



OIML Member State  
Denmark

OIML Certificate of Conformity No.  
R106/2011-A-DK2-2023.01

**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*)

**Weighline TSR4000**

**Designation of the module** (*if applicable*)

**Automatic rail-weighbridge**

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 106-1, Edition (year): 2011**

For accuracy class: **1 or higher for total train, and 2 for coupled wagons**

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: 123-21843.10, dated 26 September 2023, that includes 96 pages

Type evaluation report: No. 123-21843.90.20, dated 09 October 2023, that includes 14 pages

The technical documentation relating to the identified type is contained in documentation file:  
123-21843

**OIML Certificate History**

<b>Revision No.</b>	<b>Date</b>	<b>Description of the modification</b>
Initial version	13 October 2023	-

Identification, signature and stamp

**The OIML Issuing Authority**

FORCE Certification A/S

Date: 13 October 2023

Jens Hovgård Jensen

Certification 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

Accuracy class	Coupled wagon weighing	2
	Total train weighing	≥ 1
Maximum operating speed		≤ 16 km/h
Minimum operating speed		≥ 1 km/h
Maximum wagon weight		≤ 120 000 kg
Minimum wagon weight		≥ 10000 kg
Scale interval		≥ 200 kg
Maximum capacity		≤ 30 000 kg (per axle)
Minimum capacity		≥ 5 000 kg (per axle)
Transducer type		Weighline, E <sub>max</sub> ≤ 15000 kg
Max. no. of weighline transducers		16 (8 pairs)
Max. number and type of wagons per train		Determined at verification
Direction of weighing		Bi-directional (train pushed/pulled)
Power supply		100-240 VAC, 47-63Hz (with ICOP Technology VDX3-PCI motherboard and Seasonic SSP-300SFB Micro ATX power supply unit)
Operating temperature range		-10 °C to +40 °C
Climatic environment		Closed, non-condensing (TSR4000 weight processor)
		Open, condensing (Weighline transducers)
Electromagnetic classification		E2

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

- There is a respective OIML R60 Certificate of Conformity 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 R106 has been conducted on this load cell.
- The compatibility of the load cells and indicator is established by the manufacturer by means of a compatibility of modules calculation.
- A standard load transmission device is used.

The Weighline TSR4000 instrument is not approved for weighing wagons with liquid.

### TSR4000 specifications

Excitation voltage:	17.5 VDC
Minimum input impedance (per channel):	93.75 ohm
Minimum input signal per scale interval:	11.38 $\mu$ V
Number of verification scale intervals:	$\leq$ 750

### Devices

The Weighline TSR4000 is provided with the following devices:

- Automatic detection of over-speed
- Automatic detection of roll-back
- Vehicle identification
- Initial zero-setting
- Semi-automatic and automatic zero-setting devices ( $\leq$  4 % of Max.)
- Direction of travel detection
- Measurement of vehicle speed

### Software

The software is designed to run exclusively on the TSR4000 weighing instrument and is an embedded software.

The software identification is "TSR4000 CIMW" and the approved software version number is  
5.xxx-A or 5.xxx/yy

where xxx denotes updates & bug fixes that do not affect the metrological characteristics of the software, and yy denotes an optional alphanumeric suffix, that may be used by the manufacturer for installation identification purposes.

The version number can be found on the 'System Identification' screen by navigating to **Main menu > Setup > System Information**.

### Interfaces

The instrument may have the following interface types:

- 2 serial RS232 / RS422 ports
- Transducer and wheel sensor inputs

### Sealing

The inscription plate is located visible on the indicating device and is secured, either by sealing or by being of a form such that it is destroyed when removed.

Access to the calibration and configuration parameters is protected by a slide switch mounted on the top edge of the Multifunction Card. The switch is secured by the application of a tamper-evident sticker.

Components that may not be dismantled or adjusted by the user (jumper on main board when applicable, electronics, load cell connection, junction box(es)) must be secured. Wire and seal solution or a tamper-evident sticker (bearing a securing mark).

### **Twin track mode**

The controller functions as a single weighing instrument which dynamically selects a sub-set of active transducers. Wheel sensors are present on both tracks and are used for vehicle identification (as normal) and also to select which sub-set of transducers will be processed to provide the weights. The dynamic biasing has entries for both tracks and is set independently for each track.

When the instrument is “Ready To Weigh” it will monitor both tracks for an incoming train. When it detects a train, it will lock out the other track for the duration of the train weighing. All weights from the “other track” will be discarded.

Identification of the track being used for weighing is given on the TSR4000 display and weigh-bills.

Both lines must have the same metrological characteristics, and the rating plate shall bear the wording “Dual track” with the track’s designation as shown on the display and weigh bills.

The dual track configuration is set up when the system is configured.

