National Measurement Office Certification

GB-1470

EC Test Certificate
GB-1470 Revision 1

Issued by: **National Measurement Office**
Notified Body Number 0126

In accordance with The Council Directive 2009/23/EC on Non-Automatic Weighing Instruments. Conformity with the essential requirements, referred to in Annex 1 of the Directive, is met by application of 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:
Hottinger Baldwin Messtechnik GmbH
Im Tiefen See 45
D-64293 Darmstadt
GERMANY

In respect of: A model of an indicating device tested as a part of a weighing instrument.
Manufacturer: See applicant
Type: WE2111 digital indicator

Characteristics: Suitable for a Non-Automatic Weighing Instrument with the following characteristics:

$n \leq 10\,000$ for Class III instruments

Description and documentation: The Indicating device is described in the Descriptive Annex. Documents appertaining to this EC Test Certificate are held by the National Measurement Office.

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 EC Test Certificate is provided in the Appendix to the Descriptive Annex.

This revision replaces previous versions of the certificate.

Date: **04 April 2014**
Reference №: **TS1201/0040**

Signatory: **P R Dixon**
for **Chief Executive**

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UKAS PRODUCT CERTIFICATION 0135

National Measurement Office

TEST CERTIFICATION № GB-1470

Descriptive Annex

1 INTRODUCTION

This indicating device is designated the WE2111 digital indicator. It is designed to be used as part of a single/dual range/interval, Class III Non-Automatic Weighing Instrument. The indicator is self-indicating and DC or mains-powered.

2 DESCRIPTION

2.1 Construction

2.1.1 The Operator Panel (Figure 1) has the following features:

- ABS plastic enclosure
- Six digit LED display
- Five functions keys
- Weighing status
- Multiple range/interval status
- Connections and ports located at the rear

2.2 Devices

- Extended indicating device
- Printing device
- Totalising device
- Initial zero setting device(≤ 20% of Max)
- Zero tracking device (≤ 4% of Max)
- Semi-automatic zero setting device (≤ 4% of Max)
- Tare setting device: Semi-automatic, additive and subtractive
- Preset tare device
- Multi-range device
- Multi-interval device
- lb/kg switching device
- Gross/net switching device
- Calibration device
- Piece counting device
- Fault handling device
- Display test device, on power up
- Alibi memory device
- Zero indicator
- Indication of stable equilibrium

2.3 Operation

2.3.1 Switch-on

At switch on the operator panel will perform internal operation checks while displaying the initiation screen. This screen will show the software version number, the unique calibration number provided for the audit trail and the electronics serial number. On completion of the initialisation, the operator panel will enter the normal operating mode, and perform an initial zero-setting operation. The initial zero-setting range is ≤ 20% of maximum capacity.

2.3.2 Zero-tracking

Zero tracking operates provided that the instrument is within range of not more than 4% of its capacity, and that the weight display is stable. The rate of correction is set not to exceed 0.5 d/s.

2.3.3 Semi-automatic zero setting

The zero key operates provided that the instrument is within range of not more than 4% of its capacity, and that the weight display is stable. Annuniciators are provided to indicate when the instrument is stable and at zero.

2.3.4 Over-range and under-range

If the load is less than gross zero, then the display shows U-----.

The instrument is set to display weights up to Max. At greater loads the display shows O----.

2.3.5 Additional functions

The keys located below the operator display have the following functions:

The WE2111 digital indicator has 5 front panel keys that control the operation of the instrument. The 6th key (SETUP) is on the rear of the instrument. The setup key can be sealed to prevent unauthorized tampering of trade critical settings and calibration.

Each of the front panel keys has two separate functions:

a normal function that is available during normal weighing (as printed on the key).

a setup function which is available during setup and calibration (as printed beneath the key).

3 TECHNICAL DATA

3.1 The WE2111 digital indicator has the following technical characteristics:

Maximum number of scale intervals	3 000	6 000	10 000
Load cell excitation voltage	5 V DC		
Minimum load cell impedance	21 Ω		
Maximum load cell impedance	5000 Ω		
Minimum input voltage per verification scale interval	0.5 µV/Div		
Measuring range minimum voltage	0.001 mV		
Measuring range maximum voltage	25 mV		
Fraction of maximum permissible error	0.5		
Operating temperature range	-10 / + 40 °C		
Load cell connection	6 wire		
Load cell cable length m/mm^2 (junction box to indicator)	755	378	227

Note: Cable length obtained from manufacture.

3.2 Documentation/Drawings

Drawing reference №	Description
WE21-400-151	Bill of materials
WE21-103-141 WE21-104-143 WE21-111-140	Circuit Schematics
WE21-003-140 WE21-004-142 WE21-011-140	Circuit Layout
WE21-B01-110	Hardware description
WE21-B02-100	Software Description
WE21-600-111	Manual
WE21-A03-100	Mechanical assembly
WE21-B05-100	Sealing Description
R400-534-101	Alibi Firmware

Note: Model WE2111 is compatible with the C510 model as detailed in the above documentation/drawings.

3.3 Power supply

The indicator can either operate directly from mains AC supply (86-260 V AC 48-62 Hz) or via a stable DC supply (12-24 V DC). Any compatible CE-marked mains adaptor may be used.

4 PERIPHERAL DEVICES

The following peripheral devices may be connected to the interfaces provided:

- Peripheral devices that have been issued with a EC Test Certificate by a Notified Body responsible for type approval under Directive 2009/23/EC; or
- Peripheral devices without a EC Test Certificate under the following conditions:
  - it bears the CE marking for conformity to the EMC Directive;
  - it is not capable of transmitting any data or instruction into the weighing instrument, other than to release a printout, checking for correct data transmission or validation;
  - it prints weighing results and other data as received from the weighing instrument without any modification or further processing;
  - it complies with the applicable requirements of EN45501, i.e. 4.2, 4.4, 4.6 and 4.7.

A printing device may print additional information such as date or number to identify the printed weighing result(s) or sets of weighing results.

5 SOFTWARE

5.1.1 Change log

The WE2111 digital indicator contains a change log that records trade significant events. These include changes to trade relevant settings, creation, and clearing of the change log and trade relevant firmware upgrades. Only trade relevant settings are stored in the change log.

The change log records the following information about each change:

- The calibration counter at the time of the change
- The date and time of the change
- The system database name & setting name that has changed
- The menu name of the setting that has changed
- The index of the setting that has changed. This is only used for array settings, such as resolution where there is a resolution for each range.
- such as resolution where there is a resolution for each range
- Previous value of the setting • New value of the setting
- The log mask

5.1.2 Change log Security

The change log is stored on the internal WE2111 filesystem which is not accessible, and hence cannot be tampered with. The WE2111 application is the only means by which to access the change log. The WE2111 contains Alibi software which allows the change log to be viewed. The Alibi change log viewer is part of the trade approval.

When a USB disk is attached to the WE2111, a copy of the change log can be made to the USB disk. This copy of the change log can always be verified against the internal change log, via the Alibi change log viewer.

5.1.3 Digital storage device (DSD)

The WE2111 contains a digital storage device (DSD) to record traceable readings. The DSD records the following information about each entry:

- → The print ID
- → The weight reading
- → The tare weight
- → The date and time

5.1.4 Format and capacity

The DSD is stored in a binary format internally. The DSD has a maximum size of 512 kilobytes, and can contain approximately 11900 records. The WE2111 can be configured to either prompt the user to purge 10% of records from the DSD, or automatically purge 10% of records, once the DSD is full. Records can also be manually purged from the DSD from the DSD:PURGE setup menu.

5.1.5 DSD Change log security

The DSD is stored on the internal WE2111 filesystem which is not accessible, and hence cannot be tampered with. The WE2111 application is the only means by which to access the DSD. The WE2111 contains Alibi software which allows the DSD records to be viewed. The Alibi DSD viewer is part of the trade approval.

When a USB disk is attached to the WE2111, the DSD can be exported to the USB disk in a comma separated value (CSV) file. CSV files can be easily viewed in most spreadsheet programs. This copy of the DSD can always be verified against internal DSD, via the Alibi DSD viewer.

6 VERIFICATION INFORMATION

6.1 Software identification

The legally relevant software (alibi) is designated v1.0x (where x refers to the identification of the non-legally relevant part of the software, which may be modified by the manufacturer).

The application software (non-legally relevant) is designated Pxxx or Vx.xx (where xxx and x.xx may be modified by the manufacturer).

7 MARKINGS

The instruments shall bear the following legends:

Manufacturer’s mark or name
Serial number
EC Test Certificate number

8 ALTERNATIVES

There are no authorised alternatives.

9 ILLUSTRATIONS

Figure 1 WE2111 indicator

TEST CERTIFICATE HISTORY

Issue №.	Date	Description
GB-1470	15 July 2013	Test Certificate first issued.
GB-1470 Revision 1	04 April 2014	Test Report SN 1278 added to Annex.

APPENDIX TO DESCRIPTIVE ANNEX

TESTS CARRIED OUT

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

EN45501 Ref	Test	Report number
A.4.6.1	Tare	NMO TR 627
A.4.10	Repeatability	NMO TR 627
A.5.2	Warm-up	NMO TR 627
A.5.3.1	Weighing performance at static temperatures	NMO TR 627
A.5.3.2	Temperature effect on no load indication	NMO TR 627
B.2.2	Damp heat steady state	NMO TR 627
B.4	Span stability	NMO TR 627

OIML R76 (2006)	Test	Report number
A.5.4	Voltage variations	NMO SN 1236
B.2.2	Damp heat steady state	NMO SN 1236
B.3.1	Short time power reductions	NMO SN 1236
B.3.2	Bursts	NMO SN 1236
B.3.3	Electrostatic discharges	NMO SN 1236
B.3.5	Immunity to radiated electromagnetic fields	NMO SN 1236
B.3.6	Immunity to conducted radio-frequency fields	NMO SN 1236
-	Resistance cable length test	NMO SN 1236

OIML R76 (2006)	Test	Report number
B.3.3	Surges	NMO SN 1278
B.3.1	Short time power reductions	NMO SN 1278
B.3.2	Bursts	NMO SN 1278
B.3.4	Electrostatic discharges	NMO SN 1278
B.3.5	Immunity to radiated electromagnetic fields	NMO SN 1278
B.3.6	Immunity to conducted radio-frequency fields	NMO SN 1278
B.3.7	Electrical transients on instruments powered from a road vehicle power supply	NMO SN 1278

Note:

- EMC testing conducted at the levels required in OIML R76 (2006)
- Model WE2111 is compatible with the C510 model as detailed in the above test reports.

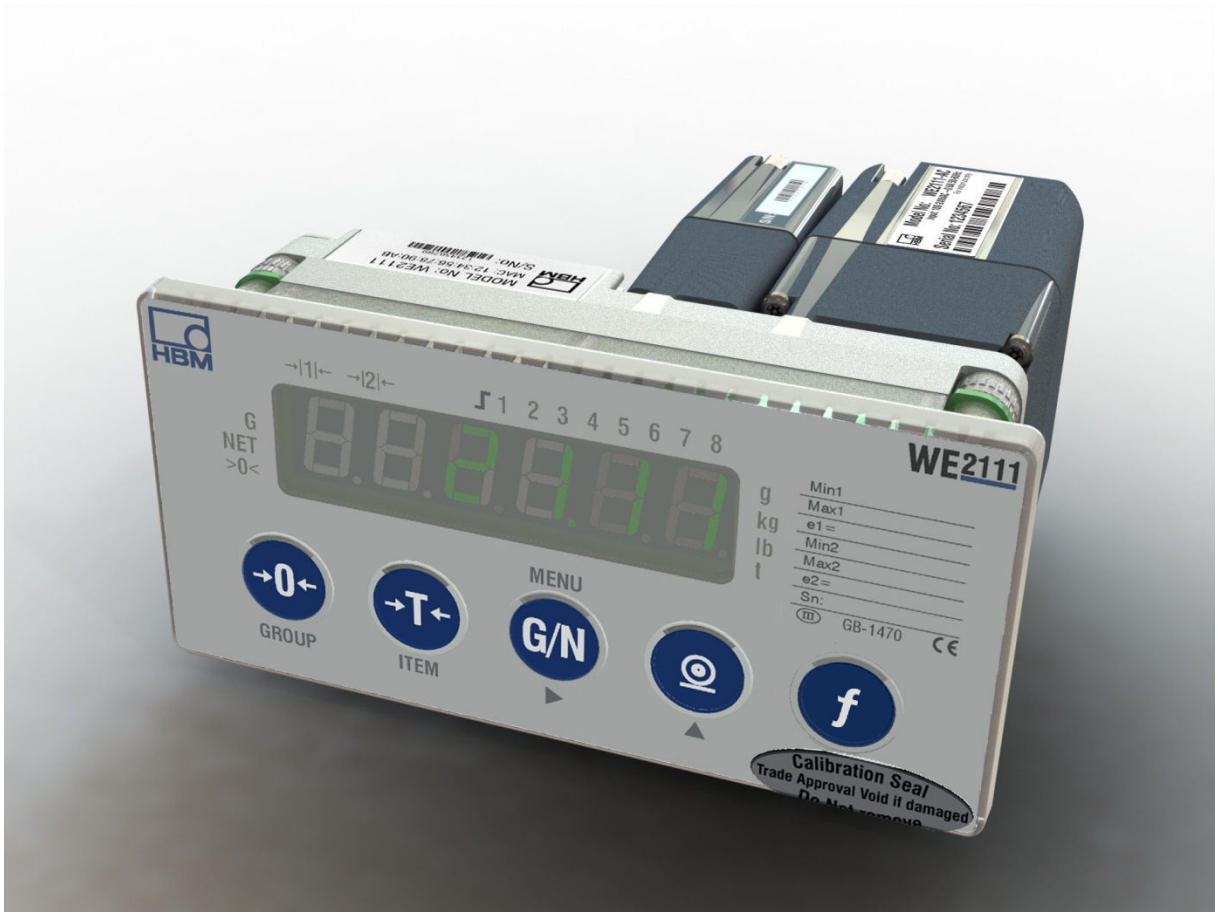

Figure 1 WE2111 digital indicator