

# C315

Medical scales

## SOFTWARE MANUAL

ITKP-46-01-08-22-EN



 **RADWAG BALANCES AND SCALES**  
ADVANCED WEIGHING TECHNOLOGIES

AUGUST 2022

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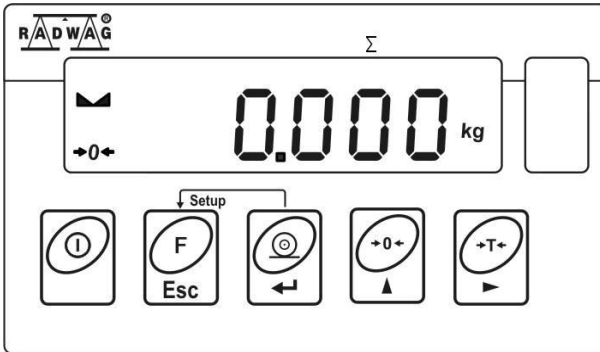
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## 1. INTENDED USE






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.








	<p><b><i>Under the MDR regulation, scales are not medical devices.</i></b></p>
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## 2. OPERATION PANEL





### Keys:

	Press to switch the weighing device on/off – hold the key for about 1 second.
	Function key, press to change the working mode.
	Press to send the weighing result to a printer or computer.
	Press to zero the scale.
	Press to tare the scale.










	 + 
<p><b>Upon pressing</b>  +  <b>keys combination, functions of given keys change. Detailed information concerning use of</b>  +  <b>keys combination is to be found further down this manual.</b></p>	




### 3. START-UP

- 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 also 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 reading unit next (displayed reading unit is conditioned by scale type).
- In case the weighing result is not zero after indication stabilisation, press  key.
- The scale is ready for operation.


### 4. OPERATING THE MENU

In order to navigate the program menu use the operation panel.

 + 	<p>Press to enter the main menu.</p>
 + 	<p>Press to:</p> <ul style="list-style-type: none"> <li>• enter tare manually.</li> <li>• enter tare from tare database.</li> <li>• change value by 1 digit up.</li> <li>• scroll the menu up.</li> </ul>
 + 	<p>Press to check battery/accumulator state.</p>
 + 	<p>Press to view date/time.</p>
	<p>Press to:</p> <ul style="list-style-type: none"> <li>• scroll the menu down.</li> <li>• change current parameter value.</li> </ul>

	Press to: <ul style="list-style-type: none"> <li>• enter given submenu.</li> <li>• modify given parameter.</li> </ul>
	Press to confirm modification.
	Press to: <ul style="list-style-type: none"> <li>• exit, function remains unmodified.</li> <li>• move one menu level up.</li> </ul>

#### 4.1. Return to the Weighing Mode

Introduced menu modifications are automatically saved to scale memory upon return to the home screen. To return to the home screen press  key repeatedly.

### 5. PROGRAM STRUCTURE


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

#### Function Groups:

Function group number	Function group name	Description
P1	CAL	User Adjustment.
P2	rEAAd	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.




## 6. WEIGHING



**Only stable weighing results can be recorded (stability marker ).**

### 6.1. Zeroing




To zero mass indication press  key. Zero indication and the following pictograms are displayed:  and . The instrument can be zeroed only when the indication is stable.



**Indication can be zeroed only within  $\pm 2\%$  range of maximum capacity. If the zeroed value is greater than  $\pm 2\%$  of the maximum capacity, then the software displays <Err2> message, and short sound signal is heard.**

### 6.2. 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.




**It is impossible to tare zero or negative values. When you tare zero or negative values, message <Err3> is displayed, short sound signal is heard.**

### 6.3. Entering Tare Value Manually

- Press  and  keys 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.

## 6.4. Dual Range Devices

*N/A in the case of single range scales*

Switching from weighing with the accuracy of the **I weighing range** to weighing with the accuracy of the **II weighing range** takes place automatically upon exceeding Max of the **I weighing range**. Upon switching to weighing with the accuracy of the **II weighing range**, respective pictogram/marker  $\rightarrow|2|←$  is displayed in the top left hand corner. The return to weighing with the accuracy of the I weighing range can be done in two modes:

<b>Manual mode</b>	Manual transition from a higher weighing range to a lower one, when the mass is in autozero (pictograms $\rightarrow 0 ←$ and $\blacktriangle \blacktriangledown$ ) after pressing  .
<b>Automatic mode</b>	Automatic transition from a higher weighing range to a lower weighing range, when the mass is in autozero (pictograms $\rightarrow 0 ←$ and $\blacktriangle \blacktriangledown$ ).

To select the transition mode, go to **<P2.9.nnrH>** (see section 7.9 of the user manual).


## 6.5. Units

**<P9.Unit>** parameter group enables change of start unit and temporary unit. Unit change can be performed in the course of weighing or during operation of other modes. 'Parts counting' and 'Percent weighing' modes are exceptions.

### 6.5.1. Start Unit

Parameter for setting unit that is displayed and used after 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 weighing devices.*

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


*\*) – unit disabled for verified weighing devices.*

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

### 6.5.2. Temporary Unit

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 weighing devices.*

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



*\*) – unit disabled for verified weighing devices.*

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

## 7. SCALE PARAMETERS

Scale parameters are set to adjust the weighing device to ambient conditions (filters) or individual needs (autozero on/off, tare values memory). These parameters are to be found in **<P2.rEAd>** submenu.

### 7.1. Filter

- Enter <P2.rEAd / 2.1.FiL> submenu.
- Press  key, filter values are displayed successively one by one: **1** - Fast, **2** - Average, **3** – Slow.
- Set respective value and press  key to confirm, next go to the home screen.





*The higher filter value, the longer the weighing takes.*

### 7.2. Value Release

Enter this parameter to adjust 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.

### 7.3. 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.

## 7.4. 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 placing of a load on the weighing pan (load adding, e.g. pouring, filling). In such 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.


## 7.5. 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:


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





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


## 7.6. Tare: Enter Mode

The tare is entered using  +  keys combination from the home screen level. There are two enter modes.

## Procedure:

- Enter **<P2.rEAd / 2.6.ttr>** submenu.
- Press  key, parameter values are displayed successively one by one:





<b>tArEH</b>	Select to enter tare value manually by means of  +  keys combination.
<b>tArnn</b>	Select to enter tare value that is stored in scale memory, use  +  keys combination.



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



## 7.7. Tare: Values Memory

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



### 7.7.1. Entering Tare Value to the Weighing Device Memory


- Enter **<P2.rEAd / 2.7.tArn>** submenu, name of tare no. 1 from tares database is displayed (**<tArE 0>**), to select a different record press  key.
- Select respective entry and press  key, 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, **<tArE 0>** window is displayed.
- Now press  key to go to the home screen.

### 7.7.2. Selecting Tare Value From Weighing Device Memory

- Enter <P2.rEAd / 2.7.tArn> submenu, name of tare no. 1 from tares database is displayed (<tArE 0>), to select a different record press  key.
- To set the selected tare press  key.
- The set tare value is displayed with 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 weighing device restart.***


### 7.8. 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, available values are displayed successively one by one:

<b>ALAS</b>	Select to make the last digit always on.
<b>nEur</b>	Select to make the last digit always off.
<b>uuSt</b>	Select to make the last digit on only when the weighing indication is stable.

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

### 7.9. Manual multi-range

*N/A in the case of single range scales*

Transition mode from a higher weighing range to a lower weighing range.

#### Procedure:

- Enter <P2.rEAd / 2.9.nnrH> submenu and set a respective option (✓ - Automatic multi-range; ✓ - Manual multi-range).

For a description of the transition modes from a higher to a lower weighing range, refer to section 6.4 of the user manual.

## 8. COMMUNICATION


Communication between the scale and the peripheral devices is established via the following port RS232.

### 8.1. RS232 Port

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

<b>4.1.1.bAd</b>	Baud rate: 2400, 4800, 9600, 19200, 38400, 57600, 115200 bit/s.
<b>4.1.2.dtb</b>	Data bits: 7, 8.
<b>4.1.3.Stb</b>	Stop bits: 1, 2
<b>4.1.4.Par *</b>	Parity: <b>nonE</b> – none; <b>EuEn</b> – even; <b>Odd</b> – odd.

\*) – for RS232, 7 bit data setting requires activation of parity control (<nonE> parity value disabled).

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

## 9. PERIPHERAL DEVICES



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

### 9.1. 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.

#### 9.1.1. Computer Port


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

#### 9.1.2. Continuous Transmission

- Enter **<5.1.PC / 5.1.2.Cnt>** submenu.

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


<b>nonE</b>	Continuous transmission disabled.
<b>CntA</b>	Continuous transmission in basic unit.
<b>Cntb</b>	Continuous transmission in current/temporary unit.

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

### 9.1.3. Printout Interval for Continuous Transmission


Parameter enabling you to set frequency of printout for continuous transmission. Printout interval is set in seconds with 0.1 [s] accuracy 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.

## 9.2. Printer

### 9.2.1. Printer Port

Parameter enabling you 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, parameter values are displayed successively one by one: **nonE** – none port selected; **rS1** – RS232.
- Press  key to confirm, next go to the home screen.

## 9.3. Additional Display

The weighing instrument can connect with additional displays: WD-4, WWG-2.

### 9.3.1. Additional Display Port

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

### 9.3.2. Additional Display Type

- Enter **<5.3.AdSP / 5.3.2.tYP>** submenu and select respective type.

Where:

<b>Ud-4</b>	WD-4-type additional display (set by default).
<b>UUG-2</b>	WWG-2-type additional display.

## 10. PRINTOUTS

It is possible to define adjustment report printout template and GLP printout template. To set the printouts go to **<P6.Prtt>** submenu. **<P6.2.GLP>** is a group of parameters allowing you to declare variables that are to be printed on a weighing printout. Each variable features accessibility attribute: **YES** – print, **no** – do not print.

Variables list:

No.	Name	Description
6.2.1.	dAt	Performed weighing date.
6.2.2.	tin	Performed weighing time.
6.2.3.	ldb	Serial number of the scale.
6.2.4.	n	Net weight value of performed weighing in basic measuring unit.
6.2.5.	t	Tare weight value in the current unit.
6.2.6.	b	Gross weight value in the current unit.
6.2.7.	CrS	Current weighing result (net weight) in a current unit.
6.2.8.	CrP	The last adjustment report generated in accordance with settings declared for the adjustment report printout.
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

## 11. MISCELLANEOUS PARAMETERS

<P7.Othr> is a group of parameters enabling you to adapt the scale to individual needs.


### 11.1. 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**, **3**, **5**.



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


### 11.2. 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:



<b>nonE</b>	Backlight off.
<b>10</b>	Display brightness low limit value in [%].
<b>100</b>	Display brightness high limit value in [%].

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

### 11.3. 'Beep' Sound

Parameter allowing you to enable/disable 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: **no** – sound signal disabled, **YES** - sound signal enabled.
- Press  key to confirm, next go to the home screen.

### 11.4. Automatic Shutdown

Parameter allowing you 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 is shut down automatically. Shutdown function is inactive and the device cannot be turned off if any process is started or if you operate the menu.

#### Procedure:

- Enter **<P7.Othr / 7.4.t1>** submenu.
- Press  key, parameter values are displayed successively one by one: **nonE** – function disabled, **1, 2, 3, 5, 10**.
- Press  key to confirm, next go to the home screen.

### 11.5. Date and Time

Parameter allowing you 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
<b>&lt;7.5.SdAt&gt;</b>	Enter this parameter to set current date, where the date format is <b>YYYY.MM.DD*</b> .
<b>&lt;7.6.Stnn&gt;</b>	Enter this parameter to set current time, where the time format is <b>24H**</b> .
<b>&lt;7.7.FdAt&gt;</b>	Enter this parameter to set date format. Values: <b>1</b> - DD.MM.YYYY, <b>2</b> - MM.DD.YYYY, <b>3</b> - YYYY.MM.DD* (set by default), <b>4</b> - YYYY.DD.MM.
<b>&lt;7.8.Ftin&gt;</b>	Enter this parameter to set time format. Values: <b>24H**</b> (set by default), <b>12H**</b> .


\*) - Date format: Y – year, M – month, D – day.

\*\*\*) - Time format: 12H – 12-hour format, 24H - 24-hour format.

## 11.6. Default Operator 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 home screen.

## 12. SCALE DATA




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


Parameter	Description
<b>&lt;8.1.Idb&gt;</b>	Serial number of the scale.
<b>&lt;8.2.PurS&gt;</b>	Program version.
<b>&lt;8.3.PStP&gt;</b>	Settings printout. Enter the parameter to send scale settings to printer port (all parameters).

## 13. WORKING MODES – General Information

The weighing device features the following working modes: Weighing <UUGG>, Weighing with Peak Hold <Hold>, BMI determination <bnni>.

### 13.1. Running Working Mode

- Go to 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.

	<b><i>The weighing device program has been designed to make the scale run, upon restart, with the latest operated working mode on.</i></b>
---	--


### 13.2. 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.

#### 13.2.1. Working Mode Accessibility

To enable/disable a given working mode, press  key.

##### Procedure:


- Enter <P3.Func> menu and select a given working mode.
- Go to <Acc> function.



- Press  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.


### 13.2.2. 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  key, parameter values are displayed successively one by one, where:


<b>StAb</b>	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.
<b>nStAb</b>	Manual printout of each weighing result. In case of unstable indication, <b>&lt;?&gt;</b> sign is displayed in front of the 'mass frame'. <b>Function available for non-verified scales exclusively.</b>
<b>rEPL</b>	Automatic printout of the first stable weighing result above <b>&lt;Lo&gt;</b> threshold (to set <b>&lt;Lo&gt;</b> threshold go to <b>&lt;Lo&gt;</b> parameter).
<b>rEPLi</b>	Automatic printout with time interval set in <b>[min]</b> (to set the interval go to <b>&lt;Int&gt;</b> parameter).

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

### 13.2.3. 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.

### 13.2.4. 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.

## 14. 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.

### 14.1. Local Settings

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

3.1.1.Acc	Working Mode Accessibility	For detailed description read section 13.2.1.
3.1.2.Snn	Save mode	For detailed description read section 13.2.2.
3.1.3.Int	Time interval	For detailed description read section 13.2.3.
3.1.4.Lo	LO threshold	For detailed description read section 13.2.4.

## 15. WORKING MODE - WEIGHING WITH PEAK HOLD

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

### 15.1. Local Settings


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


3.8.1.Acc	Working mode accessibility	For detailed description read section 13.2.1.
3.8.2.Lo	LO threshold	For detailed description read section 13.2.4.


### 15.2. 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:

<b>Print</b>	Record of a temporary weighing result by pressing of  key.
<b>StAb</b>	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.

**15.3. 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.

	<b><i>It is possible to 'freeze' weight values that are higher than the set Lo threshold value (read section 13.2.4. of this manual).</i></b>
---	---

## 16. 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.

### 16.1. Local Settings


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

<b>3.9.1.Acc</b>	<b>Working mode accessibility</b>	For detailed description read section 13.2.1.
<b>3.9.2.Lo</b>	<b>LO threshold</b>	For detailed description read section 13.2.4.

### 16.2. 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,  - press to select digit,  - press to set digit value.
- Press  key to confirm, **BMI** value is displayed.



- 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 10 of this manual).**

- Empty the weighing pan.
- Press  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  key.

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

**where:**

**W** - body mass in [kg].

**H** - height in [m].

**BMI** - index value rounded to the first decimal place.

## 17. REPORTS

Weighing device software comprises the following reports:

Report name	Max record qty
Weighings	5 000
Alibi	100 000

To enable archiving of weighing and Alibi reports, a special PC software has been developed by RADWAG Wagi Elektroniczne, **SCALES EDITOR 2.1**. Archiving is carried out via RS232 port of the scale, it requires setting <5.1.1.Prt> parameter to rS1 value.



**A detailed procedure of report synchronization is to be found in user manual of SCALES EDITOR 2.1.**



**Set RS232 port parameters in accordance with settings of SCALES EDITOR 2.1.**

## 18. 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.Oth> 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.Ptr> 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.Prt / 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.

## 19. 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 ( $\pm 1\%$ for adjustment weight, $\pm 10$ 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 ( $\pm 10\%$ 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.



**RADWAG BALANCES AND SCALES**  
ADVANCED WEIGHING TECHNOLOGIES

