



Australian Government
Department of Industry,
Science and Resources

**National
Measurement
Institute**

36 Bradfield Road, West Lindfield NSW 2070

Supplementary Certificate of Approval

NMI S865

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 R420 Digital Indicator

submitted by Rinstrum Pty Ltd
 4/31 Henry Street
 Loganholme QLD 4129

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 and variants 1 to 10 approved – certificate issued	30/10/24

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with approval number 'NMI S865' and only by persons authorised by the submittor.


Instruments incorporating a component purporting to comply with this approval shall be marked 'NMI S865' 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 of Approval 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.









James Cantrill
A/g Manager
Policy and Regulatory
Services

TECHNICAL SCHEDULE No S865

1. Description of Pattern **approved on 30/10/24**

A Rinstrum model R420 digital mass indicator (Table 1 and Figure 1) which may be configured to form part of:

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

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 instrument has a liquid crystal display including provision for display of the weight value and for two lines of alphanumeric information/menus.

The instrument has the upgraded hardware in which is different to the original models listed in NMI S463. The upgraded hardware includes the followings.

- The new circuit board (version 2).
- The new main application software version 2.xx.
- The legally relevant software version 1.32 (checksum 52402)

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

TABLE 1 – Specifications

Maximum number of verification scale intervals	10 000 (class  1 000 (class 
Minimum sensitivity	0.7 μ V/scale interval
Excitation voltage	7.4 V DC
Maximum excitation current	336 mA
Fraction of maximum permissible error	$\pi = 0.5$
Minimum load cell impedance	21 ohm

Maximum load cell resistance	3500 ohm
Measuring range minimum voltage	0 mV
Measuring range maximum voltage	23.68 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(*)	635.4 m/mm ² (6-wire)*
Software version	1.32 (Checksum 52402)

(*) 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.

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 of up to the maximum capacity (or of up to the Max_1 for multi-interval instruments) may also be fitted.

Pre-set tare values may be stored and recalled and may be associated with product or item look-up tables.

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 ten correction points.

1.5 Power Supply

Power supply is 12 – 24 V DC supplied by an AC/DC mains adaptor or other DC power source.

Note: The AC/DC mains adaptor supplied was a FranMar model FRA030E-S12-I switch mode power supply (output 12 V DC, 2.5 A) or a Rinstrum model M4101 (output 12 V DC, 1.2 A) power supply unit (Figure 2) – the submitter should be consulted regarding the acceptability of alternative power supply units.

1.6 Additional Features

The indicator also has certain additional functions (e.g. hold functions, target, counting) which can be assigned to any of three function keys of the indicator. The

additional functions (other than the indications of measured mass, i.e. gross, tare, net, 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.

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 of Approval 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.

Data derived from any analog output or interface shall not be used for trade use.

Interfaces of the following types may be fitted:

- Analog output (voltage or current)
- RS485/RS232C serial data interface
- Digital input/output
- IR optical interface

1.8 Data Storage Device

The model R420 may also be provided with an integral data storage device.

For each weighing request, weighing results together with identification including date and time are stored into the storage device.

The use of either of these features for trade use is subject to the agreement of the applicable trade measurement authority. In any case, data from the storage device shall only be used for trade if the format of the output complies with NMI General Supplementary Certificate of Approval No S1/0B.

1.9 Verification Provision

Provision is made for the application of a verification mark.

1.10 Descriptive Markings and Notices

Instruments carry the following markings:

Manufacturer's mark, or name written in full	Rinstrum	#1
Indication of accuracy class	Ⓜ or Ⓜ	
Maximum capacity	<i>Max</i> kg	#2
Minimum capacity	<i>Min</i> kg	#2
Verification scale interval	<i>e</i> = kg	#2
Maximum subtractive tare	<i>T</i> = - kg	#3
Serial number of the instrument	
Pattern approval mark for the indicator	NMI S865	
Pattern approval mark for other components	#4

#1 Instruments may also be known by alternative brands (makes) of the same model, e.g. Company Name model R420. The alternative name may be provided on the instrument facia as well as the model number, NMI approval mark and the logo of the manufacturer (Rinstrum) to enable identification of the instrument.

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

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

#4 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.

Notes:

(i) 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, as shown in the instrument display (e.g. '←1→')

Range	←1→	←2→ (*)
<i>Max</i> kg kg
<i>Min</i> kg kg
<i>e</i> = kg kg

(*) The markings for each weighing range shall be clearly associated with an indication of the corresponding range (i.e. '←1→') to correspond to the weighing range designations shown in the instrument display.

(ii) 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	<i>Max</i>/..... kg
Verification scale interval	<i>e</i> =/..... kg

1.11 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, attempt to enter full setup by pressing the POWER and FUNCTION 3 (f_3) keys together. If a passcode has been set "P.CODE" will be shown on the main display and "FULL" on the top right auxiliary display. Pressing OK will return to normal operation.

In addition, a non-resettable calibration event counter increments each time that calibration or any parameter effecting 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 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.

1.12 Software

The software can be identified as listed in the following TABLE 2.

TABLE 2

Main Application Version	Trade & Alibi Application Version	Checksum
2.xx	1.32	52402

The Main Application software is non-legally relevant, and “xx” can be a number between 00 to 99. The version number is displayed at initial power up of the instrument.

The Trade & Alibi Application software is the legally relevant software, and it can be displayed after pressing the Alibi button for 3 seconds, and then press the OK button.

2. Description of Variant 1 **approved on 30/10/24**

The pattern (Rinstrum model R420 digital indicator) may also known as a PT Ltd model PT600R indicator.

3. Description of Variant 2 **approved on 30/10/24**

The Rinstrum model R423 digital indicator which is similar to the pattern but is now in a stainless steel panel mount housing (Figure 3).

The model R423 may also be provided with a model M4221 Ethernet module and/or a model M4222 or M4223 LUA Ethernet with USB data interface module (Figure 7).

The model R423 may also be known as a PT model PT603P.



4. Description of Variant 3 **approved on 30/10/24**

The Rinstrum model R420-K491 digital indicator which is similar to the pattern but has K491 firmware. The firmware number can be seen in the switch-on display sequence (when the power is first applied to the instrument).

The instrument may be provided with an automatic tilt sensor/compensation device that automatically compensates for out of level conditions up to $\pm 10^\circ$ in longitudinal or transverse directions. If the instrument exceeds this value, then the weight indications are inhibited. Note: The instrument may also be configured such that the weight indications are inhibited at a lower angle than 10° .

The tilt sensor/compensation device consists of a Rinstrum model M4907 tilt sensor and model M4211 tilt compensation module.

The model R420-K491 indicator and model M4907 tilt sensor may be configured to form part of:

- A class  weighing instrument with a single weighing range of up to 2000 verification scale intervals; or
- A class  weighing instrument with a single weighing range of up to 1000 verification scale intervals.

Note: The weighing instrument to which this variant is fitted must be NMI-approved for use with an automatic tilt sensor/compensation device.

5. Description of Variant 4 **approved on 30/10/24**

The model R420 may also be provided with additional interfaces:

- Serial data storage device. For each weighing request, weighing results together with identification including date and time are stored into the storage device.
- Ethernet data interface.
- LUA Ethernet with USB data interface.

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 Certificates of Approval 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.

6. Description of Variant 5 **approved on 30/10/24**

The Rinstrum model R420 may be also known as CAS model R420.

7. Description of Variant 6 **approved on 30/10/24**

The Rinstrum model R423 may be also known as CAS model R423.

8. Description of Variant 7 **approved on 30/10/24**

The Rinstrum model R427 digital indicator which is similar to variant 2 but having a full stainless steel housing (Figure 6).

9. Description of Variant 8 **approved on 30/10/24**

The Rinstrum model R457 digital indicator which is similar to variant 2 but having a full stainless steel housing (Figure 6) and fitted with a model M4223 LUA Ethernet with USB data interface module (Figure 7).

10. Description of Variant 9 **approved on 30/10/24**

Variants 7 and 8 may also known as CAS or PT indicators of certain models as listed below:

- Model R427 (variant 7) may be known as CAS model R427 or PT model PT603P;
- Model R457 (variant 8) may be known as CAS model R457 or PT model PT603P.

11. Description of Variant 10

approved on 30/10/24

Variants 7 and 8 may also be known as model R4 (Figure 8) with the same descriptive marking plate of variants 7 and 8.

TEST PROCEDURE No S865

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

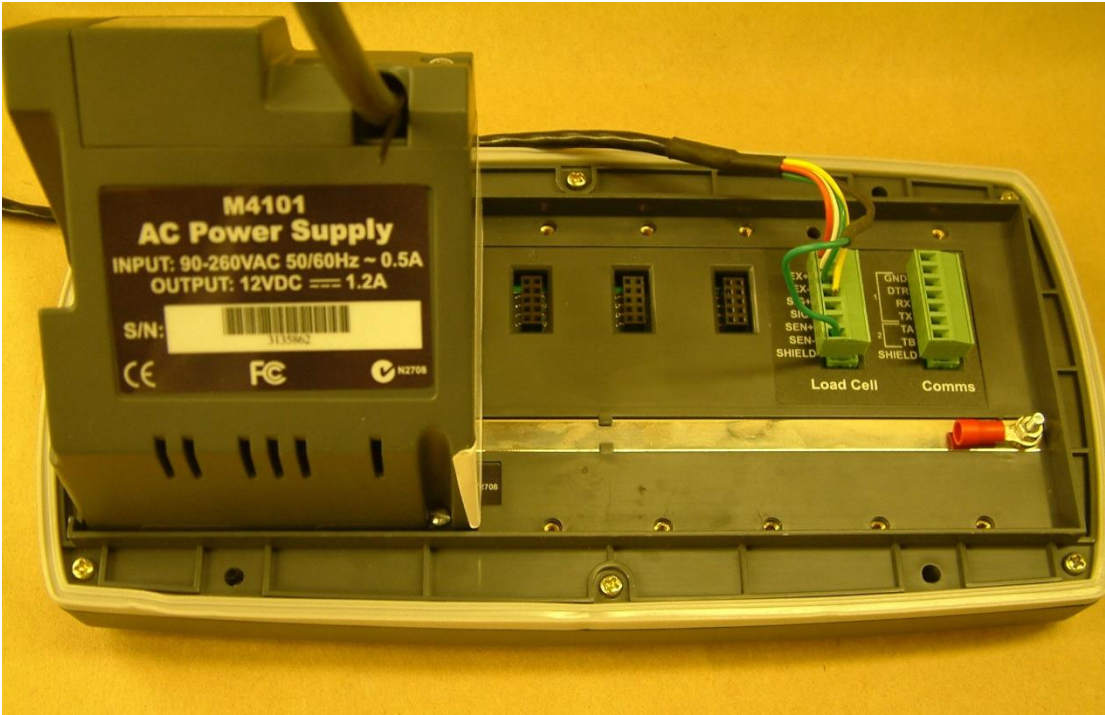
For multi-interval and multiple range instruments with verification scale intervals of $e_1, e_2 \dots$, apply e_1 for zero adjustment, and maximum permissible errors apply $e_1, e_2 \dots$, as applicable for the load.

FIGURE S865 – 1



Rinstrum Model R420 Digital Indicator (pattern)

FIGURE S865 – 2



Rinstrum Model M4101 Power Supply (Pattern & Variants)

FIGURE S865 – 3



Rinstrum Model R423 Digital Indicator (Variant 3)

FIGURE S865 – 4



Rinstrum Model R420-K491 Digital Indicator & Model M4907 Tilt Sensor (Variant 4)

FIGURE S865 – 5



Rinstrum Model M4211 Tilt Compensation Module (variant 4)

FIGURE S865 – 6



Rinstrum Models R427 or R457 Digital Indicator (Variants 7 and 8)

FIGURE S865 – 7



Rinstrum Models M4222 or M4223 LUA Ethernet and USB Interface

FIGURE S865 – 8



Rinstrum Model R4 Digital Indicator (Variant 10)

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