

Australian Government

National Measurement Institute Bradfield Road, West Lindfield NSW 2070

# **Supplementary Certificate of Approval**

## NMI S419

#### 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.

Nuweigh Model JAC 101 Digital Indicator

submitted by Newcastle Weighing Services Pty Ltd 104-114 Hannell Street WICKHAM NSW 2293

**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 becomes subject to review on 1/06/20, and then every 5 years thereafter.

### DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern approved – interim certificate issued	26/05/03
1	Pattern & variant 1 approved – certificate issued	30/07/03
2	Variant 2 approved – certificate issued	15/12/06
3	Pattern & variants 1 & 2 reviewed– notification of change issued	19/08/08
4	Pattern & variants 1 & 2 reviewed & updated – variant 3 approved – certificate issued	19/03/15

### CONDITIONS OF APPROVAL

#### General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI (or NSC) S419' and only by persons authorised by the submittor.

Instruments incorporating a component purporting to comply with this approval shall be marked 'NMI (or NSC) S419' 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*.

Dr A Rawlinson

## TECHNICAL SCHEDULE No S419

### 1. Description of Pattern

## approved on 26/05/03

A Nuweigh model JAC 101 single interval digital mass indicator (Table 1 and Figures 1 and 2) approved for use with up to 3500 verification scale intervals (\*).

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

Instruments are mains powered or may be powered by an integral rechargeable 6 V battery.

TABLE 1 – Specifications

Maximum number of verification scale intervals	3500 (*)
Minimum sensitivity	1.0 µV/scale interval
Excitation voltage	5 V DC
Maximum excitation current	57.5 mA

(\*) If used with instruments which are NOT provided with wind protection then they shall be used with no more than 3000 verification scale intervals, in accordance with 'clause 4. Wind Effects' of NMI General Certificate of Approval No 6B/0.

### 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.

NOTE: If a pre-set tare (PT) button is fitted it must be inoperative.

## 1.3 Management Functions

Instruments may be fitted with a counting function which is not approved for trade use.

NOTE: If an alternative unit (lb/kg) button is fitted it must be inoperative.

## 1.4 Display Check

A display check is initiated whenever power is applied.

### 1.5 Verification Provision

Provision is made for the application of a verification mark.

## 1.6 Sealing Provision

Provision is made for the calibration adjustments to be sealed by the use of destructible adhesive labels over the join between the front and back sections of the indicator housing, in two opposing locations.

It is possible to check that the link within the indicator housing is in the 'locked' position, by carrying out the following:

- switch the instrument on, and whilst the instrument is counting down '9999, 8888, ...' press and hold the zero key until '02001' is displayed.
- release the zero key, F0 appears; then press the print/enter key.

If '02001' is displayed, this indicates that the link is in the 'locked' position. If there is another display (e.g. the word 'Zero') this indicates that the link is not in the locked position, and application of the adhesive labels will not provide adequate sealing (adjustment will be possible).

## 1.5 Descriptive Markings and Notices

Instruments are marked with the following data, together in one location, in the form shown at right:

Manufacturer's mark, or name written in full	
Indication of accuracy class	l
Maximum capacity	<i>Max</i> kg #1
Minimum capacity	<i>Min</i> kg #1
Verification scale interval	<i>e</i> = kg #1
Serial number of the instrument	
Pattern approval number for the indicator	NMI (or NSC) S419
Pattern approval number for other components	NMI S

# 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.

## 2. Description of Variant 1

### approved on 30/07/03

A Nuweigh model JAC 101 digital indicator in a stainless steel housing (Figure 3).

Provision is made for the housing to be sealed after verification.

## 3. Description of Variant 2

### approved on 15/12/06

A version of the model JAC101 indicator configured to form part of a multiple range weighing instrument with up to two weighing ranges, in which case it is approved for use with up to 3500 verification scale intervals per weighing range. In other respects the approval parameters are as for the pattern.

The changeover between weighing ranges is automatic.

Provision is made to show the range in which indicator is currently operating (Figure 4).

This version of the JAC101 may also be provided in a stainless steel housing as described in Variant 1.

Markings shall be as for the pattern, 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 (corresponding to the range indicators of the indicator) e.g.

Range 1	<i>Max</i> kg	<i>Min</i> kg	<i>e</i> = kg
Range 2	<i>Max</i> kg	<i>Min</i> kg	<i>e</i> = kg

Note: The description of zero operation for the pattern applies, however in the case of multiple range instruments references to 'e' in the description should be taken to refer to ' $e_1$ '.

#### 4. Description of Variant 3

#### approved on 19/03/15

The Nuweigh model JAC 101 (Table 2) which is similar to the pattern and variant 1 and 2 but has a different main printed circuit board.

A Nuweigh model JAC 101 which may be configured to form part of:

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

### TABLE 2 – Specifications

Maximum number of verification scale intervals	10 000 (class 🖤)
	1000 (class 💷)
Minimum sensitivity	1 µV/scale interval
Excitation voltage	5 V DC
Maximum excitation current	57.5 mA
Fraction of maximum permissible error	p <sub>i</sub> = 0.5
Minimum load cell impedance	87 Ω
Maximum load cell impedance	1050 Ω
Measuring range minimum voltage	0.mV
Measuring range maximum voltage	70 mV
Maximum tare range	- Max
Operating temperature range	-10°C to +40°C
Load cell connection	4 or 6 wire plus shield

## 4.1 Sealing

Provision is made for the calibration to be sealed by setting a switch on the main board within the instrument to a LOCK position, and then preventing access within the instrument housing.

It is possible to determine that the switch status is in the 'LOCK' position by:

- Hold down the  $\rightarrow 0 \leftarrow$  key whilst switch-on until the instrument displays '02018'.
- Release the →0 ← key, F0 appears, and press the ^ key once and then the Enter key.
- If the switch is in the 'LOCK' position, the instrument will display '02018'. In this case the instrument may be verified.
- Otherwise the instrument will display a number other than '02018' in which case the instrument should not be verified until the switch has been correctly located in the 'LOCK' position.

Sealing to prevent access within the instrument housing may be achieved by using destructible labels placed over the opposite sides of a join in the instrument housing.

### TEST PROCEDURE

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

The instrument shall not be adjusted to anything other than as close as practical to zero error, even when these values are within the maximum permissible errors.

### Maximum Permissible Errors

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

### Tests

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

## FIGURE S419 - 1



Nuweigh Model JAC 101 Digital Indicator (Pattern)

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## FIGURE S419-2

Nuweigh Model JAC 101 Digital Indicator (Pattern) - Rear View

## FIGURE S419-3

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Nuweigh Model JAC 101 Digital Indicator in a Stainless Steel Housing (Variant 1)

FIGURE S419-4



Nuweigh Model JAC 101 Digital Indicator – multiple range (Variant 2)

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