



Australian Government
**National Measurement
Institute**

Bradfield Road, West Lindfield NSW 2070

General Supplementary Certificate of Approval

No S1/0B

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.

Electronic indicating, summing or printing devices which are interfaced and auxiliary to an approved measuring instrument.

This Certificate of Approval relates to the suitability of the pattern of the instruments for use for trade only in respect of its metrological characteristics. The Certificate does not constitute or imply any guarantee of compliance by the manufacturer or any other persons with any requirements regarding safety.

This approval becomes subject to review on 1/08/16, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern approved – certificate issued	21/07/11
1	Pattern updated – minor amendments – certificate issued	18/07/12
2	Pattern updated – Test Procedure amended – certificate issued	21/08/12
3	Pattern updated – minor correction to a sample label – certificate issued	18/01/13

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked, by the person presenting the instrument for verification or by the verifier, with approval number NMI S1/0B.

It is the responsibility of the person presenting instruments for verification to ensure that all instruments marked with this approval number are constructed as described in this General Supplementary Certificate of Approval and Technical Schedule. Failure to comply with this Condition may attract penalties under Section 19B of the National Measurement Act.

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

A handwritten signature in black ink, appearing to read 'A Rawlinson', with a horizontal line underneath.

Dr A Rawlinson

TECHNICAL SCHEDULE

1. Description of Pattern **approved on 18/07/11**

Electronic indicating, summing or printing devices which are interfaced with and auxiliary to an approved measuring instrument. These additional devices are designed to supplement or provide indication, summing or printing capability for the measuring instrument approved by the National Measurement Institute and are capable of duplicating the price, unit price and/or measurement data displayed on the measuring instrument for one or more of the parties to the transaction.

Such devices are interfaced to an approved measuring instrument in use for trade, to duplicate (but not calculate) price, unit price and/or measurement data, and may take the form of a digital indicator, local secondary indicator, remote indicator, summing indicator, label or ticket printer, computer printout, docket printer or similar.

1.1 Scope of Approval

Devices covered by this certificate of approval shall only have the capability of faithfully reproducing those indications of measurement data (quantity, price and unit price) displayed on the measuring instrument.

These devices are usually interfaced via digital data communication port/s (data port/s) on the measuring instrument, provided for that purpose and nominated in the pattern of the measuring instrument. More than one such device may be attached to a measuring instrument.

Devices covered by this certificate of approval can receive information from an approved measuring instrument however it is NOT permitted for devices to:

- control a function on the measuring instrument; or
- modify the indication of the measured quantity on the primary indicator; or
- store calibration or other measurement related data for use by the measuring instrument; or
- control self-service arrangements for fuel dispensers; or
- convert the result of a measurement, other than as a simple summing indicator, e.g. through price calculation or stored or pre-set tare.

Auxiliary devices (usually electronic cash registers) which only capture total price data are not required to be approved for use for trade. In this case the measuring instrument performs all calculations and measuring functions and displays the results of those measurements and calculations to both parties involved in the transaction. The result of the transaction (i.e. the total price) is captured by the device for printing or similar output.

1.2 General Requirements

1.2.1 Denomination of Indications

Indications of measured quantity (volume, mass, length, etc.) shall be accompanied by the unit of measurement or its symbol.

Indications of price and unit price shall include the appropriate units of indication, e.g. \$ or \$/kg. A list of acceptable units of measurement and symbols are shown in Appendix 1.

Where measured quantity is used to determine price, the measured quantity must be shown and be in the same units as the measuring instrument from which the data was derived.

1.2.2 Arrangement of Digits

Indications shall be clear and arranged to permit reading easily and without the need for calculation.

Digits shall be horizontally aligned and oriented in the normal viewing position. The decimal marker on numbers less than unity shall be preceded by one zero digit (e.g. 0.5 kg).

Non-significant digits (i.e. additional leading zeros) shall not be shown, e.g. 050 kg. This does not apply to price indications.

1.2.3 Scale Interval and Units of Measurement

All auxiliary devices shall have the same scale interval as the measuring instrument, and shall indicate or print values in the same units of measurement.

1.2.4 Fraudulent Use

Devices shall have no characteristics likely to facilitate fraudulent use.

1.2.5 Indication of NET and Tare Values

Measured quantities which have been automatically adjusted (e.g. to take into account the mass of packaging) must be accompanied by an indication of 'NET' or 'N'.

Note: It is not mandatory for the word 'net' to appear on labels for **pre-packaged items**.

Preset tare values shall be accompanied by an indication of 'Tare', 'Preset tare' or 'PT'.

For information relating to measurements made by a weighbridge, the measurements should always be associated with the word 'Gross', 'Tare' or 'Net' as appropriate.

1.2.6 Markings

Devices purporting to comply with this approval shall be marked in a clear and permanent manner, in one easily accessible location on the main body of the auxiliary device, with the following information:

Manufacturer's or importer's name or mark (*)
Serial number or other unique identifier
NMI approval number	NMI S1/0B

(*) if known

1.2.7 Sealing

Devices covered by this approval are not required to be sealed.

1.2.8 Verification Mark

These instruments are not required to carry a verification mark.

1.2.9 Supplementary information

Additional information, such as management data, which is outside the scope of these requirements, may be provided on the indicator or on the printed record of the transaction.

This information must not confuse, be inconsistent with, or qualify the meaning or accuracy of measurement data (including quantity, unit price or price).

This information shall not infringe upon the display area designed for the measurement data.

1.3 Specific Requirements

In addition to the General Requirements set out in section 1.2, instruments must meet all of the applicable Specific Requirements set out below for:

- Electronic Indication, and
- Printed Information.

1.3.1 Electronic Indication

1.3.1.1 Clarity of Indication

Indications shall be clearly visible to the party for whom the indication is intended, they shall be clear, unambiguous and stable, to allow easy reading of the values displayed. Where the device sums a number of transactions, the current line transaction shall be shown.

1.3.1.2 Required Measurement Information

The information below is required to be shown once for each transaction (as applicable):

- measured quantity;
- unit price or price per item; and
- price.

1.3.1.3 Height of Measurement Information

The height of digits, capital letters, symbols, etc. related to measurement information shall be at least 4 mm.

On displays for the customer the height shall be the greater of:

- $3 \times L$ mm, (where L is the reading distance in metres); and
- 9.5 mm.

1.3.2 Printed Information

Printed information shall be clear, indelible and unambiguous.

The decimal marker shall be printed by the printer, not pre-printed on the label or transaction record. A period or comma can be used as the decimal marker.

Printing whilst the measurement data is changing must not be possible.

Some printed label and transaction record examples are shown in Appendix 3.

Note: Printing may also be required to satisfy other statutory legislation, e.g. for date, ABN (Australian Business Number), GST (Goods and Services Tax), use-by/best before dates.

1.3.2.1 Labels

Clarity of Indication

The height of all characters relating to measurement and price shall be not less than 3 mm for labels.

Labels shall be marked (as applicable) with the statements of:

- measured quantity;
- unit price or price per item; and
- price.

If the price and unit price are not applicable, the space where these values are normally printed shall be blank.

1.3.2.2 Transaction Records

1.3.2.2.1 Clarity of Indication

The height of all characters relating to measurement and price shall be not less than 2 mm for transaction records.

1.3.2.2.2 Required Information

Transaction records shall have the following information:

- unique transaction identifier;
- location of the transaction;
- identity of the vendor (in the form of a company name or logo);
- date; and
- time.

Transaction records shall also list the items and include the following for each item:

- a clear descriptor;
- measured quantity or quantity;
- unit price or price per item; and
- price.

When applicable, the application of any credit amount shall be shown, e.g. fuel vouchers.

Any incorrect transactions which appear on the transaction records shall be easily detected, e.g. by repeating the transaction with a symbol indicating a cancellation, or by drawing a line through the transaction.

Pre-determined measurement data which has been entered manually shall be indicated as such.

1.3.2.2.3 Rounding

Rounding of calculations is only permitted on total price and NOT permitted with cheque or card payments. It shall:

- be to the nearest 5 cents or be down to the next lowest '5' or '0';
- show the subtotal before the rounding calculation (unless there is only one line item on the transaction record); and
- show the total price after the rounding calculation.

1.3.2.3 Formatting

The descriptor field shall be at least eight characters long.

Price shall be in its own column and columns shall be separated by at least one space.

Information shall preferably be on a single line or in two lines. If the information is on more than one line then the layout must be consistent throughout the transaction record. The item descriptor shall be on the first line and the price shall be on either the first or last line.

The price column shall:

- be aligned right;
- not contain any other characters;
- be at least six digits wide; and
- not interfere with other printed characters.

Values of measured quantity, unit price and price shall be associated with its denomination, either:

- directly next to the value, e.g. 100 kg, \$1.00; or
- by heading the column for these values by the denomination.

The total price shall always be preceded by the symbol '\$'. The total price shall be highlighted, e.g. by increased font size or **bolding**.

1.3.3 Summing Indicators

A summing indicator is used to display the summed results of the outputs of the primary indicators of two or more measuring instruments in a system. A typical example is a multi-platform weighbridge where a summing indicator is used to display the total output of two or more primary indicators. Primary indicators which are pattern approved with a summing function are not covered by this general certificate.

1.3.3.1 Requirements for Summing Indicator

The value displayed on the summing indicator shall equal the arithmetic sum of the measurement values displayed on each primary indicator being summed.

The scale interval of the summing indicator shall be of a value to suit the sum of the scale intervals of the primary indicators being summed and the summed result. The summing indicator shall be able to display all possible combinations of the scale intervals of all primary indicators, e.g. where the primary indicators are dual range 20 kg and 50 kg, the summing indicator must be able to indicate 70 kg, therefore the summing indicator will need a scale interval of 10 kg.

All indicators in the system shall display the same units of measurement.

The summed value on a summing indicator shall show non-numerical characters if any of the primary indicators display an error message or a negative value.

If the summing indicator is additionally able to display individual indications from each primary indicator, the indication shall show non-numerical characters for any primary indicators displaying an error message or a negative value.

The summing indicator shall indicate the denomination of the value being displayed.

There shall be a discrete display segment check on the summing indicator, unless it is a visual display unit (VDU).

1.3.3.2 Functions of Summing Indicators

Summing indicators may have the facility to select and display the indication of any one primary indicator, or a combination of any of the primary indicators it is being used to sum. It may also simultaneously display all such indications. The selection device shall be so designed that it is obvious which primary indicator(s) are being displayed and/or summed.

VERIFICATION TEST PROCEDURE

Devices covered by this general certificate shall be tested in conjunction with any tests specified by the National Instrument Test Procedure or the approval documentation for the measuring instrument to which the device is connected.

Appendix 1. Acceptable denominations of measured quantity.

Mass	kg; kilogram; tonne; t; gram; g; metric carat; CM; ct.
Volume	litre; kilolitre; megalitre; millilitre, cubic metre; L; kL; ML; mL, m ³ .
Length	metre; centimetre; millimetre; m; cm; mm.
Quantity	quantity; number; piece(s); item(s); count; qty; no.; pc; PCS; cnt.
Unit price	dollars/mv; \$/mv; cents/mv; c/mv, where 'mv' is any of the denominations of mass or volume above. NOTE: pricing in cents, other than c/L, is prohibited for point of sale applications.
Price per item	price/piece(s); price/item(s); price/count; price each; price ea; price/pc(s); price/quantity; price/number; \$/piece; \$/pc(s); \$/item(s); \$/ea; \$ each; \$ ea.
Price	total price \$; price \$; dollars \$; total \$; \$.

In the cases above, the word 'per' is an acceptable alternative to '/'.

In all cases, the use of lower case denominations (other than L for litres, M for mega or CM for metric carat) is preferred, however upper case may be used on an instrument with a limited character set.

Appendix 2. Terminology

Auxiliary Device

A device associated with a measuring instrument which is intended to perform a particular function, directly involved in elaborating, transmitting or displaying measurement results, e.g. electronic indicating, summing or printing devices.

Approved measuring instrument

An instrument which has been pattern approved under the National Measurement Act, and whose Certificate of Approval:

- (a) is currently in force under that provision; or
- (b) has expired or been cancelled (but not withdrawn) under the National Measurement Act and was in force when the instrument was manufactured.

Data Port

A facility on the measuring instrument or the device which permits the transfer of electronic data.

Decimal Marker

A point (.) or comma (,) which delimits decimal numbers.

Denominations

Words or symbols which indicate the units of measurement, e.g. litre, kg.

Descriptors

Alphanumeric characters which describe the article being measured, e.g. T-bone steak, unleaded petrol.

Indicator

A device for displaying the result of a measurement, with or without additional information, including:

- remote indicators which are additional indicators and not part of the approved measuring instrument, usually at some distance from the primary indicator;
- additional indicators for customer use;
- summing indicators; and/or
- a visual display unit (VDU) – a screen on which data and/or graphics can be displayed. May include touch screen functionality.

Note: The **primary indicator** is the indicator that provides the initial source of information from the measuring instrument and is assessed as an integral part of the approved measuring instrument.

Integrated

A device not externally electrically-connected by cables or other means, or is in the same housing as the measuring instrument.

Interface

A device which is used to transfer information from one instrument or device to another or which allows two or more instruments or devices to be connected together.

Label

A statement intended to be attached to a package, usually self-adhesive.

Measuring Instrument

A thing by means of which a measurement of a physical quantity may be made; or a component of such a thing.

Modular

Separately located hardware items (e.g. computer, keyboard, operators display, customers display, cash drawer, transaction record/printing unit) externally electrically-connected by cables or other means.

Point of Sale (POS)

A component of a measuring instrument that is:

- (a) approved for use for trade; and
- (b) used for creating labels, receipts or documents; and
- (c) able to convert the result of a measurement made by the measuring instrument; and
- (d) not able to control the measuring instrument or to affect its metrological performance.

Printer

A device that produces a printed record of a measurement or transaction. The printed record can be:

- a computer generated print-out, such as an invoice or weighbridge transaction document;
- a ticket/receipt; or
- a label.

Summing Indicator

An indicator which is used to sum the measurement values of two or more primary indicators.

Transaction Records


Permanent record of a transaction, e.g. ticket, receipt.

Appendix 3. Examples of Acceptable Formats

A3.1 Labels


The formats shown are some examples of acceptable labels – other formats may be acceptable.

<p><u><i>ABC SUPERMARKETS</i></u></p> <p>Chicken Wings</p> <p>USE BY: 01/07/2010</p>  <p>kg 1.175</p> <p>\$/kg TOTAL 1.00 <u>\$1.18</u></p>	<p><u><i>ABC SUPERMARKETS</i></u></p> <p>Chicken Wings</p> <p>USE BY: 01/07/2010</p>  <p>WEIGHT 1.175 kg</p> <p>\$/kg PRICE 1.00 \$1.18</p>
<p><u><i>ABC SUPERMARKETS</i></u></p> <p>Chicken Wings</p> <p>USE BY: 01/07/2010</p>  <p>\$/kg NET kg 1.00 1.175</p> <p>\$1.18 TOTAL PRICE</p>	<p><u><i>ABC SUPERMARKETS</i></u></p> <p>Chicken Wings</p> <p>USE BY: 01/07/2010</p>  <p>kg 1.175 \$/kg 1.00</p> <p>\$1.18 TOTAL PRICE</p>
<p><u><i>ABC SUPERMARKETS</i></u></p> <p>Chicken Wings</p> <p>USE BY: 01/07/2010</p>  <p>1.175 kg \$1.00/kg</p> <p>\$1.18 TOTAL PRICE</p>	<p><u><i>ABC SUPERMARKETS</i></u></p> <p>Chicken Wings</p> <p>USE BY: 01/07/2010</p>  <p>1.175 kg</p> <p>\$/kg PRICE 1.00 \$1.18</p>

ABC SUPERMARKETS
Chicken Kebabs
USE BY: 01/07/2010

12 items
\$1.00/item
\$12.00

ABC SUPERMARKETS
Chicken Kebabs
USE BY: 01/07/2010

12 @ \$1.00/pc
\$12.00

ABC SUPERMARKETS
Chicken Kebabs
USE BY: 01/07/2010

QUANTITY
12 PCS
@\$1.00/item
\$12.00
TOTAL PRICE

ABC SUPERMARKETS
Chicken Wings
USE BY: 01/07/2010

kg \$/kg
1.175 1.00
\$1.18
TOTAL PRICE

ABC SUPERMARKETS
Chicken Wings
kg \$/kg PRICE
1.175 1.00 \$1.18

USE BY:
01/07/2010

ABC SUPERMARKETS
Chicken Wings
1.175 kg \$1.00/kg
TOTAL PRICE \$1.18

USE BY:
01/07/2010

ABC SUPERMARKETS
Chicken Wings



01/07/2010
USE BY


0 200190 001256

1.175	1.00	\$ 1.18
NET WT kg	PRICE \$/kg	TOTAL PRICE

ABC SUPERMARKETS
**Chicken Wings
(Marinated)**

Ingredient and Nutritional
Information Panel

USE BY: 01/07/2010



kg	11.175
\$/kg	2.99
	\$33.41
	TOTAL PRICE

0 200190 001256

A3.2 Tickets/Receipts

Matt's Supermarkets Qld	
TAX INVOICE – ABN: 00 000 000 000	
33 Kingtel Place	
Geebung QLD 4034	
Phone: 1300 686 664	
Receipt No: 001	

Date: 01/07/2010	Time: 09:54
Reg 1 Served by: Helen	

	\$
WASHED POTATOES	
2.110 kg NET @ \$3.00/kg	6.33
BROWN ONIONS	
1.260kg NET @ \$3.99/kg	5.03
MUSHROOMS	
0.885 kg @ \$6.98/kg	6.18
KIWI FRUIT	
Quantity: 10 @ \$0.85 ea	8.50
PINEAPPLE	
Quantity 1 @ \$6.01 ea	6.01
PINEAPPLE	
Quantity 1 @ \$5.95 ea	5.95
% COLA 2 L	2.43
FAMILY BISCUITS DIGESTIVE 300 g	1.69
Subtotal	36.11
Rounding	- 0.01
-	
Total	\$36.10
Cash	50.00
Change	13.90
GST Included in Total	0.22
Please retain receipt for refund or exchange purposes	
% = Taxable items	

FRED'S GARAGE	
BRADFIELD ROAD	
LINDFIELD WEST NSW 2070	
TAX INVOICE – ABN: 00 000 000 000	

Receipt No: 0034	
Date: 01/07/2010	Time: 4:53:47 PM

	\$
*Pump 2 UNLEADED PETROL	
60.00 L @ 130.9 c/L	78.54
1 SUBTOTAL	78.54
Rounding	0.00
Total	\$78.54
EFT	78.54
Change	00.00
1 line items	
GST Included in Transaction	7.14
* Taxable items	

With thanks Marian	

Note: Non-metrological printed information such as ABN and GST are not covered here – see the appropriate legislation.

~ End of Document ~