



The National Weights & Measures Laboratory

TEST CERTIFICATE NUMBER GB-1302

Issued by: National Weights and Measures Laboratory
Stanton Avenue
Teddington
Middlesex TW11 0JZ
United Kingdom

Notified Body Number 0126

In accordance With Paragraph 8.1 of the European Standard on Metrological Aspects of Non-automatic Weighing Instruments EN45501:1992. The applied error fraction p_i with reference to paragraph 3.5.4 of this standard is 0.5.


Applicant: Avery Weigh-Tronix Ltd
Foundry Lane
Smethwick
West Midlands B66 2LP
United Kingdom

In respect of: The model of an **Indicating Device** tested as a part of a weighing instrument.
Manufacturer: See applicant
Type: GSE 60-Series

Characteristics: Suitable for a non-automatic weighing instrument with the following characteristics:
 $n \leq 6000$ for Class III or IIII instruments with single range
 $n \leq 6000$ for Class III or IIII instruments per weighing range, with a maximum of three weighing ranges

Description and documentation: The Indicating device is described in the Descriptive Annex. Documents appertaining to this test certificate are held by the National Weights and Measures Laboratory.

Remarks: The Indicator has been tested and found to conform to the relevant parts of EN45501 and WELMEC Guide 2.1. A summary of the tests performed in support of this Test Certificate is provided in the Appendix to the Descriptive Annex.

Signature: 
P R Dixon
for Chief Executive
National Weights and Measures Laboratory

Date: 19 March 2009
Reference: T1127/0029

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Descriptive Annex

1 INTRODUCTION

This indicating device is designated the GSE 60-Series. It is designed to be used as part of a single or multi-range, Class III or IIII, non-automatic weighing instrument. The indicator is self-indicating and DC or mains-powered.

2 FUNCTIONAL DESCRIPTION

2.1 Construction

The GSE 60-Series (Figure 1) controller housing is fabricated from stainless steel plate, and comprises the 460, 465, 560, 562, 661, 662, 663, and 665 models. The controller can be provided in a universal, wall, panel or desk-top mount configuration. The front panel has a VFD or LCD display and a keypad. The front panel displays the weight and user information.

2.2 Devices

This indicator has the following devices:

- Semi-automatic zero setting
- Zero tracking
- Semi-automatic subtractive tare weighing/balancing
- Preset tare
- Indication of stability of equilibrium
- Zero indicator
- Price calculation
- Price labelling (printing below Min must be prohibited)
- Totalisation
- Printing key
- Multi-range option, with a maximum of 3 weighing ranges
- Multi-scale option (additional internal A/D module card), with a maximum of 7 additional modules
- Compound scale functionality to provide the sum of two or more scales
- Data Storage Device, with a maximum of 999,999 data sets
- Counting mode

2.3 Functions

2.3.1 Power up

At switch on, the system goes through a standard check, making any defect obvious.

2.3.2 Display (Figure 2)

The indicator displays a weight up to a value not exceeding Max +9 e. Any weight above this results an error message being displayed.

Negative weight values are indicated with a minus sign.

If national regulations allow then LCD display models and multiple line VFD display models may show the weights using imperial units (supplementary indications), provided the weights expressed in SI units are simultaneously shown and remain prominent.

2.3.3 Semi-automatic zero setting device

The “ZERO” key on the keypad sets zero. A successful zero can only be set if the weight value is stable. A zero weight is then displayed and the zero indicator is displayed.

The zero-setting range must be set to 4 % of maximum capacity or less (audit trail-protected parameter).

2.3.4 Zero tracking device

Zero tracking operates when the indication is at zero, or at a negative Net value equivalent to Gross zero, when the weight display is stable. The range of zero-setting must be set to 4 % of maximum capacity or less (audit trail-protected parameter).

2.3.5 Semi-automatic tare weighing/balancing device

The Tare key on the keypad initiates the semi-automatic subtractive tare device. The indicator displays the net weight with a “Net” indication. It is possible to temporarily display the tare value by selecting parameter P2.

2.3.6 Pre-set tare device

The pre-set tare value must be keyed in and the tare key pressed. The tare value should be designated “PTare” if a print-out is produced.

2.3.7 Stability of equilibrium

The display of the units (e.g. “kg”) is suppressed whenever the weight is unstable, all devices are inoperable until the weight is stable. Data output to printers or other devices recording static weight should be inhibited until stability is achieved (audit trail-protected parameter).

2.4 Documentation/Drawings

Technical Reference Manual

Version 4.0

3 TECHNICAL CHARACTERISTICS

3.1 Technical data

Power supply	10-32 VDC or 90-250 VAC
Maximum tare (gross weigher only)	-100% Max
Maximum number of scale intervals	6000
Load cell excitation voltage	± 5 VDC (10 VDC)
Minimum load cell impedance	43 Ω
Maximum load cell impedance	1100 Ω
Minimum input voltage per scale interval	0.83 μV
Measuring range minimum voltage	0 mV

Measuring range maximum voltage	200 mV
Fraction of maximum permissible error	$P_{ind} = 0.5$
Operating temperature range	-10°C to +40°C
Load cell connection	4-wire or 6-wire shielded

3.2 Power supply

The indicator may be mains-powered, or powered by an external 10-32 VDC power supply.

4 INTERFACES

The instrument may be fitted with the following protected interfaces:

- RS232/RS485
- Profibus, DeviceNet and Ethernet (as modules connected to above port)
- Digital inputs and outputs for interfacing with external equipment and initiating macro commands; as follows:
 - 2 control inputs (all models)
 - 8 TTL inputs/outputs (66x models only)
 - Additional 4-channel I/O modules (46x up to 8 channels, 56x up to 32 channels, 66x/675 up to 128 channels)
- Analogue outputs (0/4-20mA or 0-10V), with a maximum of 8 outputs

5 SOFTWARE

5.1 The GSE 60-Series controller comprises two programs, firmware and user program (macro). All legally relevant weighing programs are included in the firmware and are not modified, whereas the user program, set up at configuration, comprises both legally and non-legally relevant data. The firmware program is a self-contained system that stores the NAWI mode of operation, the macro allows application-specific configuration. Legally relevant parameters in both firmware and any user (macro) program are protected by an audit trail counter.

5.2 The firmware stores the NAWI mode of operation, the version number for this NAWI element is displayed by keying in 60101 and pressing the Select/Mode key; the last three digits must show the current version of 589.

5.3 Calibration and configuration of the indicator is password protected to prevent unauthorised access to these facilities. An “audit trail” number is updated each time the instrument is calibrated or configured (whenever legally relevant data from firmware or macro code is changed), which can be accessed by keying in 60201 and pressing the Select/Mode key, this number is then written on a “tamper-evident” label located on the instrument at every change.

6 LOCATION OF CE MARK AND INSCRIPTIONS

6.1 The instrument shall bear the following legends near the display of the weighing result:

Max
Min
e =
T (if \neq - Max)

6.2 The instrument shall bear the following legends:

CE mark
Green M
Accuracy class
Serial number
Manufacturer's mark or name

7 LOCATION OF SEALS AND VERIFICATION MARKS

7.1 The rating plate should be located on the indicator so that it is easily accessible and clearly visible in its regular operating position. The CE mark shall be impossible to remove without damaging it. The data plate shall be impossible to remove without it being destroyed.

The markings and inscriptions shall fulfil the requirements of Paragraph 1 of Annex IV of the Directive 90/384/EEC.

7.2 There are two methods of securing the instrument on verification, either by recording the audit trail counter or by setting the "PROG" switch on the main board to "NO" and applying a wire and seal as described in the technical manual. If the audit trail counter on the instrument increases above that recorded or if the recorded value is removed then this has to be considered as a broken seal. The two methods of securing are equivalent in the context of this approval.

7.3 Components that may not be dismantled or adjusted by the user (load cell connection, junction box) are secured by either a wire and seal, or by a tamper evident label and securing mark. The securing mark may be either:

- a mark of the manufacturer and/or manufacturer's representative, or
- an official mark of a verification officer.

8 ALTERNATIVES

There are currently no alternatives.

9 ILLUSTRATIONS

Figure 1 GSE 60-Series controllers

Figure 2 Typical GSE 60-Series front panel (562 Model)

10 TEST CERTIFICATE HISTORY

ISSUE NO.	DATE	DESCRIPTION
GB-1302	19 March 2009	Test Certificate first issued.
-	-	No revisions have been issued.

APPENDIX TO DESCRIPTIVE ANNEX

TESTS CARRIED OUT

The following tests were performed with the indicators connected to a load cell simulator or weighing platform.

GSE 562 model:

EN45501 Ref	Test	Report number
A.5.3.1	Weighing performance at static temperatures	TR 538 (NWML)
A.5.3.2	Temperature effect on no load indication	TR 538 (NWML)
A.4.10	Repeatability	TR 538 (NWML)
A.4.6.1	Tare	TR 538 (NWML)
A.5.2	Warm-up	TR 538 (NWML)
A.5.4	Voltage variations	TR 538 (NWML)
B.2.2	Damp heat steady state	TR 538 (NWML)
B.4	Span stability	TR 538 (NWML)

GSE 665 Standard model:

EN45501 Ref	Test	Report number
B.3.4	Immunity to radiated electromagnetic fields	SN 1074 (NWML)
B.3.1	Short time power reductions	SN 1074 (NWML)
B.3.2	Bursts	SN 1074 (NWML)
B.3.3	Electrostatic discharges	SN 1074 (NWML)

GSE 665 Panel Mount model:

EN45501 Ref	Test	Report number
B.3.4	Immunity to radiated electromagnetic fields	SN 1075 (NWML)
B.3.3	Electrostatic discharges	SN 1075 (NWML)
-	Radiated emissions	SN 1075 (NWML)



Figure 1 GSE 60-Series controllers



Figure 2 Typical GSE 60-Series front panel (562 Model)