# C315

**Medical scales:**
Personal scales
Bed scales
Chair scales
Baby scales

## USER MANUAL

**RADWAG BALANCES AND SCALES**
ADVANCED WEIGHING TECHNOLOGIES

# MEDICAL SCALE MODELS

| Scale type | Scale name | Communication interface |
|---|---|---|
| C315.60/150.OW-1 | Personal scale | RS232 |
| C315.60/150.OW-2 | Personal scale | RS232, USB |
| C315.60/150.OW-3 | Personal scale | RS232, Wi-Fi$^{®}$ |
| C315.60/150.OW-4 | Personal scale | RS232, USB, Wi-Fi$^{®}$ |
| C315.100/200.OW-1 | Personal scale | RS232 |
| C315.100/200.OW-2 | Personal scale | RS232, USB |
| C315.100/200.OW-3 | Personal scale | RS232, Wi-Fi$^{®}$ |
| C315.100/200.OW-4 | Personal scale | RS232, USB, Wi-Fi$^{®}$ |
| C315.60/150.OR-1 | Personal scale | RS232 |
| C315.60/150.OR-2 | Personal scale | RS232, USB |
| C315.60/150.OR-3 | Personal scale | RS232, Wi-Fi$^{®}$ |
| C315.60/150.OR-4 | Personal scale | RS232, USB, Wi-Fi$^{®}$ |
| C315.100/200.OR-1 | Personal scale | RS232 |
| C315.100/200.OR-2 | Personal scale | RS232, USB |
| C315.100/200.OR-3 | Personal scale | RS232, Wi-Fi$^{®}$ |
| C315.100/200.OR-4 | Personal scale | RS232, USB, Wi-Fi$^{®}$ |
| C315.60/150.OK-1 | Personal scale | RS232 |
| C315.60/150.OK-2 | Personal scale | RS232, USB |
| C315.60/150.OK-3 | Personal scale | RS232, Wi-Fi$^{®}$ |
| C315.60/150.OK-4 | Personal scale | RS232, USB, Wi-Fi$^{®}$ |
| C315.100/200.OK-1 | Personal scale | RS232 |
| C315.100/200.OK-2 | Personal scale | RS232, USB |
| C315.100/200.OK-3 | Personal scale | RS232, Wi-Fi$^{®}$ |
| C315.100/200.OK-4 | Personal scale | RS232, USB, Wi-Fi$^{®}$ |
| C315.60/150.OK2-1 | Personal scale | RS232 |
| C315.60/150.OK2-2 | Personal scale | RS232, USB |
| C315.60/150.OK2-3 | Personal scale | RS232, Wi-Fi$^{®}$ |
| C315.60/150.OK2-4 | Personal scale | RS232, USB, Wi-Fi$^{®}$ |
| C315.100/200.OK2-1 | Personal scale | RS232 |
| C315.100/200.OK2-2 | Personal scale | RS232, USB |
| C315.100/200.OK2-3 | Personal scale | RS232, Wi-Fi$^{®}$ |
| C315.100/200.OK2-4 | Personal scale | RS232, USB, Wi-Fi$^{®}$ |

| C315.6/15.D-1 | Baby scale | RS232 |
|---|---|---|
| C315.6/15.D-2 | Baby scale | RS232, USB |
| C315.6/15.D-3 | Baby scale | RS232, Wi-Fi® |
| C315.6/15.D-4 | Baby scale | RS232, USB, Wi-Fi® |
| C315.10/20.D-1 | Baby scale | RS232 |
| C315.10/20.D-2 | Baby scale | RS232, USB |
| C315.10/20.D-3 | Baby scale | RS232, Wi-Fi® |
| C315.10/20.D-4 | Baby scale | RS232, USB, Wi-Fi® |
| C315.K.250C-1 | Chair scale | RS232 |
| C315.K.250C-2 | Chair scale | RS232, USB |
| C315.K.250C-3 | Chair scale | RS232, Wi-Fi® |
| C315.K.250C-4 | Chair scale | RS232, USB, Wi-Fi® |
| C315.4B.500C-1 | Bad scale | RS232 |
| C315.4B.500C-2 | Bad scale | RS232, USB |
| C315.4B.500C-3 | Bad scale | RS232, Wi-Fi® |
| C315.4B.500C-4 | Bad scale | RS232, USB, Wi-Fi® |
| C315.8B.300C-1 | Ramp bed scale | RS232 |
| C315.8B.300C-2 | Ramp bed scale | RS232, USB |
| C315.8B.300C-3 | Ramp bed scale | RS232, Wi-Fi® |
| C315.8B.300C-4 | Ramp bed scale | RS232, USB, Wi-Fi® |

| ⚠ | **_Wi-Fi® is a registered trademark of Wi-Fi® Alliance._** |
|---|---|

# CONTENTS

# 1. INTENDED USE

Medical scales are intended to measure patients' body weight. In case of a personal scale the patient is weighed standing, in case of chair scales the patient is weighed sitting, in case of a bed scale the patient is weighed lying. The scales feature a plastic housing and a backlit LCD, and are equipped with an internal battery which allows their operation in places where there is no access to the mains. The scales are equipped, depending on the model, with RS 232, Wi-Fi®, USB communication interfaces via which communication with peripheral devices (printer, computer) is established.

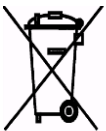|  | *The scale must not be operated in hazardous areas endangered with explosion of gases, and in dusty environments.* |
|---|---|

# 2. PRECAUTIONS

## 2.1. Operation

A. Prior to the first use, carefully read this User Manual. Use the device only as intended.
B. Scales to be decommissioned must be decommissioned in accordance with valid legal regulations.

## 2.2. Battery Power Supply

**C315** series scales are devices intended to be supplied by **NiMH** battery (*nickel metal hydride*) of **1800**- **2800 mAh** capacity.

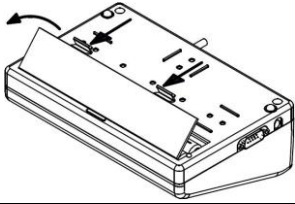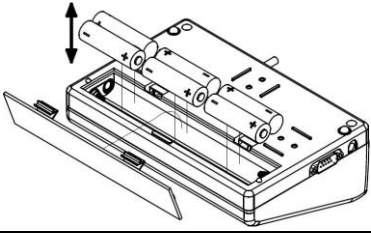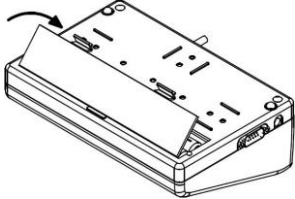|  | *Do not let battery discharge in case of prolonged storage of the device in low temperature.* |
|---|---|
|  | *Accumulators do not belong to regular household waste. The European legislation requires discharged accumulators to be collected and disposed separately from other communal waste with the aim of being recycled. Dear user, you are obliged to dispose of the worn out battery as regulated.* |
|  | *Notice: Symbols on butteries identify harmful compounds: Pb = lead, Cd = cadmium, Hg = mercury.* |

### 2.2.1. Worn out Batteries Replacement

Battery replacement:

| | |
|---|---|
| Open battery container lid. The lid is to be found in the housing base. |  |
| Take the worn out batteries out of the container, insert new accumulators, pay attention to +/- polarization. |  |
| Close the lid: |  |

## 3. WARRANTY CONDITIONS

A. RADWAG feels obliged to repair or exchange all elements that appear to be faulty by production or by construction.

B. Defining defects of unclear origin and means of their elimination can only be realized with the assistance of the manufacturer and the user representatives.

C. RADWAG does not bear any responsibility for damage or losses resulting from unauthorized or inadequate performing of production or service processes.

D. The warranty does not cover:
   - mechanical damage caused by product exploitation other than intended, damage of thermal and chemical origin, damage caused by lightning, overvoltage in the power network or other random event,
   - inappropriate cleaning habits.

E. Loss of warranty takes place if:
   - a repair is carried out outside RADWAG authorized service point,

- service claims intrusion into mechanical or electronic construction by unauthorized people,
- the scale does not bear security seal stickers.

F. Warranty conditions outline the warranty period for rechargeable batteries attached to the device for 12 months.
G. For detailed warranty conditions read the warranty certificate.
H. Contact with the central authorized service: +48 (48) 386 64 16.

# 4. UNPACKING AND INSTALLATION

## 4.1. Personal scales

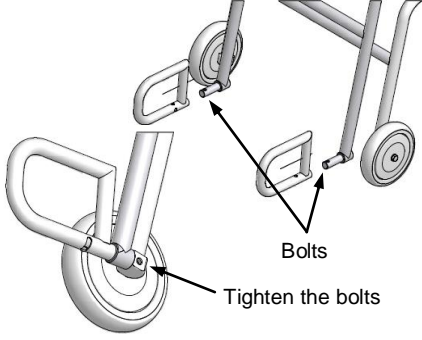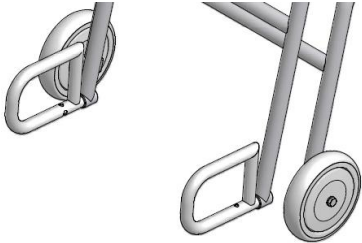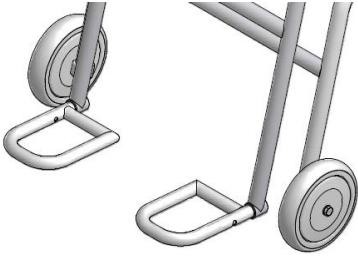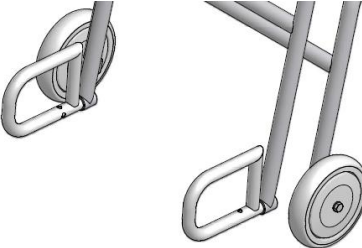A. Take the device out of the packaging.
B. In order to ensure correct indications the scale must be set on an even and stable ground away from any heat sources.
C. In case of personal scales equipped with a height meter it is necessary to fix the said meter to a balance base (do it using an Allen wrench that comes standard with the scale).
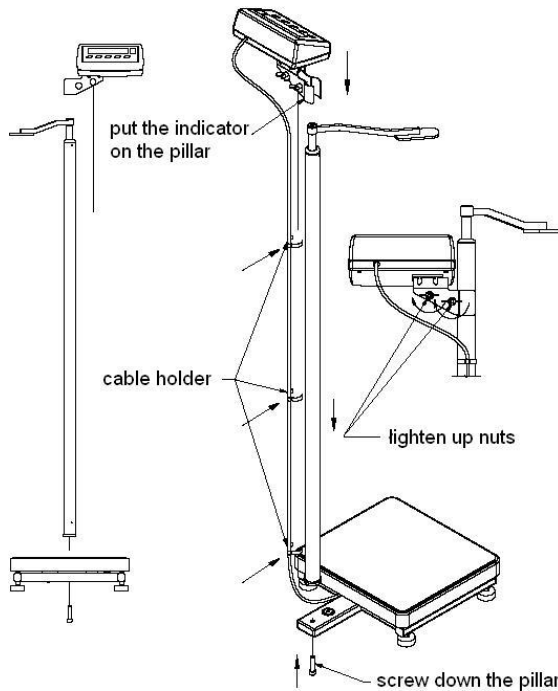


*Assembly of a personal scale equipped with a height meter*

## 4.2. Chair Scales

Take the device out of the packaging and then:

| | |
|---|---|
| Install footrests:<br>• Make sure that the pin for coupling of the footrest fits the opening entirely (keep pushing the pin until it resists).<br>• Couple the footrest to the pin.<br>• Screw the bolt fixing the footrest, make sure it sticks out. | <br>Bolts<br>Tighten the bolts |
| Position the footrests vertically prior to weighing, this is to make way for the patient who is to sit on the chair. |  |
| During weighing, the footrests must take horizontal position to serve as a support for the weighed person legs. |  |
| During weighing, the footrests must take horizontal position to serve as a support for the weighed person legs. |  |

## 4.3. Bed Scales of C315.4B Series

A. Take the device out of the packaging.



*General view*

B. Assembly the device:
- Fix the indicator.
- Push the casters in.
C. Move the device to the measurement spot, place it next to the bed.
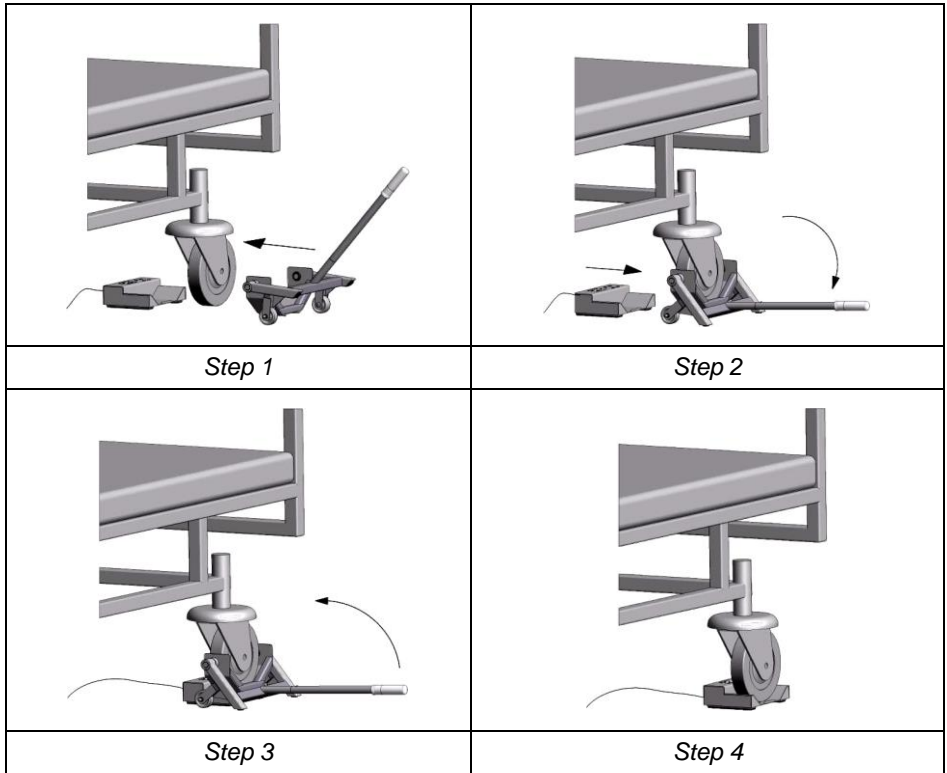D. Put the brakes on.
E. Lock the bed casters.
F. Move one measuring stand next to one bed caster.
G. Assembly the lift.
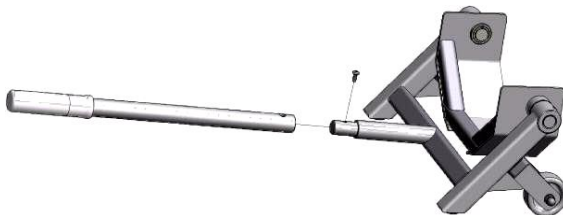
H. Using the lift fit the caster into the measuring stand, see the below pictures:

| | |
|---|---|
|  |  |
| *Step 1* | *Step 2* |
|  |  |
| *Step 3* | *Step 4* |

I. Fit in the remaining casters into the remaining measuring stands likewise, see the below picture:
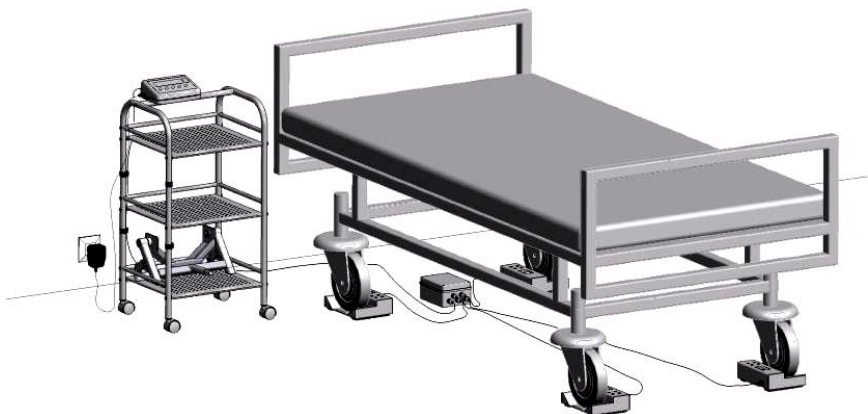
# 5. MAINTENANCE ACTIVITIES

## 5.1. Personal Scales

Clean the weighing platform and the construction using sanitizers and cleansers intended for medical products.

## 5.2. Chair Scales

It is necessary to periodically sanitize the seat and arms. Clean the chair using sanitizers and cleansers intended for medical products. Mind not to turn the device upside down during the maintenance activities, this might result with damage.

## 5.3. Bed Scales

Clean the measuring stamds and beams (depending on the scale) using sanitizers and cleansers intended for medical products.

## 5.4. Baby Scales

Cleaning in this case requires periodical sterilization of the weighing pan. Clean the pan using sanitizers and cleansers intended for medical products. Mind to be gentle, i.e. do not use force while pan cleaning, this may cause damage of the device.

# 6. MECHANICAL DESIGN

## 6.1. Personal Scales

Personal scale models:
- C315.OW with the height meter, indicator installed on a post.
- C315.OR, indicator coupled to the weighing platform directly.
- C315.OK, C315.OK2, indicator coupled to the weighing platform via cable.
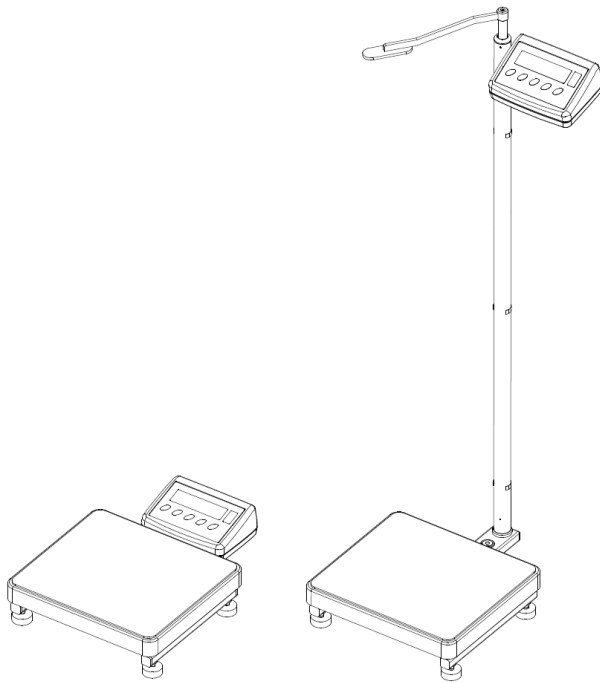
*Personal scale*

## 6.2. Chair Scales

C315.K chair scale has been equipped with casters facilitating its transport. Back casters feature a brake that allows keeping the scale still.



*Chair scale*

## 6.3. Bed Scales

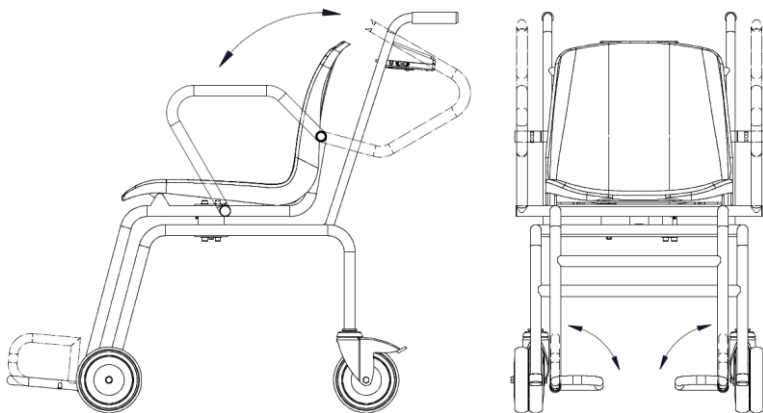C315.4B bed scale comprises 4 measuring stands in which bed casters are placed using a special lift. The scale, due to its design, fits any bed regardless of a given bed type (bed with casters ranging between $\phi 100$ - $\phi 200$) and used bracket system.

Cable length 2x $L_1 \approx 1,6$m

$L_3 \approx 3$m

Cable length 2x $L_2 \approx 0,8$m
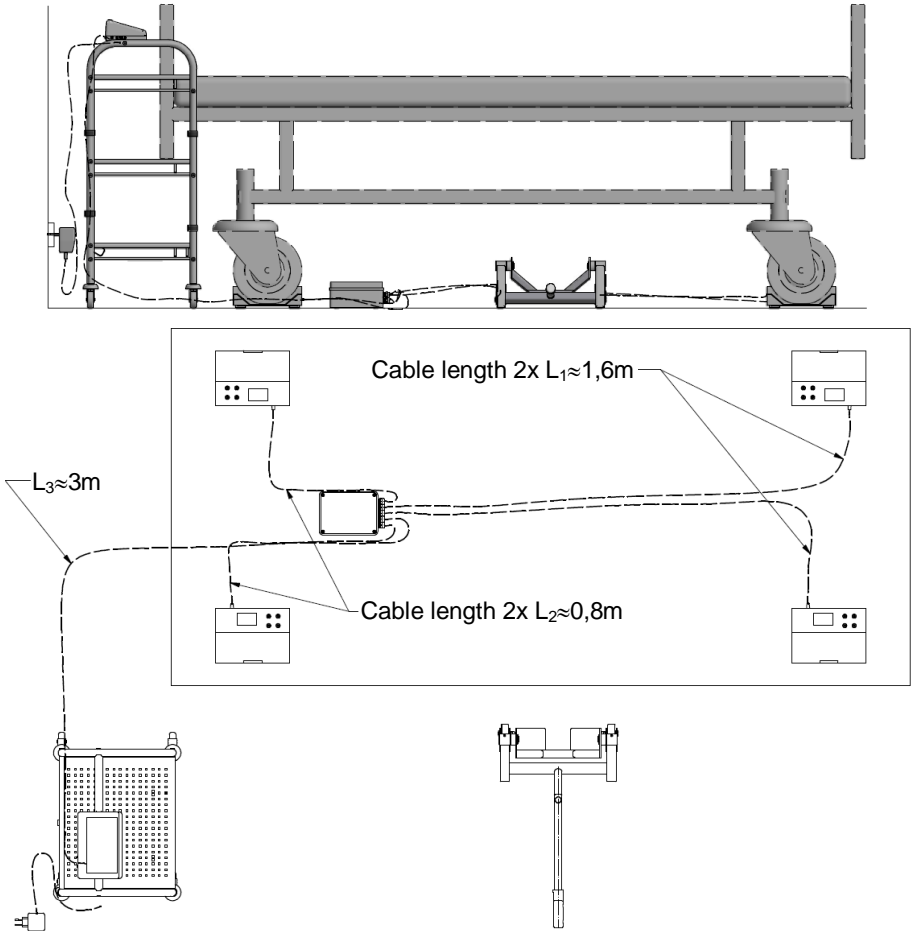
*Bed scale of C315.4B series*

Bed scale of C315.8B series comprises 2 weighing beams that can be spaced up to 2.5 m. Thanks to a slight tilt, any bed can easily slide the beam. The bed is weighed upon result stabilisation. The C315.8B scale, due to its design, fits any bed regardless of a given bed type and used bracket systems.
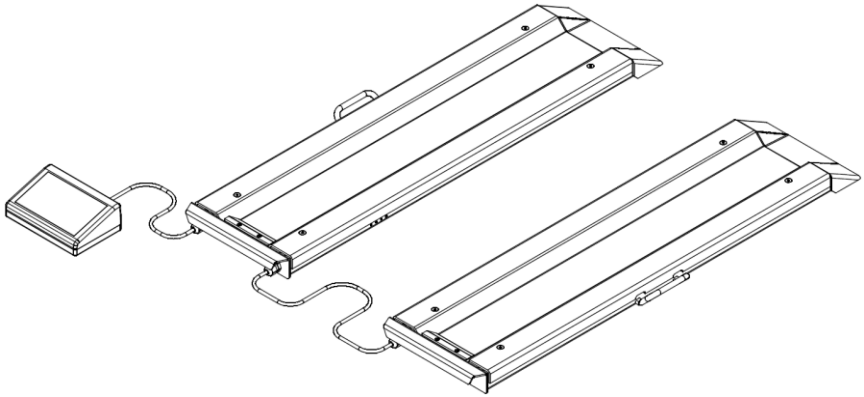
*Bed scale of C315.8B series*
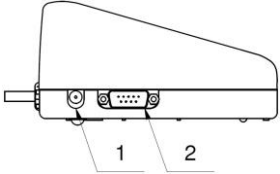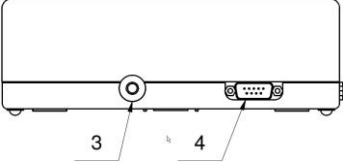
## 6.4. Baby Scales

C315.D series scales are precise electronic instruments of accuracy class III. They are intended for weighing babies, wherein the weighing can be realised using 'Peak hold' function, which means that upon display of the stable measurement, the final result is frozen on the display. With this, the result can be read regardless of the baby moves.
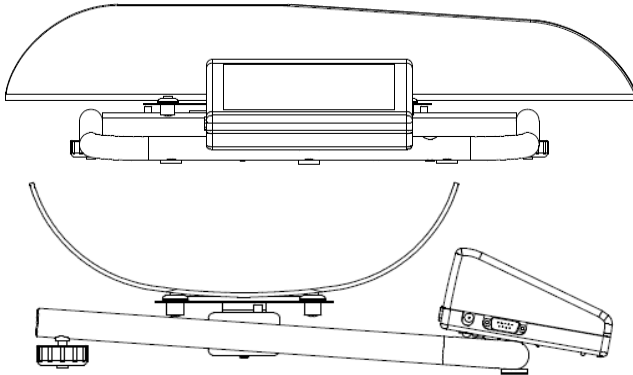


*Baby scale*

## 6.5. Connectors Arrangement



| 1 – power supply socket | 3 – weighing platform cable inlet |
| 2 – RS232 connector | 4 – USB* connector |

*) - option.

## 6.6. Connectors Arrangement



| | Pin2 – RxD<br>Pin3 – TxD<br>Pin4 – 5VDC<br>Pin5 – GND | **RS232 connector DB9/M (male)** |
|---|---|---|
| | Pin6 – GND<br>Pin7 – D+<br>Pin8 – D-<br>Pin9 – 5V | **USB connector DB9/M (male)** |

## 7. OPERATION PANEL
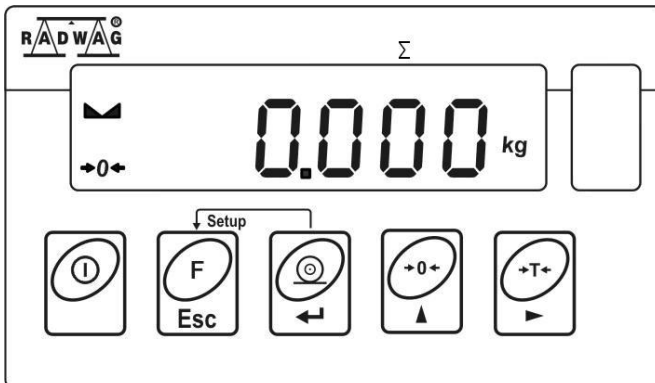
## 8. KEYS

| | |
|---|---|
| ⊙ | Press to switch the weighing device on/off, keep the key pressed for about 1 second. |
| F Esc | Function key, press to change the working mode. |
| ⊚ ↵ | Press to send the weighing result to a printer or a computer. |
| →0← ▲ | Press to zero the scale. |
| →T← ► | Press to tare the scale. |

| | |
|---|---|
| ⚠ | *Upon pressing* F Esc **+** ⊚ ↵ *key combination, functions of given keys change. Detailed information concerning use of the above key combination is to be found further down this manual.* |

## 9. START-UP AND OPERATION

### 9.1. Levelling

It is necessary to level the scale, do it by turning its feet. Keep turning the feet until the air bubble takes central position:



level - OK    level incorrect
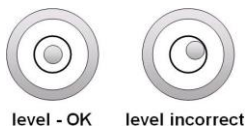
### 9.2. Connecting the Scale to the Mains

The weighing device can be connected to the mains only with a power supply that comes standard with the particular model. Nominal voltage of the power supply (specified on the power supply data plate) has to be compatible with the mains nominal voltage.

### Procedure:

- Connect the power supply to the mains. Plug it to the power supply socket (back side of the scale housing).

- Press ⌖ key. The key is used to switch the scale on/off.
- Display test proceeds (all symbols are backlit for a moment), program name and number is displayed first, ZERO indication with a reading unit next (the displayed reading unit is conditioned by a scale type).
- In case the weighing result is not zero after indication stabilisation, press ⌖ button.

## 9.3. Battery Status

The scale of standard design is equipped with an internal battery. The battery state is signalled by ⌖ pictogram, displayed in the top bar of the display.

| ⌖ pictogram display mode | Meaning |
|---|---|
| No pictogram | Battery charged. Regular scale operation. |
| Pictogram displayed continuously | Too low battery charge (the scale is about to shut down). Charge the battery immediately. |
| Blinking pictogram, blink frequency: ca. 1 s | Battery charge in progress. The device is connected to the power supply charging the battery. |
| Blinking pictogram, blink frequency: ca. 0.5 s | Battery error. Battery damaged. |

## 9.4. Battery Charge Status Check

- Press ⌖ and ⌖ keys combination.
- Depending on the battery state, a respective status is displayed on the screen for 2s:

| **80%** | Battery power supply. Battery power given in %. |
|---|---|
| **CHArGE** | Battery charge in progress. The device is connected to the power supply charging the battery. |
| **-Err5-** | Battery error. Battery is damaged. |

- Next, the home screen is displayed automatically.

## 10. PROGRAM

Program menu is divided into function groups. Function group is a group of interrelated parameters.

## 10.1. Function Groups

| Function group number | Function group name | Description |
|---|---|---|
| P2 | rEAd | Readout parameters |
| P3 | Func | Working modes |
| P4 | Conn | Communication |
| P5 | ducE | Peripheral devices |
| P6 | Prnt | Printouts |
| P7 | Othr | Operation-related functions |
| P8 | InFo | Scale data |
| P9 | Unit | Units |
| IE | - | Import / Export |

## 10.2. Operating the Menu

In order to navigate the menu use the operation panel.

| | |
|---|---|
| F/Esc + ↵ | Press to enter the main menu. |
| →0←/▲ + →T←/► | Press to enter tare manually<br>Press to enter tare from tare database.<br>Press to change value by 1 digit up.<br>Press to scroll the menu up. |
| F/Esc + →T←/► | Press to check battery/accumulator state. |
| F/Esc + →0←/▲ | Press to view date/time. |
| →0←/▲ | Press to scroll the menu down.<br>Press to change current parameter value. |
| →T←/► | Press to enter given submenu.<br>Press to modify given parameter. |
| F/Esc | Press to exit, function remains unmodified.<br>Press to move one menu level up. |
| ↵ | Press to confirm modification. |

### 10.3. Return to Weighing

Introduced modifications are automatically recorded upon return to the home

screen. To return to the home screen press ⬚ key repeatedly.

## 11. WEIGHING

Set high filter rate for those patients who can't stay motionless (read section 12.1). With this the weighing will take longer, but the result will be more reliable.

### 11.1. Zeroing

To zero mass indication press ⬚ key. Zero indication and the following pictograms are displayed: $\rightarrow 0 \rightarrow$ and ◣◢. The scale can be zeroed only when the indication is stable.

> ⚠ ***Indication can be zeroed only within ±2% range of the maximum capacity. If the zeroed value exceeds ±2% of the maximum capacity, then the software indicates a respective error message, Err2.***

### 11.2. Taring

Spread a nappy or a blanket over the weighing pan (this is conditioned by

a scale type). Upon indication stabilization press ⬚ key (zero indication is displayed, **Net** pictogram appears at the top of the screen). Now, depending on the scale type:
- load the weighing pan with a baby (baby scale),
- stand on the weighing pan (personal scale),
- sit on the chair (chair scale),
- lay on the bed (bed scale).

Read the result when ◣◢ stability marker is displayed.

> ⚠ ***Baby scale is intended for measurement of baby mass, the baby is weighed lying. Shall the baby be weighed sitting, make sure that it sits in the centre of the weighing pan. Otherwise the pan may rest on bumpers protecting against overload, which might make the measurement unreliable.***

|  | *Shall the baby be weighed sitting make sure it keeps the balance otherwise the baby could fall of the pan.* |
|---|---|
|  | *It is impossible to tare zero or negative values. When you tare zero or negative values, message <Err3> is displayed.* |

## 11.3. Press to enter tare manually

- Press ⎡⎤ and ⎡⎤ key combination, tare value edit box is displayed.
- Enter tare value, to do it press ⎡⎤ and ⎡⎤ keys: - press ⎡⎤ to select digit that is to be edited, - press ⎡⎤ to set digit value, 0 - 9.
- Press ⎡⎤ key to confirm, the scale returns to the weighing mode, modified tare value with **'–'** sign is displayed.
- You can enter tare value at any time during the weighing operation.

## 11.4. Dual Range Devices

Switching from weighing with the accuracy of the **I weighing range** to weighing with the accuracy of the **II weighing range** takes place automatically when Max of the **I weighing range** gets exceeded. Upon switching to weighing with the accuracy of the **II weighing range**, →|2|← pictogram/marker is displayed in the top left hand corner. To return to weighing with the accuracy of the **I weighing range**:
- unload the weighing pan,
- when zero and →0← , ▲◢ pictograms are displayed, press ⎡⎤ key.
- II weighing range pictogram/marker gets blank.

## 11.5. Units

**<P9.Unit>** parameter group enables change of start and temporary units. The unit can be changed to some other unit during weighing or during other modes except for 'Parts counting' and 'Percent weighing'.

### 11.5.1. Start Unit

Parameter for setting a unit that is to be displayed and used after the device start-up.

**Procedure:**

- Enter **<P9.Unit / 9.1.UnSt>** submenu.
- Press ⌖ key, available units are displayed successively one by one.

**Options in case when the main unit is [kg]:** kg (kilogram), g (gram), lb (pound)\*, N (Newton).

*\*) – unit disabled for verified scales.*

**Options in case when the main unit is [g]:** g (gram), kg (kilogram), ct (carat), lb (pound)\*.

*\*) – unit disabled for verified scales.*

- Select a start unit and press ⏎ key, next go back to the home screen, to do it press ⎋ key.
- Upon restart the scale runs with the set start unit.


### 11.5.2. Temporary Unit

The temporary unit runs from the moment it is set to the scale shut-down and restart.

**Procedure:**

- Enter **<P9.Unit / 9.2.Unin>** submenu.
- Press ⌖ key, available units are displayed successively one by one.

**Options in case when the main unit is [kg]:** kg (kilogram), g (gram), lb (pound)\*, N (Newton).

*\*) – unit disabled for verified scales.*

**Options in case when the main unit is [g]:** g (gram), kg (kilogram), ct (carat), lb (pound)\*.

*\*) – unit disabled for verified scales.*

- Select a temporary unit and press ⊚ key, next go back to the home screen.

## 12. SCALE PARAMETERS

Scale parameters are to be found in **<P2.rEAd>** submenu. The submenu comprises functions allowing you to adjust your weighing device to ambient conditions of a given workstation (filters) or individual needs (autozero on/off, tare value memory).

### 12.1. Filter Level

- Enter **<P2.rEAd / 2.1.FiL>** submenu.

- Press ⊡ key, filter values are displayed successively one by one: **1** - Fast, **2** - Average, **3** – Slow.

- Set a respective value and press ⊚ key to confirm, next go to the home screen.

| ⚠ | *The higher the filter value, the longer the indication takes to stabilise.* |
|---|---|

### 12.2. Value Release

Enter this parameter to adjust the rate of stabilisation of the measurement result. Depending on the selected option, weighing time is either shorter or longer.

**Procedure:**

- Enter **<P2.rEAd / 2.2.APPr>** submenu.

- Press ⊡ key, available values are displayed successively one by one: **F_P** - fast and reliable, **PrEc** – reliable, **FASt** – fast.

- Press ⊚ key to confirm, next go to the home screen.

## 12.3. Ambient Conditions

Parameter relating to ambient and environmental conditions of the workstation. Enter this parameter and set 'nStAb' value if the ambient conditions are unfavourable (air drafts, vibrations).

**Procedure:**

- Enter **<P2.rEAd / 2.3.Enut>** submenu.
- Press [⌨] key, parameter values are displayed successively one by one: **nStAb** – unstable, **StAb** – stable.
- Press [⌨] key to confirm, next go to the home screen.

## 12.4. Autozero Function

'Autozero' function has been designed to enable automatic control and correction of zero indication. This guarantees precise weighing results. There are, however, some cases when this function can be a disturbing factor for the measuring process, e.g. very slow loading of the weighing pan (load adding, e.g. pouring, filling). In such a case, it is recommended to disable the function.

**Procedure:**

- Enter **<P2.rEAd / 2.4.Aut>** submenu.
- Press [⌨] key, parameter values are displayed successively one by one: **YES** – autozero function enabled, **no** – autozero function disabled.
- Press [⌨] key to confirm, next go to the home screen.

## 12.5. Tare Function

'Tare' function has been designed to enable setup of appropriate parameters for tare operation.

**Procedure:**

- Enter **<P2.rEAd / 2.5.tArE>** submenu.
- Press [⌨] key, available values are displayed successively one by one:

| no | Regular tare mode. Select this parameter to make the scale overwrite the set (selected) tare value with the most recently entered one. |
|---|---|
| tArF | Select this parameter to make the scale store the latest tare value in memory. The latest tare value is displayed after scale restart. |
| AtAr | Select this parameter to run autotare mode. |
| EAcH | Select this parameter to make the scale automatically tare each accepted measurement. |

- Press ⊙ key to confirm, next go to the home screen.

## 12.6. Tare Entering Mode

The tare is entered using 📲 + 📲 key combination, to enter tare press the keys when the home screen is displayed. There are two enter modes.

**Procedure:**

- Enter **<P2.rEAd / 2.6.ttr>** submenu.

- Press 📲 key, parameter values are displayed successively one by one:

| tArEH | Select to enter tare value manually by means of 📲 + 📲 key combination. |
|---|---|
| tArnn | Select to enter tare value that is stored in scale memory, use 📲 + 📲 key combination. |

- Press ⊙ key to confirm, next go to the home screen.

## 12.7. Tare Value Memory

It is possible to store 10 tare values in scale memory.

### 12.7.1. Entering Tare Value to Scale Memory

- Enter **<P2.rEAd / 2.7.tArn>** submenu, name of tare no. 1 from tare database is displayed (**<tArE 0>**), to select a different record press 📲 key.

- Select a respective entry and press ![key] key, tare value edit box is displayed.

  - Enter tare value, to do it press ![key] and ![key] keys.

| ![key +T+ ►] | Press to select digit that is to be edited. |
|---|---|
| ![key +0+ ▲] | Press to set digit value, 0 - 9. |

- Press ![key] key to confirm, **<tArE 0>** window is displayed.
- Now press ![Esc key] key to go to the home screen.

### 12.7.2. Selecting Tare Value from the Scale Memory

- Enter **<P2.rEAd / 2.7.tArn>** submenu, name of tare no. 1 from tare database is displayed (**<tArE 0>**), to select a different record press ![key +0+ ▲] key.

- To set the selected tare press ![key] key.
- The set tare value is displayed with a minus sign, **Net** symbol is shown in the upper-left corner of the screen:

| ⚠ | *The tare value acquired from the weighing device memory is not remembered upon the scale restart.* |
|---|---|

### 12.8. Last Digit

Function designed to disable display of the last weighing indication digit, this results with less accurate measurement.

**Procedure:**

- Enter **<P2.rEAd / 2.8.LdiG>** submenu.
- Press ![key +0+ ▲] key, available values are displayed successively one by one:

| ALAS | Select to make the last digit always on. |
|------|------------------------------------------|
| nEur | Select to make the last digit always off. |
| uuSt | Select to make the last digit on only when the weighing indication is stable. |

- Press ⌨ key to confirm, next go to the home screen.

# 13. COMMUNICATION

Communication between the scale and the peripheral devices is established via the following ports: RS232, USB\*, Wi-Fi®\*. To set the ports go to **<P4.Conn>** submenu.

*\*) - conditioned by the scale type.*

## 13.1. RS232 Port

- Enter **<P4.Conn / 4.1.rS1>** submenu and set respective transmission parameters:

| 4.1.1.bAd | Baud rate: 2400, 4800, 9600, 19200, 38400, 57600, 115200 bit/s. |
|-----------|------------------------------------------------------------------|
| 4.1.2.PAr | Parity: **nonE** – none; **EuEn** – even; **Odd** – odd. |

- Press ⌨ key to confirm, next go to the home screen.

## 13.2. Wi-Fi® Module

- Enter **<P4.Conn / 4.3.uuF>** submenu and set respective transmission parameters:

| 4.3.1.Act | Wi-Fi® module activation: **YES** – module enabled, **no** – module disabled. |
|-----------|--------------------------------------------------------------------------------|
| 4.3.2.StS | Network connection status: **UUAlt** – connecting in progress, **Connec** - connected, **OFF** – not connected. |
| 4.3.3.tnn | Time delay. Time interval upon passage of which inactive connection with Wi-Fi® module gets deactivated. The parameter value is declared within **0[s]** - **[60]s** range. **0[s]** is set by default (time delay inactive). |

- Press ⌨ key to confirm, next go to the home screen.

| ⚠ | *In order to provide correct Wi-Fi® between the computer and the scale, you must set computer port parameter in your scale to value <uuF>.* |
|---|------------------------------------------------------------------------------------------------------------------------------------------|

| ⚠ | *Set the transmission parameters of the Wi-Fi® in accordance with your local network.* |
|---|---|

## 14. PERIPHERAL DEVICES

**<P5.ducE>** menu contains list of devices connecting with the scale.

### 14.1. Computer

**<5.1.PC>** submenu allows you to:
- select port to which the computer is connected,
- enable/disable continuous transmission,
- set frequency of printouts for continuous transmission.

### 14.1.1. Computer Port

- Enter **<5.1.PC / 5.1.1.Prt>** submenu.
- Press 🔘 key, filter values are displayed successively one by one: **nonE** – none; **rS1** – RS232; **uuF**\* – Wi-Fi®.
- Press 🔘 key to confirm, next go to the home screen.

*\*) - conditioned by the scale type.*

### 14.1.2. Continuous Transmission

- Enter **<5.1.PC / 5.1.2.Cnt>** submenu.
- Press 🔘 key, filter values are displayed successively one by one:

| **nonE** | Continuous transmission disabled. |
|---|---|
| **CntA** | Continuous transmission in a basic unit. |
| **Cntb** | Continuous transmission in a current/temporary unit. |

- Press 🔘 key to confirm, next go to the home screen.

### 14.1.3. Printout Interval for Continuous Transmission

Parameter enabling to set frequency of printout for continuous transmission. Printout interval is set in seconds with 0.1 [s] readability within 0.1 [s] - 3600 [s] range.

**Procedure:**

- Enter **<5.1.PC / 5.1.3.Int>** submenu, window for entering interval value is displayed.
- Press ⊚ key to confirm, next go to the home screen.

### 14.2. Printer

### 14.2.1. Port

Parameter enabling to select port to which data is to be sent upon pressing ⊚ key.

**Procedure:**

- Enter **<5.2.Prtr / 5.2.1.Prt>** submenu.
- Press ⊙ key, filter values are displayed successively one by one: **nonE** – none; **rS1** – RS232; **USbA**\* – USB port, **uuF**\* – Wi-Fi[®].
- Press ⊚ key to confirm, next go to the home screen.

*\*) - conditioned by the scale type.*

### 14.3. Additional Display

The weighing instrument can connect with additional WD displays.

### 14.3.1. Additional Display Port

- Enter **<5.3.AdSP / 5.3.1.Prt>** submenu.
- Press ⊙ key, filter values are displayed successively one by one: **nonE** – none; **rS1** – RS232.
- Press ⊚ key to confirm, next go to the home screen.

## 15. PRINTOUTS

Printouts parameter enables defining printout templates for GLP printout. **<P6.2.GLP>** is a group of parameters allowing to declare variables that are to be printed on a weighing printout. Each variable features accessibility attribute: **YES** – print, **no** – do not print.

**Variable list:**

| No. | Name | Description |
|---|---|---|
| 6.2.1. | dAt | Weighing date. |
| 6.2.2. | tin | Weighing time. |
| 6.2.3. | Idb | Serial number of the scale. |
| 6.2.4. | n | Net weight value of performed weighing in a basic measuring unit. |
| 6.2.5. | t | Tare weight value in a current unit. |
| 6.2.6. | b | Gross weight value in a current unit. |
| 6.2.7. | CrS | Current weighing result (net weight) in a current unit. |
| 6.2.9. | Grt | Patient's height in [m]. |
| 6.2.A. | bnn | BMI coefficient value. |

| ⚠ | *Printouts are generated exclusively in English.* |
|---|---|

**Report example:**

```
Date                2016.10.15
Time                  12:04:17
Net                     49.98g
Tare                    17.20g
Gross                   67.18g
```

## 16. MISCELLANEOUS PARAMETERS

**<P7.Othr>** is a group of parameters enabling to customize scale operation.

### 16.1. Automatic Backlight Switch-Off

Parameter allowing to set time interval, in [min], after which display backlight goes off. If the indication is stable during the declared time interval, the screen backlight goes off automatically.

**Procedure:**

- Enter **<P7.Othr / 7.1.bl>** submenu.
- Press ⌖ key, parameter values are displayed successively one by one: **nonE** – function disabled, **0.5**, **1**, **2**, **35**.
- Press ⏎ key to confirm, next go to the home screen.

## 16.2. Display Brightness

Parameter allowing to change display brightness, the brightness can be changed within **0%** - **100%** range.

**Procedure:**

- Enter **<P7.Othr / 7.2.bLbt>** submenu.
- Press ⌖ key, parameter values are displayed successively one by one, where:

| nonE | Backlight off. |
|------|----------------|
| 10   | Display brightness low limit value in [%]. |
| 100  | Display brightness high limit value in [%]. |

- Press ⏎ key to confirm, next go to the home screen.

## 16.3. 'Beep' Sound

Parameter enabling/disabling sound signal informing the operator about pressing panel key(s).

**Procedure:**

- Enter **<P7.Othr / 7.3.bEEP>** submenu.
- Press ⌖ key, parameter values are displayed successively one by one, where: **no** – sound signal disabled, **YES** - sound signal enabled.
- Press ⏎ key to confirm, next go to the home screen.

## 16.4. Automatic Shutdown

Parameter allowing to set time interval, in [min], after which the weighing device shuts down automatically. If the indication is stable during the declared time interval, the device goes automatically off. Shutdown function is inactive and the device cannot be turned off when any of the processes is ongoing or when the menu is operated.

**Procedure:**

- Enter **<P7.Othr / 7.4.t1>** submenu.

- Press ⌖ key, parameter values are displayed successively one by one, where: **nonE** – function disabled, **1**, **2**, **3**, **5**, **10**.

- Press ⌾ key to confirm, next go to the home screen.


## 16.5. Date and Time

Parameter allowing to set current date and time and to specify date and time format.

**Procedure:**

- Enter **<P7.Othr>** submenu and change the settings. Refer to the below table:

| Parameter | Description |
|-----------|-------------|
| **<7.5.SdAt>** | Enter this parameter to set current date, where the date format is **YYYY.MM.DD[1]**. |
| **<7.6.Stnn>** | Enter this parameter to set current time, where the time format is **24H**. |
| **<7.7.FdAt>** | Enter this parameter to set date format. Values: **1** - DD.MM.YYYY, **2** - MM.DD.YYYY, **3** - YYYY.MM.DD (set by default), **4** - YYYY.DD.MM. |
| **<7.8.Ftin>** | Enter this parameter to set time format. Values: **24H[2]** (set by default), **12H[2]**. |

*1) - Date format: Y – year, M – month, D – day.*
*2) - Time format: 12H – 12-hour format, 24H - 24-hour format.*


## 16.6. Default User Settings

Parameter allowing you to restore default operator settings.

**Procedure:**

- Enter **<P7.Othr / 7.9.dFLu>** submenu, text **<Cont?>** is displayed (Continue?).

- Press ⌨ key to confirm. The process of restoring default settings starts, this is signalled with display of 'dash', **< -        >**.
- Upon process completion **<7.9.dFLu>** submenu is displayed. Go to the home screen.

# 17. SCALE DATA

Scale data menu, **<P8.InFo>**, provides information on the weighing device and its program. The parameters serve informative purposes:

| Parameter | Description |
|---|---|
| **<8.1.Idb>** | Serial number of the scale. |
| **<8.2.PurS>** | Software version. |
| **<8.3.PStP>** | Settings printout. Enter the parameter to send scale settings to printer port (all parameters). |

# 18. WORKING MODES – General Information

The scale features the following working modes:
- Weighing,
- Weighing with Peak Hold,
- BMI determination.

## 18.1. How to Run the Working Mode

- Go to the home screen, press ⌨ key, name of the first available working mode is displayed.
- Press ⌨ key, names of available working modes are displayed successively one by one.
- Enter selected working mode, to do it press ⌨ key.

> ⚠ *The weighing device program has been designed to make the scale run, upon restart, with the latest operated working mode on.*

## 18.2. Working Mode Local Settings

Each working mode features specific (local) functions which enable to customize scale operation. To go to local settings of each working mode enter **<P3.Func>** submenu. Some specific functions are common for all working modes, see the below table:

|  | Accessibility | Save mode | Time interval | LO threshold |
|---|---|---|---|---|
| Weighing | 3.1.1.Acc | 3.1.2.Snn | 3.1.3.Int | 3.1.4.Lo |
| Weighing with Peak Hold | 3.8.1.Acc | - | - | 3.8.2.Lo |
| BMI determination | 3.9.1.Acc | - | - | 3.9.2.Lo |

The table presents special function number and name common for each of the working modes. Remaining specific functions referring directly to a given working mode are described further down this user manual.

### 18.2.1. Working Mode Accessibility

To enable/disable a given working mode, press ⎡F Esc⎤ key.

**Procedure:**

- Enter **<P3.Func>** menu and select a given working mode.
- Go to **<Acc>** function.
- Press ⎡→0←↑⎤ key, parameter values are displayed successively one by one, where: **YES** – working mode enabled, **no** – working mode disabled.
- Press ⎡◎↵⎤ key to confirm, next go to the home screen.

### 18.2.2. Save Mode

Parameter allowing to set mode of sending data from the scale to a peripheral device.

**Procedure:**

- Enter **<P3.Func>** menu and select a given working mode.
- Go to **<Snn>** function.
- Press ⎡→0←↑⎤ key, parameter values are displayed successively one by one, where:

| **StAb** | Manual printout of a stable weighing result. Upon pressing ⊚ key at the moment when the result is unstable (no ◣◢ pictogram displayed), the program first waits for the stability condition to be met, only then the printout is carried out. |
|---|---|
| **nStAb** | Manual printout of each weighing result. In case of unstable indication, **<?>** sign is displayed in front of the 'mass frame'. **Function available for non-verified scales exclusively**. |
| **rEPL** | Automatic printout of the first stable weighing result above **<Lo>** threshold (to set **<Lo>** threshold go to **<Lo>** parameter). |
| **rEPLi** | Automatic printout with time interval set in **[min]** (to set the interval go to **<Int>** parameter). |

- Press ⊚ key to confirm, next go to the home screen.

### 18.2.3. Automatic Printout Interval

Parameter enabling to set frequency of an automatic printout. Printout interval is set in minutes with 1 [min] readability within 1 [min] - 1440 [min] range.

**Procedure:**

- Enter **<P3.Func>** menu and select a given working mode.
- Enter **<Int>** function, window for entering **time interval** value is displayed.
- Press ⊚ key to confirm, next go to the home screen.

### 18.2.4. LO Threshold

<Lo> parameter allows to configure the function of automatic operation. In order to save the next measurement, before carrying it out, the mass indication must get below the set net value of **Lo threshold**.

**Procedure:**

- Enter **<P3.Func>** menu and select a given working mode.
- Enter **<Lo>** function, window for entering **Lo threshold** value is displayed.
- Enter respective value and press ⊚ key to confirm, then continue weighing.

## 19. WORKING MODE – WEIGHING

**<UUGG>** is a standard working mode enabling to carry out the weighing operation along with record of the result to the database.

## 19.1. Local Settings

To go to local settings enter **<3.1.UUGG>** submenu.

| 3.1.1.Acc | **Working Mode Accessibility** | For detailed description read section 18.2.1. |
|-----------|-------------------------------|-----------------------------------------------|
| 3.1.2.Snn | **Save mode** | For detailed description read section 18.2.2. |
| 3.1.3.Int | **Time interval** | For detailed description read section 18.2.3. |
| 3.1.4.Lo | **LO threshold** | For detailed description read section 18.2.4. |

# 20. WORKING MODE - WEIGHING WITH PEAK HOLD

Working mode registering a temporary (frozen) mass of the patient.

## 20.1. Local Settings

To go to local settings enter **<3.8.Hold>** submenu.

| 3.8.1.Acc | **Working mode accessibility** | For detailed description read section 18.2.1. |
|-----------|-------------------------------|-----------------------------------------------|
| 3.8.2.Lo | **LO threshold** | For detailed description read section 18.2.4. |

## 20.2. Operation Options

Selection of a method of record of a temporary weighing result.

**Procedure:**

- Select **<Hold>** working mode, available operation options are shown on the screen. Press ⌖ key, parameter values are displayed successively one by one, where:

| **Print** | Record of a temporary weighing result by pressing of ⊙ key. |
|-----------|-------------------------------------------------------------|
| **StAb** | Automatic record of a temporary weighing result, realised upon a stable indication is registered above the set Lo threshold. |

- Press ⊙ key to confirm the selected value, the home screen is displayed.

### 20.3. Hold Operation

- With a patient standing (sitting, lying) on the weighing pan, i.e. upon weighing pan loading, a 'frozen' weight value is displayed on the screen in accordance with a selected operation option of **<HoLd>** function (see point 20.2 of this manual).
- „Frozen" weight value is signalled with **OK** sign displayed at the top of the screen.
- In order to print the 'frozen' weight value on a scale-connected printer press ⌨ key.
- Empty the weighing pan.
- To exit the 'freeze' mode press ⌨ key. The home screen of **<Hold>** working mode is displayed.
- Prior to the next measurement it is necessary to zero the scale, to do it press ⌨ key.

| ⚠ | ***It is possible to 'freeze' weight values that are higher than the set Lo threshold value (read section 18.2.4. of this manual).*** |
|---|---|

## 21. WORKING MODE – BMI DETERMINATION

'BMI determination' working mode allows estimation of body mass index, the **BMI**. Determination of **BMI** is intended for 18-year-old, and older adults. Restrictions:
- Function disabled for baby scales (C315.D model).
- Mass: 10 kg minimum.
- Height: 1 m - 2.5 m range.

### 21.1. Local Settings

To go to local settings enter **<3.9.bnni>** submenu.

| 3.9.1.Acc | Working mode accessibility | For detailed description read section 18.2.1. |
|---|---|---|
| 3.9.2.Lo | LO threshold | For detailed description read section 18.2.4. |

### 21.2. BMI Determination Operation

- The patient, upon stepping onto the weighing pan, triggers display of dashes, **< - - - - - - - - - - >** (unstable weighing result).

- Wait for a stable weighing result, it takes about 2s, first patient's mass is displayed, next pulsating value of height given in meter is shown.

- Use the keypad to enter the weighed person height, [→T←] - press to select digit, [↑0↑] - press to set digit value.

- Press [↵] key to confirm, **BMI** value is displayed.

$$Id \quad 22.2$$

- In order to print **BMI** determination report on a scale-connected printer, press [↵] key.

**Report example:**

```
Date                    2019.07.23
Time                       15:38:38
Scale ID                     123456
Net                        75.82kg
Height                       1.85m
BMI                           22.2
```

> ⚠ *The printout template is freely configured by the user. To configure the printout go to <P6.2.GLP> submenu (read section 15 of this manual).*

- Empty the weighing pan.
- Press [F Esc] key, the home screen of the **<bnni>** working mode is displayed.
- Prior to the next measurement it is necessary to zero the scale, to do it press [→0←] key.

The BMI index is calculated using the following formula: $BMI = \dfrac{W}{H^2}$

**where:**

**W** - body mass in [kg].
**H** - height in [m].
**BMI** - index value rounded to the first decimal place.

# 22. IMPORT / EXPORT

Function enabling you to archive weighing reports and Alibi reports, and to copy parameters between weighing devices of the same series. Import/export operation can be carried out by means of USB flash drive comprising **<FAT files system>**. Upon connection of the USB flash drive to the USB port, the drive gets detected automatically, as a result **<IE>** submenu is created.

Since extensions of exported weighing reports and Alibi reports files are specific, and the file-stored data is encoded, therefore the files content is not readable for standard computer programs. These files can be read using **ALIBI Reader**, PC software designed by RADWAG. You can download the software from RADWAG website: [www.radwag.pl](www.radwag.pl).

## 22.1. Weighing Records Export

Option enabling you to export weighings to a USB flash drive. Weighing device program offers option of record of 5000 weighings.

**Procedure:**
- Connect the USB flash drive to USB port.
- Enter **<IE / IE1.UUE>** submenu.
- The program automatically saves exported data to a USB flash drive file.

**File name and extension**: xxxxxx.wei, where xxxxxx – serial number.

## 22.2. ALIBI Weighings Export

Option enabling you to export ALIBI weighings to a USB flash drive. Weighing device program offers option of record of 100 000 weighings.

**Procedure:**
- Connect the USB flash drive to USB port.
- Enter **<IE / IE2.ALE>** submenu.
- The program automatically saves exported data to a USB flash drive file.

**File name and extension**: xxxxxx.ali, where xxxxxx – serial number.

## 22.3. Parameters Export / Import

Export / import of all user parameters between weighing devices of the same series carried out using USB flash drive.

**Export procedure:**

- Connect the USB flash drive to USB port.
- Enter **<IE / IE3.SPE>** submenu.
- The program automatically saves exported data to a USB flash drive file.

**File name and extension**: xxxxxx.par, where xxxxxx – serial number.

**Import procedure:**

- Connect the USB flash drive to USB port, make sure that the drive stores parameters file in the main directory (file name: **xxxxxx.par**, where xxxxxx – serial number).
- Enter **<IE / IE4.SPI>** submenu.
- User parameters are automatically imported from **xxxxxx.par** file.

## 23. DIAGRAMS OF CONNECTION CABLES
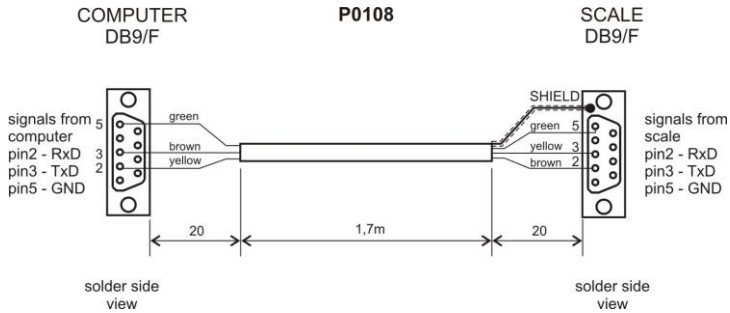


*Scale - computer cable*
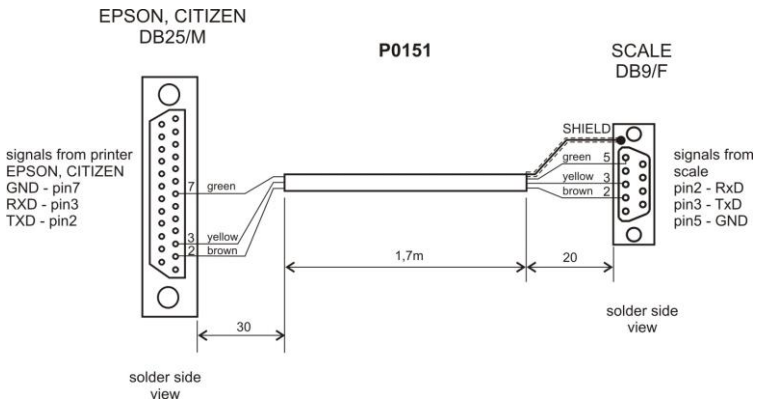


*Scale - printer cable (EPSON)*

# 24. TECHNICAL SPECIFICATIONS

## 24.1. Personal Scales

| Technical Specifications: | C315.60/150.O | C315.100/200.O |
|---|---|---|
| Maximum capacity | 60/150 kg | 100/200 kg |
| Readability [d=e] | 20/50 g | 50/100 g |
| Tare range | - 150 kg | - 200 kg |
| Display | LCD (with backlight) | |
| Communication interface * | RS 232, Wi-Fi®, USB | |
| Power supply | 100 ÷ 240 VAC 50/60 Hz + battery | |
| Operating temperature range | - 10 °C ÷ + 40 °C | |
| Relative humidity | 10 ÷ 85 % RH, non-condensing conditions | |

| Technical Specifications: | C315.60/150.OW | C315.100/200.OW |
|---|---|---|
| Maximum capacity | 60/150 kg | 100/200 kg |
| Readability [d=e] | 20/50 g | 50/100 g |
| Tare range | - 150 kg | - 200 kg |
| Display | LCD (with backlight) | |
| Communication interface * | RS 232, Wi-Fi®, USB | |
| Power supply | 100 ÷ 240 VAC 50/60 Hz + battery | |
| Operating temperature range | - 10 °C ÷ + 40 °C | |
| Relative humidity | 10 ÷ 85 % RH, non-condensing conditions | |

*) - conditioned by the scale type.

## 24.2. Baby Scales

| Technical Specifications: | C315.6/15.D | C315.10/20.D |
|---|---|---|
| Maximum capacity | 6/15 kg | 10/20 kg |
| Readability [d=e] | 2/5 g | 5/10 g |
| Tare range | - 15 kg | - 20 kg |
| Display | LCD (with backlight) | |
| Communication interface * | RS 232, Wi-Fi®, USB | |
| Power supply | 100 ÷ 240 VAC 50/60 Hz + battery | |
| Operating temperature range | - 10 °C ÷ + 40 °C | |
| Relative humidity | 10 ÷ 85 % RH, non-condensing conditions | |

*) - conditioned by the scale type.

## 24.3.  Chair Scales

| Technical Specifications: | C315.K.250.C |
|---|---|
| Maximum capacity | 250 kg |
| Readability [d=e] | 100 g |
| Tare range | - 250 kg |
| Display | LCD (with backlight) |
| Communication interface * | RS 232, Wi-Fi®, USB |
| Power supply | 100 ÷ 240 VAC 50/60 Hz + battery |
| Operating temperature range | - 10 °C ÷ + 40 °C |
| Relative humidity | 10 ÷ 85 % RH, non-condensing conditions |

*) - conditioned by the scale type.

## 24.4.  Bed Scales

| Technical Specifications: | C315.4B.500.C | C315.8B.300.C |
|---|---|---|
| Maximum capacity | 500 kg | 300 kg |
| Readability [d=e] | 200 g | 100 g |
| Tare range | - 500 kg | - 300 kg |
| Display | LCD (with backlight) | |
| Communication interface * | RS 232, Wi-Fi®, USB | |
| Power supply | 100 ÷ 240 VAC 50/60 Hz + battery | |
| Operating temperature range | - 10 °C ÷ + 40 °C | |
| Relative humidity | 10 ÷ 85 % RH, non-condensing conditions | |

*) - conditioned by the scale type.

## 25. TROUBLESHOOTING

| Problem | Cause | Solution |
|---|---|---|
| Scale start-up fail. | Power supply disconnected. | Connect the power supply to the scale. |
| | Battery discharged. | Connect the power supply to the mains, charge the battery. |
| | No battery (not installed or installed incorrectly). | Check if the battery is installed correctly (polarization). |
| The scale switches off automatically. | <7.4.t1> parameter set to value enforcing scale shut-down after particular time interval. | Go to <P7.Othr> menu, set <7.4.t1> parameter to 'nonE' value. |
| During the start-up, message 'LH' is displayed. | Weighing pan loaded during the start-up. | Unload the weighing pan. Zero indication is displayed. |

| Communication with the computer not established. | Incorrect computer port set in parameter <5.1.1.Prt>. | Enter < P5.ducE / 5.1.PC> submenu and set correct <5.1.1.Prt> parameter value. |
|---|---|---|
| | Incorrect transmission parameters for the selected computer port. | Enter <P4.Conn> menu and set correct transmission parameters for the selected computer port. |
| | Incorrect printout frequency for continuous transmission. | Enter < P5.ducE / 5.1.PC> submenu and set correct <5.1.3.Int> parameter value. |
| No printout on a scale-connected printer. | Incorrect printer port set in <5.2.1.Prt> parameter. | Enter < P5.ducE / 5.2.Prtr> submenu and set correct <5.2.1.Prt> parameter value. |
| | Incorrect transmission parameters for the selected printer port. | Enter <P4.Conn> menu and set correct transmission parameters for the selected printer port. |
| | No variable declared in weighing printout project. | Enter <P6.Prnt / 6.2.GLP> submenu and declare variables that are to be printed. |
| Communication with the additional display not established.. | Incorrect additional display port set in <5.3.1.Prt> parameter. | Enter < P5.ducE / 5.3.AdSP> submenu and set correct <5.3.1.Prt> parameter value. |
| | Incorrect transmission parameters for the selected computer port. | Enter <P4.Conn> menu and set correct transmission parameters for the selected additional display port. |
| Displayed mass unit does not comply with the scale data plate. | Changed scale start unit in <9.1.UnSt> parameter. | Enter <P9.Unit / 9.1.UnSt> submenu and set unit complying with the scale data plate. |
| | Changed custom unit in <9.2.Unin> parameter. | Enter <P9.Unit / 9.2.Unin> submenu and set unit complying with the scale data plate. |

## 26. ERROR MESSAGES

| - E r r 2 - | Value beyond zero range. |
|---|---|
| - E r r 3 - | Value beyond tare range. |
| - E r r 4 - | Adjustment weight or start mass out of range (±1% for adjustment weight, ±10 for start mass). |
| - E r r 5 - | Battery error. Battery is damaged. |
| - E r r 8 - | Time of the following operations exceeded: taring, zeroing, start mass determining, adjustment process. |
| - n u l l - | Zero value from converter. |
| - F U L L - | Weighing range exceeded. |
| - L H - | Start mass error, indication out of range (±10% of start mass). |
| - H i - | Display range of total mass on scale display exceeded in 'Totalizing' mode. |
| - u L o - | Too low battery charge. The scale is about to shut down. |

## 27. SERVICE AND REPAIR

| ⚠ | *In case of any sign of damage, it is necessary to disconnect the device form the mains immediately. The damaged component must be replaced or repaired by RADWAG service directly.* |
|---|---|

In case of any problems with correct operation of the scale, contact the closest manufacturer's service point.

In case of defects, deliver the faulty product to the manufacturer's service point. If the product cannot be delivered to the manufacturer's service point, call the service and report the defect. Repair scope and method will be set up.

| ⚠ | *The user is NOT ALLOWED to carry out any kind of repair of the device himself/herself. Any attempt of scale modification, repair etc., by unauthorized persons, will result with loss of validity of manufacturer-issued certificates, declarations and warranty.* |
|---|---|

## 28. RECYCLING

C315 scales must be recycled, they are not to be treated as a regular household waste. Scales to be decommissioned must be decommissioned in accordance with valid legal regulations.

## 29. INFORMATION REGARDING EMC

| Table 201 |
|---|
| **Manufacturer's declaration – electromagnetic emission** |
| The product is suitable for use in a specific electromagnetic environment. The customer and/or the user of the product should assure that it is used in an electromagnetic environment as described below. |

| Emission test | Compliance | Electromagnetic Environment Guidance |
|---|---|---|
| RF-emission CISPR 11 | Group 1 | The product use RF energy only for its internal function. Therefore, its RF emissions are very low and not likely to cause any interference in nearby electronic equipment. |
| RF-emission CISPR 11 | Class B | The product is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purpose. |
| RF – frequency of EM radiation section, which frequency is between the low range of radio frequencies of long waves and the infrared range; useful for radio transmission. Limit frequencies are 9 kHz and 3 000 GHz. | | |

| Table 202 |
|---|
| **Manufacturer's declaration – electromagnetic immunity** |
| The product is suitable for use in a specific electromagnetic environment. The customer and/or the user of the product should assure that it is used in an electromagnetic environment as described below. |

| Immunity test | IEC 60601 Level | Compliance level | Electromagnetic environment Guidance |
|---|---|---|---|
| Electrostatic discharge (ESD) IEC 61000-4-2 | +/- 6kV contact <br><br> +/- 8kV air | +/- 6kV contact <br><br> +/- 8kV air | Floor should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %. |
| Electrical fast transient/bursts IEC 61000-4-5 | +/- 2 kV for power supply lines <br><br> +/- 1 kV for input/output lines | +/- 2 kV for power supply lines <br><br> +/- 1 kV for input/output lines | Mains power quality should be that of a typical commercial and/or hospital environment. |
| Surge IEC 61000-4-5 | +/- 1 kV differential mode <br><br> +/- 2 kV common mode | +/- 1 kV differential mode <br><br> +/- 2 kV common mode | Mains power quality should be that of a typical commercial and/or hospital environment. |

| Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11 | < 5 % $U_T$ (> 95 % dip in $U_T$) for 0.5 cycle<br><br>40 % $U_T$ (60 % dip in $U_T$) for 5 cycles<br><br>70 % $U_T$ (30 % dip in $U_T$) for 25 cycles<br><br>< 5 % $U_T$ (> 95 % dip in $U_T$) for 5 sec | < 5 % $U_T$ (> 95 % dip in $U_T$) for 0.5 cycle<br><br>40 % $U_T$ (60 % dip in $U_T$) for 5 cycles<br><br>70 % $U_T$ (30 % dip in $U_T$) for 25 cycles<br><br>< 5 % $U_T$ (> 95 % dip in $U_T$) for 5 sec | Mains power quality should be that of a typical commercial and/or hospital environment. If the user of the product requires continued operation during power mains interruptions, it is recommended that the product be powered from an uninterruptible power supply or a battery. |
|---|---|---|---|
| Power frequency magnetic field IEC 61000-4-8 | 3A/m | | Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment. |

| Note: $U_T$ is the mains (AC) voltage before apply test levels. |
|---|

| RF – frequency of EM radiation section, which frequency is between the low range of radio frequencies of long waves and the infrared range; useful for radio transmission. Limit frequencies are 9 kHz and 3 000 GHz. |
|---|

| Table 204 |
|---|
| **Manufacturer's declaration – electromagnetic immunity** |
| The product is suitable for use in a specific electromagnetic environment. The customer and/or the user of the product should assure that it is used in an electromagnetic environment as described below. |

| Immunity test | IEC 60601 Level | Compliance Level | Electromagnetic Environment Guidance |
|---|---|---|---|
| | | | Portable and mobile RF communications equipment should be used no closer to any part of the product, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.<br><br>Recommended separation distance: |

| Conduceted RF IEC 61000-4-6 | 3 $V_{rms}$ 26 kHz to 80 MHz | 3 $V_{rms}$ | $d=1.2\sqrt{P}$ |
|---|---|---|---|
| Radiated RF IEC 61000-4-3 | 3 V/m 80 MHz to 1 GHz | 3 V/m | $d=1.2\sqrt{P}$ 80 MHz to 800 MHz<br><br>$d=2.3\sqrt{P}$ 800 MHz to 2.5 GHz |
| | | | where P is the maximum output power rating of the transmitter in Watt (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m).<br><br>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey (a), should be less than the compliance level (b) in each frequency range.<br><br>Interference may occur in the vicinity of equipment marked with the symbol described lateral: |

**Note 1:** At 80 MHz and 800MHz, the higher frequency range applies.
**Note 2:** These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, people and animals.

(a) Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered, if the measured field strength in the location in which the product is used exceeds the applicable RF compliance level above, the product should be observed, additional measures may be necessary, such as reorienting or relocating the product.
(b) Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

RF – frequency of EM radiation section, which frequency is between the low range of radio frequencies of long waves and the infrared range; useful for radio transmission. Limit frequencies are 9 kHz and 3 000 GHz.

**CAUTION! Portable devices for wireless communication may affect operation of THE ELECTRONIC MEDICAL DEVICES.**

| **Table 206** |
| :---: |
| **Recommended separation distances between portable and mobile HF-communications equipment and the product** |

The product is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the product can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the product – according on output power and frequency of the communications equipment – as recommended in the following table.

| Rated maximum output power of transmitter in watts [W] | Separation distance according to the frequency of transmitter in meter [m] | | |
| :---: | :---: | :---: | :---: |
| | 150 kHz do 80 MHz $d = 1.2\sqrt{P}$ | 80 MHz do 800 MHz $d = 1.2\sqrt{P}$ | 800 MHz do 2,5 GHz $d = 2.3\sqrt{P}$ |
| 0.01 | 0.12 | 0.12 | 0.23 |
| 0.1 | 0.38 | 0.38 | 0.73 |
| 1 | 1.2 | 1.2 | 2.3 |
| 10 | 3.8 | 3.8 | 7.3 |
| 100 | 12 | 12 | 23 |

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.
**Note 1:** At 80 MHz and 800MHz, the higher frequency range applies.
**Note 2:** These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, people and an.

RF - frequency, from the electromagnetic spectrum interval, which is between the low range of radio frequencies of long waves and the infrared range; useful for radio transmission. Limit frequencies are 9 kHz and 3 000 GHz.

| ⚠ | *Close vicinity (e.g. 1 m) of a device for treatment via microwaves or short waves may cause unstable product operation.* |
| :---: | :--- |
| ⚠ | *Use of accessories and cables other than accessories and cables described in this manual may cause increased emission of electromagnetic waves and decreased wear resistance of the product.* |
| ⚠ | *The product can neither be operated near, nor put over, another medical device, otherwise it will be necessary to watch the product operation in order to make sure that no disturbances occur.* |

# 30. ANNEX A

## 30.1. Data Plate Pictograms

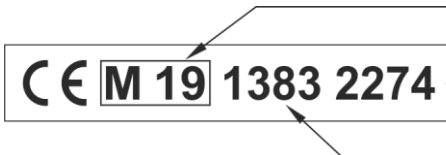| | |
|---|---|
|  | - manufacturer's name and address |
|  | - production date" (+ year of manufacture) |
| REF | - product number |
| SN | - serial number |
|  | - permissible temperature range (+ temperature values) |
|  | - application part of type B |
|  | - read the user manual |
|  | - device of class II |

### Example:

C315.60/150.OW-1 personal scale



## 30.2. CE Mark



Supplementary metrological marking for NAWI directive

Notified Body for MDD directive

Notified Body for NAWI directive