

# Robotic Mass Comparator

## RMC 5Y RMCM 5Y

USER MANUAL

IMKO-303-08-02-24-EN



Congratulations and thank you for selecting RADWAG product. You have purchased a device that has been designed and manufactured to give you years of service.  
Please read this user manual carefully, this shall guarantee reliable operation.

FEBRUARY 2024

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## 1. GENERAL INFORMATION

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### 1.1. Intended Use

5Y series mass comparators are intended for determination of mass difference between a reference weight (A) and a rest weight (B).

Mass comparators are used mainly in mass standard calibration laboratories and national metrological institutes.

### 1.2. Precautions

- ✓ Prior to the first use, carefully read this user manual. Use the device only as intended.
- ✓ Do not operate the touch panel using sharp-edged tools (knife, screwdriver, etc.).
- ✓ Place loads in the centre of the weighing pan.
- ✓ Load the weighing pan with loads of gross weight which does not exceed the maximum capacity.
- ✓ In the case of damage, immediately unplug the device from the mains.
- ✓ The device to be decommissioned must be decommissioned in accordance with valid legal regulations.
- ✓ Do not use the weighing instrument in areas endangered with explosion. The device is not intended to be operated in hazardous areas.

### 1.3. Warranty Conditions

- A. RADWAG is obliged to repair or exchange all elements that appear to be faulty by production or by construction.
- B. Defining defects of unclear origin and means of their elimination can only be realized with assistance of the manufacturer and user representatives.
- C. RADWAG does not bear any responsibility for damage or loss resulting from unauthorized or inadequate performing of production or service processes.
- D. The warranty does not cover:
  - ✓ mechanical damage caused by product exploitation other than intended, damage of thermal and chemical origin, damage caused by lightning, overvoltage in the power network or other random event,
  - ✓ damage caused by product exploitation other than intended,
  - ✓ mechanical damage, if service claims removing or destroying security seal stickers which protect construction against unauthorized access,
  - ✓ damage caused by liquids and natural wear,
  - ✓ damage caused by inappropriate setting or by electrical wiring failures,
  - ✓ damage caused by overloading of the measuring mechanism,
  - ✓ inappropriate cleaning habits.
- E. Loss of warranty takes place if:
  - ✓ a repair is carried out outside RADWAG authorized service point,
  - ✓ service claims intrusion into mechanical or electronic construction by unauthorized people,
  - ✓ other than original version of the operating system is installed,
  - ✓ the device does not bear security seal stickers.
- F. For detailed warranty conditions read the service card.

#### **1.4. Supervision Over Metrological Parameters**

Metrological parameters need to be verified in determined time intervals. Inspection frequency depends on balance ambient conditions, the type of carried out processes and the adopted quality management system.

#### **1.5. User Manual Significance**

Even if you are experienced and have already worked with this type of an instrument, you are still obliged to read this user manual carefully prior to switching the device on. This user manual provides all necessary operation-related information. Following the user manual guidelines guarantees correct weighing instrument performance.

#### **1.6. Operator Training**

The instrument must be operated and supervised only by experienced operators who have been trained to use such type of a weighing device.

### **2. TRANSPORT AND STORAGE**

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#### **2.1. Delivery Check**

Upon delivery it is necessary to check the package and the device, make sure that your package bears no signs of damage. Otherwise, contact the manufacturer's representative.

#### **2.2. Packaging**

Keep all package elements should your device be transported in the future. Remember that only the original packaging can be used for shipping purposes. Prior to packing, uncouple any cables, remove any separable components (weighing pan, shields, inserts). The device components must be packed into an original packaging providing protection against potential damage during transportation.

### **3. UNPACKING AND INSTALLATION**

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#### **3.1. Workstation**

- ✓ Store and operate the device in a workroom free of vibrations and shakes, where there are no air drafts nor dust.
- ✓ Ambient temperature must range between +15 °C ÷ +30 °C, it's change rate cannot exceed 0.5°C/12h.
- ✓ Relative humidity must range between 40 - 60%, its change rate cannot exceed +/- 5%/12h (3%/4h) .
- ✓ Place the device on a stable ground, free from vibrations, away from heat sources.
- ✓ Pay special attention to magnetic characteristics of the test weights, it's magnetism must be ZERO, the mass comparator includes strong magnet.



### 3.2. Unpacking

Cut the adhesive tape. Take the mass comparator out of the box. Take all the device accessories from the accessory box.

### 3.3. Standard Delivery Component List

- ✓ Mass comparator
- ✓ Knob – designed to change supplementary weights
- ✓ Weighing pan
- ✓ Operation panel
- ✓ Power supply

It is necessary to read the user manual carefully prior to mass comparator installation. In order to make the device ready for operation follow the manual guidelines.

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**CAUTION**

*Be careful so as not to cause damage to the mechanism*

### 3.4. Installation

For installation instruction read the 'Assembly Manual' (IMII-303-01-07-23).

### 3.5. Cleaning

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**CAUTION**

*Cleaning weighing pan while still installed may cause damage of the measuring system.*

1. Disassembly a weighing pan and other detachable components. Be careful so as not to damage the mechanism.
2. Using handheld vacuum cleaner remove dust from the weighing chamber (recommended for the microbalance).

Cleaning glass panes:

- ✓ Select dissolvent depending on a dirt. Never soak the glass panes in alkaline solutions since they interact with glass and may cause damage. Do not use cleansers containing abrasive substances.
- ✓ For organic dirt use acetone first, next use water or detergent. For other than organic dirt use diluted acid solutions (soluble salts of hydrochloric or nitric acid) or base solutions (ammonium or sodium base).
- ✓ To remove ACIDS use protophilic solvent (sodium carbonate), to remove BASE use protogenic solvent (mineral acid of various concentration).
- ✓ In the case of heavy contamination, use brush and detergent, nevertheless avoid detergents containing large and hard molecules which could potentially scratch glass panes.
- ✓ At the end of the cleaning process rinse the pane using distilled water.
- ✓ Use soft brush with wooden or plastic handle exclusively, to avoid risk of scratches. Do not use wire brush.

- ✓ Rinsing is a necessary cleaning process stage allowing to remove remaining soap, detergents and other cleansers from the panes prior to their reinstallation.
- ✓ After the preliminary cleaning process stage, rinse the pane using running water first, distilled next.
- ✓ Avoid drying the panes either using paper towel or forced air circulation since some fibres, grains or contamination of other type could permeate into the panes thus causing weighing errors.
- ✓ We do not recommend using driers when drying measuring glass tools.
- ✓ It is a frequent treatment to leave glass components on a rack to dry.

Cleaning powder-coated components:

- ✓ For preliminary cleaning process stage you need running water or wet sponge featuring large pores, this will help you to remove loose, heavy dirt.
- ✓ Do not use cleansers containing abrasive substances.
- ✓ Next, using cloth and cleanser-water solution (soap, dishwashing liquid) gently rub the cleaned surface.
- ✓ Avoid using cleanser without water since it may result with damage of the cleaned surface, please mind that large amount of water mixed with cleanser is a must.

Cleaning aluminum components:

- ✓ While cleaning aluminum components use products acid by nature, e.g. spirit vinegar, lemon. Do not use cleansers containing abrasive substances. Avoid using hard brush, this may cause scratches. It is recommended to use microfibre cloth.
- ✓ While polishing the surface use circular movements. Use clean, dry cloth to make the surface shine.

Cleaning stainless steel components:

When cleaning stainless steel components follow the below guidelines.

Fingerprints	Clean using alcohol or diluent. Rinse with clean water and wipe dry.
Oils, fats, greases	Wash with organic solvents and later with warm water and soap or a mild detergent. Rinse with clean water and wipe dry.
Temperature stains and discolorations	Wash with a gentle abrasive cleaner, clean lightly according to the direction of the surface structure. Rinse with clean water and wipe dry.
Strong discoloration	Clean lightly according to the direction of the surface structure. Rinse with clean water and wipe dry.
Traces of rust	Moisten with oxalic acid solution and leave for about 15-20 minutes, then wash with warm water with soap or mild detergent. Rinse with clean water and wipe dry.
Paints	Wash with paint solvent and then rinse with warm water with soap or mild detergent. Rinse with clean water and wipe dry.

Scratches on the surface	Gently polish the surface with a non-woven fabric (iron-free) according to the direction of the surface structure. Wash with a gentle abrasive cleaner. Rinse with clean water and wipe dry.
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Cleaning ABS components:

- ✓ To clean dry surfaces and avoid smudging, use clean non-colouring cloths made of cellulose or cotton. You can use a solution of water and detergent (soap, dishwashing detergent, glass cleaner). Gently rub the cleaned surface and let it dry. Repeat the cleaning process if necessary.
- ✓ In the case of hard to remove contamination, e.g. residues of adhesive, rubber, resin, polyurethane foam etc., you can use a special cleaning agents based on a mixture of aliphatic hydrocarbons that do not dissolve plastics. Before using the cleanser for all surfaces we recommend carrying out tests. Do not use cleansers containing abrasive substances.

### 3.6. Connection to the Mains

The device can be plugged to the mains only by means of an original power supply, which comes standard with the instrument. Rated voltage (specified on the device's data plate) must be compatible with the mains rated voltage.

To power the mass comparator, connect the power supply to the mains, and plug it to the connector located at the mass comparator back.

#### **CAUTION**

*The mass comparator can be powered using UPS with pure sine wave input. Use of power supply of other type may cause damage of the power supply board.*

### 3.7. Temperature Stabilisation Time.

It is necessary to wait until the device gets thermally stable prior to the measuring processes start. Devices stored in temperatures much lower than the workroom temperature, before being plugged to the mains, must be subjected to thermal stabilisation. The thermal stabilisation period takes about 12 hours. During the thermal stabilization, the indications on the screen may change. Potential temperature change at the workplace shall be insignificant and occur slowly.

### 3.8. Peripheral Equipment

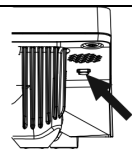
Use only accessories and peripheral equipment recommended by the manufacturer. The device must be unplugged from the mains before connecting or disconnecting any peripheral equipment (printer, PC, computer keyboard of USB type or extra display). Having connected all the peripherals, plug the device to the mains.

#### 4. START-UP





- Connect the mass comparator to the mains

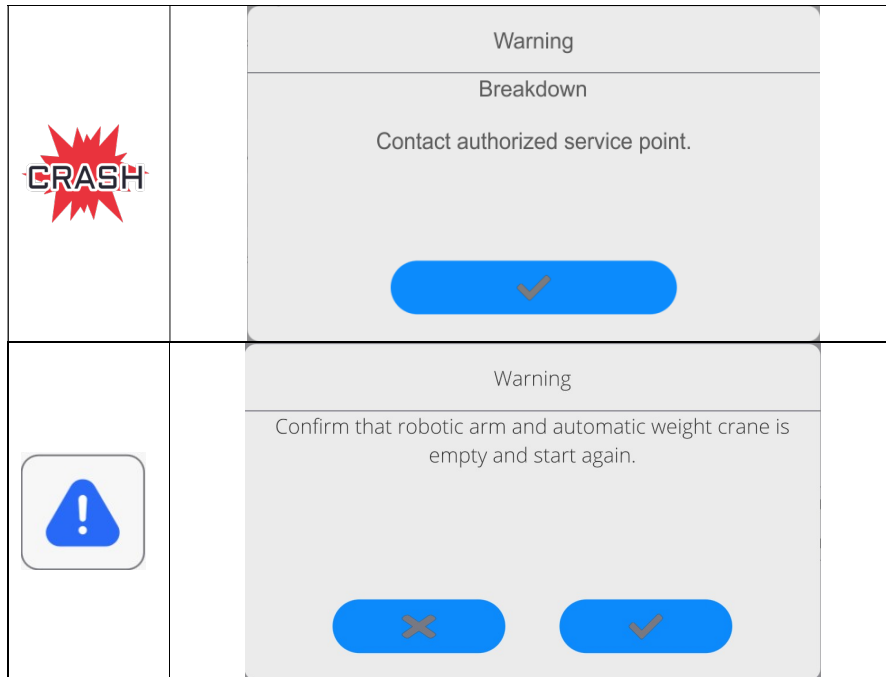
CAUTION: There are two power sockets: indicator – power socket 1, weighing mechanism housing – power socket 2. The weighing device can be powered either via power socket 1 or via power socket 2 but it is not allowed to power the instrument using two power supplies plugged into both power sockets at once.

- Operating system and RADWAG software start loading. During the program start-up, signalling diode and LED diode (located at the lower front part of the indicator) blink.
- Upon completed start-up, the home screen is displayed automatically.
- The mass comparator runs with no operator logged in. In order to start operation it is necessary to carry out the logging procedure (for detailed logging procedure read later sections of this user manual).

<p><b>Should the software freeze during operation, the device needs rebooting. To reboot the device press and hold the reboot button for about 5 sec. Device restart proceeds.</b></p>	
--	---

**ATTENTION:** In the event of states preventing the operation of the device, the program displays an appropriate message and signals this state to the user through appropriate pictograms.

piktogram	message
	<p>Warning</p> <p>Emergency switch active!</p> <p>Deactivate switch and restart process</p> 
	<p>Warning</p> <p>Mass comparator's shield opened!</p> <p>Close mass comparatot's shield and restart process</p> 




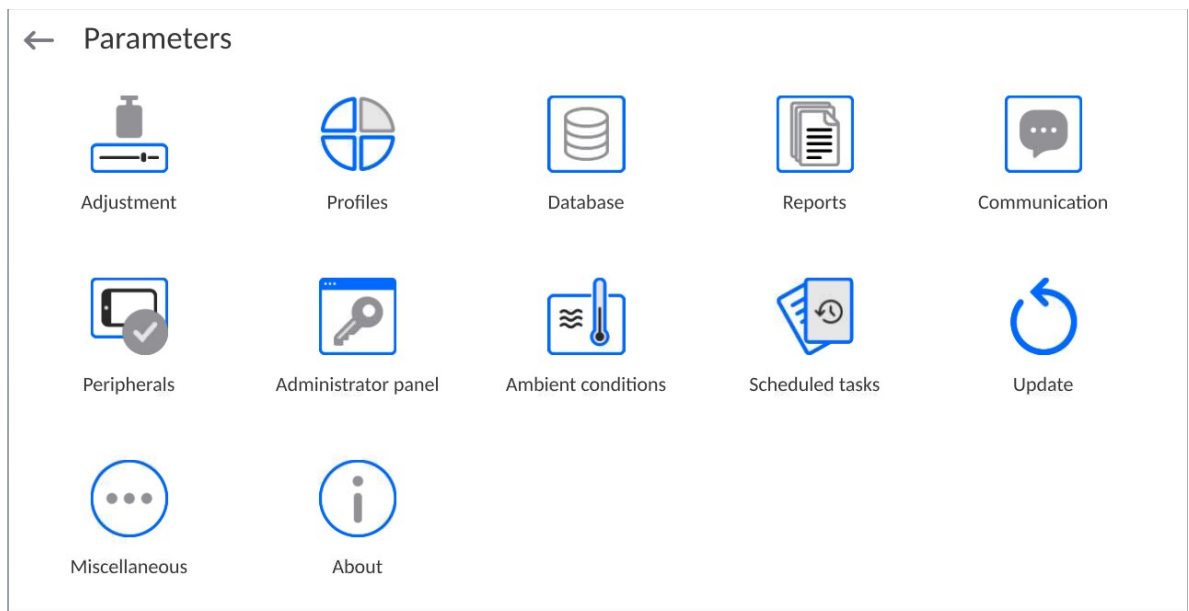
## 5. PROGRAM

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Program menu is divided into function groups. Function group is a group of interrelated parameters. For detailed description of each function group read later sections of this user manual.

### 5.1. Function Groups:

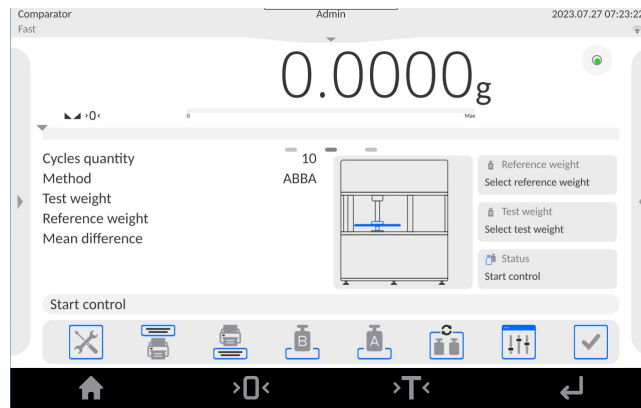
Mass comparator's main menu is accessed by pressing  button, located in the bottom part of the display. The menu comprises parameters referring to mass comparator settings, functions and profiles.



## 6. HOME SCREEN



Some screen views showed in the manual are for reference and do not reflect a real design of the comparator screen.

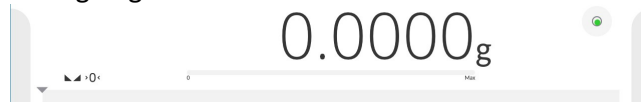


### The home screen features 5 sections:

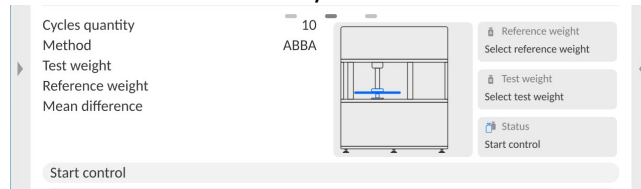
- Top section displaying data on active working mode, logged operator, date, time, active connection to a computer.



- Section presenting the weighing result and current level status.



- Section containing additional data on currently carried out activities.



**Caution:** The data is freely configurable. For detailed instruction read later sections.

- Section with a set of on-screen function buttons:



**Caution:** You can define the on-screen function buttons. For detailed instruction read later sections.

- Section with a set of fixed function buttons:

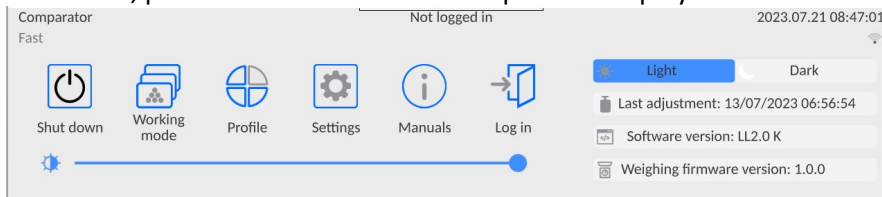


## 7. LOG-IN

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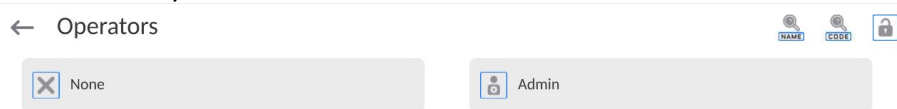
In order to access operator-related parameters and edit databases, you need to log in as an operator with **<Administrator>** permission level.

To do this, pull down the menu at the top of the display.



### First Log in:

- Pull down the top menu, press **<Log in>** field, operators database window is opened featuring **<Admin>** entry.



- The home screen is displayed, **<Not logged in>** sign is replaced by **<Admin>** sign.

**CAUTION: After first logging in, enter operators and assign appropriate permission levels and individual access passwords to them (for detailed procedure, read sections 11 and 13.2). While logging in again, select an operator from the list and enter the password, the program initiates operation with permission level set for the selected operator.**











### Log out operation:

- Pull down the menu at the top of the display.
- Press **<←>** field.

The home screen is displayed, logged in operator name is replaced with **<Not logged in>** entry.

## 8. MENU

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	Press to enter the main menu.
	Press to confirm modification.
	Press to return to the previous view without changing the parameter value.
	Press to add a database record.
	Press to search for a particular database entry by date.
	Press to search for a particular database entry by name.
	Press to search for a particular database entry by code.
	Press to print database entries.
	Press to select printout template variables from the list.
	Press to go back.

### 8.1. Voice Commands

The mass comparator enables some selected operation to be triggered by voice: taring, zeroing, measurement print/save. The commands must be said in English in a specified format.

Commands format:

Tarring: **ellipsis** [please] (tare | tar | terre) [the] device

Zeroing: **ellipsis** [please] zero [the] device

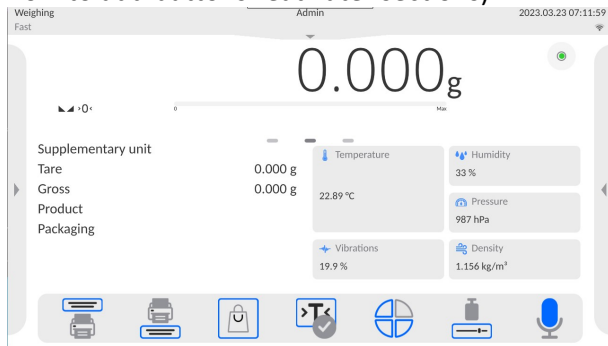
Print/save: **ellipsis** [please] save [the] (mass | measurement | mass measurement)


Command articulation method: text in black – compulsory, text in green – voluntary, text in red – one of three compulsory, e.g.: for Print command: **ellipsis save mass**.

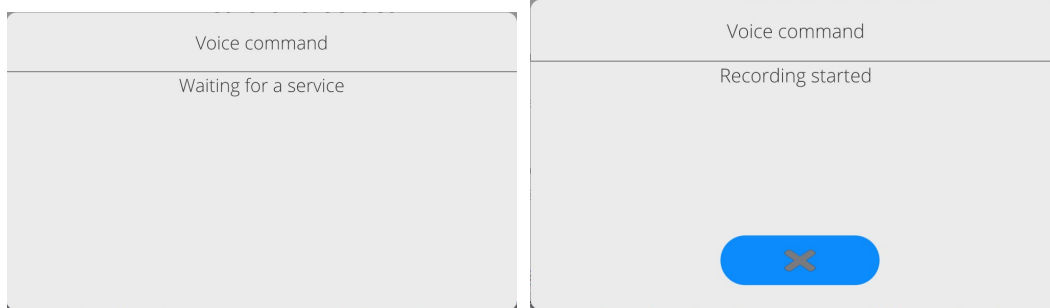


## Procedure:

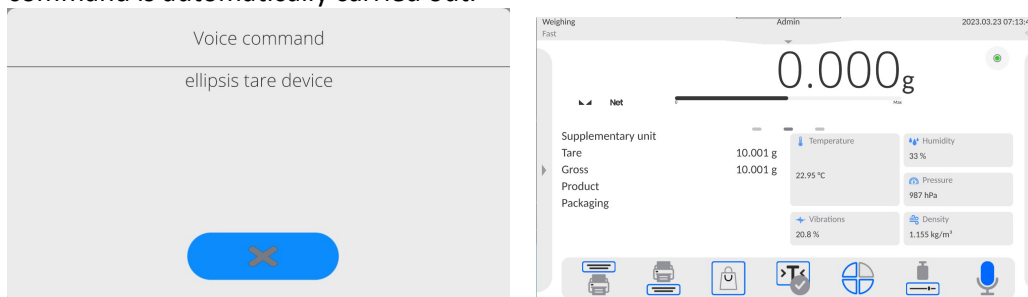
1. Add voice command triggering button, , to the toolbar (for detailed procedure on how to add buttons read later sections).



2. Press  button.
3. Procedure of voice command recognition starts, the user is provided with respective information by display of proper messages.





4. Articulate the command following the above instruction.
5. Correctly articulated and recognized command results with display of the message, the command is automatically carried out.



## 8.2. Return to the Comparison Mode


Any changes made in mass comparator's memory are automatically saved upon returning to the home screen. To return to the home screen:


## Procedure:

- Press  key repeatedly, keep pressing the key until you see the home screen.
- Press  key, the home screen is displayed immediately.

## 9. COMPARISON

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Comparison done using the RADWAG RMC mass comparator is carried out automatically. The user must design comparison procedure, load the magazine with reference weights and test weights in accordance with the designed comparison procedure, next, run the procedure. During comparison, icon  is displayed on the left, the marker informs that the result is stable.

Comparison record/printout is possible upon pressing of <PRINT> button. In the case of verified mass comparators only stable result (icon ) can be recorded/printed.

### 9.1. Units




Change of the weighing unit is carried out by pressing the weighing unit pictogram visible next to the value of the measurement result. Upon pressing the weighing unit, list of available units is displayed. Select the unit you need, the software automatically recalculates the indicated value.

Unit	Symbol	Unit	Symbol
gram	[g]	Taele Hongkong	[tlh]
milligram	[mg]	Taele Singapur	[tls]
karat	[ct]	Taele Tajwan	[tlt]
pound	[lb]	Taele Chiny	[tlc]
ounce	[oz]	momme	[mom]
ounce troy	[ozt]	grain	[gr]
pennyweight	[dwt]	Newton	[N]
		Tical	[ti]

### 9.2. Levelling

The mass comparator features **Level Sensing System**, which continuously monitors its level status. The level status is signalled on the top of the display and on detecting any change it indicates appropriate information and/or starts an alarm. As a result, a window for adjusting the level is displayed.




#### Procedure:

- Press level status <  > pictogram located on the top of the display.
- Control panel of levelling function is displayed.
- Level the mass comparator, to do it turn the feet in a way indicated by blinking <  > pictograms on the display – the level point moves towards the centre of the level circle.
- As the level point takes central position, its colour changes from red to green , which is a confirmation for correct level status.



#### Caution:

*The device is equipped with a mechanism for Automatic Level Control. For detailed description read later sections 18.9 of this manual*

### 9.3. Zeroing

To zero mass indication press  key. Zero indication and the following pictograms are displayed:  and . Zeroing operation means determining new zero point, recognized by the weighing device as precise zero. The instrument can be zeroed only when the indication is stable, and weighing pan unloaded.

### 9.4. Taring



To determine net weight value, load the weighing pan with a packaging, wait for a stable indication and press  key. Zero indication and the following pictograms are displayed: **Net** and . Upon unloading of the weighing pan, the sum of tared masses with minus sign is displayed. You can assign tare value to a particular product stored in the database. In such a case, the assigned tare value is automatically acquired upon selection of a given product.

#### CAUTION

*It is impossible to tare negative values. When you try to tare negative values, the weighing instrument responds with an error message. In such a case, zero the indication and repeat taring procedure.*

How to enter tare manually?

Procedure

1. Press  quick access button. The button is available regardless of the working mode you operate.
2. An on-screen numeric keyboard is displayed.
3. Enter tare value and press  button.
4. The mass comparator returns to the comparison mode, and the display indicates entered tare value with minus „-“ sign

How to delete tare?

The tare value indicated on the display can be deleted by pressing ZERO key on the operation panel, or by using programmable function key, <Deactivate tare>.



**Procedure 1** - upon taking the tared load off the weighing pan:

1. Press ZERO key,
2. The NET marker gets deleted, new zero point is determined.

**Procedure 2** – with tared load resting on the weighing pan:

1. Press ZERO key,
2. The NET marker gets deleted, new zero point is determined.
3. When the tare value exceeds 2% of the maximum capacity, Err message is displayed in order to inform you about the fact that operation cannot be carried out

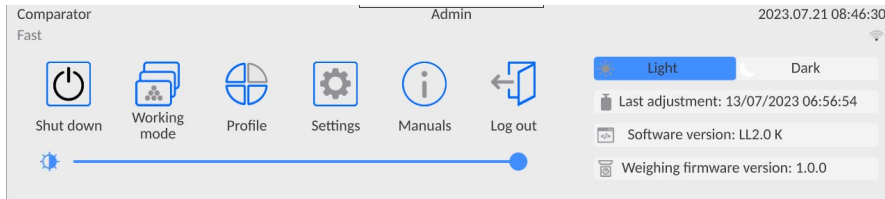
**Procedure 3** - when the tared load is on the weighing pan or upon taking the tared load off the weighing pan:

1. Press **Deactivate tare** programmable button, ,
2. The NET marker is deleted,
3. The display indicates tare value,
4. To restore the last tare value press **Restore tare** button, .

How to Run the 'Comparator' Working Mode?

**Procedure:**

- Click start-menu



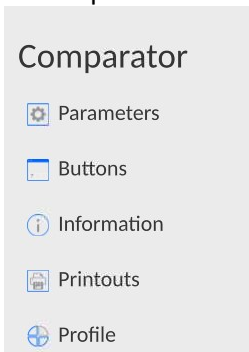
- Click **<Working modes>** icon.
- List of working modes in displayed.
- Select **<Comparator>** mode. The software automatically returns to the home screen and displays name of selected working mode in the top bar.
- The following message is displayed in the work pane: **<Start control>**.
- Select internal and external loads (depending on mass comparator type) suitable for mass of calibrated standard.
- Load the weighing pan with an appropriate reference weight.
- Zero/tare the mass comparator indication.

**9.5. Working Mode Parameters – Comparator**

Each working mode features programmable parameters, determining the given mode functionality.

Access procedure:

1. Click drop-down menu on the left

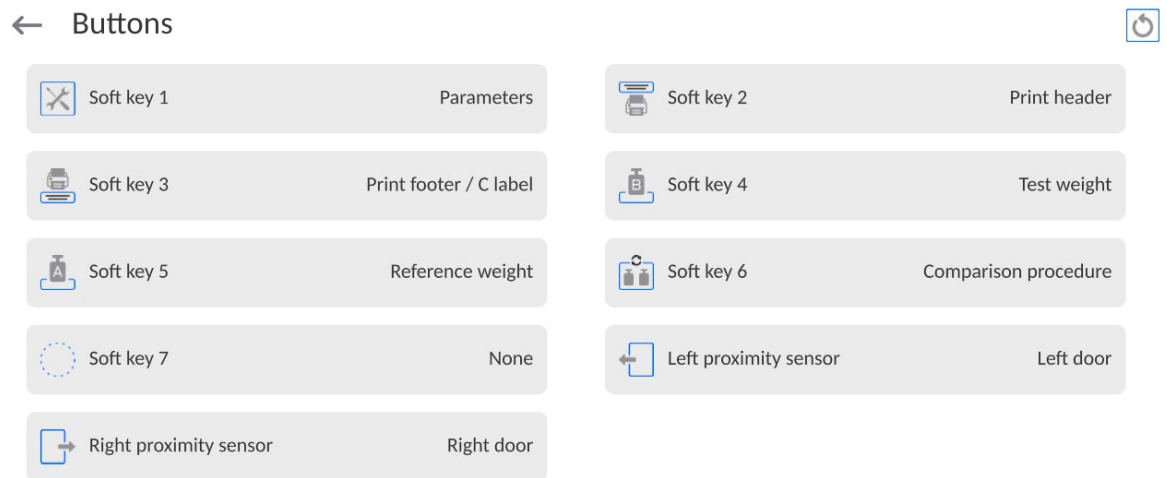



2. List of menu options is displayed:
  - **<Settings>** - extra mode-related options.
  - **<Buttons>** - quick access key defining.
  - **<Information>** - data to be displayed in Info field.

- <Printouts> - printout type and content.
  - <Profiles> - defined user profiles.
3. Click option of your choice and select the component that is to be modified.

Description of basic parameters of <Settings> menu is to be found further down this user manual.

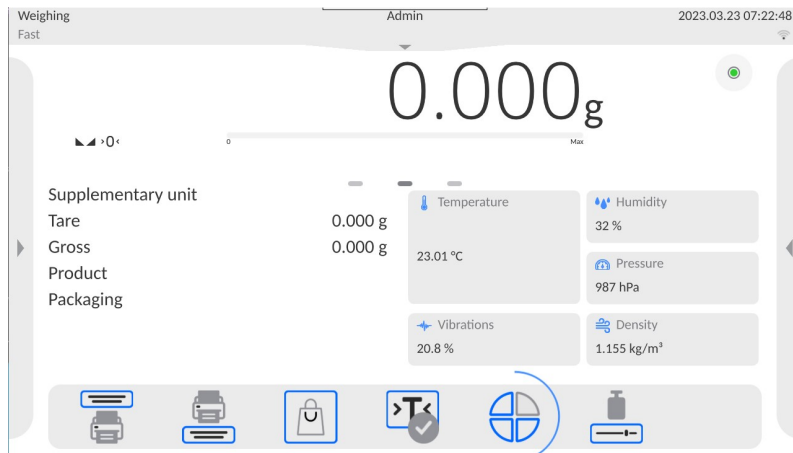
## 9.6. Quick Access Keys, Proximity Sensors



You can quickly restore default key arrangement in the bottom bar of the display, to do it click  button (top right-hand corner).

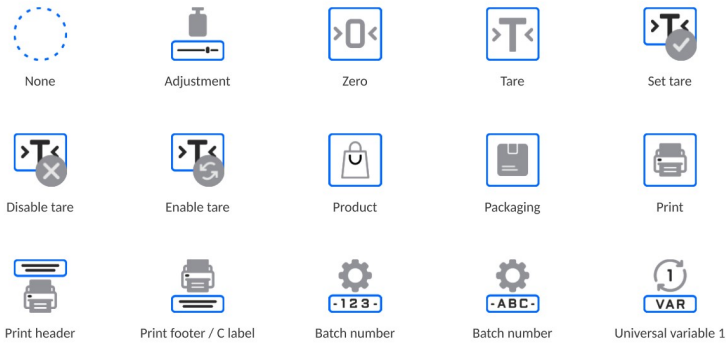
The user can define 7 buttons that can be displayed in the bottom bar of the display. After assigning a button with a function, respective icon is shown in the navigation bar of the main display. The button availability is conditioned by a working mode. List of buttons is to be found in APPENDIX B.

Another method for adding or changing the button is to press and hold the field in the button bar for about 3 s.

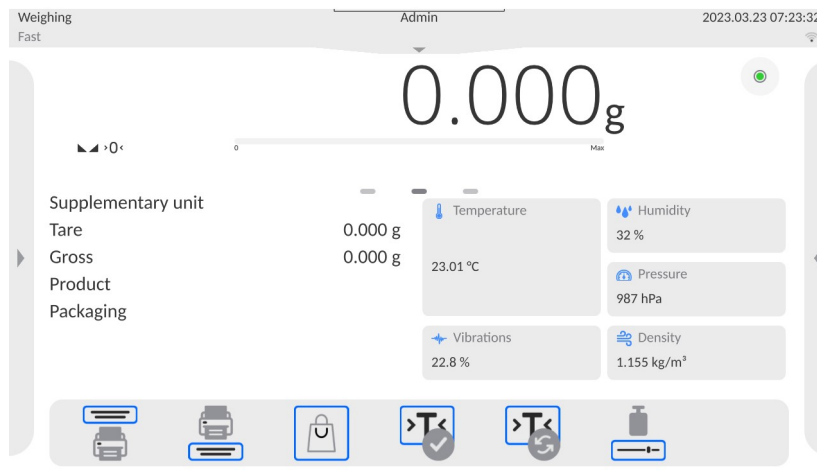


Available button window is displayed automatically

← Available actions



Click the button that is to be added, the home screen is displayed automatically, the selected button appears in the field that has been activated.



## 9.7. Proximity Sensors

The device is equipped with two proximity sensors allowing control touch free. The program recognizes 2 different movement states:

1. Hand movement near the left sensor <Left proximity sensor>.
2. Hand movement near the right sensor <Right proximity sensor>.

## 9.8. Working Mode - Comparator

**Comparator** mode enables determination of standard deviation for measurement series. Standard deviation is determined on the basis of ABBA, ABA or AB measurement series, where:

- A – reference weight
- B – test weight

You can determine the quantity of measurements in a series and ABBA, ABA or AB method. To do that, enter **Working modes** menu, next go to **Comparator** submenu.

The results are calculated by the program in accordance with the below tables and formulas:

ABBA series

No.	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					$D_n$

ABA series

No.	A	B	A	$D = B - A_{sr}$
1				$D_1$
2				$D_2$
3				$D_3$
4				$D_4$
5				$D_5$
.....				...
n				$D_n$

AB series

No.	A	B	$D = B - A$
1			$D_1$
2			$D_2$
3			$D_3$
4			$D_4$
5			$D_5$
.....			...
n			$D_n$

Standard deviation is calculated by determining:

- ✓ ABBA or ABA differences for each measurement group:

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

- ✓ Mean value of difference between ABBA and ABA:

$$\overline{DX}_i = \frac{1}{n} \sum_{i=1}^n D_i$$

- ✓ Standard deviation:

$$s = \sqrt{\frac{1}{n} \sum_{i=1}^n (D_i - \overline{DX}_i)^2}$$


### 9.9. How to Select the Method of Comparison










Particular working modes settings feature specific functions. The functions enable adapting mode operation to your individual needs. Working modes can be configured in <Working modes> submenu. To enter <Working modes> submenu click drop-down menu on the left.

## Comparator

- Parameters
- Buttons
- Information
- Printouts
- Profile

Press < **Parameters** > key, working mode edit box is displayed:

← Parameters 


 Method ABBA	 Cycles quantity 6
 Test weights quantity 1	 Quantity of start-up A loadings 0
 Quantity of start-up B loadings 0	 Quantity of start-up cycles 1
 Start delay <input type="checkbox"/>	 Tare mode Single
 Printout / Enter mode	

In order to change the method of weights comparison, press <**Method**> and select method from the list:

- ABBA
- ABA
- AB
- B
- ABABA


### 9.10. Determining Cycle Quantity

#### Procedure:

- Select <**Comparator**> and press <**Parameters**>
- Press <**Cycles quantity**> key, enter the quantity of weighing cycles and press  key to confirm.

### 9.11. Test weights quantity


#### Procedure:

- Select <**Comparator**> and press < **Parameters** >
- Press <**Test weights quantity**> key, enter the quantity of weighing cycles and press  key to confirm.




### 9.12. Declaration of A standard start-up placements

#### Procedure:

- Select <Comparator> and press <Parameters>
- Press <Quantity of A standard start-up loadings> key and enter the desired number of measurement cycles, then press  key to confirm.


### 9.13. Declaration of B standard start-up placements

#### Procedure:

- Select <Comparator> and press <Parameters>
- Press <Quantity of B standard start-up loadings> key and enter the desired number of measurement cycles, then press  to confirm.

### 9.14. Declaration of the number of start-up weighing cycles

#### Procedure

- Enter <Working modes> parameters group,
- Select: <Comparator>, then < Parameters > and <Quantity of start-up weighing cycles> to open <The number of start-up weighing cycles> edition box with an on-screen keypad,
- Enter the desired value and press  to confirm.

### 9.15. Start Delay

#### Procedure:

1. Enter **Working modes** submenu,
1. Select **Comparator** entry, and press **Parameters** parameter, Next press **Start delay** parameter. Edit box is displayed.
2. Enter respective value:
  - ✓ YES – during comparison process start, edit box is displayed for entering delay value, after this time the comparison process is started automatically,
  - ✓ NO – procedure starts immediately, without delays. Upon selecting the option, edit box is closed and the description next to the parameter changes.

### 9.16. Tare Mode

- ✓ SINGLE  
Mass value saved to mass comparator on single pressing of TARE key. Subsequent pressing of TARE key determines new tare value. Selecting product or packaging to which tare value is assigned causes automatic deleting of previously assigned tare value.
- ✓ SUM OF CURRENT  
Total value of current product and packaging tare values (taken from the database), with possibility to add tare value entered manually. Upon determining tare value for a product or a packaging again, the tare value introduced manually is deactivated.
- ✓ SUM OF ALL  
Total value of all entered tare values.
- ✓ AUTOTARE

Principle of operation:

Every first measurement is tarred when the value is stable. The NET inscription will be displayed. Now you can specify the net mass. After unloading and returning to the autozero zone, the program automatically deletes the Tare value.

- ✓ EVERY MEASUREMENT:  
it is possible to tare before every measurement in the series.









**9.17. Printout/Enter Mode**



- ✓ PRINTOUT/APPROVE KEY
  - Never – inactive printout
  - First stable – first stable measurement is recorded
  - Every stable – all stable measurements are accepted
  - Every – printing all measurements (stable and unstable), for verified comparator only stable results (as in <Every stable>)
- ✓ AUTOMATIC MODE
  - None – inactive printout
  - First stable – the first stable measurement is recorded after loading the weighing pan, another stable measurement is recorded after unloading the weighing pan and after the value drops below the preset threshold and after loading the weighing pan again
  - Last stable measurement – only the last stable measurement is accepted, the last stable measurement that occurred before unloading the pan is recorded. The record is made after unloading the weighing pan and after the value drops below the preset threshold.
  - With interval – this option specifies how often the result is to be sent for printing
- ✓ THRESHOLD  
mass value for automatic printout, set in grams.
- ✓ INTERVAL  
time unit value for weighing result printout.
- ✓ PRINT REPORT
  - Yes – automatic printout of the report after the end of calibration
  - No- report printout blocked
- ✓ PRINT INDIRECT RESULTS ON ONGOING BASIS
  - Yes – automatic printout of every indirect measurement
  - No- blocked printout

**9.18. Printouts**




The <Printouts> menu consists of three setting units. The first unit is standard printouts: <Header printout template>, <Weighing record/label printout template>, <Footer/C-label printout>. The second unit is non-standard printouts: <Printout/label base>, and the third unit refers to parameters that allow setting the printing quantities: header, weighing record and footer after a single click of the printout call key.

← Printouts

 Comparison report printout template	 Header printout template
 Weighing / label printout template	 Footer / C label printout template
 Header copy count 1	 Label / printout copy count 1
 C label / footer copy count 1	 Printout / label database

**Standard printouts** consist of three units that contain various variables. For each variable, it is necessary to set  – if it is to be printed out or  – if not.

The operator can quickly change selection of variables for printout, using keys in the top right corner of the window.

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


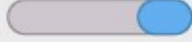
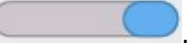
**Procedure:**



1. Press the editable template name field (Header – Weighing record – Footer) and select variables to be printed out.
2. If you select the non-standard printout, create it.

<u>HEAER PRINTOUT TEMPLATE</u>	<u>WEIGHING RECORD/LABEL PRINTOUT TEMPLATE</u>	<u>FOOTER/C LABEL PRINTOUT TEMPLATE</u>
<ul style="list-style-type: none"> <li>– Non-standard printout</li> <li>– Dashes</li> <li>– Working mode</li> <li>– Date</li> <li>– Time</li> <li>– Comparator type</li> <li>– Comparator ID</li> <li>– Operator</li> <li>– Full name</li> <li>– Levelling</li> <li>– Client</li> <li>– Warehouse</li> <li>– Product</li> <li>– Packaging</li> <li>– Universal variable 1...5</li> <li>– Empty line</li> <li>– GLP report</li> <li>– Non-standard printout</li> </ul>	<ul style="list-style-type: none"> <li>– Non-standard printout</li> <li>– N (measurement number)</li> <li>– Date</li> <li>– Time</li> <li>– Levelling</li> <li>– Client</li> <li>– Warehouse</li> <li>– Product</li> <li>– Packaging</li> <li>– Series number</li> <li>– Batch number</li> <li>– Universal variable 1...5</li> <li>– Net</li> <li>– Tare</li> <li>– Gross</li> <li>– Current result</li> <li>– Additional unit</li> <li>– Mass</li> <li>– MN-Method</li> <li>– Reference tare</li> </ul>	<ul style="list-style-type: none"> <li>– Non-standard printout</li> <li>– Working mode</li> <li>– Date</li> <li>– Time</li> <li>– Comparator type</li> <li>– Comparator ID</li> <li>– Operator</li> <li>– Full name</li> <li>– Levelling</li> <li>– Client</li> <li>– Warehouse</li> <li>– Product</li> <li>– Packaging</li> <li>– Universal variable 1...5</li> <li>– Dashes</li> <li>– Empty line</li> <li>– GLP report</li> <li>– Signature</li> <li>– Non-standard printout</li> </ul>

	<ul style="list-style-type: none"> <li>- Minimum sample</li> <li>- Minimum sample status</li> <li>- Mass for titrator</li> <li>- ID</li> <li>- Non-standard printout</li> </ul>	
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### HOW TO OPERATE PRINTOUTS – BASIC RULES

1. Press  key on the housing to print out variables showed in WEIGHING field of the standard printout if the have the attribute =  (see: list of variables above).
2. The variables with the attribute = , showed in the HEADER or FOOTER will be printed out **ONLY** when you press **Print Header** or **Print Footer** icon. These icons must be placed in the lower bar of the screen as quick-access keys.  
*(To get familiar with the icon placement procedure, see point 9.6 of the manual)*

	
Print information from the header	Print information from the footer

**Note:**


*Units for mass printout:*

- Net – main (adjustment) unit
- Tare – main (adjustment)unit
- Gross – main (adjustment) unit
- Current result – currently displayed unit
- Additional unit – additional unit
- Mass – main (adjustment) unit

### Non-standard printout

The printout may contain TEXTS and VARIABLES (that are downloaded from the program upon printout). Every printout is a separate template, has its unique name that identifies it and is saved in the database.

**Procedure:**

1. Press <Non-standard printout> field.
2. Press <Add>  key to open another box with the following data: Name/Code/Template.
3. Enter the name and code for the printout.
4. Press <Template> key.
5. You will see a keypad box that allows you to edit the printout.
6. Use the keypad to design the printout; the printout may include texts and variables.

**Note:**

- You can add printouts from the external memory stick by importing already configured texts, using a USB port.
- The printout name is a ONLY NAME and does not represent its content.

The method of designing the non-standard printout is described in point 14.10 <Printouts>.

## 9.19. Completed Comparison Processes Report

Upon each completed comparison process, a report is generated. The report is saved to **Comparison reports** database. The files are named by the date and time (hour) of mass comparison process.

Report example:

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

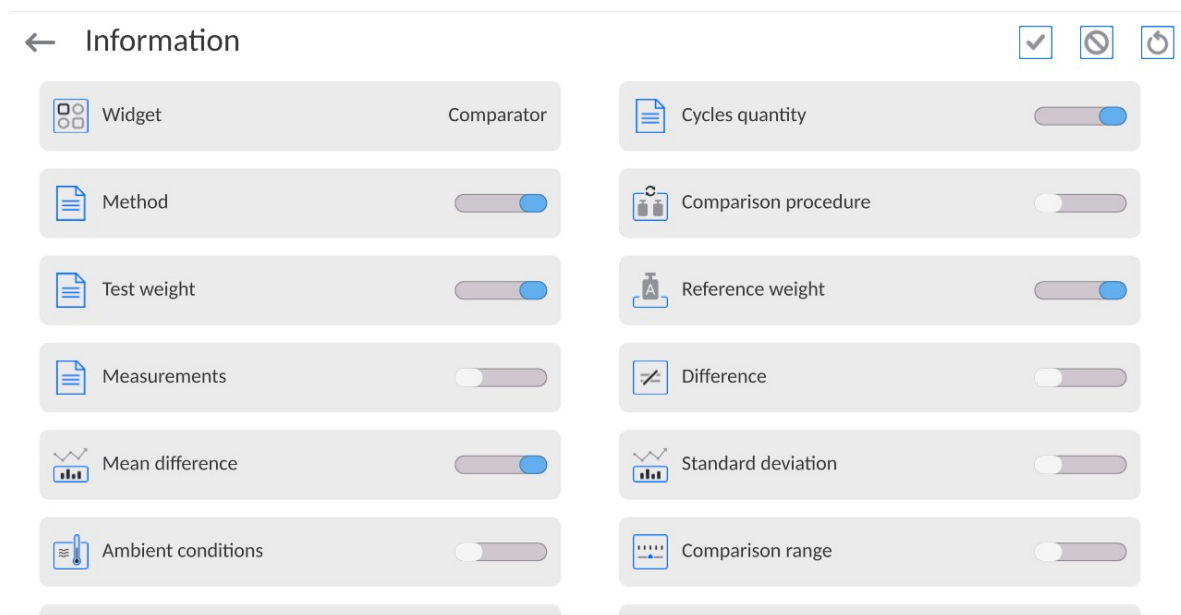
Mean difference 0.12833 g

Standard deviation 0.00189 g

Method ABA

Signature

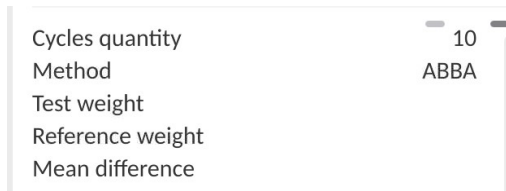
## 9.20. Display Arrangement



You can quickly select/deselect info to-be-displayed, to do it use top right-hand corner buttons.


	Press to deselect all marked information.
	Press to select all marked information.
	Press to restore default settings.

Information on the weighing process are displayed on the left of the middle section of the display.





The section can feature up to 6 data maximum. Shall more than 6 data be selected, only the first 6 will be shown.


For each piece of information, there are two options available:

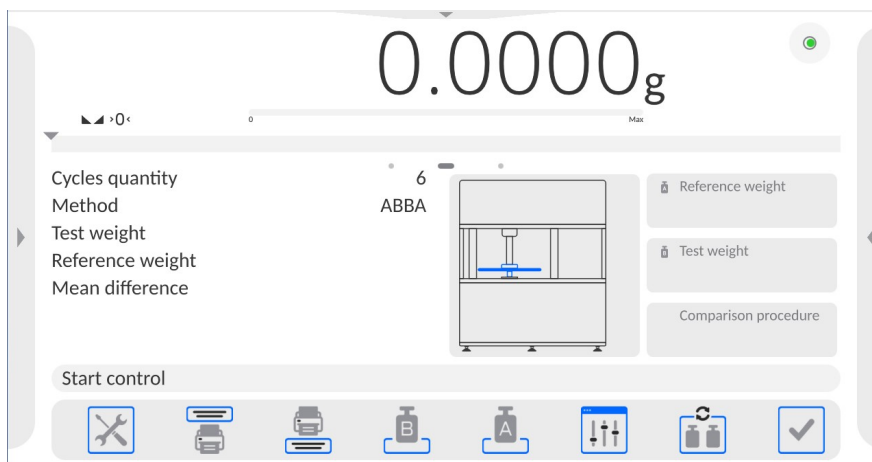
-  – visible information
-  – invisible information.


### 9.21. Comparison – basic procedure

1. In the home screen, press  key in the bottom left corner of the housing.
2. Select Databases.
3. Enter Reference weights, define reference weights (point 13.5)
4. Return to the Database, enter Test weights, defined test weights (point 13.6).
5. Return to the Database, define Comparison plans (point 13.7).
6. Return to the home screen, in the functional key bar press Comparison plans. Then select the comparison plan.
7. Place reference and test weights on the loading pan.
8. To start comparison while in the home screen, press  - the procedure will be automatically activated as per pre-assigned parameters.

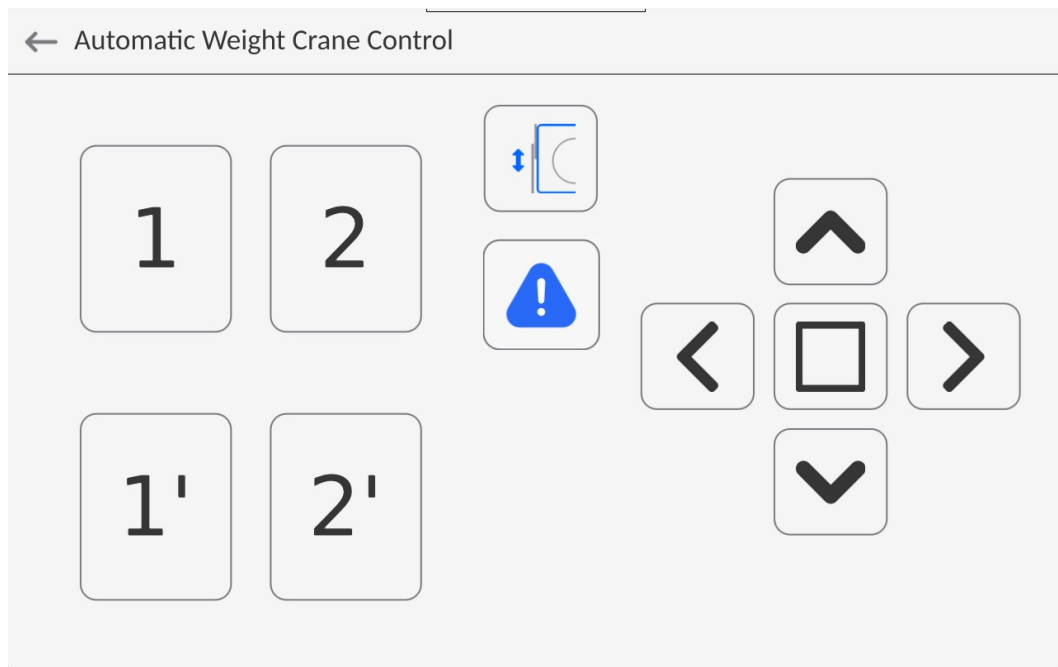
### 9.22. Automatic comparator operation

To change location of weights in the automatic comparator, you need to use the  **Automatic comparator control** key. This key can be found at the bottom of the screen, on the display bar.



After selecting the  **Automatic comparator control** key, you will see a control box. There are keys in the box.

Depending on the type of your automatic comparator, the view of number of functional keys changes. See below for the example set of keys in the comparator.



Comparator position movement command keys



up key



down key



anti-clockwise rotational movement key



clockwise rotational movement key



stop movement key



acceptance key that ends work in the automatic comparator control box




weighing chamber door open/close key

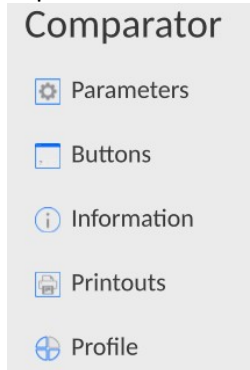


The message must be confirmed to signal that the comparator is ready for operation. The message is displayed every time the operator opens the device door.



If the < **Automatic comparator control**> is invisible, you can activate it in the following way:

1. Expand the side left menu.



2. Select <Buttons> menu – quick-access key defining
3. Next select the <**Automatic Weight Crone Control**>.

### 9.23. How to Start Calibration

To activate the automatic weight test, you need to press the acceptance key in the bottom right corner of the screen, on the software key bar.





## 10. ADJUSTMENT

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Mass comparators feature automatic internal adjustment system which ensures correct measurement accuracy. <ADJUSTMENT> menu contains functions that enable control of operation of mass comparator adjustment process.

### 10.1. Internal Adjustment

Internal adjustment is carried out by means of an internal adjustment weight. <Internal adjustment> button, when pressed, automatically triggers adjustment process. Upon adjustment process completion respective message, informing about process end and about its status, is displayed.




*Caution:*

*Mass comparator adjustment procedure requires stable conditions (no air drafts, no vibrations), the weighing pan must be unloaded in the course of adjustment.*

### 10.2. External Adjustment

External adjustment is carried out using an external mass standard of the right accuracy and weight value, which value depends on mass comparator type and capacity. Correction is carried out semi-automatically, successive process stages are signalled with prompts.

**Procedure:**

- Enter <Adjustment> submenu, next select <External adjustment> parameter .
- Message forcing the user to remove weight is displayed. Unload the weighing pan and press  button. Whereas mass comparator determines start mass, **Start mass determination** message is displayed.
- Upon completed start mass determination procedure, message forcing the user to load the weighing pan with a particular weight value is displayed. Load the weighing pan with the required mass and press  button.
- Upon completed procedure, unload the weighing pan and press  button to confirm. Mass comparator returns to the comparison process.

### 10.3. Adjustment Test

<Adjustment test> function enables comparing the result of an internal automatic adjustment with the value recorded in mass comparator factory parameters. The comparison is used for determining mass comparator sensitivity drift over time.

### 10.4. Automatic Adjustment

Enter this menu to specify conditions initiating an automatic adjustment. Options:

- None – automatic adjustment inactive.
- Time – adjustment takes place in time intervals declared in menu <Automatic adjustment time>,
- Temperature – adjustment is triggered by temperature change.
- Both – adjustment is triggered by both, temperature changes and time.

## 10.5. Automatic Adjustment Time

<Automatic adjustment time> parameter determines time interval between successive automatic internal adjustments. The time interval is declared in hours and ranges between 1 and 12 hours.

To set time interval for automatic adjustment:

- Select <Automatic adjustment time> option.
- Using displayed menu, select appropriate time interval (given in hours) which is to elapse between the most recent adjustment and activation of the following automatic internal adjustment.

## 10.6. Report Printout

<Report printout> parameter determines whether or not an adjustment report is to be automatically printed upon adjustment process completion.

In order to set automatic report printout, set the parameter on.



## 10.7. GLP Project

GLP is one of many methods for documenting work in accordance with adopted quality system. Data selected for printing is printed on each release of an adjustment report.

Information and signs to be used in a GLP report:

- Adjustment
- Working mode
- Date
- Time
- Mass comparator type
- Mass comparator S/N
- Operator
- Name and surname
- Level status
- Nominal mass
- Current mass
- Difference
- Temperature
- Dashes
- Empty line
- Signature
- Non-standard printout

## 10.8. Adjustment History

Adjustment history contains data on all carried out adjustment processes. The record is carried out automatically. Each record on adjustment comprises basic data on completed process. This menu enables displaying the list of completed adjustment processes. Each report is printable.

In order to print an adjustment report, enter <Adjustment> submenu, next enter <Adjustment history>, select adjustment to be printed. Upon displaying record details,



press < > print key located on the top of the display.

**Caution:**

*If the mass comparator memory is full then the oldest record gets automatically deleted.*

*If internal procedures of an organization require maintaining complete documentation from all carried out adjustment processes, then the list with adjustment records has to be printed and archived periodically.*

**Searching for adjustment record**

Mass comparator enables searching for a specific completed adjustment record. To do



that, press **DATE** search pictogram and enter date of adjustment process that is to be found.

**Exporting data on completed adjustment process**

Connect a USB flash drive to mass comparator's USB port. Press <Data export> button located on the top of the display. The process is fully automatic and on its completion a file with **.db.** extension is saved on a USB flash drive connected to the USB port.

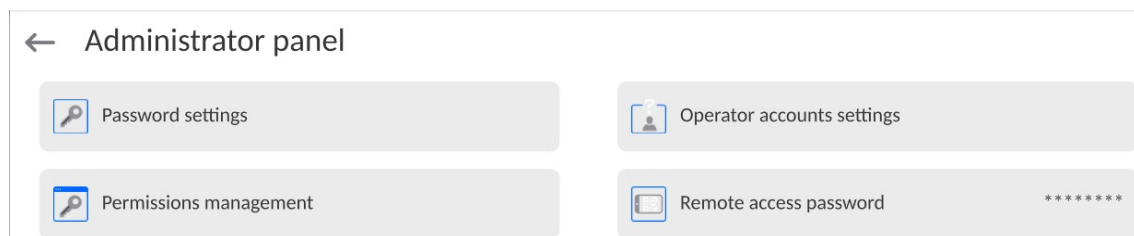
**11. ADMINISTRATOR PANEL**

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This parameter group determines set of activities to be performed by a particular operator assigned with a respective permission level, password security, and unlogged user rights.

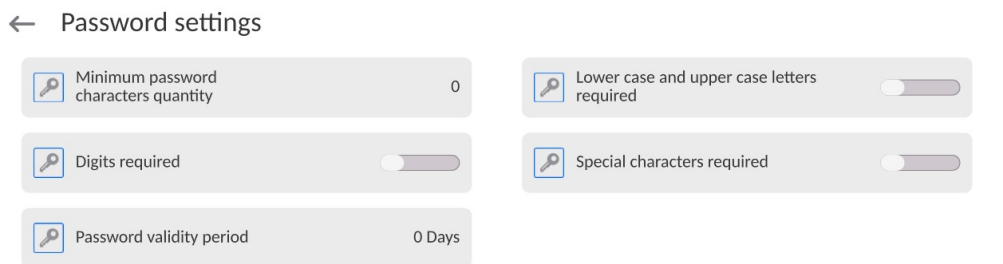
**CAUTION:**

*The Administrator Panel can be modified by the Administrator exclusively*



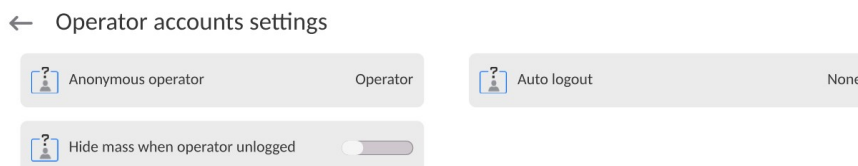
## 11.1. Password Setting

This parameter group enabling user to determine the password complexity.



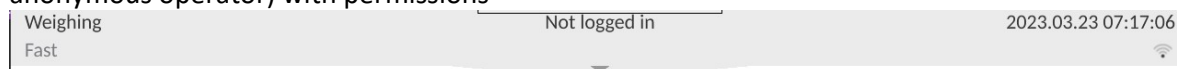
Minimum password character quantity	Parameter specifying minimum quantity of characters the password should contain With „0” value set, any quantity of characters can be used.
Lower case and upper case letter required	Parameter specifying requirements for password character content and format.
Digits required	
Special characters required	
Password validity period	Parameter specifying time interval, given in days, after passage of which the password is to be changed. With „0” value set, password change is not required by the program.

## 11.2. User Account Setting



### Anonymous Operator

Parameter allowing Administrator to assign unlogged weighing device operator (so called anonymous operator) with permissions



#### Procedure:

Enter <Operator account settings> parameter group, select <Anonymous operator> entry, next set one of 4 options: Guest, Operator, Advanced operator, Administrator.

#### Caution:

When <Guest> option is set, the software settings cannot be modified by unlogged operator.

### Auto Logout

Auto logout parameter has been designed to trigger logout operation when the mass comparator stays inactive for specified time interval given in minutes.

Default parameter setting: <None>.

**Procedure:**

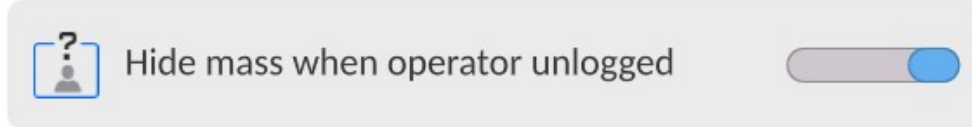
Enter <Operator account settings> parameter group, select <Auto logout> entry, next set one of available options: none/3/5/15/30/60. Time given in [min].

**Hide Mass When Operator Unlogged**

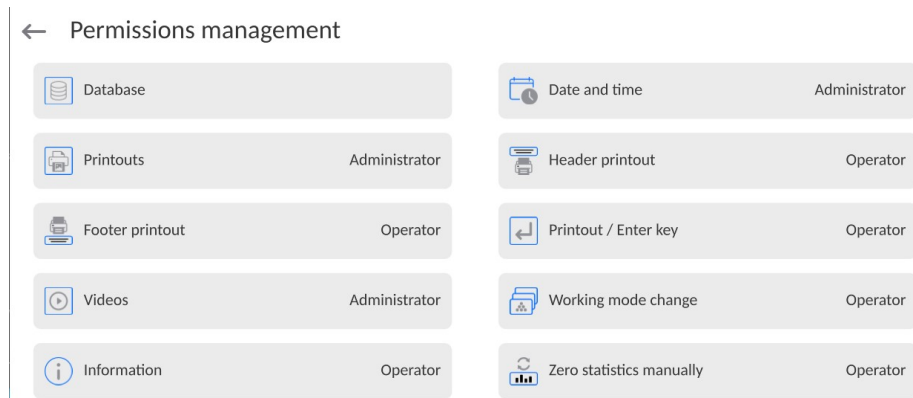
Parameter allowing to disable mass display if the user is not logged in. By default this option is off.

**Procedure:**

Enter <Hide mass when operator unlogged> option, next switch the option on.



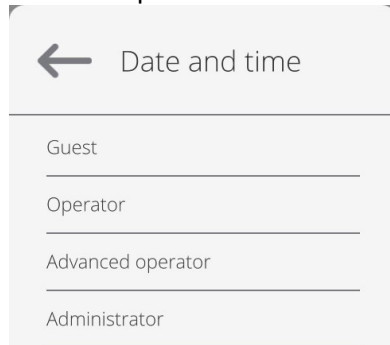
**11.3. Permissions Management**



**Caution:**

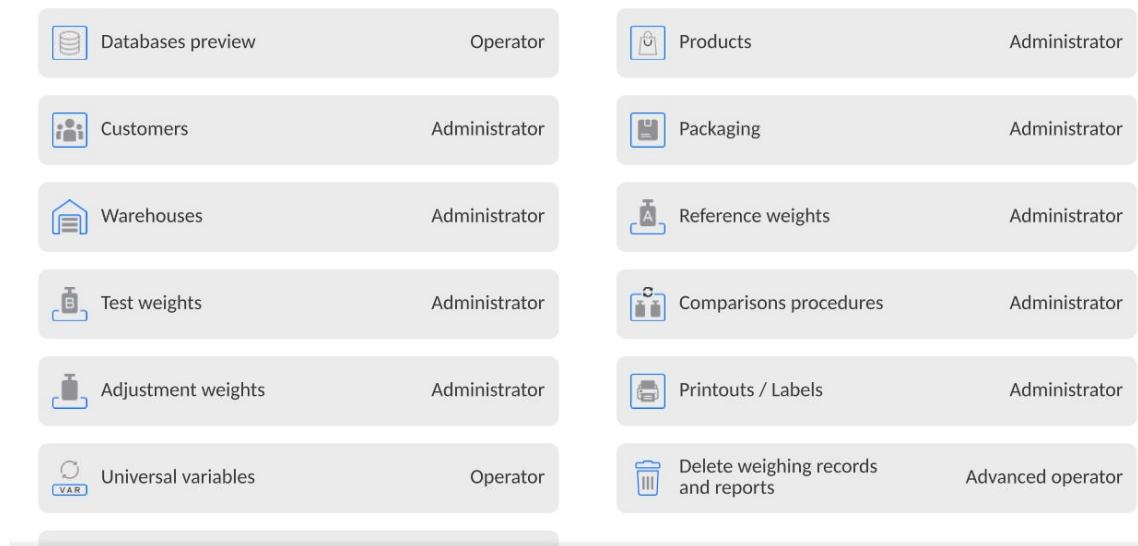
*When <Guest> option is set for a selected parameter, the access to its settings is free.*

For each option one of 4 available permission levels can be assigned:



## Databases

← Database

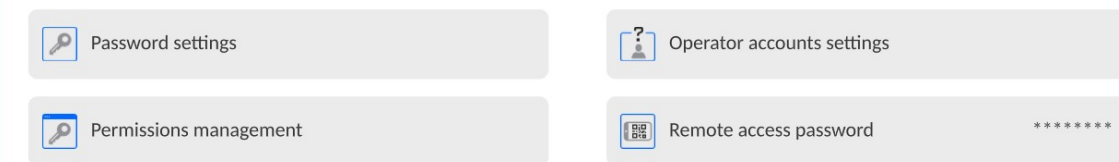


Default balance settings allow **Administrator** to modify particular database settings. Depending on the requirements the settings can be changed.

Permission levels can be modified for the remaining options of the above menu.

### 11.4. Remote access password

← Administrator panel



The mass comparator can be accessed remotely using connection to the local Internet network that a computer is connected to. In this respect **VNC Viewer** application can be used.

A default password set in the program is a sequence of the following characters: **radwag1234**. If you do not wish to use the default password, you must set your unique access password in the aforesaid parameter.

*Note: remember a new password in order not to lose remote access to the mass comparator.*

## 12. PROFILES

---

A new profile can be created via Administrator exclusively.

There are two methods:

- making a copy of an existing profile and modifying it,
- adding a new profile.




### Copying an existing profile

Procedure:

- Enter the main menu, to do it press  button.
- Enter  submenu.
- Press and hold profile that is to be copied.
- Menu referring to a profile record is displayed. Select <Copy> parameter.
- A new <Copy name> profile is created, new profile settings and base profile settings are identical.
- Modify necessary data: (name, etc.).

### Adding a new profile

Procedure:

- Enter the main menu, to do it press  button.
- Enter  submenu.
- Press  key.
- A new profile is added automatically, 'Edit Record' window opens.

← Edit record



Settings



Working modes






Readout



Units

### Deleting a profile

Procedure:

- Enter the main menu, to do it press  button.
- Enter  submenu.
  - Press and hold profile that is to be deleted.
  - Profile menu is displayed. Select <Delete> parameter.
  - Message box: <Delete?> is displayed.
- Press  key to confirm, the profile gets deleted.

**Caution:**

*In order to carry out operations for profiles, it is necessary to log in as an Administrator.*


## 12.1. Profile Structure

Each profile contains the following entries:

<b>Settings</b>	Enter this menu to set an individual profile name (an order of alphanumeric characters), and to declare a default working mode (the selected mode is activated as default upon selecting the profile).
<b>Working Modes</b>	Contains the following submenus: <ul style="list-style-type: none"><li>▪ Additional settings of a working mode</li><li>▪ Buttons</li><li>▪ Information</li><li>▪ Printouts</li></ul>
<b>Readout</b>	Contains the following submenus: <ul style="list-style-type: none"><li>▪ Filter</li><li>▪ Value release</li><li>▪ Autozero</li><li>▪ Last digit</li><li>▪ Ambient conditions</li></ul>
<b>Measuring units</b>	Enter this menu to declare the start unit, the supplementary unit, 2 custom units and to enter the value of gravitational acceleration force in mass comparator's operation place.

### 12.1.1. Settings

#### **Name**

Upon entering this option, a message box with keyboard is displayed. Enter the name of a profile and press  button to confirm. The name is assigned to the profile.

#### **Default working mode**

Upon entering this option you can select a specific working mode, which is set as default in a profile. For <None> parameter set, upon selecting the profile, the mass comparator activates the most recently used working mode.

### 12.1.2. Working Modes

Upon entering Working Modes option, a window containing all accessible working modes is displayed. Each working mode can be user-modified, particular user settings are loaded upon activation of a particular profile.

List of parameters to be modified:

- **Settings:**  
contains specific parameters relating to a working mode and universal settings, such as: result control, tare mode, automatic footer printout, printout mode, printout
- **Quick access keys (buttons):**  
declaring quick access keys to be visible on the bottom of the display.
- **Information:**  
declaring information to be displayed in the grey workspace.



- Printouts:  
declaring type of a printout or defining a non-standard printout.

### 12.1.3. Readout

The function enables you to adjust mass comparator operation to ambient conditions (filter settings) or your individual needs. <Readout> menu contains the following elements:

#### **FILTER**

Each measurement signal before being displayed is electronically processed in order to provide correct parameters specific for stable measurement result, i.e. ready to read.

You can determine signal processing extend, there are five different filters for you to select from. Range:

- very fast, fast, average, slow, very slow.
- While setting the filter consider the actual operating conditions. In the case of very good operating conditions select average or fast filter, in the case of rough conditions select slow or very slow filter.

#### **Value release (disabled for profiles: Fast, Fast dosing, Precision)**

The parameter has been designed to determine when the stability marker is to be displayed.

There are three different settings for value release parameter:



- fast, fast and reliable, reliable.

#### **Caution:**

*Both parameters, filter and value release, determine how long it takes to obtain stable result.*

#### **Autozero**

The function has been designed to enable automatic monitoring and correction of zero indication.

If the function is enabled, the subsequent measurement results are compared to each other in constant time intervals. If the results differ less than declared AUTOZERO range, e.g. 1 division, the mass comparator is automatically zeroed, and the markers of stable indication –  and precise zero –  are displayed. Active AUTOZERO means, that each measurement starts from the precise zero point. There are, however, some cases when this function can be a disturbing factor for the measuring process. For instance during very slow load placing or pouring onto the mass comparator's weighing pan. In such case, the correcting system of zero indication may also correct the actual indication of a load placed on the weighing pan.

Accessible settings:    **NO** - autozero function disabled  
                                  **YES** - autozero function enabled

#### **Autozero function: Dosing (disabled for profiles: Fast, Fast dosing, Precision)**

The function has been designed to set autozero in function of dosing.

Accessible settings: **NO** - autozero function disabled automatically upon Dosing mode activation  
**YES** - autozero function enabled automatically upon Dosing mode activation

### Last digit

The function has been designed to enable/disable visibility of the last decimal place of measurement result. Accessible settings:

- **Always:** all digits are displayed.
- **Never:** last digit disabled.
- **When stable:** last digit displayed only when the result is stable.

### Last digit quantity

The function has been designed to declare how many last digits are to be disabled. Accessible settings operating in connection with <Last digit> function:

- **1:** one last digit displayed.
- **2:** two last digits disabled.
- **3:** three last digits disabled.

### Ambient conditions

Parameter relating to ambient and environmental conditions of the workstation. For unstable ambient conditions it is advisable to set the parameter to value:






**Unstable.** Default value: Stable.

**Stable** setting results with faster operation, i.e. weighing takes much less time than in case of setting to value: Unstable.

## 12.1.4. Measuring Units

For a selected profile you can declare start unit, supplementary unit and two custom measuring units.




### ← Units

 Available units	 Start unit
 Supplementary unit	None
 Custom unit 2	 Custom unit 1
	 G-core value

A custom measuring unit features:

- a formula (custom unit recalculation formula): Factor \* Mass or Factor / Mass
- a factor (coefficient for recalculation of the custom unit in accordance with the selected formula)
- a name (3 characters maximum)

## ← Custom unit 1

 Formula	Factor * Mass	 Coefficient
 Name		

Upon completed operation of designing a custom unit its name is added to the list of accessible measuring units.

Additionally, units menu enables entering the value of gravitational acceleration force for mass comparator's place of use. It is obligatory should a mass comparator be used to determine mass in [N].

## 13. DATABASES

---

Mass comparator software features the following databases:

← Database



Operators



Products



Customers



Reference weights



Test weights



Comparisons  
procedures



Packaging



Warehouses



Printouts / Labels



Universal variables



Manage the  
database

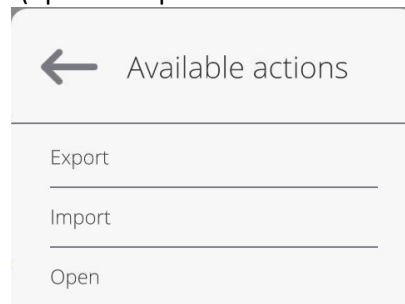
---

### 13.1. Processes Carried Out on Databases

**Databases can be operated** only by an authorized personnel.

Procedure:

- Press and hold for a moment a button with a respective database pictogram.
- Wait to see a menu.
- Select one of available options (options depend on a database type).



Options overview:

- **OPEN** – option allows you to enter a database (result is similar to the one obtained by a single click).
- **IMPORT** – option allows you to import data from a USB flash drive. Plug the USB flash drive to a USB port, upon its detection a window with a list of saved files is displayed. Select file with data to be imported. The copying starts automatically. Upon completion of the process a message: <Completed> is displayed. Confirm completion.
- **EXPORT** - option allows you to export data from a selected database to a USB flash drive. Plug the USB flash drive to a USB port, upon its detection the software automatically starts a copying process. Upon completion of the copying process a window with both, a file name to which data has been saved and message: <Completed> is displayed. Confirm completion.

The following operations, depending on the database, can be carried out:

1. Adding entry to a database.
2. Searching for a record in a database by name.
3. Searching for a record in a database by code.
4. Searching for a record in a database by date.
5. Exporting database content to a USB flash drive via USB port.
6. Printing data on a specific record in a database.

The above operations are carried out by pressing dedicated soft keys located on the top of the display. Follow the displayed commands.

### 13.2. Operators

Operators database features list of users permissioned to operate the balance.


The following data can be defined for each balance operator:

ID	Name
Code	Password
First and last name	Permissions
Active account	Language
Default profile	Card number
Theme	

**CAUTION:**

*Only a user with Administrator status can add new operators or delete operators from the database.*

In order to add an operator:

- Enter <Operators> menu, press <  > button.
- Define all necessary data.

**Caution:** *It is possible to search for an operator in a database of operators by code or name.*

**Log in using a transponder card:**

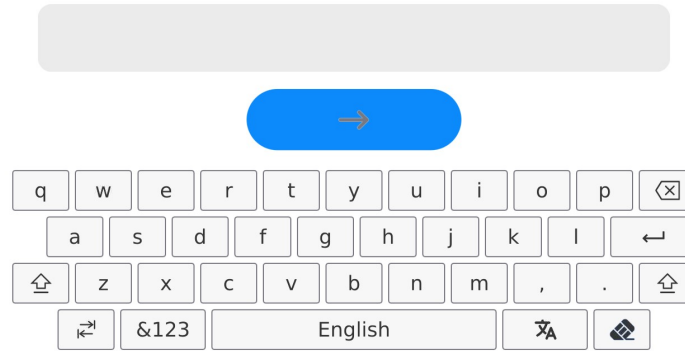
**Caution:** *The RFID reader mounted in the indicator operates at a frequency of 13.56MHz and complies with ISO/IEC 14443 Type A.*

*Only cards of this standard will be recognised by the reader.*

- Enter the operator's settings

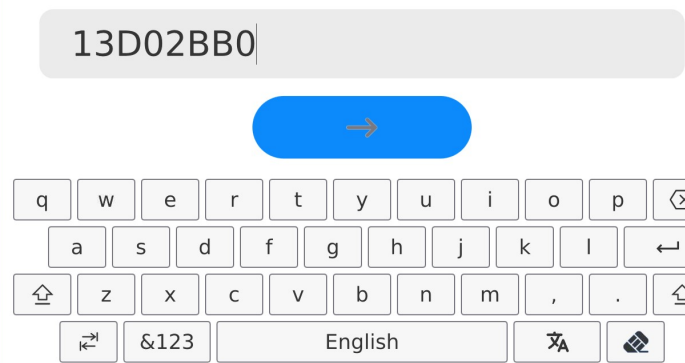
- Select <Card number> option


← Card no.



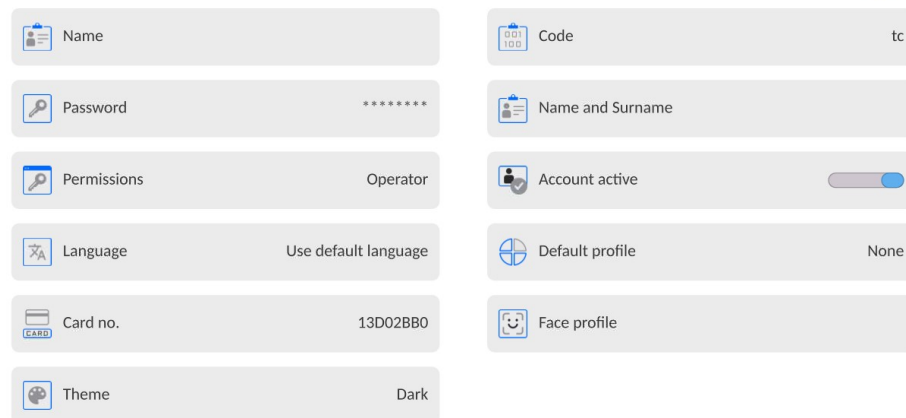
- Put the card against the RFID scanner
  - The card number will be automatically entered into the edition field

← Card no.



- Press  key and the card number will be added to the operator's settings

← Edit record

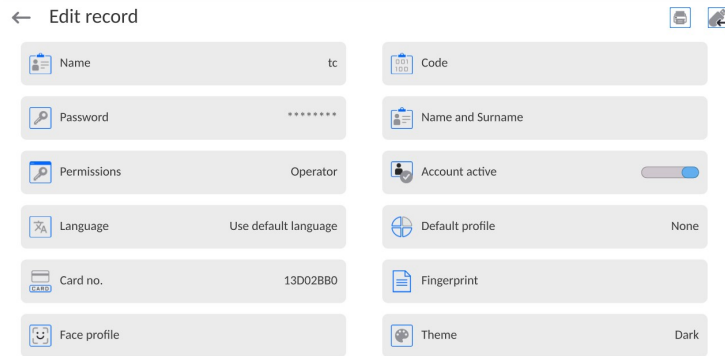


- Go to the main menu. From now on, you only need to put the card against the RFID scanner to log in

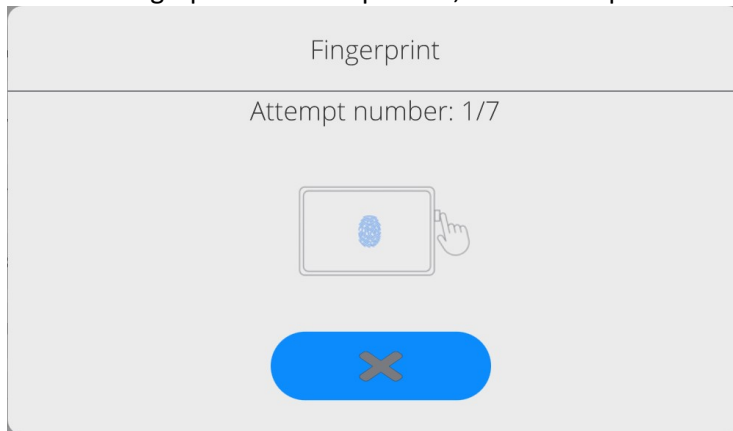
### Logging via fingerprint:

**Note:** It is only possible to connect the fingerprint scanner listed as a dedicated product for such balances. The list of accessories can be accessed on the RADWAG's website.

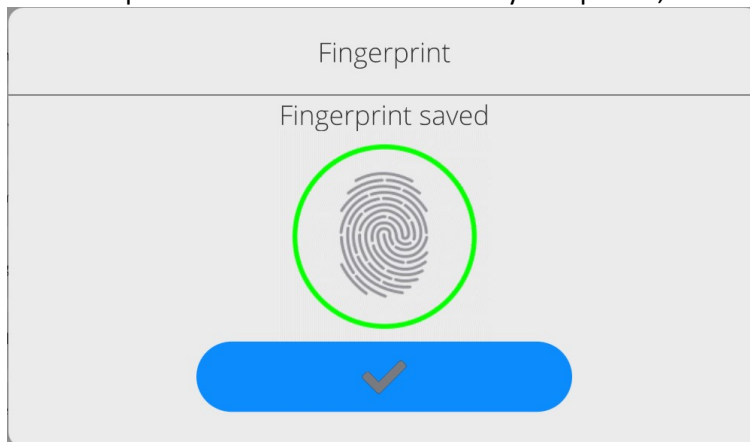
- Connect the fingerprint scanner to the USB type-A port and the <Fingerprint> option will become visible in the operator's settings menu



- To add a fingerprint for the operator, enter this option



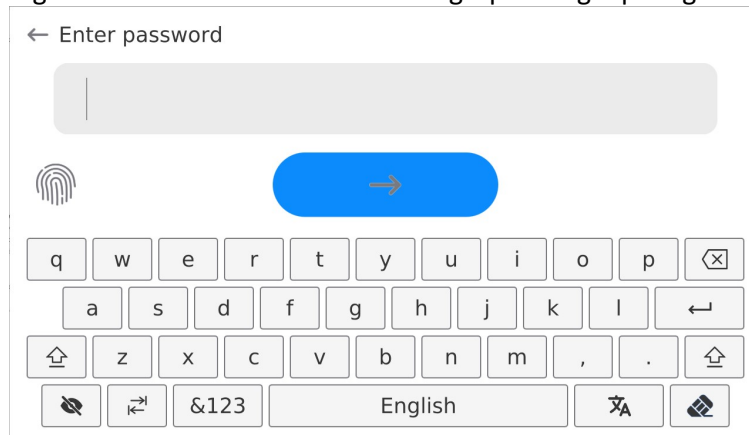
- Scan a fingerprint and repeat the procedure 7 times (as per the message in the window).
- Once the procedure has been successfully completed, a summary box will be displayed,



- Confirm the operator's fingerprint assignment procedure by pressing



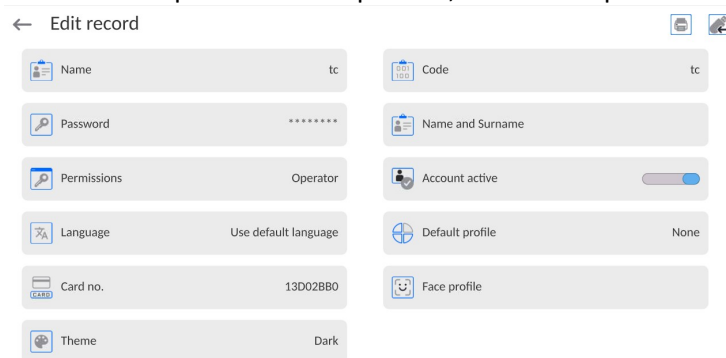
- From now on, if the fingerprint scanner is connected to the USB port, the operator login window will show an active fingerprint login pictogram.



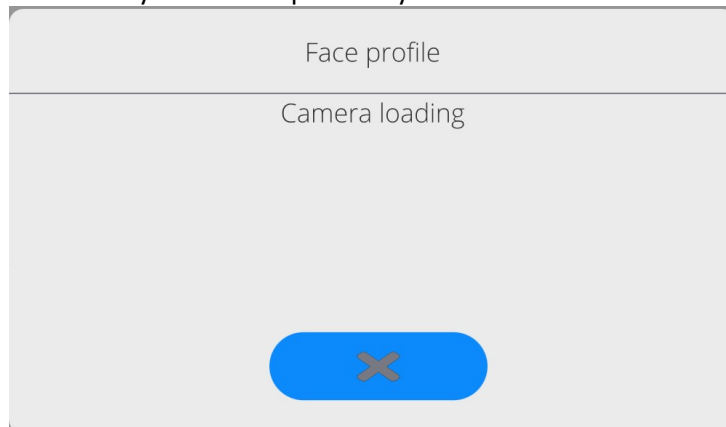
- After putting the finger against the scanner and confirming the match between the fingerprint and pattern, the pictogram will turn green for a while and the operator will be automatically logged in. The program will show the home screen, and the name of the operator will be visible in the upper bar.
- If the scanned fingerprint does not comply with the pattern, the pictogram will turn red for a while and the operator will not be logged in. A login box will remain visible.

#### Login via face profile:

- To add a face profile to the operator, enter this option

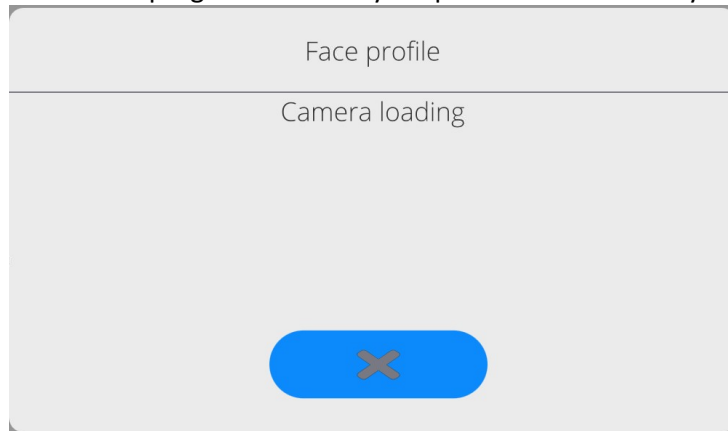


- After activating the option, you will see a message and the face profile will be read. Therefore you need to position yourself in front of the camera properly

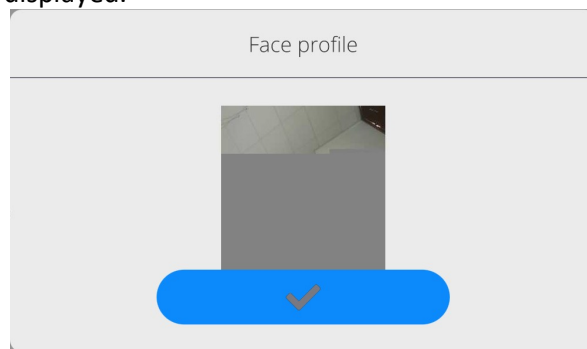


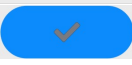


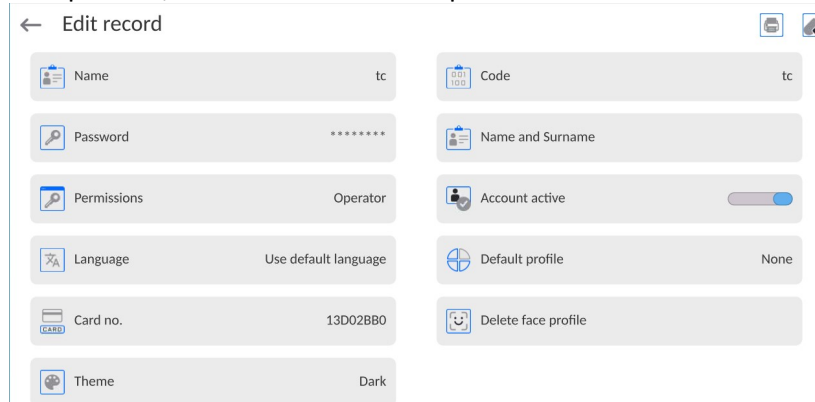
- so that the program can save your profile in the memory.



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



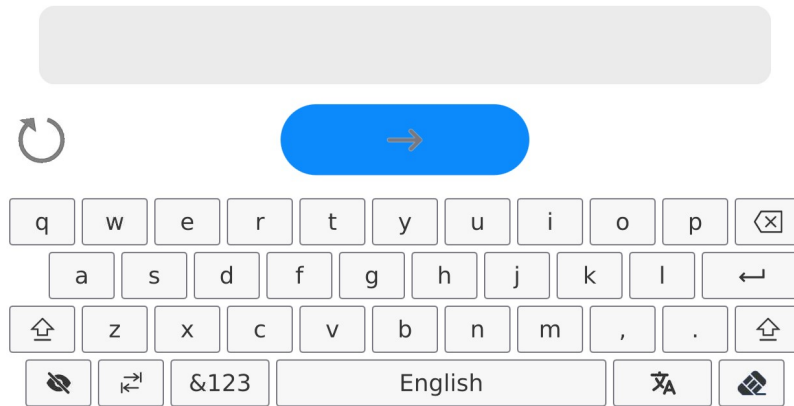
- Close the window by pressing  key.
- In the operator's settings box, the description of the option will turn into <Delete face profile>, which means that the profile has been saved in the balance memory.



- From now on, if the operator assigned a face profile tries to log in, the program will automatically scan the profile after entering the login box, which will be signalled by

the pictogram on the left side of the window.

← Enter password



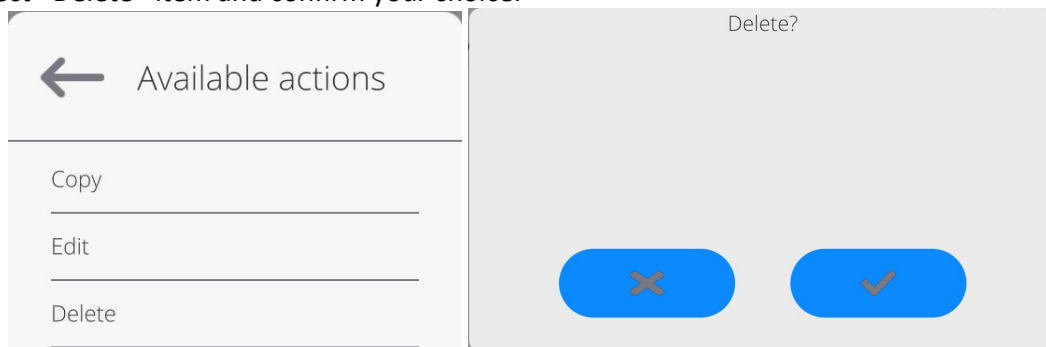
- The program automatically reads the photo of the operator's face profile and loads the photo. Then the camera is turned on (it is heralded by the LED light glowing next to the camera) and the saved photo is compared with the one read by the camera. If these images match, the home screen of the program will be displayed and the name of the logged operator will be visible in the upper bar of the screen.

**Edition of information** related to the operator:

- Press the field with the operator's name.
- The screen will show properties related to the operator.
- Select and modify required data.

**To delete** the operator, do as follows:

- Press and hold the operator's name.
- The screen will show the relevant menu.
- Select <Delete> item and confirm your choice.



### 13.3. Products

<Products> database contains names of all products that are weighed, counted or controlled.

**Procedure:**

- Enter <Databases> submenu, and press < Products> field.
- Press <Add> button to add a new product to the database.
- Select one of available options.

**List of parameters defined for a product:**

- |                             |   |
|-----------------------------|---|
| 1. Name                     | [product name]  |
| 2. Description              | [product description]   |
| 3. Code                     | [product code]  |
| 4. EAN code                 | [product EAN code]  |
| 5. Mass                     | [ Unit mass of a product]   |
| 6. Min                      | [ Minimal mass for weighing the product using result control thresholds – LO. Value of error <T1-> in working mode <Mass control> determined as percent of the nominal mass]                    |
| 7. Max                      | [ Maximal mass for weighing the product using result control thresholds – HI. Value of <T1+> error in working mode <Mass control> working mode determined as percent of the nominal mass]       |
| 8. Tolerance                | [% value calculated in relation to mass (5) denoting measuring area in which the measurement is recognized as correct.]   |
| 9. Tare                     | [Product’s tare value, set automatically on selecting a product from the database]  |
| 10. Price                   | [Unit price of a product]   |
| 11. Density                 | [Product’s density, used for compensating air buoyancy, as sample density] - [g/cm <sup>3</sup> ]   |
| 12. Shelf-life time in days |   |
| 13. Date                    | [Set product’s date (constant)]   |
| 14. VAT                     | [VAT value related to a product]  |
| 15. Ingredients             | [Editing field for inserting names of ingredients used for preparing a product, e.g. if a product is a mixture, or if a product requires additional description of its features or application] |
| 16. Printout                | [Printing a template assigned to a product]   |

*Caution:*

*Remember to assign products to respective functions, the values will be automatically adjusted according to the function used while entering the database.*

**13.4. Customers**

Customers database contains name of Customers for whom the measurements are carried out.

**Procedure:**

- Enter<Databases> submenu and press < Customers> field.
- Press <Add> button.
- If a customer already exists in the database of customers, press field with its name.

**List of parameters defined for a customer:**

1. Customer name
2. Customer code [internal code identifying a customer]
3. NIP
4. Address
5. Postal code

6. City
7. Discount
8. Printout [type of printout, label declared to a customer]

### 13.5. Reference Weights

<Reference weights> database contains reference weights used for weights comparison. Reference weights are used when determining Comparison procedure.

**Procedure:**

- Enter <Databases> submenu and press <Reference weights> field.
- Press <Add> button, should a new reference weight be added.
- If reference weight already exists in the database, press field with its name.

*Caution:*

*It is possible to use the following functions: <Search by name>,<Search by code> <Data export>*

**List of parameters defined for a reference mass standard::**

1. Name
2. Code
3. Class
4. Serial number
5. Mass
6. Set no.

### 13.6. Test Weights

<Test weights> database contains test weights used for weights comparison. Test weights are used when determining Comparison procedure.

**Procedure:**

- Enter <Databases> submenu and press <Test weights> field.
- Press <Add> button, should a new test weight be added.
- If test weight already exists in the database, press field with its name.

*Caution:*

*It is possible to use the following functions: <Search by name>,<Search by code> <Data export>*

**List of parameters defined for a reference mass standard::**

1. Name
2. Code
3. Class
4. Mass
5. Order number
6. Test weight number

## 13.7. Comparison Procedures

<Comparison procedures> database contains determined comparison processes. Comparison procedures are designed to carry out automatic comparison processes. Remember to determine reference weights and test weights.

### Procedure:

- Enter <Databases> submenu and press <Comparison procedures> field.
- Press <Add> button, should a new comparison procedure be added.
- If comparison procedure already exists in the database, press field with its name.

---

#### *Caution:*

*It is possible to use the following functions: <Search by name>,<Search by code> <Data export>*

### List of parameters defined for Comparison procedures:

1. Name
2. Code
3. Comparison procedure template (always YES if it is to be remembered)
4. Start delay
5. Start time
6. Clear start time
7. Comparisons

Upon completing information in points 1-6 enter **Comparisons** file, add new comparison and assign the following features:

#### 1. A Weight

The defined reference weight in the weight database, assigned to the A weight position

#### 2. A weight position

It is the number of magazine insert which the reference weight is positioned on and which is defined as an A reference item

#### 3. A [2] Weight

The defined reference weight in the weight database, assigned to the A weight [2] position

#### 4. A [2] weight position

It is the number of magazine insert which the reference weight is positioned on and which is defined as an A reference item [2]

#### 5. A [3] Weight

The defined reference weight in the weight database, assigned to the A weight [3] position

#### 6. A [3] weight position

It is the number of magazine insert which the reference weight is positioned on and which is defined as an A reference item [3]

#### 7. B Weight

The defined test weight in the test weight database, assigned to the B weight position

**8. B weight position**

It is the number of magazine insert which the test weight is positioned on and which is defined as an B test item

**9. B [2] Weight**

The defined test weight in the weight database, assigned to the B weight [2] position

**10. B [2] weight position**

It is the number of magazine insert which the test weight is positioned on and which is defined as a B test item [2]

**11. B [3] Weight**

The defined test weight in the weight database, assigned to the B weight [3] position

**12. B [3] weight position**

It is the number of magazine insert which the test weight is positioned on and which is defined as a B test item [3]

**13. Cycles quantity**

Using this parameter, we can define the number of cycles during comparison

**14. Extra cycles count**

Using this parameter, we can define the number of additional cycles of the comparison

**15. Method**

Using this parameter, we can define the method used during comparison

**16. Quantity of start-up A loadings A**

This parameter specifies the number of loadings of the reference weight before the comparison starts. These are initial start-up loadings of the weight before the comparator is zeroed. This is how we can pre-heat the weighing module and pre-centre the weight on the comparator's position.

**17. Quantity of start-up A loadings B**

This parameter specifies the number of loadings of the test weight before the comparison starts. These are initial start-up loadings of the weight before the comparator is zeroed. This is how we can pre-heat the weighing module and pre-centre the weight on the comparator's position.

**18. Quantity of start-up cycles**

This parameter specifies the number of cycles to be performed by the device before the defined comparison starts.

**19. Repeat quantity**

It is the defined number of repetitions to be performed by the comparator depending on the quantity specified. It is followed by another comparison defined in the same comparison plan (e.g. 2, the comparator will perform the defined cycle twice, one after another).

Next, you can analogously assign next comparison to the same comparison procedure. The quantity of comparison processes in one comparison procedure is determined by the quantity of test and reference weights with which the mass comparator operates.

### 13.8. Packaging

<Packaging> database contains list of packages for which a name, code and mass value are specified. The tare value is automatically applied when a name of a packaging is selected from the database during weighing process. The tare value is displayed with minus sign.

#### Procedure:

- Enter <Databases> submenu and press <Packaging> field.
- Press <Add> button, should a new packaging be designed.
- If a packaging record already exists in the database, press field with its name, and insert data on the packaging.

*Caution:*

*It is possible to use an option for searching a record by name or code.*

### 13.9. Warehouses

Depending on the organization of work, the warehouses database contains list of places used for picking up a sample for weighing or list of places to which a weighed sample was delivered. Each warehouse has to have its name, code and description specified. During weighing process, and on selecting name of a warehouse, it is automatically assigned to the measurement result.

#### Procedure:

- Enter <Databases> submenu and press <Warehouses> field.
- Press <Add> button, should a new warehouse be added.
- If a warehouse record already exists in the database, press field with its name, and insert identifying data.

*Caution:*

*It is possible to use an option for searching a record by name or code.*

### 13.10. Printouts

Printouts database contains all NON-STANDARD printouts. Each printout features a name, code and a template.

#### Procedure:

- Enter <Databases> submenu and press <Printouts> entry.
- Press <Add> button to add a new printout, or
- Select the already existing record.

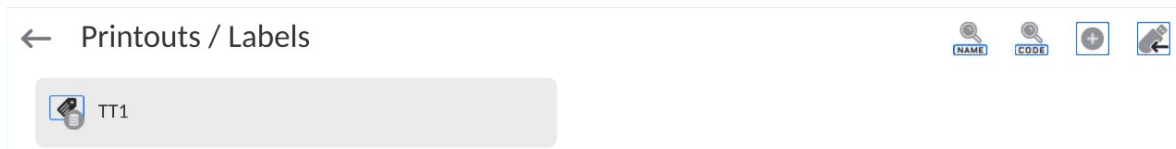
*Caution:*

*It is possible to use 'search record' option; you can search by name or by code.*

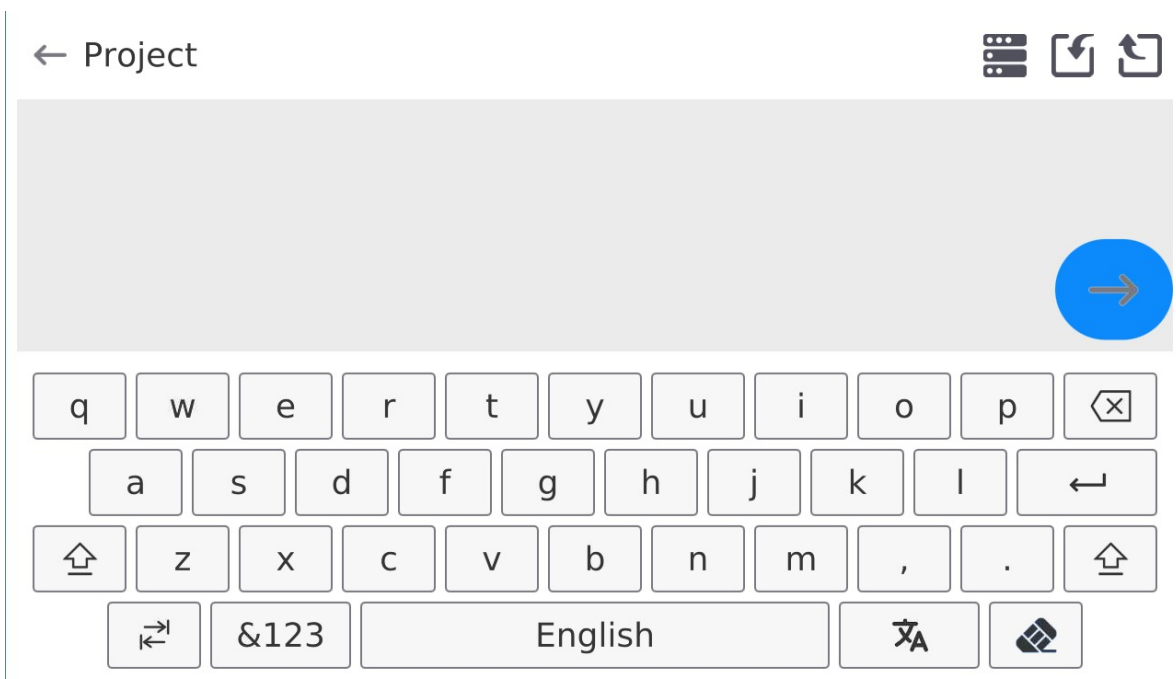
#### Designing new printout template

**Procedure:**

- Enter <Databases> submenu and press <Printouts> entry.
- Press <Add> button to create a new printout, or edit the already existing one.



- Edit box opens, press <Project> entry.
- Respective box with an on-screen keyboard is displayed.
- To design a printout, you can use an external USB keyboard connected to the head or a touch keypad that has the same functions as a typical PC keyboard.



The touch keypad does not have some characters, such as a colon or diacritical letters typical of a specific menu language (menu language is signalled with description on 'SPACE' key). To use such characters or letters in the designed printout, press and hold the specific letter on the keyboard. It will cause additional keys with assigned characters to display. Click them to add to text. After entering the character, press 'X' to disable displayed characters.

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
„t”	€ ✕ t y	„u”	μ ✕ u i	„a”	~ ✕ a s
„x”	’ ✕ x c	„c”	\   ✕ c v	„v”	[ { ✕ v b
„b”	] } ✕ b n i	„”	: < = ✕ , . ↵	„”	; > ✕ . ↵

- Save the designed printout.



**Example of Printout no. 1 – large edit box**



*Project*

Balance no. 400015  
 Balance parameters:  
 Max = 220 g  
 d= 0.001 g

Product name:  
 Date: 2011.10.24  
 Time: 11:48:06

-----  
 Working mode: Weighing  
 -----  
 Net weight: 94.147


Carried out by: Admin





*Printout template*

**Example of Printout no. 2 – printout from a file**

All printout templates can be designed in a form of external files, that are imported to a balance; file extension: \*.txt or \*.lb. External file shall contain all constant and variable data. Upon importing, the content of a printout template can be modified.

**Procedure:**

- Design a \*.txt or \*.lb file in an optional editor.
- Copy the file to a USB flash drive.
- Connect the USB flash drive to the balance USB port.
- Press [4] <  Download a printout from a file> button,
- Balance display shows data stored on the USB flash drive connected to the USB port.
- Select file with a printout template and press its name.
- The printout template is automatically copied to an editing field.

	<b><i>The user may add printouts from external memory via import of already configured texts, using USB port.</i></b>
	<b><i>Printout name is not the content of a printout.</i></b>
	<b><i>List of variables intended for printouts is to be found in 'ANNEX 03'.</i></b>
	<b><i>Example of how to create and send label template to the balance memory is to be found in 'ANNEX 03'.</i></b>

### 13.11. Universal Variables

Universal Variables are a set of alphanumeric data which is combined with printouts, products or other information related to comparison. Each variable has to have its name, code and value specified.

#### Procedure:

- Enter <Databases> submenu and press < Universal variables>.
- Press <Add> button, should a new variable be added.
- If a universal variable already exists in the database, press field with its name, and insert required modifications to the following fields: code, name, value.

#### Caution:

*It is possible to use an option for searching a record by name or code.*

### 13.12. Database Management

Function allowing to manage databases data. It comprises three options: Export weighing database, Delete databases and Delete weighings and reports.

← Manage the database


 Delete databases

#### 13.12.1. Delete Databases

Function allows you to delete data of selected database. Upon function activation, window for selecting a database data of which is to be deleted is displayed.

← Delete databases

 Products

 Customers

 Formulations


 Pipettes


 Series

 Packaging

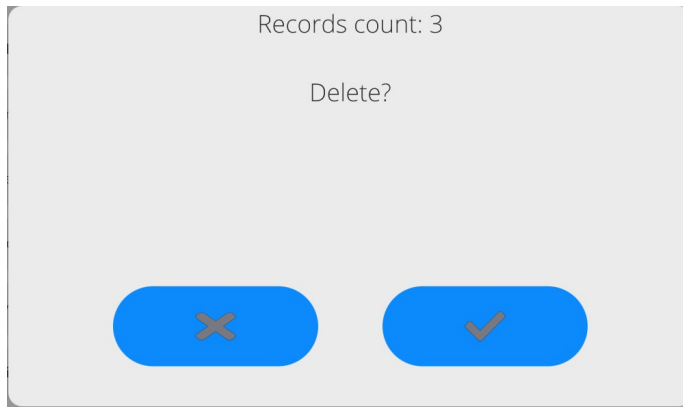
 Warehouses

 Printouts / Labels

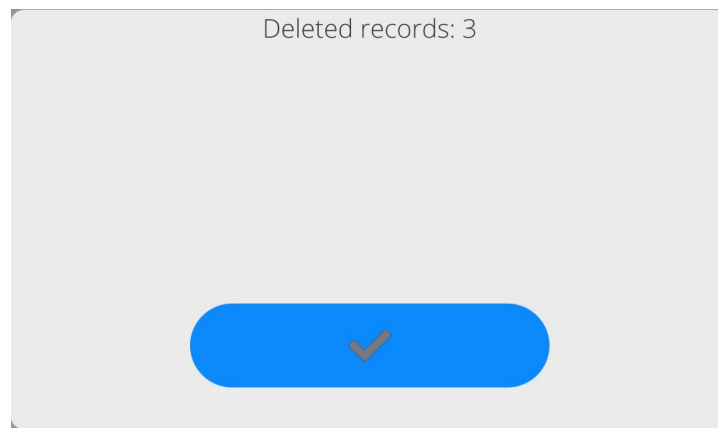
 Universal variables

 Operators

 Profiles



Upon confirmation, data is deleted and the following message is displayed:



Upon confirmation the software returns to a previous window; you may continue a weighing procedure or proceed to other operations.

## 14. REPORTS

---

The balance features the following reports:

← Reports



Weighing records



Comparison reports



Weight adjustment reports



Ambient conditions



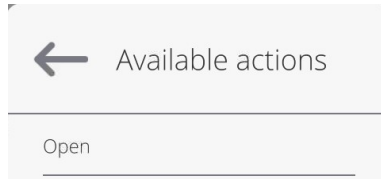
Manage reports

### 14.1. Reports Operations

**Databases can be operated** only by an authorized personnel.

Procedure:

- Press and hold a respective database pictogram.
- Database menu is displayed.
- Select one of the available entries (entries set is conditioned by a database).



Entries:

- OPEN – select to enter a database (alternative method for database entering: single click on a given database field).

List of typical database operations:

1. Searching for a record in a database by name.
2. Searching for a record in a database by code.
3. Searching for a record in a database by date.
4. Exporting database content to a USB flash drive via USB port.
5. Printing data on a specific record in a database.

The above processes are initiated by dedicated buttons located on the top of the display. Follow the displayed commands.

## 14.2. Weighings

Each weighing result sent from the weighing device to a printer is saved to the weighings database (read section *Result control*).

You can preview data of particular weighing records.

**Procedure:**

- Enter < Reports > submenu.
- Enter <**Weighings/Alibii**> database and select desired record.

**List of parameters defined for a weighing record:**

1. Measurement date.
2. Measurement result.
3. Tare value.
4. Stable/unstable measurement marking.
5. Air buoyancy control on/off marking.
6. Product name.
7. Operator.
8. Customer, customer name.
9. Working mode name.
10. Warehouse, source warehouse name.
11. Packaging, name of tare applied during product weighing.
12. Result control, information regarding range within which the weighed product is placed:
  - MIN – below LOW threshold (possible only if <Result control> is set to <NO> value),
  - OK – between the LOW and HIGH thresholds,
  - MAX – above HIGH threshold (possible only if <Result control> is set to <NO> value).
13. Weighing platform no., field with number of a weighing instrument by means of which a measurement was carried out.
14. Level status, information on level status maintained during the measurement .

15. Ambient conditions alerts, information regarding stability of temperature and humidity during the measurement.

### **14.3. Comparison Reports**

<Comparison reports> database contains information on carried out comparison processes. Each report can be previewed, searched by date or exported and printed out.

**Procedure:**

- Enter < Reports > submenu and press <Comparison reports> field.
- Press field of a desired report record.

**List of parameters on a comparison report:**

1. Order number
2. Start date
3. End date
4. Operator
5. Diameter
6. Standard deviation
7. Cycles quantity
8. Reference weight
9. Test weight number
10. Task
11. Method

### **14.4. Weight adjustment reports**

<Weighing adjustment reports> database contains information on carried out comparison processes. Each report can be previewed, searched by date or exported and printed out.

**Procedure:**

- Enter <Reports> submenu and press < Weighing adjustment reports > field.
- Press field of a desired report record.

**List of parameters on a weighing adjustment reports:**

1. Order number
2. Start date
3. End date
4. Operator
5. Diameter
6. Standard deviation
7. Cycles quantity
8. Reference weight
9. Test weight number
10. Task
11. Method

## 14.5. Ambient Conditions

<Ambient conditions> database contains parameters related to ambient conditions. Depending on the balance type, the ambient conditions report can provide values of temperature, humidity, atmospheric pressure. If the given balance is connected to a THB sensor, then its indications are recorded to the database too.

### Procedure:

- Enter < Reports > submenu and press <Ambient conditions> entry.
- Select report, if not visible, scroll using navigation buttons.
- Report is named by date and time.

### Caution:

*It is possible to use 'search report' option.*

## 14.6. Databases Management

Function allowing to manage databases data. It comprises three options: Export weighing database, Delete databases and Delete weighings and reports.

← Manage reports



Export weighing records database



Delete weighing records and reports



Global weighing count

13

### 14.6.1. Export Weighing Database to a File

All measurements are saved to the <Weighing records> database and can be exported to a file using a USB flash drive.

### Procedure:

- Connect the USB flash drive to the USB port.
- Press <Export weighing records database to a file> entry; a window for setting export options is opened.

← Export weighing records database



Product

Each



Operator

Each



Filter by date



Data selection

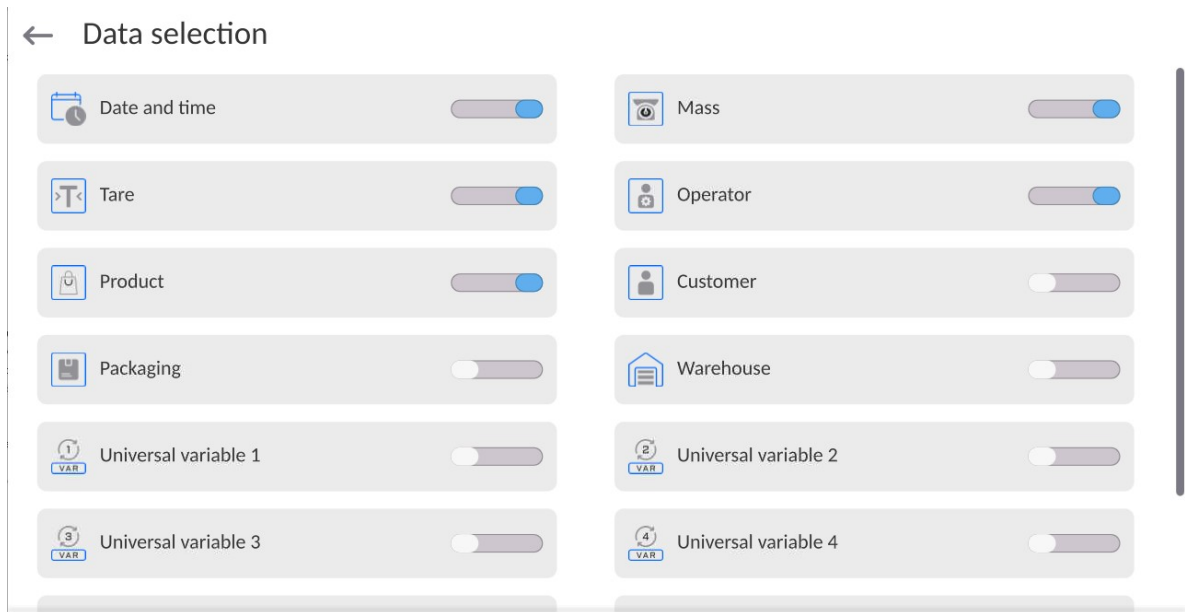


Export weighing records database to a file

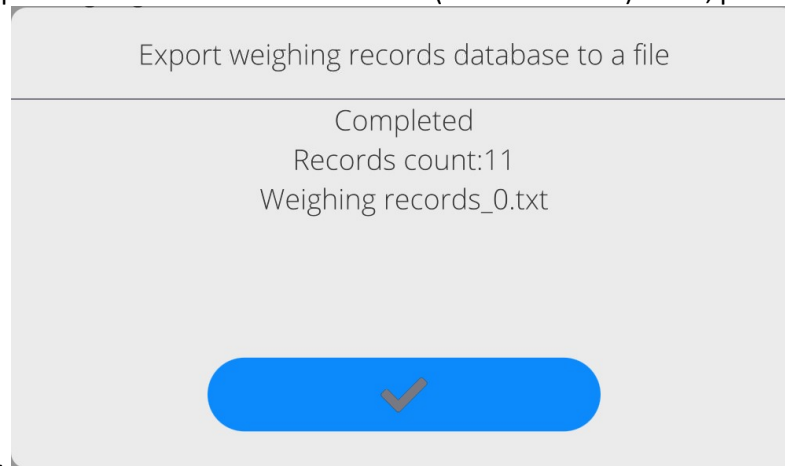


Print selected weighing records

<Data selection> parameter allows you to specify which measurement-related data are to be exported.



- Set respective data and press <Export weighing records database to a file> entry; weighing database is automatically exported.
- Upon export completion, the message <Completed> is displayed along with information on the number of exported data and with the file name (\*.txt extension). Next, previous



window is displayed.

- You may return to the weighing procedure or proceed to other settings.

**Caution:** *If balance software cannot identify the USB flash drive, then upon pressing <Export weighings database to a file> entry, <Operation failed> message is displayed.*

- A name of created file consists of database name and balance serial number, e.g. <Weighing data\_364080.txt>.
- Unplug the USB flash drive from the USB port.

#### Template of a created file:

The file is created in the form of a table, columns of which are separated by <Tab>. This allows for direct export of the file to <Excel> spreadsheet document. The table contains the following data:

date and time, mass and mass unit, tare and tare unit, serial number, operator name, customer name, packaging name, source warehouse name, target warehouse name, control result name.

### 14.6.2. Delete Weighings and Reports

Function allowing to delete weighings and reports of a given database.

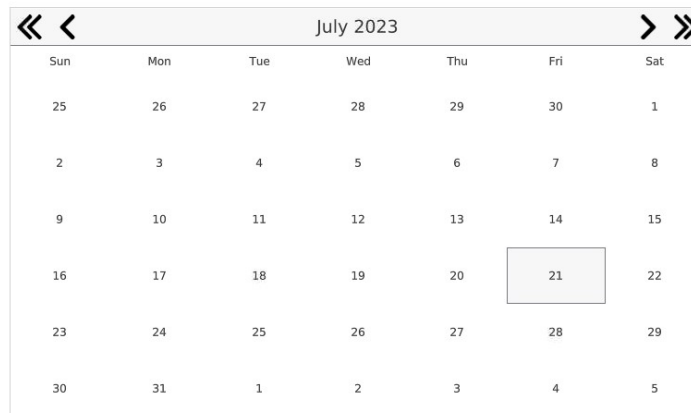
**Procedure:**

Activate <Delete weighing records and reports> parameter; a window with a numeric keyboard is displayed.

Enter a date specifying which data is to be removed. Date is given in the following form: year-month-day.

← Delete older than

21.07.2023



A calendar interface for July 2023. The calendar shows days of the week (Sun to Sat) and dates from 1 to 31. The date 21 is highlighted with a grey box. Navigation arrows are present at the top.

July 2023						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
25	26	27	28	29	30	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	1	2	3	4	5



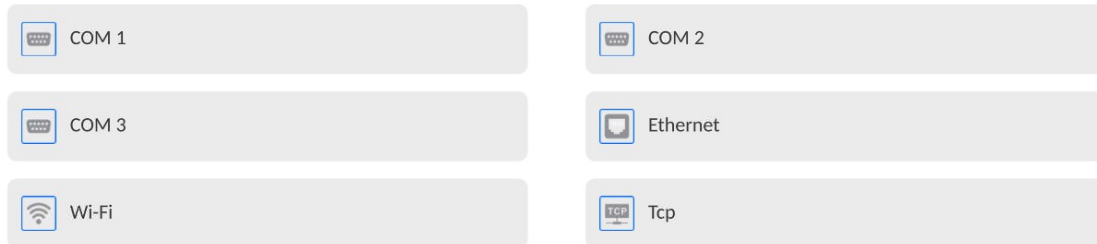
Confirm the date, all weighings and reports older than those specified by the date are removed. Quantity of deleted weighings and reports is displayed.



## 15. COMMUNICATION

Communication menu is located in <Parameters> menu. It is accessed by pressing Setup button or <Setup> quick access key. The mass comparator enables communicating with peripheral devices via the following ports:

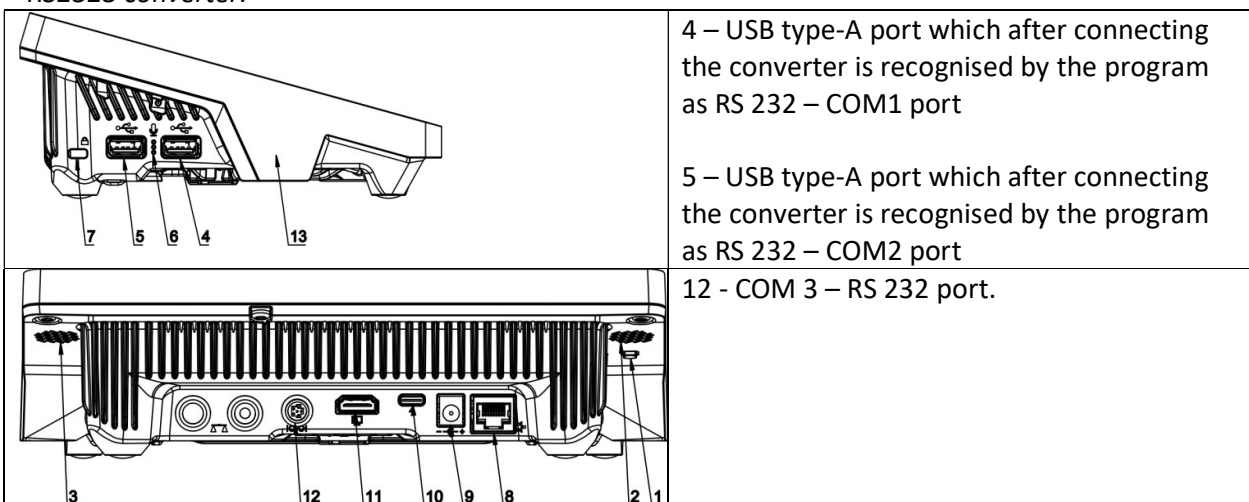
### ← Communication



The ports are to be configured depending on the needs.

### 15.1. RS 232 ports settings

*NOTE: to assure a correct cooperation with external devices, via RS 232 ports, please use a USB-to-RS2323 converter.*



#### Procedure:

- Select communication port: <COM1>, <COM2> or <COM3>.
- Set respective parameters.

Transmission parameters for RS 232 ports:

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

\*) – Speed value available only to the COM3 port for cooperation with IM02 communication module.


## 15.2. ETHERNET port settings

### Procedure:

Select <Ethernet> communication port and then set relevant values:

- DHCP: Yes – No
- IP address: 192.168.0.2
- Subnetwork mask: 255.255.255.0
- Default gateway: 192.168.0.1

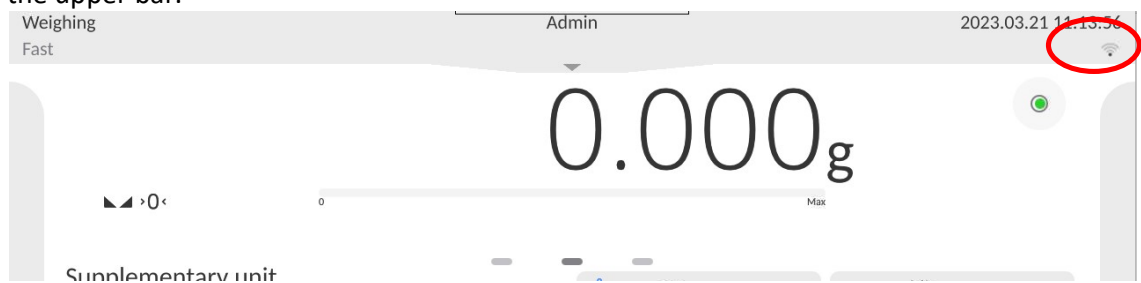
**Note:** The above-stated settings are for reference only. The transmission parameters must be selected as per the settings of the local network of the client.

After making changes, press  key. The following message will be displayed:  
<To make changes effective, restart the balance>.

Return to weighing and restart the device.

## 15.3. Wi-Fi port settings

If the balance is equipped with a Wi-Fi module, a special icon will be displayed in the home screen, in the upper bar.




### Procedure:

Select <Wifi> communication port and then set relevant values:

- DHCP: Yes – No
- IP address: 10.10.9.155
- Subnetwork mask: 255.255.255.0
- Default gateway: 10.10.8.244

**Note:** The above-stated settings are for reference only. The transmission parameters must be selected as per the settings of the local network of the client.

After making changes, press  key. The following message will be displayed: <To make changes effective, restart the balance>.

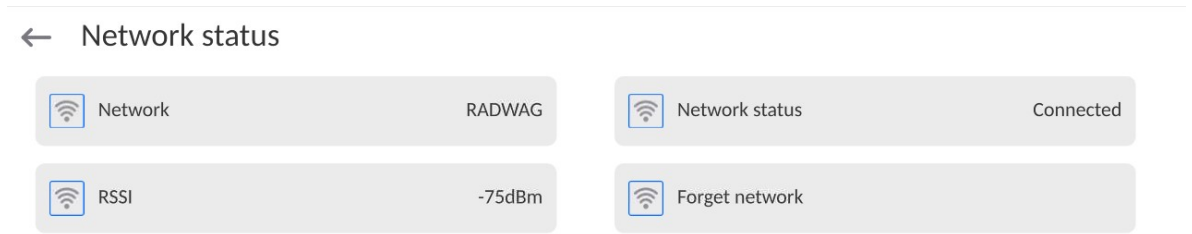
Return to weighing and restart the device.

Additionally the operator can check <Available networks> detected by the balance:

← Available networks



The icon next to the network name shows if the network requires a password (the icon with a lock). To find available networks, select <Refresh> option. To check parameters of the network, press <Network status> field. The network parameters will be given in the window:



The selected network and connection parameters are remembered by the balance program. Every time you turn the balance on, the program connects to the network as per your preset parameters. To disable this function, select <Forget network> item. It will cause the connection to the specific network to be terminated.

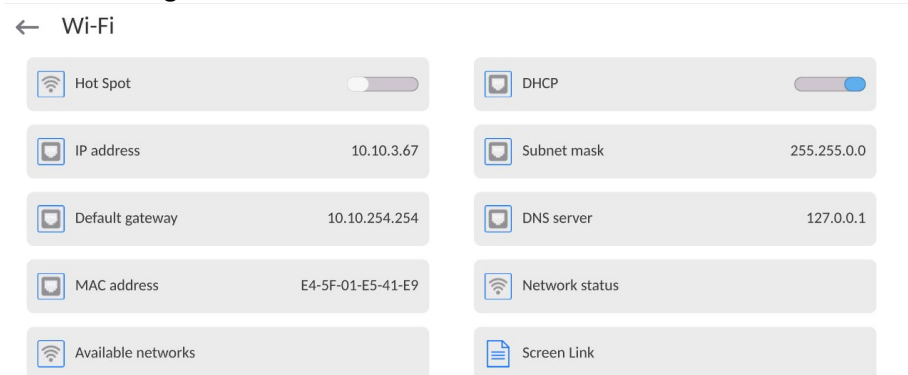
### 15.3.1. General information on Hot Spot service

Hot Spot – an open access point that allows a wireless connection to the balance with the use of other device, e.g. laptop, tablet or mobile phone, via the Wi-Fi wireless network.

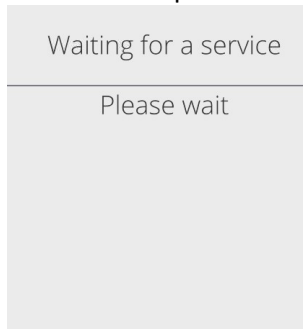
The Hot Spot owner decides about the method, people and terms of making his connection available through logging, which requires a unique username and password (these data are assigned while starting the balance and then stored in its memory)

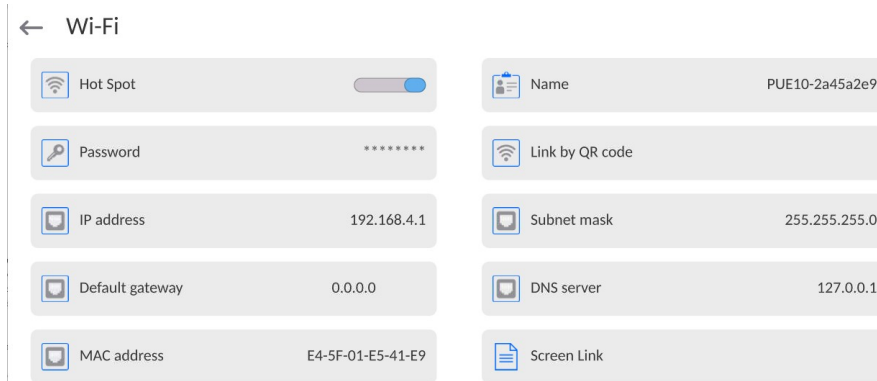
### 15.3.2. Activation of Hot Spot service

- Enter Wi-Fi settings

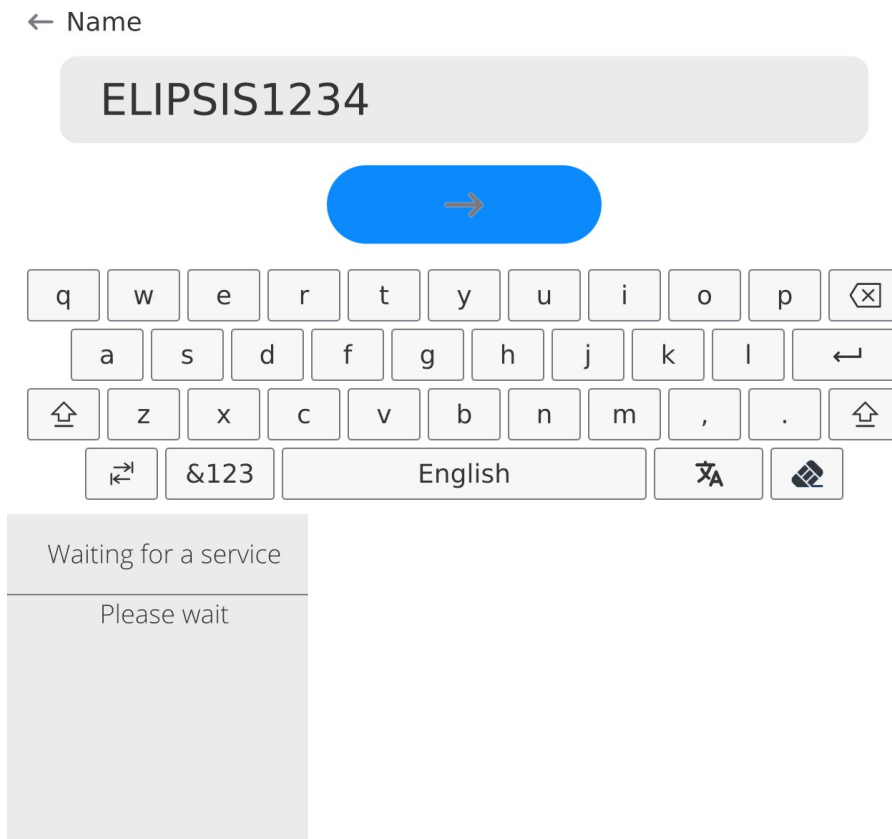


- Activate the Hot Spot service and the balance will switch into service settings after a while.





- Enter the unique name and password (the password must contain at least 8 characters).



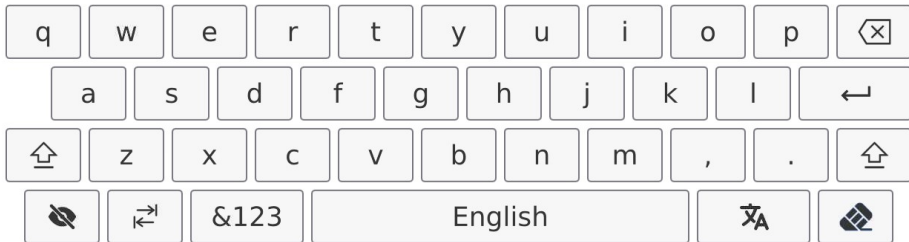
← New password

\*\*\*\*\*



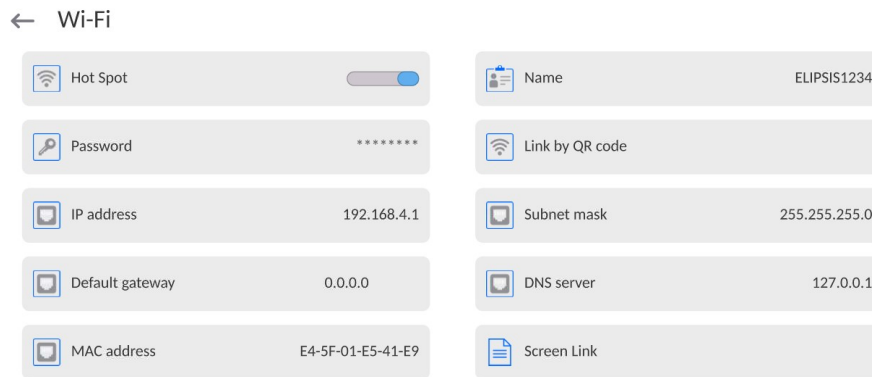
← Repeat the new password

\*\*\*\*\*



Waiting for a service

Please wait




- From now on, the Hot Spot service will be active and the created subnetwork will be recognised by other devices, such as a smartphone, under the aforesaid name, and it will be possible to connect to it with the password.

#### 15.4. TCP protocol settings

TCP (*Transmission Control Protocol*) is a streaming communication protocol between two PCs. TCP is based on the client-service mode. The server awaits connection in the specific port, while the client initiates the connection to the server.

##### How to set the port number for TCP:

- Enter <Communication> parameters group.
- Select <Tcp / Port>, and you will see <Port> box with an on-screen keypad.
- Enter the desired port number and press  key to confirm.

#### 15.5. Virtual COM Settings

*Applicable in the case of an active IM02 communication module*

Virtual COM is intended for connecting the scale to a computer.

##### Steps:


1. Enter <Peripherals / Computer / Port> submenu and set **Virtual COM** option.
2. Run a PC software to read measurements made with the scale.
3. Set communication parameters in the PC software, i.e.: COM port, transmission parameters.

Start connection.

## 16. PERIPHERALS

<Peripherals> menu is located in the <Parameters> menu. To access Peripherals menu, press Setup key or < Setup> quick access button. Peripherals menu provides a list of devices that can cooperate with the balance.

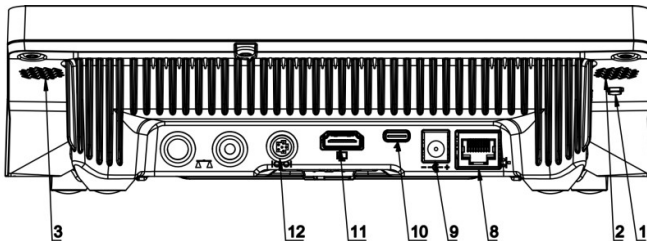
### 16.1. Computer

Active balance – computer connection is signalled by  pictogram (top bar of the home screen). Carry out configuration using <Computer> submenu.

#### Procedure:

- Press Setup and select <Peripherals/ Computer>.
- Set balance-computer operation parameters:
  - Computer port  
Available options: none, COM 1, COM 2, COM3, TCP, USB Free Link, RS 232 IM02\*\*, Virtual COM\*\*.
  - \*) - for port description, read section COMMUNICATION of the manual.
  - \*\*\*) - Communication ports of the scale-connected IM02 communication module.

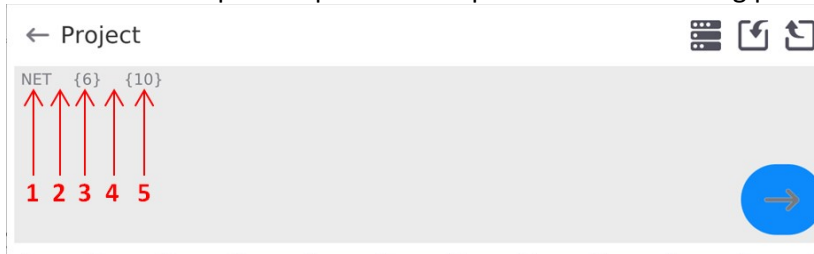
**USB FREE LINK** - USB type C port (socket no. 10 on the back of the indicator), to which the computer is connected using a USB type A/type C cable.



Tool for entering data, it functions as a keyboard. Upon proper modification of the standard or non-standard printout and sending a proper command from the computer, or upon pressing ENTER key located on the operation panel, the data from the non-standard printout are entered directly to computer programs, e.g. Excel, Word, Notepad etc.

To ensure proper operation with Excel-type program, the non-standard printout must be properly configured by inserting the print formatting characters, such as Tab, Enter and language-specific diacritics, into the designed printout. Also remember to set the correct decimal separator (full stop or comma) that the Excel-type program will accept. It can be set in: *Setup/Misc./Decimal point*.

Below is an example of a printout template and the resulting printout in Excel:




- 1 – fixed text
- 2 – tab key (skip to the next column)
- 3 – variable {6}, net weight in an adjustment unit
- 4 – tab key (skip to the next column)
- 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		

### 16.1.1. Computer address

Setting a balance address which computer is connected to.

#### Procedure:

- Enter **<Devices / Computer / Address>** submenu and you will see **<Address>** box with on-screen keyboard.
- Enter address and press  to confirm changes.

### 16.1.2. Permanent transmission

Activation of balance-computer permanent transmission. After enabling **<Permanent transmission>** parameter, the content of **<Weighing Printout Template>** is continuously sent to the PC.


#### Procedure:

- Enter **<Devices / Computer / Permanent transmission>** submenu and set relevant value ( - Permanent transmission disabled;  - Permanent transmission enabled).

### 16.1.3. Interval

Setting frequency of **<Weighing Printout Template>** printout for permanent transmission. Printing frequency can be set in seconds, with an accuracy of 0.1sec. and the range from 0.1 to 1000 seconds.

#### Procedure:


- Enter **<Devices / Computer / Interval>** submenu and you will see **<Interval>** edition window.
- Enter desired value and confirm by pressing .



#### 16.1.4. Weighing printout template

A unique template for printing from balance to PC.

#### Procedure:

- Enter <Devices / Computer / Weighing Printout Template> submenu. You will see <Weighing Printout Template> window with an on-screen keyboard.
- Modify the template and confirm changes by pressing .

#### 16.2. Printer

<Printer> submenu allows you to:

- set port for establishing communication with a printer: COM 1, COM 2, COM3, USB, Tcp Client, USB Free Link\*, RS 232 IM02\*\*,
- define printer's code page (default: 1250),
- define control codes for PCL printer or receipt printer.  
**Caution: Codes must be entered in a hexadecimal form!**
- define printout templates.

\*) - for port description, read section COMMUNICATION of the manual.

\*\*\*) - Communication ports of the scale-connected IM02 communication module.



To ensure correct balance – printer operation (correct printout of diacritical signs of a given language), respective baud rate, obligatory for a given printer, must be chosen (see the printer settings). Additionally, the code page of a sent printout must be accordant with the code page of a printer.

There are two methods for obtaining code page accordance:

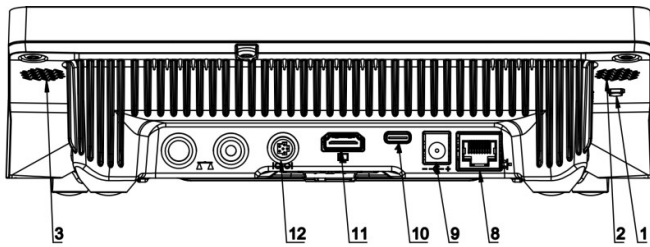
- by setting the right code page in printer settings (read the printer manual) – respective to the printout code page set in the balance;

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

- by sending a control code from the balance to the printer, which automatically sets the right code page (respective to the code page set in the balance) before the data printout – it is possible only for printers equipped with this option.

	<b>Default value of printer code page is 1250 – central European code page.</b>
	<b>Detailed description of communication between the balance and the labeller is to be found in 'ANNEX 03'.</b>

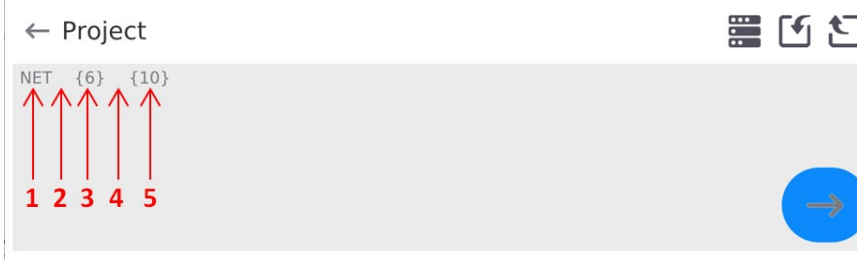
**USB FREE LINK** - USB type C port (socket no. 10 on the back of the indicator), to which the computer is connected using a USB type A/type C cable.



Tool for entering data, it functions as a keyboard. Upon proper modification of the standard or non-standard printout and sending a proper command from the computer, or upon pressing ENTER key located on the operation panel, the data from the non-standard printout are entered directly to computer programs, e.g. Excel, Word, Notepad etc.

To ensure proper operation with Excel-type program, the non-standard printout must be properly configured by inserting the print formatting characters, such as Tab, Enter and language-specific diacritics, into the designed printout. Also remember to set the correct decimal separator (full stop or comma) that the Excel-type program will accept. It can be set in: *Setup/Misc./Decimal point*.

Below is an example of a printout template and the resulting printout in Excel:



- 1 – fixed text
- 2 – tab key (skip to the next column)
- 3 – variable {6}, net weight in an adjustment unit
- 4 – tab key (skip to the next column)
- 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		

If data with a high information content, such as the SQC report, is to be printed using Free Link, it is imperative that the parameter <Receipt printer speed [character/second]> is set to 15.

← Printer

Port COM 1	Code page 1250
Control codes	Receipt printer speed [character/second] 0
Printouts	

A printout template describes how to print information from databases.

The template can be modified. In order to check the format of a printout template, print the data related to e.g. product parameters. To do it, go to <Products/Edit product> submenu and press printer pictogram.


Default values for particular templates:

Product printout template	{50}
	{51}
Operator printout template	{75}
	{76}
Customer printout template	{85}
	{86}
Warehouse printout template	{130}
	{131}
Package printout template	{80}
	{81}
	{82}
Ambient conditions printout template	
	----- AMBIENT CONDITIONS-----
	{275}
	IST1: {278} °C
	IST2: {279} °C
	THBT: {276} °C
	THBH: {277} %

### 16.3. Barcode Scanner

The balance enables operation with a barcode scanner. The barcode scanner is used to facilitate quick search for database records:

- Products,
- Operators,
- Customers,
- Packages,
- Warehouses,
- Formulations,
- Pipettes,
- Series in a differential weighing,
- Universal variables.

	<p><i>In &lt;Communication&gt; submenu it is necessary to set baud rate value to a value accordant with bar code scanner (by default 9600b/s). Detailed description of communication between the balance and the bar code scanner is to be found in 'ANNEX 03'.</i></p>
---	---

To configure the barcode scanner, enter: „**Setup / Peripherals/ Barcode scanner**”.

**Caution:**  
*Enter <Communication> submenu and set baud rate for the barcode scanner (by default 9600b/s). For detailed description of the balance - barcode scanner communication, read ANNEX E of this user manual.*

### 16.3.1. Barcode Scanner Port

**Procedure:**

- Enter <Peripherals> parameter and go to „Barcode scanner / Port” parameter. Select respective option.

Ports for balance - scanner communication:

- RS 232 (COM1),
- RS 232 (COM2),
- USB



### 16.3.2. Prefix/Suffix

You can edit <Prefix> and <Suffix> to synchronize the balance program with the barcode scanner.

**Caution:**

*In RADWAG-adopted standard, the prefix is 01 sign (byte) hexadecimal format, the suffix is 0D sign (byte) hexadecimal format. For detailed description of the balance - barcode scanner communication, read **ANNEX E** of this user manual.*

**Procedure:**

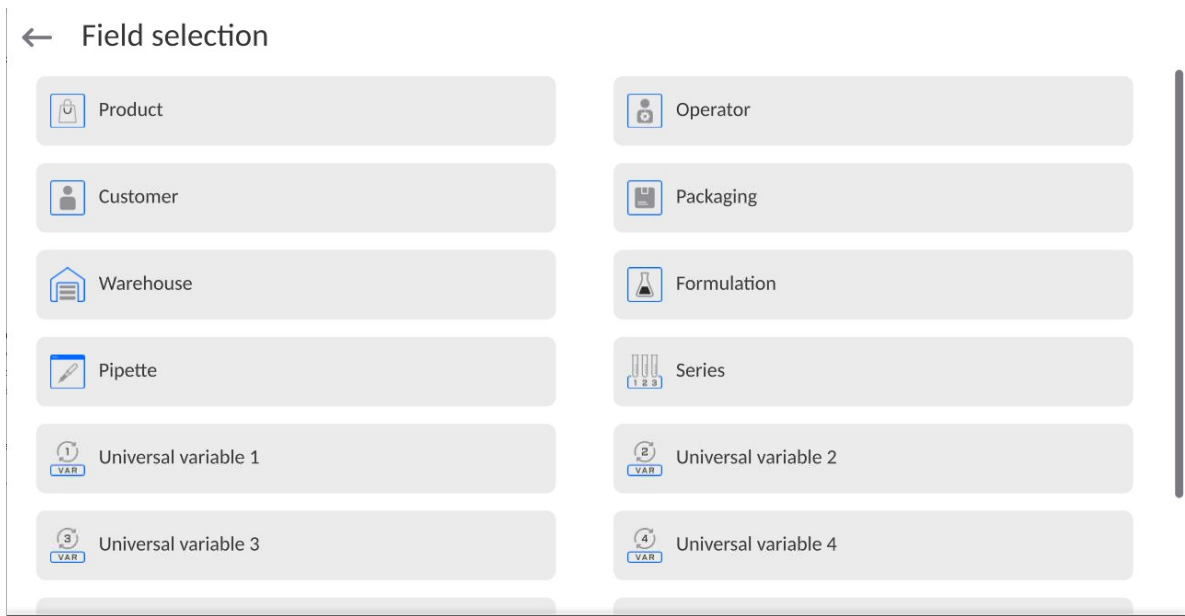
- Enter <Barcode scanner> submenu,
- Select <Prefix> parameter and enter hexadecimal value using the on-screen keyboard. Press  button to confirm.
- Select <Suffix> parameter and enter hexadecimal value using the on-screen keyboard. Press  button to confirm.

### 16.3.3. Field Selection

Parameter for specifying for which field the search is to be carried out in particular databases.

**Procedure:**

- Enter <Peripherals> submenu,
- Select „Barcode scanner / Field selection”. List of fields is displayed:



- Select one item from the list. The following parameters may be edited:

<b>Filtering</b>	Parameter allowing you to declare search criteria (see table below)
<b>Offset</b>	Parameter allowing you to set the first significant code's character; characters preceding the first significant character are skipped during comparison search.
<b>Code length</b>	Parameter allowing you to set the number of code's characters to be taken into account during search procedure.
<b>Start marker</b>	Parameter allowing you to declare the starting point of scanned code, taken into account during the search.
<b>End marker</b>	Parameter allowing you to declare the ending point of scanned code, taken into account during the search.
<b>Ignore marker</b>	Parameter allowing you to determine whether start and end markers are to be referred to or skipped during comparison of a scanned code with the code saved to the balance.

**Filtering criteria conditioned by 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,
Formulation	None, Name, Code,
Pipette	None, Name, Code,
Series	None, Name, Code,
Universal variables	None, Active

### 16.3.4. Test

<Test> parameter allowing you to verify if operation of a barcode scanner connected to a balance is correct.

#### Procedure:

- Enter <Barcode scanner> submenu,
- Select <Test> parameter; <Test> edit box is displayed, it features ASCII and HEX fields.
- The code is scanned and entered to the ASCII and HEX fields; next, the test result is displayed in the bottom part.

#### When:

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

## 16.4. Ambient Conditions Module

Ambient conditions module (THB) can be connected to the balance via COM 1, COM 2, UDP or USB ports. In order to provide correct cooperation, enter the module address and baud rate for the port (port settings) to which the ambient conditions module is connected (the address and baud rate are to be found on the module's data plate).

## 16.5. IM02 communication module

The IM02 communication module allows the scale to cooperate with such accessories as printers, control keys, stack lights, buzzers, PLC controllers, as well as other control-signalling devices and PCs.



*The procedure of connecting the IM02 communication module to the supply network and scale has been described in detail in the 'IM02 communication module' manual.*

### 16.5.1. Activation of IM02-to-scale connection

- Connect the IM02 communication module to the COM3 port of the scale.
- Connect the IM02 communication module to the supply network.
- Enter <Peripherals / IM02 communication module / Aktive> submenu and enable IM02 communication module (  - module active,  - module inactive).
- Once the IM02 communication module has connected to the scale, the following information will be automatically displayed:

<b>Status</b>	Active connection status, the status takes the following values: Connected, Not connected.
<b>Software rev.</b>	Software version of the IM02 communication module.
<b>Manufacture variant</b>	IM02 communication module manufacture version.

- Simultaneously the scale menu is extended to include <Inputs / Outputs> submenu and list of available communication ports in the <Communication> submenu.

## 17. INPUTS / OUTPUTS


*Applicable in the case of an active IM02 communication module*

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

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

### 17.1. Input Setup

- Enter <**Inputs/Outputs**> submenu.
- Select <**Inputs**> parameter, list of available inputs is displayed.
- Edit selected input, list of functions to be assigned is displayed. Input functions list is identical like key functions list, read section 17.2.
- Select the function you want to assign to the input, next go back to the home screen.

	<b><i>By default all functions are assigned with &lt;None&gt; value.</i></b>
---	--

### 17.2. Output Setup


Output gets activated at the moment of assigning it with a given function. Unassigned outputs remain inactive.

#### Procedure:

- Enter <**Inputs/Outputs**> submenu.
- Select <**Outputs**> parameter, list of available outputs is displayed.
- Edit selected output, list of functions to be assigned is displayed.

<b>None</b>	Output inactive.
<b>Stable</b>	Stable weighing result over LO threshold value.
<b>MIN stable</b>	Stable weighing result below the MIN threshold.
<b>MIN unstable</b>	Unstable weighing result below the MIN threshold.
<b>OK stable</b>	Stable weighing result between MIN and MAX thresholds.
<b>OK unstable</b>	Unstable weighing result between MIN and MAX thresholds.
<b>MAX stable</b>	Stable weighing result over the MAX threshold.
<b>MAX unstable</b>	Unstable weighing result over the MAX threshold.
<b>! OK stable</b>	Stable weighing result out of OK threshold.
<b>! OK unstable</b>	Unstable weighing result out of OK threshold.
<b>MIN</b>	MIN threshold signalling.
<b>OK</b>	OK threshold signalling.
<b>MAX</b>	MAX threshold signalling.
<b>! OK</b>	Signalling of weighing result out of OK threshold.
<b>Zero</b>	Zero weighing result („zero” marker).

- Select the function you want to assign to the output, next go back to the home screen.

	<b><i>By default all functions are assigned with &lt;None&gt; value.</i></b>
---	--

## 18. MISCELLANEOUS PARAMETERS

Parameters facilitating mass comparator operation, such as: language, date-time, beep sound, screen calibration, level control. To enter <Misc.> submenu, press Setup key, and next press <Misc.> button.

### 18.1. Language

#### Procedure:

Enter <Misc.> submenu.

Select <Language> parameter and select language.

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

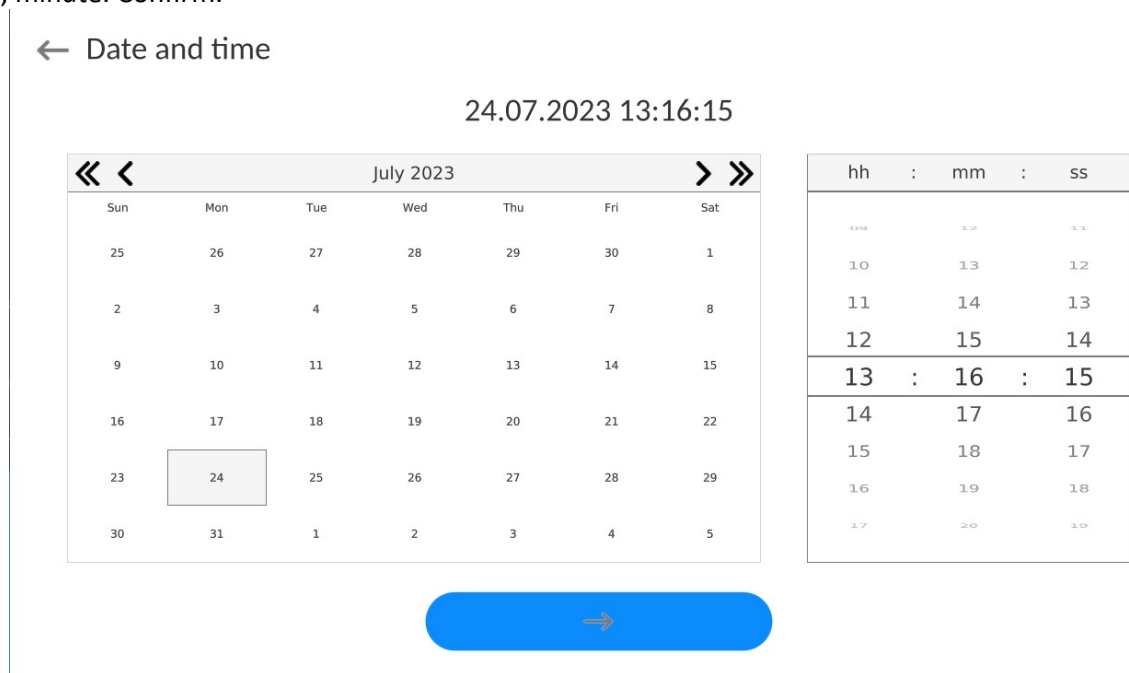
### 18.2. Date and Time

You can set date, time and their formats.

Date and time setting methods:

- Press <Date and time> parameter located on the top of the display (home screen).
- Press <Setup / Misc./ Date and time> entry.

Enter date and time settings, an on-screen keyboard is displayed. Set date and time: year, month, day, hour, minute. Confirm.



Submenu: <Setup / Misc./ Date and time> contains additional functions for defining date and time format:

Name	Value	Overview
Time zone	Europe, Warsaw	Parameter value: name of time zone/country, which informs of summer/winter time change.
Date and time	2016.04.04 08:00:00	Mass comparator's date and time setting



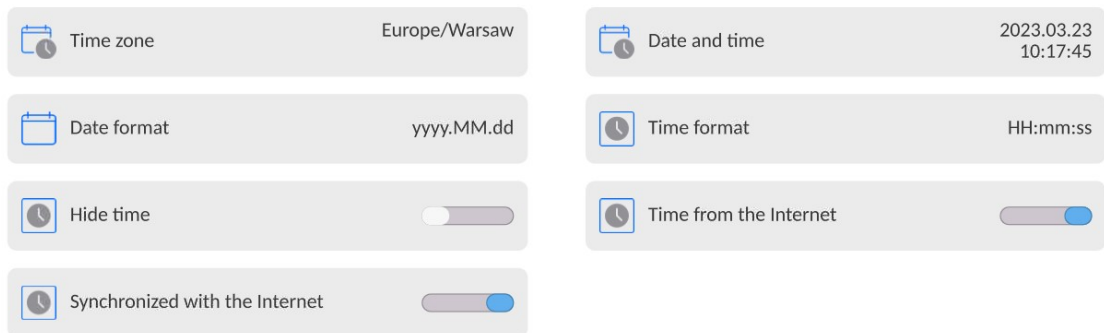
Date format	yyyy.MM.dd *	Selecting date format. Available settings: d.M.yy, d/M/yy, d.M.yyyy, dd.MM.yy, dd/MM/yy, dd-MM-yy, dd.MM.yyyy, dd/MM/yyyy, dd-MMM-yy, dd.MMM.yyyy, M/d/yy, M/d/yyyy, MM/dd/yy, MM/dd/yyyy, yy-M-dd, yy/MM/dd, yy-MM-dd, yyyy-M-dd, yyyy.MM.dd, yyyy-MM-dd.
Time format	HH:mm:ss **	Selecting time format. Available settings: 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	Switching on/off date and time in the home screen
Time from the Internet	Yes	Possibility of date and time update if the weighing device is connected to the Internet
Synchronized with the Internet	Yes	Parameter informing whether the instrument date and time are synchronised with data from the Internet

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

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

<Date and time> parameter enables previewing declared date and time formats.

← Date and time



**Caution:**

<Date and time> parameter can be accessed only by an operator with appropriate permissions. Permissions level can be modified by Administrator in <Permissions> menu.

**18.3. Extension Module**

Option enabling the user to activate device compliance with FDA 21 CFR procedures, and communication protocol extension, and switching off standard licence (demo version).

Extension module activation requires licence number for particular options, to get the licence number it is necessary to contact the manufacturer.

**Procedure:**

Enter <Misc.> submenu, select <Extension module> parameter and follow the on=screen prompts.


## 18.4. Sound

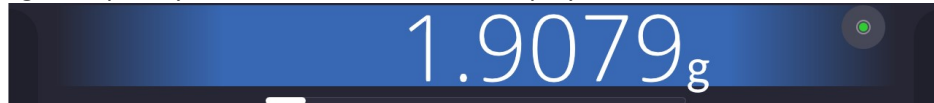
### Procedure:

Enter <Misc.> submenu, select <Sound> parameter and set appropriate option:

- Confirmation sound - Yes/No
- Touch panel sound - Yes/No
- Sensors - Yes/No
- Volume - volume range up to 100%

## 18.5. Visual printout confirmation

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.



## 18.6. Display Sleep Mode

You can turn on display sleep mode.

### Procedure:

Press Setup key and next go to <Misc./Display sleep mode> submenu.

Select one of the following options: [None; 1; 2; 3; 5; 10; 15]. Digit values stand for a number of minutes. Upon selecting desired value, the software returns to the previous menu.

#### *Caution:*

*Display turns to sleep mode only when the mass comparator is not operated (the indication on the screen remains the same). Upon mass change, or pressing any key on the panel, the mass comparator returns to weighing.*

## 18.7. Display Brightness

Display brightness influences mass comparator operation time, when the mass comparator is powered with battery. To lengthen the operation, brightness of the display has to be reduced.

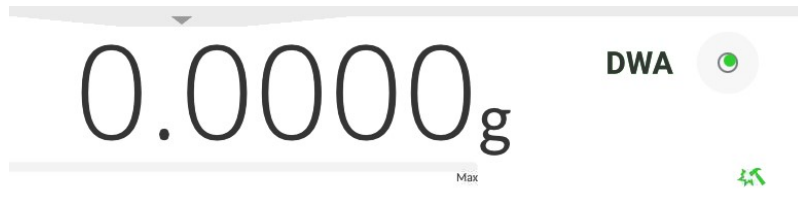
### Procedure:


Press Setup key and next press: <Misc./Display brightness>.

Enter desired value: [0% - 100%]. Display automatically changes brightness and the software returns to the previous menu.

## 18.8. Vibration Detection

The program enables detection of incorrect loading of the weighing pan with the sample, incorrect loading may cause greater indication errors. The function is signalled with display of a respective pictogram in mass indication section.



If the incorrect loading is detected, the pictogram turns to red, . This means that the weighing result may be burden with a greater error.





**Procedura:**

- Enter <Misc.> submenu.
- Select <Vibration detection> option,
- Set:
  - Yes – function enabled ; No – function disabled

**18.9. Level Control**

The mass comparator is equipped with Automatic Level Control mechanism. For non-verified instruments it is possible to define its operation method. For verified instruments the settings are inactive, operation proceeds in accordance with default settings, i.e. <Active with lock>, weighing is possible only when the device is levelled.

**Procedure:**

- Enter <Misc.> submenu.
- Select <Level control> parameter, an edit box is displayed.
- Select one of available options:
  - None – level indicator is not displayed, the mass comparator does not control level status,
  - Active – level indicator is displayed, the mass comparator alerts level change by changing colour of level indicator (green  level status OK, red  level status lost),
  - Active with lock – level indicator is displayed, the mass comparator alerts level change by changing colour of level indicator (green  level status OK, red  level status lost). If level indicator is red, the display also shows an alert – no Level - , and blocks weighing function until level status is restored.

*Caution:*  
For detailed information on mass comparator levelling refer to section 9.2 of this user manual.

**18.10. Decimal Point**

Parameter enabling selection of decimal point type for the mass printout.

**Procedure:**

- Enter <Misc.> submenu.
- Select <Decimal point> parameter, an edit box is displayed.
- Select one of available options:
  - Dot
  - Coma
- Decimal point submenu is displayed

### **18.11. Proximity Sensors Sensitivity**

The parameter is adjustable between 0 – 9, and it determines the distance from which the IR proximity sensors react.

As standard, the sensitivity is set within the range of 5 to 7.

#### **Procedure:**

- Enter <Misc.> submenu.
- Select <Proximity sensors sensitivity> parameter, an edit box is displayed.
- Select one of available options. The selection causes immediate returning to the menu window.

### **18.12. Doorway Degree**

Parameter for setting how wide the door is to be opened at automatic operation.

Default value: <100 %> - maximally open door.

#### **Procedure:**

- Enter <Misc.> submenu.
- Select <Doorway degree> parameter, an edit box is displayed.
- Select the requested value, e.g. <75%>.
- Confirm. The software returns to menu window.

### **18.13. Automatic Ionisation**

Parameter allowing either to switch the ionisation on or to set its rate.

Values: None/Low/High/Continuous operation.

#### **Procedure:**

- Enter <Misc.> submenu.
- Select <Automatic ionisation> parameter, an edit box is displayed.
- Select the requested value, e.g. <Low>.
- Confirm. The software returns to menu window.

### **18.14. Autotest**

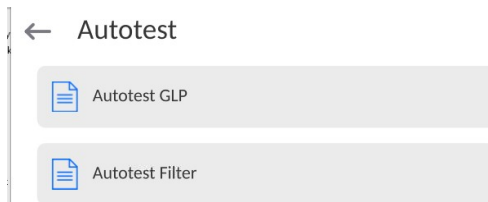
<AUTOTEST> function is designed to aid you in both assessing mass comparator's operation and diagnosing the reasons for occurrence of errors in weighing which exceed the maximum permissible values for a given mass comparator model.

By means of a simple, repeatable and fully documented way the function enables optimizing mass comparator's settings to maintain the best possible repeatability and weighing time at a workstation. The main purpose of function operation is the possibility of monitoring the above mentioned parameters at optional moment and saving records from carried out tests.

The functions is divided into two modules:

AUTOTEST FILTER; AUTOTEST GLP.

Before testing the mass comparator controls its level status, temperature and humidity.



### AUTOTEST FILTER

It is a process of 10 times loading and unloading of the internal weight for all possible settings of mass comparator's filter and value release. The test controls 2 parameters: Repeatability and stabilization time of measurement result.

The whole testing process takes approximately 1 hour. Upon completing the test for all possible settings, mass comparator displays a message with obtained results.

You are given information on optimum mass comparator settings in present ambient conditions.

The function provides data on the best possible mass comparator settings for obtaining the highest measurement repeatability and the shortest measurement time with acceptable value of repeatability.

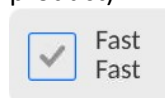
Test results are stored in mass comparator memory until the mass comparator is turned off.

Additionally the function enables:

- Printing test results
- Selecting optimum parameters from the mass comparator's option level.

Upon completed autotest, a summary with results is displayed. The software automatically informs on filter settings by means of respective pictograms displayed next to the results:

- settings providing the fastest measurement (the shortest time interval for measurement performance).
- settings providing the most accurate measurement (the lowest possible value of deviation for 10 measurements).
- settings providing optimal measurement (the lowest value of time and deviation product).



- current settings for filters.

Measurement results:

- \*Filter type.
- \*Setting of <Value release> parameter.
- \*Repeatability of indications expressed as standard deviation.
- \*Average time of measurement stabilization.

*Example:*

## ← Autotest Filter



<input type="checkbox"/> Very fast Fast	<input type="checkbox"/>	<input type="checkbox"/> Very fast Fast and reliable	<input type="checkbox"/>
<input type="checkbox"/> Very fast Reliable	<input type="checkbox"/>	<input checked="" type="checkbox"/> Fast Fast	<input type="checkbox"/>
<input type="checkbox"/> Fast Fast and reliable	<input type="checkbox"/>	<input type="checkbox"/> Fast Reliable	<input type="checkbox"/>
<input type="checkbox"/> Normal Fast	<input type="checkbox"/>	<input type="checkbox"/> Normal Fast and reliable	<input type="checkbox"/>
<input type="checkbox"/> Normal Reliable	<input type="checkbox"/>	<input type="checkbox"/> Slow Fast	<input type="checkbox"/>
<input type="checkbox"/> Slow Fast and reliable	<input type="checkbox"/>	<input type="checkbox"/> Slow Reliable	<input type="checkbox"/>

### Report template:

----- Autotest Filter: Report -----

Mass comparator type AK/100 5Y

Mass comparator S/N 442566

Operator Hubert

Software ver. LLxxxx

Date 2015.05.07

Time 09:34:48

-----  
Reading unit 0.0001 g

Internal weight mass 148.9390 g

Temperature: Start 25.26 °C

Temperature: Stop 25.66 °C  
-----

Filter Very fast

Value release Fast

Repeatability 0.0042 g

Stabilization time 4.505 s

.  
Filter Very slow

Value release Reliable

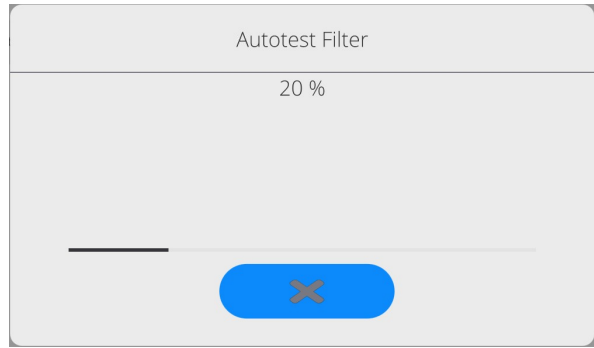
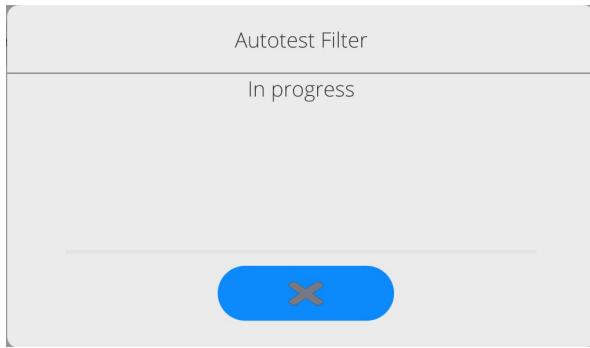
Repeatability 0.0207 g

Stabilization time 5.015 s

Signature

### Procedure:

Upon function activation, the process starts automatically. Progress of the process is displayed. Upon process completion, a summary is displayed, current filter settings are shown. The report can be printed.



You can abort the process at any moment. To do that press <X> button.

### **AUTOTEST GLP**

The test controls repeatability of loading the internal weight and determining error of indication with reference to mass comparator's maximum capacity.

#### **Procedure:**

- Two times loading of the internal weight, followed by 10 times loading of the internal weight.
- Mass comparator internal adjustment.
- Calculating and recording the value of standard deviation.
- In mass comparators with automatically opened doors, door opening and closing test is carried out.

Additionally the function enables: displaying and printing a report on available printers and saving the report in mass comparator's memory. The report contains basic data on mass comparator's parameters, ambient conditions and test results.

Test results:

- \*Deviation for maximum capacity.
- \*Value of repeatability expressed as standard deviation.
- \*Result of door test (positive / negative) – if a mass comparator features automatic door opening system.

#### **Report template:**

```

.....
----- Autotest GLP: Report -----
Mass comparator type   AK/100 5Y
Mass comparator S/N   400010
Operator   Admin
Software ver.  LLxxx
Date    2012.01.16
Time    09:17:16

-----
Measurements quantity  10
Reading unit  0.0001 g
Internal weight mass 140.094 g
Filter    Average
Value release Fast & reliable

-----
Deviation for Max.  -0.0118 g
Repeatability  0.00088 g
Signature
  
```

**Procedure:**

Upon pressing a field with test name, the mass comparator displays a message box.

Here, you can:

- Start subsequent AUTOTEST GLP process,
- Preview results of completed autotests, and export all saved test results as file with \*.csv extension,
- Delete all saved test results.

You can abort the process at any moment by pressing <X> button.

Results of carried out autotests are displayed as a table (each line features date and time of autotest procedure and its result).

To preview detailed data of an autotest, press a specified line of the table with test results.

In order to print a result of a single autotest, enter its details (see above) and generate a printout by pressing <Print> key located on the top of the display.

Autotest results can be exported by pressing <Export> field in the window with all saved reports. Data is sent to a USB flash drive connected to mass comparator's USB port as a file with \*.csv extension.

**18.15. Start-Up Logo**

*(option enabled only for authorized mass comparator operators)*

The parameter enables changing a logo that appears on the mass comparator's display on a start-up procedure.

**18.16. Export of System Events**

*(option enabled only for authorized mass comparator operators)*

The parameter enables generating a special type of a file that is automatically saved upon enabling an option on a USB flash drive connected to mass comparator's USB port. The file is used by RADWAG service for diagnosing any potential problems that occur during mass comparator operation.

**Procedure:**

- Plug a USB flash drive to mass comparator's USB port.
- Enter <Misc.> submenu.
- Select <Export system events> parameter.
- The software generates a file and automatically saves it on the USB flash drive.
- The generated file has to be sent to RADWAG.

**18.17. Text-to-Speech Conversion**

The parameter enables conversion of names of particular menu groups and parameters to speech, emitted from the speakers of the operation panel.



## 19. SCHEDULED TASKS

'Scheduled tasks' menu features settings allowing to plan repetition of tasks such as adjustment or display of particular message in a cyclic manner.

### 18.1. Adjustment

← Edit record 🖨️ 🛠️

Name	Code
Planned operation Automatic adjustment	<input checked="" type="checkbox"/> Active <span style="float: right;"><input type="checkbox"/></span>
First operation date and time 2023.03.23 12:08:46	Interval 24 h
Message	

<Scheduled adjustment> parameter enables user to declare exact time and interval of adjustment performance. This function operates independently from an automatic adjustment and its triggering criteria (time, temperature). The user may plan either an internal or external adjustment. In order to plan external adjustments enter mass standards, using which the adjustment is to be performed, to the device memory.

#### Settings:

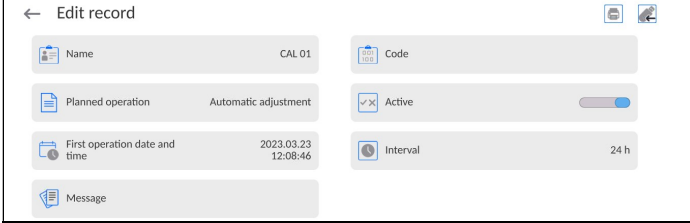
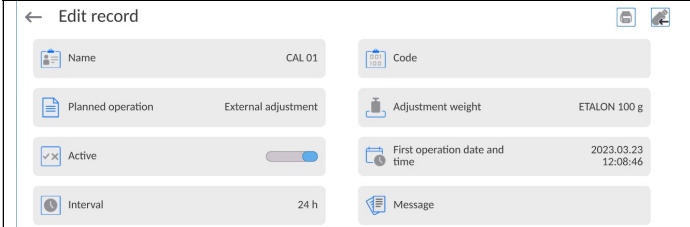
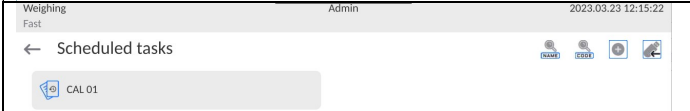
Prior to setting the adjustment plan, enter mass standards data, using which the adjustment is to be performed, to the device memory.

To do it go to the user menu, enter <Adjustment> parameter group and find <Adjustment weights> parameter, provide the necessary data:

← Edit record 🖨️ 🛠️

Name ETALON 100 g	Code 1234
Class E2	Serial number 654321
Mass 100 g	Set number KP 01

	<p>Go to the user menu, enter &lt;Scheduled tasks&gt; entry. Respective window opens where Administrator may add new records.</p>
	<p>To add new record press  key, window with data of planned adjustments opens.</p>

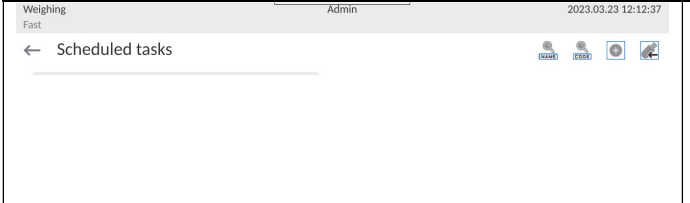
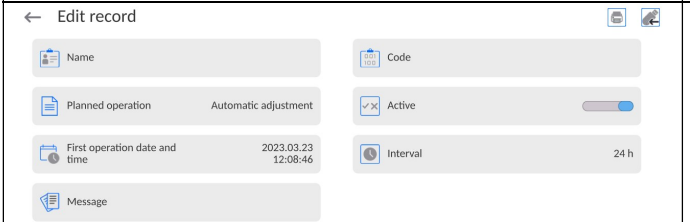

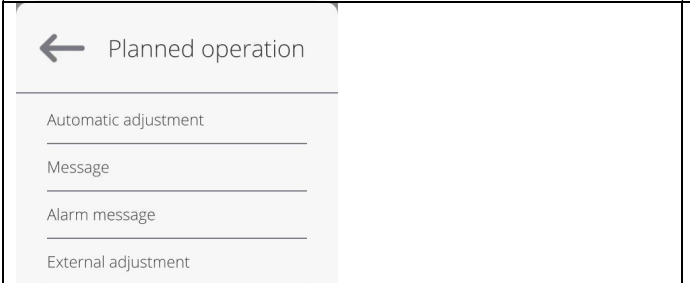
	Select scheduled task entry: automatic adjustment (internal) or external.
 <p>← Edit record</p> <p>Name: CAL 01</p> <p>Code: [ ]</p> <p>Planned operation: Automatic adjustment</p> <p>Active: [ ]</p> <p>First operation date and time: 2023.03.23 12:08:46</p> <p>Interval: 24 h</p> <p>Message: [ ]</p>	In the case of automatic adjustment, provide data on the adjustment and its schedule.
 <p>← Edit record</p> <p>Name: CAL 01</p> <p>Code: [ ]</p> <p>Planned operation: External adjustment</p> <p>Adjustment weight: ETALON 100 g</p> <p>Active: [ ]</p> <p>First operation date and time: 2023.03.23 12:08:46</p> <p>Interval: 24 h</p> <p>Message: [ ]</p>	In the case of external adjustment, provide data on the adjustment, the mass standard using which the adjustment is to be done, and the schedule.
 <p>Weighing Fast Admin 2023.03.23 12:15:22</p> <p>← Scheduled tasks</p> <p>CAL 01</p>	Go back, new record is added.



Leave the menu.

Now the adjustments will be carried out automatically: in accordance with the set time and interval.

## 18.2. Message

Parameter enabling the user to declare exact time and interval for display of a specific message informing the user about the necessity to take up a particular action

 <p>Weighing Fast Admin 2023.03.23 12:15:22</p> <p>← Scheduled tasks</p>	Go to the user menu, enter <Scheduled tasks> entry.
 <p>← Edit record</p> <p>Name: [ ]</p> <p>Code: [ ]</p> <p>Planned operation: Automatic adjustment</p> <p>Active: [ ]</p> <p>First operation date and time: 2023.03.23 12:08:46</p> <p>Interval: 24 h</p> <p>Message: [ ]</p>	To add new task press  key.
 <p>← Planned operation</p> <ul style="list-style-type: none"> <li>Automatic adjustment</li> <li>Message</li> <li>Alarm message</li> <li>External adjustment</li> </ul>	Respective window opens, select <Scheduled tasks> entry.
	Select <Message> option.

	<p>Message settings window opens. Set message display frequency (first operation date and time, interval) and provide message text to be displayed.</p>
	<p>Confirm by pressing &lt;  &gt; key.</p>
	<p>Previously displayed window opens.</p>
	<p>Submenu window features planned task field. Go to the home screen.</p>
	<p>With the message display criteria met (time), the message is displayed automatically. Press &lt;  &gt; key, the window closes, carry out the planned task.</p>

## 19. AMBIENT CONDITIONS

Mass comparators are equipped with ambient conditions sensors, which record ambient conditions of the mass comparator's inside, and optionally with an external THB module which records ambient conditions outside the mass comparator:

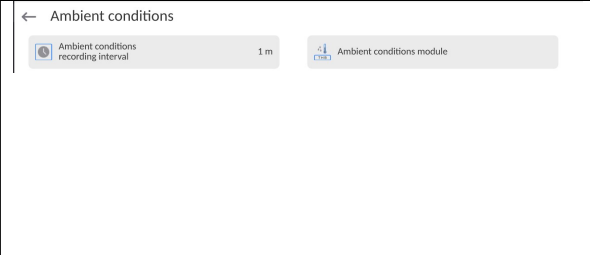
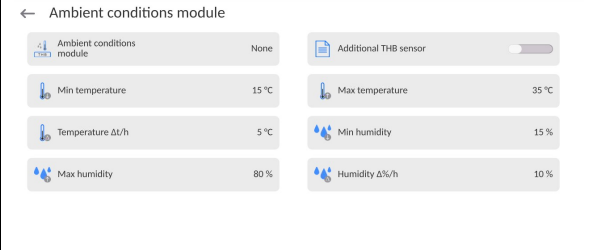
- Internal sensor: Temperature 1
- Internal sensor: Temperature 2
- Internal sensor: Humidity
- \*External sensor: THB ambient conditions module  
\*External sensor is provided on a customer request.

You can modify the following parameters in <Ambient conditions> submenu:

- Ambient conditions recording interval
- Ambient conditions module

## Procedure

- Enter <Parameters> menu.
- Select <Ambient conditions> parameter.

<p>Enter &lt;Ambient conditions recording interval&gt; parameter and specify the intervals for ambient conditions records.</p> <p>You can view the history of ambient conditions records. All ambient conditions records are to be found in &lt;Database&gt; in &lt;Ambient conditions&gt; database.</p>	
<p>Enter &lt;Ambient conditions&gt; menu and determine ambient conditions parameters.</p> <p>Thermo-hygro-barometer (THB) &lt;Ambient conditions module&gt; is a module that records 3 types of ambient conditions:</p> <ul style="list-style-type: none"><li>• Temperature</li><li>• Humidity</li></ul>	

### Caution:

*Ambient conditions determined by the operator cannot exceed the limits specified in ambient conditions module Technical Specifications. If ambient conditions are different than those specified in the Technical Specifications, the mass comparator may not operate as intended.*

## 1. UPDATE


The function enables updating:


- Area of an operator: APPLICATION.
- Metrological parameters: main board (only administrator).

Updating process takes place automatically by loading data from a USB flash drive connected to mass comparator's USB port.

### Procedure:

- Prepare a USB flash drive with update file. Required file extension: \*.lab4.
- Connect the USB flash drive to mass comparator's USB port.
- Log in as an Administrator

- Enter the balance menu, to do it press  key

- Select <Update> option,  .
- Select <Application> entry.
- The content of the USB flash drive is displayed, search for the update file, click the file.
- Balance restart proceeds, application update takes place automatically.
- Shall the restart fail, turn the balance off and on.













The process of updating the main board files takes places analogously to the above described procedure, but the required extension of the update file is: \*.cm4mbu.

## 2. ABOUT (system info)

---

This menu contains data on mass comparator specification and installed applications. Most of parameters in this menu are for the information purpose only.

### ← About

 Balance S/N	0	 Balance type	XAM 3Y
 Network balance name	PUE10-2a45a2e9	 Software version	LL2.0
 Product code	000700404070	 Weighing firmware version	1.0.0
 Product code 2	429048443000	 Software rev. MB	1.1.3
 System version	LX-23.03.21	 CPU Id:	48560360
 Licence Id:	E4-5F-01-E5-41-E8	 Memory status	FLASH: 57 % RAM: 16 %


### 3. COMMUNICATION PROTOCOL



*Detailed description of protocol of communication between the balance and the computer is to be found in 'CBCP-07' manual.*

#### 3.1. Manual Printout/Automatic Printout

The mass comparator enables generating manual and automatic printouts.

- Manual printout: upon indication stabilization press  key.
- Automatic printout is generated automatically in accordance with the settings for automatic printout (read section 9.18 of this user manual).

The content of printout depends on settings of <Standard printout> - <Weighing printout template> menu (read: section 9.18 of this user manual).

#### Mass printout format:

1	2	3	4-12	13	14	15	16	17	18
stability marker	space	character	mass	space	unit			CR	LF


Stability marker [space] if stable  
 [?] if unstable  
 [!] if air buoyancy compensation mode is enabled  
 [^] if high limit is out of range  
 [v] if low limit is out of range

Character [space] for positive values  
 [-] for negative values

Mass 9 characters with decimal point, right justification

Unit 3 characters, left justification

#### Example:

--- 1 8 3 2 . 0 \_ g \_ \_ CR LF - a printout generated from a mass comparator upon pressing  key, according to settings of <Weighing printout template>:

N (measurements quantity)	NO	Universal variable 1 ... 5	NO
Date	NO	Net	NO
Time	NO	Tare	NO
Level status	NO	Gross	NO
Customer	NO	Current result	NO
Warehouse	NO	Supplementary unit	NO
Product	NO	Mass	YES
Packaging	NO	Non-standard printout	NO

#### 4. CONNECTING PERIPHERALS

---

Mass comparator can cooperate with the following peripheral devices:

- computer,
- receipt printer: EPSON,
- PCL6 printer,
- barcode scanner,
- fingerprint reader,
- an optional peripheral device operating ASCII communication protocol.

#### 5. 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

-no level- Balance not levelled

-Err 100- Weighing module restart

In process An ongoing process in the course of which the indication may be unstable (automatic feeder – the process of feeding a pill, or mass comparator – the process of load change)

## 6. ACCESSORIES

---

Type	Name
RTP-UEW80 lub RTP- RU80	Dot printer
	PCL6 Printer
LS2208	Barcode scanner
SAL	Anti-vibration table for XA series balances
	PC keyboard

**Computer software: „LABEL EDITOR”**





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ADVANCED WEIGHING TECHNOLOGIES

