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

Certificate of Approval

No 6/4D/342

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.

Teraoka Model SM-100 Weighing Instrument

submitted by W W Wedderburn Pty Ltd
101 Williamson Road
Ingleburn NSW 2565

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 **1/12/18**, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variants 1 to 9 approved – certificate issued	4/11/08
1	Variant 10 approved – certificate issued	10/03/11
2	Pattern & variants 1 to 10 reviewed & updated – variants 11 & 12 approved – certificate issued	24/10/12

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 6/4D/342' 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.

Signed by a person authorised by the Chief Metrologist to exercise his powers under Regulation 60 of the *National Measurement Regulations 1999*.

TECHNICAL SCHEDULE No 6/4D/342

1. Description of Pattern approved on 4/11/08

A Teraoka model SM-100 (*) class (III) non-automatic multi-interval self-indicating price-computing weighing instrument (Figure 1) with a verification scale interval e_1 of 0.002 kg for up to 6 kg and with a verification scale interval e_2 of 0.005 kg from 6 kg to 15 kg.

(*) The full model number may have a suffix of up to three alpha characters, and a '+' sign, e.g. the pattern may be known as a model SM-100 PCS+ and variant 4 ('elevated' style) may be known as a model SM-100 EV.

Instruments are fitted with a double-sided column-mounted dot matrix type display. A liquid crystal type display or alternatively a vacuum fluorescent type display may be used. For each side, the display consists of one line for presentation of tare, weight, unit price and price information, and additional following line (or lines) capable of displaying alphanumeric information relating to product look up (PLU) items.

Instruments are fitted with an integral printer, for printing of labels or tickets and also may be provided with a PLU keyboard of various sizes.

Instruments have unit price to $9999.99/kg, price to $99999.99, and a product look up (PLU) facility.

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

The instrument operates from mains AC power (240 V AC, 50 Hz).

1.1 Zero

Zero is automatically corrected to within $\pm 0.25e_1$ whenever power is applied and whenever the instrument comes to rest within $0.5e_1$ of 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.

1.2 Tare

A semi-automatic subtractive tare device and/or non-automatic keyboard-entered pre-set subtractive tare device, each of up to 5.998 kg maximum capacity, may be fitted.

A separate display for tare values is provided.

Pre-set tare values may be associated with product look up (PLU) items.

1.3 Levelling

The instrument is provided with adjustable feet and adjacent to the level indicator is a notice advising that the instrument must be level when in use.

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 means of lead and wire seal or similar and sealing screws, or destructible labels, to restrict access within the instrument housing. Sealing arrangements are shown in Figure 2.

1.7 Descriptive Markings

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	Teraoka
Name or mark of manufacturer's agent	WEDDERBURN
Indication of accuracy class	(III)
Pattern approval mark for the instrument	NMI 6/4D/342
Maximum capacity	*Max* ...../..... g or kg #
Minimum capacity	*Min* ..... g or kg #
Verification scale interval	*e* = .../..... g or kg #
Maximum subtractive tare	*T* = - ……. g or kg
Serial number of the instrument	…….

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 4/11/08**

The pattern or variants as multi-interval instruments of certain capacities as listed below:

(i) A multi-interval instrument with a verification scale interval of 0.001 kg up to 3 kg and with a verification scale interval of 0.002 kg from 3 kg up to 6 kg, and with a maximum semi-automatic and pre-set tare capacity of 2.999 kg; and

(ii) A multi-interval instrument with a verification scale interval of 0.005 kg up to 15 kg and with a verification scale interval of 0.01 kg from 15 kg up to 30 kg, and with a maximum semi-automatic and pre-set tare capacity of 9.995 kg.

3. Description of Variant 2 **approved on 4/11/08**

The pattern or variants as single interval instruments of certain capacities as listed in Table 1 below:

A semi-automatic subtractive tare device and/or a keyboard-entered pre-set subtractive tare device, each of up to the maximum tare capacity shown in Table 1, may be fitted.

TABLE 1

Max	3 kg	6 kg	15 kg	30 kg
e	1 g	2 g	5 g	10 g
T	1.499 kg	2.998 kg	7.495 kg	9.990 kg

Max = maximum capacity of the instrument
e = verification scale interval
T = maximum tare capacity

4. Description of Variant 3 approved on 4/11/08

The pattern or variants as ‘bench’ style instruments which are similar to the pattern but in which the customers and/or vendors display is incorporated within the main instrument housing (Figure 3 shows an instrument with both displays incorporated within the main instrument housing).

5. Description of Variant 4 approved on 4/11/08

The pattern or variants with both customer and vendor displays consisting of only one line for presentation of tare, weight, unit price and price information – the additional line(s) described for the pattern, for alphanumeric PLU data, are not provided. Figure 3 shows a ‘bench’ style instrument with one line display, instruments with column-mounted displays similar to the pattern may also have only one display line.

The display of the commodity name appears for a short period following its selection (i.e. after a PLU is selected) and the weighing and pricing information is always displayed whilst a label is printing.

6. Description of Variant 5 approved on 4/11/08

The pattern or variants with a top loading cassette style housing as shown in Figure 4. Provision is made for the calibration adjustments to be sealed by means of destructible labels placed as shown in Figure 4.

7. Description of Variant 6 approved on 4/11/08

The pattern or variants known as ‘elevated’ style instruments (Figure 5) which are similar to the pattern however, the operator keyboard and the operator and customer displays are mounted on the column rather than attached to the main instrument housing.

An alternative style in which one or more large PLU keyboards are provided is also approved (Figure 6).

8. Description of Variant 7 approved on 4/11/08

‘Hanging’ style versions of the pattern or variants, which are similar to the pattern but with a suspended load receptor. Instruments may have single line displays as described in variant 4 (Figure 7) or may have multiple line displays as described for the pattern.

The instrument is firmly mounted to a mounting rod and is provided with a level indicator; adjacent to the level indicator is a notice advising that the instrument must be level when in use.

Provision is made for the calibration adjustments to be sealed by means of destructible labels, as also shown in Figure 7.

9. Description of Variant 8 approved on 4/11/08

The pattern or variants without a customer display in which case instruments are either:

(a) NOT FOR TRADING DIRECT WITH THE PUBLIC in which case instruments carry a notice to this effect; or

(b) Used in a self-service arrangement which provides a product look up keyboard, as well as providing tare, weight, unit price and price displays. A display of tare values (which may be stored against PLU items) is also provided. The model described in variant 6 and shown in Figure 6 is a typical example of such an instrument.

Note: It is not required that access to the zero setting facility be available to customers in a self-service arrangement. However access to the zero setting facility shall be available to staff of the particular store, and it is expected that measures will be in place to ensure that the zero condition of the instrument is checked regularly.

10. Description of Variant 9 approved on 4/11/08

The models of the SM-100 series may be connected in a network with compatible approved Teraoka instruments, to share common PLU data, for totalisation across instruments ('floating system'), and to accumulate and retrieve management information.

In addition, the network may be interfaced with a computer for the collection of management data, or the downloading of PLU data.

Note: The weighing and price-computing functions of each weighing instrument in the network are independent, and the removal, repair or replacement of a particular weighing instrument does not necessitate reverification of any other weighing instrument in the network.

11. Description of Variant 10 approved on 10/03/11

The Teraoka SM-5100 (*) series of class (III) non-automatic multi-interval self-indicating price-computing weighing instruments (Figures 8 and 9) which have the same features and functions as the SM-100 series (the pattern and variants, except variant 5) but are in different housings.

(*) The full model number may have a suffix of up to three alpha characters, e.g. the model SM-5100 P (similar to the pattern) and the 'elevated' style may be known as a model SM-5100 EV (Figure 8).

12. Description of Variant 11 approved on 24/10/12

The Teraoka SM-100(1) series which have the same functions as the SM-100 series (the pattern and variants 1 to 9) but have different printed circuit boards.

May also be known as the SM-110 series.

13. Description of Variant 12 approved on 24/10/12

The Teraoka SM-5100(1) series which are similar to the SM-5100 series (variant 10) but have different printed circuit boards.

TEST PROCEDURE No 6/4D/342

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

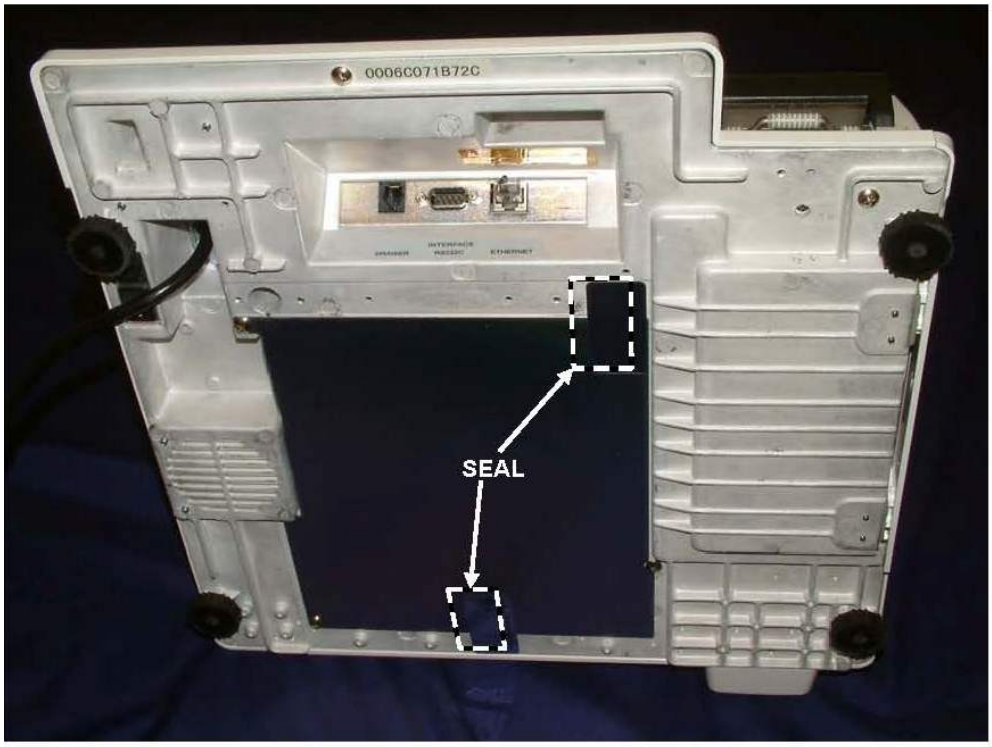
The maximum permissible errors are specified in Schedule 1 of the *National Trade Measurement Regulations 2009*.

For multi-interval 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 6/4D/342 – 1

Teraoka Model SM-100 Weighing Instrument
with column mounted, two-line display

FIGURE 6/4D/342 – 2



Typical Sealing Arrangements Teraoka Model SM-100

FIGURE 6/4D/342 – 3

Teraoka Model SM-100 Bench-style Instrument

FIGURE 6/4D/342 – 4

Teraoka Model SM-100 Top-loading Cassette Style Instrument – Variant 5
(Including Typical Sealing Arrangements)

FIGURE 6/4D/342 – 5

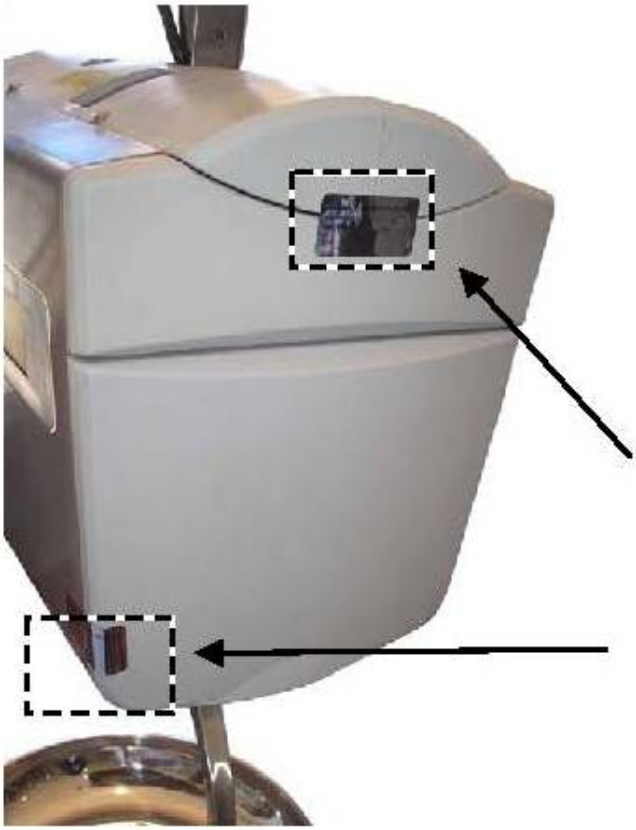
Teraoka SM-100 Elevated-style Instrument

FIGURE 6/4D/342 – 6

Teraoka SM-100 Instrument with two PLU keyboards
(typical self-service model)

FIGURE 6/4D/342 – 7

Below view is from left side



Teraoka Model SM-100 Hanging-style Instrument
(Including Typical Sealing Arrangements)

FIGURE 6/4D/342 – 8

SM-5100B operator view

SM-5100B with label cassette open

SM-5100P operator side

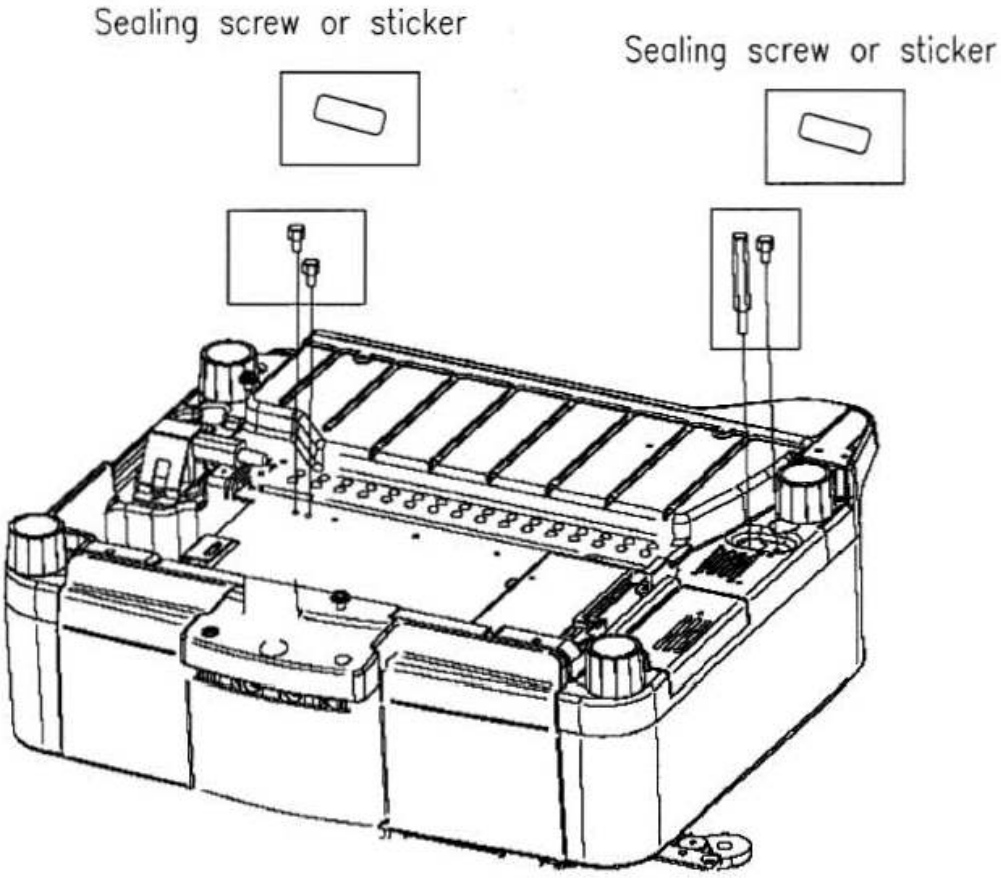
SM-5100P customer side

SM-5100EV operator side

SM-5100EV customer side

Some Teraoka SM-5100 Series Instruments

FIGURE 6/4D/342 – 9



Typical Sealing Arrangements – Teraoka SM-5100 Series

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