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

Supplementary Certificate of Approval

No S540

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

Avery Weigh-Tronix Model GSE 665 Digital Indicator

submitted by Avery Weigh-Tronix Ltd
Foundry Lane
Smethwick
West Midlands B66 2LP UK.

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.

CONDITIONS OF APPROVAL

This approval becomes subject to review on 1 July 2016, and then every 5 years thereafter.

Instruments purporting to comply with this approval shall be marked with approval number 'NMI S540' and only by persons authorised by the submittor.

Instruments incorporating a component purporting to comply with this approval shall be marked 'NMI S540' in addition to the approval number of the instrument.

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.

…./2

The National Measurement Institute reserves the right to examine any instrument or component of an instrument purporting to comply with this approval.

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.

Auxiliary devices used with this instrument shall comply with the requirements of General Supplementary Certificate No S1/0/A.

DESCRIPTIVE ADVICE

Pattern: approved 9 June 2011

- An Avery Weigh-Tronix model GSE 665 digital indicator.

Variants: approved 9 June 2011

1. Certain other models of the GSE series as listed in Table 1.
2. As panel mount versions.

Technical Schedule No S540 describes the pattern and variants 1 & 2.

FILING ADVICE

The documentation for this approval comprises:

Supplementary Certificate of Approval No S540 dated 10 June 2011
Technical Schedule No S540 dated 10 June 2011 (incl. Table 1 and Test Procedure)
Figures 1 to 5 dated 10 June 2011

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 S540

Pattern: Avery Weigh-Tronix Model GSE 665 Digital Indicator

Submittor: Avery Weigh-Tronix Ltd
Foundry Lane
Smethwick
West Midlands B66 2LP UK

1. Description of Pattern

An Avery Weigh-Tronix model GSE 665 digital mass indicator (Figure 1 and Table 1) which may be configured to form part of:

- A weighing instrument with a single weighing range of up to 6000 verification scale intervals; or
- A multiple range weighing instrument with up to three weighing ranges, in which case it is approved for use with up to 6000 verification scale intervals per weighing range.

The changeover between weighing ranges is automatic.

The instrument has a stainless steel enclosure with a liquid crystal display (LCD) 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 Interfaces** below).

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.

The model GSE 665 may be connected to up to eight baseworks. The instrument displays each basework individually.

Instruments must display in metric units only.

TABLE 1 – Specifications

Maximum number of verification scale intervals	6000
Minimum sensitivity	0.83 µV/scale interval
Excitation voltage	±5 V DC
Maximum excitation current	232 mA
Fraction of maximum permissible error (aka portioning factor)	0.5
Minimum load cell impedance	43 Ω
Maximum load cell impedance	1100 Ω
Measuring range minimum voltage	0 mV
Measuring range maximum voltage	200 mV
Operating temperature range	-10°C to +40°C
Load cell connection	4-wire or 6-wire shielded

1.1 Zero

A zero-tracking device may be fitted.

The instrument has a semi-automatic zero setting device (to set the instrument to within ±0.25e of zero) with a nominal range of not more than 4% of the maximum capacity of the instrument.

The instrument has an initial zero setting device with a nominal range of not more than 20% of the maximum capacity of the instrument.

…./2

1.2 Tare

The indicator may be fitted with a semi-automatic subtractive tare device, and/or a pre-set subtractive tare device, each having a capacity of up to the maximum capacity of the instrument to which the indicator is fitted.

1.3 Display Check

A display check is initiated whenever power is applied.

1.4 Power Supply

The power supply may be either 90–250 V AC mains power or 10–32 V DC.

1.5 Multiple Baseworks Facility

Up to eight baseworks may be connected to a single GSE 665 digital indicator. This will require seven additional internal A/D module cards.

The 'SCALE' key is used to select a basework.

A number is provided at the top right of the indicator to show which basework has been selected for display ('1' indicates that the corresponding basework, e.g. scale 1 has been selected – the weight value displayed will be that of scale 1). Tare and zero operations may be applied to each individual basework/indication, as if they were separate instruments. The cancellation of tare operation on any one of baseworks will clear the tare value(s) of all individual basework/indication.

Trade measurement officers may require additional markings or signs to ensure that these relationships are clear.

1.6 Additional Features

The indicator also has certain additional functions (e.g. set-point facility). The additional functions are not approved for trade use.

1.7 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 S1/0/A (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-232C/485 serial data interfaces, Ethernet, Profibus, DeviceNet and analogue output (0/4–20 mA, 0–10 V), and may also have digital inputs/outputs associated with the set-point facility.

1.8 Linearisation Facility

Instruments are fitted with a linearisation correction facility having up to 5 correction points.

1.9 Markings and Notices

Instruments carry the following markings:

Manufacturer's mark, or name written in full	Avery Weigh-Tronix Ltd
Indication of accuracy class	(III)
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 S540
Pattern approval mark for other components	..... #3

#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*.

#3 May be located separately from the other markings.

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

Notes:

1. 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	↓	→	↑
Max	…. kg	…. kg	…. kg
Min	…. kg	…. kg	…. kg
e =	…. kg	…. kg	…. kg

2. For instruments using the multiple basework facility (clause 1.5), markings shall be provided for each basework. For example, in the case of an instrument with two multiple range baseworks, the following would be an acceptable tabulation of *Max*, *Min* and *e* values.

	SCALE 1		SCALE 2	
Range	→|1|←	→|2|←	→|1|←	→|2|←
Max	…. kg	…. kg	…. kg	…. kg
Min	…. kg	…. kg	…. kg	…. kg
e =	…. kg	…. kg	…. kg	…. kg

1.10 Verification Provision

Provision is made for the application of a verification mark.

1.11 Sealing Provision

The indicator is sealed by preventing access within the indicator housing. This may be achieved by applying destructible adhesive labels on opposite sides of a join in the indicator housing or using lead and wire type seals with drilled screws (Figure 1b). Alternatively the indicator is sealed by recording the audit trail counter on verification.

The indicator automatically increments a configuration and/or calibration value (audit trail number) each time the indicator is re-configured and/or calibrated. The value(s) of these counters may be recorded on a destructible adhesive label attached to the instrument (e.g. as Euro x, CAL y).

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

The instructions for accessing the configuration and calibration audit trail are as follows (starting from the normal weighing mode):

(i) Enter the password '60201' and press the SELECT key to enter the 'Configuration Audit Counter' display mode. The 'Euro' counter value is displayed.

(ii) Press the SELECT key twice to enter the 'Calibration Audit Counter' display mode (P60203). The 'CAL' counter value is displayed.

(iii) Press the SELECT key to enter the 'Setup Audit Counter' display mode (P60204). The 'Setup' counter value is displayed.

(iv) Press the ZERO key to return to the normal weighing mode.

2. Description of Variants

2.1 Variant 1

Certain other models of the GSE range as listed below:

(i) models GSE 460, GSE 465, GSE 560, and GSE 660 (Figures 2 and 3) with a vacuum fluorescent display (VFD); and

(ii) models GSE 562 and GSE 662 (Figure 4) which have an LCD type display.

These models are similar to the pattern, however some models have less keyboard functions than the pattern.

2.2 Variant 2

The pattern and variants having an alternative ('panel mount') design for permanent mounting in a larger cabinet. The instrument consists of a front plate with the mainboard mounted on it and a rear cover to protect the main board against damage (Figure 5).

TEST PROCEDURE

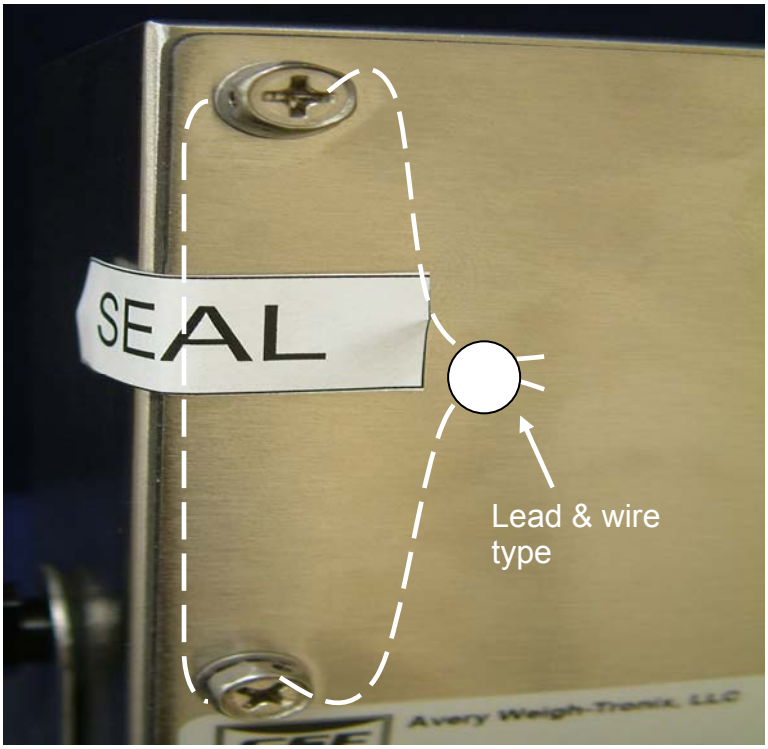
Instruments shall be tested in accordance with any relevant tests specified in the national inspection test procedures.

Maximum Permissible Errors

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

FIGURE S540 – 1

(Note: Instruments must display in metric units only)
(a) Avery Weigh-Tronix Model GSE 665 Digital Indicator



GSE Series Typical Sealing Method

FIGURE S540 – 2

(a) Avery Weigh-Tronix Model GSE 460 Digital Indicator

(b) Avery Weigh-Tronix Model GSE 465 Digital Indicator

FIGURE S540 – 3

(a) Avery Weigh-Tronix Model GSE 560 Digital Indicator

(Note: Instruments must display in metric units only)

(b) Avery Weigh-Tronix Model GSE 660 Digital Indicator

FIGURE S540 – 4

(Note: Instruments must display in metric units only)

(a) Avery Weigh-Tronix Model GSE 562 Digital Indicator

(Note: Instruments must display in metric units only)

(b) Avery Weigh-Tronix Model GSE 662 Digital Indicator

FIGURE S540 – 5

Panel Mount Version