NMO	OIML Certification System
OIML Member State United Kingdom of Great Britain and Northern Ireland	**OIML Certificate No.** **R76/2006-A-GB1-19.01**

OIML CERTIFICATE ISSUED UNDER SCHEME A

OIML Issuing Authority	**NMO** **Stanton Avenue** **Teddington** **TW11 0JZ** **United Kingdom**
Person responsible:	**Mannie Panesar – Head of Technical Services**
Applicant	**Avery Weigh-Tronix** **Foundry Lane** **Smethwick** **West Midlands B66 2LP** **United Kingdom**
`Manufacturer	**The applicant**
Identification of the certified type	**ZM505, ZM510, ZM605, ZM615 Series** *(the detailed characteristics are defined in the Descriptive Annex)*

This OIML Certificate attests the conformity of the above identified type (represented by the sample(s) identified in the OIML type evaluation report) with the requirements of the following Recommendation of the International Organization of Legal Metrology (OIML):

OIML R 76, Edition: 2006

For accuracy class: III and IIII

Issue date: 12 June 2019

The OIML Issuing Authority

Grégory Glas
Lead Technical Manager
For and on behalf of the Head of Technical Services

This OIML Certificate relates only to metrological and technical characteristics of the type of measuring instrument covered by the relevant OIML Recommendation identified above.

This OIML Certificate does not bestow any form of legal international approval.

The conformity was established by the results of tests and examinations provided in the associated OIML type evaluation report:

No. P02554B dated 12 June 2019 that includes 21 pages

The technical documentation relating to the identified type is contained in documentation file:

No. P02554B-D dated 12 June 2019

OIML Certificate History

Revision No.	Date	Description of the modification
0	12 June 2019	OIML Certificate first issued.
-	-	-

This revision replaces previous versions of the certificate.

Important note:
Apart from the mention of the Certificate's reference number and the name of the OIML Member State in which the Certificate is issued, partial quotation of the Certificate and of the associated OIML type evaluation report(s) is not permitted, although either may be reproduced in full.

DESCRIPTIVE ANNEX

Characteristics:

The family of indicating devices are designated the Avery Weigh-Tronix ZM505 / ZM510 / ZM605 / ZM615 Series. The indicators are programmable, self-indicating, mains, DC or battery-powered, and are designed to be used as part of a Class III or IIII, Non-Automatic Weighing Instrument.

Construction:

The indicator construction is dependent on the model number, the designation follows the following format: “Prefix-XYZ”, with

- Model Number Prefix:
  ZM505, ZM510, ZM605, ZM615 = Standard Indicator

- First Digit X – Enclosure material
  S = Stainless enclosure

- Second Digit Y – Mounting orientation
  D = Desktop
  P = Panel Mount

- Third Digit Z – Display Type
  3 = IBN with dot graphic – Black background with Green Digits
  4 = Dot graphic – Green background with Black Dots (capable of negative image)
  5 = Large dot graphic – Green backlight with Black Dots (capable of negative image)

  The ZM505, ZM605 and ZM615 feature 29 operational keys, including a numeric keypad and 5 “soft keys” (F1 to F5), the current functions of which are shown above them on the display.

  The ZM510 features 48 operational keys, including a QWERTY keypad and 5 “soft keys” (F1 to F5), the current functions of which are shown above them on the display.

Devices:

- Semi-automatic zero setting (≤ 4% Max)
- Zero tracking (≤ 4% Max)
- Semi-automatic subtractive tare weighing
- Pre-set tare
- Recall of Gross indication when tare is active
- Determination of stability of equilibrium
- Indication of stability of equilibrium
- Checking of display
- Printing
- PLUs
- Alibi storage device
- Gravity compensation
- Real time clock
- Command via external device (PC)
- Gross, Net, Tare, Preset tare, Print, Zero, Motion, Accumulation, Over/Under weight, Network and Battery indicators.

- Single or multi-range / multi-interval (maximum of 3 partial ranges)
- Range in use indicators (multi-range variant)
- Connection to up to 4 load receptors, with load receptor number indicator
- Connection to digital load cells

Technical data:

Power supply	- ZM505-SP3, ZM510-SP4, ZM605-SP4, ZM615-SP5: 12-36V DC via mains adaptor or external battery pack - ZM505-SD3, ZM510-SD4, ZM605-SD4, ZM615-SD5: 110-240V AC (50/60Hz)		
Load Cell Input Variants	ZM605, ZM615	ZM505, ZM510	
	Standard build and when fitted with10V EXC analogue load cell interface option card(s)	Standard build and when fitted with10V EXC analogue load cell interface option card(s)	5V EXC analogue load cell interface option card(s)
Maximum number of scale intervals	10,000		6,000
Maximum Tare	-100% Max		
Maximum Preset Tare	-100% Max (single interval) - Max_1 (multi-interval/range)		
Load cell excitation voltage	10 VDC		5 VDC
Minimum load cell impedance	10.94 Ω	14.58 Ω	58.33 Ω
Maximum load cell impedance	1,100 Ω		
Minimum input voltage per scale interval	0.5 µV		0.8 µV
Measuring range minimum voltage	0 mV		
Measuring range maximum voltage	15 mV		
Fraction of maximum permissible error	P_{ind} = 0.5		
Operating temperature range	-10 °C to +40 °C		
Load cell connection	4 or 6-core with braided outer screen, flexible PVC overall Jacket		
	Maximum length (6-wire) = 212 m/mm^2	Maximum length (6-wire) = 143 m/mm^2	Maximum length (6-wire) = 196 m/mm^2 (limited to 30m)

Load cell:

Any compatible load cell(s) may be used providing the following conditions are met:

- There is a respective OIML Certificate of Conformity (R60) issued for the load cell.
- The certificate contains the load cell types and the necessary load cell data required for the manufacturer's declaration of compatibility of modules, and any particular installation requirements. A load cell marked NH is allowed only if humidity testing to

R76 has been conducted on this load cell.

- The compatibility of the load cells and indicator is established by the manufacturer by means of the compatibility of modules calculation at the time of verification.
- The load cell transmission conforms to a standard type.

Interfaces:

- Load cell 4-wire or 6-wire shielded connection
- 3 x logic level inputs
- 3 x open collector outputs
- 3 x RS232 serial ports
- 10/100 Ethernet
- 2 x USB Host

Optional Interface & PCBs:

(i) Analogue output card, providing 0-10 VDC and 4-20mA outputs

(ii) Current loop card, providing 4-20mA loop and RS485 / RS422

(iii) Internal Wireless LAN card, providing an 802.11b/g wireless link

(iv) USB Device card, providing USB interface to PC

(v) Load cell interface board, with 5V Excitation (to allow the connection of a second platform, maximum 6 load cells). Refer to section 3.1 for full technical data.

(vi) Load cell interface board, with 10V Excitation (to allow the connection of a second platform, maximum 16 load cells). Refer to section 3.1 for full technical data.

(vii) Bluetooth card, providing a Bluetooth wireless link

(viii) DeviceNet card, providing one DeviceNet Fieldbus interface.

(ix) Profibus card, providing one Profibus Fieldbus interface

(x) Ethernet to PoE Supply side card, providing an Ethernet pass-through interface, with Power over Ethernet available on the output port.

(xi) Quad DC input card, providing four 4-30VDC Opto-Isolated inputs

(xii) Quad DC output card, providing four 3-60VDC Solid State Relay outputs

(xiii) Quad AC input card, providing four 120-240VAC Opto-Isolated inputs

(xiv) Quad AC output card, providing four 20-240VAC Solid State Relay outputs

(xv) External I/O Expansion Card, providing interfaces to legacy installations previously fitted with External I/O or SSCU8 cards

(xvi) Programmable Digital I/O card, with eight programmable logic level inputs or outputs, providing pulse counter, frequency measurement, Quadrature decode, and PWM output functionality.

Software:

The software is designated AWT30-500208 version 2.x.x.x (where x.x.x refers to the identification of non-legally relevant software, which may be modified by the manufacturer).

The verification information may be displayed by:
holding **SETUP** > Enter "111" > **ENTER** > Select **ABOUT**

Sealing:

The calibration and legally relevant parameters are protected via physical (sealed jumper located on main board) or software means (password and incrementing counters).

Access to the electronics, jumper, and load cell connections are prevented via tamper evident seals or by the use of wire seals.

Alternatives:

Alternative 1:

The ZM505 / ZM510 / ZM605 / ZM615 indicators may be connected to a maximum of two Avery Weigh-Tronix BSQ series digital bases to form a complete single-interval or multi-range Class III Non-Automatic Weighing Instrument. The BSQ base(s) must be set up for operation in "Raw, unprocessed digital counts" mode.

The instrument has the following characteristics for the BSQ weighing input(s):
n ≤ 10,000 for Class III instruments with single interval
ni ≤ 10,000 for Class III instruments with multi-range operation, per weighing range, with a maximum of three weighing ranges
n ≤ 1,000 for Class IIII instruments with single interval

Alternative 2:

The ZM510, ZM605 or ZM615 indicators fitted with firmware AWT30-500205 v2.x.x.x may be connected to Avery Weigh-Tronix ZB210 digital junction boxes to form Class III or IIII, self-indicating, Non-automatic Weighing Instruments.

The ZB210 technical data is as below:

Power supply	12 – 36 VDC Supplied by digital indicating device via RS485 interface cable
Maximum number of scale intervals	6,000 (Class III), single or multi-interval 1,000 (Class IIII), single or multi-interval
Load cell excitation voltage	5 VDC
Minimum load cell impedance	350 Ω (per channel)
Maximum load cell impedance	1100 Ω (per channel)
Minimum input voltage per verification scale interval	0.8 μV

Measuring range minimum voltage	0 mV
Measuring range maximum voltage	25 mV
Fraction of maximum permissible error	$P_i = 0.5$
Operating temperature range	- 10 °C to + 40 °C
Load cell cable (from junction box to load cells) - Maximum length	15 m (4-wire, 350Ω load cell connection) 30 m (4-wire, 700Ω load cell connection) 42 m (4-wire, 1000Ω load cell connection) 47 m (4-wire, 1100Ω load cell connection) Note: All load cell cables to an individual ZB210 must be of equal length.

Any compatible load cell(s) may be used providing the following conditions are met:

- There is a respective OIML Certificate of Conformity (R60) issued for the load cell.
- The certificate contains the load cell types and the necessary load cell data required for the manufacturer's declaration of compatibility of modules, and any particular installation requirements. A load cell marked NH is allowed only if humidity testing to R76 has been conducted on this load cell.
- The compatibility of the load cells and indicator is established by the manufacturer by means of the compatibility of modules calculation at the time of verification.
- The load cell transmission conforms to a standard type.

The ZB210 software has the identification as follows:

AWT30-500235, Version 1.x.x.x
(with x.x.x reflecting non-legally relevant changes)

The software version number is displayed on the attached digital indicating device for verification purposes.