Australian Government
National Measurement Institute
Bradfield Road, West Lindfield NSW 2070

Certificate of Approval

NMI 6/9C/310

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.

Scales Plus Model NSB-2040-6 Weighing Instrument

submitted by Scales Plus
Shop 1, 53 Belmont Ave
Belmont WA 6104

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 1/10/17, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variant 1 approved – certificate issued	7/09/12
1	Variants 2 to 4 approved – certificate issued	5/08/14

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 6/9C/310' 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.

Special

This approval shall NOT be used in conjunction with General Certificate No 6B/0.

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 6/9C/310

1. Description of Pattern approved on 7/09/12

The Scales Plus model NSB-2040-6 class (III) single interval self-indicating non-automatic weighing instrument (Figure 1 and Table 1) of 6000 kg maximum capacity with a verification scale interval of 2 kg. May also be known as Fidelity Measurement instruments of the same model.

The instrument is fitted with an LCD display for display of the weight value.

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

1.1 Basework

The Fidelity Measurement Company Limited model NSB-2040 basework (Figure 1a) has a load receptor directly supported by four load cells fitted with adjustable feet.

This model basework has nominal dimensions of 2000 × 4000 mm.

1.2 Load Cells

Four Keli model SQB-5000 C3 load cells of 5000 kg capacity are used and are mounted as shown in Figure 1b.

1.3 Levelling

Instruments are provided with levelling feet and must be levelled and then installed in a permanently fixed location.

Alternatively, instruments are provided with adjustable feet and a level indicator. A notice advising that the instrument must be level when in use (or similar wording) shall be provided in a visible location.

1.4 Indicator

A Fidelity Measurement Company Limited model AFM-18 digital indicator is used (Figure 2). May also be known as Scales Plus indicators of the same model.

1.4.1 Zero

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.

A zero-tracking device may be fitted.

1.4.2 Tare

A semi-automatic subtractive tare device of up to the maximum tare capacity of the instrument may be fitted.

A pre-set and/or automatic subtractive tare device of up to the maximum capacity of the instrument may be fitted.

1.4.3 Display Check

A display check is initiated whenever power is applied.

1.4.4 Additional Features

Instruments may be fitted with a number of additional functions including set-point facility, checkweighing ('capacity track bar'), animal weighing ('weighing unstable sample'), percentage (%) and counting ('pcs', 'kg/PCS' and 'g/PCS'). 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 also be fitted with a 'weighing unstable sample' or 'animal weighing' function. This function shall not be used for trade use.

1.4.5 Power Supply

Power for the instrument may be supplied by:

- an AC/DC mains adaptor; and/or
- an internal 6v rechargeable battery.

Note: The AC/DC mains adaptor supplied for the instrument was a model YOUHONG-1201 (12 V, 1A) – the submittor should be consulted regarding the acceptability of alternative power supply units.

1.4.6 Interfaces

Instruments 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 S1/0B (in particular in regard to the data and its format).

Instruments may be fitted with an RS-232 serial data interface and a TTL relay/com port.

1.4.7 Linearisation Facility

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

1.5 Sealing Provision

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

The instrument automatically increments a configuration and/or calibration value each time the indicator is re-configured and/or calibrated. The value of the counters can be seen in the switch-on display sequence (when power is first applied to the indicator).

The value(s) of these counters shall be recorded at verification on a destructible adhesive label attached to the instrument (e.g. as CALCnt xx, PErCnt yy).

Any subsequent alteration to the calibration or configuration will be evident as the recorded values and the current counter values will differ.

No mechanical sealing is required.

1.6 Verification Provision

Provision is made for the application of a verification mark.

1.7 Descriptive Markings and Notices

Instruments are marked with the following markings:

Manufacturer's mark, or name written in full	Scales Plus
Indication of accuracy class	(III)
Pattern approval mark for the instrument	NMI 6/9C/310
Maximum capacity	*Max* ..... kg #1
Minimum capacity	*Min* ..... kg #1
Verification scale interval	*e* = ... kg #1
Serial number of the instrument	…….

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

2. Description of Variant 1 approved on 7/09/12

Certain other capacities of single-interval instruments with various platform sizes, using various capacity Keli SQB series load cells and with other parameters as listed in Table 1.

3. Description of Variant 2 approved on 5/08/14

Certain other models and capacities of single-interval instruments with various sizes, using various Keli SQB series load cells and with other parameters as listed in Table 2.

4. Description of Variant 3 approved on 5/08/14

Certain models and capacities of multiple range instruments with various sizes, using various Keli SQB series load cells and with other parameters as listed in Table 3.

The instruments now use version U3.03 software for multiple range operation.

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

Note:

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
Max	…. kg	…. kg
Min	…. kg	…. kg
e =	…. kg	…. kg

5. Description of Variant 4 approved on 5/08/14

Certain NSB series single-interval models (variant 1) may also be known by the alternative model numbers as listed in Table 4.

6. Description of Variant 5 approved on 5/08/14

The pattern and variants using an alternative Fidelity Measurement Company Limited (aka Scales Plus) model FM-18S digital indicator which has the same specifications as the model AFM-18 described for the pattern but is in an alternative housing (Figure 3).

TEST PROCEDURE No 6/9C/310

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 Schedule 1 of the *National Trade Measurement Regulations 2009*.

TABLE 1 – Approved Models of the NSB Single-interval Series

(The pattern (model NSB-2040-6) is shown in **bold** text.)

Model Number	Maximum Capacity (*Max*) (kg)	Minimum Capacity (*Min*) (kg)	Verification Scale Interval (*e*) (kg)	Dimensions (mm × mm)	Keli SQB Load Cells Used
NSB-1010-1.5	1500	10	0.5	1000 × 1000	SQB-1000
NSB-1010-3	3000	20	1	1000 × 1000	SQB-1500
NSB-1010-6	6000	40	2	1000 × 1000	SQB-2500
NSB-1212-1.5	1500	10	0.5	1200 × 1200	SQB-1000
NSB-1212-3	3000	20	1	1200 × 1200	SQB-1500
NSB-1212-6	6000	40	2	1200 × 1200	SQB-2500
NSB-1215-1.5	1500	10	0.5	1200 × 1500	SQB-1000
NSB-1215-3	3000	20	1	1200 × 1500	SQB-1500
NSB-1215-6	6000	40	2	1200 × 1500	SQB-2500
NSB-1515-1.5	1500	10	0.5	1500 × 1500	SQB-1000
NSB-1515-3	3000	20	1	1500 × 1500	SQB-1500
NSB-1515-6	6000	40	2	1500 × 1500	SQB-2500
NSB-1520-1.5	1500	10	0.5	1500 × 2000	SQB-1000
NSB-1520-3	3000	20	1	1500 × 2000	SQB-1500
NSB-1520-6	6000	40	2	1500 × 2000	SQB-2500
NSB-2020-1.5	1500	10	0.5	2000 × 2000	SQB-1000
NSB-2020-3	3000	20	1	2000 × 2000	SQB-1500
NSB-2020-6	6000	40	2	2000 × 2000	SQB-2500
NSB-2030-1.5	1500	10	0.5	2000 × 3000	SQB-1000
NSB-2030-3	3000	20	1	2000 × 3000	SQB-1000
NSB-2030-5	5000	40	2	2000 × 3000	SQB-1500
NSB-2030-10	10 000	100	5	2000 × 3000	SQB-5000
NSB-2040-1.5	1500	10	0.5	2000 × 4000	SQB-1000
NSB-2040-3	3000	20	1	2000 × 4000	SQB-1500
NSB-2040-5	5000	40	2	2000 × 4000	SQB-2500
NSB-2040-6	**6000**	**40**	**2**	**2000 × 4000**	**SQB-5000**
NSB-2040-10	10 000	100	5	2000 × 4000	SQB-5000

TABLE 2 – Additional Models of the NSB Single-interval Series (Variant 2)

Model Number	*Max* (kg)	*Min* (kg)	*e* (kg)	Dimensions (mm × mm)	Keli SQB Load Cells Used
NSB-0808-1500	1500	10	0.5	800 × 800	SQB-1000
NSB-0810-1500	1500	10	0.5	800 × 1000	SQB-1000

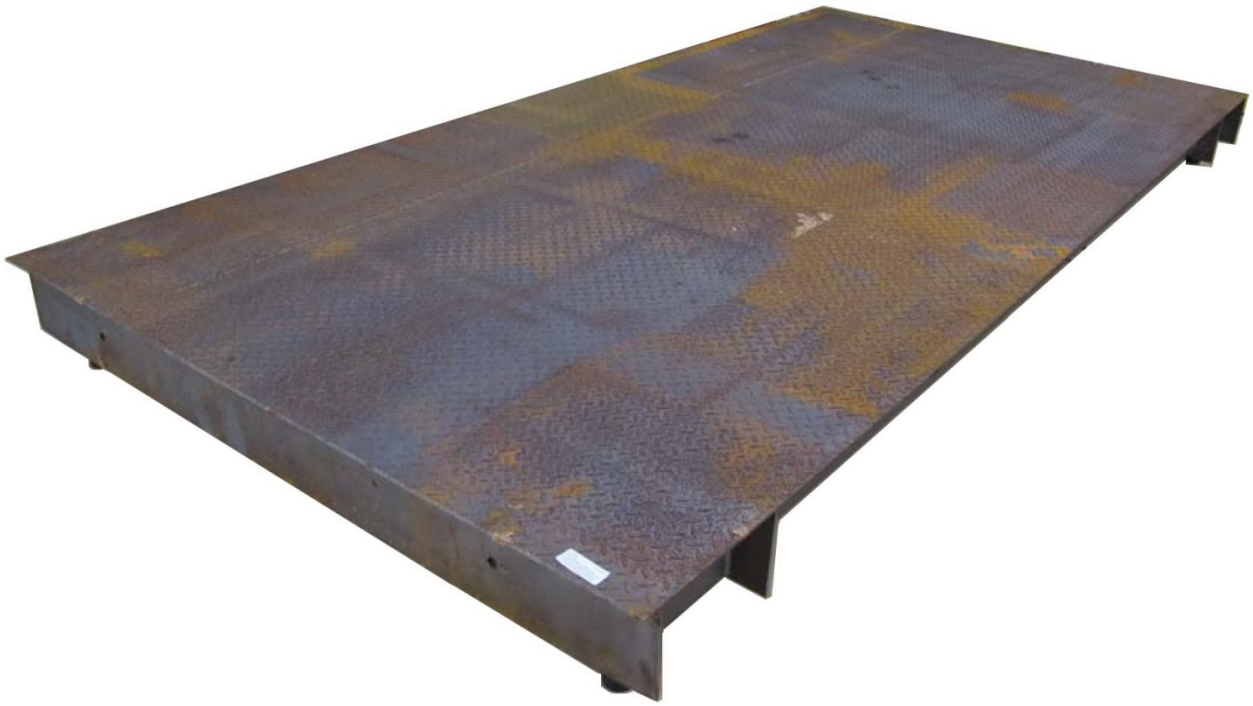
TABLE 3 – Certain Approved Models of the NSB Multiple Range Series (Variant 3)

Model Number	Max_1/e_1 (kg)	Max_2/e_2 (kg)	Min_1/Min_2 (kg)	Dimensions (mm × mm)	Keli SQB Load Cells Used
NSB-0808-3000	1500 / 0.5	3000 / 1	10 / 20	800 × 800	SQB-1500
NSB-0808-6000	3000 / 1	6000 / 2	20 / 40	800 × 800	SQB-2500
NSB-0810-3000	1500 / 0.5	3000 / 1	10 / 20	800 × 1000	SQB-1500
NSB-0810-6000	3000 / 1	6000 / 2	20 / 40	800 × 1000	SQB-2500
NSB-1010-3000	1500 / 0.5	3000 / 1	10 / 20	1000 × 1000	SQB-1500
NSB-1010-6000	3000 / 1	6000 / 2	20 / 40	1000 × 1000	SQB-2500
NSB-1212-3000	1500 / 0.5	3000 / 1	10 / 20	1200 × 1200	SQB-1500
NSB-1212-6000	3000 / 1	6000 / 2	20 / 40	1200 × 1200	SQB-2500
NSB-1215-3000	1500 / 0.5	3000 / 1	10 / 20	1200 × 1500	SQB-1500
NSB-1215-6000	3000 / 1	6000 / 2	20 / 40	1200 × 1500	SQB-2500
NSB-1515-3000	1500 / 0.5	3000 / 1	10 / 20	1500 × 1500	SQB-1500
NSB-1515-6000	3000 / 1	6000 / 2	20 / 40	1500 × 1500	SQB-2500
NSB-1515-10T	6000 / 2	10 000 / 5	40 / 100	1500 × 1500	SQB-5000
NSB-1520-3000	1500 / 0.5	3000 / 1	10 / 20	1500 × 2000	SQB-1500
NSB-1520-6000	3000 / 1	6000 / 2	20 / 40	1500 × 2000	SQB-2500
NSB-1520-10T	6000 / 2	10 000/ 5	40 / 100	1500 × 2000	SQB-5000
NSB-2020-3000	1500 / 0.5	3000 / 1	10 / 20	2000 × 2000	SQB-1500
NSB-2020-6000	3000 / 1	6000 / 2	20 / 40	2000 × 2000	SQB-2500
NSB-2020-10T	6000 / 2	10000 / 5	40 / 100	2000 × 2000	SQB-5000
NSB-2030-3000	1500 / 0.5	3000 / 1	10 / 20	2000 × 3000	SQB-1000
NSB-2030-5000	3000 / 1	5000 / 2	20 / 40	2000 × 3000	SQB-1500
NSB-2030-10T	6000 / 2	10 000 / 5	40 / 100	2000 × 3000	SQB-5000
NSB-2040-3000	1500 / 0.5	3000 / 1	10 / 20	2000 × 4000	SQB-1500
NSB-2040-5000	3000 / 1	5000 / 2	20 / 40	2000 × 4000	SQB-2500
NSB-2040-10T	6000 / 2	10 000 / 5	40 / 100	2000 × 4000	SQB-5000

TABLE 4 – Certain Alternative Model Numbers of the NSB Series

Original Model Number	Alternative Model Number
NSB-1010-1.5	NSB-1010-1500
NSB-1010-3	NSB-1010-3000
NSB-1010-6	NSB-1010-6000
NSB-1212-1.5	NSB-1212-1500
NSB-1212-3	NSB-1212-3000
NSB-1212-6	NSB-1212-6000
NSB-1215-1.5	NSB-1215-1500
NSB-1215-3	NSB-1215-3000
NSB-1215-6	NSB-1215-6000
NSB-1515-1.5	NSB-1515-1500
NSB-1515-3	NSB-1515-3000
NSB-1515-6	NSB-1515-6000
NSB-1515-10	NSB-1515-10T
NSB-1520-1.5	NSB-1520-1500
NSB-1520-3	NSB-1520-3000
NSB-1520-6	NSB-1520-6000
NSB-1520-10	NSB-1520-10T
NSB-2020-1.5	NSB-2020-1500
NSB-2020-3	NSB-2020-3000
NSB-2020-6	NSB-2020-6000
NSB-2020-10	NSB-2020-10T
NSB-2030-1.5	NSB-2030-1500
NSB-2030-3	NSB-2030-3000
NSB-2030-5	NSB-2030-5000
NSB-2030-10	NSB-2030-10T
NSB-2040-1.5	NSB-2040-1500
NSB-2040-3	NSB-2040-3000
NSB-2040-5	NSB-2040-5000
NSB-2040-6	NSB-2040-6000
NSB-2040-10	NSB-2040-10T

FIGURE 6/9C/310 – 1



(a) Fidelity Measurement Model NSB Basework

(b) Load Cell Mounting

Scales Plus Model NSB-2040-6 Weighing Instrument

FIGURE 6/9C/310 – 2

Fidelity Measurement (aka Scales Plus) Model AFM18 Indicator

FIGURE 6/9C/310 – 3

Fidelity Measurement (aka Scales Plus) Model FM18S Indicator

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