Ministry of Business, Innovation & Employment

Wellington, New Zealand

CERTIFICATE OF APPROVAL

Weights and Measures Regulations 1999
Part 1 Regulations 5 and 6

Current Date of Issue: 10 March 2015
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Certificate 2186

Overseas Certificate No: R76/2006-DK3-14.07

This certifies that the Taiwan Scale or T Scale RW / RWS / RWP / ROW (Digital Weight Indicator), Weighing Instrument described overleaf has been approved as suitable for trade use subject to any conditions stated in the schedule:

Figure 1 - Model RW indicator

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Under delegated authority from the Chief Executive of The Ministry of Business, Innovation & Employment

Note: This is not an approval to any person but only with respect to the type and pattern of weight, measure, or weighing or measuring instrument.

SCHEDULE

Pattern:	Weighing Instrument
Make:	Taiwan Scale or T Scale
Model:	RW / RWS / RWP / ROW (Digital Weight Indicator)
Manufacturer:	TScale Electronics Mfg. (Kunshan) Co., Ltd - China
Submitter:	Maximus Scales Ltd
Verification Scale Interval:	Class III: n ≤ 6000 for single interval (n ≤ 2 x 3000, for multi-interval/range). Class IIII: n ≤ 1000 for each range.
Class:	III or IIII
Tare:	- ≤ Max
Conditions of Approval:	1. The approval does not include the use of the indicator as an automatic weighing instrument. 2. When configured as part of a weighing instrument with max capacity not greater than 100 kg, instrument shall carry a notice stating “NOT TO BE USED FOR TRADING DIRECT WITH PUBLIC” or similar wording 3. This Certificate only covers compliance with respects to the relevant sections of the Weights and Measures Act and Regulations and should not be construed as guarantee of compliance with any safety requirements. 4. It is the submittor’s responsibility to ensure that all instruments marked with this approval number are constructed as described in the documentation lodged with Trading Standards and with the relevant Certificate of Approval and Technical Schedule. 5. Trading Standards reserves the right to examine any instrument or component of an instrument purporting to comply with this approval.

Description:

A Taiwan Scale (or T Scale) Model RW / RWS / RWP / ROW is a digital weight indicator and may be configured to form part of a Class III or IIII non-automatic weighing Instruments with single interval, multi-range or multi-interval.

The number of verification scale intervals applicable to a weighing instrument which includes this indicator shall not exceed:
i) Single interval Weighing Instrument: 6000 verification scale intervals, (for class IIII n ≤ 1000) or
ii) Multi-range or Multi-interval Weighing Instrument: 3000 verification scale intervals per weighing range with up to two weighing ranges, (for class IIII n ≤ 1000).

The changeover between weighing ranges is automatic.

TABLE 1 – Specifications

Fractional factor (pi)	0.5
Minimum sensitivity	1 µV/scale interval
Excitation voltage	5 V DC
Minimum load cell impedance	87 Ω
Maximum load cell impedance	1200 Ω
Operating temperature range	-10°C to +40°C

Load cell connection 4-wire, or 6-wire shielded with a maximum length of 282 m/mm2

Construction:
The indicators are housed in an enclosure made of either:
i. ABS plastic – Model RW / RWP / ROW
ii. Stainless steel – Model RWS

Display:
The pattern uses a LCD type display incorporated into the indicator housing.
The front panel of the indicator is equipped with an integrated keypad.

Display Check
A display check is initiated whenever power is applied.

Weighing unstable samples
The indicator has a function for weighing unstable samples, but only in configuration mode. Switching between a configuration mode and a normal weighing mode is not possible when the indicator is sealed.

Software version:
The legally relevant software revision level is displayed by pressing G/N key during the power-up sequence of the instrument.
The approved legally relevant software versions is 1.10, while the non-legally relevant application software is 1.xx, where xx can be 00 to 99.

Power Supply
The indicator operates on a 9 – 12 V DC from an external power adapter, with input from 230 VAC 50 Hz.
The indicators may also operate on internal rechargeable battery, if this option is installed.

Interfaces:
The instruments may be fitted with one or more of the following interfaces for connection of auxiliary and/or peripheral devices:
• RS-232C

Note: The Auxiliary devices shall meet the following conditions:
(i) have no function that would cause a variation in the display of the measured or computed quantities
(ii) 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
Or
As indicated from time to time by the Measurement and Product Safety Service (Type Approvals).

Additional Features
The indicator may have certain additional features such as totalisation, Hi/Low/Ok and counting which is NOT APPROVED.

Gravity Compensation:
The gravity adjustment parameter can be used to compensate the weight difference between the place in which the instrument is calibrated and the place of usage. Before carrying out the verification, the parameter is set to the gravity value for the current place of verification, and after the verification test is completed the parameter is set to the new gravity for the place of usage.

After entering the new value, the calibration is automatically adjusted for the place of usage.

CRITERIA for checking compatibility:
To check if the indicator can be used with a certain basework, the conditions to be met are:
a) The excitation voltage used is within the range approved for the basework
b) The maximum load applied to the basework (live load plus any dead load does not exceed the load cell maximum capacity)
c) The verification scale interval is not less than the minimum value specified
d) The number of verification scale intervals is less than or equal to the n max specified for the indicator
e) The signal voltage per verification scale interval is not less than the minimum sensitivity value per verification scale interval for the indicator (as specified in the approval document / technical specifications of the indicator).
i.e. Indicator Sensitivity ≤ (1000 x Ex x LC_Sens x e) / (N x Emax), where
Ex = Excitation from indicator (V)
LC_Sens = load cell sensitivity (mV/V)
e = verification scale interval of the instrument (kg)
N = number of load cells

Indicator Sensitivity = Minimum sensitivity value per verification scale interval for the indicator (μV)

ZERO SETTING DEVICES:
The Initial zero setting device of the pattern has a nominal range of not more than ±10% of the maximum capacity of the instrument.
The Indicator has a semi-automatic zero setting device with a nominal range of not more than ±2% of the maximum capacity of the instrument.
The Indicator has an automatic-zero tracking range of not more than ±2% of the maximum capacity of the instrument.

TARE:
The instrument has provision for subtractive semi-automatic and pre-set tare devices of up to maximum capacity.
When the tare function is active the “G/N” key will toggle the display between showing Net and Gross value.

METROLOGICAL MARKINGS:

Instruments must carry the following markings:
Manufacturer’s mark, or name:
Accuracy class
Pattern approval number: **TS 2186**
Maximum capacity Max (each range) ..... g or kg #
Minimum capacity Min (each range) ..... g or kg #
Verification scale interval e (each range) ..... g or kg #
Maximum subtractive tare T = - ……. g or kg
Serial number of the instrument ……..
These markings are also shown near the display of the result.

In addition, instruments not greater than 100 kg capacity shall carry a notice stating NOT TO BE USED FOR TRADING DIRECT WITH THE PUBLIC, or similar wording.

Sealing:

a) Indicators with internal calibration jumper:
The indicators are sealed by application of an adhesive destructible label to restrict from opening the enclosure covers. See sealing photos.
b) Indicators with calibration switch:
Sealing is achieved by either passing a wire through screw heads and terminating into a lead type seal or placing destructible adhesive labels over the calibration switch and over one of the screws in the enclosure. See sealing photos.
c) In addition, the connection point between the load cell cable and the indicator must be sealed using an approved type seal (destructible adhesive label or a lead wire seal).

Mark of Verification:

The destructible adhesive label seal or a lead plug type seal used for sealing the instrument shall carry a Mark of Verification. Removal of the seal deems the instrument not verified.

Temperature:

-10˚ C to 40˚ C

Figure 2 - Model RWS indicator

Figure 3 - Model RWP indicator

Figure 4 - Model ROW indicator

Figure 5 - Sealing Provision on RW Indicator (with internal calibration jumper)

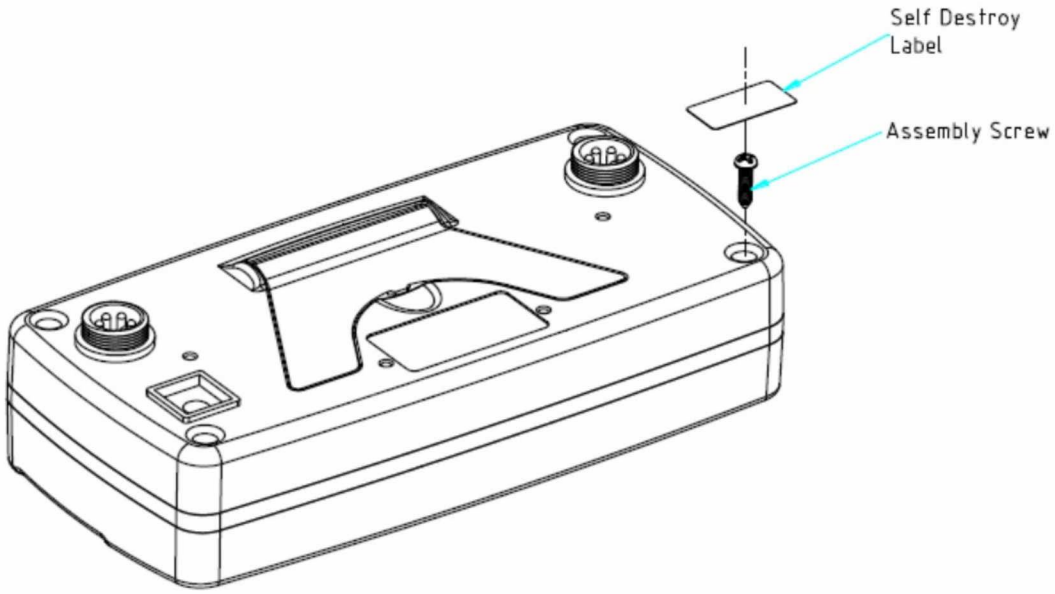

Figure 6 - Sealing Provision on RWS Indicator (with internal calibration jumper)

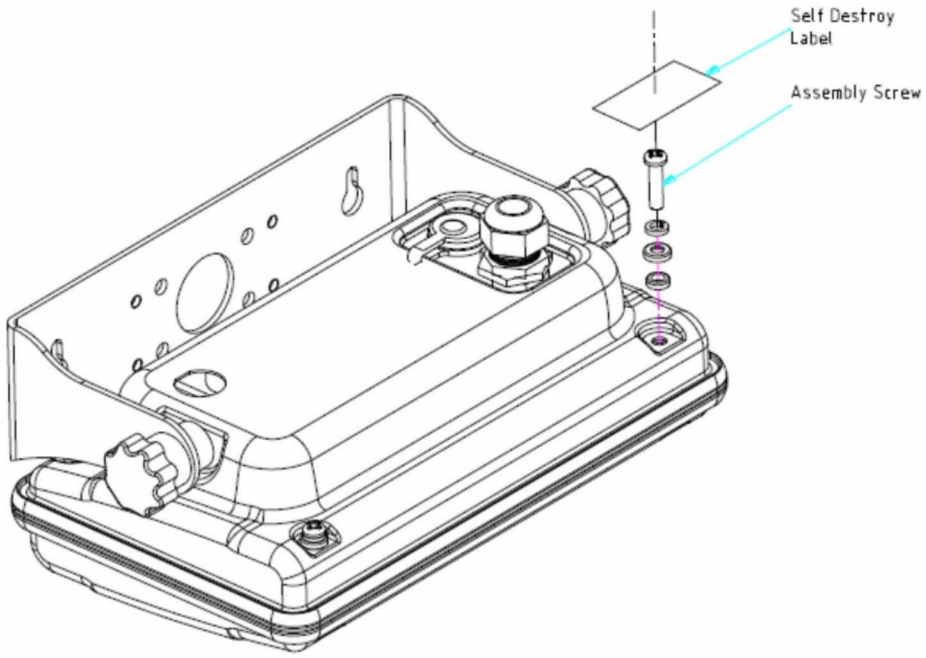

Figure 7 - Sealing Provision on RWS Indicator (with calibration switch)

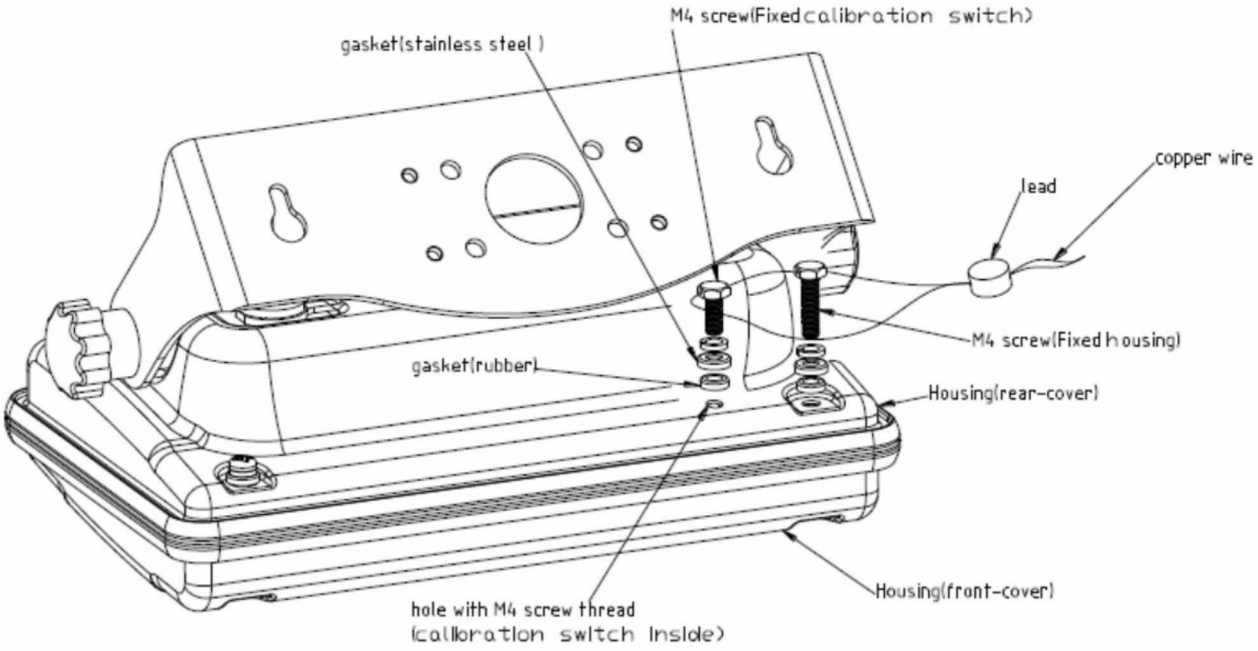

Figure 8 - Sealing Provision on RWP Indicator (with internal calibration jumper)

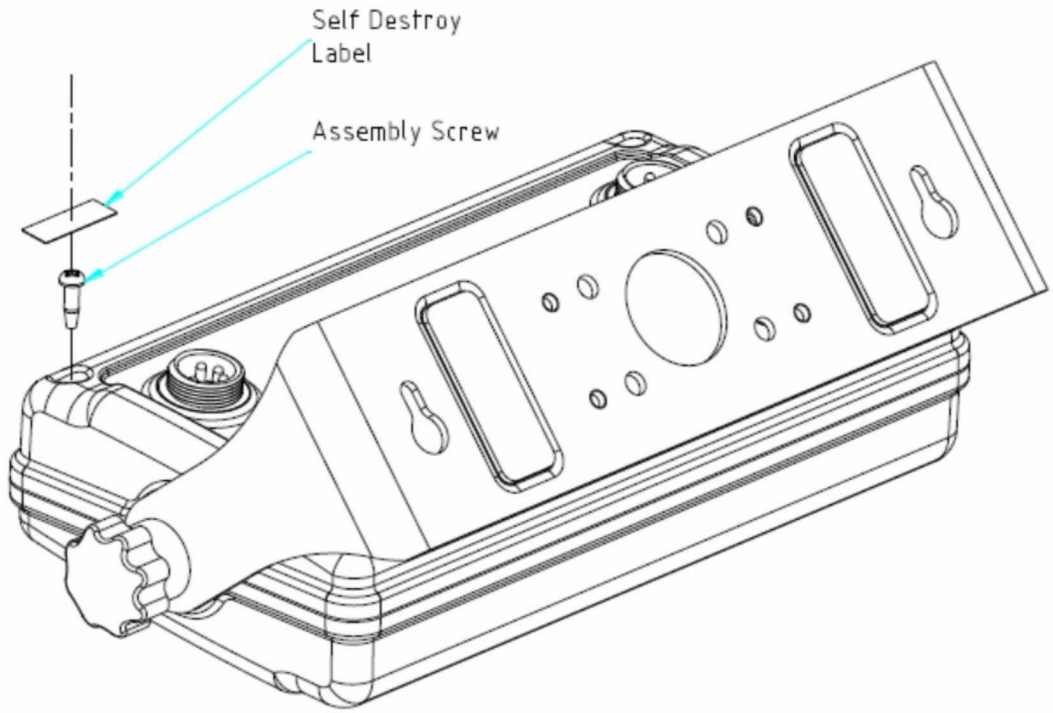

Figure 9 - Sealing Provision on RWP Indicator (with calibration switch)

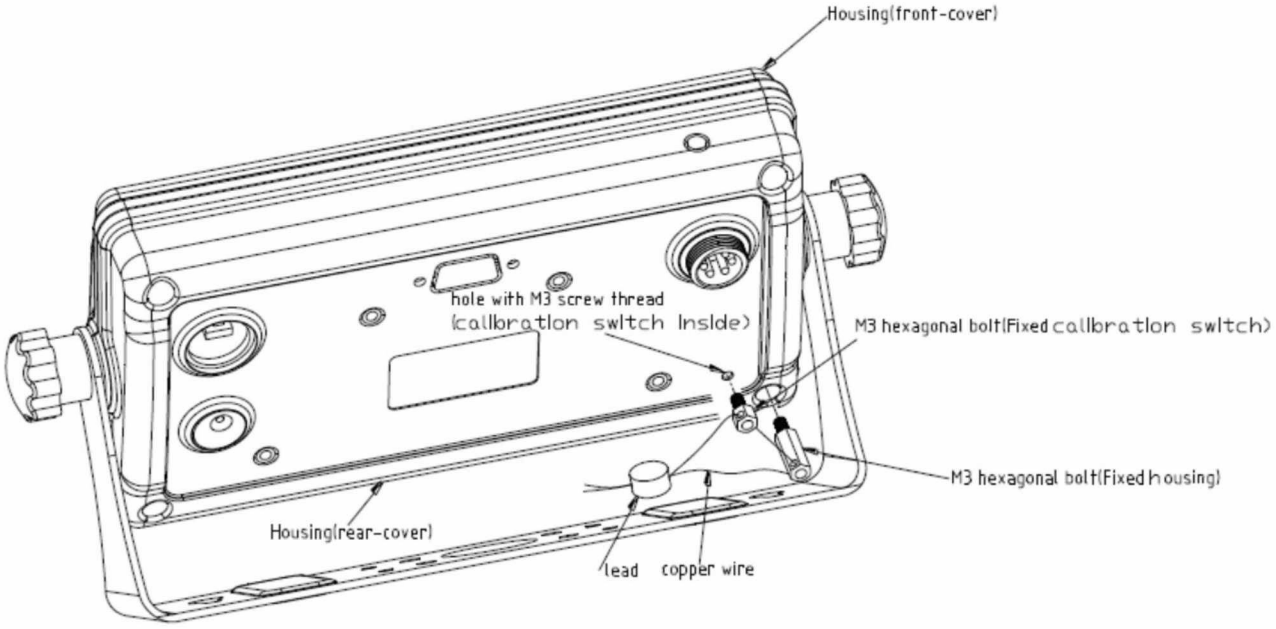

Figure 10 - Sealing Provision on ROW Indicator (with internal calibration jumper)