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# EU Type Examination Certificate

**No. DK0199.354 revision 2**

**EW100 / EW200**

**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** Chengdu Pris Electronic Co., Ltd.  
C3-2F, Mould Tooling Industry Park,  
West Hi-Tech. Zone,  
Chengdu,  
China

**In respect of** Non-automatic weighing instrument designated EW100 / EW200 with variants of modules of load receptors and load cells.  
Accuracy class III, multi-range (2 ranges)  
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:  $n_i \leq 3000$ .  
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 application of the European Standard EN 45501:2015 and OIML R76:2006.

**Note: This revised edition replaces earlier revisions of the certificate.**

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

The annex comprises 9 pages.

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## Descriptive annex

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## 1. Name and type of instrument

The weighing instruments designated EW100 / EW200 is a self-indicating scale of Class III with single-interval or multi-range (2 ranges), an external AC mains adapter, and an internal rechargeable battery (optional). When equipped with two displays EW100 / EW200 may be used for direct sale to public.

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

## 2. Description of the construction and function

### 2.1 Construction

#### Enclosure

The scale is housed in a plastic enclosure. The display is placed on the front together with the keyboard. An optional display may be placed on the rear side of the scale. It is designed primarily for a shop or office environment, but may also be used in industrial environment.

#### Keyboard

The EW100 / EW200's keyboard contains 5 keys used to control the functions of the scale.

#### Display

The display comprises of either (EW100),

- Front: a 7-segment LED-display with 5 digits and appropriate LED status indicators.
- Rear: an optional 7-segment LED-display with 5 digits and appropriate LED status indicators.

or (EW200),

- Front: a 7-segment LCD-display with 6 digits, appropriate status indicators and white LED backlight.
- Rear: an optional 7-segment LCD-display with 6 digits, appropriate status indicators and white LED backlight.

#### Electronics

The instrument has the following printed circuit boards, one main board and one or two for the display boards.

#### Models

for EW100 and EW200 respectively

Max	e	N	No of Load cells	Load cell type	E <sub>max</sub>
3 kg	1 g	3000	1	L6D C3	5 kg
6 kg	2 g	3000			10 kg
15 kg	5 g	3000			20 kg
30 kg	10 g	3000			35 kg
1.5/3 kg	0.5/1 g	3000/3000			5 kg
3/6 kg	1/2 g	3000/3000			10 kg
6/15 kg	2/5 g	3000/3000			20 kg
15/30 kg	5/10 g	3000/3000			35 kg

Other models are allowed, if their technical data are in accordance with Chapter 3 and they fulfil the requirements in Sections 3.1 and 5.2.

## 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 mains at 230 VAC 50 Hz using an external AC/DC adapter with 12 VDC output voltage and an optional internal 6V re-chargeable battery.

The primary functions provided are detailed below.

### 2.2.1 Power-up

On power-up, the scale will display the software version followed by a configuration setup and then perform a display test. After that it will display the calibration counter and then automatically establish the current weight as a new zero reference.

### 2.2.2 Test function

On power-up, the scale will test all memory functions followed by a display test. The display test consists of counting down the numeric digits from 9 to 0 with the indicators turned on every second digit.

### 2.2.3 Display range

The scale will display weight from  $-Max$  to  $Max$  (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 scale 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.

#### 2.2.5.1 Semi-automatic tare

Pressing the "TARE" key will enter the currently weight value as the new tare weight value. The weight display will automatically change to the net weight display mode and turn on the NET annunciator. This tare value can be cleared by pressing the TARE key, when there is no load on the load receptor. This tare entry cannot take place, if the load receptor is in motion.

The maximum tare effect of  $T = -Max$  is on some models limited by the display capability (minus sign and 4 digits).

### 2.2.6 Units

The "UNITS" key is intended to toggle between allowed weighing units. Only either g or kg – depending on maximum capacity - is allowed as unit.

### 2.2.7 Printing

Pressing the "PRINT" key will print the weight, if the weight is stable and a printer is connected to the RS232 interface.

### **2.2.8 Check weighing**

The scale has a non-automatic checkweighing function. The “CHECK” key is used for setting the limits for the checkweighing.

### **2.2.9 Gravity acceleration zone**

The gravity acceleration adjustment parameter can be used to compensate the weight difference between the place in which the instrument is calibrated and the place of usage. There is one parameter for this adjustment, a gravity zone determined based on the latitude and the elevation above sea level. The value entered in this parameter before calibration is considered as a reference gravity zone. For gravity adjustment, the new zone value must be entered into this parameter after calibration. After entering the new zone, the calibration is automatically adjusted for the usage in this gravity zone.

### **2.2.10 Operator information messages**

The weight display can show a number of general and diagnostic messages, which are described in detail in the User’s Manual.

### **2.2.11 Software version**

The software revision level is displayed during the power-up sequence of the instrument. The approved software versions are 1.0, 1.1 and 1.2

The configuration of the scale is displayed at power up as “U.k.m.n” where,  
k is 0 for single-interval and 1 for multi-range,  
m is weighing units available and must be 1,  
n is 1 or 0 depending on whether RS232 interface is installed or not.

### **2.2.12 Battery operation**

The scale models supplied with 12 VDC from an external AC/DC adapter can be operated from an optional internal 6V rechargeable battery. The scale contains the circuitry necessary to recharge the battery, when the scale is connected to the mains power.

### **2.2.13 ECR / POS system support**

The scales – with software version 1.2 – may be connected to an electronic cash register (ECR) or a point of sale (POS) system with a test, part or evaluation certificate.

### 3. Technical data

#### 3.1 Scales

The EW100 / EW200 scales have the following characteristics:

Accuracy class:	III
Weighing range:	Single-interval or multi-range (2 ranges)
Maximum number of Verification Scale Intervals:	$\leq 3000$ pr. interval
Maximum capacity Max):	from 3 kg to 30 kg
Verification Scale Interval:	$e_i \geq 0.5$ g
Maximum tare effect:	$\leq -\text{Max}$ , limited by display capability
Minimum input voltage per VSI:	1 $\mu\text{V}$
Excitation voltage:	5 VDC
Minimum load cell input impedance:	350 ohm
Maximum input impedance:	1000 ohm
Mains power supply:	12 VDC / 230 VAC, 50 Hz using external AC/DC adapter
Operational temperature:	-10 °C to +40 °C
Peripheral interface:	Set out in section 4

#### 3.2 Load cells

##### 3.2.1 ZEMIC L6D load cell

The ZEMIC L6D C3 load cell can be selected according to the table in Section 2.1.

##### 3.2.2 General acceptance of modules

Any load cell(s) may be used for instruments under this certificate of type examination provided the following conditions are met:

- 1) A test certificate (EN 45501) or OIML Certificate of Conformity (R60) respectively issued for the load cell by a Notified Body responsible for type examination under the Directive 2009/23/EC.
- 2) The certificate contains the load cell types and the necessary load cell data required for the manufacturer's declaration of compatibility of modules (WELMEC 2:2015), and any particular installation requirements). A load cell marked NH is allowed only if humidity testing to EN 45501 has been conducted on this load cell.
- 3) The compatibility of load cells and indicator is established by the manufacturer by means of the compatibility of modules form, contained in the above WELMEC 2 document, or the like, at the time of EC verification or declaration of EC conformity of type.
- 4) The load transmission must conform to one of the examples shown in the WELMEC 2.4 Guide for load cells.

#### 3.3 Composition of modules

In case of composition of modules, EN 45501 paragraph 3.5 and 4.12 shall be satisfied.

#### 3.4 Documents

The documents filed at DELTA (reference No. T201761) are valid for the weighing instruments described here.

## **4. Interfaces and peripheral equipment**

### **4.1 Interfaces**

#### **4.1.1 RS-232 interface**

The EW100/EW200 may be equipped with a RS-232 interface for connection to a printer or to an ECR or POS system. This interface is characterised “Protective interfaces” according to paragraph 8.4 in the Directive.

### **4.2 Peripheral equipment**

The instrument may be connected to any simple printer with a CE mark of conformity by a screened cable.

## **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.

### **5.2 Compatibility of modules**

In case of composition of modules, EN 45501:2015 annex F shall be satisfied.

## **6. Special conditions for verification**

### **6.1 Composition of modules**

The environmental conditions should be taken into consideration by the composition of modules for a complete weighing instrument, for example instruments with load receptors placed outdoors and having no special protection against the weather.

The composition of modules shall agree with Section 5.2.

### **6.2 Gravity compensation**

If the verification is not performed at the place of use, gravity information in the form of gravity zone for the place of use shall be stated either in the Declaration of Conformity or on the inscription plate.

## **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, module F or D of Directive 2014/31/EU.

#### **7.1.1 Scale**

Access to the configuration and calibration facility is achieved by a calibration switch accessed through a hole in the bottom of the enclosure of the scale.

Sealing of the access to the switch is accomplished by a sticker covering the hole through which the switch is accessed.

Sealing of the enclosure is accomplished by an additional sticker covering one of the assembling screws of the enclosure.

## **8. Location of CE mark of conformity and inscriptions**

### **8.1 Scale**

#### **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**

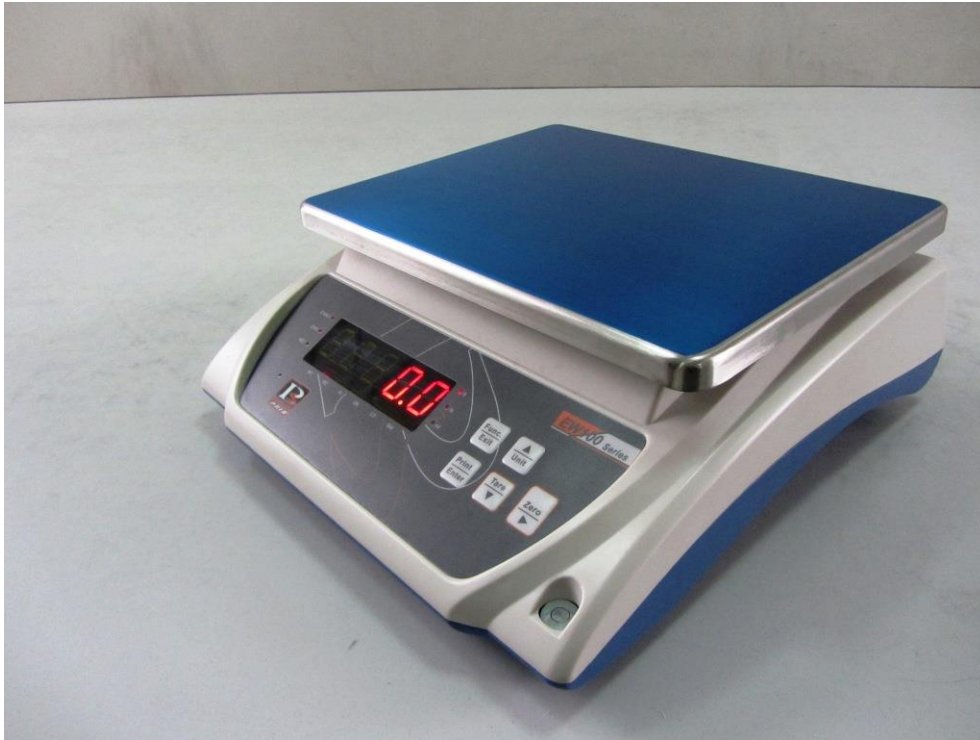
Manufacturer's trademark, type designation,  $max_i$ ,  $min_i$ , and  $e_i$  shall be located near the display(s).

On a label located on the side of the scale enclosure:

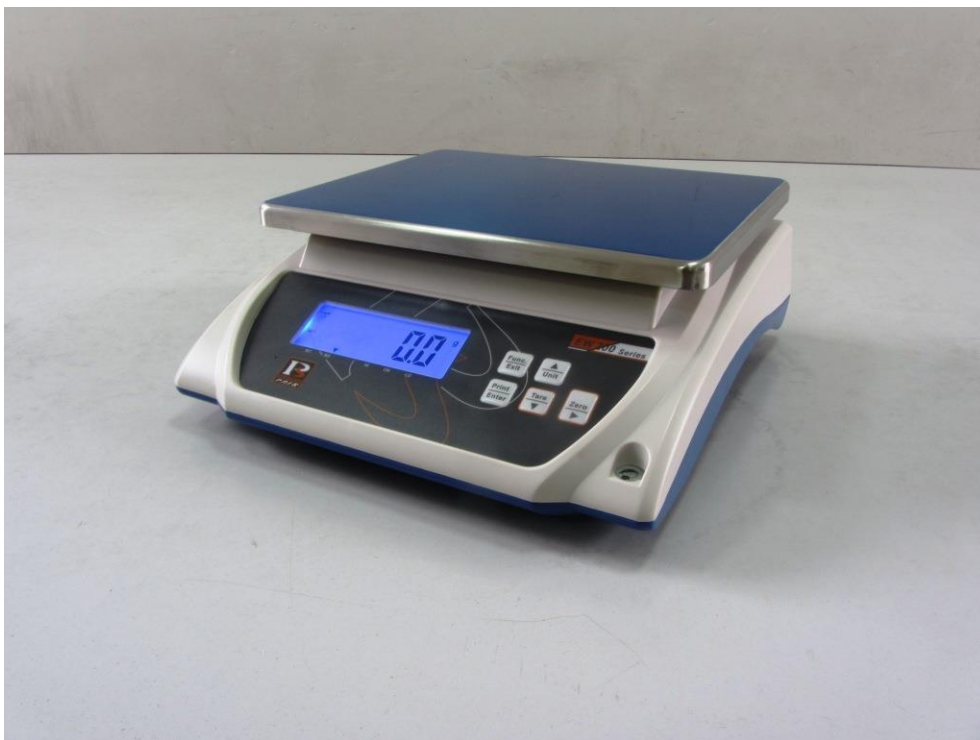
- Manufacturer's name or trademark
- Postal address of manufacturer
- type designation
- $max_i$ ,  $min_i$ ,  $e_i$  (optional)
- tare
- temperature range (optional)
- model no., serial no., electrical data and other inscriptions



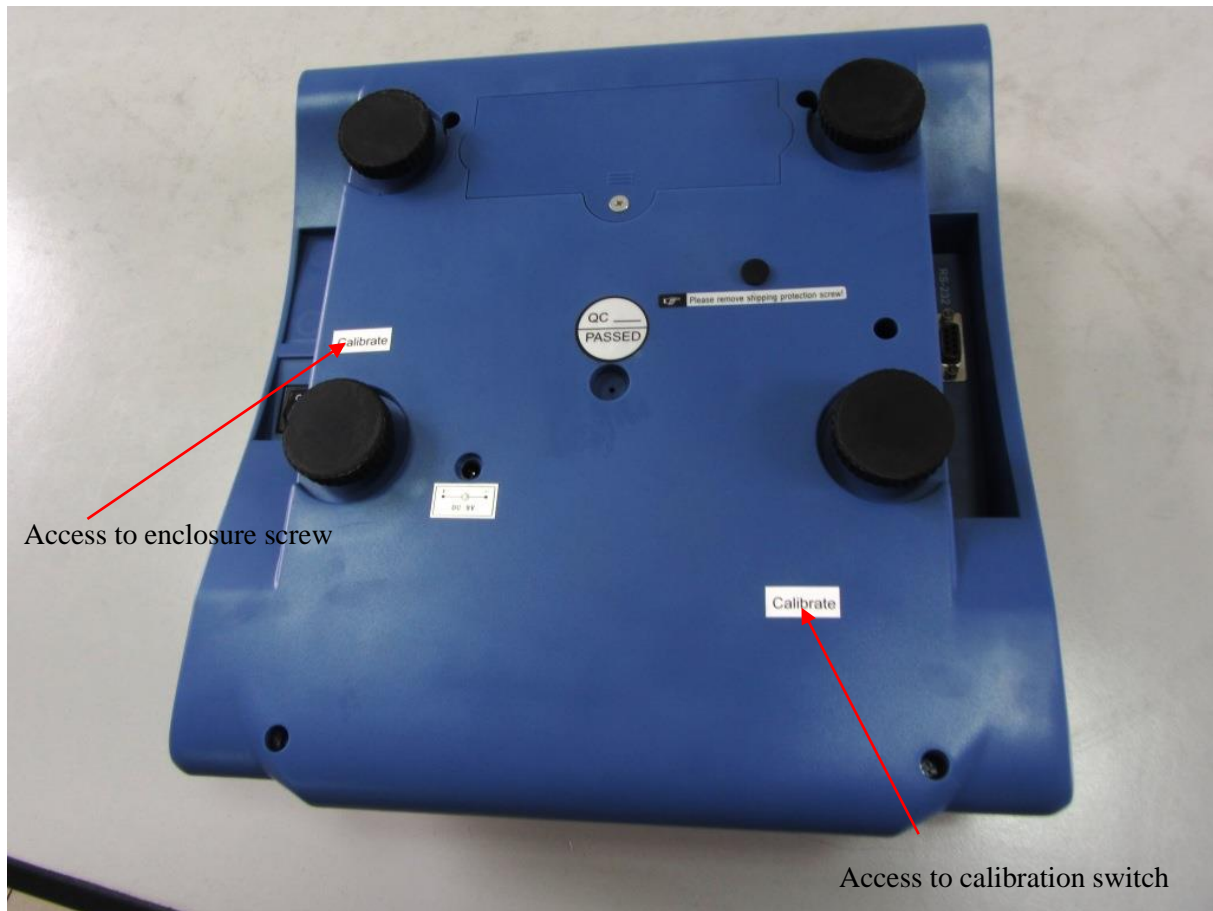
## 9. Pictures



**Figure 1** EW100 scale.



**Figure 2** EW200 scale.



**Figure 3** Sealing of EW100 / EW200.