



Australian Government
Department of Industry,
Innovation and Science

National Measurement Institute

36 Bradfield Road, West Lindfield NSW 2070

Supplementary Certificate of Approval No S420

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 R320 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 becomes subject to review on 1/07/20, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variants 1 & 2 approved – interim certificate issued	30/06/03
1	Pattern & variants 1 & 2 approved – certificate issued	25/08/03
2	Pattern & variant 1 amended – notification of change issued	29/03/04
3	Variant 3 approved – certificate issued	31/03/05
4	Variant 4 approved – certificate issued	7/02/06
5	Variant 5 approved – certificate issued	22/08/06
6	Pattern amended – variants 6 & 7 approved – certificate issued	21/08/08

Document History (cont...)

Rev	Reason/Details	Date
7	Variant 8 approved – interim certificate issued	7/09/12
8	Pattern & variants 1 to 7 updated – variant 8 approved – certificate issued	5/10/12
6	Pattern & variants 1 & 2 reviewed & updated – variant 3 approved – certificate issued	draft/16
9	Pattern & variants 2 to 8 reviewed – variant 1 cancelled – variants 5, 6 & 8 amended – variants 9 to 11 approved – certificate issued	17/06/15
10	Variants 12 to 14 approved – interim certificate issued	19/02/16
11	Variants 12 to 15 approved – certificate issued	26/07/17
12	Variant 16 approved – certificate issued	26/11/19

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI (or NSC) S420' and only by persons authorised by the submittor.

Instruments incorporating a component purporting to comply with this approval shall be marked 'NMI (or NSC) S420' 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 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 S420

1. Description of Pattern **approved on 30/06/03**

A Rinstrum model R320 class III single interval digital mass indicator which is approved for use with up to 4000 verification scale intervals. May also be known as other brands (makes) of the same model. (refer to clause **1.7 Descriptive Markings and Notices**).

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

Instruments operate using Rinstrum type K302 version 3.xx software.

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	4000
Minimum sensitivity	0.8 μV /scale interval
Excitation voltage	5 V DC
Maximum excitation current	57.5 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 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 Power Supply

Power supply may be either:


- 12 – 24 V DC supplied by an AC/DC mains adaptor or other DC power source; or
- batteries (4.8 to 24 V DC).

Note: The AC/DC mains adaptor supplied was a FranMar model DSA-0151F-12 S switch mode power supply (output 12 V DC, 1.5 A) – 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, 'Live Weight', counting) which 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, displayed either on the indicator or on an auxiliary or peripheral device), are not approved for trade use.

1.7 Descriptive Markings and Notices

Manufacturer's mark, or name written in full	Rinstrum	#1
Indication of accuracy class		
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 number for the indicator	NMI S420	
Pattern approval number for the other components	#4

#1 Instruments may also be known by alternative brands (makes) of the same model, e.g. Company Name model R320. The alternative name may be provided on the instrument facia as well as the model number, pattern approval number 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.

1.8 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 POWER and FUNCTION 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 CODE will appear. This indicates that a passcode has been set (the display will then show 000000 and pressing the tare key will exit this sequence).

In addition, a non-resettable calibration event counter 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.

1.9 Verification Provision

Provision is made for the application of a verification mark.

2. Description of Variant 1

**approved on 30/06/03
cancelled 17/06/15**

The Rinstrum model R321 indicator which has the same features as the pattern (model R320) but is in a stainless steel enclosure.

The model R321 may have the AC/DC mains adaptor described for the pattern fitted internally rather than as a separate plug-in unit.

3. Description of Variant 2

approved on 30/06/03

The Rinstrum model R310 indicator (Figure 2) which is similar to the pattern (model R320) but with fewer features, namely:

- it has no output interfacing capability as mentioned in clause 1;
- it is not fitted with the linearisation correction facility described in clause 1.4; and
- it has none of the additional features referred to in clause 1.6.

4. Description of Variant 3

approved on 30/03/05

The Rinstrum model R323 digital indicator which is similar to the pattern (model R320), but which is supplied as a module (Figure 3a) with a metal front panel and membrane type face and keypad.

This module may be supplied fitted in a manufacturer-supplied housing (Figure 3b), or may be installed into an existing enclosure or instrument panel.

5. Description of Variant 4

approved on 6/02/06

The pattern or variants with Rinstrum version V3.2 software, which includes a number of software modifications. This software includes the possibility for the instrument to have a pre-set tare device of up to the maximum capacity of the instrument (to the maximum of the lowest partial weighing range for a multi-interval instrument).

The software version is displayed during the power-on sequence.

6. Description of Variant 5

approved on 21/08/06

The pattern and variants (except variant 1, model R321) may also be known as PT Ltd indicators of certain models as listed below:

- Model R320 (the pattern) may be known as models PT200M or KR320;
- Model R310 (variant 2) may be known as a model PT200R; and
- Model R323 (variant 3) may be known as models PT200P or KR323.

7. Description of Variant 6 **approved on 20/08/08**

The Rinstrum model X320 digital mass indicator (Figure 4) which has the same features and capabilities as the pattern (model R320) but in a waterproof 'food grade' plastic housing.

The model X320 uses any of the following software types. The linearisation correction facility described in clause 1.4 may be fitted.

- K304 version 3.xx software;
- K342 version 3.xx software has no support for clock calendar feature, RS232 and setpoint output interfaces;
- K344 version 3.xx software is based on K342 and adds support for a limited RS232 interface;
- K346 version 3.xx software is based on K342 and adds support for a limited RS232 interface and limited setpoint output interfaces;
- K354 version 3.xx software includes support for all features available in type K302 version 3.xx with the exception of setpoint outputs;
- K356 version 3.xx software includes support for all features available in type K302 version 3.xx.

7.1 Power Supply

Power supply may be either:

- mains supply (90 – 240 V AC);
- 12 – 24 V DC supplied by an AC/DC mains adaptor or other DC power source; or
- batteries (12 to 24 V DC) – typically a battery pack (alkaline, NiMH or NiCad).

Note: The AC/DC mains adaptor supplied was a FranMar model DSA-0151F-12 S switch mode power supply (output 12 V DC, 1.5 A) – the submitter should be consulted regarding the acceptability of alternative power supply units.

7.2 Under and Over Checking Facility

Instruments may be fitted with an UNDER/OK/OVER facility which is not approved for trade use.

8. Description of Variant 7 **approved on 20/08/08**

Certain model indicators of this approval now configured to form part of a multiple range instrument with two weighing ranges, in which case the instrument is approved for use with up to 4000 verification scale intervals per weighing range. The changeover between weighing ranges may be automatic or manual.

Apart from the multiple range function, the indicator has the same features and capabilities as described for the pattern except that it is not fitted with the linearisation correction facility.

To enable multiple range operation, the models R320 and R323 indicators now use type K305 version 3.xx software and the model X320 indicator now uses type K306 version 3.xx software.

9. Description of Variant 8

approved on 7/09/12

The pattern (model R320) and variant 3 (model R323) now with different software versions which are similar to type K302 version 3.xx software but include a built-in licensing system that manages the optional inclusion of product features. The linearisation correction facility described in clause 1.4 is not included in these additional software types.

- K342 version 3.xx software has no support for clock calendar feature, RS232 and setpoint output interfaces;
- K344 version 3.xx software is based on K342 and adds support for a limited RS232 interface;
- K346 version 3.xx software is based on K342 and adds support for a limited RS232 interface and limited setpoint output interfaces;
- K354 version 3.xx software includes support for all features available in type K302 version 3.xx with the exception of setpoint outputs;
- K356 version 3.xx software includes support for all features available in type K302 version 3.xx.

The type K304 version 3.xx software may be used. The linearisation correction facility described in clause 1.4 may be fitted.

Instruments may be fitted with a setpoint output interface which is not approved for trade use.

10. Description of Variant 9

approved on 17/06/15

The Rinstrum model R325 indicator (Figure 5) which is similar to the pattern but it is designed for baggage scale system, and it only has gross weighing and accumulator weighing operations.

The model R325 displays the item weight, a total weight, and the number of items (bags) contributing to the total.

A Rinstrum model D323 remote/passenger display (Figure 6) may be connected to the R325 via RS232 interface. The model D323 repeats the display of the R325 indicator.

Operation

- The model R325 unit has provision for semi-automatic zero setting (->0<-key).
- A totalising facility allows successive weighings to be summed by use of the M+ key. The weight must be within the minimum and maximum weight limits. The model R325 displays Small Bag or Overscale when the bag weight is outside the limits.

Weight limits are the subject of particular airline baggage weight limit and are not covered by this approval.

- The last bag weight is allowed to be subtracted by use of the M- key. Only the last bag weight added can be cancelled.
- The C* key resets the total and bag count to zero.

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 Certificates No 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.

11. Description of Variant 10 **approved on 17/06/15**

The Rinstrum model X320 using type K376 version 3.xx software.

The instruments may be fitted with COLDSTORE on shelf Rinlive passcode activation facility.

The model X320 may be also known as certain other **Rinstrum** models as listed below:

- Model Triton X320;
- Model PT200X;
- Model KX320;
- Model CAS-X320;
- Model Accuweigh X320; or
- Model Atlas Compuload CL320.

12. Description of Variant 11 **approved on 17/06/15**

The model R323 now with a simplified stainless steel housing as shown Figure 7.

13. Description of Variant 12 **approved on 19/02/16**

Those models of the pattern or variants described as using Version 3.xx software of types K342, K344, K346, K354, K356 or K376 may alternatively use Version 4.xx software of the corresponding type. This software provides for a larger memory capacity and incorporates some additional non-metrological changes to the remapping of the memory boundaries.

14. Description of Variant 13 **approved on 19/02/16**

The model R320, R323 or R325 indicators (similar to variant 8 or 9), using Version 4.xx software of types K34x or K35x. This includes alternatively named models described as 'may also be known as' (e.g. PT200P). The model R320 may also be known as a model CONW-WT.

For the type K34x software:

- K342 represents a variant with no available serial, no printing function, no clock calendar, weight hold function fixed button, no I/O, no setpoints
- K344 represents a variant with available serial output, no clock calendar, weight hold function fixed button, 1 input no output, no setpoints

- K346 represents a variant with available serial output, no clock calendar, weigh hold function fixed button, 1 input, 2 outputs, 2 setpoints

For the type K35x software:

- K354 represents a variant with available serial output, clock calendar, function button for one function either unit switching, counting, peak hold, manual hold, totalising, display test, high resolution, 1 input, no outputs, no setpoints
- K356 represents a variant with available serial output, clock calendar, function button for one function either unit switching, counting, peak hold, manual hold, totalising, display test, high resolution, 1 input, 2 outputs, 2 setpoints

15. Description of Variant 14

approved on 19/02/16

The model X320 indicator (similar to variant 10), using Version 4.xx software of type K37x. This includes alternatively named models described as 'may also be known as' (e.g. PT200X).

For the type K37x software

- K376 represents a variant with available serial output, clock calendar, function button for one function either unit switching, counting, peak hold, manual hold, totalising, display test, high resolution, checkweighing, 1 input, 3 outputs, 3 setpoints
- K378 represents a variant with available serial output, clock calendar, function button fixed for checkweighing 1 input, 3 outputs, 3 setpoints

16. Description of Variant 15

approved on 25/07/17

The pattern and variants 3 to 13 (except variants 5, 6 & 10) may also be known as CAS Corporation indicators of certain models as listed below:

- Model R320 may be known as models CAS R320;
- Model R323 may be known as a model CAS R323; and
- Model R325 may be known as models CAS R325.




17. Description of Variant 16

approved on 26/11/19




The pattern or variants fitted with a new main board.

The hardware is identified by an identification number 'HW 1.2'. The hardware identification number is displayed during the power-on sequence.

The indicator may be configured to form part of:



- A class  weighing instrument with a single weighing range of up to 4000 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 4000 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.
- A class  multiple range weighing instrument with up to two weighing ranges, in which case it is approved for use with up to 4000 verification scale intervals per weighing range.
- 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.

TABLE 2 – Specifications

Maximum number of verification scale intervals	4000 (class  1000 (class 
Minimum sensitivity	0.8 μ V/scale interval
Excitation voltage	5 V DC
Maximum excitation current	57.5 mA
Fraction of maximum permissible error	$p_i = 0.5$
Minimum load cell impedance	87 Ω
Maximum load cell impedance	3500 Ω
Measuring range minimum voltage	-16 mV
Measuring range maximum voltage	16 mV
Maximum tare range	-100% Max
Operating temperature range	-10°C to +40°C
Load cell connection shield	4 or 6 wire plus
Maximum value of load cell cable length per wire cross section (*)	5769 m/mm ² (6-wire only)

(*) Additional connection cable between indicator and load cell or load cell junction box.

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 may be fitted with output sockets (output interfacing capability) for the connection of auxiliary and/or peripheral devices (see clause 17.2 below).

17.1 Power Supply

Power supply may be either:

- 12 – 24 V DC supplied by an AC/DC mains adaptor or other DC power source; or
- batteries (4.3 to 24 V DC) or road vehicle battery.

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) – the submitter should be consulted regarding the acceptability of alternative power supply units.

17.2 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 No NMI 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 serial data interface and RIN-LINK.

17.3 Additional Features

Instruments may be fitted with counting and hold functions. 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.

Instruments may be fitted with a setpoint output interface which is 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.

17.4 Descriptive Markings and Notices

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

For multiple range instruments, 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	W1	W2
<i>Max</i> kg kg
<i>Min</i> kg kg
<i>e =</i> kg kg

17.4 Software Version

The software version is designated v4.xx, where xx refers to the identification of non-legally relevant software.

- (a) The model R320, R323 or R325 indicators using version 4.xx software of types K342, K344, K346, K354 or K356 as described in variant 13. This includes alternatively named models described as 'may also be known as' (e.g. PT200P).
- (b) The model X320 indicator using version 4.xx software of type K376 or K378 as described in variant 14. This includes alternatively named models described as 'may also be known as' (e.g. PT200X).

The software version and type can be seen in the switch-on display sequence when the power is first applied to the instrument.

TEST PROCEDURE No S420

Instruments shall be tested in accordance with any relevant tests specified in the National Instrument Test Procedures.

Maximum Permissible Errors

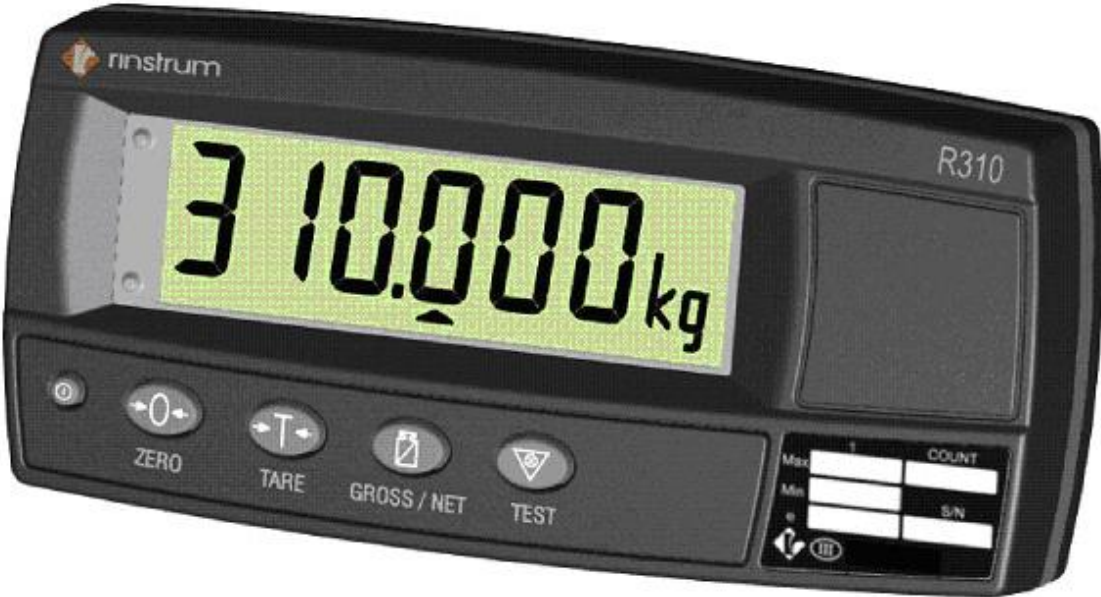
The maximum permissible errors are specified in Schedule 1 of the *National Trade Measurement Regulations 2009*.

FIGURE S420 – 1



Rinstrum Model R320 Digital Indicator (the pattern)

FIGURE S420 – 2



Rinstrum Model R310 Digital Indicator (variant 2)

FIGURE S420 – 3



(a) Rinstrum Model R323 Indicator Module (variant 3)



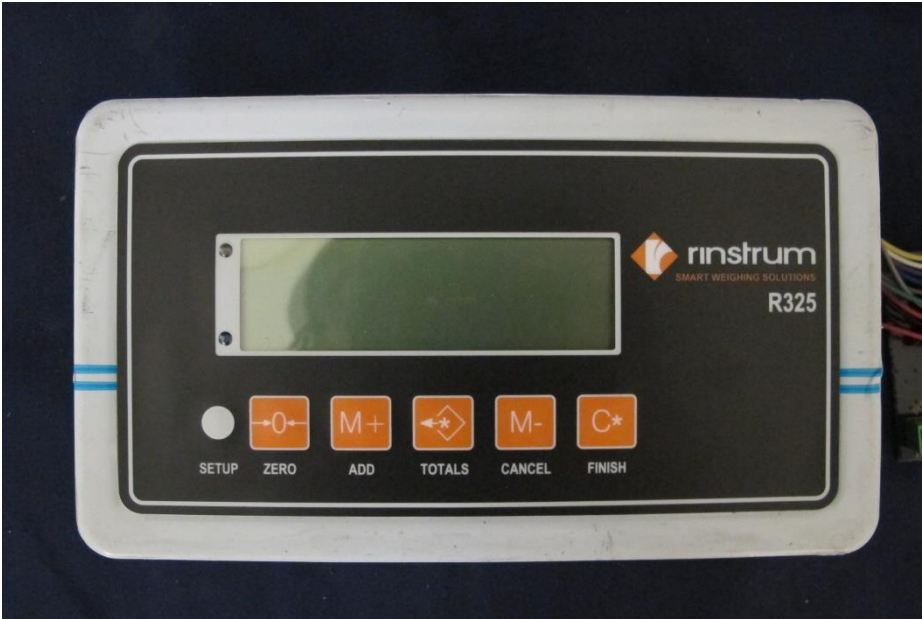
(b) Rinstrum Model R323 Indicator Module in a Rinstrum Housing (variant 3)

FIGURE S420 – 4



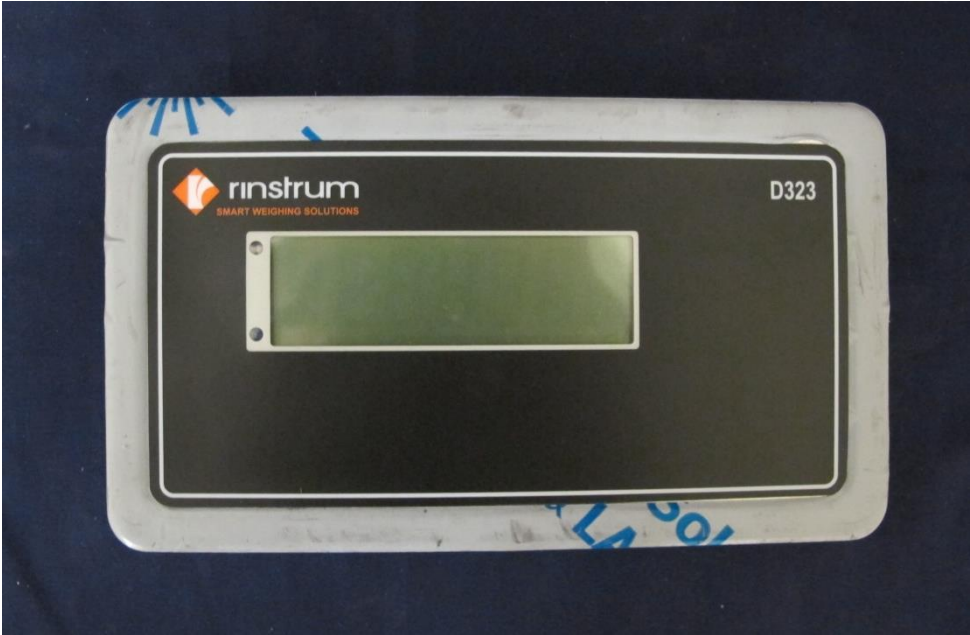
Rinstrum Model X320 Digital Indicator (variant 6)

FIGURE S420 – 5



Rinstrum Model R325 Digital Indicator (variant 9)

FIGURE S420 – 6



Rinstrum Model R323 Remote/Passenger Display (variant 9)

FIGURE S420 – 7



Rinstrum Model R323 Digital Indicator in Alternative Stainless Steel Housing (variant 11)

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