



radwag.com

Scan the QR code to view additional scientific material that may be of interest to you.
There you will find more useful information in an accessible format!

Software manual

IMMP-001-01-01-25-EN

5Y Mass Comparators

JANUARY 2025

Contents

1. INTENDED USE	6
2. ACTIVATION	6
3. HOME SCREEN	7
3.1. Top bar	8
3.2. Weighing box	8
3.3. Working field	8
3.3.1. Left side menu	9
3.3.2. Right side menu	9
3.3.3. Display patterns	9
3.4. Programmable functional keys	9
3.5. Fixed functional keys	10
4. NAVIGATION IN THE MENU	10
4.1. Main menu key functions	10
4.2. Database menu key functions	11
4.3. On-screen keyboard	11
4.4. Voice commands	12
4.5. Return to weighing function	13
5. PROGRAM STRUCTURE	13
6. LOGIN	14
6.1. Manual logging	14
6.2. Logging via transponder card	15
6.3. Logging via fingerprint	15
6.4. Logging via face profile	16
6.5. Logout	17
6.6. Permission levels	17
7. WEIGHING – General information	18
7.1. Balance zeroing	18
7.2. Balance tarring	19
7.3. Manual tare introduction	19
7.4. Tare deletion	19
7.5. Weighing for dual-range balances	20
7.6. Weighing unit shift	20
8. ADJUSTMENT	21
8.1. Internal adjustment	21
8.2. External adjustment	21
8.3. Operator adjustment	22
8.4. Adjustment test	22
8.5. Automatic adjustment	22
8.6. Automatic adjustment time	23
8.7. Report printout	23
8.8. GLP project	23
8.9. Adjustment history	24
8.9.1. Searching for adjustments	24
8.9.2. Exporting information on adjustments	24
9. PROFILES	25
9.1. Profile creation	25
9.1.1. Existing profile copy	26
9.1.2. New profile addition	26
9.1.3. Profile deletion	26
9.2. Profile creation procedure	26
9.2.1. Readout	27
9.3. Units	27
9.3.1. Start unit	27
9.3.2. Supplementary unit	28
9.3.3. Defined units	28
9.3.4. Unit availability	29
9.3.5. Gravitational acceleration	29
10. COMMUNICATION	29
10.1. Description of ports	29
10.2. RS 232 port settings	30
10.3. ETHERNET port settings	30

10.4. Wi-Fi® port settings	31
10.4.1. Transmission parameters.....	31
10.4.2. Network status.....	32
10.4.3. Available networks	32
10.4.4. Hot Spot.....	33
10.5. TCP protocol settings.....	33
10.6. Virtual COM port settings	34
11. PERIPHERAL DEVICES.....	34
11.1. Computer.....	34
11.1.1. Computer port	34
11.1.2. USB Free Link	35
11.1.3. Computer address.....	36
11.1.4. Continuous transmission.....	36
11.1.5. Interval.....	36
11.1.6. Weighing printout template	36
11.1.7. Communication with E2R System.....	37
11.2. Printer.....	37
11.2.1. Printer port.....	37
11.2.2. Code page	38
11.2.3. Control codes	38
11.2.4. Printout templates	38
11.3. Barcode scanner	39
11.3.1. Barcode scanner port.....	39
11.3.2. Prefix, Suffix	39
11.3.3. Field selection	40
11.3.4. Test.....	41
11.4. IM02 communication module	41
11.4.1. Activation of connection between IM02 and balance	41
11.4.2. Current loop.....	42
11.4.2.1. Working mode.....	42
11.4.2.2. Adjustment.....	43
11.5. Ambient conditions module	44
11.6. Modbus TCP.....	44
12. INPUTS/OUTPUTS	45
12.1. Input configuration.....	45
12.2. Output configuration.....	45
13. ADMINISTRATOR PANEL	46
13.1. Password settings	46
13.2. Operator account setting	47
13.3. Permission management	47
13.4. Remote access password.....	48
14. AMBIENT CONDITIONS.....	48
15. SCHEDULED TASKS	49
15.1. Balance adjustment.....	49
15.2. Message	50
16. UPDATE	50
17. OTHER PARAMETERS	51
17.1. Interface language selection	51
17.2. Date and time setting	51
17.3. Extension module.....	52
17.4. Sound	53
17.5. Visual result approval.....	53
17.6. Screensaver	53
17.7. Screen brightness	54
17.8. Vibration detection.....	54
17.9. Level control	55
17.10. Decimal separator	55
17.11. Proximity sensor sensitivity.....	55
17.12. Automatic ionisation	55
17.13. Autotest	56
17.14. Intro logo	56
17.15. Home screen layout	56
17.16. Platform name.....	57
17.17. System event export	57
17.18. Text-to-speech conversion.....	57

18. SYSTEM INFORMATION	57
19. WORKING MODES – General information	58
19.1. Activation of the working mode	58
20. WORKING MODES – Local parameters.....	58
20.1. Parameters	58
20.2. Buttons	59
20.2.1. Proximity sensors	61
20.2.2. Default button settings	61
20.3. Information.....	61
20.4. Printouts	62
20.4.1. Standard printouts	63
20.4.2. Non-standard printouts.....	66
20.4.3. Comparison report printout template	67
21. WORKING MODE - COMPARATOR	69
21.1. Working mode home screen	70
21.2. Local parameters.....	71
21.2.1. Printout/approval mode	71
21.2.2. Tare mode	72
21.3. Comparison	73
21.3.1. Change of comparison range	74
21.4. Comparison report.....	75
22. DATABASES	75
22.1. Database management	75
22.1.1. Database deletion	75
22.2. Database operations	76
22.3. Database edition	77
22.3.1. Operators.....	77
22.3.2. Products	77
22.3.3. Customers	78
22.3.4. Reference weights.....	79
22.3.5. Test weights	79
22.3.6. Comparison plans	80
22.3.7. Packaging.....	80
22.3.8. Warehouses	81
22.3.9. Printouts / Labels.....	81
22.3.10. Universal variables.....	81
22.3.11. Additional variables	81
23. REPORTS.....	82
23.1. Report management.....	82
23.1.1. Exporting weighing base	82
23.1.2. Exporting comparison reports	83
23.1.3. Deleting weighing records and reports	85
23.1.4. Global weighing counter.....	85
23.2. Report operations.....	85
23.3. Report preview	86
23.3.1. Weighing records	86
23.3.2. Comparison reports.....	87
23.3.3. Ambient conditions	87
24. COMMUNICATION PROTOCOL.....	87
25. ERROR MESSAGES	88

1. INTENDED USE

5Y-series mass comparators are intended to determine mass difference between a reference weight (A) and test weight (B). Mass comparators are usually used in weight-calibrating laboratories and national metrological institutes.



The device must not be used in the areas exposed to gas or dust explosion.

2. ACTIVATION

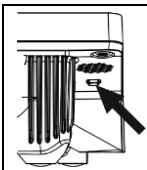
The device may be supplied with power only with the use of the original power adapter supplied. The rated voltage of the power adapter (showed in the dedicated rating plate) must comply with the mains rated voltage.



The balance is supplied with two ports intended for the mains power adapter. One port is located in the readout head and the other at the back of the weighing mechanism housing. The balance may be powered both from the head and mechanism but you must not do it from both sides at the same time, using two power adapters. Otherwise you may damage the balance and power adapters.


Activation procedure:

- Plug the power adapter into the socket and then insert the power adapter plug into the port located at the back of the weighing meter housing.
- The operating system and RADWAG software loading procedure will be initiated shortly. Upon startup, a signal light and LED lights situated at the frontal lower part of the weighing meter will be flashing.
- Once the startup procedure has ended, a home screen will be displayed.



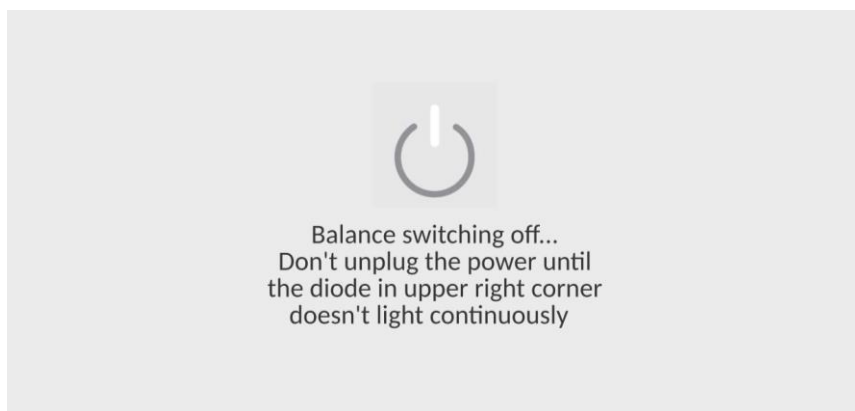
If the program crashes during operation, execute the so-called hard reset. To do so, press the head key and hold it for about 5 seconds. The program will restart and the device will reactivate.



Activate the balance when it is unloaded – with an empty weighing pan. With regard to verified balances, as per EN 45501 regulations, the mass value below -20e cannot be displayed. If the value drops below this value, the main screen will show <Lo mass> message. This being the case, zero the device by pressing  key.

Deactivation procedure:

- Expand the top menu of the balance.
- Press <Off> key.
- Select <Off> item and the following message will be displayed:

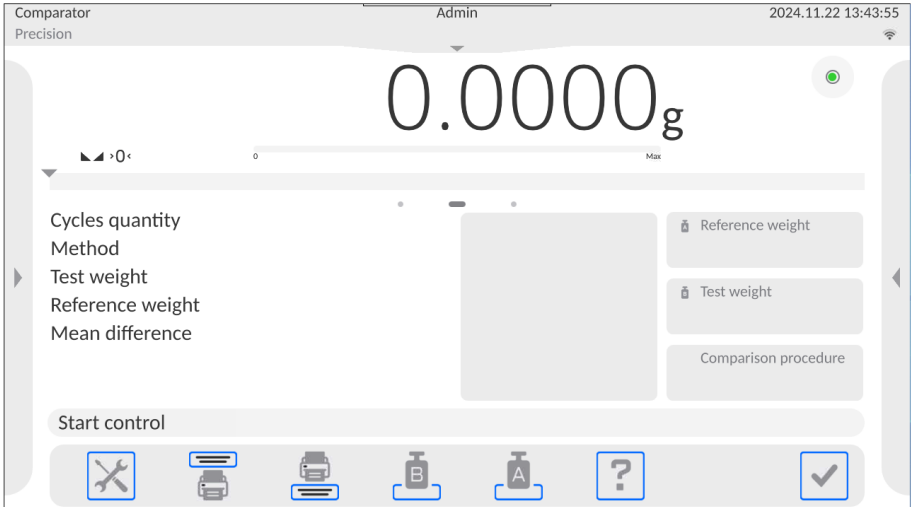


- Once the program has been shut down, a light will glow constantly in the top right corner of the screen.
- Only then can you disconnect the power adapter plug from the readout head socket.

3. HOME SCREEN

The main screen of the application can be divided into 5 fields: top bar, weighing box, working field, programmable functional keys, fixed functional keys.

General view:

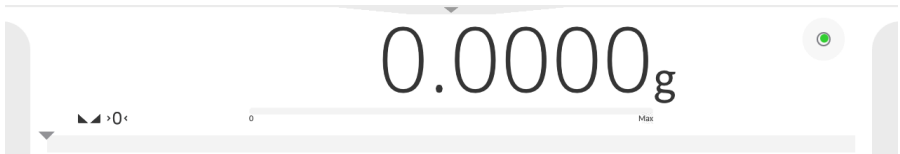


3.1. Top bar

The upper section of the screen shows the following information: currently used working mode, logged operator, date, time, active connection to computer.

3.2. Weighing box

The weighing box contains all weighing-related information:




3.3. Working field


The working field is composed of the following elements: left side menu, right side menu and 3 display patterns.

3.3.1. Left side menu

Expand the left side menu (▶ key) to provide direct access to working mode parameters.

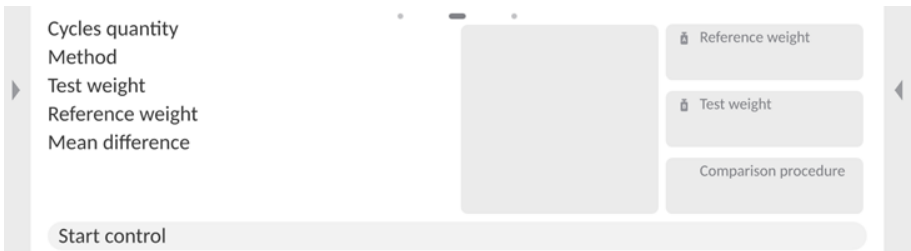
	<i>To access details related to working mode parameters, please see section 21 of the manual.</i>
---	--

3.3.2. Right side menu

Expand the right side menu (◀ key) to preview recent weighing records. Activate  pictogram in the top part of the weighing preview box to permanently „assign” the weighing preview to the working field.

3.3.3. Display patterns

The working field contains 3 display patterns: central display, left display, right display.




At the top of the working field you can find graphic information on which of the patterns is currently being in use. To change the pattern, press relevant graphic information.

3.4. Programmable functional keys

Programmable functional keys are available below the working field:



	<i>To see how on-screen functional keys can be programmed, read the section 21.2 of the manual.</i>
---	--

3.5. Fixed functional keys














Fixed functional keys can be accessed at the very bottom of the screen:









4. NAVIGATION IN THE MENU

It is very intuitive and easy to navigate in the weighing program menu. Thanks to the display with a touch panel, the operation of the program is user-friendly. Press the on-screen key or field in the screen to activate the assigned operation or function.

4.1. Main menu key functions

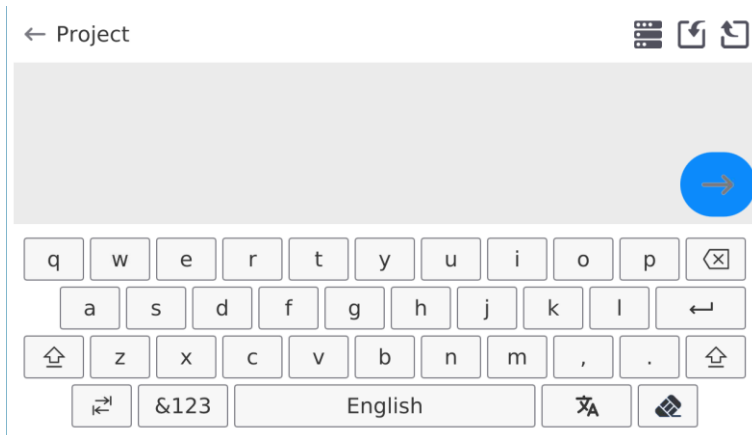
	Enter the menu of the balance Go to home screen instantly
	Zero the balance
	Tare the balance
	Send the result to printer or computer
	Confirm the change
	Return to the previous window and do not change the parameter
	Return to the previous menu level
	Select variables for the printout template from the list
	Import the printout template from the pendrive memory stick
	Export the printout template into the pendrive memory stick
	Unselect all.
	Select all.
	Restore default settings.

4.2. Database menu key functions

	Add item to database
	Search item in database by date
	Search item in database by name
	Search item in database by code
	Print item from database
	Export databases/reports to pendrive memory stick

4.3. On-screen keyboard

While designing a printout, you can use an external USB keyboard connected to the head, or touch keypad that offers the same options as a typical PC keyboard.



The keyboard does not display some marks, such as colon or diacritical marks typical of a specific menu language (*the language is signalled with the description on the „SPACE” key*). To use such marks in the design printout, **press** a specific letter on the keypad and **hold it for a while**. This is how you can display additional keys with assigned marks which when clicked may be inserted into a text. Once you have finished entering a mark, displayed marks must be deactivated using an „X” key.

The example of available characters for Polish keyboard:



Letter on the keyboard	Additional characters	Letter on the keyboard	Additional characters	Letter on the keyboard	Additional characters
„e”		„t”		„u”	
„o”		„a”		„s”	
„l”		„z”		„x”	
„c”		„v”		„b”	
„n”		„”		„.”	

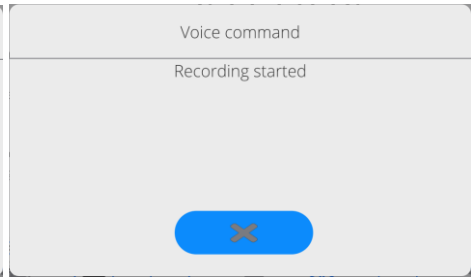
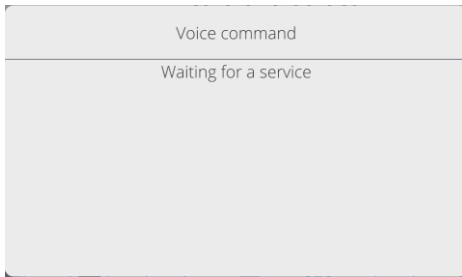
4.4. Voice commands

The balance program allows performing several operations using voice commands. These are the following: tarring, zeroing, result printing/saving. The commands must be expressed in English, in a proper sequence. Below is a structure of particular commands.

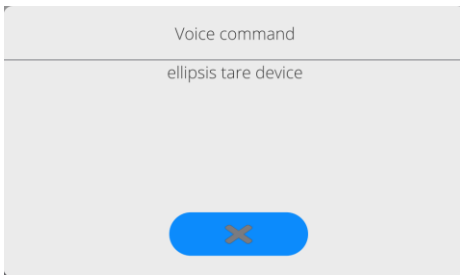
Tarring	ellipsis [please] (tare tar terre) [the] device
Zeroing	ellipsis [please] zero [the] device
Printing/Saving	ellipsis [please] save [the] (mass measurement mass measurement)
Automatic door opening	ellipsis open door
Automatic door closing	ellipsis close door

Procedure:

- Place  voice command activation key on the buttons bar (read below for the method of adding keys).
- Press  key.
- The voice command recognition procedure is initiated, which will be communicated to the operator through messages in the screen.





- Express the command as per the description above.
- If you have expressed the command correctly and the program can recognise it, a message will be displayed and the command will be automatically executed.



4.5. Return to weighing function

Any changes entered into the memory are instantly saved in the menu after returning to the home screen.

Procedure:

- Press  key a few times to return to the home screen.
- Press  field in the top bar to return to the home screen instantly.

5. PROGRAM STRUCTURE

The main menu has been divided into functional groups. Each group contains parameters that have been grouped by theme.

The list of main menu groups: Adjustment, Profiles, Databases, Reports, Communication, Peripherals, Administrator Panel, Environment, Scheduled Tasks, Update, Miscellaneous, System Info.

6. LOGIN

To gain full access to operator's parameters and database edition, the balance operator must be logged in as **<Administrator>**.



In a brand new balance, the operator is set as <Admin> by default, without password with <Administrator> permission. After the balance has been activated, the default operator logging procedure is initiated instantly. In case of any changes to default operator's data or in case of creation of additional operators, log in manually.

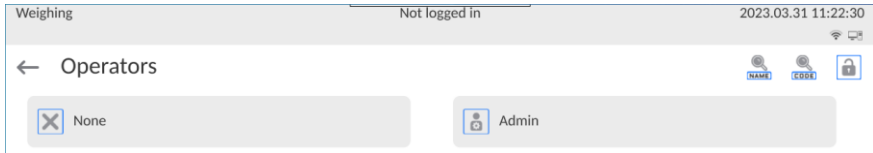
6.1. Manual logging

To log in manually, expand the menu at the top of the screen.



Procedure:

- After expanding the top menu, press **<Log in>** field to see the operator base window with **<Admin>** item.



- After selecting **<Admin>** item, an on-screen keyboard with the operator password edition box will be displayed. By default this operator is not assigned any access password and therefore the operator enters the home screen automatically.



Upon the first logging procedure, enter operators and assign them relevant permission levels and unique access passwords (procedures described further in the manual).




Upon another logging procedure, select the operator from the list and enter the password to start working with the permission dedicated to specific operator.

6.2. Logging via transponder card



A RFID reader installed in the head operates at a frequency of 13.56MHz and complies with ISO/IEC 14443 Type A. Only the cards in this standard can be recognised by the reader.

Procedure:

- Enter the operator base and edit the desired operator.
- Enter **<Card number>** item to see **<Card number>** edition field with an on-screen keyboard.
- Once you have put the card in front of the proximity card scanner, the program will instantly display the registered card number in **<Card number>** edition field.
- Press  key to confirm the number and return to the home screen.
- From now on, put the card in front of the RFID scanner to log in automatically.

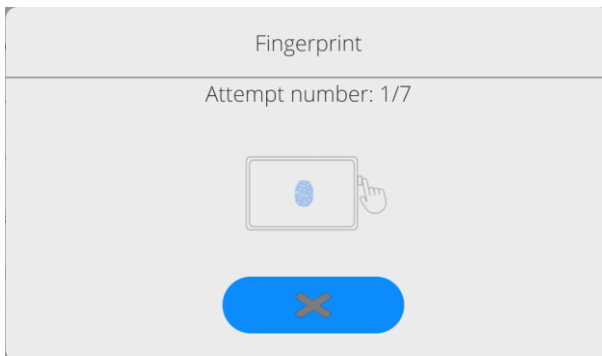
6.3. Logging via fingerprint



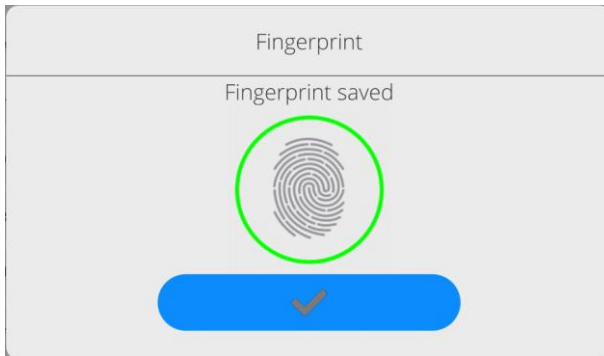
Only the fingerprint scanner that has been declared as dedicated to these balances can be connected. The list of accessories can be accessed on the RADWAG's website.


Procedure:

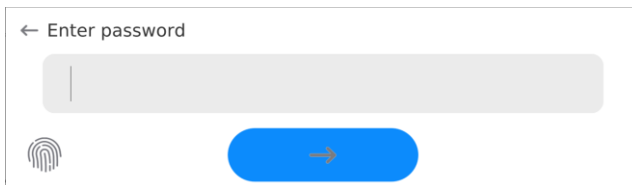
- Connect the fingerprint scanner to the USB-A port.
- Enter the operator base and edit the desired operator.
- Enter **<Fingerprint>** item to see the following window:



- Scan your finger and repeat the procedure 7 times (as per the description in the screen).
- If the procedure is successful, the summary box will be displayed:



- Confirm the procedure of assigning the fingerprint to the operator by pressing  key.
- From now on, if the fingerprint scanner has been connected to the USB port, an active fingerprint login pictogram will be displayed in the operator login box.

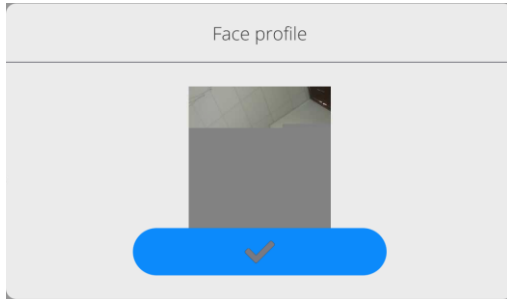



- After putting the finger in front of the scanner and confirming that the fingerprint and its pattern match, the pictogram will turn green for a while and the operator will be logged in automatically, and the program will show the home screen. The name of the logged operator will be displayed in the top bar of the screen.
- If the scanned fingerprint does not match the pattern, the pictogram will turn red for a while and the operator will not be logged in. The login box will remain active.

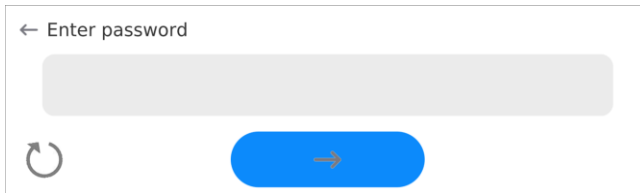
6.4. Logging via face profile

- Enter the operator base and edit the desired operator.
- Enter **<Face profile>** item to see **<Camera loading>** message. The face profile will be scanned.
- Position yourself in front of the camera properly so that the program can save your profile in the memory.

- After saving the profile, the message with a photo will be displayed.



- Press  key to close the window.
- In the operator settings box, the description of options will turn into **<Delete face profile>**, which means that the profile is saved in the memory.
- From now on, if the operator who has been assigned the face profile is logging in, the program will scan the profile instantly, which will be communicated through a pictogram on the left side of the box:



- The program scans the operator's face profile photograph instantly and once the photo has been loaded, the camera is activated (which is communicated through a glowing light by the camera).
- At the same time the saved photo is being compared to the profile scanned by the camera. If these images match, the operator enters the home screen and the name of the operator is displayed in the top bar.

6.5. Logout

- Expand the menu at the top of the screen and press **<Logout>** field.
- After collapsing the top menu in the top bar, **<Not logged>** inscription will be displayed as a name of the logged operator.



6.6. Permission levels



The software of the balance offers four permission levels: Administrator, Advanced operator, Operator, Guest.

The access to operator parameter edition and program functions depends on the permission level:




Permission	Access level
Guest	Not allowed to edit all operator parameters. The guest cannot confirm weighing and start comparison.
Operator	Access to parameter edition from <Other> submenu (except for <Date and time> submenu). The operator may start and perform all procedures.
Advanced operator	Access to edition of all operator parameters, except for <Readout> and <Date and time> submenu. This operator may start and perform all procedures.
Administrator	Access to all operator parameters, functions, database edition. The administrator may start and perform all procedures.

7. WEIGHING – General information


Put the load in question onto the weighing pan. When you can see  marker, read the result. You can save/print the weighing record after pressing  key:

- In verified balances – only the stable weighing result ( marker).
- In non-verified balances – stable or unstable result (no  marker is displayed), if the result is unstable, <?> mark is printed before the mass value.



7.1. Balance zeroing

In order to zero the mass value, select a suitable platform in the touch panel and press  key. The display will show the zero mass value and the following symbols:  and .

Zeroing is tantamount to determination of a new zero point, treated as exact zero by the balance. Zeroing is possible only in case of stable value showed in the display.


	<p><i>It is possible to zero the displayed value within $\pm 2\%$ of the maximum loading capacity of the balance. If the zeroed value is higher than $\pm 2\%$ of the maximum loading capacity, the following message will be displayed: <Zeroing out of range. Use tare key or restart balance>.</i></p>
---	--

7.2. Balance tarring




In order to determine the net mass, put the load packaging on and press  after the value has stabilised. The screen will show the zero mass value and the following symbols: **Net** and . The balance has now been tarred.

While using the tarring function, make sure you do not exceed the maximum measuring range of the balance. After removing the load and packaging, the display will show the value of total tarred masses, marked with a minus sign.



You can also assign the tare value to the product in the database. If you do so, the balance will collect the tare value from the base after you have selected the product.

	<p><i>Tarring is not possible when the display shows a negative or zero mass value. In this case the following message will be displayed: <Tarring out of range. Use zero key or restart balance>.</i></p>
---	---


7.3. Manual tare introduction

- While being in any working mode, press  previously defined on-screen key to display the on-screen keyboard.
- Enter the tare value and press  key.
- You will return to the weighing mode and the display will show the tare value with „-“ sign and the following symbols: **Net** and .


7.4. Tare deletion

You can delete the tare value displayed by pressing  key on the facade of the balance using  programmable key (disable tare).



Procedure 1 – after removing the tarred load from the weighing pan:

- Press  key.
- **Net** marker will be deleted. A new zero point of the balance has been determined.

Procedure 2 – when the tarred load is on the weighing pan:

- Press  key.
- **Net** marker will be deleted. A new zero point of the balance has been determined.
- When the tare value exceeds 2% of the maximum loading capacity, the following message will be displayed: **<Tarring out of range. Use zero key or restart balance>**.

Procedure 3 – when the tarred load is on the weighing pan or after removing the tarred load from the weighing pan:



- Press  programmable key (Disable tare),
- Net market will be deleted,
- The tare value will be displayed,
- Press  key (Restore tare), you can restore the latest tare value.




7.5. Weighing for dual-range balances

Not applicable to single-range balances

The transition from weighing in **I range** to **II range** is automatic, with no operator's intervention (after exceeding Max limit for **I range**).


With regard to dual-range balances:

- Weighing in **I range** is communicated through  marker displayed in the left corner of the screen.
- Weighing in **II range** is communicated through  marker displayed in the left corner of the screen.

By pressing  key, it is possible to manually return from weighing in **II range** to **I range**, after the mass dropped to the autozero zone (symbols  and  displayed),

7.6. Weighing unit shift

The balance operator may change the weighing unit in two ways:

- by directly pressing the unit in the weighing box,
- by pressing the key that has been pre-programmed as  **Unit**> function.

Available options:

Unit	Designation	Verification	Unit	Designation	Verification
gram	[g]	yes	Taele Singapore	[tts]	no
kilogram	[kg]	yes	Taele Taiwan	[ttt]	no
carat	[ct]	yes	Taele China	[ttc]	no
pound	[lb]	no	Momme	[mom]	no
ounce	[oz]	no	Grain	[gr]	no
ounce troy	[ozt]	no	Tical	[ti]	no
pennyweight	[dwt]	no	Newton	[N]	no
Taele Hongkong	[tlh]	no	Mesghal	[msg]	no



The operator can declare the start unit and define two own units – see section 9.3 in the manual.

8. ADJUSTMENT

Mass comparators are equipped with the automatic adjustment system. Thanks to this, they guarantee outstanding weighing accuracy. To gain access to functions that control the adjustment, see **<ADJUSTMENT>** menu.

8.1. Internal adjustment

The internal adjustment uses a mass integrated inside the mass comparator. **<Internal adjustment>** key is used to initiate the adjustment procedure instantly. When it is over, the mass comparator screen shows the message on completion of the procedure and its status.






The mass comparator adjustment requires stable conditions (no air blows, no floor vibrations). The adjustment procedure must be performed when the weighing pan is empty.

8.2. External adjustment

The external adjustment is performed with the use of the external reference of a suitable precision and mass, dependent upon the balance type and lifting capacity. The procedure is semi-automatic and subsequent stages are signalled through display messages.

Procedure:

- Enter **<Adjustment>** submenu.
- Enter **<External adjustment>** function and you will see the following message: **<Unload weighing pan>**.
- Unload the weighing pan and confirm the message by pressing  key (confirm).
- While determining the start mass, the following message is displayed: **<Start mass determination>**.
- After the end of determination of start mass, the following message will be displayed: **<Position xxx weight>** (where: xxx – adjustment mass).
- Place the desired adjustment mass on the weighing pan and press  key (confirm). The **<Adjustment>** message will be displayed afterwards.
- When this procedure is completed, you will see **<Unload weighing pan>** message.
- Unload the weighing pan and press  key (confirm) to confirm the message.
- Finally **<Done>** message will show up and you will return to **<Adjustment>** submenu instantly.

8.3. Operator adjustment

The operator adjustment may be performed using any weight whose mass exceeds 0.15 of the maximum loading capacity and reaches the maximum valued of the loading capacity of the mass comparator. The adjustment procedure is analogical to external adjustment yet you will see the weight mass value declaration box before the procedure is initiated.

To start the procedure, enter **<Adjustment>** submenu and press **<Operator adjustment>** key. Then you need to follow instructions displayed in the mass comparator screen.

8.4. Adjustment test

<Adjustment test> function is used to compare internal adjustment results with the value entered in factory parameters. Such a comparison allows specifying mass comparator sensitivity drifts in time.

8.5. Automatic adjustment

In this menu, declare the factor that determines when the automatic adjustment is to start.

Available options:

None	Automatic adjustment is inactive
Time	Adjustment is performed at time intervals declared in <Automatic adjustment time> menu.
Temperature	Adjustment is performed only upon temperature change.
Both	Temperature change and time determine when the automatic adjustment is to start.

8.6. Automatic adjustment time

<**Automatic adjustment time**> parameter defines time intervals at which the automatic internal adjustment of the mass comparator is to be performed. This time is defined in hours; range from 1 to 12. To set the automatic adjustment time, follow the steps below:

- Press <**Automatic adjustment time**> key.
- In the menu, select time (given in hours) that is to elapse from the last adjustment until another internal adjustment.

8.7. Report printout

<**Report printout**> parameter specifies if the adjustment report is to be printed out automatically after the end of the adjustment. To make sure the report is printed out automatically, set active printout in this parameter.

8.8. GLP project

GLP is one of methods of documenting operation as per the adopted quality system. The information selected for printout will be printed out together with every mass comparator adjustment report. The operator may use the following information and marks:


Adjustment	Type of adjustment.
Working mode	Name of working mode.
Date	Adjustment date.
Time	Adjustment time.
Balance type	Factory balance type.
Balance ID	Balance serial number.
Operator	Name of logged operator.
Full name	First and last name of logged operator.
Levelling	Levelling status.

Nominal mass	Declared mass of adjustment weight.
Current mass	Currently checked adjustment weight mass.
Difference	Difference between nominal and current mass.
Temperature	Current value of internal temperature sensor.

8.9. Adjustment history


It contains all mass comparator adjustments. The record is automatic. Every recorded adjustment contains basic data on the procedure. From this menu, you can display a list of saved adjustments. Every report may be printed out. To print the adjustment report out, enter **<Adjustment/Adjustment history>** submenu and select the adjustment to be printed out and when all details

are displayed, press  printer icon in the top bar.

	<p><i>Adjustment reports are continuously saved in the memory, starting from the moment the balance is powered, with no limit on their number but if you exceed 100 reports, the number of reports will be reduced to last 50 upon balance restart, and these 50 reports will remain in the base. When you reactivate the balance, reports will be added to the memory again.</i></p>
---	--

If the internal procedures require full documentation for all adjustments, the list with these records must be periodically printed out and archived.

8.9.1. Searching for adjustments

It is possible to search for information on adjustment: press  key and enter the adjustment date.

8.9.2. Exporting information on adjustments

To export information on adjustments, insert the USB mass memory stick into the mass comparator port. Next press **<Data export>** key in the top right corner of the screen. The procedure is automatic. Once the procedure is completed, the file with **.tdb** extension is saved. You can edit the file for example in Excel or a text editor.

9. PROFILES

The profile is a set of information that describes:

- how the function is to operate; e.g. filter weighing,
- what information will be displayed during operation,
- what keys will be active,
- what units will be available,
- what criteria apply to balance working speed and result stabilisation.


The balance program allows creating numerous profiles, which means that:

- every operator can create their own unique working environment,
- it is possible to design the method of balance operation by sharing the keys and information that are required (work ergonomics).

For the sake of easy operation of the balance, there are 4 default profiles. The settings have been selected and saved for them so that weighing is optimal in relation to specific expectations and conditions.

These are the following profiles:

Name	Description
Fast	This profile allows quick weighing of any masses, regardless of the working mode. Upon first activation, the balance enables this profile instantly. The parameters for this profile assure that the final result of the weighing is as quick as possible.
Fast dosing	This profile is intended for dosing and allows quick dosage of masses.
Precision	This profile is intended for precise weighing of any masses, regardless of the working mode. The weighing procedure for this profile is the longest but the final result is the most precise and accurate.
User	The basic profile with filter settings which assure that weighing is relatively fast and precise. Selecting this profile causes you to automatically enter the WEIGHING mode.

	<i>The operator can fully modify profile settings only in the User profile; other default profiles (Fast, Fast dosing and Precision) may be modified to a limited extent. Every additional profile created by the operator may also be fully modified.</i>
---	---

9.1. Profile creation

The balance administrator may create new profiles by:

- copying the existing profile and modifying it afterwards,
- creating a new profile.

9.1.1. Existing profile copy

- Enter **<Setup/Profiles>** menu.
- Press and hold the profile name that is to be copied.
- You will see a menu in which you need to press **<Copy>**.
- The profile named **<Copy name>** will be created and all settings will be identical to the basic profile.
- After copying, change the data that must be modified (name, etc.).

9.1.2. New profile addition

- Enter **<Setup / Profiles>** menu.
- Press **<Add>** key.
- A new profile will be added automatically and you will be allowed to edit it.



9.1.3. Profile deletion

- Enter **<Setup / Profiles>** menu.
- Press and hold the profile name that is to be deleted.
- You will see a menu, select **<Delete>** item from the list.
- Next the following message will be displayed: **<Are you sure you want to delete?>**.
- Press **<Confirm>** key to confirm the message. The profile will be deleted.

	<i>Any operations in profiles may be performed provided you have previously logged in as Administrator.</i>
--	--

9.2. Profile creation procedure


The following items are available in each profile:

Settings	This menu allows assigning the unique profile name (a sequence of alphanumerical characters) and declaring which mode is to be default (selected mode will always be enabled as a default mode when you select the profile).
Working modes	This item allows setting specific options for particular working modes. It contains such submenu as mode-related additional settings, keys, information, printouts.



Readout	See detailed description in 9.2.1 in the manual.
Units	See detailed description in 9.3 in the manual.

9.2.1. Readout

Access path: <Side left menu / Profile / Readout>.

	<i>For profiles: Fast, Fast dosing, Precision, parameters: Filter, Result approval cannot be modified and are assigned relevant values by default.</i>
---	---

Parameter list:

Filter	Adaptation of the balance to external environmental conditions. The faster the filtering, the longer the weighing result stabilisation time. Available values: Very fast, Fast, Medium, Slow, Very slow.
Result approval	This parameter refers to weighing result stabilisation speed. Depending on the option you select, the weighing time will be shorter or longer. Available values: Fast, Fast and precise, Precise.
Autozero	The automatic control and correction of the zero value. There are special cases in which this function hinders weighing. The example may be very slow placement of the load on the weighing pan (e.g. pouring the load on). This being the case, it is advisable to disable this function. Available values:  - function disabled,  - function enabled.
Last digits	Dimming visibility of the last decimal place in the exposed weighing result. Available values: Always: all digits are visible; Never: last result digit is dimmed and not showed; When stable: Last digit is displayed only when the result is stable.
Number of last digits	This function specifies the number of hidden last digits of the result and operates in connection with <Last digit> item. Available values: 1 – last result digit; 2 – two last result digits; 3 – three last result digits.
Environment	This parameter applies to the environment and conditions in which the balance is operating. If the ambient conditions are unfavourable (air movement, vibrations), it is advisable to change the parameter into „unstable“. Available values: Stable, Unstable.

9.3. Units

The operator can declare the start unit and supplementary unit as well as two defined units for a specific profile.

Access path: <Side left menu / Profile / Units>.

9.3.1. Start unit

After selecting the start unit, the balance will start with the selected unit as the default in modes where unit changes are allowed.

Procedure:

- Enter **<Side left menu / Profile / Units / Start unit>** submenu and select the start unit from the list.
- Return to the home screen and restart the balance.
- After restarting, the balance will enable the declared start unit.

9.3.2. Supplementary unit

After selecting the supplementary unit, the balance will display an additional information field with the mass value calculated into this unit.

Procedure:

- Enter **<Side left menu / Profile / Units / Supplementary unit>** and select the supplementary unit from the list.
- Return to the home screen, enter **<Side left menu / Information>** menu and enable **<Supplementary unit>** item.
- After returning to the home screen, the balance will display the mass value in an supplementary unit in the information field.

9.3.3. Defined units


The operator can declare two defined units. The value displayed in the balance screen for the defined unit is the result of the declared conversion formula.

Procedure:

- Enter **<Side left menu / Profile / Units / Defined unit 1>** submenu and set the following parameters:

Pattern	Defined unit conversion formula: Coefficient * Mass or Coefficient/Mass .
Coefficient	Declaration of coefficient for conversion of defined unit as per specific formula.
Name	Unit name (3 characters at the most).



- Return to the home screen.
- Defined unit will be selectable after pressing the unit symbol in the weighing box.

	<i>The procedure of defining second unit <Defined unit 2> is analogical to the one described above.</i>
---	--

9.3.4. Unit availability

You can declare units that are to be available in the list after pressing the unit symbol in the weighing box.


Procedure:

- Enter **<Side left menu / Profile / Units / Available units>** submenu.
- Set availability of desired units in the list ( - unit available;  - unit unavailable).

9.3.5. Gravitational acceleration

<Gravitational acceleration> parameter eliminates changes to gravitational force at various latitudes and altitudes in case you select „Newton” [N] weighing unit.

Procedure:

- Enter **<Side left menu / Profile / Units / Gravitational acceleration>** submenu and you will see **<Gravitation [m/s²]>** edition box.
- Enter the gravitational acceleration value for the place of use and approve changes by pressing  key.

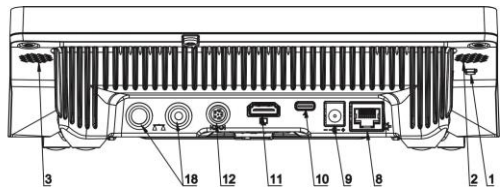
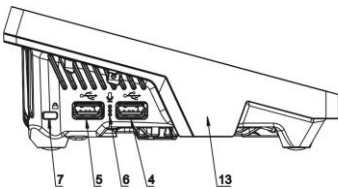
10. COMMUNICATION

The balance can communicate with an external device through the following ports: COM 1, COM 2, COM 3, Ethernet, Tcp, Wi-Fi®.

It is possible to extend the range of interfaces using the IM02 communication module (supplied) that is connected to the balance via the COM 3 interface. In the standard design, the IM02 communication module is equipped with the following interfaces: RS 232 IM02, Virtual COM, 4WE/4WY.


Access path:  / **<Communication>**.

10.1. Description of ports



4	USB-A port which when connected to the converter is detected by the program as RS 232 – COM 1 port.
5	USB-A port which when connected to the converter is detected by the program as RS 232 – COM 2 port.
8	Ethernet port.
10	USB-C port.
11	HDMI port.
12	COM 3 port – RS 232 port.

10.2. RS 232 port settings

	<i>For correct cooperation with external devices using RS 232 ports, use a USB-to-RS232 converter.</i>
---	---

Procedure:

- Select **RS 232** port, where:

COM 1	Balance communication ports
COM 2	
COM 3	
RS 232 IM02	Communication port of the IM02 communication module connected to the balance.

- Set suitable transmission parameters:

Speed	4800, 9600, 19200, 38400, 57600, 115200, 921600* bit/s.
Data bits	5, 6, 7, 8.
Stop bits	None, 1, 1.5, 2.
Parity	None, Odd, Even, Marker, Space.




*) – The speed value is available only to the COM 3 port for cooperation with the IM02 communication module.


10.3. ETHERNET port settings

- Select **<Ethernet>** port.
- Set suitable transmission parameters:


DHCP	<input checked="" type="checkbox"/> Yes, <input type="checkbox"/> No
IP address	192.168.0.2
Subnet mask	255.255.255.0
Default gateway	192.168.0.1


DNS server	192.168.0.1
MAC address	- - -

	<i>The above-stated settings are for reference only. Choose transmission parameters as per settings of the client's local network.</i>
	<i><MAC address> parameter is assigned to the device instantly with <Readout only> attribute.</i>
	<i>In case you activate <DHCP> parameter and restart the device, other transmission parameters will be assigned <Readout only> attribute.</i>

- After making changes, press  key to see the following message: **<To execute changes, restart the balance.>**
- Return to the weighing mode and restart the device.



10.4. Wi-Fi® port settings




If the balance is equipped with an active wireless connection module, the following pictogram will be displayed in the top bar: .


	<i>Wi-Fi® is a registered trademark, owned by Wi-Fi Alliance. This trademark used in this document has been used only for reference and is not intended to confirm compliance of any products with products certified by Wi-Fi Alliance.</i>
---	---

10.4.1. Transmission parameters

- Select **<Wi-Fi®>** port.
- Set suitable transmission parameters:

DHCP	 Yes,  No
IP address	192.168.0.2
Subnet mask	255.255.255.0
Default gateway	192.168.0.1
DNS server	192.168.0.1
MAC address	- - -

	<i>The above-stated settings are for reference only. Choose transmission parameters as per settings of the client's local network.</i>
	<i><MAC address> parameter is assigned to the device instantly with <Readout only> attribute.</i>
	<i>In case you activate <DHCP> parameter and restart the device, other transmission parameters will be assigned <Readout only> attribute.</i>

- After making changes, press  key to see the following message: **<To execute changes, restart the balance>**.
- Return to the weighing mode and restart the device.

10.4.2. Network status

- In order to check parameters of the specific network, click **<Network status>** field.
- Network parameters will be presented in the box:

Name	Value	Description
Network	-	Network name.
Network status	Connected	Network status values: connected, unconnected.
RSSI	--- dbm	Network signal strength.
Forget network	-	Connection with specific network disconnected.

The specific network and connection parameters are remembered by the balance program, and every time the balance is activated, the program connects to the network on the basis of preset parameters.

10.4.3. Available networks

The operator can check available networks that have been detected by the balance.

Procedure:

- Enter **<WiFi® / Available networks>** submenu and select the desired network from the list.
- To find (rescan) available networks, press **<Refresh>** item.

10.4.4. Hot Spot

Hot Spot is an open access point that allows wireless connection to a balance using another device: laptop, tablet, phone, via wireless network based on Wi-Fi standard.

The hot spot owner himself decides with whom and how he intends to share his link by logging in, which requires individual user name and password (data assigned during the hotspot service start-up and stored in the balance memory).

Procedure:


- Enter **<WiFi®>** parameter, set **<Hot Spot>** service on, message **<Waiting for a service / Please wait>** will be displayed.
- Hot Spot service settings are shown, **<WiFi®>** submenu features **<Name>** and **<Password>** fields.
- Provide user name and password (the password must consist of at least 8 characters) following the prompts.
- From now on, the Hot Spot service is on, the subnetwork will be detected by other devices such as smartphone under the set name, the operator will be able to connect to it with the set password.

10.5. TCP protocol settings

TCP (*Transmission Control Protocol*) is a stream protocol of communication between two computers. **TCP** operates in the client-server mode.

The server awaiting a connection request from a specified port, whereas the client initiates connection to a server. The balance program enables setting port number for **TCP** protocol.

Procedure:

- Select **<TCP / Port>**, **<Port>** box with an on-screen keyboard is displayed.
- Enter the required port number and press  to confirm.



For RADWAG-manufactured devices, the default TCP port number is 4001.

10.6. Virtual COM port settings

Applicable to the active IM02 communication module

The COM Virtual port is used to connect the balance to the computer.

Sequence of steps:

1. In **<Peripherals / Computer / Port>** submenu, set **Virtual COM** value.
2. Run a computer program used to read measurements made on the balance.
3. Set communication parameters in the computer program, i.e. COM port, transmission parameters.
4. Initiate cooperation.

11. PERIPHERAL DEVICES


Settings for communication between the balance and the peripheral devices, e.g. printer, computer, barcode scanner.

Access path:  **< / Peripherals>**.

Settings for communication between the balance and peripheral devices, e.g. printer, computer, barcode scanner, IM02 communication module.

Access path:  **< / Peripherals>**.

11.1. Computer

The active connection between the balance and computer is signalled through  icon in the top bar of the screen.

11.1.1. Computer port

The balance can communicate with the computer through the following ports: COM1, COM 2, Tcp, USB Free Link*, RS 232 IM02**, Virtual COM**.

Procedure:

- Enter **<Peripherals / Computer / Port>** submenu and select the desired port from the list.


*) - To see description of the port, please read 12.1.2 in the manual.

***) - IM02 communication module port connected to the balance.

11.1.2. USB Free Link

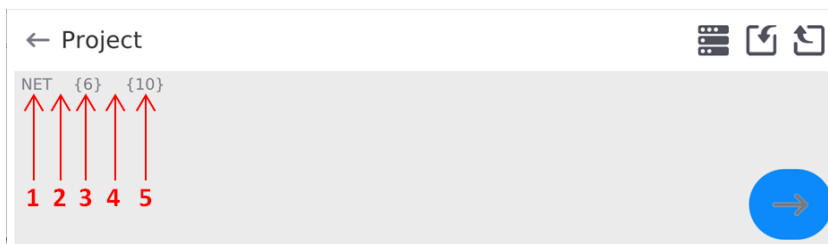
The tool used to enter data for peripheral devices that perform a role of a keyboard. Thanks to this, when the standard or non-standard printout is modified and a relevant message is sent from the computer or ENTER key is pressed in the keyboard, the data included in the non-standard printout are directly transferred from the balance to such computer programs as Excel, Word, Notebook, etc.

To assure proper communication with Excel, configure the non-standard printout properly by entering printout-formatting marks, such as Tab, Enter and diacritical marks typical of a specific language.

Remember to enter a suitable decimal separator mark (dot or comma) that will be accepted by our Excel (see submenu:  / **Other** / **Decimal separator**>).

USB Free Link is a USB type-C port (port no. 10 at the back of readout head - see section 11.1 in the manual), to which the computer is connected via USB type-A/type-C cable.

Example of printout project, and printout printed in Excel:




1	fixed text.
2	tabulator (cursor movement to the next cell).
3	variable {6}, net mass in adjustment unit.
4	tabulator (cursor movement to the next cell).
5	variable {10}, mass unit.

	A	B	C	D	E	F	G
1							
2							
3				NETTO:	1,1235 g		
4				NETTO:	1,1455 g		
5				NETTO:	1,1258 g		
6				NETTO:	1,1325 g		

11.1.3. Computer address

The parameter that allows setting the address of the balance that the computer is connected to.



Procedure:

- Enter **<Peripherals / Computer / Address>** submenu, **<Address>** edit box and keyboard are displayed.
- Enter the address and press  key to confirm changes.

11.1.4. Continuous transmission

The parameter allowing you to activate balance - computer continuous transmission. In order to send the content of **<Weighing Printout Template>** to a computer continuously, you must activate **<Continuous Transmission>** parameter.


Procedure:

- Enter **<Peripherals / Computer / Continuous Transmission>** submenu and set respective value ( - Continuous transmission disabled;  - Continuous transmission enabled).

11.1.5. Interval

The parameter allowing you to set frequency of print of **<Weighing Printout Template>** for continuous transmission. Interval for printouts is set in seconds with 0.1 [s] accuracy within 0.1 - 1 000 [s] range.


Procedure:

- Enter **<Peripherals / Computer / Interval>** submenu, **<Interval>** edit box is displayed.
- Enter respective value and press  key to confirm changes.

11.1.6. Weighing printout template


The template of an individual printout sent from the balance to the computer.

Procedure:

- Enter **<Peripherals / Computer / Weighing Printout Template>** submenu, **<Weighing Printout Template>** edit box with the on-screen keyboard is displayed.
- Modify the template and press  key to confirm changes.


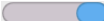



11.1.7. Communication with E2R System

The parameter allowing you to establish connection between the balance and **E2R System** PC software. **E2R System** is a modular solution designed to comprehensively manage production processes, some stages of which consist in weighing.

	<p><E2R> can be activated exclusively by the <Administrator> operator. In the case of integration of the balance with <E2R System> software, editing of databases on balances is disabled.</p>
---	---

Access path:  / Peripherals / Computer / E2R System>.

<E2R System> submenu parameters:

System active	<p>Enter to activate connection with E2R System PC software:</p> <p> - connection not established,  - connection established. Successfully established connection is signaled with display of  pictogram on a top bar of the home screen.</p>
Lock product change	<p>Enter to prevent product change:  - lock disabled,  - lock enabled.</p>
Databases	Enter to configure databases communicating with the E2R System.
Info	Enter to view list of database events occurring during active connection with E2R System.

11.2. Printer

11.2.1. Printer port


The balance can communicate with the printer through the following ports: COM 1, COM 2, USB, Tcp Client, USB Free Link*, RS 232 IM02**.

Procedure:

- Enter **<Peripherals / Printer / Port>** submenu and set the respective option.

*) – Printer port and computer port's description is likewise, read section 12.1.2 of the manual.

***) - IM02 communication module port connected to the balance.

	<p>If a large amount of data is to be printed using Free Link, it is obligatory to set <Receipt Printer Speed [character/second]> parameter to value 15.</p>
---	---

11.2.2. Code page


In order to provide correct communication of the weighing device with the printer (correct printout of diacritical signs of a given language), it is necessary to make sure that the code page of a sent printout complies with a code page of a printer.

There are two methods for obtaining code page compliance:

- by setting the right code page in the settings of a printer (read the user manual of the printer) – it must be accordant with the printout code page of a weighing device:

Code page	Language
1250	Polish, Czech, Hungarian.
1252	English, German, French, Spanish, Italian.
1254	Turkish.

- by sending the control code from the weighing device, which automatically sets the right code page of the printer (i.e. code page accordant with the one of a weighing device).

	<i>Default code page value of the printer is 1250 – Central European code page.</i>
---	--


11.2.3. Control codes

For a list and formulation of control codes supported by the RADWAG receipt printer, see the '**APPENDICES 03**' manual.

11.2.4. Printout templates

The parameter allowing you to define individual printout templates.

Procedure:


- Enter **<Peripherals / Printer / Printouts>** submenu.
- Select and edit respective template, edit box with default value and an on-screen keyboard is displayed.
- Modify the address and press  key to confirm changes.

Default values:

Product Printout Template	{50} {51}
Operator Printout Template	{75} {76}
Customer Printout Template	{85} {86}
Warehouse Printout Template	{130} {131}
Packaging Printout Template	{80} {81} {82}
Ambient Condition Printout Template	IS T1: {278} °C IS T2: {279} °C THB T: {276} °C THB H: {277} %

11.3. Barcode scanner

The barcode scanner is used to quickly find records in databases.

	<i>Enter <Communication> submenu and set baud rate for a barcode scanner (by default 9600b/s). For detailed description of 'balance' - 'barcode scanner' communication, read APPENDICES 03.</i>
---	---

11.3.1. Barcode scanner port


The balance can communicate with the scanner via USB port.

Procedure:

- Enter <Peripherals / Barcode Scanner / Port> submenu and set respective port.

11.3.2. Prefix, Suffix

The parameter allowing you to edit <Prefix> and <Suffix> in order to provide synchronisation of the balance program with a barcode scanner.

	<i>In RADWAG-adopted standard, the prefix is 01 sign (byte) hexadecimal format, the suffix is 0D sign (byte) hexadecimal format.</i>
---	--

Procedure:

- Enter <Peripherals / Barcode Scanner / Prefix> submenu and, using the on-screen keyboard, enter a required value (hexadecimal format).
- Go to <Suffix> submenu and, using the on-screen keyboard, enter a required value (hexadecimal format).

11.3.3. Field selection



The parameter allowing you to specify for which field the search is to be carried out in particular databases.

Procedure:

- Enter <Peripherals / Barcode Scanner / Field selection> submenu, list of fields for search is displayed.

Values: Product, Operator, Customer, Packaging, Warehouse, Universal Variable 1, Universal Variable 2, Universal Variable 3, Universal Variable 4, Universal Variable 5, Lot number, Batch number.

- Enter the desired item to see a list of the following parameters:

Filtering	Parameter allowing you to declare search criteria.
Offset	Parameter allowing you to set the first significant code's character, characters preceding the first significant character are skipped during comparison search.
Code Length	Parameter allowing you to set the number of code's characters to be taken into account during search procedure.
Start marker	Parameter allowing you to declare scanned code start to be taken into account during search procedure
End marker	Parameter allowing you to declare scanned code end to be taken into account during search procedure
Ignore markers	Parameter allowing you to ignore markers during barcode scanning:  - function disabled,  - function enabled.

Filtering criteria conditioned by the field type:

Field Selection	Filtering
Product	None, Name, Code, EAN code
Operator *	None, Name, Code,
Customer	None, Name, Code.
Packaging	None, Name, Code.
Warehouse	None, Name, Code.

Universal variable 1	None, Enabled.
Universal variable 2	None, Enabled.
Universal variable 3	None, Enabled.
Universal variable 4	None, Enabled.
Universal variable 5	None, Enabled.
Lot number	None, Enabled.
Batch number	None, Enabled.

*) – After scanning the name or code, the operator gets selected, the password must be entered.

11.3.4. Test

The parameter allowing you to verify if operation of a barcode scanner connected to the balance is correct.

Procedure:


- Enter **<Barcode Scanner / Test>** submenu, message **<Test / Scan Code>** is displayed.
- The code is scanned and entered to the ASCII field and HEX field, next the test result is displayed at the bottom of the screen.

When:

- **<Prefix>** and **<Suffix>** declared in balance settings comply with **<Prefix>** and **<Suffix>** of the scanned code, the test result is **<Positive>**.
- **<Prefix>** and **<Suffix>** declared in balance settings do not comply with **<Prefix>** and **<Suffix>** of the scanned code, the test result is **<Negative>**.



11.4. IM02 communication module

The IM02 communication module allows communication between the balance and such accessories as printers, control keys, light columns, buzzers, PLC controllers and other control-signal peripherals, as well as PCs.

	<p><i>The procedure of connecting the IM02 communication module to the power network and balance has been described in greater detail in „IM02 communication module” manual.</i></p>
---	---

11.4.1. Activation of connection between IM02 and balance

- Connect **IOIOI** connector of the IM02 communication port to the **COM 3 (IOIOI)** port of the balance using a dedicated **PT0454** cable.

- Enter **<Peripherals / IM02 communication mode/ Active>** submenu and enable the IM02 communication module ( - module enabled,  - module disabled).
- After establishing the connection between the IM02 communication module and the balance, the following information will be displayed instantly:

Status	Active connection status with the following values: Connected, unconnected.
Software version	IM02 communication module software version.
Design version	Communication module design version: IM02.1* – standard (RS232, 4WE/4WY, Virtual COM); IM02.2** – standard + current loop 4-20mA.

*) - Simultaneously the balance menu will be extended to include **<Inputs / Outputs>** submenu and a list of available communication ports in **<Communication>** submenu.

***) - Simultaneously the balance menu will be extended to include **<Inputs / Outputs>** submenu and a list of available communication ports in **<Communication>** submenu. and **<Current loop>** submenu in **<Peripherals / IM02 communication module>** menu.

11.4.2. Current loop

Applicable to active IM02.2 communication module

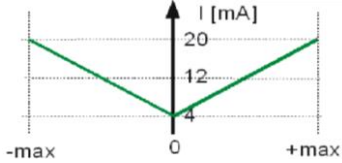
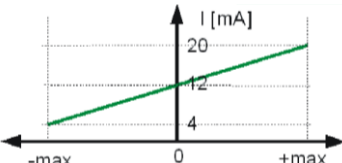
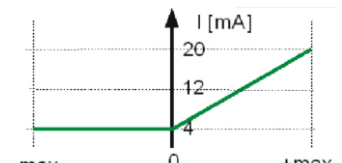
To configure the current loop module, enter **<Peripherals / IM02 communication module / Current loop>** submenu.

<Current loop> submenu:

Mode	Selection of working mode determines the method of controlling the current loop (see section 11.4.2.1 in the manual).
Calibration	Current lop module calibration (see section 11.4.2.2 in the manual).
Lower threshold	Adjustment coefficient corresponding to 4mA in the milliamperometer connected to the measuring unit.
Upper threshold	Adjustment coefficient corresponding to 20mA in the milliamperometer connected to the measuring unit.



11.4.2.1. Working mode

Selection of the working mode that determines the method of controlling the current loop:



<p>Absolute mass value (default mode)</p>	<p>Nature of operation:</p>  <p>4mA corresponds to mass value of [0]. 20mA corresponds to mass value of [-max] and [+max].</p>
<p>With negative range</p>	<p>Nature of operation:</p>  <p>4mA corresponds to mass value of [-max]. 12mA corresponds to mass value of [0]. 20mA corresponds to mass value of [+max].</p>
<p>Only positive values</p>	<p>Nature of operation:</p>  <p>4mA corresponds to mass value of [-max] ÷ [0]. 20mA corresponds to mass value of [+max].</p>

11.4.2.2. Adjustment

The balance program allows determining the linear transfer specification of the current loop module installed in the IM02 communication module.

	<p><i>To determine the transfer specification, the current loop module must be connected as per diagrams showed in the „IM02 communication module” manual.</i></p>
	<p><i>To read the current value, it is advisable to use a milliamperometer whose measuring range is at least 20mA and reading unit is 0.01mA (20mA – full range of the current output module).</i></p>

Procedure:

- Enter **<Peripherals / IM02 communication module / Current loop / Adjustment>** submenu and you will see **<Meter indication [mA]>** box with on-screen keyboard.
- Enter the valued showed by the milliamperometer connected to the measuring unit.
- Confirm changes by pressing  key and you will again see **<Meter indication [mA]>** box with an on-screen keyboard.
- Retake the aforesaid actions until you can see **<Done>** message.
- Press  key to confirm the message.
- At this time **<Lower threshold>** and **<Upper threshold>** values will be determined. They correspond to **4mA** and **20mA** values of the milliamperometer connected to the measuring unit.
- Return to the home screen.


11.5. Ambient conditions module

The ambient conditions module connected to the balance enables recording of the following in the balance memory: temperature, humidity, atmospheric pressure, vibrations. The balance can communicate with the ambient conditions module via UDP or USB port.

Procedure:

- Enter **<Peripherals / Ambient Conditions Module / Port>** submenu and set respective option.

11.6. Modbus TCP

	<i>To see a detailed description of the Modbus TCP protocol, read „MODBUS TCP – PUE CY10 communication protocol” manual.</i>
---	--

The **Modbus TCP** protocol can be used through the Ethernet interface. To configure the Modbus TCP protocol settings, access **<Peripherals / Modbus TCP>** submenu.

<Modbus TCP> submenu:

Active	Activate/deactivate Modbus TCP transmission protocol.
Port	Port number of transmission protocol (by default: 502).

12. INPUTS/OUTPUTS


Applicable to the active IM02 communication module

The PUE CY10 meter can support **4 inputs / 4 outputs** through connection to the IM02 communication module.

Access path: <  / **Inputs/Outputs**>.

12.1. Input configuration

- Enter <**Inputs / Outputs**> submenu.
- Select <**Inputs**> item to display a list of available inputs.
- Edit the desired input to display a list of assignable functions. The list of functions is analogical to the list of key functions available in the section 21.2 in the manual.
- Select the desired function from the list and return to the home screen.

	<i>For factory settings, all input functions have <None> item.</i>
---	---

12.2. Output configuration

Assigning a specific function to the output, you activate it. If the specific output has not been assigned any function, it remains inactive.


Procedure:

- Enter <**Inputs/Outputs**> submenu.
- Select <**Outputs**> item to display a list of available outputs.
- Edit the desired output to display a list of assignable functions:

None	Output disabled.
Stable	Stable weighing result above LO mass.
MIN stable	Stable weighing result below MIN threshold.
MIN unstable	Unstable weighing result below MIN threshold.
OK stable	Stable weighing result between MIN, MAX thresholds.
OK unstable	Unstable weighing result between MIN, MAX thresholds.
MAX stable	Stable weighing result above MAX threshold.
MAX unstable	Unstable weighing result above MAX threshold.
! OK stable	Stable weighing result out of OK threshold.
! OK unstable	Unstable weighing result out of OK threshold.


MIN	MIN threshold signalling.
OK	OK threshold signalling.
MAX	MAX threshold signalling.
! OK	Weighing result signalling out of OK threshold.
Zero	Zero weighing result ("zero" indicator).

- Select the desired function from the list and return to the home screen.

	<i>For factory settings, all output functions have <None> item.</i>
---	--

13. ADMINISTRATOR PANEL



The parameter group allowing you to determine permission levels for particular operators. There are 4 permission levels: **Guest, Operator, Advanced Operator, Administrator**. The **<Administrator Panel>** submenu can be modified exclusively by the **Administrator**.

Access path: < / **Administrator panel**>.

13.1. Password settings

The menu group specifying the password complexity for balance operators.

List of <Password Setting> submenu options:

Password minimum length	Parameter allowing you to specify the minimum number of characters in the password. For „0” value, you can set any number of characters.
Require lower- and upper-case letters	Parameter for requirement of the number of characters in user passwords:  - function disabled,  - function enabled.
Require digits	
Require special characters	
Password validity term	Parameter allowing you to specify the period of time, in days, which when expired requires you to change the password. For „0” value, the password change is not required by the scale program.

13.2. Operator account setting

The menu group with additional balance operator account settings.


List of <Password Setting> submenu options:

Unlogged operator permission	Parameter allowing you to grant permission to the scale operator who has not logged in (the so-called anonymous user). Available values: Guest* , Operator , Advanced Operator , Administrator .
Automatic logout	Parameter allowing you to enable automatic logout after a specific period of time, expressed in minutes, if the scale is unused. Available values: None (default value), 3 , 5 , 15 , 30 , 60 minutes .
Hide mass when operator not logged in	Parameter allowing you to disable mass display if the operator is not logged in. Available values: <input type="checkbox"/> - function disabled (default), <input checked="" type="checkbox"/> - function enabled.

*) - Set <Guest> to make sure the unlogged operator does not have any authorisation to change program settings.

13.3. Permission management

The menu group managing the permission levels to edit specific functions.

	<i>Set the permission into <Guest" value for particular parameters to make access to settings open (no need to log in).</i>
---	---

List of <Permission Management> submenu options:

Databases	Parameter allowing you to change permission to database preview, database edition, weighing and report deletion and database edition.
Date and time	Parameter allowing you to change permission to <Date and time> menu.
Printouts	Parameter allowing you to change permission to <Printouts> menu.
Header printout	Parameter allowing you to change permission to <Header printout> function.
Footer printout	Parameter allowing you to change permission to <Footer printout> function.
Print/approve button	Parameter allowing you to change permission to <Print> item.
Videos	Parameter allowing you to change permission to <Videos> menu.
Change working mode	Parameter allowing you to change permission to working modes.

13.4. Remote access password

The balance allows you to gain remote access, using connection between the balance and local Internet network that a PC is connected to. The **VNC Viewer** application can be used for this purpose.

A default access password in the program is a sequence of the following characters: **radwag1234**. If the operator does not wish to use the default password, he must enter its own unique access password in the relevant field.



Please remember a new password in order not to lose a remote access to the balance.

14. AMBIENT CONDITIONS

By default mass comparators are equipped with ambient condition internal sensors that record ambient conditions inside the comparator and optionally with the external sensor – THB ambient conditions module that records ambient conditions of the comparator weighing chamber:

- Internal sensor: Temperature 1,
- Internal sensor: Temperature 2,
- Internal sensor: Humidity,
- *External sensor: THB ambient conditions sensor.

*) - The external sensor is supplied upon the client's special request.

In the Ambient conditions group, you can modify the following parameters:

- Condition record frequency,
- Ambient conditions module.

Procedure:

- Enter **<Parameters / Ambient conditions>** menu.
- Enter **<Condition record frequency>** and specify the time interval for ambient condition recording.



The operator can preview the history of ambient condition records. All records can be accessed in <Database / Ambient conditions> menu.

- Enter **<Ambient conditions module>** and assign ambient condition parameters to it.



<Ambient condition module> Thermo-Hygro-Barometer (THB) records 2 types of ambient conditions: temperature and humidity.



The ambient conditions of the mass comparator established by the operator must not exceed the limits of the device operation, as specified in the product sheet. If these conditions differ from the ones specified in the sheet, the device may operated at variance with intended use.


15. SCHEDULED TASKS

The parameters that allow you to schedule cyclical tasks, such as balance adjustment or special message display.

15.1. Balance adjustment

<Scheduled Adjustments> is a parameter that allows you to declare precise time and interval for balance adjustments. This option is independent of automatic adjustment and triggering criteria (time, temperature). You can schedule the internal adjustment and external adjustment. To schedule external adjustments, you need to introduce reference weights into the balance memory to make sure the adjustments are possible.




Procedure:

- Before you set the adjustment plan, enter reference weights together with their data for external adjustments. To do so, go to **<Adjustment / Adjustment Weights>** submenu.
- Enter the weight reference data: name, code, class, serial number, mass, assembly number.
- Go to **<Scheduled Tasks>** submenu. You will see the box in which the authorised operator (Administrator) can add items with scheduled adjustments.
- Press  button. The scheduled adjustment data box will be displayed.
- Select the scheduled task: automatic (internal) adjustment or external adjustment.
- If you have chosen the automatic adjustment, enter data on adjustment and its schedule.
- If you have chosen the external adjustment, enter data on adjustment, reference weight used to conduct it and its schedule.
- Once data have been entered, return to the previous box. The item with schedule balance adjustment will be added.
- After you have entered all data, leave the menu. From that moment on, adjustments will be automatic: at the schedule time and intervals.


15.2. Message

The parameter allowing you to declare the exact time and interval of displaying the special message that informs you about a need to take an instant action.

Procedure:

- Enter **<Schedule Tasks>** submenu. You will see a box in which the authorised operator (Administrator) can add items with scheduled messages.
- Click  button and go to **<Scheduled Tasks>** field.
- In the box – select **<Message>** item. The program will display the message settings box.
- After you have set the message display frequency (first occurrence, interval), select **<Message>** parameter and enter the content of the message.
- Press  button to confirm the entry. The program will display the previous box.
- The submenu box will display the scheduled task field. Leave the menu and go to the program main box.
- After you have met message display criteria (time), the box with the message will pop up automatically.
- Press  key to deactivate the box and perform scheduled tasks.

16. UPDATE

	<i>Access to this function is granted to <Administrator> only.</i>
--	---

The submenu includes the following modules with the use of which you can update: operator-related field (application) and motherboard. The update is automatic by downloading information from the external USB memory.

Procedure

- Prepare the external pendrive memory with an update file. The file must come with *.lab4 extension.
- Insert the pendrive stick into the USB port of the weighing indicator.
- Log in as the Administrator.
- Enter **<Update / Application>** submenu to see the content of the USB memory.
- Find the update file and click the relevant name field.
- The balance will restart and the application will be updated.

- If the above-stated procedure does not occur, you must force the start by turning the power off and back on.

The motherboard file update is analogical to the application update, yet the files must come with relevant *.cm4mbu extensions.

17. OTHER PARAMETERS

The global information on balance operation.

Access path: < / **Miscellaneous**>.

17.1. Interface language selection

Selection of description language for balance menu.

Procedure:

- Enter <**Miscellaneous/Language**> submenu and select the interface language.

Available languages: Polish, English, German, French, Spanish, Korean, Turkish, Chinese, Italian, Czech, Romanian, Hungarian, Russian, Serbian, Portuguese, Japanese.

17.2. Date and time setting

The parameter allowing you to set the current date and time as well as date and time format. You can edit the date and time settings in two ways:

- Press <**Date and time**> field in the top bar of the home screen.
- Go to: <**Setup / Miscellaneous / Date and Time**> submenu.

After entering the date and time settings, <**calendar window**> and <**time window**> will be displayed. Set relevant values, i.e. year, month, day, hour, minute, and confirm changes.

<**Setup / Miscellaneous / Date and Time**> submenu includes additional functions used to define date and time format:


Name	Value	Description
Time zone	Europe, Warsaw	Parameter with the value: zone name/country. The zone name/country is related to the information if the time switches from winter into summer (and the other way round) and specific day of the year.
Date and time	2016.04.04 08:00:00	Parameter for setting date and time of the internal clock of the balance.

Date format	yyyy.MM.dd *	Data format selection. Available values: d.M.yy, d/M/yy, d.M.yyyy, dd.MM.yy, dd/MM/yy, dd-MM-yy, dd.MM.yyyy, dd/MM/yyyy, dd-MMM-yy, dd.MMM.yyyy, M/d/yy, M/d/yyyy, MM/dd/yy, MM/dd/yyyy, yy-M-dd, yy/MM/dd, yy-MM-dd, yyyy-M-dd, yyyy.MM.dd, yyyy-MM-dd.
Time format	HH:mm:ss **	Time format selection. Available values: H.mm.ss, H:mm:ss, H-mm-ss, HH.mm.ss, HH:mm:ss, HH-mm-ss, H.mm.ss tt, H:mm:ss tt, H-mm-ss tt, HH.mm.ss tt, HH:mm:ss tt, HH-mm-ss tt, h.mm.ss tt, h:mm:ss tt, h-mm-ss tt, hh.mm.ss tt, hh:mm:ss tt, hh-mm-ss tt.
Hide time	No	Enable/disable date and time in home screen.
Internet time	Yes	If the balance is connected to the Internet, this option allows you to update the time and date from the Internet.
Synchronised with Internet	Yes	The parameter informing the operator if the time and date in the balance have been synchronised with Internet data.
NTP server address	pool.ntp.org	It refers to setting the NTP (Network Time Protocol) server address from which data are collected for synchronisation of date and time. This function requires connection of the balance to the Internet.
RTC calibration	2016.04.04 08:00:00	The real time clock (RTC) calibration function that allows minimising differences between the real time and internal time of the balance. This function is recommended in case of long-lasting use with no access to synchronisation with NTP server.

*) - For date format: y – year, M – month, d – day

**) - for time format: H – hour, m – minute, s - second

Date and time formats can be previewed in **<Date and Time>** field and **<Date and Time>** submenu.

	<i>Only properly permitted operator is allowed to access <Date and Time> parameters. Permission level can be changed by the administrator in <Permission> menu.</i>
--	--

17.3. Extension module

Operation of additional modules is activated through the license key:

- Module for activation of device compliance for FDA 21 CFR procedures.
- Module for extension of communication protocol functionality, allowing cooperation of the weighing indicator with external customer systems.
- Module for deactivation of standard balance license (the so-called demo balance).

Procedure:

- Enter **<Miscellaneous>** submenu, select **<Extension Module>** parameter and follow the messages displayed.





To obtain the license number, contact the device manufacturer.

17.4. Sound

The parameter allowing you to set the balance sounds.


Procedure:

- Enter **<Miscellaneous / Sound>** submenu and set the relevant option ( - Function enabled;  - Function disabled).

List of **<Sound>** submenu items:

- Result confirmation sound.
- Touch screen sound.
- Sensors.
- Volume (range: 0 to 100%).

17.5. Visual result approval

The option that allows you to visually confirm the measurement and record it in the weighing record base. After entering  value, every saved measurement will be communicated to the operator through temporary illumination of the mass display in blue.



17.6. Screensaver

The parameter allowing you to save screen.

Procedure:

- Enter **<Miscellaneous / Screensaver>** submenu and select desired value.

Available values: **None** (default setting), 1, 2, 3, 5, 10, 15.

Digital values are set in minutes. Select one of the values to automatically select it and return to the previous menu.



Screen is saved only when the balance remains inactive (no changes to mass in the display). Weighing is back when the program detects any changes to the mass or when the display or button on the wall are pressed.

17.7. Screen brightness

The parameter allowing you to change the screen brightness from **0%** to **100%**.

Procedure:

- Enter **<Miscellaneous / Display Brightness>** submenu and select desired value.

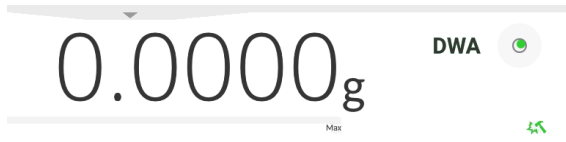
Available values: 0%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, **100%** (default setting).




Screen brightness influences life of the balance if powered by storage battery. If operator intends to prolong the interval between battery charging cycles, brightness must be lowered.

17.8. Vibration detection

The balance program can detect improper placement of the sample on the weighing pan that may lead to enhanced errors. When the function is enabled, the relevant icon in the mass display shows up.



If the balance program can detect improper placement of the sample on the weighing pan, the icon turns red - . It means that the result may be subject to increased error.

Procedure:

- Enter **<Miscellaneous / Vibration detection>** submenu and select the desired value from the list.

Available values: **Yes** (option enabled), **No** (option disabled).

17.9. Level control

The balance is equipped with the Automatic Level Control mechanism.

Procedure:

- Enter **<Miscellaneous / Level control>** submenu and select the desired value from the list.

Available values:

None	Level marker is not displayed
Active	Level marker is displayed and the balance communicates changes to the level through pictogram colours (green → level is OK, red → level is lost).
Active with lock	Level marker is displayed and the balance communicates changes to the level through pictogram colours (green → level is OK, red → level is lost). When the marker is red, the display shows the -no Level – message and weighing is not possible).

17.10. Decimal separator

The parameter allowing you to select the decimal separator for mass printout.

Procedure:

- Enter **<Miscellaneous / Decimal Separator>** submenu and select desired value from the list.

Available values: Dot (default setting), comma.

17.11. Proximity sensor sensitivity

The parameter allowing you to set distance that triggers sensor reaction. This regulation ranges from 0 to 9, where the lowest values represent the smallest distance. By default this value must range from 5 to 7.

Procedure:

- Enter **<Miscellaneous / Sensor Sensitivity>** submenu and select desired value.

Available values: 0, 1, 2, 3, 4, 5 (default value), 6, 7, 8, 9.

17.12. Automatic ionisation

The parameter allowing deactivation of ionisation or selection of ionisation level.

Procedure:

- Enter **<Miscellaneous / Sensor sensitivity>** submenu and select the desired value from the list.

Available values: None, Low, High, Continuous.

17.13. Autotest

<AUTOTEST> function is used to help the operator to evaluate work and diagnose causes of erroneous weighing results that exceed permissible values for a specific balance.

AUTOTEST lets the operator optimise the settings in order to obtain the highest repeatability and best weighing time in the specific working environment. Thanks to this function, it is also possible to check the aforesaid parameters at any time and to archive previous tests.


Procedure:

- Enter **<Miscellaneous / Autotest>** submenu and select the desired value from the list.

Available values: Autotest GLP, Autotest Filter.

17.14. Intro logo

Parameter allowing you to change the image in the display during the system initiation.

	<p><i>Access to parameter settings granted to the <Administrator> only.</i></p>
--	--

17.15. Home screen layout

The parameter allowing activation of additional information panels (right and left) that can be accessed by sliding the main information panel located in the central part of the home screen to the right or left. The panels have preassigned data that can contain and allow displaying notes (left panel) and diagrams (right panel).

Procedure:

- Enter **<Miscellaneous / Home screen layout>** submenu and select the desired panel (right or left).
- Select the desired value from the list.

Available values: None, Notes, Diagrams.

17.16. Platform name

The parameter allowing specification of the name for the weighing platform. This value may be included in the comparison printout afterwards.

Procedure:

- Enter **<Miscellaneous / Platform name>** submenu and enter the desired value.

17.17. System event export

The parameter allowing you to generate a special file that is recorded automatically after enabling the option in the external memory (pendrive) inserted into the USB port. This file is used to diagnose potential device malfunctions by RADWAG service technicians.

Procedure:

- Insert the pendrive into USB port of the weighing indicator.
- Enter **<Miscellaneous>** submenu and go to **<System Event Export>** item.
- Program generates a special file and saves it automatically on the pendrive stick.
- The file must be sent to RADWAG.



Access to parameter settings granted to the <Administrator> only.

17.18. Text-to-speech conversion

The parameter allowing you to enable processing of names of particular groups and menu parameters into speech emitted from the measuring head speakers. The voice is available in English only.

18. SYSTEM INFORMATION

The information on the balance and installed software. Most parameters are for reference only. Available information: balance ID, balance type, name of device, application version, product code, weighing program version, system version, CPU ID, license ID, memory, environment, last adjustment, help, license, settings printout.

In **<Ambient conditions>** parameter, you can see ambient condition parameters: temperature, humidity, pressure (when the balance is equipped with relevant sensors).

After selecting **<Settings printing>** parameter, the balance settings (all parameters) will be sent to the printer.

19. WORKING MODES – General information

The balance offers **<Comparator>** working mode that allows you to determine the standard deviation for a series of measurements.

19.1. Activation of the working mode

- Expand the menu at the top of the screen.
- Press **<Working mode>** item to see a list of modes in the screen.
- Select the name of the mode that is to be used and the balance will activate the specific mode instantly.

20. WORKING MODES – Local parameters

By changing parameters related to the specific working mode, you can program the balance operation.

Procedure:

- Expand the side left menu.
- The following menu will be displayed:

Parameters	Additional weighing options.
Buttons	Defining quick-access buttons.
Information	Selection of information to be showed in Info field.
Printouts	Printout type selection.
Profile	Defining working profiles.

- Press a relevant menu and select the item to be modified.

20.1. Parameters



The parameters of particular working modes offer special functions that allow adapting operation of the device to specific needs. Special functions, directly related to the specific working mode, have been described further in the manual.

20.2. Buttons

You can define 7 buttons that can be found in the lower bar. After you have assigned the function to the button, you will see a relevant icon in the lower bar of the home screen. Buttons availability depends on the working mode. You can also add or change buttons in other way. To do so, press the field in the buttons bar and hold it for about 3 seconds.



































Procedure:

- Press the field in the buttons bar and hold it for about 3 seconds. The program will display the box with available buttons.
- Press the button to be added and the program will return to home screen. The button will be visible in the activated place.

	<p><i>You can browse the operating manual saved in the memory of the balance. To use this function, set  help button in the buttons bar.</i></p>
---	--

List of button functions:

	None		Comparator automatic unit control *
	Test weight		Reference weight
	Comparison plan *		Weight setting assistant *
	Fast comparison *		Set comparison range *
	Adjustment		Zero
	Tare		Set tare
	Disable tare		Restore tare
	Product		Packaging
	Print		Print header

	Print footer/ C label		Print header
	Print footer/ C label		Series number
	Batch number		Universal variable 1
	Universal variable 2		Universal variable 3
	Universal variable 4		Universal variable 5
	Additional variable 1		Additional variable 2
	Additional variable 3		Additional variable 4
	Additional variable 5		Zero all statistics
	Operator		Logout
	Warehouse		Client
	Parameters		Local parameters
	Working modes		Unit
	Profile		Help
	Create screenshot		Voice command
	E-signature		Left door *
	Right door *		Open door *
	Close door *		Open / close door *

	Confirm		Abort
--	---------	--	-------

20.2.1. Proximity sensors

The balance is equipped with two proximity sensors that allow controlling its operation with no need to press buttons on the touch screen. The program recognises two motion modes near sensors:

1. Putting a hand in front of left sensor **<Left sensor>**.
2. Putting a hand in front of right sensor **<Right sensor>**.

Each gesture can be assigned one of functions. Functions are identical to buttons (see section 21.2 of the manual). After selecting the setting value and returning to weighing, the program recognises the gesture and takes the relevant action.



Procedure:

- Enter **<Working Modes>** submenu and select the desired working mode.
- Enter **<Button functions>** submenu and edit the desired proximity sensor.
- Select relevant function from the list and go back to home screen.

20.2.2. Default button settings

The function that sets default values of functional buttons and proximity sensors for each working mode.



Procedure:


- Enter **<Working Modes>** submenu and select the desired working mode.
- Go to **<Buttons>**.
- Press  key in the top right corner. You will see the following message: **<Are you sure you want to set default parameters?>**.
- Press  key to confirm.
- Default values of functional keys and proximity sensors will be set. The program will automatically return to the working mode submenu.

20.3. Information




The weighing-related information is showed on the left side of the central part of the balance display. The information field allows 6 pieces of information at the most. If more pieces have been chosen, the first 6 will be showed only.

Procedure:

- Enter **<Working Modes>** submenu and select the desired working mode.
- Go to **<Information>** submenu. The list of information with availability attribute will be displayed: ( - visible information;  - invisible information).
- Enable visibility of required information and return to home screen.


	<i><Bar graph> information is the exception as its types differ depending on the working mode (see 21.3.1 of the manual).</i>
---	--

Additionally you can quickly change information to be displayed through keys in the top right corner:

	Unselect all information.
	Select all information.
	Restore default selection.

20.4. Printouts

<Printouts> menu includes the following units:

Comparison printout template	Group of parameters allowing declaration of variables that are to be in the comparison report printout (see section 20.4.3 of the manual).
Header printout template *	Group of parameters allowing declaration of variables that are to be in the header printout.
Weighing / label printout template *	Group of parameters allowing declaration of variables that are to be in the measurement printout.
Footer / C label printout template *	Group of parameters allowing declaration of variables that are to be in the footer/C label printout.
Number of header copies	Declaring the number of header copies that are to be printed out using the printer connected to the balance.
Number of labels / printout copies	Declaring the number of labels / printout copies that are to be printed out using the printer connected to the balance.
Number of C labels/ footer copies	Declaring the number of C labels / footer copies that are to be printed out using the printer connected to the balance.
Printout / label base **	Collection of non-standard <printout / label> templates. The source catalogue of the base is < / Data bases / Printouts/labels> .

- *) - Standard printout template units.
- **) – Non-standard printout template unit.




The operator can quickly change selection of printable variables using the keys in the top right corner of the screen:

	Unselect all variables.
	Select all variables.
	Restore default selection.

20.4.1. Standard printouts


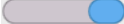
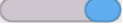
Standard printout template units include a list of printout data. Each datum must be assigned a relevant availability attribute.

Data for standard printout:

Name			
Non-standard printout (1)	✓	✓	✓
Dashes (header)	✓		
N (measurement number)		✓	
Working mode	✓		✓
Date	✓	✓	✓
Time	✓	✓	✓
Balance type	✓		✓
Balance ID	✓		✓
Operator	✓		✓
First and last name	✓		✓
Levelling	✓	✓	✓
Client	✓	✓	✓
Warehouse	✓	✓	✓
Product	✓	✓	✓
Packaging	✓	✓	✓
Universal variable 1...5	✓	✓	✓
Empty line			

Net		✓	
Tare		✓	
Gross		✓	
Current result		✓	
Supplementary unit		✓	
Mass		✓	
N			✓
SUM			✓
X			✓
MIN			✓
MAX			✓
D			✓
SDV.P			✓
SDV.S			✓
RDV.P			✓
RDV.S			✓
ID		✓	
Dashes (footer)			✓
Empty line	✓		✓
GLP report	✓		✓
Signature			✓
Non-standard printout	✓	✓	✓

Principles of using standard printouts:

1. Press  button on the balance wall to print data, with  availability attribute, that are in **<Weighing / Label Printout Template>** unit.
2. Data with  attribute that can be found in **<Header Printout Template>** and/or **<Footer / C Label Printout Template>** unit will be printed after pressing the relevant programmable button: **<Header Printout>** and/or **<Footer Printout>**.
3. Units for mass printout: **Net** – main (adjustment) unit; **Tare** – main (adjustment) unit; **Gross** – main (adjustment) unit; **Current result** – currently displayed unit; **Supplementary unit** – additional unit; **Mass** – main (adjustment) unit.

Data description:

Dashes	Printout of lines that separate printout data.
Working mode	Name of balance working mode.
Date	Current date.
Time	Current time.
Scale type	Factory balance type.
Balance ID	Balance serial number.
Operator	Name of logged user.
First and last name	First and last name of logged user.
Levelling	Levelling indicator status.
Client	Name of current client.
Warehouse	Name of current warehouse.
Product	Name of current product.
Packaging	Name of current packaging.
Universal variable 1...5	Values of universal variables 1 ,2, 3, 4, 5.
Series number	Value of series number.
Batch number	Value of batch number.
Empty line	Empty line printout.
Net	Net mass in basic (adjustment) unit.
Tare	Tare value in current unit.
Gross	Gross mass in current unit.
Current result	Measurement result in current unit.
Supplementary unit	Net mass in supplementary unit.
Mass	Net mass in current unit, without prefix.
ID	Weighing identification number.
N	Measurement number.
SUM	Sum of measurements.
X	Average of measurements.
MIN	Minimum value.
MAX	Maximum value.
D	Difference between MIN and MAX.
SDV.P ¹⁾	Population standard deviation.
SDV.S ²⁾	Sample standard deviation.
RDV.P ³⁾	Population variability coefficient.


RDV.S ⁴⁾	Sample variability coefficient.
Platform number	Platform number assigned to weighing.
GLP report	Adjustment report printout, as per settings declared for adjustment report printout.
Signature	Measurer signature field printout.
Non-standard printout	Non-standard printout template.

1	SDV.P - population standard deviation. $SDVP = \sqrt{\frac{\sum_{i=1}^n (X_i - \bar{X})^2}{n}}$, where: \bar{X} - average measurement; X_i - next measurement, n – number of measurements.
2	SDV.S - sample standard deviation. $SDVS = \sqrt{\frac{\sum_{i=1}^n (X_i - \bar{X})^2}{n - 1}}$, where: \bar{X} - average measurement; X_i - next measurement, n – number of measurements.
3	RDV.P – population variability coefficient. $RDVP = \frac{SDVP}{\bar{X}} * 100\%$, where: SDVP – population standard deviation; \bar{X} - average measurement.
4	RDV.S – sample variability coefficient. $RDVS = \frac{SDVS}{\bar{X}} * 100\%$, where: SDVS – sample standard deviation; \bar{X} - average measurement.

20.4.2. Non-standard printouts

The printout can contain text and variables (downloaded from the program upon printout). Every printout is a separate template, has its unique name for identification purposes, and is saved in database.

Procedure:

- Press **<Printout / Label Base>** area.
- Press  button (add). Another box with the following data: Name / Code / Template will be displayed.
- Give name and code for the printout.
- Press **<Template>** button. The display will show a field with keyboard for printout edition.
- Use the touch keyboard (touch keyboard has the same capabilities as a typical PC keyboard) to design the printout; printout may include texts and variables.


Example of printout 1 – edition field use




← Project	Balance no. 400015 Balance parameters: Max = 220 g d= 0.001 g
BALANCE NO: {32} Max=220 g d={33}	Product name: Date: 2011.10.24 Time: 11:48:06
PRODUCT: {50} DATE: {2} TIME: {3}	----- Working mode: Weighing
WORKING MODE: {5}	
<i>Template</i>	<i>Template printout</i>

Example of printout 2 – printout from file

All printout templates can be prepared as external files that can be imported to the balance. Such a file must come with *.txt or *.lb extension and include all permanent information and variables. The content of such a file can be modified after importing.

Procedure:

- Create *.txt or *.lb file in any editor and copy into the USB memory.
- Insert the USB memory stick into the balance port.
- Press  button (download printout from file). The balance display will show content of USB memory.
- Find the file with printout and press its name.
- Printout will be automatically copied into edit field.

	<i>Operator can add printouts from external memory by importing already configured texts with the use of USB port.</i>
	<i>Printout name does not represent content of the printout.</i>
	<i>List of variables for printouts can be accessed in 'APPENDICES 03' manual.</i>

20.4.3. Comparison report printout template

The group of parameters allowing you to declare data that are to be printed on a comparison report printout. The report is generated automatically after either completion or abortion of each process.

Data description:

Working mode	Working mode name.
Operator	Operator performing formulation process.
Name and Surname	First and last name of the logged operator.
Report no.	Automatically generated report number.
Start date	Procedure start date.
End date	Procedure end date.
Test weight	Name of weight whose mass is tested during the procedure.
Order number	Unique comparison order ID number.
Test weight number	Test mass standard ID number.
Test weight position	Position of the test weight in the weighing unit. It applies to comparators that use numerous standards at a time.
Reference weight	Name of mass standard used as reference during comparison.
Real mass	Real mass of reference weight.
Reference weight class	Precision class of reference weight.
Reference weight position	Position of reference weight in the weighing unit. It applies to comparators using numerous standards at a time.
Measurements	List of measurements under the procedure.
Average difference	Average mass difference between the mass of the test weight and reference weight.
Standard deviation	Calculated standard deviation of weighing results during the procedure.
Number of cycles	The number of weighing cycles during comparison.
Method	Weighing method used in the comparison.
Temperature min	Minimum ambient temperature during procedure.
Temperature max	Maximum ambient temperature during procedure.
Water temperature min	Minimum temperature of water used in the procedure (if applicable).
Water temperature max	Maximum temperature of water used in the procedure (if applicable).
Humidity min	Minimum air humidity during procedure.
Humidity max	Maximum air humidity during procedure.
Pressure min	Minimum atmospheric pressure during procedure.
Pressure max	Maximum atmospheric pressure during procedure.
Empty line	Empty line printout.
Dashes	Number of dashes separating printout data from signature field.
Signature	Procedure manager signature field.
Non-standard printout	Non-standard printout template.

21. WORKING MODE - COMPARATOR

<Comparator> working mode allows you to determine the standard deviation for a series of measurements. The standard deviation is determined on the basis of a series of ABBA, ABA, AB, B or ABABA measurements, where:

A – control mass standard (reference),

B – test mass standard.

The number of measurements for the series and the method are determined by the operator in <Working modes> parameter group in <Comparator> submenu. The results are counted by the program as per the tables and formulas below:

For ABBA series:

Item	A	B	B	A	$D = B_{sr} - A_{sr}$
1					D_1
2					D_2
3					D_3
4					D_4
5					D_5
.....					...
n					D_n

For ABA and ABABA series:

Item	A	B	A	$D = B - A_{sr}$
1				D_1
2				D_2
3				D_3
4				D_4
5				D_5
.....				...
n				D_n

For AB series:

Item	A	B	$D = B - A$
1			D_1
2			D_2
3			D_3
4			D_4
5			D_5
.....			...
n			D_n

For B series:

Item	B
1	
2	
3	
4	
5	
.....	
<i>n</i>	

The standard deviation is calculated by determining the following:

- differences of ABBA or ABA indications for each measuring group:

$$D_i = \bar{B} - \bar{A}$$

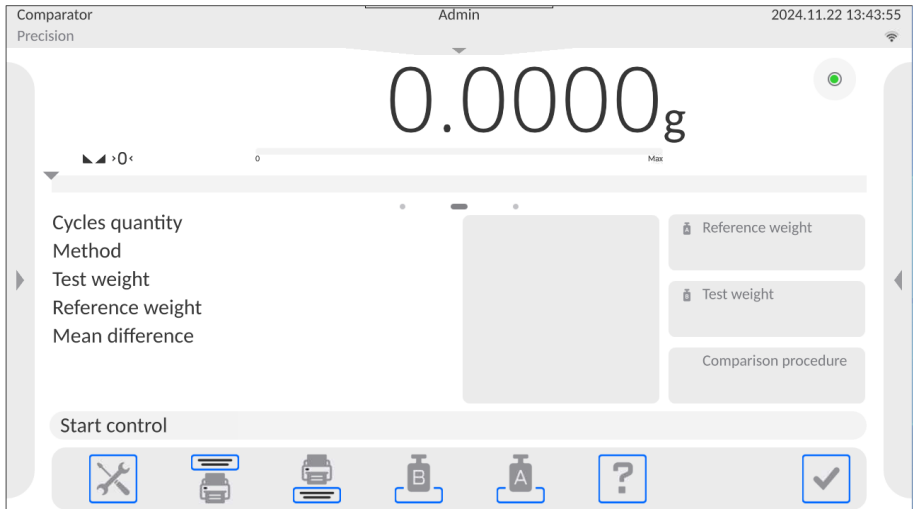
- average value of ABBA or ABA indication difference:

$$\bar{D}\bar{X}_i = \frac{1}{n} \sum_{i=1}^n D_i$$

- Standard deviation:



$$S = \sqrt{\frac{1}{n-1} \sum_{i=1}^n (D_i - \bar{D}\bar{X}_i)^2}$$

21.1. Working mode home screen



21.2. Local parameters

Local settings can be accessed after expanding the side left menu and selecting **<Parameters>** item:

Method	Type of weight calibration method. Available values: ABBA, ABA, AB, B, ABABA.
Number of cycles	Declaring the number of weighing cycles.
Number of start-up A placements	Declaring the number of initial placements of the A standard, made before initiation of the actual weighing cycle. These placements are to achieve measuring stability for A standard.
Number of start-up B placements	Declaring the number of initial placements of the B standard, made before initiation of the actual weighing cycle. These placements are to achieve measuring stability for B standard.
Number of start-up cycles	Declaring the number of start-up cycles.
Start delay	Activation / deactivation of the start delay:  – when the comparison is initiated, the window will be displayed; enter the time by which the start is to be delayed, after this time the comparison will be initiated instantly;  – the procedure is initiated instantly.
Tare mode	See details in section 21.2.2 in the manual.
Printout/approval mode	See details in section 21.2.1 in the manual.

21.2.1. Printout/approval mode

The mode of sending information from the balance to an external device (peripheral device).

Procedure:

- Enter **<Working modes>** menu and select the desired working mode.
- Go to **<Parameters / Printout/approval mode>** submenu and set the desired item.

Where:

Printout/approval key	Manual printout mode. Available values: Never – printout disabled; First stable – manual printout of the first stable weighing result above <Threshold> parameter value; Every stable – manual printout of every stable weighing result above the <Threshold> parameter value; Every – manual printout of every stable/unstable weighing result above <Threshold> parameter value.
Threshold	The parameter related to automatic operation function. Another measurement will not be saved as long as the mass value does not drop below <Threshold> net value.

Automatic mode	Automatic printout mode. Available values: Never – printout disabled; First stable – automatic printout of first stable weighing result above <Threshold> value; Last stable – automatic printout of the last stable weighing result after mass drops below <Threshold> value; With interval – cyclical printout and record of balance indications in the weighing base with specific interval, set in <Interval> parameter.
Interval*	Frequency of saving the indication for automatic operation with interval. The interval is set in [min]. The values range from 1 s to 9h 59min 59s.
Print report	Automatic report printout after the end of calibration. Available values: Yes – enabled; No – report printout blocked.
Print indirect results on an ongoing basis	Automatic printout of each indirect weighing result during comparison, with no need to wait for the end of the entire procedure. Available values: Yes – enabled; No – indirect result printout inactive.

*) - Automatic operation with interval starts upon activation of the option. The first stable result that is higher than <Threshold> value is printed and saved in the first place. Further measurements are printed at a frequency of the interval. To finish automatic operation with interval, disabled this option.

21.2.2. Tare mode

The mode that allows setting relevant tarring parameters.







Procedure:


- Enter **<Working Modes>** menu and select the desired working mode.
- Go to **<Parameters / Tare Mode>** submenu and set relevant option.

Where:

Single	Regular tare mode. The specific tare value is overwritten after a new value is entered.
Sum of all	Summing up all subsequent tare values. When the balance is tared with T button, previous tare total values will be overwritten.
Sum of current	Summing up of currently entered product and packaging tare values with a possibility of adding the manually entered tare total value. When the product or packaging tare value is reset, the tare value entered manually will be deleted. When the balance is tared with T button, previously totalled tare values will be overwritten.
Autotare	Automatic tare mode. Every first measurement of the stable value is tared. When the display shows NET, you can specify the net mass. When unloaded and returned to the autozero zone, the program automatically deletes the tare value.
Each measurement	Automatic tarring of each confirmed measurement.

21.3. Comparison


- Enter < / **Databases / Reference weights**> menu and define reference weights.
- Enter **Databases / Reference weights**> menu and define test weight.
- Enter <**Databases / Comparison plans**> menu and define comparison plans.
- Return to home screen.
- In the functional key bar, press  key (Comparison plans) and select the comparison plan or relevant reference weight <**A**> and test weight <**B**>.
- To start the comparison procedure, press  key – the procedure will be automatically initiated as per pre-assigned parameters.
- Follow the messages that will be displayed in the information bar.
- The following will be displayed: <**Number of cycles 1/n**> - first cycle with „n” cycles. <**Position A1-1**> - put the A1 weight for the first time in the cycle.
- Position **A1** weight on the weighing pan and confirm the measurement by pressing  key once the value has stabilised.
- The following message will be displayed in the information bar: <**Position B1-1**>.
- Remove **A1** weight.
- The following message will be displayed in the screen: <**-Wait-**>. It means that the comparator is waiting for first placement of the B1 weight on the weighing pan (see description in the information bar).
- Position **B1** weight on the weighing pan and confirm the measurement by pressing  key once the value has stabilised.
- The following message will be displayed in the information bar: <**Position B1-2**>.
- Remove **B1** weight.
- The following message will be displayed in the screen: <**-Wait-**>. It means that the comparator is waiting for second placement of the B1 weight on the weighing pan (see description in the information bar) – only if ABBA method has been chosen.
- Position **B1** weight on the weighing pan again and confirm the measurement by pressing  key once the value has stabilised.
- The following message will be displayed in the information bar: <**Position A1-2**>.
- Remove **B1** weight.

- The following message will be displayed in the screen: **<-Wait->**. It means that the comparator is waiting for second placement of the **A1** weight on the weighing pan (see description in the information bar).
- Position **A1** weight on the weighing pan again and confirm the measurement by pressing  once the value has stabilised.
- In the information field, the description with switch into **<Number of cycles 2/n>** - it informs you about transition into another cycle.
- Following the steps of the first cycle, complete the procedure.
- The procedure ends automatically with the calibration report printout. The report will be saved in the report base automatically.
- Finish calibration or repeat the procedure.


21.3.1. Change of comparison range


Applicable only to APP and WAY comparators

Thanks to the design of the mass comparator, it is possible to compare weights of a specific mass, depending on the range of the device. The mass of the weight that must be subjected to comparison at a specific moment is defined by changing the range of comparison (ballast load).

	<i>The comparison range values differ, depending on maximum range of the specific comparator.</i>
---	--

Procedure of changing the comparison range in the application:

- Unload the weighing pan.
- Press  key in the lower bar of the home screen. The comparison range box will be displayed.
- Change the comparison range value.
- The device will change the ballast load mass adapted to the specific range on its own.

	<i>In case of any problems related to calibration results, remove the weight from the weighing pan, set the maximum value of the ballast load and return to the compared mass.</i>
---	---

Manual placement of external ballasts:

When the automatic ballast load is insufficient, it is possible to manually add ballasts. In this procedure, the relevant masses are carefully positioned on the weighing pan to obtain required load value.

Once manual loading is completed, initiate the comparison procedure again to make sure results are correct.

21.4. Comparison report

The comparison report is generated automatically upon the end of every procedure and sent to the communication port, chosen for **<Peripherals / Printer>**. The content of the report is declared in **<Working modes / Comparator / Printouts / Comparison printout template>** menu. The description of setting declaration for this option can be accessed further in the section dedicated to printouts in this manual.

The example of report:

```
Report no.           C/31/10/11/11/43
End date            2017.05.28 11:44:46
n |A      |B      |A      |D
1 |0.000  |0.131  |0.001  |0.1305
2 |0.002  |0.130  |0.003  |0.1275
3 |0.004  |0.131  |0.004  |0.127

Average difference          0.12833 g
Standard deviation          0.00189 g

Method                      ABA
-----
Signature
.....
```

The report on each procedure is saved in **<Comparison reports>** database, where the name of the file takes a form of a date and time of the procedure (for list of report data, see section 34.3.2 in the manual).

22. DATABASES

The weighing software has the following databases: operators, products, customers, reference weights, test weights, comparison plans, packaging, warehouses, printouts/labels, universal variables, additional variables.

Access path:  / **Databases**.

22.1. Database management


The function that allows managing data in databases.

22.1.1. Database deletion

The function that allows deleting data from specific databases.

Options: Operators, Products, Customers, Reference weights, Test weights, Comparison plans, Packaging, Warehouses, Printouts/Labels, Universal Variables, Additional variables, Profiles.

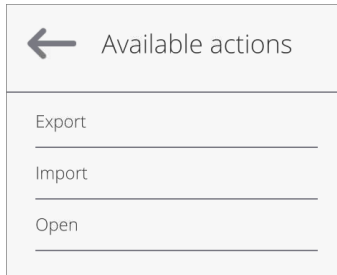
Procedure:

- Enter **<Manage Databases / Delete Databases>** submenu.
- Select database you wish to delete. You will see the following message: **<Records quantity: x / Are you sure you want to delete?>**.
- Press  key to confirm the message.
- Once you have confirmed the operation, the program deletes data and displays a summary box: **<Records Deleted: x>**.
- After confirming the information, the program will go back to **<Manage Databases>** submenu.

22.2. Database operations

Operations with databases are available only to the authorised operator. To edit databases:

- Press and hold a database icon field.
- The screen will show context menu related to specific item (available options depend on base type).



Where:

Export	Exporting data saved in the database into an external memory, e.g. pendrive. Before selecting this option, assign the memory to any USB port. If the program detects memory, it automatically starts copying. When copying is finished, <Done> message together with file name which data have been saved in will be displayed. Confirm the process.
Import	Importing data from an external memory, e.g. pendrive. Before selecting this option, assign memory to any USB port. If the program detects memory, a box with saved files will be displayed. Choose file with data to be imported. Selection of file automatically leads to initiation of copying. When copying is completed, a box with <Done> message will be displayed. Confirm the process.
Open	Entering database edition (the same as single clicking of base field).

After entering the specific base, the following options are available (depending on base type):

- Adding items to database.
- Searching items by name.
- Searching items by code.
- Searching items by date.
- Exporting data to USB mass storage memory.
- Printing information on database record.

The above-stated actions can be taken through keys in the top right corner of the screen. Follow messages showed in the display.

22.3. Database edition

22.3.1. Operators

The operators base contains a list of operators allowed to use the balance.

List of data defined for operators:

Name	Operator's name.
Code	Operator's code.
Password	Login password.
First and last name	Operator's first and last name.
Permission	Operator's permission levels (guest, operator, advanced operator, administrator).
Active account	Account activity depends on validity period of account declared in <Administrator Panel / Account Validity Period> submenu.
Language	Language assigned to operator.
Default profile	Default profile assigned to operator.
Card number	Transponder card number for logging through transponder card scanner.
Fingerprint	Fingerprint for logging (visible only after connecting the fingerprint scanner).
Face profile	Face profile for logging through a built-in camera.
Motif	Application background motif. Options: Dark, Light .

22.3.2. Products

The product base contains names of all items that can be weighed, counted, controlled.

List of data defined for product:

Name	Product name.
Description	Additional product description.
Code	Product code.
EAN code	EAN code for product (numerical value).
Mass	Product unit mass.
Min	Lower threshold for weighing products (result control).
Max	Upper threshold for weighing products (result control).
Lower deviation	Lower deviation from ingredient mass in the formula mode in [%].
Upper deviation	Upper deviation from ingredient mass in the formula mode in [%].
Tare	Tare value (set automatically after selecting product).
Price	Product unit price.
Density	Product density value expressed in [g/cm ³].
Valid for (days)	Product expiry date (in days).
Date	Fixed product date.
VAT	VAT value of the product in [%].
Ingredients	Formula ingredients.
Printout / Label	Printout / single label template, assigned to product.
C label	C label template, assigned to product.
CC label	CC label template, assigned to product.

22.3.3. Customers

The customer base contains name of recipients which weighing is performed for.

List of data defined for customer:

Name	Customer's name.
Code	Customer's code.
NIP [taxpayer's ID]	Customer's NIP.
Address	Customer's address.
Postal code	Customer's postal code.
City/town	Customer's city/town.
Discount	Customer's discount in [%].
Printout / Label	Customer's printout / label template.

22.3.4. Reference weights

The reference weight base contains a list of reference weights used in the weight comparison procedure.

List of data defined for reference weights:

Name	Reference weight name.
Code	Reference weight code.
Class	Precision class of the reference weight, specifying weight precision as per metrological standards.
Serial number	Identification number assigned by the weight manufacturer.
Set number	Set identification number of the reference weight if it is part of the set.
Nominal mass	Declared reference weight mass, specified by the manufacturer.
Real mass	Real reference weight mass, measured during adjustment or calibration.
Mass uncertainty	Estimated reference weight mass measurement uncertainty, expressed in mass units.
Density	Reference weight density, expressed in [kg/m ³]
Density uncertainty*	Estimated reference weight density measurement uncertainty.
Expansion coefficient*	Material thermal expansion coefficient used to make a reference weight, expressing the change to volume or length, depending on temperature.

*) – parameters used for AGV comparators.

22.3.5. Test weights

The test weight base contains a list of test weights used in the weight comparison procedure.

List of data defined for test weights:

Name	Test weight name.
Code	Test weight code.
Class	Precision class of the test weight, specifying weight precision as per metrological standards.
Nominal mass	Declared test weight mass, specified by the manufacturer.
Mass uncertainty	Estimated test weight mass measurement uncertainty, expressed in mass units.
Density	Test weight density, expressed in [kg/m ³]
Density uncertainty*	Estimated test weight density measurement uncertainty.

Expansion coefficient*	Material thermal expansion coefficient used to make a test weight, expressing the change to volume or length, depending on temperature.
Order number	Unique order identification number.
Test weight number	Test weight identification number.

*) – parameters used for AGV comparators.

22.3.6. Comparison plans

The comparison plan base contains a list of defined comparison plans. Comparison plans are created for automatic weight comparison after reference and test weights have been pre-defined.

List of data defined for comparison plans:

Name	Comparison plan name.
Code	Comparison plan code.
Comparison plan template	Parameter specifying if the specific plan is to serve as a template on the basis of which new comparison plans will be created. Available values: Yes – template; No – unique comparison plan.
Start delay	Parameter specifying the period of time by which the comparison procedure is going to be delayed after activation.
Start time	Parameter specifying date and time at which the currently selected comparison plan is going to be activated automatically. This option is used by automatic comparators where comparisons are performed without manual actions of the operator.
Clear start time	This option allows deleting the start time.
Comparisons	List of comparison tasks assigned to the specific plan, specifying which reference and test weights are to be compared while the plan is executed.

22.3.7. Packaging

Base of packaging which products are weighed in. While weighing, after selecting the packaging from database, a tare value will be automatically selected. The screen will show it with a minus sign.

List of data defined for packaging:

Name	Packaging name.
Code	Packaging code.
Mass	Packaging mass (set automatically while selecting packaging from database).
Unit	Assignment of mass unit to packaging.

22.3.8. Warehouses

Depending on working organisation, warehouses contain a list of places which sample has been collected from weighing or places which the sample has been delivered to. While weighing, after selecting the warehouse name, it will be automatically assigned to result.

List of data defined for warehouses:

Name	Warehouse name.
Code	Warehouse code.
Description	Additional warehouse description.

22.3.9. Printouts / Labels

The base contains printout / label templates which operator can assign to product or customer in order to work in the labelling balance mode.

List of data defined for labels:

Name	Printout / label name.
Code	Printout / label code.
Template *	Printout / label template.

*) - Example of designing and sending label template to balance memory can be found in „APPENDICES 03”.

22.3.10. Universal variables

The base contains universal variables templates that the operator can assign to function buttons in order to enter any text (e.g. numbers, letters) to be printed into the balance memory.

List of data defined for universal variables

Code	Universal variable code.
Name	Universal variable name.
Value	Universal variable value, for printout and/or weighing record.

22.3.11. Additional variables

The base contains additional variables templates that the operator can assign to function buttons in order to enter any text (e.g. numbers, letters) to be printed into the balance memory.

List of data defined for additional variables:

Code	Universal variable code.
Name	Universal variable name.
Value	Universal variable value, for printout and/or weighing record.

23. REPORTS

The reports menu includes all result bases in which measurements and reports on measuring are recorded. The weighing software has the following reports: weighing, comparison reports, ambient conditions.

23.1. Report management

The group of functions allowing management of data included in report base. The following items are available:

- Export weighing base.
- Export comparison reports.
- Delete weighing records and reports.
- Global weighing counter.

23.1.1. Exporting weighing base

All weighing records are saved in **<Weighing records>** database. These data can be exported to file using the pendrive mass memory stick.

Procedure:


- Connect the pendrive mass memory stick to the USB port of the balance.
- Enter **<Reports / Manage reports / Export weighing record base>** submenu and you will enter another window in which you need to set exporting options.

List of options in **<Export weighing record base>** submenu:

Product	Filtering exported weighing records depending on product assigned to specific weighing record. Default value: <All> .
Operator	Filtering exported weighing records depending on operator assigned to specific weighing record. Default value: <All> .
Select data	Selection of data related to measurements to be exported. Available options: Date and time, Mass, Tare, Operator, Product, Customer, Packaging, Warehouse, Universal Variable 1, Universal Variable 2, Universal Variable 3, Universal Variable 4, Universal Variable 5, Result Control, Working Mode.

Filter by date	Exporting weighing records with regard to start date and end date: <input type="checkbox"/> - function disabled, <input checked="" type="checkbox"/> - function enabled.
Export weighing record base to file	Exporting weighing record base to file through pendrive.
Print weighing records	Printing specific weighing records with regard to start date and end date. Option available to active function: <Filter by Date> .

- Set option and press **<Export Weighing Record Base to File>**. The program will start exporting weighing record base automatically.
- Once exporting is over, the following will be displayed: **<Done>** and information on number of data exported and file name (with *.txt extension), and then the balance will display **<Export Weighing Record Base>** submenu again.
- The file name is composed of a database name and scale factory number, e.g. **<Weighing Records_364080.txt>**.
- Disconnect the pendrive stick from balance USB port.

	<p><i>If the balance cannot recognise pendrive, when you enter <Export Weighing Record Base to File> option, the following message will be displayed: <USB device not ready>.</i></p>
---	--

File Template:

The file template takes a form of a table whose columns are separated through <Tab> mark for the purposes of exporting the file directly to <Excel> sheet. The table contains all information on weighing, such as date and time, mass and mass unit, tare and tare unit, series number, operator name, business partner name, packaging name, source warehouse name, target warehouse name, result control name.

23.1.2. Exporting comparison reports

All comparison procedures are saved in **<Comparison reports>** database. These data can be exported to file using the pendrive mass memory stick.


Procedure:

- Connect the pendrive to USB port of the balance.
- Enter **<Reports / Manage reports / Export comparison reports>** submenu and you will see another window in which you need to set exporting options.

List of items in <Export comparison reports> submenu:

Operator	Filtering of exported comparison reports, depending on operator assigned to specific procedure. Default value: <Every> .
Reference weight	Filtering of exported comparison reports, depending on reference weight used in the procedure. Default value: <Every> .
Filter by date	Exporting comparison reports by start date and end date: <input type="checkbox"/> - function disabled, <input checked="" type="checkbox"/> - function enabled.
Export comparison reports	Exporting comparison report base to file using pendrive mass memory.

- After setting this option, click **<Export comparison reports>** field and comparison report base exporting will be initiated automatically.
- Once the exporting procedure has ended, **<Done>** message will be displayed together with data on number of data exported and file name (with *.txt extension). Then, the balance will return to **<Export comparison reports>** submenu.
- The name of the file consists of the database name and balance serial number, e.g. **<Comparison_reports_364080.txt>**.
- Disconnect the pendrive mass memory stick from the balance USB port.

	<i>If the balance cannot recognise pendrive, when you enter <Export Comparison Reports> option, the following message will be displayed: <USB device not ready></i>
---	--

File template:


In the real file, every comparison report is in a separate line. Below is the example of the file template for a single report. In view of insufficient space, the text has been wrapped onto further lines.

Report no. C/21/08/24/09/51	Order number 1	Start date 2024.11.21 09:51:06	End date 2024.11.21 09:53:32	Operator Admin
Mean 0.000188333333	Unit g	Standard deviation 0.000291370	Unit g	Number of cycles 6
Reference weight A weight	Test weight B weight	Test weight number 1234	Method ABBA	
A 200.33107 200.33224 200.33152 200.33218 200.33255	B 200.33221 200.3318 200.33226 200.33242 200.33205	B 200.33228 200.33208 200.33216 200.33243 200.3317	A 200.33237 200.33097 200.33236 200.3325 200.33111	D 0.000525 -0.00009 0.000335 -0.000235 0.00023

23.1.3. Deleting weighing records and reports

Deleting weighing records and reports from database.

Procedure:

- Enter **<Reports / Manage Reports / Delete Weighing Records and Reports>**. The calendar will be displayed. In the calendar, select limit date. The date specifies data deletion time limit – older than entered date.
- After confirming the date, the following message will be displayed: **<Are you sure you want to delete?>**.
- Press  to confirm the message and all weighing records and reports covered by the time limit will be deleted.
- The number of deleted data will be showed in the message: **<Records deleted: x>**.
- After confirming the information, the program will return to **<Manage Reports>** submenu.

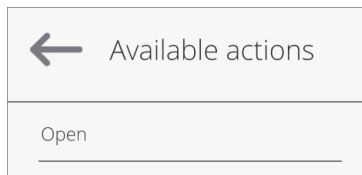
23.1.4. Global weighing counter

The global weighing counter is used to display the total number of weighing procedures performed in the terminal. Yet it is not supported by mass comparators.

23.2. Report operations

Operations with reports are available only to permitted operator. The operator can preview data in the report. To open report preview:

- Press and hold field with report icon.
- The screen will show context menu related to this item (available options depend on type of base).



Where:

Open	Entering report preview (the same as single clicking of report field).
------	--

After entering the specific report, the following operations are possible (depending on base type):

- Searching item by date.
- Exporting data to USB mass memory.
- Printing information on record in report.

The above-stated actions are initiated through keys located in the top right corner of the screen. Follow messages displayed.

23.3. Report preview

23.3.1. Weighing records

Every weighing result that is sent from the balance to printer or PC is recorded in the weighing record report. The operator can preview data for particular weighing records.

List of data for weighing record:

Date	Weighing date and time.
Mass	Weighing result.
Tare	Tare value.
Stable	Stable weighing result marker.
Air buoyancy compensation	Parameter not used in mass comparators. It specifies if the air buoyancy-related mass correction has been included in the weighing procedure.
Product	Product name.
Operator	Operator's name.
Customer	Customer name.
Working mode	Working mode name for weighing record.
Warehouse	Warehouse name.
Packaging	Packaging name.
Result control	Checkweighing threshold applicable to the measurement.
Levelling	Balance levelling during weighing procedure.
Ambient conditions alerts	Ambient condition alerts showing temperature and humidity stability during measurement.
Air density	Air density calculated on the basis of ambient conditions.
Vibrations	Vibrations detected during weighing procedure.
ID	Record ID in database.
Platform number	Number of the platform which weighing was made on.
Note	Note assigned to weighing record.

23.3.2. Comparison reports

It contains information on weight comparison procedures. For each report, the following operations are possible: preview, search by date, export and print.


List of data defined in comparison report:

Order number	Unique ID number for comparison order.
Start date	Procedure start date.
End date	Procedure end date.
Operator	Operator responsible for procedure.
Average difference	Average value of mass difference between the test and reference weights.
Standard deviation	Measurement result standard deviation calculated during procedure.
Number of cycles	Number of weighing cycles made during comparison procedure.
Reference weight	Name of mass standard used as reference during comparison.
Test weight number	Test mass standard ID number.
Test weight	Name of test mass standard.
Method	Measuring method used during comparison.
Measurements	List of all measurements made under comparison, divided into cycles.

23.3.3. Ambient conditions

It contains data related to environmental parameters. Depending on balance configuration, such a list may include temperature, humidity, atmospheric pressure. When the THB module is connected to the balance, module indications are recorded too. The name of the report is formed by date and time.

24. COMMUNICATION PROTOCOL

	<i>For detailed description of balance-computer communication protocol, read „CBCP-07” manual.</i>
---	---

25. ERROR MESSAGES

Max weighing threshold exceeded Unload the weighing pan	Min weighing threshold exceeded Install weighing pan
Zeroing out of range Press tarring button or restart the balance	Display capacity out of range Unload the weighing pan
Tarring out of range Press zeroing button or restart the balance	Start mass out of range Install weighing pan
Zeroing/tarring time out of range Weighing indication unstable	

