e$ for loads $0 \leq m \leq 500$;
- $\pm 1.0e$ for loads $500 < m \leq 2\,000$; and
- $\pm 1.5e$ for loads $2\,000 < m \leq 10\,000$.

TECHNICAL SCHEDULE No S403

VARIATION No 1

Pattern: Ranger Instruments Model 2100 Digital Indicator.

Submittor: Ranger Instruments Pty Ltd
41 Success St
ACACIA RIDGE QLD 4110



1. Description of Variant 1

The Ranger model 2150 single interval digital indicator is similar to the pattern, but has different software and front panel markings (Figure 2) to suit operation as a baggage weigher.

The indicator has an ADD button allowing totalisation of the weights of a number of bags (the number of bags contributing to the total may be displayed in the top right of the display), a CANCEL button which removes the weight of the last ADD operation from the total, a TOTAL button which temporarily displays the total load value (with an indication of 'TOT' in the top right of the display and if pressed again the number of bags), a FINISH button which clears totals, a TEST button which initiates a display check, as well as a ZERO button for zeroing of the instrument.

The indicator may have additional functions such as alarms to indicate bag weights (or totals) in excess of predetermined set-points, and a weight change interlock designed to reduce the risk of a bag accidentally being weighed twice. In addition the indicator may have an 'Auto-tare' function whereby the instrument will tare after an 'ADD' operation allowing bags to be successively weighed on the instrument without being removed – the indicator will revert to gross mode when the bags are removed.

TECHNICAL SCHEDULE No S403

VARIATION No 2

Pattern: Ranger Instruments Model 2100 Digital Indicator.

Submittor: Ranger Instruments Pty Ltd
41 Success St
ACACIA RIDGE QLD 4110



1. Description of Variant 2

The Ranger model 2100 EX which is similar to the pattern (with the same approved parameters) but with some software and hardware modifications. This model is intended for use in hazardous areas, however this approval does not relate to safety aspects in any respect.

The indicator is powered by a Hazardous Area Systems model FBP 1000 power supply containing a rechargeable battery (which is intended to be removed from the Ranger model 2100EX indicator for recharging outside the hazardous area). Alternatively a Hazardous Area Systems model PSE150 power supply which is powered from 240 VAC mains supply may be used.

TECHNICAL SCHEDULE No S403

VARIATION No 3

Pattern: Ranger Instruments Model 2100 Digital Indicator

Submittor: Rinstrum Pty Ltd
41 Success St
Acacia Ridge QLD 4110

1. Description of Variants

1.1 Variant 3

The model 2100 indicator in a stainless steel housing (Figure 3) and known as a model AWE 3000 indicator.

1.2 Variant 4

The pattern or variants known as other brands (makes) of the same model, e.g. Company Name model 2100. The alternative name (e.g. Rinstrum) shall be provided on the instrument facia as well as the model number, however the NSC approval number (NSC No S403) and the logo of the manufacturer (Rinstrum) shall always be provided on the instrument nameplate to enable identification of the instrument.

NOTIFICATION OF CHANGE

In Technical Schedule No S403 dated 27 June 2002, and in Technical Schedule No S403 Variation No 1 dated 16 September 2002, and in Technical Schedule No S403 Variation No 2 dated 13 November 2002, all references to the submittor or to the manufacturer should be amended to read:

“Rinstrum Pty Ltd
(formerly Ranger Instruments Pty Ltd)”



Australian Government
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Bradfield Road, West Lindfield NSW 2070

Notification of Change
Supplementary Certificate of Approval No S403
Change No 1

Issued by the Chief Metrologist under Regulation 60
of the
National Measurement Regulations 1999

The following changes are made to the approval documentation for the
Ranger Instruments Model 2100 Digital Indicator

submitted by Rinstrum Pty Ltd
 41 Success St
 Acacia Ridge QLD 4110.

In Supplementary Certificate of Approval No S403 dated 2 January 2004;

1. The Condition of Approval referring to the review of the approval should be amended to read:
 "This approval becomes subject to review on 1 July **2012**, and then every 5 years thereafter."
2. The FILING ADVICE should be amended by adding the following:
 "Notification of Change No 1 dated 25 February 2008"

Signed by a person authorised by the Chief Metrologist
to exercise his powers under Regulation 60 of the
National Measurement Regulations 1999.

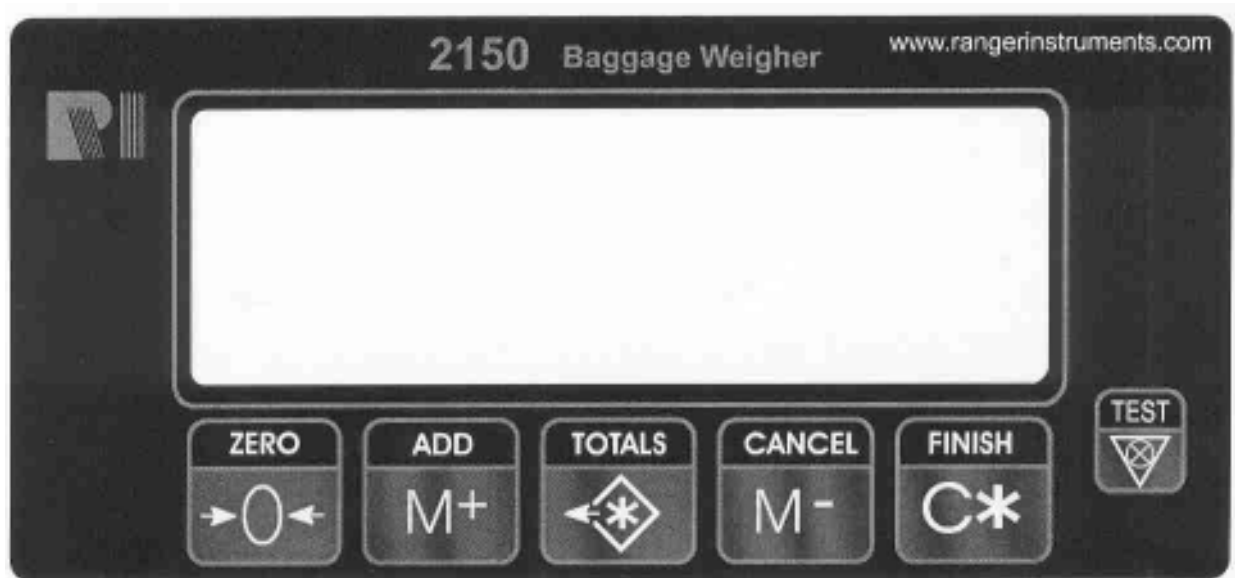
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FIGURE S403 - 1



Ranger Instruments Model 2100 Digital Indicator

FIGURE S403 - 2



Ranger Instruments Model 2150 Digital Indicator Facia

FIGURE S403 – 3



Ranger Instruments/Rinstrum Model AWE 3000 Digital Indicator