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EC Type-Examination Certificate

No. DK 0199.566

PWT

NON-AUTOMATIC WEIGHING INSTRUMENT

Issued by **DELTA Danish Electronics, Light & Acoustics**
EU - Notified Body No. 0199

In accordance with the requirements for the non-automatic weighing instrument of
EC Council Directive 2009/23/EC.

Issued to **Nanjing Toms Weighing Instruments Co., Ltd..**
No. 77 Baoshan Rd., Qilin Town,
Nanjing, Jiangsu
CHINA

In respect of Non-automatic price-computing weighing instrument designated PWT with
variants of modules of load receptors, load cells and peripheral equipment.
Accuracy class III, single-interval or dual range
Maximum capacity, Max: From 3 kg up to 30 kg
Verification scale interval: $e_i = \text{Max}_i / n_i$
Maximum number of verification scale intervals: $n_i = 3000$.
Variants of modules and conditions for the composition of the modules are
set out in the annex.

The conformity with the essential requirements in annex 1 of the Directive is met by the appli-
cation of the European Standard EN 45501:2015 and OIML R76:2006.

The principal characteristics and approval conditions are set out in the descriptive
annex to this certificate.

The annex comprises 7 pages.

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Descriptive annex

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1. Name and type of instrument

The non-automatic weighing instruments designated PWT is a self-indicating price computing scale. The scale is Class III with single-interval or dual range, supplied from 230 VAC and with an internal rechargeable battery.

The scales consist of analogue to digital conversion, microprocessor control circuitry, keyboard, non-volatile memory for storage of calibration and weight data. The scale has a front vendor display and rear customer display contained within a single enclosure.

2. Description of the construction and function

2.1 Construction

Enclosure

The scales are housed in a plastic enclosure with a top cover of stainless steel. The enclosures are designed primarily for all shops, but could also be used in industrial environment. A level indicator (gas bubble) is built into the enclosure near the front display.

Keyboard

The keyboard is containing 4 keys. The membrane keys are used to enter commands or to set up the instrument. Each key is identified with a name and/or pictograph.

Displays

Two 7-segment LED display sets (vendor and customer) each having 6 digits for weight and status indicators for: Zero, Net weight, Stable, and Range.

Electronics

The instruments have a main board with A/D conversion, non-volatile memory, keys and vendor display. There is a board for the customer display and some small boards for interconnection.

Models

Models	Weighing range	Max capacity	Min capacity	e	n	Load cell		
						No.	E _{max}	v _{min}
PWT	Single interval	3 kg	20 g	1 g	3000	1	5 kg	≤ 1 g
		6 kg	40 g	2 g	3000		10 kg	≤ 2 g
		15 kg	100 g	5 g	3000		20 kg	≤ 5 g
		30 kg	200 g	10 g	3000		35 or 40 kg	≤ 10 g
	Dual-range	1.5/3 kg	10/20 g	0.5/ 1 g	3000/3000		5 kg	≤ 0.5 g
		3/6 kg	20/40 g	1/2 g	3000/3000		10 kg	≤ 1 g
		6/15 kg	40/100 g	2/5 g	3000/3000		20 kg	≤ 2 g
		15/30 kg	100/200 g	5/10 g	3000/3000		35 or 40 kg	≤ 3.5 g

2.2 Function

The weight indicating instruments are microcontroller based electronic scales. The weight information appears in the digital display. The instruments are available for operation from 230 VAC 50-60 Hz and from an internal 6 V rechargeable battery.

The primary functions provided are detailed below.

2.2.1 Power-up

On power-up, the scale will perform a self-test, a display test and show the configuration, the battery voltage and software version.

After that it will automatically establish the current weight as a new zero reference.

2.2.2 Test function

On power-up, the weight indicator will test all memory functions followed by a display test.

2.2.3 Display range

The weight indicators will display weight from $-\text{Max}$ (tare function) to $\text{Max} + 9e$ (gross weight) within the limits of the display capacity.

2.2.4 Zero-setting

Zero-setting range: $\pm 2\%$ of Max.

Initial zero-setting range: $\leq \pm 10\%$ of Max.

Zero-setting is only possible when the load receptor is not in motion.

2.2.4.1 Semi-automatic zero-setting

Pressing the ZERO key causes a new zero reference to be established and ZERO annunciator to turn on, indicating that the display is at the centre of zero.

2.2.4.2 Zero-tracking

The scales are equipped with a zero-tracking feature, which operates over a range of $\pm 2\%$ of Max with a speed of $\pm 0.25 e_1/s$ and only when the indicator is at gross zero and there is no motion in the weight display.

2.2.5 Tare

The instrument models are provided with a semi-automatic subtractive tare feature activated using the "TARE" key.

When the tare function is active the Net indicator is on.

2.2.6 Operator information messages

The weight indicator has a number of general and diagnostic messages, which are described in detail in the user's guide.

2.2.7 Software version

The software revision level is displayed during the power-up sequence of the instrument.

The approved software version is: C.0.

2.2.8 Battery operation

The scale models can be operated from the internal 6 V rechargeable battery. The scale contains the circuitry necessary to recharge the battery when the scale is connected to the mains power.

3. Technical data

3.1 Scales

The scales have the following characteristics:

Accuracy class:	III
Weighing range:	single-interval or dual range
Maximum number of Verification Scale Intervals:	3000 per interval
Maximum capacity (Max):	From 3 kg to 30 kg
Verification Scale Interval:	$e \geq 0.5 \text{ g}$
Maximum tare effect:	$\leq -\text{Max}/2-e_1$
Excitation voltage:	5 VDC
Minimum load cell input impedance:	350 ohm
Maximum input impedance:	1050 ohm
Mains power supply:	230 VAC, 50-60 Hz, 6 V internal rechargeable battery
Operational temperature:	-10 °C to +40 °C
Peripheral interface:	Set out in Section 4

3.2 Load cells

3.2.1 Accepted load cells

The following load cell type is to be used according to the table of models in Section 2.1.
Zemic Co. Ltd.: Model LD-6, Class C3.

Other load cell types may be used if they have a test and/or part certificate (EN 45501) or an OIML R60 certificate of Conformity issued for the load cell by a Notified Body responsible for type examination under the Directive 2014/31/EU, and their specifications are the same as or better than those of the above Zemic load cell.

3.3 Documents

The documents filed at DELTA (reference No. T211885) are valid for the weighing instruments described here.

4. Interfaces and peripheral equipment

4.1 RS-232 interface

The instrument has no Interface or possibility for connection to a peripheral equipment

5. Approval conditions

5.1 Measurement functions other than non-automatic functions

Measurement functions that will enable the use of the instrument as an automatic weighing instrument are not covered by this type approval.

6. Special conditions for verification

None.

7. Securing and location of seals and verification marks

7.1 Securing and sealing

Seals shall bear the verification mark of a notified body or alternative mark of the manufacturer according to ANNEX II, section 2.3 of the Directive 2014/31/EU.

7.1.1 Scale

Access to the configuration and calibration facility requires that a calibration switch connected to the main board is activated.

Access to this switch is covered by a plastic plate. This plate is secured with wires and a lead or plastic seal. Furthermore, a brittle sticker is placed so that the above mentioned plastic cover cannot be removed (See Figure 3).

The metal cover is also secured by is a brittle sticker. (See Figure 4).

8. Location of CE mark of conformity and inscriptions

8.1.1 CE mark

CE mark and supplementary metrological marking shall be applied to the scale according to article 16 of Directive 2014/31/EU.

8.1.2 Inscriptions

Manufacturer's trademark and/or name and the type designation is located on the front panel overlay.

Indelibly printed on a brittle plastic sticker located on the front panel overlay and next to the customer display:

- Max_i , Min_i , $e_i =$
- Other inscriptions are allowed

On the inscription plate:

- Manufacturer's name and/or logo, model no., serial no., type-approval certificate no., accuracy class, tare, supply voltage.
- Other inscriptions are allowed.

9. Pictures



Figure 1 PWT scale, front view.



Figure 2 PWT scale, rear view.



Figure 3 Sealing of scale enclosure with wire and lead or plastic seal in the rod and brittle sticker.



Figure 4 Sealing of scale enclosure with brittle sticker.