OIML Member State Denmark	**OIML Certificate No.** **R76/2006-A-DK2-25.06**

OIML CERTIFICATE ISSUED UNDER SCHEME A

OIML Issuing Authority

Name: **FORCE Certification A/S**
Address: Park Allé 345, 2605 Brøndby, Denmark
Person responsible: Per Rafn Crety

Applicant

Name: **Avery Weigh-Tronix**
Address: Foundry Lane, Smethwick
West Midlands, B66 2LP
United Kingdom

Manufacturer Avery Weigh-Tronix

Identification of the certified type *(the detailed characteristics will be defined in the additional pages)*

ZM223

Designation of the module *(if applicable)*

Non-automatic weighing indicator

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 76-1, Edition (year): 2006

For accuracy class (if applicable)**: III and IIII**

FORCE Certification A/S · Park Alle 345 2605 Brøndby Tel+45 43 25 01 77 info@forcecertification.com www.forcecertification.com
Task no.: 123-34605.90.20 and ID no.: FC-OIML-19074-1 forcecertification.com/en/weighing

OIML Certificate No.
R76/2006-A-DK2-25.05

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 reports:

Type examination report: No. 123-34605.10 dated 28 May 2025, that includes 67 pages

Type evaluation report: No. 123-34605.90.20, dated 06 June 2025, that includes 19 pages,

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

123-34605

OIML Certificate History

Revision No.	Date	Description of the modification
Initial version	31 July 2025	-

Identification, signature and stamp
The OIML Issuing Authority
FORCE Certification A/S

Date: 31 July 2025

Michael Lang Sørensen
2025-07-31
Digitally signed by Michael Lang Sørensen
mls@forcetechnology.com
Project Manager

Michael Lang Sørensen
Project Manager

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 indicating device is designated the Avery Weigh-Tronix ZM223, and is designed to be used as part of a Class III or IIII, Non-Automatic Weighing Instrument

The ZM223 indicator can connect to one analogue load receptor **or** one analogue load receptor and one BSQ digital base **or** two BSQ digital load bases.

The indicator consists of analogue to digital conversion, microprocessor control, power supply, keyboard, non-volatile memory for storage of calibration and weight data and display contained within a single enclosure.

Construction

The indicator is housed in a stainless-steel enclosure, with the operator LCD display placed on the front together with the keyboard, featuring 7 keys plus 12 numeric keys. The display has 1.5" high 14-segment digits, annunciators in graphic areas at top and bottom, with transflective segments to provide contrast in outdoor environments. The backlight can display 4 colours (green/red/yellow/orange)

Devices

- Semi-automatic zero-setting (≤ 4% of Max)
- Initial zero-setting (≤20% of Max)
- Zero-tracking (≤ 4% of Max)
- Semi-automatic subtractive tare weighing
- Preset tare
- Recall of Gross indication when tare is active
- Determination of stability of equilibrium
- Indication of stability of equilibrium
- Power up test
- Display test
- Printing
- PLUs
- Alibi storage device
- Gravity compensation
- Event counters
- Real time clock
- Command via external device (PC)
- Gross, Net, Tare, Preset tare, Print, Zero, Motion, Accumulation, Over/Under weight, Network and Battery indicators
- Range in use indicators (multi-range variant)
- Connection to up to 2 load receptors, with load receptor number indicator

Interfaces

- 2 x Serial Communication (2 x RS232 **or** 1 x RS232 & 1 x QDT **or** 2 x QDT)
- Ethernet
- USB
- Bluetooth
- Open collector outputs
- 6 x I/O (programmable to any combination of active-low inputs or open collector outputs).

Optional Interfaces & PCBs

- Analog Output Card, providing one DC Voltage or Current Loop output
- Severe Transient Voltage Suppressor (STVS) PCB, providing enhanced high voltage surge protection to the analogue load cell interface.
- Dual L/C Severe Transient Voltage Suppressor (STVS) PCB, providing enhanced high voltage surge protection to the analogue load cell and RS232 / QDT serial communication interfaces.
- Micro SD Card interface (compatible with micro-SD cards up to 32GB), providing additional alibi memory (up to 100,000 transactions).

The interfaces do not have to be secured.

Technical Data

- Accuracy class III and IIII
- Single interval, multi interval (up to 3), Multirange (up to 3)
- Maximum number of verification scale intervals: 10,000
- Maximum tare effect: -Max
- Fraction factor (p_i) 0.5
- Minimum input voltage per VSI: 0.8µV
- Excitation voltage: 5 VDC
- Circuit for remote sense: when using 6-wire connection
- Minimum input impedance: 43 ohm
- Maximum input impedance: 1100 ohm
- Maximum cable length between indicator and junction box for load cells: 734 m/mm^2
- Temperature range. -10 °C to +40 °C
- Power supply: 110-240 VAC 50/60 Hz.

BSQ digital base (weighing module)

The ZM223 indicator 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 indicator has the following characteristics:

Accuracy class: III
Maximum capacity (Max_i): $= n_i \times e_i$
Verification scale interval (e_i =): depend on BSQ type
Maximum number of Verification Scale Intervals (n_i): ≤ 10000
Fractional factor: p'i = 0.0
Operational temperature: as for BSQ type

Type	BSQ-0912-005	BSQ-0912-035	BSQ-1014-035	BSQ-1214-035	BSQ-1214-080
Max	1 kg to 5 kg	5 kg to 35 kg			5 kg to 80 kg
e =	≥ 0.1 g	≥ 1 g			≥ 2 g
Min	20 e (5 e for determination of postal tariffs)				
VSIs (n_i)	≤ 10000				
Power supply	5 VDC (via USB), or 110-240 VAC (via PSU), or 12-36 VDC				
Temperature range	+5 to +40 °C	-10 to +40 °C, or +5 to +40 °C			
Load cell E_{max}	6 kg	38 kg			110 kg

Software

Program segregation

The ZM223 software comprises of two segregated programs, the firmware operating system (OS) and a user application (written in LUA).

The OS is a self-contained system that stores the NAWI mode of operation. All legally relevant scale functionality is included in the OS and cannot be modified.

The user application, downloaded at installation, comprises non-legally relevant data and functionality, which calls on the legally relevant scale functionality from the OS. Any user applications that operate in modes other than standard weighing (e.g. Checkweighing, Counting, Accumulation, Target Weighing, Batching, Peak Hold, etc.) shall be clearly identified, and it shall be possible to switch back to the weighing mode at all times.

Security

The software is held in Flash Memory and the OS cannot be modified by the user. The calibration, legally relevant parameters and ability to download user applications are protected via physical or software means.

A jumper located on the mainboard prevents all access to the legally relevant parameters and prevents the download of user applications.

Alternatively, software securing may be used to protect the calibration, legally relevant parameters and user application. Two non-resettable event counters – CAL and CONFIG – are incremented each time the calibration and legally relevant parameters respectively are modified, or if a new user application is downloaded, with access to these parameters being password protected. The counters' values and designation must be written on tamper-evident label(s) on or near the inscription plate

Verification information

Verification information may be accessed using the F1 and blue navigation keys of the indicator:

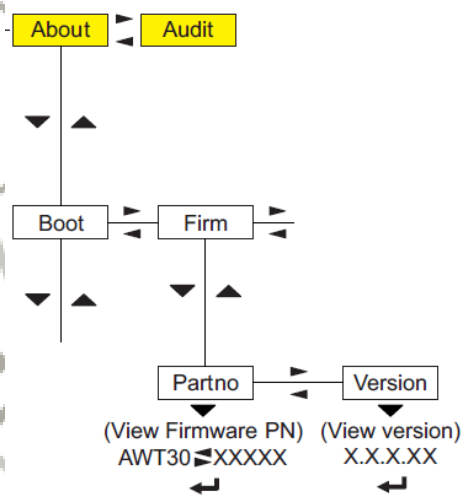
To access the menus, with the indicator powered up and in normal operating mode, press and hold the F1 key until **PASS** is displayed at which point the F1 key should be released. A flashing ***** will be displayed, prompting you to enter the password.

Key in 111 by using the numeric keys and press the ENTER ↵ key to accept it. **buSy** will be displayed initially followed by **USE**r.

Verification information

The indicator software is designated AWT30-100046 version 1.x.x.x (where x.x.x refers to the identification of non-legally relevant software which may be modified by the manufacturer).

To display the software part number and version, scroll through the options using the ▶ or ◀ key, until **About** is displayed. Select this option by pressing the ▼ key, then navigate through the menu structure below, to display either the part number or version:



Pressing ▼ while **PArtNo** is displayed allows the firmware (metrologically significant software) part number to be displayed.

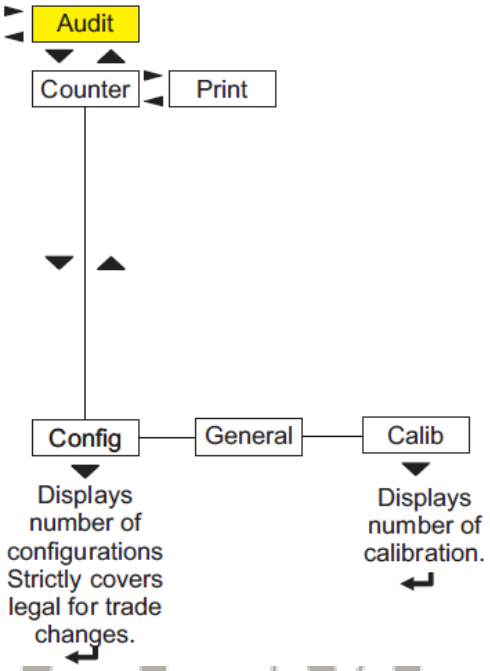
Pressing the ENTER ↵ key returns to the “Partno” menu.

Pressing ▼ while **VErSion** is displayed allows the firmware (metrologically significant software) version number to be displayed.

Pressing the ENTER ↵ key returns to the “Version” menu.

Event counters

To display the CALIB and CONFIG event counters' values, scroll through the options using the ▶ or ◀, until **Audit** is displayed. Select this option by pressing the ▼ key, then navigate through the menu structure below, to display either the CALIB or CONFIG event counter values:



Pressing ▼ while **Config** is displayed shows the value for the CONFIG counter

Pressing the ENTER ↵ key returns to the "Config" menu.

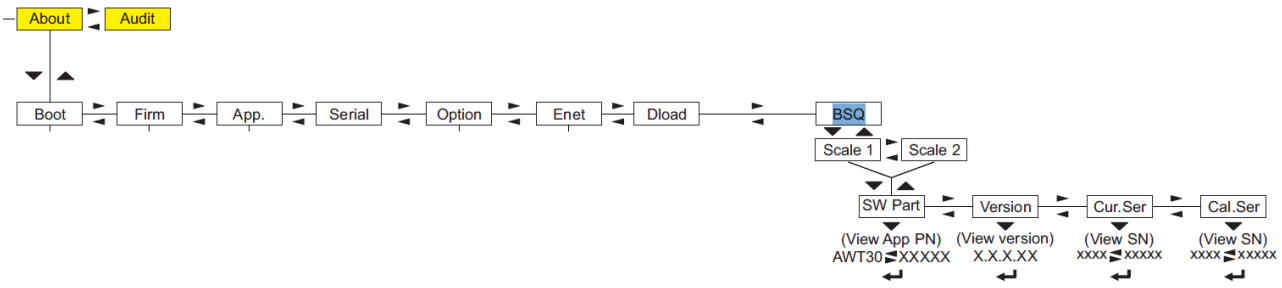
Pressing ▼ while **Calib** is displayed shows the value for the CAL counter.

Pressing the ENTER ↵ key returns to the "Calib" menu.

Software identification BSQ

The BSQ software is designated AWT30-500191 version 1.x.x.x (where x.x.x refers to the identification of non-legally relevant software, which may be modified by the manufacturer).

Pressing the ▼ key while **BSQ** is displayed allows the firmware (metrologically significant software) part number and version number to be displayed for the BSQ base(s) connected to either the **Scale 1** and/or **Scale 2** inputs.



Returning to normal weighing mode

- To exit back into normal weighing mode, press the **F1/ESC** key until "**SAvE No**" is visible, then press the ENTER ↵ key.