



Australian Government  
Department of Industry, Science,  
Energy and Resources

## National Measurement Institute

36 Bradfield Road, West Lindfield NSW 2070

# Supplementary Certificate of Approval

## NMI S418

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.

Rinstrum Model 5200 Digital Indicator

submitted by           Rinstrum Pty Ltd  
                                  41 Success Street  
                                  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 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 and variant 1 approved – interim certificate issued	11/03/03
1	Pattern and variant 1 approved – certificate issued	4/06/03
2	Pattern and variant 1 reviewed – notification of change issued	5/05/08
3	Variant 2 approved – certificate issued	23/03/11
4	Pattern and variants 1 to 2 reviewed & variants 3 to 4 approved – certificate issued	21/11/18
5	Pattern (Clause 1.2 Tare) typo corrected and variant 5 approved – certificate issued	28/01/21

## CONDITIONS OF APPROVAL

### General

Instruments purporting to comply with this approval shall be marked with approval number 'NMI (or NSC) S418' and only by persons authorised by the submitter.

Instruments incorporating a component purporting to comply with this approval shall be marked 'NMI (or NSC) S418' 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 Certificates No S1/0/A or 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 S418

**1. Description of Pattern** **approved on 11/03/03**

A Rinstrum model 5200 digital mass indicator (Table 1 and Figure 1), which may also be known as a Ranger Instruments indicator of the same model, and which may be configured to form part of:

- A weighing instrument with a single weighing range of up to 6000 verification scale intervals;
- A multi-interval weighing instrument with two partial weighing ranges (each with its own verification scale interval) in which case it is approved for use with up to 6000 verification scale intervals per partial weighing range; or
- A multiple range weighing instrument with up to three weighing ranges, in which case it is approved for use with up to 6000 verification scale intervals per weighing range.

The changeover between weighing ranges is automatic.

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 or 6000 per range
Minimum sensitivity	0.5 $\mu$ V/scale interval
Excitation voltage	8 V DC
Maximum excitation current	275 mA

**1.1 Zero**

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

Note: For multi-interval or multiple range operation, zero is automatically corrected to within  $\pm 0.25e_1$  whenever the instrument comes to rest within  $0.5e_1$  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 of up to the maximum capacity of the instrument may be fitted. A pre-set taring device of up to the maximum capacity (or of up to the  $Max_1$  for multi-interval instruments) may also be fitted.

### **1.3 Display Check**

A display check is initiated whenever power is applied.

### **1.4 Power Supply**

The instrument is in two power supply versions:

- (a) The 5200AC version which operates from mains AC power (100 – 240 V nominal).
- (b) The 5200DC version which accepts a 12 – 24 V DC supply and converts it (and incorporates filters to protect against disturbances) to provide suitable DC power to the indicator.

### **1.5 Linearisation Facility**

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

### **1.6 Additional Features**

The model 5200 indicator may be fitted with an optional set point card, or an optional 'combo card' which provide input and output signals used by the set point facility of the indicator. In addition the 'combo card' provides an analog output signal. These cards may also be used to provide remote operation of the four front panel buttons.

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. These additional functions also include the facility for delivering a batch consisting of a mixture of products. However 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 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.

### **1.7 Sealing Provision**

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

To ensure that this protection has been enabled, hold down the ZERO and FIND keys until "FULL SETUP" is displayed; this is followed by "ENTER PASS" being displayed, followed by 000000 flashing (requesting the passcode to be entered). Press the ACCEPT key twice to exit.

Note: If passcode protection has not been enabled "ENTER PASS" will not be displayed – the set-up routine will continue until "build" is displayed. To exit at this point it is necessary to press the ZERO key a number of times until "- End-" is displayed and then press the ACCEPT key.

Whenever the calibration of the instrument is altered, a "set-up counter" is incremented.

The value of the set-up counter can be seen in the switch-on display sequence (when power is first applied to the indicator). The set-up counter is in the form "C\*\*\*\*\*" where \* represents a number.

The instrument may be sealed (to provide evidence of alteration of calibration) by recording the set-up counter value with the verification mark.

### 1.8 Descriptive Markings and Notices

Instruments carry the following markings:

Manufacturer's mark, or name written in full	.....
Indication of accuracy class	Ⓜ
Maximum capacity (for each range)	<i>Max</i> ..... kg *
Minimum capacity (for each range)	<i>Min</i> ..... kg *
Verification scale interval (for each range)	<i>e</i> = ..... kg *
Maximum subtractive tare	<i>T</i> = - .... kg @
Serial number of the instrument	.....
Pattern approval mark for the indicator	NMI/NSC S418
Pattern approval mark for other components	..... #

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

@ This marking is required if T is not equal to Max.

# 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.

Note:

For multi-interval instruments the markings shall be as above, with the exception of the following.

Maximum capacity	<i>Max</i> ...../..... kg *
Verification scale interval	<i>e</i> = ...../..... kg *

For multiple range instruments the markings shall be as above, with the exception that 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	1	2
<i>Max</i>	.... kg	.... kg

### 1.9 Verification Provision

Provision is made for the application of a verification mark.

## 2. Description of Variant 1

approved on 11/03/03

The Rinstrum model 5230 indicator (Figure 2) is similar to the pattern, but is intended specifically for truck weighing applications, and has a modified keyboard layout and particular functions to suit this application. May also be known as Ranger Instruments indicators of the same model.

These functions include provision for 'truck and product' identification data and preset tare values to be stored in memory.

The functions provide for:

- Single weighing of vehicles  
Where the gross weight of a vehicle is determined in a single weighing.
- 'IN/OUT' weighing  
Where a vehicle is weighed before and after a loading or unloading operation.
- Weighing using pre-set tare values  
Where the net weight of a vehicle is determined from the gross weighing operation, and application of a pre-set tare value.
- Various axle weighing operations (\*)  
Note (\*): Axle weighing operations involve end-and-end weighing which are subject to limitations in State and Territory Trade Measurement Legislation (e.g. Trade Measurement (Weighbridges) Regulations). This indicator may only be used in these modes where this is not contrary to such legislation.
- Truck filling using set-point values  
Where a vehicle is weighed and then loaded with a required amount of material whilst on the weighing instrument (set-point values in the indicator may be used); the final weight of the loaded vehicle is then measured and used with the initial weight value to determine the net weight delivered.

### **3. Description of Variant 2**

**approved on 23/03/11**

The Rinstrum model 5100 digital indicator (Figure 3).

Note: A version of the Ranger model 5100 digital indicator (also known as a Rinstrum 5100) has previously been approved in Supplementary Certificate S363 (variant 5). Although both indicator versions are functionally the same, the hardware differs – the indicator approved in this certificate uses the same hardware as the Rinstrum model 5200 (the pattern of this approval).

In addition to the difference in approval number, the Rinstrum 5100 approved in this certificate can be distinguished from the earlier ('S363') model, as the front panel of this indicator (Figure 3) does not incorporate the nameplate markings (these are now provided by a stick-on nameplate), and has the "Rinstrum 5100" marking rather than "Ranger 5100".

It is also possible to distinguish between the two indicators by checking the software version number of the indicator. This is displayed as part of the display sequence when the indicator is switched on – initially 'Check' is displayed, then all display elements are switched on, then all off, then the display shows '5100', then the software version (e.g. '5.00PA'), then the calibration counter (e.g. 'C00015'). Software versions 4.99 and below indicate indicators using hardware as approved in S363.

The Rinstrum model 5100 digital indicator is similar to the pattern (model 5200), but the set of additional functions available (see 1.6 Additional Features) differ from those provided for the pattern, and the markings on the display fascia differ.

The arrangements for sealing are as described for the pattern (see 1.7 Sealing Provision) except that the 'SET' key of the Rinstrum 5100 is used in place of the 'FIND' key of the pattern, and the 'ENTER' key of the Rinstrum 5100 is used in place of the 'ACCEPT' or 'OK' key of the pattern.

The Rinstrum model 5100 indicator of this approval may also be known as a \*\*\*\* model 5100, where \*\*\*\* represents certain other names shown on the front overlay of the indicator. Where the front overlay does not show 'Rinstrum 5100' the rear of the indicator is marked with 'Rinstrum' (or the Rinstrum logo) as the manufacturer, and the model number '5100'.

The indicator specifications are as shown in Table 1 for the pattern.

#### **4. Description of Variant 3** **approved on 21/11/18**

The Rinstrum model 5000 digital indicator (Figure 4) which is similar to variant 2 but having an LED type display and without the numeric keypad.

Note: A version of the Ranger model 5000 digital indicator (also known as a Rinstrum 5000) has previously been approved in Supplementary Certificate S363 (pattern). Although both indicator versions are functionally the same, the hardware differs – the indicator approved in this certificate uses the same hardware as the Rinstrum model 5200 (the pattern of this approval).

It is possible to distinguish between the two indicators by checking the software version number of the indicator. This is displayed as part of the display sequence when the indicator is switched on – initially 'Check' is displayed, then all display elements are switched on, then all off, then the display shows '5000', then the software version (e.g. '5.00PA'), then the calibration counter (e.g. 'C00015'). Software versions 4.99 and below indicate indicators using hardware as approved in S363.

#### **4.1 Sealing Provision**

Provision is made for the calibration adjustments to be sealed by means of a destructible label over the calibration access on the indicator fascia.

#### **5. Description of Variant 4** **approved on 21/11/18**

The pattern and variants having a revised power supply unit.

#### **6. Description of Variant 5** **approved on 28/01/21**

The pattern and variants having an internal Mean Well model LPV-20-12 power supply module.

## TEST PROCEDURE No S418

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*.

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 S418 – 1



Rinstrum Model 5200 Digital Indicator

FIGURE S418 – 2



Rinstrum Model 5230 Digital Indicator

FIGURE S418 – 3



Rinstrum Model 5100 Digital Indicator

FIGURE S418 – 4



Rinstrum Model 5000 Digital Indicator

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