



**Australian Government**  
**Department of Industry, Science,  
Energy and Resources**

## **National Measurement Institute**

36 Bradfield Road, West Lindfield NSW 2070

# **Supplementary Certificate of Approval**

## **NMI S463**

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  
                                  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.

### DOCUMENT HISTORY

<b>Rev</b>	<b>Reason/Details</b>	<b>Date</b>
0	Pattern approved – interim certificate issued	24/02/06
1	Pattern – certificate issued	16/03/06
2	Pattern amended – notification of change issued	1/06/06
3	Variant 1 approved – certificate issued	22/08/06
4	Variants 2 & 3 approved – certificate issued	27/10/08
5	Pattern & variants 1 to 3 reviewed & updated – certificate issued	1/02/12
6	Variants 4 & 5 approved – interim certificate issued	19/02/15
7	Variants 4 & 5 approved – certificate issued	17/06/15
8	Pattern & variants 1 to 5 amended & <b>reviewed</b> , variants 6 & 7 approved – certificate issued	24/07/17

Document History (cont...)

Rev	Reason/Details	Date
9	Pattern (Clause 1.2 Tare) reworded & variant 3 amended & variants 8 to 10 approved – certificate issued	16/09/20

CONDITIONS OF APPROVAL

**General**

Instruments purporting to comply with this approval shall be marked with approval number 'NMI S463' and only by persons authorised by the submitter.

Instruments incorporating a component purporting to comply with this approval shall be marked 'NMI S463' 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 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 S463

1. Description of Pattern

approved on 24/02/06  
amended on 16/09/20

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

- A class  $\text{M}_1$  weighing instrument with a single weighing range of up to 10 000 verification scale intervals; or
- A class  $\text{M}_2$  weighing instrument with a single weighing range of up to 1000 verification scale intervals; or
- A class  $\text{M}_1$  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  $\text{M}_2$  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  $\text{M}_1$  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  $\text{M}_2$  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 liquid crystal display including provision for display of the weight value and for two lines of alphanumeric information/menus.

Instruments may be fitted with output sockets (output interfacing capability) 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	10 000 (class $\text{M}_1$ ) 1 000 (class $\text{M}_2$ )
Minimum sensitivity	0.7 $\mu\text{V}$ /scale interval
Excitation voltage	7.4 V DC
Maximum excitation current	336 mA

## 1.1 Zero

Zero may be automatically corrected to within  $\pm 0.25e$  whenever the instrument comes to rest within  $0.5e$  of zero or whenever power is applied (in the case of multi-interval or multiple range configurations  $e$  in this sentence refers to  $e_1$ ).

If the instrument comes to rest outside that range but within the zero setting range, zero may be set by pressing the zero button.

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.

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 adaptors supplied were a FranMar model DSA-0151F-12 AS (output 12 V DC, 1.5 A) switch mode power supply unit 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.

## 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 Certificates No S1/0/A or No S1/0B (in particular in regard to the data and its format).

Note particularly that 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.

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 Verification Provision

Provision is made for the application of a verification mark.

### 1.9 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 S463	
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→ (*)
Max	.... kg	.... kg
Min	.... kg	.... kg
e =	.... 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	Max ...../..... kg
Verification scale interval	e = ...../..... kg

### 1.10 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<sub>3</sub>) 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.

## 2. Description of Variant 1 approved on 21/08/06

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

## 3. Description of Variant 2 approved on 24/10/08

The Rinstrum model R420 digital indicator (aka PT model PT600R of variant 1) using a later version circuit board (version 2) with a later software version (version 2.xx).

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 Certificates No S1/0/A or No S1/0B.

#### 4. Description of Variant 3

**approved on 24/10/08**  
**amended on 16/09/20**

The Rinstrum model R423 digital indicator which is similar to the pattern (model R420, including the version described in variant 2) 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.

#### 5. Description of Variant 4



**approved on 19/02/15**

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  $10^\circ$ .

The tilt sensor/compensation device consists of a Rinstrum model M4904 tilt sensor and model M4211 tilt compensation module. The model M4904 tilt sensor uses a HL Planar model NS-10/PL2-S dual axis compensation level sensor.

The model R420-K491 indicator and model M4904 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.**

#### 6. Description of Variant 5

**approved on 19/02/15**

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 Nos S1/0/A or 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.

**7. Description of Variant 6** **approved on 24/07/17**

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

**8. Description of Variant 7** **approved on 24/07/17**

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

**9. Description of Variant 8** **approved on 16/09/20**

The Rinstrum model R427 digital indicator which is similar to variant 3 but having a full stainless steel housing (Figure 6).

**10. Description of Variant 9** **approved on 16/09/20**

The Rinstrum model R457 digital indicator which is similar to variant 3 but having a full stainless steel housing (Figure 6) and fitted with a model M4223 LUA Ethernet with USB data interface module (Figure 7).

**11. Description of Variant 10** **approved on 16/09/20**

Variants 8 and 9 may also be known as CAS or PT indicators of certain models as listed below:

- Model R427 (variant 8) may be known as CAS model R427 or PT model PT603P; and
- Model R457 (variant 9) may be known as CAS model R457 or PT model PT603P.

### TEST PROCEDURE No S463

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.

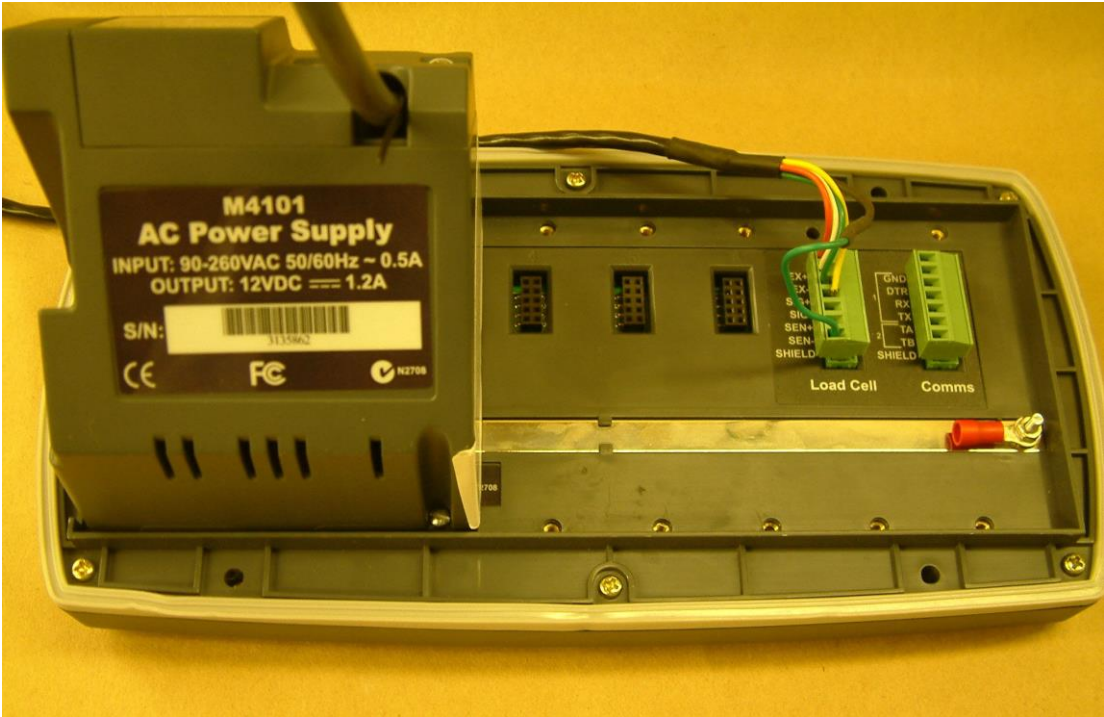


FIGURE S463 – 1



Rinstrum Model R420 Digital Indicator (pattern)

FIGURE S463 – 2



Rinstrum Model M4101 Power Supply (pattern & variants)

FIGURE S463 – 3



Rinstrum Model R423 Digital Indicator (variant 3)

FIGURE S463 – 4



Rinstrum Model R420-K491 Digital Indicator & Model M4904 Tilt Sensor (variant 4)

FIGURE S463 – 5



Rinstrum Model M4211 Tilt Compensation Module (variant 4)

FIGURE S463 – 6



Rinstrum Models R427 or R457 Digital Indicator (variants 8 and 9)

FIGURE S463 – 7



Rinstrum Models M4222 or M4223 LUA Ethernet and USB Interface

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