

Australian Government

Department of Industry, Innovation and Science

National Measurement Institute

Certificate of Approval NMI 6/4D/362

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 DIGI SM-5600 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 **1/10/22**, and then every 5 years thereafter.

Rev	Reason/Details	Date
0	Pattern & variants 1 to 8 approved – certificate issued	22/09/11
1	Variant 9 approved – certificate issued	21/09/12
2	Variant 10 approved – certificate issued	2/11/12
3	Pattern & variants 1 to 10 updated & reviewed – certificate	6/12/16
	issued	

DOCU3ENT HISTORY

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 6/4D/362' 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

Certain aspects of this instrument (in particular label and ticket formats) are able to be configured by the user. Whilst NMI believes that acceptable label and ticket formats can be achieved for typical basic sales modes, it is also possible for the instrument to be configured to produce unacceptable formats, and use of some formats may be inappropriate for different sales modes. It is the responsibility of the user to ensure that acceptable and appropriate formats are used in any particular situation.

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

Mario Zamora

TECHNICAL SCHEDULE No 6/4D/362

1. Description of Pattern

approved on 22/09/11

A Teraoka model DIGI SM-5600 class non-automatic self-indicating pricecomputing multi-interval weighing instrument (Figure 1) with a verification scale interval (e_1) of 0.002 kg up to 6 kg and a verification scale interval (e_2) of 0.005 kg from 6 kg up to the maximum capacity of 15 kg. Instruments may also be known as model DIGI SM-5600B.

Instruments are fitted with a large operator touchscreen attached to the main instrument housing on the operator side and a customer display integrated into the instrument housing. The operator displays consists of a large display for presentation of tare, weight, unit price and price information, zero and net indicators.

Instruments are fitted with an integral printer, for printing of labels, receipts and tickets.

Instruments have unit price to \$9999.99/kg, price to \$99999.99, and have a product look up (PLU) facility and an image and/or product description relating to PLU items may also be displayed. Additional information and/or images may also be presented on the displays.

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

The instrument operates from mains AC power (240 V AC, 50 Hz) or a rechargeable battery supply of 12 V DC.

1.1 Zero

A zero-tracking device may be fitted.

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 tare capacity, may be fitted.

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

A separate display of tare values is provided.

1.3 Display Check

A display check of customer display is initiated whenever power is applied. The display check of the operator display is carried out whenever the ZERO button is pressed.

1.4 Levelling

The instrument is provided with adjustable feet.

1.5 Descriptive Markings

Instruments carry the following markings:

Manufacturer's mark, or name written in full Name or mark of manufacturer's agent	Teraoka WEDDERBURN	
Indication of accuracy class	\blacksquare	
Pattern approval mark for the instrument	NMI 6/4D/362	
Maximum capacity	<i>Max</i> g or kg	#1
Minimum capacity	<i>Min</i> g or kg	#1
Verification scale interval	e = g or kg	#1
Maximum subtractive tare	<i>T</i> = g or kg	#2
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 This marking is required if *T* is not equal to *Max*.

Note:

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/ g or kg
Verification scale interval	e = g or kg

1.6 Verification Provision

Provision is made for the application of a verification mark.

1.7 Sealing Provision

Access to the switch, located within the instrument housing, that restricts calibration access is prevented by sealing in two places – beneath the platter (Figure 2), and on the underside of the instrument (Figure 3).

To check that the switch has been set correctly to restrict calibration access:

• Press MENU, then MAINTENANCE, and then CALIBRATION.

If the display shows "Please turn on span switch" this indicates that the switch has been set to restrict calibration.

If the display shows otherwise, then the calibration access is not adequately restricted – this must be rectified before verification.

2. Description of Variant 1

approved on 22/09/11

approved on 22/09/11

The pattern or variants as multi-interval instruments of certain other capacities as listed in Table 1 below (the pattern is shown in **bold**).

Maximum Capacity	Verification Scale Interval	Maximum Subtractive
(Max1 / Max2)	(e1/e2)	Tare Capacity $(T =)$
3 / 6 kg	1 / 2 g	2.999 kg
6 / 15 kg	2 / 5 g	5.998 kg
15 / 30 kg	5 / 10 g	9.995 kg

TABLE 1 – multi-interval instruments

3. Description of Variant 2

The pattern or variants as single interval instruments of certain capacities as listed in Table 2 below. A semi-automatic subtractive tare device, and/or a keyboardentered pre-set subtractive tare device, each of up to the maximum tare capacity shown in the table, may be fitted.

Maximum Capacity	Verification Scale Interval	Maximum Subtractive
(Max)	(<i>e</i>)	Tare Capacity $(T =)$
6 kg	1 g	5.999 kg
6 kg	2 g	5.998 kg
12 kg	2 g	9.998 kg
15 kg	5 g	9.995 kg
30 kg	5 g	9.995 kg
30 kg	10 g	29.99 kg

TABLE 2 - single interval instruments

4. Description of Variant 3

approved on 22/09/11

approved on 22/09/11

approved on 22/09/11

The pattern or variants with the customer display mounted on a column rather than within the main instrument housing (Figure 4). These instruments may also be known as a model SM-5600P.

5. Description of Variant 4

The pattern or variants as 'elevated' style instruments are similar to the pattern however the operator touchscreen display and the customer display are mounted on a column rather than attached to the main instrument housing (Figure 5). These instruments may also be known as a model SM-5600EV.

6. Description of Variant 5

The pattern or variants without a customer display (Figure 6) 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 (PLU) touch screen display, as well as providing mass, unit price, price displays.

These instruments may also be known as a model SM-5600BS.

- Note 1: 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.
- Note 2: When used in a self-service arrangement, all keys on the touch screen keyboard, other than the REZERO key, may be disabled or removed. The TARE key is not functional with this arrangement. The use of totalisation across instruments ('floating system') arrangement is not approved for use in self-service arrangement.

7. Description of Variant 6

approved on 22/09/11

The pattern and variants 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 1: 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.
- Note 2: The use of a totalisation across instruments ('floating system') arrangement in this variant is not approved for use in self-service arrangement.

8. Description of Variant 7

approved on 22/09/11

The pattern and variants may be fitted with certain additional devices (Figure 7), as follows:

- (i) an external colour monitor, or a large colour monitor, or an 'electro luminescent' display as the customer display, either attached to the instrument or separately mounted as a remote display.
- (ii) an additional display (i.e. a third display) which may be used for advertisement or other non-metrological functions.
- (iii) a second printer either attached to the main instrument or separately mounted as a remote printer for printing labels, receipts or tickets.
- (iv) an operator console with touchscreen and keypad.
- (v) integrated peripheral and/or auxiliary devices such as a scanner, card reader, and proximity reader.
- (vi) remote 'Hi-Touch' devices for selection of PLUs.
- (vii) a camera mounted above the load receptor (to facilitate product recognition).

9. Description of Variant 8

approved on 22/09/11

The pattern and variants may be fitted with an external basework when the integral basework is either disabled or removed. The approved external baseworks are shown in the tables below.

10. Description of Variant 9

approved on 21/09/12

The pattern or variants, having its software separated into 'legally relevant software' and 'application program(s)'.

The 'legally relevant software' interfaces with the weighing hardware, carries out zeroing, computation of price based on the weight and unit price values, tare and pre-set tare functions, and displays results on the indicator(s) of the instrument (including tare value, weight value, unit price and price). Two display arrangements are shown in Figure 8.

The approved version of the 'legally relevant software' is version 1.2. The software version number is displayed on the weighing instrument display (Figure 8).

An 'application program' interfaces to the legally relevant software to initiate zero and tare operations and pre-set tare functions and to provide unit price information (including providing applicable pre-set tare and unit price values). The 'application program' controls the instrument touch screen (other than the area controlled by the 'legally relevant software' mentioned above), and the printing of label or transaction records. It may provide, or interface to, other software for the storage of product-look-up (PLU) data (including pre-set tare and unit price values), and other purposes.

10.1 Sealing

To check that the switch that restricts calibration access has been set correctly to restrict calibration access:

- Observe the weight and unit price display if "SPAN SWITCH ON" is shown in this area it indicates that the switch has NOT been set to restrict access this must be rectified before verification.
- If this is not shown, the switch has been set to restrict calibration.

10.2 Notes/Conditions:

- The legally relevant software must be provided.
- Only submittor-authorised application software is permitted.
- Regardless of the application software used, the instrument operation must comply with this approval and relevant NMI requirements.
- Totalisation of items shall not occur without a transaction being provided.

11. Description of Variant 10

approved on 2/11/12

The pattern and variants may be provided with adjustable feet and an automatic tilt sensor/compensation device that automatically compensates for out of level conditions of less than $\pm 3^{\circ}$ in longitudinal or transverse directions. If the instrument reaches or exceeds this tilt value then the weight indications are replaced by a series of dash bars (- - -) and the price-to-pay indications are inhibited.

TABLE 3 – Single In	nterval Baseworks
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Make	Teraoka							
Basework model	SX-C or S-YC							
Platform size, mm		3	352 × 292	(for SX-C)	or 341 × 2	284 (for S-	YC)	
Max, kg	6		12	15	3	0	6	60
e, kg	0.001	0.002	0.002	0.005	0.005	0.01	0.01	0.02
T, kg	5.999	5.998	9.998	9.995	9.995	29.99	59.99	59.98
Load cell make	Teraoka							
Load cell model				K	type			
Load cell Emax, kg	9		22	2.5	4	5	90	
No of load cell	1							
Load cell sensitivity at Emax	1.5 mV/V							
Input impedance	430 Ω							
Excitation voltage (maximum)	20V DC (Max)							
Cable length (±0.1m) (#)	3 m							
No of leads (plus shield)	4							

TABLE 4 – Multi-interval Baseworks

Make	Teraoka					
Basework model	SX-C or S-YC					
Platform size, mm	35	52 × 292 (for SX-C) c	or 341 × 284 (for S-Y	′C)		
Max, kg	3/6	6/15	15/30	30/60		
e, kg	0.001/0.002	0.002/0.005	0.005/0.010	0.010/0.020		
T, kg	2.999	5.998	9.995	29.99		
Load cell make	Teraoka					
Load cell model	K type					
Load cell Emax, kg	9	22.5	45	90		
No of load cell	1					
Load cell sensitivity at Emax	1.5 mV/V					
Input impedance	430 Ω					
Excitation voltage (maximum)	20V DC (Max)					
Cable length (±0.1m) (#)	3 m					
No of leads (plus shield)	4					

Max = maximum capacity of the basework

- e = verification scale interval
- T = maximum subtractive tare capacity (T = ...)
- (#) The load cell cable length supplied with the basework shall not be shortened.

TEST PROCEDURE No 6/4D/362

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 and 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.

Test Procedure (additional items specific to Variant 9)

- a) Check the software version of the legally relevant software.
- b) Check that the format of labels and transaction records complies with the requirements of NMI General Supplementary Certificate No S1/0B.

This check shall include a minimum of 5 checks spanning the measurement range of the measuring instrument. For these checks, ensure that any label or transaction record is:

- correctly repeating the result of the indication provided by the (legally relevant software); and
- correctly totalising the price indications.
- c) Check, for a non-weighed item, that the price calculation is correct where a number of items are selected (e.g. for an item with price-per-item of \$1.23/pc, if 3 items (3pc) are entered, the price should be \$3.69).
- d) Checks shall be conducted to ensure that the device will not print above the approved maximum capacity or below zero.
- e) For network systems, check that the measurement data printed on the transaction record is correctly reproduced from each device connected in the network.



(Operator Side)



(Customer Side)

Teraoka Model DIGI SM-5600 Weighing Instrument (The pattern)

Sealing provided by a cover over access to the 'calibration switch', which is sealed by either a lead and wire or similar type seal through drilled heads of two screws holding the cover in place and/or by use of a destructible adhesive label (or labels) over the cover, such that any removal of the cover would be evident.



Destructible adhesive label

Drilled screws for lead & wire or similar type seal



Typical Sealing of the Calibration Access

Sealing to prevent access within the instrument housing is provided by use of a destructible adhesive label over a cover which prevents access to a screw which holds the two halves of the instrument together. Alternatively a lead and wire or similar type seal may be used through drilled heads of two screws, one of which (the extended screw) holds the two halves of the housing together.





Teraoka Model DIGI SM-5600 Weighing Instrument – Variant 3 (Column-mounted displays version – operator side)



Teraoka Model DIGI SM-5600 Weighing Instrument – Variant 3 (Column-mounted displays version – customer side)



Teraoka Model DIGI SM-5600 Weighing Instrument – Variant 4 (Elevated displays version – operator side)



Teraoka Model DIGI SM-5600 Weighing Instrument – Variant 4 (Elevated displays version – customer side)



Teraoka Model DIGI SM-5600 Weighing Instrument (Self Service/Pre-pack Version – Variant 5



Teraoka model SM-5600 fitted with a small operator touchscreen and keypad mounted in front of the base and with a Electro Luminescent customer screen mounted on the customer side



Teraoka model SM-5600 fitted with a small operator touchscreen and keypad mounted in front of the base and with an additional remote display



column above the base



Teraoka model SM-5600 fitted with an Teraoka model SM-5600 fitted with an additional printer, small operator touchscreen additional printer, large operator touchscreen and keypad and with a Electro Luminescent and a large customer display mounted on a customer screen all mounted on a column above the base



Teraoka model SM-5600 fitted with an additional printer, small operator touchscreen and keypad, and a small customer display all mounted on a column above the base and with an additional remote display

Examples of Certain Additional Devices (Variant 7)



(a) Legally relevant display

Wedderburn Version 1.2 Max 615kg Min 40g e = 35g	0.000	1.002	UNI	9.65		TOTAL 9	.67
MORTADELL	A PLAIN SHAVED	0					0.00
41	7610	1359	8088	TARE 2G	TARE SG	TARE 10G	TARE 20G
SATAY STYLE	CHEXEN BREAST SCHNITZEL	PLAIN SHAVED	FRESH	Manual	Label Receipt	Reports	View Label
98466 PRAIAN TIGER CKD AUSSIE LCE	8552 SALAD COLESLAW	SALAMI HOT HUNGARIAN		7		9	
				4	5	6	ZERO
				10	2	ар: Г	FEED
				0	CLEAR	TARE	×
Clerk 1 Clerk 2	Clerk 3 Clerk 4			PLU	PRINT		CLOSE

(b) Legally relevant display with example of application display

Wedderburn	TARE kg	WEIGHT kg	UNIT PRICE \$/kg	TOTAL PRICE \$
Max 6/15kg Min 40g e = 2/5g	0.000	0.000	0.00	0.00

(c) Legally relevant display on operator display and similar display orientation on customer display, may be located at top or bottom of screen

TARE kg WEIGHT kg	ZERO	0.000 0.000
UNIT PRICE \$/kg		0.00
TOTAL PRICE \$		0.00
Max 6/15kg	Min 40g	e = 2/5g

(d) Alternative orientation for customer display, located at side of screen