



Bradfield Road, West Lindfield NSW 2070

Supplementary Certificate of Approval

NMI S662

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.

Fidelity Measurement Model AFM18 Digital Indicator

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 1/10/2019, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variant 1 approved – certificate issued	22/09/14
1	Pattern amended (Table 1) – certificate issued	25/03/15

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI S662' and only by persons authorised by the submitter.

Instruments incorporating a component purporting to comply with this approval shall be marked 'NMI S662' in addition to the approval number of the instrument, and only by persons authorised by the submitter.

Auxiliary devices used with this instrument shall comply with the requirements of General Supplementary Certificates 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*.

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





Dr A Rawlinson

TECHNICAL SCHEDULE No S662

1. Description of Pattern

approved on 22/09/14

A Fidelity Measurement model AFM18 digital mass indicator (Figure 1) which may be configured to form part of:



- A class  weighing instrument with a single weighing range of up to 10 000 verification scale intervals; or
- A class  weighing instrument with a single weighing range of up to 1000 verification scale intervals; or
- A class  multiple range weighing instrument with up to two weighing ranges, in which case it is approved for use with up to 10 000 verification scale intervals per weighing range.
- A class  multiple range weighing instrument with up to two weighing ranges, in which case it is approved for use with up to 1000 verification scale intervals per weighing range.

The changeover between weighing ranges is automatic.

The instrument has a plastic enclosure with a 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 (see clause 1.6 below).

TABLE 1 – Specifications

Maximum number of verification scale intervals	10000 or 10000 per range (class  1000 or 1000 per range (class 
Minimum sensitivity	0.75 μ V / scale interval
Excitation voltage	5 V DC
Maximum excitation current	57.5 mA
Fraction of maximum permissible error	$p_i = 0.5$
Minimum load cell impedance	87 Ω
Maximum load cell impedance	1212 Ω
Measuring range minimum voltage	0 mV
Measuring range maximum voltage	15 mV
Maximum tare range	-100% Max
Operating temperature range	-10°C to +40°C
Load cell connection	4-wire or 6-wire shielded

This approval does not include the use of the indicator as an automatic weighing instrument, unless specifically mentioned in a certificate of approval for such an instrument.

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 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.

1.3 Display Check

A display check is initiated whenever power is applied.

1.4 Power Supply

Power for the instrument may be supplied by either:

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

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

1.5 Additional Features

Instruments may be fitted with a number of additional functions including set-point facility, checkweighing (HI/OK/LO), capacity track bar, 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.

Note: In particular circumstances (e.g. in regard to weighbridge or public weighbridge operation), Trade Measurement legislation or other NMI Certificates of Approval may impose requirements in regard to specific features, methods of operation, or records to be provided (and in what form).

Certain features of this instrument are able to be configured by the installer or user. Whilst NMI believes that an acceptable configuration can be achieved for typical basic modes of operation, it may also be possible for the instrument to be configured to produce unacceptable configurations, and use of some configurations may be inappropriate in different situations. It is the responsibility of the installer and user to ensure that the configuration is acceptable and meets relevant requirements for any particular situation.

1.6 Interfaces

The indicator 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 NMI General Supplementary Certificate No S1/0B (in particular in regard to the data and its format).

Indications 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 for trade use.

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

1.7 Linearisation Facility

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

1.8 Software

The software is designated CE 018 and version U3.03.

The software version and number appear in the switch-on display sequence when the power is first applied to the instrument.

1.9 Markings and Notices

Instruments carry the following markings:

Manufacturer's mark, or name written in full	Scales Plus	
Indication of accuracy class	III or IIII	
Maximum capacity (for each range)	Max kg	#1
Minimum capacity (for each range)	Min kg	#1
Verification scale interval (for each range)	e = kg	#1
Maximum subtractive tare	T = - kg	#2
Serial number of the instrument	
Pattern approval mark for the indicator	NMI S662	
Pattern approval mark for other components	#3

#1 These markings shall also be 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*.

#3 May be located separately from the other markings.

In addition, instruments not greater than 100 kg capacity carry a notice stating NOT TO BE USED FOR TRADING DIRECT WITH THE PUBLIC, or similar wording.

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

1.10 Verification Provision

Provision is made for the application of a verification mark.

1.11 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.

2. Description of Variant 1

approved on 22/09/14

The Fidelity Measurement model FM18S (Figure 2) which is similar to the pattern but having a stainless steel housing.

TEST PROCEDURE No S662

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

Maximum Permissible Errors

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

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

FIGURE S662 – 1



Fidelity Measurement Model AFM18 Digital Indicator

FIGURE S662 – 2



Fidelity Measurement Model FM18S Digital Indicator