We help ideas meet the real world

EC Type-Approval Certificate

No. DK 0199.417

PD100M / PD200M / PD300M

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 **Cardinal Scale Manufacturing Company**
203 East Daugherty
P.O. Box 151
Webb City, MO 64870
USA

In respect of Non-automatic weighing instrument designated PD100M / PD200M / PD300M.
Accuracy class III, single-interval
Maximum capacity, Max: 250 kg
Verification scale interval: e ≥ 0.1 kg
Maximum number of verification scale intervals: n = 2500 (however, dependent on environment).

The conformity with the essential requirements in annex 1 of the Directive is met by the application of the European Standard EN 45501:1992/AC:1993 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.

Issued on **2013-08-26**
Valid until **2023-08-26**

Signatory: J. Hovgård

DELTA
Venlighedsvej 4
2970 Hørsholm
Denmark

Tel. (+45) 72 19 40 00
Fax (+45) 72 19 40 01
www.delta.dk
VAT No. DK 12275110

DANAK
PROD Reg. nr 7026

Descriptive annex

Contents

		Page
1.	**Name and type of instrument**	**2**
2.	**Description of the construction and function**	**2**
2.1	Construction	2
2.2	Function	2
3.	**Technical data**	**4**
3.1	Scales	4
3.2	Load cell	4
4.	**Interfaces**	**4**
4.1	Interfaces	4
5.	**Approval conditions**	**4**
5.1	Height measurement	4
6.	**Special conditions for verification**	**4**
7.	**Securing and location of seals and verification marks**	**5**
7.1	Securing and sealing	5
7.2	Verification marks	5
8.	**Location of CE mark of conformity and inscriptions**	**5**
8.1	CE mark	5
8.2	Inscriptions	5
9.	**Pictures**	**6**

1. Name and type of instrument

The weighing instruments designated PD100M / PD200M / PD300M are self-indicating non-automatic scales of Class III with single-interval and supplied from batteries. An optional external AC/DC mains adapter is available.

2. Description of the construction and function

2.1 Construction

Enclosure

The indicator part of the scales are housed in an ABS enclosure and either connected to the load receptor by a cable (PD100M) or placed on a pole of the load receptor, either a low (PD300M) or a high (PD300M).

Keyboard

The keyboard of the scales contains 7 membrane keys - including ON/OFF - used to control the functions of the scale.

Display

The pole display of the scales comprises of a 7-segment LCD display with backlight with 5 digits and appropriate status indicators.

2.2 Function

The weight indicating instruments are microcontroller based electronic scales with a digital display used to show weight, height and BMI index depending on the current operating mode. The instruments are available for operation from 6 “AA” size batteries placed in the scale base or optional from AC mains using an AC to 9V DC adapter (after having removed the batteries).

The primary functions provided are detailed below.

2.2.1 Power-up

On power-up, the weight indicator will perform a display test and then show the software version number for a few seconds. After that it will display the current weight.

2.2.2 Zero-setting

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

Zero-setting range: 4% of Max.
Zero-setting can only take place when the weight display is not in motion.
The initial zero-setting range is $\leq \pm 10\%$ of Max

2.2.3 Zero-tracking

The weight indicator is equipped with a zero-tracking feature, which operates over a range of 4 % of Max and only when there is no motion in the weight display.

2.2.4 Units

The UNITS key may be used to select the units in which the weight is displayed. The selected unit of measure is indicated in the weight display. Available units of measure are kilogram and pound.
This function is only available in software version 0.0.

2.2.5 Lock - Unlock

The LOCK - UNLOCK key may be configured during setup of the indicator to lock and unlock the weight display. This feature is not to be used in trade applications, but may be convenient in clinical or health care weighing applications. With this feature enabled, pressing the LOCK - UNLOCK key will lock the weight display and turn on the LOCK annunciator. Pressing the key a second time will unlock the weight display and turn the LOCK annunciator off.

2.2.6 BMI HT - Enter

The BMI HT - ENTER key is used to access the Body Mass Index feature of the indicator. This allows the operator to enter the height of the person on the load receptor or to read it in from the connected digital height rod (Model PD300M DHR only). When height is displayed the HEIGHT annunciator is on.

Pressing the BMI HT - ENTER key again will calculate and display the Body Mass Index (BMI). Display of the BMI is indicated by turning the BMI annunciator on.

2.2.7 Display test

A self-test routine is initiated by pressing the ON/OFF key to turn the instrument off then pressing it again to turn the instrument ON. The test routine consists of turning on and off all of the segments of the display to verify that the display is fully functional.

2.2.8 Operator information messages

The indicator has several general and diagnostic messages that are described in detail in the ProDoc Series Owner's Manual.

2.2.9 Software version

The software version number is displayed during the power up sequence of the instrument. The approved version number is: "U 1.0"

3. Technical data

3.1 Scales

The PD100M / PD200M / PD300M scales have the following characteristics:

Accuracy class:	III
Weighing range:	Single-interval
Maximum number of Verification Scale Intervals:	2500
Maximum capacity Max):	250 kg
Verification Scale Interval:	e ≥ 0.1 kg
Excitation voltage:	10 VDC
Mains power supply:	9 VDC from 6 “AA” size batteries optional by using a 100 - 240 VAC to 9 VDC external adapter
Operational temperature:	+10 °C to +40 °C
Peripheral interface:	Set out in section 4

3.2 Load cell

The scales are approved with Keli AMI C3 load cell.

4. Interfaces

4.1 Interfaces

The indicator may be equipped with one or more of the following protective interfaces located on the main board or on separate interface boards.

- RS-232C
- USB
- Digital height rod interface (only model PD300M DHR)

All interfaces are characterised “Protective interfaces” according to paragraph 8.4 of the Directive.

The interfaces do not have to be secured.

5. Approval conditions

5.1 Height measurement

The height measurement - if present - is 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 2009/23/EC.

Access to the setup / the configuration and calibration facilities of the scale is achieved by turning the indicator off, and pressing a key combination during the turn off of the scale.

Sealing of the indicator is accomplished by using two event counters, one for the configuration and calibration called "CALCH" and one for the setup called "SETCH". Both counters are 3-digits. To view the value of this event counter, turn the indicator off then, holding the Units key down, turn the indicator on. First the display test will be performed then the software version will be shown for a few seconds. After this the display will show CALCH (Calibration Check) for two seconds followed by the 3-digit event counter value in two seconds. Next, the display will show SETCH (Setup Check) for two seconds followed by the 3-digit event counter value in two seconds. These values are contained in non-volatile memory and cannot be manipulated or reset. To return to normal operation, press the Units key again or turn the power off then on.

A non-removable label having the text 'CALCH: xxx' and SETCH: xxx, where xxx are the value of the event counters at the time of verification, is to be placed on or next to the inscription plate of the scale.

The sealing of the indicator is regarded as broken, if the value on the label differs from the displayed value.

The scale shall be secured against dismantling with brittle plastic stickers.

7.2 Verification marks

A green M-sticker and a sticker with verification marks shall be placed on the inscription plate.

8. Location of CE mark of conformity and inscriptions

8.1 CE mark

A sticker with the CE mark of conformity and year of production is located on the identification plate, which is located on the rear side of the scale.

8.2 Inscriptions

Manufacturer's trademark, type designation, Max, Min, and e = shall be located near the display.

On the inscription plate (normally located on the back of the instrument enclosure):

- Manufacturer's trademark
- Certificate no. and the accuracy class
- Model no., Serial no., electrical data and other inscriptions

9. Pictures

Figure 1 PD100M.

Figure 2 PD200M.

Figure 3 PD300M.