USER GUIDE

PUE HX7

Radwag

Distributed by AKRIBIS

Software manual

ITKP-26-06-04-24-EN

Weighing Terminal

PUE HX7

radwag.com

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

AKRIBIS www.akribis.info contacto@akribis.info

APRIL 2024

Contents

1. INTENDED USE 7
2. OPERATION PANEL 7
3. START-UP 8
4. HOME SCREEN 9
4.1. Top Bar 9
4.2. Weighing Result Window 10
4.3. Workspace 10
4.4. Pictograms 10
5. OPERATING THE MENU 10
5.1. Entering the Menu 10
5.2. Menu Keys 11
5.3. Database Menu Buttons 12
5.4. Entering Numbers / Text 12
5.4.1. Numerical Box 13
5.4.2. Text Box 14
5.4.3. Diacritical Sign Table 16
5.4.4. Special Sign Table 16
5.5. Return to Weighing 17
6. PROGRAM 17
7. LOG IN OPERATION 17
7.1. Log In Procedure 17
7.2. Log Out Procedure 18
7.3. Permission Levels 18
8. WEIGHING 18
8.1. Zeroing 18
8.2. Taring 19
8.3. Dual Range Devices 19
8.4. Weighing Unit Change 20
8.5. Setting MIN, MAX Thresholds 20
8.5.1. Setting MIN, MAX Threshold Using a Programmable Button 21
8.5.2. Setting MIN, MAX Thresholds by Product Selection 21
8.5.3. Setting MIN, MAX Threshold Using a Digital Input 21
8.6. Weighing Platform Number Change 21
9. COMMUNICATION 22
9.1. RS232 22
9.2. RS485 22
9.3. Ethernet 22
9.4. USB A 23
10. PERIPHERAL DEVICES 23
10.1. Computer 23
10.1.1. Computer Port 24
10.1.2. Address 24
10.1.3. Weighing Printout Template 24
10.1.4. Continuous Transmission 25
10.1.5. Interval 25
10.1.6. Communication with E2R System 25
10.2. Printer 26
10.2.1. Printer Port 26
10.2.2. Code page 27
10.2.3. Prefix, Suffix 28
10.2.4. Record of Measurement Data Onto a USB Flash Drive 28
10.3. Barcode Scanner 28
10.3.1. Barcode Scanner Port 29
10.3.2. Offset 29
10.3.3. Code Length 29
10.3.4. Prefix, Suffix 29
10.3.5. Field Selection 30
10.3.6. Filtration 30
10.3.7. Test 31
10.4. Additional Display 31
10.4.1. Additional Display Port 31

10.4.2. Additional Display Template 32
10.5. Additional Bar Graph 32
10.5.1. Additional Bar Graph Port 32
10.5.2. Additional Bar Graph Type 32
10.5.3. Additional Bar Graph's LED Brightness 33
10.5.4. Measurement Record Signalling 33
10.6. Transponder Card Scanner 33
10.6.1. Transponder Card Scanner Port 33
10.6.2. Field Selection 34
10.6.3. Assigning a Card Number to a Record in the Database 34
10.7. Modbus 34
10.7.1. Protocol Type 35
10.7.2. Modbus RTU 35
10.7.3. Modbus TCP 35
10.7.4. Address 36
11. ADDITIONAL MODULES 36
11.1. Anybus Module 36
11.1.1. Profibus Module 37
11.1.2. Profinet Module 38
11.1.3. EtherNet/IP™ Module 38
11.2. Analog Output Module 39
11.2.1. Module Activation 39
11.2.2. Section Linearity 39
11.2.2.1. Linearity Determination 40
11.2.2.2. Corrections 40
11.2.2.3. Deleting Linearity 41
12. DIODE BAR GRAPH 41
12.1. Activation 41
12.2. Diode Bar Graph Type 41
12.2.1. „Linear" 41
12.2.2. Weighing Threshold Signalling 42
12.2.3. „Checkweighing" 42
12.3. Measurement Record Signalling 43
13. PRINTOUTS 44
13.1. Print Mode: Header – GLP Printout - Footer 44
13.2. Non-Standard Printouts 46
13.3. Dosing Report Printouts 46
13.4. Formulation Report Printouts 47
13.5. Vehicle Weighing Report Printouts 48
13.6. Adjustment Report Printouts 49
14. INPUTS / OUTPUTS 50
14.1. Input Setup 50
14.2. Output Setup 50
15. DISPLAY 51
15.1. Workspace 52
15.1.1. Label 52
15.1.2. Text Box 53
15.1.3. Bar Graph 54
15.2. Button Functions 55
15.3. Default Screen Settings 58
16. PERMISSION LEVELS 58
16.1. Anonymous Operator 59
16.2. Date and Time 59
16.3. Printouts 59
16.4. Database Editing 59
16.5. Select Database Record 60
17. UNITS 60
17.1. Units Availability 60
17.2. Start Unit 61
17.3. Gravitational Acceleration 61
17.4. Custom Units 61
18. MISCELLANEOUS PARAMETERS 62
18.1. Interface Language 62
18.2. 'Beep' Sound 62
18.3. Display Brightness 62

18.4. Date and time 62
18.5. Backlight Standby Time 63
18.6. Automatic Shutdown 63
18.7. Automatic turn on 64
18.8. Logging In Required 64
18.9. Passwords Type 64
18.10. Codes Type 64
18.11. Extension Modules 64
18.11.1. SI RES Module 65
18.12. Default Operator Settings 65
19. ADJUSTMENT 65
19.1. External Adjustment 65
19.2. User Adjustment 66
19.3. Start Mass Determination 66
19.4. Adjustment Report 66
20. SCALE DATA 67
21. WORKING MODES – General Information 67
21.1. How to Run the Working Mode 67
21.2. Working Mode Accessibility 67
22. WORKING MODES - Local Settings 68
22.1. Readout 68
22.2. Save Mode 69
22.3. Cyclic Record Mode 70
22.4. Auto Threshold 70
22.5. Result Control 70
22.6. Dispensing 71
22.7. Peak Hold 71
22.8. Tare mode 72
22.9. Labelling Mode 73
22.9.1. Automatic C Label Triggering 73
22.10. Statistics 74
23. WORKING MODE – WEIGHING 74
23.1. Home Screen 74
23.2. Local Settings 75
24. WORKING MODE – PARTS COUNTING 75
24.1. Home Screen 75
24.2. Local Settings 76
24.2.1. Function of Automatic Correction of Reference Sample Mass 76
24.2.2. Minimum Reference Sample Mass 77
24.3. Setting Reference Sample Mass by Entering Mass of a Single Part 77
24.4. Setting Reference Sample Mass by Determining Mass of a Single Part 77
24.5. Setting Reference Sample Mass by Acquiring Mass of a Single Part from the Database 78
24.6. Entering Reference Sample Mass to the Scale Memory 79
25. WORKING MODE - PERCENT WEIGHING 79
25.1. Home Screen 79
25.2. Local Settings 79
25.3. Reference Sample Mass Determined by Weighing 80
25.4. Reference Sample Mass Entered to the Scale Memory 80
25.5. Setting Reference Sample Mass by Acquiring Mass of a Single Part from the Database 80
26. WORKING MODE – DOSING 81
26.1. Home Screen 81
26.2. Local Settings 81
26.3. New Dosing Process 82
26.4. Dosing Procedure 84
26.4.1. Dosing Status 85
26.4.2. Dosing Bar Graph 86
26.5. Dosing Process Report 87
27. WORKING MODE – FORMULATIONS 88
27.1. Home Screen 88
27.2. Local Settings 88
27.3. New Formulation 89
27.4. Formulation Procedure 90
27.5. Formulation Report 92
28. WORKING MODE – VEHICLE WEIGHING 93
28.1. Home Screen 93

28.2. Local Settings 93
28.3. Vehicle Weighing Transaction 94
28.3.1. Entry\Exit Transaction 94
28.3.2. Control Weighing Transaction 96
28.4. Ongoing Transactions Table 97
28.5. Vehicle Weighing Report 98
29. DATABASES 98
29.1. Database Export 98
29.2. Database Import 99
29.3. Database Record Search 99
29.3.1. Quick Search by Name 99
29.3.2. Quick Search by Code 100
29.4. Adding Database Record 100
29.5. Deleting Database Record 100
29.6. Deleting Database Content 100
29.7. Database Editing 101
29.7.1. Operators 101
29.7.2. Products 101
29.7.3. Packaging 102
29.7.4. Customers 102
29.7.5. Formulations 103
29.7.6. Dosing Processes 103
29.7.7. Vehicles 103
29.7.8. Labels 103
29.7.9. Universal Variables 104
30. REPORTS 104
30.1. Export 105
30.2. Deletion 105
30.3. Preview 105
30.3.1. Weighings 105
30.3.2. Alibi 106
30.3.3. Dosing reports 107
30.3.4. Formulation reports 107
30.3.5. Vehicle Weighing Reports 108
31. IMPORT / EXPORT 109
31.1. Data Export 109
31.2. Data Import 110
32. ERROR MESSAGES 110

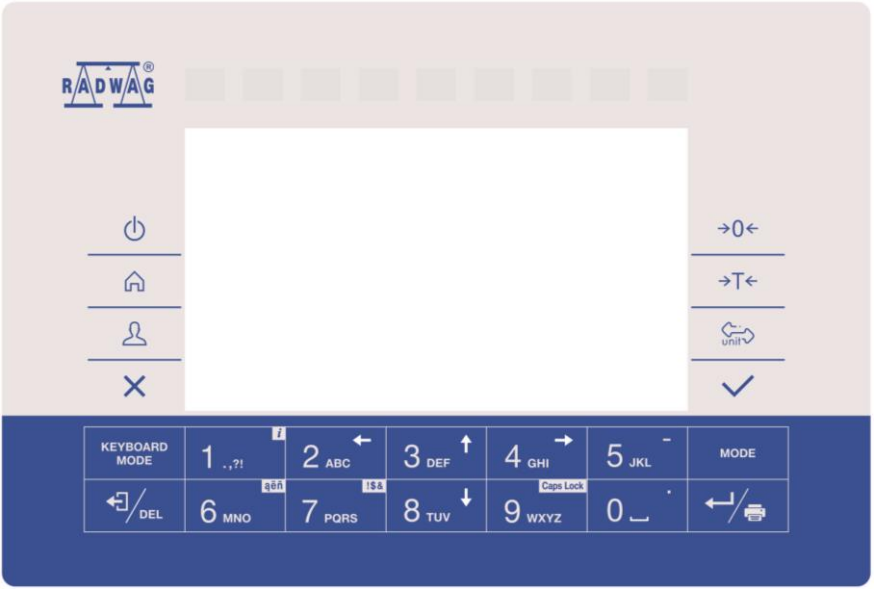
1. INTENDED USE

PUE HX7 weighing indicator is a device intended to make industrial scales operating on the basis of load cells. It is equipped with a stainless steel housing of high IP. The PUE HX7 features 7'' colour display guaranteeing perfect readability, and diode bar graph visualising MIN, MAX thresholds. It is operated using 22-key membrane keypad equipped with programmable function keys.

PUE HX7 indicator of standard design offers RS232, USB type A, Ethernet, 4 I/O interfaces. Optionally the indicator can be equipped with an internal battery, this allows its operation in places where there is no access to the mains. The device integrates with receipt and label printers, barcode scanners and PC accessories (mouse, keyboard, USB flash drive).

⚠	***The HX7 indicator must not be operated in hazardous areas endangered with explosion of gases, and in dusty environments.***

2. OPERATION PANEL



Keys

⏻	Press to switch the device on / off.
⌂	Press to enter the main menu.
👤	Press to log in.
✕	Press to cancel the message.
→0←	Press to zero the scale.
→T←	Press to tare the scale.
⇦ unit ⇨	Press to change the weighing unit.
✓	Press to confirm the message.
↵/🖶	Press to confirm the weighing result (PRINT). Press to confirm the messages (ENTER).
⇦/DEL	Press to cancel the message.
MODE	Press to change the working mode.
1 .,?! i	Programmable key assigned to an on-screen button. *i* key – press it for a longer period of time to get scale info.
2 ABC ←	Programmable key assigned to an on-screen button.
3 DEF ↑	Programmable key assigned to an on-screen button.
4 GHI →	Programmable key assigned to an on-screen button.
5 JKL -	Programmable key assigned to an on-screen button.

3. START-UP

- Plug the power cord to the mains.
- Press ⏻ key, it is to be found at the top of the operation panel.
- Upon completed start-up the home screen is displayed automatically.
- The indicator is ready for operation.

4. HOME SCREEN

The home screen features 4 sections: a top bar, a weighing result window, workspace, pictograms.

Home screen view:

4.1. Top Bar

The top bar displays the following information:

Weighing	Working mode name and symbol.
PUE HX7	Weighing device name.
	Wireless communication on.
	Communication with the USB flash drive on.
	PC keyboard connected.
	Printer connected.
	Battery charge status.
	Communication with a PC on.
E2R	Communication with the E2R SYSTEM on.

4.2. Weighing Result Window

Weighing result window provides all weighing-related data.

4.3. Workspace

The workspace is to be found underneath the weighing result window.

Product:	Tare: 0.000 kg
User:	Sum: 0.000 kg

The workspace comprises 4 programmable widgets. Each working mode features default home screen widget set. You can customize the screen. For detailed information concerning the workspace read section 'Display'.

4.4. Pictograms

The pictograms assigned to operation panel keys are to be found underneath the workspace.

You can define on-screen pictograms individually for each working mode. For detailed procedure informing you how to define on-screen pictograms read section 'Display'.

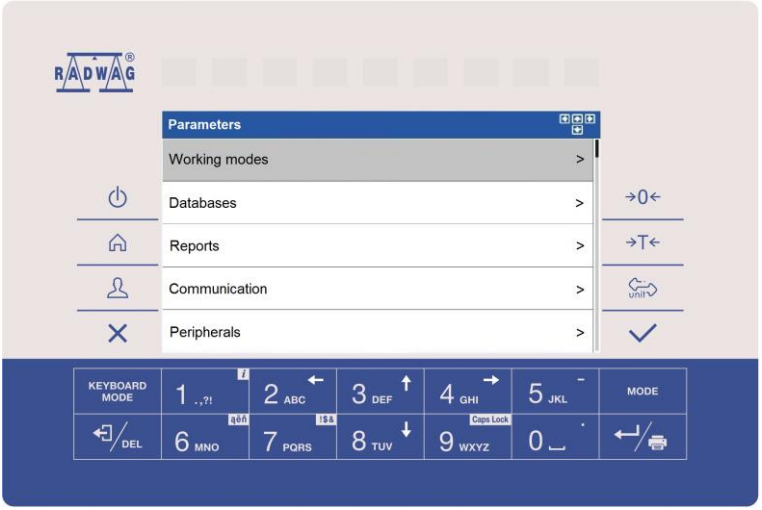
5. OPERATING THE MENU

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

5.1. Entering the Menu

In order to enter the menu press key. Background colour of the first menu entry differs from the remaining ones. To navigate the program menu use the keys that operate as arrow keys.

Menu view



5.2. Menu Keys

	Press to enter the main menu. Press to go to the home screen.
	Press to go back, or to discard entering parameter modifications.
DEL	Press to go back, or to delete a character when editing numeric and text values.
KEYBOARD MODE	Press to change keyboard mode when editing numeric and text values.
MODE	Press to select/change working mode.
	Press to confirm/accept modifications.
2 ABC	Press to go back, or to discard entering parameter modifications.
3 DEF	Press to go up the menu, or to edit parameter value and change it by one digit up.
4 GHI	Press to select parameters group that you want to operate. The first parameter of the selected parameters group is displayed.
8 TUV	Press to go down the menu, or to edit parameter value and change it by one digit down.

5.3. Database Menu Buttons

On-screen pictograms of the database edit box, assigned to bottom function keys.

	Press to delete database content.
	Press to delete a single record.
	Press to add a new entry.
N	Press to search a particular database record by name.
C	Press to search a particular database record by code.
	Press to export database to the USB flash drive. Function key, enabled upon the USB flash drive gets plugged to the balance.
	Press to import database from the USB flash drive. Function key, enabled upon the USB flash drive gets plugged to the balance.
	Press to activate next function keys.
	Press to activate previous function keys.

	For activation of bottom function keys, press KEYBOARD MODE ***key.***
	For detailed description of database operations, read section 29.

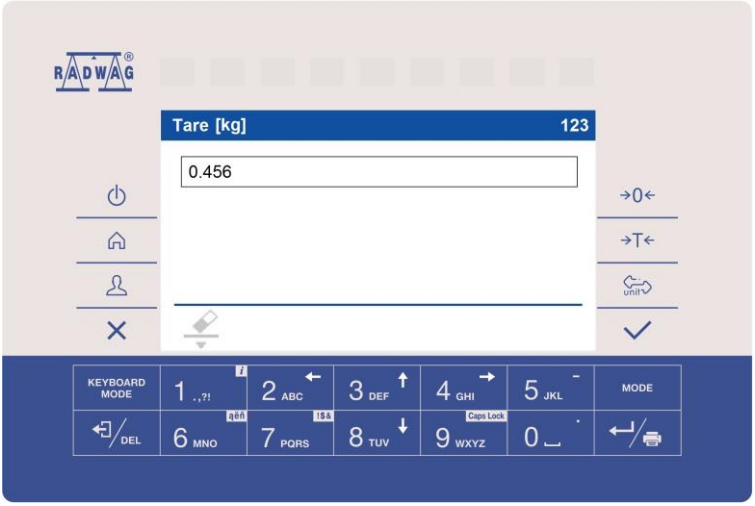
5.4. Entering Numbers / Text

The software features two different edit boxes:

- numerical box (for entering part mass values, tare values, etc.).
- text box (for entering printout template, universal variable value, etc.).

Button functions change depending on the edit box type.

5.4.1. Numerical Box



Where:

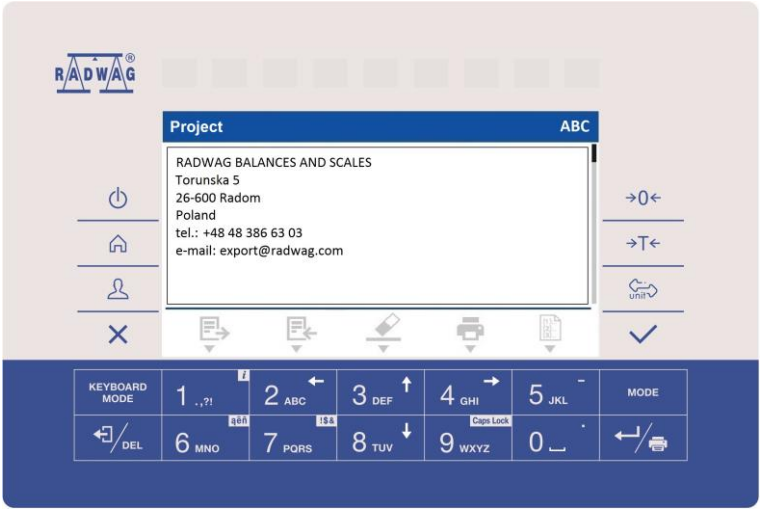
123	Digits mode. To change keyboard working mode press KEYBOARD MODE key. Keyboard working mode options: 123 - digits mode, - arrow keys operation, Fn - bottom line operation.
	Press to clear box content.

Keys

1 .,?!	Press to enter digit **1**.
2 ABC	Press to enter digit **2**.
3 DEF	Press to enter digit **3**.
4 GHI	Press to enter digit **4**.
5 JKL	Press to enter digit **5**. Press to enter „-” (minus), hold the key for a few seconds.
6 MNO	Press to enter digit **6**.
7 PQRS	Press to enter digit **7**.

8 TUV	Press to enter digit **8**.
Caps Lock 9 WXYZ	Press to enter digit **9**.
0 ␣ .	Press to enter digit **0**. Press to enter „**.** (dot), hold the key for a few seconds.
DEL	Press to delete one character.
×	Press to exit, the edit box content remains unmodified.
✓	Press to confirm the modifications.
KEYBOARD MODE	Press to change keyboard working mode.

5.4.2. Text Box



Where:

ABC	Upper-case character mode. To change keyboard working mode press KEYBOARD MODE key. Keyboard working mode options: ABC - upper-case character mode, abc - lower-case character mode, 123 - digit mode, ⊞ - arrow keys operation, Fn - bottom bar operation.
	Press to save the project to *.lb file on a USB flash drive.

	Press to read the project saved to *.lb file on a USB flash drive.
	Press to clear box content.
	Press to print the project using a printer connected to the scale.
	Press to view list of variables that can be used in the project.

Keys

1 .,?!	Press to enter **. , { } : ° -** .
2 ABC	Press to enter **a b c**. Press to move the cursor to the left, long press.
3 DEF	Press to enter **d e f**. Press to move the cursor up, long press.
4 GHI	Press to enter **g h i**. Press to move the cursor to the right, long press.
5 JKL	Press to enter **j k l**. Press to enter„ **-** ” sign, long press.
6 MNO ąëñ	Press to enter **m n o**. Press to activate **„ąëñ”** function (diacritical sign table), long press.
7 PQRS !$&	Press to enter **p q r s**. Press to activate **„!$&”** function (special signs table).
8 TUV	Press to enter **t u v**. Press to move the cursor down, long press.
9 WXYZ Caps Lock	Press to enter **w x y z**. Press to activate **„Caps Lock”** function, long press.
0 ␣	Press to enter ␣ (space) sign. Press to enter „**.**” sign (dot), long press. ”.
↵/	Press to go to the next line in the edit box.
⇦/DEL	Press to delete one character.
×	Press to exit, the edit box content remains unmodified.
✓	Press to confirm the modifications.
KEYBOARD MODE	Press to change keyboard working mode.

5.4.3. Diacritical Sign Table

In order to activate diacritical sign table while editing the text box, press and hold 6 MNO key. Diacritical signs characteristic for a particular interface language are automatically added to the table when the given language gets selected.

Diacritical sign table: Polish.											Diacritical sign table: English, German, French, Spanish.											
ą	ć	ę	ł	ń	ó	ś	ź	ż	á	č	ä	ö	ü	à	â	æ	œ	ç	è	é	ê
đ	é	ě	í	ň	ř	š	ú	ů	ý	ž	ë	î	ï	ô	ù	û	ü	ÿ	ñ	á	ã
â	ă	ä	Í	î	ď	ô	ô	ö	ŕ	ş	å	ì	í	ð	ò	ó	õ	ú	ý	þ	š
⬆	!$&	ű	ü	ť	ţ	å	ø	æ			⬆	!$&	ž	ğ	ş	ø	¿	ß			

Where:

⬆	Press to activate **„Caps Lock”** function.
!$&	Press to switch to special sign keyboard.

5.4.4. Special Sign Table

In order to activate special signs table while editing text box it is necessary to press and hold 7 PQRS key.

,	.	?	'	!	"	–	(	)	@	/
:	_	;	+	&	%	*	=	<	>	£
€	§	¥	°	[	]	{	}	\	~	^
⬆	ąëñ	#	$	|	µ	ß	©	®	™	`

Where:

⬆	Function inactive.
ąëñ	Press to switch to diacritical sign keyboard.

5.5. Return to Weighing

Introduced modifications are automatically recorded upon return to the home screen. To return to the home screen:

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

6. PROGRAM

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

Function groups: Working modes, Databases, Reports, Communication, Peripherals, Diode bar graph, Inputs / Outputs, Printouts, Display, Permissions, Units, Adjustment, Misc., Scale data.

7. LOG IN OPERATION

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

⚠	***<Admin> is a default operator set on each brand new scale. The default operator is assigned with <Administrator> permission level. <Admin> account is not protected by password. Logging of default operator is carried out automatically upon scale start-up. In the case of modification of default operator data or upon adding new operators, it is necessary to log in manually.***

7.1. Log In Procedure

- Go to the home screen, press key, wait for the operator database to open.
- Select the respective record, **<Password>** edit box is displayed.
- Enter the password and press ✓ key to confirm, the home screen is displayed.

7.2. Log Out Procedure

- Go to the home screen, press key, wait for the operators database to open.
- Select **<Log out>** option, the home screen is displayed.

7.3. Permission Levels

There are 4 permission levels: Administrator, Advanced Operator, Operator, None.

Access to operator-related parameters and program functions is conditioned by a permission level:

Permissions	Available parameters and functions
None	Permission to edit operator-related parameters not granted. Operator can neither accept the weighing result nor start the following operations: entering reference sample mass and determining reference sample quantity in <Parts counting> mode, entering reference sample mass and determining reference sample in <Percent weighing> mode, dosing, making formulations, weighing vehicles.
Operator	Operator can edit <Readout>, <Misc> parameter groups (operation of <Date and time> parameter and <Restore operator's default settings> function excluded). Operator can run and carry out all weighing operations.
Advanced operator	Operator can edit all operator-related parameters excluding <Date and time> parameter. Operator can run and carry out all weighing operations.
Administrator	Operator can edit all operator-related parameters and all databases, and use all functions. Operator can run and carry out all weighing operations.

8. WEIGHING

Load the weighing pan. Read the result when >< stability marker is displayed.

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

8.1. Zeroing

To zero mass indication press →0← key. Zero indication and the following pictograms are displayed: 0 and ><.

Zeroing means determination of a new zero point, recognized by the weighing device as the precise zero. The instrument can be zeroed only when the indication is stable.

⚠	***Indication can be zeroed only within ±2% range of the maximum capacity. If the zeroed value is greater than ±2% of the maximum capacity, then the software displays a respective error message: <Zeroing out of range. Press taring button or restart the scale>.***

8.2. Taring

To determine net weight value, load the weighing pan with a packaging, wait for a stable indication and press →T← key. Zero indication and the following pictograms are displayed: NET and >< . The scale has been tared.

Remember not to exceed the maximum capacity, i.e. sum of tare weight value and load weight value must be lower than the maximum capacity value. Upon weighing pan unloading, 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 case the assigned tare value is automatically acquired upon selection of the given product.

⚠	***It is impossible to tare zero or negative values. When you tare zero or negative values the scale responds with the following message: <Taring out of range. Press zeroing button or restart the scale>.***

8.3. Dual Range Devices

N/A in the case of single range scales

Switching from weighing with the accuracy of the **I weighing range** to weighing with the accuracy of the **II weighing range** takes place automatically upon exceeding Max of the **I weighing range**.

In the case of dual range scales:

- Upon switching to weighing with the accuracy of the I weighing range, I pictogram/marker is displayed on the left.
- Upon switching to weighing with the accuracy of the II weighing range, II pictogram/marker is displayed on the left.

The return to weighing with the accuracy of the I weighing range can be done in two modes:

Manual mode	Manual transition from a higher weighing range to a lower one, when the mass is in autozero (pictograms 0 and ><) after pressing →0← .
Automatic mode	Automatic transition from a higher weighing range to a lower weighing range, when the mass is in autozero (pictograms 0 an ><).

To select the transition mode, go to **<Manual multi-range>** (see section 22.1 of the user manual).

8.4. Weighing Unit Change

You can change the weighing unit, to do it press unit key.

Options in the case when the main unit is [g]: g (gram), kg (kilogram), ct (carat), lb (pound)*, oz (ounce)*, N (Newton)*, u1 (custom unit 1)*, u2 (custom unit 2)*.

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

Options in the case when the main unit is [kg]: kg (kilogram), lb (pound)*, N (Newton)*, u1 (custom unit 1)*, u2 (custom unit 2)*.

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

!	***You can declare start unit and two custom units – for detailed information read section 17.***

8.5. Setting MIN, MAX Thresholds

MIN, MAX thresholds are used:

- to control mass of the weighed loads (read section 22.4 of this user manual),
- to visualize weighing range via diode bar graph (read section 12 of this user manual),
- to visualize weighing range via bar graph widget (read section 15.1.3 of this user manual),
- to control the external automation systems using digital outputs of the indicator (read section 14.2 of this user manual).

The mass is considered to be correct if it is comprised within MIN and MAX threshold values. You can set MIN, MAX thresholds as follows:

- using programmable **<MIN MAX Set MIN, MAX>** button,
- selecting product with set thresholds,
- using a digital input.

⚠	***MAX threshold value has to be greater than MIN threshold value.***

8.5.1. Setting MIN, MAX Threshold Using a Programmable Button

- Enter **<Display / Button functions>** submenu.
- Edit a given button.
- Select **<Set MIN and MAX>** parameter from the list.
- Exit to the home screen.
- Press previously programmed button, **<Min>** numerical box is opened.
- Enter respective value and press ✓ key to confirm changes, **<Max>** numerical box is opened.
- Enter respective value and press ✓ key to confirm changes.

8.5.2. Setting MIN, MAX Thresholds by Product Selection

- Enter **<Databases / Products>** submenu.
- Edit a given product and enter respective threshold values.
- Exit to the home screen and press button to select product with set thresholds.

8.5.3. Setting MIN, MAX Threshold Using a Digital Input

- Enter **<Inputs / Outputs>** menu, next enter **<Inputs>** submenu.
- Edit a given input.
- Select **<Set MIN and MAX>** parameter from the list.
- Exit to the home screen.
- Activate the previously set input signal, **<Min>** numerical box is opened.
- Enter respective value and press ✓ key to confirm changes, **<Max>** numerical box is opened.
- Enter respective value and press ✓ key to confirm changes.

8.6. Weighing Platform Number Change

The scale optionally features an additional weighing platform.

It is possible to change the weighing platform number, to do it use programmable button. Platform change is signalled via display of platform number marker, 1 or 2, in the weighing result window.

9. COMMUNICATION

Transmission parameters for communication with peripheral devices. Communication ports available by standard: RS232, USB A, Ethernet.

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

9.1. RS232

- Select **<RS232 (1)>**, **<RS232 (2)>***, **<RS232 (3)>*** port.
- Set transmission parameters:

Baud rate	2400, 4800, 9600, 19200, 38400, 57600, 115200 bit/s.
Data bits	7, 8
Stop bits	1, 2
Parity	None, Odd, Even.

***) –** *optional design.*

9.2. RS485

Optional design

- Select **<RS485>**.
- Set transmission parameters:

Baud rate	2400, 4800, 9600, 19200, 38400, 57600, 115200 bit/s.
Data bits	7, 8
Stop bits	1, 2
Parity	None, Odd, Even.

9.3. Ethernet

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

DHCP	Yes, No
IP Address	0.0.0.0
Subnet mask	0.0.0.0
Default gateway	0.0.0.0
MAC address	---

	Set the transmission parameters in accordance with your local network.
	<MAC address> parameter is automatically assigned to the weighing device with <Read-only> attribute.
	If you select ✔ option for <DHCP> parameter, the remaining transmission parameters are given <Read-only> attribute.

9.4. USB A

USB port of type A is intended for:

- connecting a USB flash drive in order to enable:
  - printout of measurement data (set <Printer/Port> parameter to <Pendrive> value),
  - database export/import,
  - operator parameters export/import,
  - Alibi and weighing reports export,
- connecting a scale to a PCL printer,
- connecting EPSON TM-T20 printer (featuring USB port).

	The USB flash drive must support FAT files system.
	The USB flash drive is not supported by an optional USB (2) port of M12 4P type.

10. PERIPHERAL DEVICES

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

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

10.1. Computer

Active **scale – computer** connection is signalled by pictogram (top bar of the home screen).

10.1.1. Computer Port

Parameter allowing you to set port for communication between the scale and the computer. Available ports:

RS 232 (1)	RS 232 ports (M12 8P connectors).
RS 232 (2) *	
RS 232 (3) *	
RS 485 *	RS 485 port (M12 8P connector).
Ethernet	Ethernet port (RJ45 connector).

***) –** *optional design.*

Procedure:

- Enter **<Peripherals / Computer / Port>** submenu and select respective port. **<Port settings>** submenu differs depending on the selected port:

Port	Settings
RS 232 (1)	Baud rate: 2400 - 115200 bit/s. Data bits: 7, 8 Stop bits: 1, 2 Parity: None, Odd, Even.
RS 232 (2) *	
RS 232 (3) *	
RS 485 *	
Ethernet	IP Address: IP address of the scale. Port: number of port for transmission protocol. Timeout [s]: time delay - time interval for disconnection, counted from the moment of the most recent command sent from the peripheral device to which the scale is connected.

***) –** *optional design.*

10.1.2. Address

Parameter allowing to set address of a scale connected with the computer.

Procedure:

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

10.1.3. Weighing Printout Template

Template of an individual printout designed using a scale and sent to a computer.

Procedure:

- Enter **<Peripherals / Computer / Weighing printout template>** submenu, **<Weighing printout template>** edit box is displayed.
- Modify the template and press key to confirm changes.

10.1.4. Continuous Transmission

Parameter allowing you to activate 'scale' - 'computer' continuous transmission. In order to send the content of **<Weighing printout template>** to a computer continuously you must activate **<Continuous transmission>** parameter.

Procedure:

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

10.1.5. Interval

Parameter allowing you to set frequency of print of **<Weighing printout template>** when continuous transmission is activated. Interval for printouts is set in seconds with 0.1 [s] accuracy within 0.1 - 1 000 [s] range.

Procedure:

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

10.1.6. Communication with E2R System

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

⚠	***<E2R> can be activated exclusively by the <Administrator> user. In the case of integration of the scale with <E2R System> software, editing of databases on scales is disabled.***

Access path: **<** / **Peripherals / Computer / E2R>**.

<E2R System> submenu parameters:

Activation	Enter to activate connection with **E2R System** PC software: - connection not established, - connection established. Successfully established connection is signalled with display of E2R pictogram on a top bar of the home screen.
Lock product change	Enter to prevent product change: - lock disabled, - lock enabled.
Force product selection	Enter to enforce selection of a product prior to weighing: - lock disabled, - lock enabled (an attempt to record weighing when the product has not been selected results with display of the following message: **<Product not selected>**).

10.2. Printer

Active **scale – printer** connection is signalled by pictogram (top bar of the home screen).

10.2.1. Printer Port

Parameter allowing you to set port for communication between the scale and the printer. Available ports:

RS 232 (1)	RS 232 ports (M12 8P connectors).
RS 232 (2) *	
RS 232 (3) *	
RS 485 *	RS 485 port (M12 8P connector).
USB A (1)	USB port of type A.
USB A (2) *	USB port of type A (M12 4P connector).
Ethernet	Ethernet port (RJ45 connector). used for connecting a network printer or a computer with RADWAG-designed program, e.g. RAD KEY.
Pendrive	USB port of type A. used for connecting a USB flash drive in order to print weighings to a text file.

***) –** *optional design.*

Procedure:

- Enter **<Peripherals / Printer / Port>** submenu and set respective option. **<Port settings>** submenu differs depending on the selected port:

Port	Settings
RS 232 (1)	Baud rate: 2400 - 115200 bit/s. Data bits: 7, 8. Stop bits: 1, 2. Parity: None, Odd, Even.
RS 232 (2) *	
RS 232 (3) *	
RS 485 *	

USB A (1)	-
USB A (2) *	-
Pendrive	-
Ethernet	IP Address: IP address of the scale. Port: number of port for transmission protocol. Timeout [s]: time delay - time interval for disconnection, counted from the moment of the most recent command sent from the peripheral device to which the weighing device is connected.

***) –** *optional design.*

10.2.2. Code page

In order to provide correct communication of the weighing device with the printer (correct printout of diacritical signs of a given language) it is necessary to make sure that the code page of a sent printout is accordant with a code page of a printer. There are two methods for obtaining code page accordance:

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

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

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

Default code page value of the printer is 1250 – Central European code page.

Exemplary weighing device settings for correct printout of Polish signs with use of EPSON printer connected to RS232 port:

	EPSON TM-U220D	EPSON TM-T20	EPSON TM-T20
Baud rate	9600 bit/s	38400 bit/s	38400 bit/s
Parity	None	None	None
Code page	852	1250	852
Prefix	-	1B742D	1B7412

10.2.3. Prefix, Suffix

Prefix and suffix are controlling codes (given in a hexadecimal format) sent to a printer at print start - **<Prefix>** parameter, and at print end - **<Suffix>** parameter. Sending these codes allows to control globally information and actions carried out at the beginning and/or at the end of each printout sent from a weighing device to a printer. Most frequent usage:

- **Prefix** - sending info on print code page.
- **Suffix** - sending paper crop command in EPSON printers (in the case of printer equipped with an auto-cutter blade). *Paper crop in EPSON printer – code **1D564108***.

Settings of **<Prefix>** and **<Suffix>** parameters are valid for all printouts sent via the weighing device, e.g.: adjustment reports, statistics and header, footer and GLP printouts.

10.2.4. Record of Measurement Data Onto a USB Flash Drive

Scale program enables record of measurement data onto an external flash drive.

Procedure:

- Plug a USB flash drive into the **USB type A** port.
- Enter **<Peripherals / Printer / Port>** submenu and set **<Pendrive>** value. Return to weighing.
- Now the measurement data is saved to a text file on a USB flash drive whenever you press key. The file is generated automatically by a scale software under **printout.txt** name.

⚠	***Remove the USB flash drive from the weighing device's USB port after about 10s counting from the last measurement record, only after this time the data is saved. Next plug the USB flash drive to a computer and read the saved text file.***

New data is recorded to an existing file therefore it is possible to continue recording the measurement data to the file once created.

⚠	***USB flash drive must comprise <FAT files system>.***

10.3. Barcode Scanner

The barcode scanner is used to facilitate quick search for database records.

⚠	***Enter <Communication> submenu and set baud rate for a barcode scanner (by default 9600b/s). For detailed description of 'scale' - 'barcode scanner' communication read ANNEX 02 manual.***

10.3.1. Barcode Scanner Port

Parameter allowing you to set port for communication between the scale and the barcode scanner. Available ports:

RS 232 (1)	RS 232 ports (M12 8P connectors).
RS 232 (2) *	
RS 232 (3) *	
USB A (1)	USB port of type A.
USB A (2) *	USB port of type A (M12 4P connector).

***) –** *optional design.*

Procedure:

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

10.3.2. Offset

Parameter allowing you to set the first significant code's character, characters preceding the first significant character are skipped during comparison search.

Procedure:

- Enter **<Peripherals / Barcode Scanner / Offset>** submenu and, using the on-screen keyboard, enter a required value.

10.3.3. Code Length

Parameter allowing you to set the number of code's characters to be taken into account during search procedure.

Procedure:

- Enter **<Peripherals / Barcode Scanner / Code length>** submenu and, using the on-screen keyboard, enter a required value.

10.3.4. Prefix, Suffix

Parameter allowing you to edit **<Prefix>** and **<Suffix>** in order to provide synchronization of the scale program with a barcode scanner.

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

Procedure:

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

10.3.5. Field Selection

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

Procedure:

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

Values: None, Product, Operator, Customer, Packaging, Lot number, Batch number.

10.3.6. Filtration

Parameter allowing you to declare search criteria.

Procedure:

- Enter **<Peripherals / Barcode Scanner / Filtering>** submenu, list of search criteria is displayed.

Filtering criteria conditioned by the field type:

Field selection	Filtering
None	*
Product	Name, Code, Name 2, Code 2.
Operator	Name, Code.
Customer	Name, Code.
Packaging	Name, Code.
Lot number	**
Batch number	**
Dosing process	Name, Code.

Vehicle	Name, Code.

)** - ***<Filtering> *submenu hidden. Function inactive.*
)** - ***<Filtering> *submenu hidden. Function active.*

10.3.7. Test

Parameter allowing you to verify if operation of a barcode scanner connected to the scale is correct.

Procedure:

- Enter **<Barcode Scanner / Test>** submenu, **<Test>** edit box is displayed, it features ASCII field and HEX field.
- The code is scanned and entered to the ASCII field and HEX filed, next the test result is displayed in the bottom part.

When:

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

10.4. Additional Display

The scale can connect with additional displays: WD-4, WD-6, WWG-2.

10.4.1. Additional Display Port

Parameter allowing you to set port for communication between the scale and the additional display. Available ports:

RS 232 (1)	RS 232 ports (M12 8P connectors).
RS 232 (2) *	
RS 232 (3) *	
RS 485 *	RS 485 port (M12 8P connector).

***) –** *optional design.*

Procedure:

- Enter **<Peripherals / Additional display / Port>** submenu and select respective port.

	Enter <Communication> submenu and set baud rate, mind that the set value must be accordant with the additional display (9600b/s).

10.4.2. Additional Display Template

Selection of the communication protocol template to establish operation with the additional display.

Procedure:

- Enter **<Peripherals / Additional display / Template>** menu, the **<Template>** edit box is displayed.
- Enter the desired template value or select a template value from the list by pressing button.

Template variable values:

{352}	WD-4-type additional display (set by default).
{353}	WD-6-type additional display
{354}	WWG-2-type additional display.

- Press button to confirm.

10.5. Additional Bar Graph

The scale can be integrated with an additional LED bar graph of type WSD-1.

10.5.1. Additional Bar Graph Port

The scale can communicate with an additional bar graph via the following ports:

RS 232 (1)	RS 232 ports (M12 8P connectors).
RS 232 (2) *	
RS 232 (3) *	
RS 485 *	RS 485 port (M12 8P connector).

***) –** *optional design.*

Procedure:

- Enter **<Peripherals / Additional bar graph / Port>** submenu and select respective port.

⚠	***In <Communication> submenu, set the baud rate to match the additional bar graph (115200b/s).***

10.5.2. Additional Bar Graph Type

Parameter allowing you to set additional bar graph type.

	The additional bar graph types are analogous to the diode bar graph types and are described in detail in section 12.2 of the user manual.

10.5.3. Additional Bar Graph's LED Brightness

Changing the brightness of the additional bar graph LEDs.

Procedure:

- Enter **<Peripherals / Additional bar graph / LED brightness>** submenu and set respective value.

Values: 0%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, **100%** (set by default).

10.5.4. Measurement Record Signalling

At the moment of measurement record all green bar graph diodes are on for 1[s].

Procedure:

- Enter **<Peripherals / Additional bar graph / Measurement record signalling>** submenu and enable measurement record signalling (✔ - measurement record signalling enabled, ✔ - measurement record signalling disabled).

10.6. Transponder Card Scanner

The scale works with a transponder card scanner for user selection (login) or vehicle selection from the database.

	For correct 'scale' - 'transponder card scanner' operation, set the appropriate baud rate value in the <Communication> submenu (by default, 9600b/s).

10.6.1. Transponder Card Scanner Port

Parameter allowing you to set port for communication between the scale and the transponder card scanner. Available ports:

RS 232 (1)	RS 232 ports (M12 8P connectors).
RS 232 (2) *	
RS 232 (3) *	

***) –** *optional design.*

Procedure:

- Enter **<Peripherals / Transponder card scanner / Port>** submenu and select respective port.

10.6.2. Field Selection

A parameter that allows you to specify which field to search in which databases.

Procedure:

- Enter **<Peripherals / Transponder card scanner / Field selection>** submenu, a list of fields for search is displayed.

Values: Operator, Vehicle.

10.6.3. Assigning a Card Number to a Record in the Database

In order to log in or select a vehicle using a transponder card scanner, a procedure must first be carried out to assign a card number to an operator or vehicle in the database.

Procedure:

- Select 'scale' - ' transponder card scanner' communication port.
- Connect the transponder card scanner to the RS 232 port.
- Go to **<Communication>** submenu and set a baud rate compatible with the baud rate of the transponder card scanner (by default, 9600b/s).
- Enter the operators or vehicles database and edit the record.
- Go to **<Card number>**, the **<Card number>** edit box is displayed.
- Bring the card close to the transponder card reader. The scale program automatically displays the number of the registered card in the **<Card number>** edit box.
- Press ✓ button to confirm.

10.7. Modbus

Modbus protocol settings configuration.

⚠	***For detailed information regarding Modbus protocol read „MODBUS - Communication Protocol of PUE HX7".***

10.7.1. Protocol Type

- Enter **<Peripherals / Modbus** / **Type>** submenu and set respective option.

Values:

RTU	Modbus RTU protocol type.
TCP	Modbus TCP protocol type.

10.7.2. Modbus RTU

Modbus RTU protocol can be used via the following communication interfaces:

RS 232 (1)	RS 232 ports (M12 8P connectors).
RS 232 (2) *	
RS 232 (3) *	
RS 485 *	RS 485 port (M12 8P connector).
Ethernet	Ethernet port (RJ45 connector).

***) –** *optional design.*

Procedure:

- Enter **<Peripherals / Modbus / Port>** submenu and set respective port. **<Port settings>** submenu differs depending on the selected port:

Port	Settings
RS 232 (1)	Baud rate: 2400 - 115200 bit/s. Data bits: 7, 8. Stop bits: 1, 2. Parity: None, Odd, Even.
RS 232 (2) *	
RS 232 (3) *	
RS 485 *	
Ethernet	Port: number of port for transmission protocol (by default **502**). Timeout [ms]: time delay - time interval for disconnection, counted from the moment of the most recent command sent from the peripheral device to which the weighing device is connected.

***) –** *optional design.*

10.7.3. Modbus TCP

Modbus TCP protocol can be used via the Ethernet communication interfaces:

Procedure:

- Enter **<Peripherals / Modbus / Port>** submenu and set <**Ethernet**> option.

Submenu structure <**Port settings**>:

Port	Settings
Ethernet	Port: number of port for transmission protocol (by default **502**). Timeout [ms]: time delay - time interval for disconnection, counted from the moment of the most recent command sent from the peripheral device to which the weighing device is connected.

***) –** *optional design.*

10.7.4. Address

- Enter **<Peripherals / Modbus** / **Address>** submenu, **<Address>** edit box with an on-screen keyboard is displayed.
- Enter the address and press button to confirm changes.

11. ADDITIONAL MODULES

Configuration of optional scale modules (anybus module, analog output module).

Access path: **< / Additional modules>**.

11.1. Anybus Module

Activation of a universal anybus module supporting the following communication modules: Profibus, Profinet, EtherNet/IP™.

Procedure:

- Install anybus module on your scale, enter **<Additional modules / Anybus module / Activation>** submenu and set a respective option (- module enabled, - module disabled).
- Upon module activation, **<Module type>** parameter gets displayed automatically. Parameter value is set automatically depending on the installed communication module type (Profibus, Profinet or EtherNet/IP™).

	<Module type> parameter set to <None> value means that no communication module is installed on the scale (Profibus, Profinet or EtherNet/IP™).
	For detailed description of installation procedure and technical specification of Profibus, Profinet, EtherNet/IP™ modules read „PUE HX7 indicator user manual".
	EtherNet/IP™ is a trade mark of ODVA, Inc.

11.1.1. Profibus Module

- Install Profibus module on your scale, enter **<Additional modules / Anybus module / Activation>** submenu.
- Set **<Activation>** parameter to ✔ value, Profibus module settings are displayed automatically:

Parameter	Description
Module type	Preview of installed module type.
Byte order	Data record form. Values: **<Big Endian>** - the most significant byte of the data, placed at the byte with the lowest address; **<Little Endian>** - the least significant byte of the data, placed at the byte with the lowest address.
Address	Scale address setting. Default value **1**.

⚠	***For detailed information regarding Profibus protocol read „PROFIBUS - Communication Protocol of PUE HX7" manual.***

11.1.2. Profinet Module

- Install Profinet module on your scale, enter **<Additional modules / Anybus module>** submenu.
- Set **<Activation>** parameter to ✔ value, Profinet module settings are displayed automatically:

Parameter	Description
Module type	Preview of installed module type.
Byte order	Data record form. Values: **<Big Endian>** - the most significant byte of the data, placed at the byte with the lowest address; **<Little Endian>** - the least significant byte of the data, placed at the byte with the lowest address.
Address	Scale's IP address. Default value **0.0.0.0**.
Subnet mask	Subnet mask. Default value **0.0.0.0**.
Default gateway	Default gateway. Default value **0.0.0.0**.
Name	Profinet module name.

⚠	***For detailed information regarding Profinet protocol read „PROFINET - Communication Protocol of PUE HX7" manual.***

11.1.3. EtherNet/IP™ Module

- Install EtherNet/IP™ module on your scale, enter **<Additional modules / Anybus module>**submenu.
- Set **<Activation>** parameter to ✔ value, EtherNet/IP™ module settings are displayed automatically:

Parameter	Description
Module type	Preview of installed module type.
Byte order	Data record form. Values: **<Big Endian>** - the most significant byte of the data, placed at the byte with the lowest address; **<Little Endian>** - the least significant byte of the data, placed at the byte with the lowest address.
Address	Scale's IP address. Default value **0.0.0.0**.
Subnet mask	Subnet mask. Default value **0.0.0.0**.
Default gateway	Default gateway. Default value **0.0.0.0**.

	For detailed information regarding EtherNet/IP™ protocol read „PROFINET - Communication Protocol of PUE HX7" manual.

11.2. Analog Output Module

	For detailed description of installation procedure and technical specification of analog output module read „PUE HX7 indicator user manual".

11.2.1. Module Activation

- Install analog output module on your scale, enter **<Additional modules / Analog outputs module / Activation>** submenu and set a respective option (- module enabled, - module disabled).
- Upon module activation, analog output module settings get displayed automatically.

Parameter	Description
Working mode	Press to select module's working mode. Values: **4-20mA**, **0-20mA**, **0-24mA**, **0-10V**.
Section linearity	Press to run function of determination of transient linear characteristics of analog output module (read section 11.2.2).

11.2.2. Section Linearity

Depending on configuration of analog output module it is possible to determine:

- Transient voltage characteristics (voltage output 0÷10V).
- Transient current characteristics (current output: 4÷20mA, 0÷20mA or 4÷24mA).

	In order to determine transient characteristics, install analog output module in the indicator, and connect it in accordance with diagrams from „PUE HX7 indicator" user manual.
	For readout of current values use milliammeter with min. range of 20 mA and resolution of 0.01 mA (20 mA – full range of current output module).
	For readout of voltage values use voltmeter with min. range of 10 V and resolution of 0.01 V (10 V – full range of voltage output module).

11.2.2.1. Linearity Determination

Declaring mass values for subsequent linearity steps and determining corrections using scale software.

Procedure:

- Enter **<Additional modules / Analog outputs module / Section linearity / Determine>** submenu, message **<Put weight [1]>** is displayed.
- Load the weighing pan remembering that the load mass must equal weight value specified for the first linearity correction point.
- Press ✓ button to confirm. **<Give obtained value [mA>** edit box is displayed.
- Enter current value, **[mA]**, indicated by a milliammeter connected to the circuit.
- Press ✓ button to confirm, message **<Determine next point?>** is displayed.
- Press the confirmation button. Message **<Put weight [2]>** is displayed.
- Linearity correction process for the remaining points is analogous to the linearity correction process for the 1st and 2nd point.
- In order to end the process when message **<Determine next point?>** is displayed press ✕ button. Message **<Completed>** is displayed first, **<Section linearity>** submenu next.

11.2.2.2. Corrections

Editing correction values for linearity points.

Procedure:

- Enter **<Additional modules / Analog outputs module / Section linearity>** submenu.
- Select **<Corrections>** parameter. A list of determined linearity correction points is displayed. The list contains mass values for each correction point and corresponding correction values, given in [mA].
- Select requested position, **<Mass [xxx]>** edit box is displayed.
- Enter requested correction value and/or press ✓ button to confirm. **<Correction [mA]>** edit box is displayed automatically.
- Enter requested correction value and/or press ✓ button to confirm. **<Corrections>** submenu is displayed automatically.

***)** – *adjustment unit.*

11.2.2.3. Deleting Linearity

- Enter **<Additional modules / Analog outputs module / Section linearity>** submenu.
- Select **<Delete>** parameter. Message **<Delete?>** is displayed.
- Press button to confirm.

12. DIODE BAR GRAPH

Diode bar graph takes top part of the operation panel, it consists of 9 red and green diode fields. It is a graphic visualisation informing you how much of the weighing device capacity is used. It allows to observe whether the load stays within the specified Max capacity or is out of it. It also shows position of **Min** and **Max** thresholds and record of the measurement to scale's memory.

In order to set diode bar graph enter **<** **/ Diode bar graph>** submenu.

12.1. Activation

Parameter allowing you to enable / disable diode bar graph.

Procedure:

- Enter **<Diode bar graph / Activation>** submenu and activate diode bar graph (- diode bar graph enabled, - diode bar graph disabled).

12.2. Diode Bar Graph Type

Parameter allowing you to set diode bar graph type.

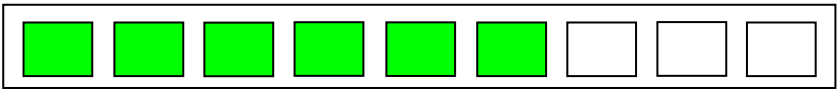
Procedure:

- Enter **<Diode bar graph / Diode bar graph type>** submenu and set the respective option.

Available diode bar graph types: Linear, Weighing thresholds signalling, Checkweighing.

12.2.1. „Linear”

Bar graph of this type provides you with a linear presentation of the weighing range.



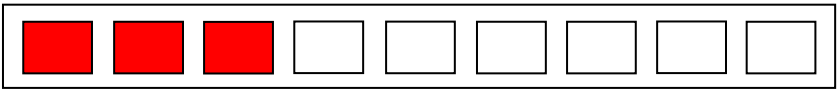
12.2.2. Weighing Threshold Signalling

Weighing Threshold Signalling bar graph signals weighing thresholds, MIN and MAX. It is possible to configure operation mode for the signalling diodes, available modes: MIN, OK, MAX:

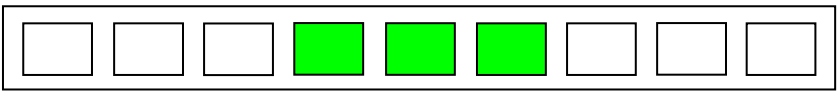
Parameter	Description
MIN	MIN operation mode: **Standard** - diodes on, indication below MIN value; **Stable** - diodes on, indication below MIN value when the weighing result gets stable; **None** - diodes off.
OK	OK operation mode: **Standard** - diodes on, indication between MIN, MAX values; **Stable** - diodes on, indication between MIN, MAX values when the weighing result gets stable; **None** - diodes off.
MAX	MAX operation mode: **Standard** - diodes on, indication above MAX value; **Stable** - diodes on, indication above MAX value when the weighing result gets stable; **None** - diodes off.

Bar graph operation:

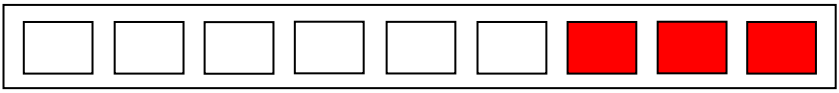
- Visualisation of mass value lower than MIN value:



- Visualisation of mass value higher than MIN value and lower than MAX value:



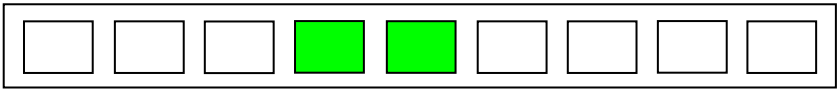
- Visualisation of mass value higher than MAX value:



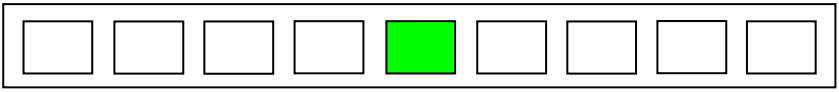
12.2.3. „Checkweighing”

Bar graph of this type shows percent deviation of nominal mass.

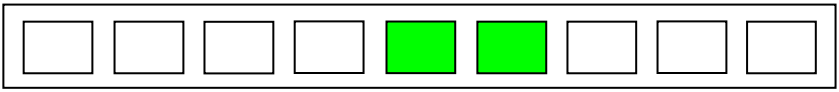
- If the measured mass value is higher than the MIN value and lower than 1/3 of MIN-MAX range, then the centre green field lights up along with the field on its left.



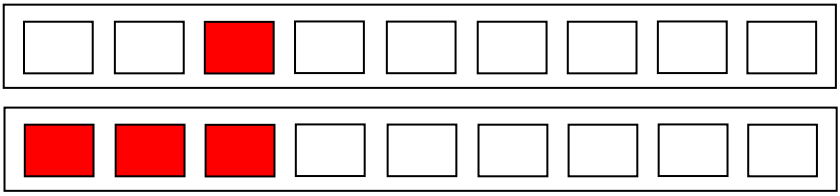
- If the measured mass value is higher than 1/3 and lower than 2/3 of MIN-MAX range, then the centre green field lights up.



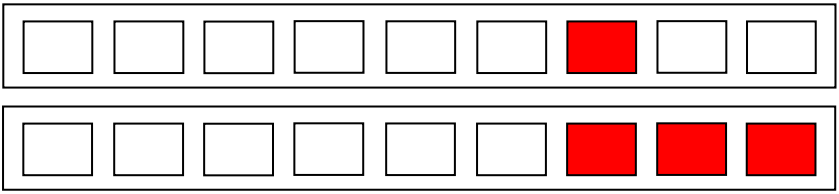
- If the measured mass value is higher than 2/3 of MIN-MAX range and lower than MAX value, then the centre green field lights up along with the field on its right.



- If the measured mass value is lower than the set MIN value, then the left red fields light up. The lower the measured mass value the more red fields lit up.



- If the measured mass value is higher than the set MAX value, then the right red fields light up. The higher the measured mass value the more red fields lit up.



12.3. Measurement Record Signalling

At the moment of measurement record all green bar graph diodes are on for 1[s].

Procedure:

- Enter **<Diode bar graph / Measurement record signalling>** submenu and enable measurement record signalling (✔ - measurement record signalling enabled, ✔ - measurement record signalling disabled).

13. PRINTOUTS

Configuration of printouts.

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

13.1. Print Mode: Header – GLP Printout - Footer

Printout comprises 3 basic sections:

Header	Group of parameters allowing you to declare variables that are to be printed on a header printout.
GLP printout	Group of parameters allowing you to declare variables that are to be printed on a measurement printout.
Footer	Group of parameters allowing you to declare variables that are to be printed on a footer printout.

For each section a customised list of printout variables has been specified. You must set respective option either enabling or disabling particular variable printing.

Printout variables:

HEADER	GLP printout	FOOTER
Dashes *	Date	Working mode
Working mode *	Time	Date
Date *	Operator	Time
Time *	Product	Scale type
Scale type	Customer	Scale S/N
Scale S/N	Packaging	Operator
Operator *	Universal variable 1	Product
Product *	Universal variable 2	Customer
Customer	Universal variable 3	Universal variable 1
Universal variable 1	Net	Universal variable 2
Universal variable 2	Tare	Universal variable 3
Universal variable 3	Gross	Platform number
Platform number	Current result *	Dashes *
Empty line *	Platform number	Empty line *
Adjustment report	Adjustment report	Adjustment report
Non-standard printout	Non-standard printout	Signature *
		Non-standard printout

***)** – *Variables accessible by default (marked with ✔ pictogram).*

How to Operate Printouts

1. To print variables comprised within **GLP printout** section which are enabled for printing and marked with ✔ pictogram, press key located on the weighing device panel.

2. To print variables comprised within **Header** and/or **Footer** section which are enabled for printing and marked with ✔ pictogram, press respective programmable button: **<Header printout>** and/or **<Footer printout>**.

⚠	***For detailed procedure informing you how to program buttons, read section 15.2.***

Variable preview:

Variable name	Description
Working mode	Working mode name.
Scale type	Declared scale type.
Scale S/N	Serial number of the scale.
Operator	Logged-in operator name.
Product	Currently selected product name.
Customer	Currently selected customer name.
Packaging	Currently selected packaging names.
Date	Current date.
Time	Current time.
Net	Net weight value in a basic unit (calibration/adjustment unit).
Tare	Tare weight value in a current unit.
Gross	Gross weight value in a current unit.
Universal variable 1	Value of universal variable 1.
Universal variable 2	Value of universal variable 2.
Universal variable 3	Value of universal variable 3.
Platform number	Number of platform via which the adjustment was carried out.
Current result	Measurement result in a current unit.
Adjustment report	Adjustment report printed according to the settings declared for the adjustment report printout.
Dashes	Dashes separating printout data.
Empty line	Blank line.
Signature	An area for the signature of an operator carrying out the measurement.
Non-standard printout	One of 10 non-standard printouts.

Printout examples:

---------- Working modes Weighing Date 24.07.2013 Time 7:37:30 ScaleType AS Balance ID 10353870 User ADMIN ENG Product Tablet	Date 04.06.2013 Time 11:11:24 AM Product NAZWA 0.000 g	---------- Date 24.07.2013 Time 7:41:10 User ADMIN ENG Signature .....
Header	*GLP printout*	*Footer*

13.2. Non-Standard Printouts

The program allows to design 10 non-standard printouts. Each of them can consist of approximately 1900 characters (letters, digits, special signs, spaces), including:

- fixed texts,
- variables conditioned by a particular working mode and operator needs (mass, date, checkweighing thresholds).

⚠	***For list of printout variables read ANNEX 02** manual**.***

Procedure for adding a non-standard printout:

- Enter **<Printouts / Non-standard printouts>** submenu.
- Press + button (add record) assigned to 3 DEF ↑ panel key, a new record is created, it is defined by the following data:

Name	Non-standard printout name (43 characters maximum).
Code	Non-standard printout code (15 characters maximum).
Project	Text editor of a printout template (1900 characters maximum).

⚠	***For detailed information regarding text box read section 5.3***.

13.3. Dosing Report Printouts

Group of parameters allowing you to declare data that is to be printed on a dosing report printout. Dosing report is generated automatically after either completion or abortion of each process.

Dosing report data:

Title line	Title line of the report printout.
Dosing process	Completed dosing process name.
Start date	Dosing process start date.
End date	Dosing process end date.
Operator	Operator carrying out the dosing process.
Customer	Customer for whom the dosing process is carried out.
Preset mass	Declared net dosing mass.
Preset tare	Declared tare value.
Sum	Net value of mass that is to be dosed, given in an adjustment unit.
Difference	Difference between the net value of mass that is to be dosed and a value of automatic dosing threshold.
Correction	Dosing correction value.
Status	Status of the dosing process, values: **Ongoing**, **Completed**, **Aborted**.
Dashes	Dashed line separating printout data and signature fields.
Signature	Signature field for the person carrying out the process.
Non-standard printout	One of 10 non-standard printouts.

13.4. Formulation Report Printouts

Group of parameters allowing you to declare data that is to be printed on a formulation report printout. Formulation report is generated automatically after either completion or abortion of each process.

Formulation report data:

Title line	Title line of the report printout.
Start date	Formulation start date.
End date	Formulation end date.
Formulation	Formulation name.
Operator	Operator performing formulation process.
Customer	Customer for whom the formulation is carried out.
Ingredient quantity	Number of formulation ingredients.
Measurement quantity	Number of weighings performed within the formulation cycle.
Serial number	Lot number assigned to a formulation.
Ingredients	List of weighed ingredients within a formulation.
Preset mass	Sum of declared nominal masses of the ingredients.

Sum	Total weight value of the performed formulation.
Difference	Difference between the sum and the value of expected target weight.
Status	Formulation status. Status values: **Ongoing**, **Aborted**, **Completed**.
Dashes	Dashed line separating printout data and signature fields.
Signature	Signature field for the person carrying out the process.
Non-standard printout	One of 10 non-standard printouts.

13.5. Vehicle Weighing Report Printouts

Group of parameters allowing you to declare data that is to be printed on a vehicle weighing report printout. Vehicle weighing report is generated automatically after either completion or abortion of each transaction.

Vehicle Weighing Report Printouts: Weighing 1 ticket, Weighing 2 ticket, Control weighing ticket, Vehicle weighing report.

Weighing 1 ticket data:

Title line	The title line of the weighing ticket.
Date and time	Date and time of weighing 1.
Vehicle	Vehicle name (registration number).
Weighing 1 mass	Weight value of weighing 1.
Operator	Operator carrying out the transaction.
Product	Transaction-assigned product.
Customer	Customer for whom the transaction is carried out.
Dashes	Dashed line separating printout data and signature fields.
Signature	Signature field for the person carrying out the process.
Non-standard printout	One of 10 non-standard printouts.

Weighing 2 ticket data:

Title line	The title line of the weighing ticket.
Date and time	Date and time of weighing 2.
Vehicle	Vehicle name (registration number).
Weighing 2 mass	Weight value of weighing 2.
Operator	Operator carrying out the transaction.
Product	Transaction-assigned product.
Customer	Customer for whom the transaction is carried out.
Dashes	Dashed line separating printout data and signature fields.
Signature	Signature field for the person carrying out the process.

Non-standard printout	One of 10 non-standard printouts.

Control weighing ticket data:

Title line	The title line of the weighing ticket.
Date and time	Date and time of control weighing.
Vehicle	Vehicle name (registration number).
Mass	Weight value of control weighing.
Operator	Operator carrying out the transaction.
Product	Transaction-assigned product.
Customer	Customer for whom the transaction is carried out.
Dashes	Dashed line separating printout data and signature fields.
Signature	Signature field for the person carrying out the process.
Non-standard printout	One of 10 non-standard printouts.

Vehicle weighing report data:

Title line	The title line of the weighing ticket.
Start date	Date and time of transaction start.
End date	Date and time of transaction end.
Vehicle	Vehicle name (registration number).
Weighing 1 mass	Weight value of weighing 1.
Weighing 2 mass	Weight value of weighing 2.
Load mass	Weight value of vehicle load.
Operator	Operator carrying out the transaction.
Product	Transaction-assigned product.
Customer	Customer for whom the transaction is carried out.
Status	Transaction status. Values: Completed, Ongoing, Aborted.
Dashes	Dashed line separating printout data and signature fields.
Signature	Signature field for the person carrying out the process.
Non-standard printout	One of 10 non-standard printouts.

13.6. Adjustment Report Printouts

Group of parameters allowing you to declare variables that are to be printed on an adjustment report printout. Adjustment report is automatically generated at the end of each adjustment process.

Adjustment report data:

Project	Project name (31 characters maximum).
Adjustment type	Performed adjustment type.
Operator	Logged-in operator name.
Project	Project name printout.
Date	Adjustment performance date.
Time	Adjustment performance time.
Scale S/N	Serial number of the scale.
Platform number	Number of platform via which the adjustment was carried out.
Adjustment result difference	Difference between mass of the adjustment weight that was measured during the last adjustment and mass of a currently measured adjustment weight.
Dashes	Dashed line separating printout data and signature fields.
Signature	Signature field for the person carrying out the process.

14. INPUTS / OUTPUTS

HX7 series device is equipped with 4 inputs and 4 outputs by standard.

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

14.1. Input Setup

- Enter **<Inputs / Outputs>** submenu.
- Select **<Inputs>** parameter and edit respective input, list of functions that can be assigned to the input is displayed. Input functions list is identical like key functions list, read section 15.2.
- Select the function you want to assign to the input, next go back to the home screen.

	By default all functions are assigned with <None> value.

14.2. 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 and edit respective output, list of functions that can be assigned to the output is displayed.

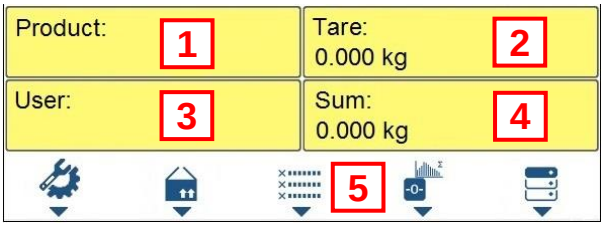
None	Output inactive.
Stable	Stable weighing result over LO threshold value.
MIN stable	Stable weighing result below the MIN threshold.
MIN unstable	Unstable weighing result below the MIN threshold.
OK stable	Stable weighing result between MIN and MAX thresholds.
OK unstable	Unstable weighing result between MIN and MAX thresholds.
MAX stable	Stable weighing result over the MAX threshold.
MAX unstable	Unstable weighing result over the MAX threshold.
Zero	Zero weighing result („zero" marker).
! OK unstable	Unstable weighing result out of OK threshold.
! OK stable	Stable weighing result out of OK threshold.
MIN	MIN threshold signalling.
OK.	OK threshold signalling.
MAX	MAX threshold signalling.
Active process	Ongoing process signalling.
Measurement saved	Signal confirming record of measurement value - output activated for 1 [s].

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

⚠	***By default all functions are assigned with <None> value.***

15. DISPLAY

You can customize the home screen and the displayed data. Customization concerns the workspace (fields 1, 2, 3, 4) and the bottom area (5) featuring programmable buttons with functions assigned to numeric keys of the operation panel:



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

15.1. Workspace

Workspace can comprise the following widgets: label, text box, bar graph. Each working mode features a default home screen widget set. Available field **(widget)** dimensions (width x height):

- Label – 1x1; 2x1.
- Text box - 1x1; 2x1.
- Bar graph – 1x1; 2x1.

2x1 field size equals size of two 1x1 fields (1 and 2 or 3 and 4). The program automatically detects suitable widget size matching particular area. The widgets are displayed in declared fields after completing data setup and leaving 'Settings' menu.

15.1.1. Label

Field displaying information updated in real time in the course of weighing device operation (selected product name, gross weight value, etc.).
<Workspace components> submenu for a field comprising **<Label>** widget features the following parameters:

Information	Enter this parameter to read info on selected widget type and dimensions.
Settings	Enter this parameter to specify which widget-assigned data is to be displayed.
Delete	Enter this parameter to delete the widget. Upon entering, a respective warning is displayed: **<Delete?>**. Press key to confirm. All database records get deleted.
Add	Option available only if the widget has not been added yet. Upon entering **<Add>** submenu you can select **<Label>** widget of particular dimensions.

Label data list (data accessibility is conditioned by a working mode).

Net	✓	✓	✓	✓	✓	✓
Tare	✓	✓	✓	✓	✓	✓
Gross	✓	✓	✓	✓	✓	✓
Operator	✓	✓	✓	✓	✓	✓
Product	✓	✓	✓	✓	✓	✓
Packaging	✓	✓	✓	✓	✓	✓
Customer	✓	✓	✓	✓	✓	✓

Lot number	✓	✓	✓	✓	✓	✓
Batch number	✓	✓	✓	✓	✓	✓
Universal variable 1	✓	✓	✓	✓	✓	✓
Universal variable 2	✓	✓	✓	✓	✓	✓
Universal variable 3	✓	✓	✓	✓	✓	✓
Date	✓	✓	✓	✓	✓	✓
Time	✓	✓	✓	✓	✓	✓
Date and time	✓	✓	✓	✓	✓	✓
Thresholds	✓	✓	✓			
MIN threshold	✓	✓	✓			
MAX threshold	✓	✓	✓			
Number	✓	✓	✓			
Sum	✓	✓	✓			
Gross sum	✓	✓	✓			
Order number	✓					
Average	✓	✓	✓			
Min	✓	✓	✓			
Max	✓	✓	✓			
SDV	✓	✓	✓			
Net value	✓	✓	✓			
Gross value	✓	✓	✓			
Order number	✓					
Part mass		✓				
Reference mass			✓			
Formulation					✓	
Dosing process				✓		
Ingredient					✓	
Vehicle						✓

✓ *- Default label settings.*

15.1.2. Text Box

Field displaying weighing-related information. As an operator you can freely program the field content (texts and variables of line 1 and line 2).

⚠	***For detailed information regarding text box read section 5.3.2.*** ***For list of printout variables read ANNEX 02 manual.***

<Workspace components> submenu for a field comprising **<Text box>** widget features the following parameters:

Information	Enter this parameter to read info on selected widget type and dimensions.
Settings	Enter this parameter to specify which widget-assigned data is to be displayed. Upon entering this parameter **line 1** and **line 2** settings are displayed. Lines 1, 2 can comprise 45 characters maximum.
Delete	Enter this parameter to delete the widget. Upon entering, a respective warning is displayed: **<Delete?>**. Press ✓ key to confirm. All database records get deleted.
Add	Option available only if the widget has not been added yet. Upon entering **<Add>** submenu you can select **<Text field>** widget of particular dimensions.

15.1.3. Bar Graph

Bar graph widget is available for all working modes. It is a graphic visualisation informing you how much of the weighing device capacity is used. It allows to observe whether the load stays within the specified Max capacity or is out of it. Additionally it shows:

- position of **Min** and **Max** thresholds in **<Weighing>**, **<Parts Counting>**, **<Percent weighing>** working modes,
- position of **dosing thresholds** ,
- position of **percent weighing** range,

<Workspace components> submenu for a field comprising **<Bar graph>** widget features the following parameters:

Information	Enter this parameter to read info on selected widget type and dimensions.
Settings	This submenu provides two functions: **1. Bar graph type**: Linear (linear presentation of the weighing range); **2. Zoom**: Enabling/disabling bar graph zoom in order to provide more clear visualisation of the 'Min threshold' - 'Max threshold' range.
Delete	Enter this parameter to delete the widget. Upon entering, a respective warning is displayed: **<Delete?>**. Press ✓ key to confirm. The widget gets deleted.
Add	Option available only if the widget has not been added yet. Upon entering **<Add>** submenu you can select **<Bar graph>** widget of particular dimensions.

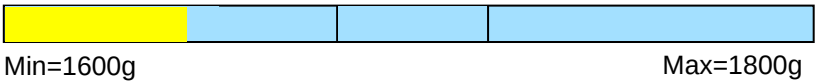
Bar graph operation, MIN and MAX thresholds displayed:

Bar graph of this type provides you with a linear presentation of the weighing range.

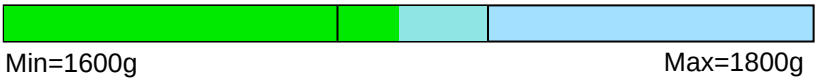
Min=0g Max=0g

Additionally it shows where Min and Max thresholds are (providing that they have been declared).

- Visualisation of mass value lower than MIN value:



- Visualisation of mass value higher than MIN value and lower than MAX value:



- Visualisation of mass value higher than MIN value and lower than MAX value, **<Zoom>** option on:

- Visualisation of mass value higher than MAX value:

⚠	***MAX threshold value has to be greater than MIN threshold value.***
⚠	***For detailed description on how to set MIN, MAX thresholds refer to section 8.5.***

15.2. Button Functions

Programmable numeric keys (0 - 9). These are so called quick access keys for triggering the most often performed operations. Numeric keys 1 - 5 are additionally provided with graphic symbol which you can see in the bottom bar of the display.

Procedure:

- Enter **<Display / Buttons functions>** submenu, edit a respective key.
- Select the function you want to assign to the key, next go back to the home screen.

Key functions (function accessibility is conditioned by a working mode).

	Function	Working mode					
	Working mode parameters	✔	✔	✔	✔	✔	✔
	Select product	✔	✔	✔	✔	✔	✔
	Select product by name	✔	✔	✔	✔	✔	✔
	Select product by code	✔	✔	✔	✔	✔	✔
	Select formulation					✔	
	Select formulation by name	✔	✔	✔	✔	✔	✔
	Select formulation by code	✔	✔	✔	✔	✔	✔
	Select dosing process				✔		
	Select dosing process by name	✔	✔	✔	✔	✔	✔
	Select dosing process by code	✔	✔	✔	✔	✔	✔
	Select vehicle						✔
	Select a vehicle by name	✔	✔	✔	✔	✔	✔
	Select a vehicle by code	✔	✔	✔	✔	✔	✔
	Select ongoing transaction						✔
	Select packaging	✔	✔	✔	✔	✔	✔
	Select packaging by name	✔	✔	✔	✔	✔	✔
	Select packaging by code	✔	✔	✔	✔	✔	✔
	Select customer	✔	✔	✔	✔	✔	✔
	Select customer by name	✔	✔	✔	✔	✔	✔
	Select customer by code	✔	✔	✔	✔	✔	✔
	Set tare	✔	✔	✔	✔	✔	✔
	Set MIN and MAX	✔	✔	✔	✔	✔	✔
	Print header	✔	✔	✔	✔	✔	✔
	Print footer	✔	✔	✔	✔	✔	✔

	Statistics: Zero	✔	✔	✔	✔	✔	✔
	Statistics: Print	✔	✔	✔	✔	✔	✔
	Statistics: Print and zero	✔	✔	✔	✔	✔	✔
	Edit labels quantity	✔	✔	✔	✔	✔	✔
	Edit C labels quantity	✔	✔	✔	✔	✔	✔
	Edit lot number	✔	✔	✔	✔	✔	✔
	Edit batch number	✔	✔	✔	✔	✔	✔
V_1	Edit universal variable 1	✔	✔	✔	✔	✔	✔
V_2	Edit universal variable 2	✔	✔	✔	✔	✔	✔
V_3	Edit universal variable 3	✔	✔	✔	✔	✔	✔
	Databases	✔	✔	✔	✔	✔	✔
	Reports	✔	✔	✔	✔	✔	✔
	Select operator	✔	✔	✔	✔	✔	✔
	Select operator by name	✔	✔	✔	✔	✔	✔
	Select operator by code	✔	✔	✔	✔	✔	✔
	Print	✔	✔	✔	✔	✔	✔
	Zero	✔	✔	✔	✔	✔	✔
	Tare	✔	✔	✔	✔	✔	✔
	Parameters	✔	✔	✔	✔	✔	✔
MODE	Change working mode	✔	✔	✔	✔	✔	✔
	Change unit	✔					
	Last digit	✔					
	Set date	✔	✔	✔	✔	✔	✔
	Set time	✔	✔	✔	✔	✔	✔
	Log out	✔	✔	✔	✔	✔	✔
	Set part mass		✔				
	Determine part mass		✔				
	Assign reference sample		✔				

5	Reference sample quantity - 5 pcs		✓				
10	Reference sample quantity – 10 pcs		✓				
20	Reference sample quantity – 20 pcs		✓				
50	Reference sample quantity – 50 pcs		✓				
100	Reference sample quantity – 100 pcs		✓				
	Set reference sample mass			✓			
	Determine reference sample mass			✓			
▶	Process start				✓	✓	
✕	Process stop				✓	✓	✓
‖	Process pause					✓	
	Breakdown				✓		
	Change platform	✓	✓	✓	✓	✓	✓
☐	None	✓	✓	✓	✓	✓	✓

✓ *- Default key settings.*

15.3. Default Screen Settings

Function allowing you to set default workspace values and default function keys for a particular working mode.

Procedure:

- Enter **<Display / Default screen settings>** submenu, a respective warning is displayed: **<Continue?>**.
- Press ✓ key to confirm.
- Default workspace values and default function keys for a particular working mode are set. Next, **<Display>** submenu is shown automatically.

16. PERMISSION LEVELS

Configuration of permissions for particular users. **<Permissions>** submenu is available for operators logged as **Administrator**.

Access path: **<** ⌂ **/ Permissions>**.

16.1. Anonymous Operator

Parameter allowing you to assign unlogged scale operator (so called anonymous operator) with a permission level.

Procedure:

- Enter **<Permissions / Anonymous operator>** submenu.
- Set one of four options: None, Operator, Advanced operator, Administrator.

16.2. Date and Time

Change of permission level for **<Date and time>** parameter.

Procedure:

- Enter **<Permissions / Date and time>** submenu.
- Set one of four options: None, Operator, **Advanced operator** (set by default), Administrator.

⚠	***When <None> option is set, all unlogged operators can set date and time.***

16.3. Printouts

Change of permission level for **<Printouts>** menu.

Procedure:

- Enter **<Permissions / Printouts>** submenu.
- Set one of four options: None, Operator, Advanced operator, **Administrator** (set by default).

⚠	***When <None> option is set, all unlogged operators can edit printouts.***

16.4. Database Editing

Parameter allowing you to set permission levels enabling particular operators to edit the following databases: products, formulations, dosing processes, packaging, customers, universal variables, vehicles.

Procedure:

- Enter **<Permissions / Databases edition>** submenu.

- Select respective database and set one of four options: None, Operator, Advanced operator, **Administrator** (set by default).

⚠	***When <None> option is set, all unlogged operators can edit particular database.***

16.5. Select Database Record

Parameter allowing to set permission levels enabling particular operators to select given database records: products, formulations, dosing processes, packagings, customers, universal variables, vehicles.

Procedure:

- Enter **<Permissions / Select database record>** submenu.
- Select respective database and set one of four options: None, **Operator** (set by default), Advanced operator, Administrator.

⚠	***When <None> option is set, all unlogged operators can select particular database records.***

17. UNITS

Option available for the Weighing mode exclusively

Device units configuration.

Access path: **<** ⌂ **/ Units>**.

⚠	***Accessibility of particular units is conditioned by weighing device status; i.e. it depends on the fact whether the given scale is verified or not.***

17.1. Units Availability

Parameter allowing to declare which units are to be accessible upon pressing unit key.

Procedure:

- Enter **<Units / Availability>** submenu.
- Unit list is displayed, mark units of your choice as available. (✓ - Unit enabled; ✓ - Unit disabled).

17.2. Start Unit

Parameter allowing you to set start unit. Upon setting the start unit, the scale activates with the set start unit for these modes where change of the unit is possible.

Procedure:

- Enter **<Units>** submenu, next enter **<Start unit activation>** parameter.
- Go to **<Start unit>** submenu and select start unit from the list.
- Go back to the home screen and restart the weighing device.
- After restart, the weighing device runs with the declared start unit.

17.3. Gravitational Acceleration

<Gravitational acceleration> parameter compensates changes of gravity force being a result of different latitude and altitude when the selected unit is „Newton" [N].

Procedure:

- Enter **<Units / Gravitational acceleration>** submenu, **<Gravitational acceleration>** edit box is displayed.
- Enter gravitational acceleration value respective for the particular place of use and press ✓ key to confirm changes.

17.4. Custom Units

Option available for non-verified scales exclusively

Parameter allowing you to declare two custom units. Displayed custom unit value is a result of calculation, where obtained in the course of measurement weight value is multiplied by a multiplier determined for this particular custom unit. By default the custom units are marked as: **[u1]** – custom unit 1 and **[u2]** – custom unit 2.

Procedure:

- Enter **<Units / Custom unit 1>** submenu, set the following parameters:

Name	Unit name (3 characters maximum).
Multiplier	Adjustment unit multiplier.

- Go to the home screen.
- Now you can use the custom unit, to do it press unit key.

⚠	***Procedure for declaring <Custom unit 2> is analogous.***

18. MISCELLANEOUS PARAMETERS

Parameters facilitating scale operation.

Access path: **<** ⌂ **/ Misc>**.

18.1. Interface Language

Parameter allowing you to set program menu language.

Procedure:

- Enter **<Misc / Language>** submenu and set the interface language.

Available languages: Polish, English, German, French, Spanish, Czech, Turkish, Russian.

18.2. 'Beep' Sound

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

Procedure:

- Enter **<Misc / Sound** submenu and set a respective option (✔ - Sound signal enabled; ✔ - Sound signal disabled).

18.3. Display Brightness

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

Procedure:

- Enter **<Misc / Display brightness>** submenu and set respective value.

Values: 0%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, **100%** (set by default).

18.4. Date and time

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

Procedure:

- Enter **<Misc / Date and time>** submenu and change the settings. Refer to the below table:

Parameter	Description
Date	Enter this parameter to set current date.
Time	Enter this parameter to set current time.
Date format *	Enter this parameter to set date format. Values: **YYYY.MM.DD** (set by default), YYYY.DD.MM, DD.MM.YYYY, MM.DD.YYYY, YYYY/MM/DD, YYYY/DD/MM, DD/MM/YYYY, MM/DD/YYYY, YYYY-MM-DD, YYYY-DD-MM, DD-MM-YYYY, MM-DD-YYYY, YYMMDD, YYDDMM, DDMMYY, MMDDYY, D.M.YY, D/M/YY, D.M.YYYY, DD.MM.YY, DD/MM/YY, DD-MM-YY, DD-MMM-YY, DD.MMM.YYYY, M/D/YY, M/D/YYYY, MM/DD/YY, YY-M-DD, YY/MM/DD, YY-MM-DD, YYYY-M-DD.
Time format **	Enter this parameter to set time format. Values: **HH:mm:ss 24H** (set by default), HH:mm:ss 12H, HH-mm-ss 24H, HH-mm-ss 12H, HH.mm.ss 24H, HH.mm.ss 12H.

***)** *Date format symbols*: *Y – year, M – month, D – day.*
****)** *Time format symbols: HH – hour, mm – minute, ss – second, 24H – 24-hour mode, 12H – 12-hour mode.*

18.5. Backlight Standby Time

Parameter allowing you to set time interval, in [min], after which the screen goes black.

Procedure:

- Enter **<Misc / Backlight standby time>** submenu and set respective value.

Values: None (set by default), 0.5, 1, 2, 3, 5.

18.6. Automatic Shutdown

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

Procedure:

- Enter **<Misc / Automatic shutdown>** submenu and set respective value.

Values: None (set by default), 1, 2, 3, 5, 10.

18.7. Automatic turn on

A function that forces the scale to turn on automatically after connecting to a power source.

Procedure:

- Enter **<Misc / Automatic turn on>** submenu and set respective value (✔ - Automatic turn on active, ✔ - Automatic turn on disabled).

18.8. Logging In Required

Function forcing the operator to log in upon scale start-up.

Procedure:

- Enter **<Misc / Loggin in required>** submenu and set a respective option (✔ - Enforced logging enabled, ✔ - Enforced logging disabled).

18.9. Passwords Type

Parameter allowing to select default keypad mode during logging or password change.

Procedure:

- Enter **<Misc / Passwords type>** submenu and set a respective option (**Letters** – Letter mode, **Digits** – Digit mode).

18.10. Codes Type

Parameter allowing to select default keypad mode during database and non-standard printout editing.

Procedure:

- Enter **<Misc / Codes type>** submenu and set a respective option (**Letters** – Letter mode, **Digits** – Digit mode).

18.11. Extension Modules

Means of operation of additional modes, activated with a licence key.

Procedure:

- Enter **<Misc / Extension modules>** submenu, list of additional modules gets displayed.
- Submenu of each module includes **<Licence>** parameter with activity attribute (✔ - Licence enabled, ✔ - Licence disabled).
- During licence activation, **<Password>** edit box gets displayed.

- If you do not have the password, press button, the following message is displayed **<Invalid password. To activate the licence, contact the distributor and enter the code: xxxxxxxxxxxx*>**.
- Once you get the licence password from your manufacturer/distributor, repeat the procedure.

***)** *- 12-digit number, with reference to which licence password is generated in the manufacturer's office.*

18.11.1. SI RES Module

Expanded functionality of communication protocol, enabling communication between the weighing terminal and the external systems of customer.

<SI RES> submenu options:

Licence	Licence key activation. Procedure – read section 16.11.
Activation	Enabling/disabling SI RES module, where: - module operation disabled, - module operation enabled. Parameter enabled after activation of the licence key.

18.12. Default Operator Settings

Parameter allowing to restore default operator settings.

Procedure:

- Enter **<Misc / Restore default operator settings>** submenu, a respective warning is displayed: **<Continue?>**.
- Press key to confirm. Message **<Please wait...>** is displayed, the operation is in progress.
- After completed operation **<Misc>** submenu is displayed.

19. ADJUSTMENT

Option available for non-verified scales exclusively

In order to ensure the highest weighing accuracy, it is recommended to periodically introduce a corrective factor of indications to the weighing device memory, the said factor must be referred to the reference mass. Adjustment has to be carried out prior to the first weighing or if the ambient temperature has changed dynamically. Before the adjustment, unload the weighing pan.

19.1. External Adjustment

External adjustment is carried out using an external mass standard of the right accuracy and weight value, which value depends on scale type and capacity.

The process is carried out semi-automatically, successive process stages are signalled with prompts.

Procedure:

- Enter **<Adjustment / External adjustment>** submenu. Message **<Remove weight>** is displayed.
- Unload the weighing pan and press ✓ key, message **<Adjustment; Please wait...>** is displayed.
- Upon completed start mass determination, message **<Put weight>** and a particular value of mass standard assigned to the scale are displayed.
- Load the weighing pan with the required adjustment weight and press ✓ key.
- Upon completed procedure, message **<Remove weight>** is displayed.
- Take the weight off the weighing pan, the scale displays the **<Adjustment>** submenu.

19.2. User Adjustment

User adjustment can be carried out using any adjustment weight, mass of which ranges between: **0.3 Max - Max**. To run user adjustment procedure enter **<Adjustment / User adjustment>** submenu. User adjustment and **external adjustment** procedures are likewise with one exception, before user adjustment start, an edit box for entering mass of the used adjustment weight is opened.

19.3. Start Mass Determination

If the scale does not require adjustment or you do not have suitable amount of adjustment weights, you can determine start mass only.

Procedure:

- Enter **<Adjustment / Start mass determination>** submenu. Message **<Remove weight>** is displayed.
- Unload the weighing pan and press ✓ key, message **<Start mass determination; Please wait...>** is displayed.
- Upon completion of start mass determination procedure, the scale displays the **<Adjustment>** submenu.

19.4. Adjustment Report

Adjustment report is automatically generated at the end of each adjustment process, next it is sent to port selected for **<Peripherals / Printer>**. To declare report content go to **<Printouts / Adjustment report printouts>** submenu.

For instruction on how to declare adjustment report settings read section 'Printouts'.

Report example:

```
------------Adjustment report-----------
Adjustment type                 External
Operator                       Nowak Jan
Date                          2018.04.10
Time                            13:22:28
Scale S/N                         123456
Adjustment result difference       0.0 g
----------------------------------------
Signature

.......................................
```

20. SCALE DATA

Scale data menu provides information on the weighing device and its program. The parameters serve informative purposes: scale S/N, software version, product code, CPU Id, licence, settings printout. In order to send weighing device settings (all parameters) to printer port, select **<Settings printout>** parameter.

21. WORKING MODES – General Information

The scale features the following working modes: Weighing, Parts counting, Percent weighing, Dosing, Formulations, Vehicle weighing.

21.1. How to Run the Working Mode

- Go to the home screen and press MODE key, **<Working modes>** submenu providing list of available working modes is displayed.
- Select the working mode you need to operate, the home screen is displayed automatically, wherein the top bar of the screen features pictogram of the selected mode.

21.2. Working Mode Accessibility

Parameter allowing to declare which units are to be accessible upon pressing MODE key.

Procedure:

- Enter **<Working modes / Accessibility>** submenu and make given working modes accessible (✔ - working mode enabled; ✔ - working mode disabled).

22. WORKING MODES - Local Settings

In order to set working mode parameters enter **< / Working Modes>** submenu. Particular working modes feature specific functions. The functions enable adapting mode operation to your individual needs. Some of the specific functions are global, i.e. they are applied for all accessible working modes, refer to the table below:

Readout	✓	✓	✓	✓	✓	✓
Save mode	✓	✓	✓	-	-	-
Cyclic record mode	✓	✓	✓	-	-	-
Auto threshold	✓	✓	✓	-	-	-
Result control	✓	✓	✓	-	-	-
Dispensing	✓	✓	✓	✓	✓	-
Peak hold	✓	-	-	-	-	-
Tare mode	✓	✓	✓	-	-	-
Labelling mode	✓	✓	✓	-	-	-
Statistics	✓	✓	✓	-	-	-

Remaining specific functions referring directly to a given working mode are described further down this user manual.

An on-screen button (working mode parameters) that is to be found in each working mode home screen, provides direct access to settings of the given working mode.

22.1. Readout

Readout submenu comprises functions allowing you to adjust your weighing device to ambient conditions of a given workstation.

Filter	Enter this parameter to adjust your weighing device to ambient conditions. The higher filter level, the longer the indication takes to stabilise. Values: **Very fast**, **Fast**, **Average**, **Slow**, **Very slow**.
Value release	Enter this parameter to adjust the rate of stabilisation of the measurement result. Depending on the value, the weighing time is either shorter or longer. Values: **Fast**, **Fast plus reliable**, **Reliable**.
Last digit	Enter this parameter to enable/disable display of the last digit (placed on the right of the decimal point) of the weighing result. Values: **Always:** all digits displayed; **Never:** last digit disabled; **When stable:** last digit displayed only when the result is stable.

Autozero	Enter this parameter to enable automatic control and correction of zero indication. There are, however, some cases when this function can be a disturbing factor for the measuring process, e.g. very slow placing of a load on the weighing pan (load adding, e.g. pouring, filling). In such a case, it is recommended to disable the function. Values: ✓ - function disabled, ✓ - function enabled.
Ambient conditions	Parameter relating to ambient and environmental conditions of the workstation. Enter this parameter and set 'unstable' value if the ambient conditions are unfavourable (air drafts, vibrations). Values: **Stable**, **Unstable**.
Manual multi-range	Transition mode from the higher weighing range to the lower weighing range. Options: ✓ - **Automatic multi-range:** Automatic transition from the higher weighing range to the lower weighing range, when the mass is in autozero; ✓ - **Manual multi-range:** Manual transition from the higher weighing range to the lower weighing range upon pressing 0.

22.2. Save Mode

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

Procedure:

- Enter **<Working modes>** menu and select a respective working mode.
- Enter **<Save mode>** submenu and select respective save mode.

Save mode options:

Manual each stable	Manual printout of each stable weighing result above **<Auto threshold>**.
Manual first stable	Manual printout of the first stable weighing result above **<Auto threshold>**.
Automatic first stable	Automatic printout of the first stable weighing result above **<Auto threshold>**.
Automatic last stable	Automatic printout of the last stable weighing result detected upon the weight value gets below **<Auto threshold>**.
Semi-automatic each stable	Manual printout of each weighing result, where the weight value is above **<Auto threshold>**; this option requires awaiting for the stable weighing result.
Semi-automatic first stable	Manual printout of the first weighing result, where the weight value is above **<Auto threshold>**; this option requires awaiting for the stable weighing result.
Manual each stable/unstable *	Manual printout of each stable/unstable weighing result above **<Auto threshold>**.

***) –** *Option available for non-verified scales exclusively.*

22.3. Cyclic Record Mode

Mode of cyclic sending of the information from a scale to an external device with simultaneous record into the database.

Procedure:

- Enter **<Working modes>** menu and select a respective working mode.
- Enter **<Cyclic record mode>** submenu and set the following parameters:

Activation	Enter to activate cyclic record mode: - cyclic record mode disabled, - cyclic record mode enabled.
Cyclic record interval [min]	Enter to set cyclic record frequency. Record frequency is set in minutes with accuracy of 1[min], frequency range: 1[min] - 1440 [min].

	During record of weighing into a scale database in the cyclic record mode, all weighing conditions must be met (save mode, result control, stable ass readout, etc.)
	Cyclic record is active exclusively in 'Manual each stable' save mode.

22.4. Auto Threshold

<Auto threshold> parameter allows you to configure the function of automatic operation. The next measurement is saved only when the mass indication gets below the set net value of **<Auto threshold>** parameter.

Procedure:

- Enter **<Working modes>** submenu and select respective working mode.
- Enter **<Auto threshold>** submenu and provide respective value, next press key to confirm changes.

22.5. Result Control

When your weighing device operates with 'result control' mode on, the printout is carried out only when mass of load placed on the weighing pan is comprised within **MIN**, **MAX** thresholds. The operation mode is signalled by a respective pictogram, displayed on the right of the weighing result window, MIN, OK, MAX.

Procedure:

- Enter **<Working modes>** menu and select a respective working mode.
- Go to **<Result control>** submenu and set respective parameters:

Activation	Mode activation, where: - result control mode disabled, - result control mode enabled.
MIN	MIN pictogram operation: **Standard** - pictogram on, indication below MIN value; **Stable** - pictogram on, indication below MIN value when the weighing result gets stable; **None** - pictogram off.
OK	OK pictogram operation: **Standard** - pictogram on, indication between MIN, MAX values; **Stable** - pictogram on, indication between MIN, MAX values when the weighing result gets stable; **None** - pictogram off.
MAX	MAX pictogram operation: **Standard** - pictogram on, indication above MAX value; **Stable** - pictogram on, above MAX value when the weighing result gets stable; **None** - pictogram off.

	For MIN=0 and MAX=0 the MIN, OK, MAX pictograms are inactive.
	Pictograms activate when <Auto threshold> value gets exceeded.
	Operation of <Result control> mode excludes operation of <Peak hold> mode.

22.6. Dispensing

Weighing in „dispensing" mode (subtract weighing). Place the load on the weighing pan, tare the scale, subtract particular load portions saving the weighing results, subtract weighing values will be saved to the database.

Procedure:

- Enter **<Working modes>** menu and select a respective working mode.
- Select **<Dispensing>** function and set respective option (- regular weighing mode; - dispensing (subtract weighing) mode).

22.7. Peak Hold

Peak Hold is a working mode allowing to snap the value of maximum force applied to the weighing pan during one weighing process.

Procedure:

- Enter **<Weighing>** mode settings.
- Select **<Peak hold>** parameter and set respective option (- function enabled, - function disabled).

	Operation of <Peak hold> mode excludes operation of <Result control> mode.
	<Peak hold> working mode operates exclusively in <Manual each stable/unstable> record mode.
	In the case of verified balances, the attempt to record „peak value of the weighing result" in the balance memory results with display of the following message: <„Peak hold" function on. Weighing record locked>.
	In the case of non-verified scales, „peak value of the weighing result" saved to balance memory features „unstable" attribute.

Operation:

- With the declared **<Auto threshold>** value exceeded, the function starts record of force value exerted onto the weighing pan. The snapped peak value is signalled by red mass font in the weighing result window.
- Successive process takes place after weighing pan unloading and pressing of →0← key.

22.8. Tare mode

Parameter allowing you to set taring function parameters.

Procedure:

- Enter **<Working modes>** menu and select a respective working mode.
- Go to **<Tare mode>** submenu and set respective option.

Where:

Single	Regular tare mode, select this parameter to make the scale overwrite the set (selected) tare value with the most recently entered one.
Current sum	Select this parameter to sum currently entered product and packaging tare values, and tare value entered manually (if given). Upon determining tare value for a product or a packaging again, the tare value entered manually is deleted. To overwrite total tare value, tare the scale using →T← key.
Total sum	Total value of all entered tare values. To overwrite total tare value, tare the scale using →T← key.
Autotare	Select this parameter to run autotare mode.
Each measurement	Select this parameter to make the scale automatically tare each accepted measurement.

22.9. Labelling Mode

Labelling system is designed to print labels for product marking. The program generates standard labels, for single products, and cumulative labels, for bulk boxes.

Custom functions of <Labelling mode> submenu:

Labels quantity	Parameter for declaring number of labels to be printed on the scale-connected printer.
C labels quantity	Parameter for declaring number of C labels to be printed on the scale-connected printer.
Automatic C label triggering	For detailed description read section 22.7.1.

22.9.1. Automatic C Label Triggering

Automatic C Label Triggering function allows to trigger printout of C label, to do it you must define **<Mode>** and **<Threshold>** parameters.

Procedure:

- Enter **<Working modes>** submenu and select respective working mode.
- Go to **<Labelling mode / Automatic C label triggering / Mode>** parameter and set respective option, where:

None	**Manual** printout of C label *, performed upon pressing of either or button.
Mass	Automatic printout of C label, triggered upon exceeding of the total mass value of all single labels, set in **<Threshold>** parameter.
Number	Automatic printout of C label, triggered upon exceeding single labels quantity, set in **<Threshold>** parameter.

***)** Manual printout of C labels is carried out using one of the two below programmable buttons:

	Printout with zeroing (weighings qty. and total mass values are zeroed).
	Printout without zeroing (weighings qty. and total mass values are not zeroed).

	In the case of automatic printout of C labels, counter zeroing function is always on (weighings qty. and total mass values are always zeroed).

- To confirm introduced modifications, press key and go to **<Threshold>** parameter, **<Threshold>** edit box opens.

- Set the value that is to trigger C label printout, mind that:
  - in the case of **<Mode>** parameter set to **<Mass>** value, you must provide total mass value, upon obtaining of which you want the C label printout to be triggered,
  - in the case of **<Mode>** parameter set to **<Counter>** value, you must provide quantity value, upon obtaining of which you want the C label printout to be triggered.
- To confirm introduced modifications, press ✓ key.

22.10. Statistics

All statistical data is updated in an ongoing manner. The statistical data can be updated globally (regardless of the weighted product) or individually for each product selected from the database.

Procedure:

- Enter **<Working modes>** submenu and select respective working mode.
- Go to **<Statistics>** parameter and set respective option.

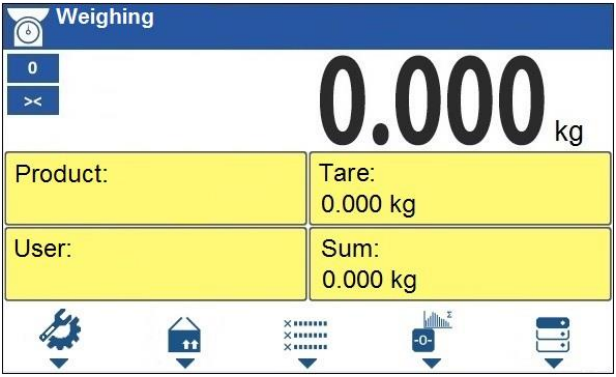
Where:

Global	Update of statistical data carried out globally.
Product	Update of statistical data carried out individually for each product selected from the database.

23. WORKING MODE – WEIGHING

<Weighing> is a standard working mode enabling to carry out the weighing operation, and record of the result to the database.

23.1. Home Screen



23.2. Local Settings

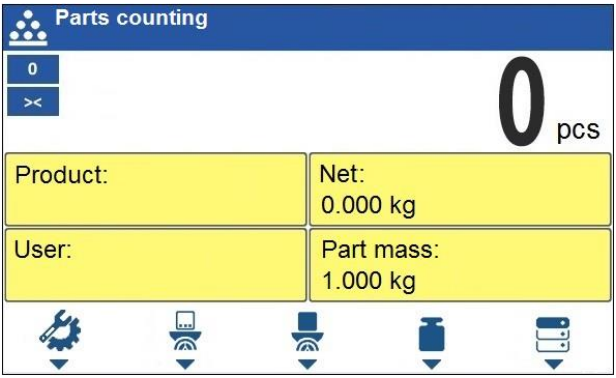
In order to access local settings, press the operation panel key to which **<Working mode parameters>** pictogram is assigned:

Readout	For detailed description read section 22.1.
Save mode	For detailed description read section 22.2.
Cyclic record mode	For detailed description read section 22.3.
Auto threshold	For detailed description read section 22.4.
Result control	For detailed description read section 22.5.
Dispensing	For detailed description read section 22.6.
Peak hold	For detailed description read section 22.7.
Tare mode	For detailed description read section 22.8.
Labelling mode	For detailed description read section 22.9.
Statistics	For detailed description read section 22.10.

24. WORKING MODE – PARTS COUNTING

<Parts counting> is a working mode enabling you to determine quantity of small pieces of the same mass, which determination is done on the basis of reference weight value of a single piece, either determined using the weighing device or taken form the database.

24.1. Home Screen



24.2. Local Settings

In order to access local settings, press the operation panel key to which **<Working mode parameters>** pictogram is assigned:

ACAI	For detailed description read section 24.2.1.
Minimum reference sample mass	For detailed description read section 24.2.2.
Readout	For detailed description read section 22.1.
Save mode	For detailed description read section 22.2.
Cyclic record mode	For detailed description read section 22.3.
Auto threshold	For detailed description read section 22.4.
Result control	For detailed description read section 22.5.
Dispensing	For detailed description read section 22.6.
Tare mode	For detailed description read section 22.8.
Labelling mode	For detailed description read section 22.9.
Statistics	For detailed description read section 22.10.

24.2.1. Function of Automatic Correction of Reference Sample Mass

<ACAI> is a specific function enabling you to correct weight value of a single piece by means of the weighing device program.

Procedure:

- Enter **<Working modes / Parts counting / ACAI>** submenu and set respective option (✔ - function enabled, ✔ - function disabled).

<ACAI> function gets activated for **<Parts counting>** mode at the moment of determination of reference sample quantity, it is signalled by display of A pictogram at the home screen top bar.

There are four conditions of ACAI function operation implemented into the weighing device program:

1. the weighing result must be stable,
2. pieces quantity must increase,
3. pieces quantity upon adding cannot increase more than twice,
4. pieces quantity upon adding must be comprised within ± 0.3 tolerance of the total value.

If you decide that the reference sample features the right amount of pieces, you can record weight value of a single piece to a weighing device memory and deactivate the function by pressing × key.

24.2.2. Minimum Reference Sample Mass

Prior to determining single piece weight value you can declare **„Minimum reference sample mass**, i.e. minimum weight value for the total mass of all pieces loaded onto the weighing pan, expressed in reading units.

Procedure:

- Enter **<Working modes / Parts counting / Minimum reference sample mass>** submenu and set a respective value.

Values: 1 d, 2 d, 5 d, 10 d.

⚠	***Total mass of all the pieces loaded onto the weighing pan must not be lower than the value declared in „Minimum reference sample mass" parameter. Unless this condition is met, the weighing device displays a message: <Sample mass too low>.***

24.3. Setting Reference Sample Mass by Entering Mass of a Single Part

- Press button (Set part mass), **<Reference sample mass>** edit box featuring an on-screen keyboard is displayed.
- Enter respective value and press ✓ key to confirm, **<Parts counting>** working mode is run with automatically set mass of a single part.

⚠	***If the value of the entered single part mass is greater than the max capacity value, then the following message is displayed: <Value too high>.***
⚠	***If the value of the entered single part mass is lower than 0.1 of the reading unit, then the following message is displayed: <Value too low>.***

24.4. Setting Reference Sample Mass by Determining Mass of a Single Part

If the parts are to be weighed in a container, first put the container on a weighing pan and tare it.

- Press button (Determine part mass), **<Reference sample quantity>** edit box with an on-screen keyboard is displayed.
- Enter respective value and press key to confirm, the following message is displayed: **<Number of parts-to-be-loaded: xx>** (where **xx** – previously entered value).
- Load the weighing pan with a declared amount of parts. When the indication is stable (pictogram is displayed) press key to confirm the mass.
- Single part mass is calculated automatically, **<Parts counting>** working mode is run and the weighing device displays quantity of single parts (**pcs**).

	Total weight value of all parts loaded onto the weighing pan cannot be greater than the max capacity value.
	Total weight value of all parts loaded onto the weighing pan cannot be lower than the value determined by „Minimum reference sample mass" parameter. Unless this condition is met, the weighing device displays a message: <Sample mass too low>.
	Single part mass value must be equal to or greater than 0.1 of the reading unit. Unless this condition is met, the weighing device displays a message: <Single part mass too low>.

24.5. Setting Reference Sample Mass by Acquiring Mass of a Single Part from the Database

Upon selecting a product from the database, single part mass assigned to the product (**<Part mass>** entry) is entered automatically.

Procedure:

- Enter **<Parts counting>** mode and press an operation panel key to which pictogram (product database) is assigned, next select a given product from the list.

	Weight value of a single part must be declared for the selected product. To declare weight value of a single part, enter product database and edit the selected product.

24.6. Entering Reference Sample Mass to the Scale Memory

Reference sample mass of a single part can be entered to the product database.

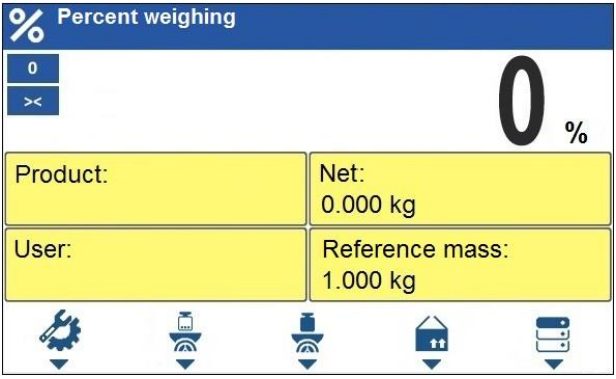
Procedure:

- Press button, select the given product.
- Determine reference sample mass (read sections 24.3 and 24.4 of this user manual).
- Press button (Assign reference sample), reference sample mass for the product is recorded in **<Part mass>** entry.

25. WORKING MODE - PERCENT WEIGHING

Percent weighing is a working mode enabling to compare measured load mass with the reference sample mass. The result is expressed in [%]. Reference sample mass can be either determined by weighing or entered to the scale memory by an operator.

25.1. Home Screen



25.2. Local Settings

In order to access local settings, press the operation panel key to which **<Working mode parameters>** pictogram is assigned:

Readout	For detailed description read section 22.1.
Save mode	For detailed description read section 22.2.
Cyclic record mode	For detailed description read section 22.3.
Auto threshold	For detailed description read section 22.4.

Result control	For detailed description read section 22.5.
Dispensing	For detailed description read section 22.6.
Tare mode	For detailed description read section 22.8.
Labelling mode	For detailed description read section 22.9.
Statistics	For detailed description read section 22.10.

25.3. Reference Sample Mass Determined by Weighing

If the reference sample is to be weighed in a container, first put the container on a weighing pan and tare it.

- Press button (Determine reference sample mass), the following message is displayed: **<Put reference sample>**.
- Load the weighing pan with the reference mass. When the indication is stable (pictogram is displayed) press key to confirm the value.
- Now (instead of weight value of the measured load) difference between values of loaded mass and reference mass is displayed in [%].

25.4. Reference Sample Mass Entered to the Scale Memory

- Press button (Set part mass), **<Set reference sample mass>** edit box with an on-screen keyboard is displayed.
- Enter respective value and press key to confirm, the following message is displayed:
- Now (instead of weight value of the measured load) difference between values of loaded mass and reference mass is displayed in [%].

25.5. Setting Reference Sample Mass by Acquiring Mass of a Single Part from the Database

Upon selecting a product from the database, reference sample mass of a single part assigned to the product (**<Reference sample mass>** entry) is entered automatically.

Procedure:

- Enter **<Percent weighing>** mode and press the operation panel key to which pictogram (products database) is assigned, next select a given product from the list.
- Difference between values of loaded mass and reference mass assigned to a selected product is displayed in [%].

26. WORKING MODE – DOSING

Dosing is a working mode enabling you to dispense product. Two options are available, manual and automated dispensing.

26.1. Home Screen

26.2. Local Settings

In order to access local settings, press the operation panel key to which **<Working mode parameters>** pictogram is assigned:

Request cycles quantity	Enter to force query regarding number of dosing process cycles, i.e. to specify how many times the whole process is to be repeated.
Fast dosing output	Enter to declare output for rough (fast) dosing in the case of 2-stage dispensing.
Dosing outputs	Enter to declare output for dosing in the case of an automatic dispensing.
Correction	Enter to correct the dosed mass, this function allows to optimise the dosing process, change of pressure of dosed material in the silos is accounted for. Parameters: **Constant correction** – specifying global (constant) value of correction to be applied during each process; **Maximum correction** – specifying maximum value of correction, which can be determined automatically during the process; **Measurements quantity for correction calculation** – specifying how many of the most recent measurements is to be analysed in order to automatically calculate the correction during the process.
Readout	For detailed description read section 22.1.

26.3. New Dosing Process

- Enter **< ✓ Databases / Dosing processes>** submenu.
- Press the key to which + pictogram (add) is assigned. The new record is automatically edited.
- Name the dosing process, provide its code, go to a **<Dosing process step>** submenu.
- Add the steps one by one in performance order, do it by pressing the key to which + pictogram (add) is assigned.

Dosing process steps:

Abbrev.	Function	Description
[DH]	**Dose manually**	Enter to enforce manual weighing of the ingredient (manual dosing).
	Min	Enter to set the value of low threshold of manual dosing.
	Max	Enter to set the value of max threshold of manual dosing.
	Product	Ingredient selected from the product database.
	Confirm ingredients manually	Mark to enforce manual confirmation of dosed mass by means of pressing ↵/🖶 key (the function is enabled for manual dosing mode).
	Dispensing	Enter to enable/ disable subtract weighing.
[DA]	**Dose automatically**	Enter to enforce automatic weighing of the ingredient (automatic dosing). The function allows to activate outputs controlling dosing.
	Product	Ingredient selected from the product database.
	Fast dosing threshold [DT1]	Enter to set mass value for rough dosing in the case of 2-stage dispensing.
	Dosing threshold [DT2]	Enter to declare output for dosing in the case of an automatic dispensing.
	Fast dosing output	Enter to declare output for rough (fast) dosing in the case of 2-stage dispensing.
	Dosing outputs	Enter to declare output for dosing in the case of an automatic dispensing.
	Constant correction	Function of dosed mass correction (read section 26.2).
	Request fast dosing threshold [DT1]	Enter to force query regarding value of mass that is to be dosed fast, [DT1], after start of <Dose automatically> stage.
	Request dosing threshold [DT2]	Enter to force query regarding value of target mass that is to be dosed, [DT2], after start of <Dose automatically> stage.
	Request tare	Enter to force query regarding value of tare.
	Dispensing	Enter to enable/ disable subtract weighing.

[O]	**Outputs**	Enter to set state of indicator outputs for activation of external devices that are connected to these outputs. Values: None – output inactive; „0” – LO state (output off); „1” – HI state (output on).
[TI]	**Delay**	Enter to determine time interval between successive steps of the dosing process. The function defines queue time for the next process step, given in seconds.
[Z]	**Zero**	Enter to zero the platform, the function operates like pressing of the →0← key placed on the indicator.
[T]	**Tare**	Enter to tare the platform, the function operates like pressing of the →T← key placed on the indicator.
[ST]	**Set tare**	Enter to set tare, the function operates like pressing of the key placed on the indicator.
[CM]	**Mass condition**	Condition-based function. Enter to determine mass-related conditions for performance of the successive steps, e.g.: the next step is to be performed when the net mass value of the product on the platform is lower than the threshold value.
	Threshold	Value of threshold mass for the condition.
	Mass condition	Threshold condition – „**>=**” or „**<**”.
[EM]	**Set mass**	Enter to enforce the operator to give manually mass of an ingredient supplied in packaging of known weight value. The entered mass is added to the weighed mass of the ingredient.
[CI]	**Input condition**	Condition-based function. Enter to determine conditions with regard to the indicator input state for performance of the successive steps. Input states: none – input inactive; „0” – LO state (input off); „1” – HI state (input on); „/” – rising edge on the input (state change from LO to HI, e.g.: the moment of button pressing); „\” – trailing edge on the input (state change from HI to LO, e.g.: the moment of button release).

- It is possible to modify created process steps using keys that correspond with pictograms of the bottom display bar:

Symbol	Description
	Press to delete all process steps.
	Press to delete one (marked) process step.
	Press to add new process step at the list end.
	Press to add new process step prior the marked list entry.

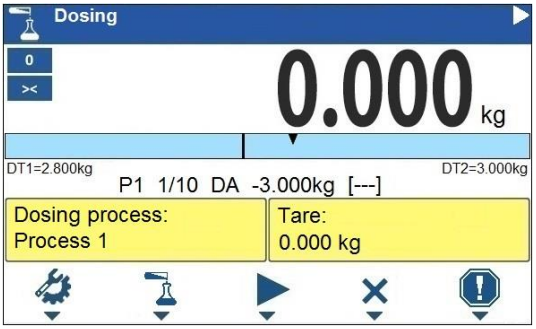
26.4. Dosing Procedure

- Select dosing process, do it by pressing a key to which pictogram is assigned.
- Save general parameters of 'Dosing' mode to a scale memory, the parameters are to be found upon pressing a key to which pictogram is assigned.
- Press the key to which pictogram (process start) is assigned, now scale keypad is locked except for - stop, - pause, - breakdown buttons.
- The process starts, it is signalled by a blinking symbol displayed in the top bar of the screen.

When:

1. Dosing outputs are declared incorrectly (e.g. lack of active dosing output) the following message is displayed: **<Dosing outputs determined incorrectly>**, next the process is cancelled.
2. Dosing thresholds are declared incorrectly (e.g. 0 values) the following message is displayed: **<Incorrect dosing threshold values>**, next the process is cancelled.
3. The weighing result is unstable then the following message is displayed: **<Unstable weighing result>**. The process status changes to **<Pause>** and remains so until a stable weighing result is obtained.

- Upon process start, bar graph of dosed material mass is displayed with the dosing status.



Workspace data:

DT1	Rough (fast) dosing threshold value.
DT2	Dosing threshold value.
Dosing process	Ongoing dosing process name.
Tare	Tare value (mass of a container, silos, etc.).
P1 1/10 DA -3.000kg [---]	Dosing status. For detailed description read section 26.4.1.

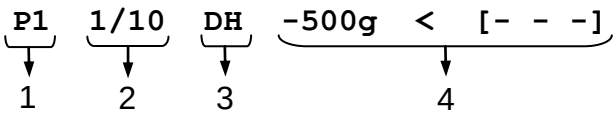
Buttons that are assigned to operation panel keys:

	Local parameters (button inactive during the ongoing process).
	Select a dosing process.
	Process start.
	Process stop.
	Breakdown stop.

- All process steps are performed, **<Completed>** status is displayed (dosing process has been carried out). Blinking pictogram is turned off.

26.4.1. Dosing Status

Dosing status provides information regarding the ongoing process step and is comprised of 4 sections:



1. Number of platform on which the process is carried out.
2. Information regarding the ongoing process step and quantity of all process steps.
3. Abbreviation of process step type (for list of dosing process steps read section 26.3), or global information regarding the process.
4. Detailed information regarding particular process step, where:

Step	Information	Description
[DH]	-3.000kg < [Product 1]	-**3.000kg** - mass left to be dosed (in the case of unstable mass value at the step start, „?" status is returned). **<** - mass status values: < - mass value lower than MIN threshold value; > - mass value higher than MAX threshold value; OK - mass between MIN, MAX thresholds pending the record; RECORD – dosed mass record. **[Product 1]** - dosed product name (lack of product is signalled by [---] status).
[DA]	-3.000kg < [Product 1]	-**3.000kg** - mass left to be dosed (in the case of unstable mass value at the step start, „?" status is returned). **<** - mass status values: < - mass value lower than the dosing threshold value; OK - mass value higher than the dosing threshold value, and pending the record; RECORD – dosed mass record. **[Product 1]** - dosed product name (lack of product is signalled by [---] status).
[O]	0111	Mask of set outputs: output 1 – high state, output 2 – high state, output 3 – high state, output 4 – low state.

[TI]	00:00:05	Queue time for the next process step. Time given in format HH:mm:ss (H – hour, m – minute, s – second).
[CM]	Net >=1	Mass condition. The next step is to be performed when the net mass value of the product on the platform is greater than or equal to 1 kg.

Global information regarding the process:

Information	Description
PAUSE	Dosing process inhibited by (pause) button.
COMPLETED	Dosing process completed.
ABORTED	Dosing process aborted by (stop) or (breakdown) button.

26.4.2. Dosing Bar Graph

Dosing bar graph operation differs depending on the following dosing modes:

- automatic 1-stage dosing,
- automatic 2-stage dosing,
- manual dosing.

Automatic 1-stage dosing:

- Visualisation of mass value lower than the value of **[DT2]** threshold:

DT1=0.000kg DT2=1.800kg

- Visualisation of mass value higher than the value of **[DT2]** threshold:

DT1=0.000kg DT2=1.800kg

Automatic 2-stage dosing:

- Visualisation of mass value lower than the value of **[DT1]** threshold:

DT1=1.600kg DT2=1.800kg

- Visualisation of mass value higher than the value of **[DT1]** threshold and lower than the value of **[DT2]** threshold:

DT1=1.600kg DT2=1.800kg

- Visualisation of mass value higher than the value of **[DT2]** threshold:

DT1=1.600kg DT2=1.800kg

- Upon exceeding the value of fast (rough) dosing threshold, fast dosing outputs are activated.
- Upon exceeding the value of dosing threshold, dosing outputs are activated and **OK** process status is displayed.
- Upon stability of the weighing result, the process is assigned with **Completed** status (process completed). Blinking pictogram is turned off.

Manual dosing:

- Visualisation of mass value lower than MIN value:

Min=1.600kg Max=1.800kg

- Visualisation of mass value higher than MIN value and lower than MAX value:

Min=1.600kg Max=1.800kg

- Visualisation of mass value higher than MAX value:

Min=1.600kg Max=1.800kg

26.5. Dosing Process Report

Dosing report is automatically generated at the end of each dosing process, next it is sent to port selected for **<Peripherals / Printer>**. To declare report content go to **<Printouts / Dosing report>** submenu. For instruction on how to declare adjustment report settings read section 'Printouts'.

Report example:

```
-------Dosing Process Report-------
Start date      2018.07.10 13:21:40
End date        2018.07.10 13:23:28
Operator                  Nowak Jan
Sum                        3.018 kg
Difference                 0.018 kg
Status                   Completed
-----------------------------------

Signature

.................................
```

Report on each completed process is saved to **<Dosing reports>** database, the file name is a combination of date and hour of process completion and of process status (list of dosing report data – read section 30.3.3).

27. WORKING MODE – FORMULATIONS

Formulations is a working mode enabling you to make multi-ingredient mixture.

27.1. Home Screen

27.2. Local Settings

In order to access local settings, press the operation panel key to which **<Working mode parameters>** pictogram is assigned:

Request multiplier	Enter to force query regarding formulation multiplier, i.e. value by which the weight, high deviation and low deviation values of <mass> type are to be multiplied for each ingredient.
Request cycles quantity	Enter to force query regarding number of formulation process cycles, i.e. to specify how many times the whole process is to be repeated.
Request lot number	Enter to provide series number for formulation.
Confirm ingredients manually	Enter to enforce manual confirmation for each weighing by pressing key.

Ingredients mass recalculation	Enter to activate function of proportional recalculation of mass of all formula ingredients shall one ingredient mass be exceeded. In the case of an attempt to confirm exceeded value of permissible ingredient mass, the following message is displayed <Maximum mass value of the Ingredient exceeded. Recalculate ingredients?> (where: ✗ - press to go backwards; ✓ - press to automatically recalculate mass of the remaining ingredients and to continue carrying out formulation).
Automatic taring	Enter to enable automatic taring at the moment of formulation start, and after weighing of each ingredient.
Dispensing	For detailed description read section 22.6.
Readout	For detailed description read section 22.1.

27.3. New Formulation

- Enter **<** ⌂ **/ Databases / Formulations>** submenu.
- Press the key to which + pictogram (add) is assigned. The new record is automatically edited. For list of new formulation data read section 29.6.5.
- Enter **<Ingredients>** submenu, add formulation ingredients one by one, do it by pressing the key to which + (add) pictogram is assigned.

Ingredient data:

Name	Ingredient name (43 characters maximum).
Code	Ingredient code (16 characters maximum).
Mass	Target mass of the ingredient.
Deviation type	Declared deviation type: unit of mass or value in [%].
High deviation	High deviation of ingredient mass in 'Formulations' mode.
Low deviation	Low deviation of ingredient mass in 'Formulations' mode.
Weight entered manually	Manual mode for entering ingredient mass (ingredient is not weighed).
Platform number	Assigning platform number to a formulation ingredient.
Weight Loss	Weight loss given in [%].

⚠	***Formulation ingredients are acquired from <Products> database.***

- Modification of ingredient settings is possible upon editing of the selected ingredient, to do it press the key to which 🔧 pictogram (edit) is assigned.

When

1. You declare low deviation of value greater than the declared ingredient mass then the following message is displayed: **<Value too high>**; enter correct low deviation value.
2. You declare high deviation of value greater than the declared ingredient mass then the following message is displayed: **<Value too high>**; enter correct high deviation value.

- Enter the required data and press ✕ button, the new ingredient is added to the formulation.
- Enter the last ingredient and go to the home screen, do it by pressing ⌂ key.

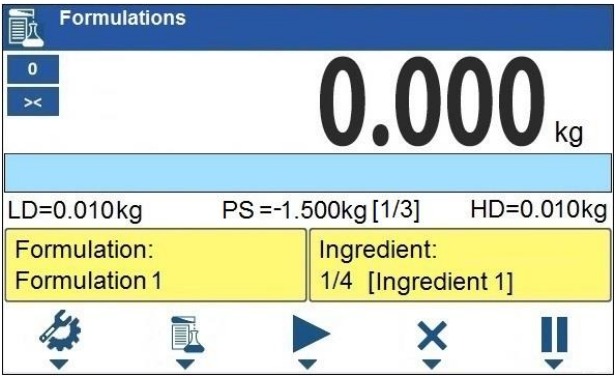
27.4. Formulation Procedure

- Select the formulation, do it by pressing the key to which pictogram (select formulation) is assigned.
- Save general parameters of 'Formulations' mode to the scale memory, the parameters are to be found upon pressing the key to which pictogram is assigned.
- Press the key to which ▶ pictogram (process start) is assigned.

When:

1. The declared value of formulation multiplier causes exceeding of the max capacity value, then the following message is displayed: **<Formulation multiplier value too high>**. The process gets cancelled.
2. The declared value of ingredient mass exceeds the max capacity value, then the following message is displayed: **<Ingredient mass value higher than max capacity value>**. The process gets cancelled.
3. Sum of ingredient mass and high deviation values exceeds the max capacity value, then the following message is displayed: **<High deviation value too high>**. The process gets cancelled.
4. The weighing result is unstable then the following message is displayed: **<Unstable weighing result>**. The process status changes to **PS=Pause** and remains so until stable weighing result is obtained.

- Upon process start, bar graph of weighed ingredient mass is displayed with the following data:



Top bar pictograms:

▶	Process in progress (blinking pictogram).

Workspace data:

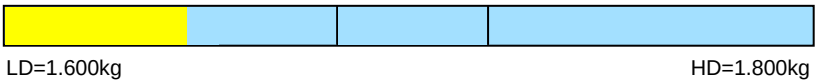
LD	Low deviation value.
HD	High deviation value.
PS	Process status, the status takes the following values: **-3.000kg** – amount left to be weighed; **[1/3]** – cycle 1 of 3; **OK** – target mass obtained; **Pause** – process inhibited: **a)** by means of ❚❚ (pause) button, to restart the process press ▶ button, **b)** stable weighing result is awaited for, **Taring** – taring process in progress; **Completed** – formulation process completed; **Aborted** – formulation process aborted.
Formulation	Formulation name.
Ingredient	Information regarding weighed formulation ingredient: **1** – ingredient no., **4** – ingredients quantity, **[Ingredient 1]** – ingredient name.

Buttons that are assigned to operation panel keys:

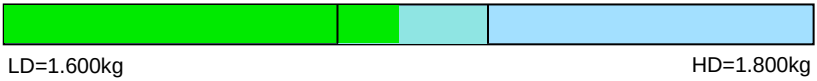
	Local parameters (button inactive during the ongoing process).
	Select formulation (button inactive during the ongoing process).
▶	Process start (button inactive during the ongoing process).
✕	Process stop.
❚❚	Process pause.

Bar graph operation:

- Visualisation of mass value lower than the value of **[LD]**, low deviation:



- Visualisation of mass value higher than the value of **[LD]**, low deviation, and lower than the value of **[HD]**, high deviation:



- Visualisation of mass value higher than the value of **[HD]**, high deviation:

- Now weigh expected amount of each ingredient.

⚠	***In the case of trying to accept unstable weighing result, the following message is displayed: <Unstable measurements>.***

- After weighing of the last ingredient, **PS=Completed** status is displayed (process completed).
- New formulation process may begin.

27.5. Formulation Report

Formulation report is automatically generated at the end of each formulation process, next it is sent to port selected for **<Peripherals / Printer>**. To declare report content go to **<Printouts / Formulation report>** submenu. For instruction on how to declare adjustment report settings read section 'Printouts'.

Report example:

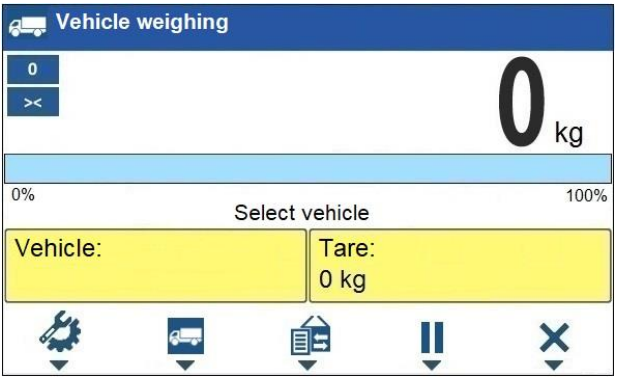
```
-----------Formulation report-----------
Start date           2018.07.10 13:21:40
End date             2018.07.10 13:23:28
Operator                       Nowak Jan
Preset mass                     3.000 kg
Sum                             3.018 kg
Difference                      0.018 kg
Status                         Completed
----------------------------------------

Signature

.......................................
```

Report on each completed process is saved to **<Formulation reports>** database, the file name is a combination of date and hour of process completion and of process status (for the list of dosing report data read section 30.3.4).

28. WORKING MODE – VEHICLE WEIGHING

The **<Vehicle weighing>** working mode enables to weigh lorries and calculate mass of the load on the basis of lorry weighing carried out on the entry and at the exit.

28.1. Home Screen



Workspace data:

Select vehicle	Process status with messages for the user.
Vehicle	Widget with a registration number of a selected vehicle.
Tare	Widget with the entered tare value (driver weight value, etc.).

Buttons that are assigned to operation panel keys:

	Local parameters.
	Select a vehicle.
	Select the ongoing transaction.
	Ongoing transaction pause. Paused transaction is automatically recorded onto the list of the ongoing transactions.
	Ongoing transaction stop.

28.2. Local Settings

In order to access local settings, press the operation panel key to which **<Working mode parameters>** pictogram is assigned:

Transaction type	Enter to set default transaction type. Options: Entry\Exit, Control weighing.

Vehicle selection	Enter to declare vehicle selection method. Options: From a list, Manually (Vehicle of known name gets recorded into the "Vehicle" database automatically).
Readout	For detailed description read section 22.1.

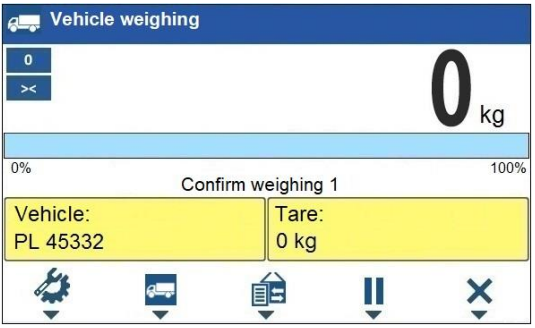
28.3. Vehicle Weighing Transaction

Vehicle weighing mode offers 2 transaction types: Entry\Exit and Control weighing. Transaction starts the very moment a vehicle gets selected from the database by pressing a key to which pictogram is assigned.

	It is possible to assign a transaction with a product and/or a customer. The product and/or the customer must be selected prior to the vehicle selection.
	Upon transaction start some keys get locked. In order to access all program functions pause the transaction using (pause) button.

28.3.1. Entry\Exit Transaction

- Save general parameters of 'Vehicle weighing' mode to scale memory, the parameters are to be found upon pressing a key to which pictogram is assigned.
- Select vehicle, do it by pressing a key to which pictogram is assigned, the following box is displayed:

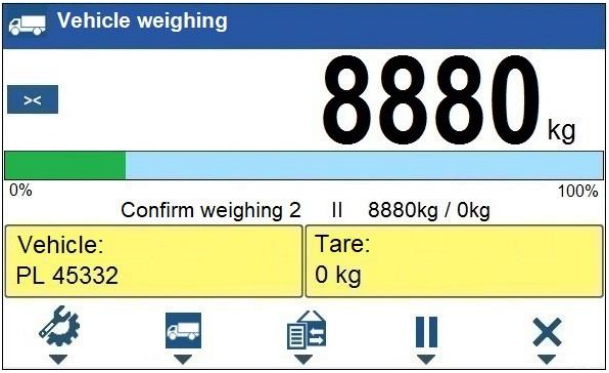


Where:

Vehicle	Vehicle with a recorded registration number.
Tare	Tare value (driver mass, etc.).
Confirm weighing 1	Message. The scale awaits for confirmation of weighing 1.

⚠	***In the case when a vehicle for which the transaction is in progress gets selected, the following message is displayed: <For the selected vehicle there is already a transaction in progress. Continue?>.***

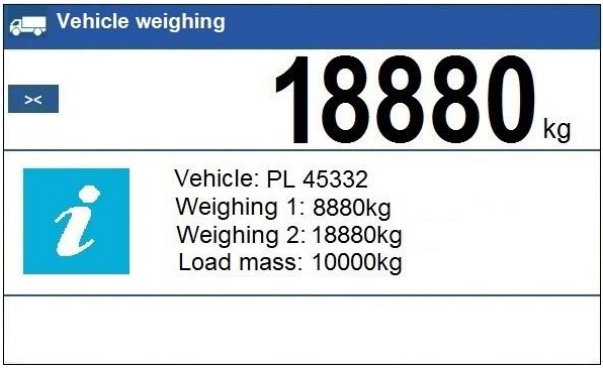
- Wait for the vehicle to enter the weighing bridge, next wait for a stable indication, press button to confirm the indication, the following window gets displayed:



Where:

Vehicle	Vehicle with a recorded registration number.
Tare	Tare value (driver mass, etc.).
Confirm weighing 2	Message. The scale awaits for confirmation of weighing 2.
8880kg / 0kg	Confirmed mass of weighing 1 / Load mass.

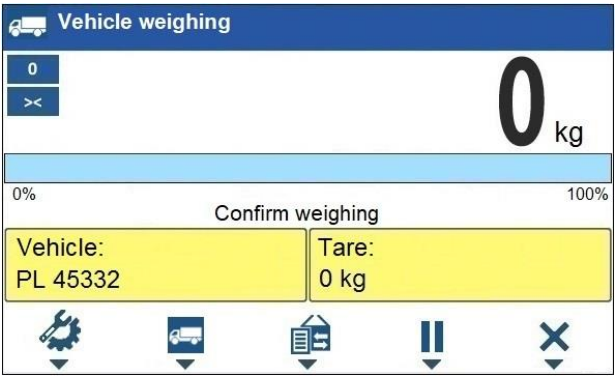
- On a scale-connected printer **„Weighing 1 ticket”** is printed.
- Wait for the vehicle to re-enter the weighing bridge (weighing 2), next wait for a stable indication, press button to confirm the indication,
- On a scale-connected printer **„Weighing 2 ticket”** is printed first, **"Vehicle weighing report"** next.
- At the same time, a process summary window is displayed for approx. 3 seconds:



- The transaction has been completed.

28.3.2. Control Weighing Transaction

- Save general parameters of 'Control weighing' mode to scale memory, the parameters are to be found upon pressing a key to which pictogram is assigned.
- Select vehicle, do it by pressing a key to which pictogram is assigned, the following box is displayed:

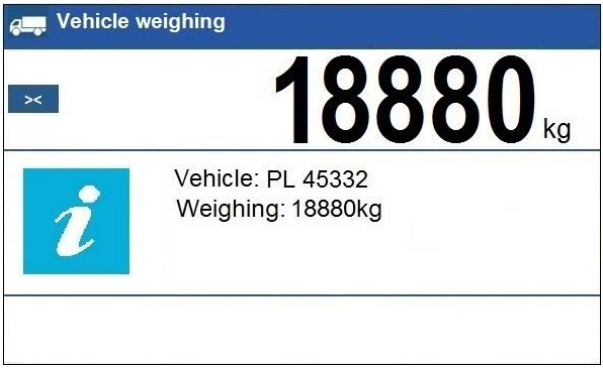


Where:

Vehicle	Vehicle with a recorded registration number.
Tare	Tare value (driver mass, etc.).
Confirm weighing	Message. The scale awaits for confirmation of the weighing.

- Wait for the vehicle to enter the weighing bridge, next wait for a stable indication, press button to confirm the indication.
- On a scale-connected printer **„Control weighing ticket”** is printed.

- At the same time, a process summary window is displayed for approx. 3 seconds:



- The transaction has been completed.

28.4. Ongoing Transactions Table

It is possible to start any number of **Entry/Exit** transactions at the same time. All ongoing transactions (not completed) are temporarily saved to an **ongoing transactions table**. To access the ongoing transaction list press a key to which pictogram is assigned.

⚠	***If any transaction is in progress, then access to ongoing transactions is disabled. Pause the ongoing transaction by pressing ⏸ (pause) button.***

Ongoing transaction number:

X / y y / M M / d d / H H / m m / s s, where:

X	Vehicle registration number.
yy	Transaction start year.
MM	Transaction start month.
dd	Transaction start day.
HH	Transaction start hour.
mm	Transaction start minute.
ss	Transaction start second.

28.5. Vehicle Weighing Report

Vehicle weighing report is automatically generated at the end of each vehicle weighing process, next it is sent to port selected for **<Peripherals / Printer>**. To declare report content go to **<Printouts / Vehicle weighing report printout>** submenu. For instruction on how to declare data for printouts read section 'Printouts'.

Each completed vehicle weighing transaction is automatically recorded into **<Vehicle weighing reports>** database. For detailed vehicle weighing transaction data read section 30.3.5 of this user manual.

29. DATABASES

Scale software comprises the following databases:

Database name	Max records qty
Products	15000
Operators	500
Formulations	500
Dosing Processes	100
Vehicles	500
Packaging	500
Customers	500
Labels	500
Universal variables	100

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

Databases can be edited by operators logged as Administrator.

29.1. Database Export

Export of weighing device databases carried out using a USB flash drive.

Procedure:

- Enter the selected database.
- Activate function keys, to do it press KEYBOARD MODE key.
- Connect the USB flash drive to the USB A port.
- Press the key to which pictogram (export) is assigned.

- The program automatically saves exported data to a USB flash drive file, respective messages are displayed to confirm successfully completed operation.
- The file name is correlated with the name of the exported database:

Databases	File name and extension
Operators	Users.idb32
Products	Products.idb32
Formulations	Formulas.idb32
Dosing Processes	Dosing Process. idb32
Packaging	Packages.idb32
Customers	Customers.idb32
Labels	Labels.idb32
Vehicles	Vehicles.idb32
Universal variables	Universal variables.idb32
Non-standard printouts	Non standard printouts.idb32

29.2. Database Import

Import of weighing device databases carried out using a USB flash drive.

Procedure:

- Enter the selected database.
- Activate function keys, to do it press KEYBOARD MODE key.
- Connect the USB flash drive to the USB A port.
- Press the key to which pictogram (import) is assigned. Databases stored on the USB flash drive are imported to the scale memory automatically.
- Respective messages are displayed to confirm successfully completed operation.

29.3. Database Record Search

Quick search for a particular record in a database by 2 criteria: **<Search by name>**, **<Search by code>**.

29.3.1. Quick Search by Name

- Enter the selected database.

- Activate function keys, to do it press KEYBOARD MODE key.
- Press key to which N pictogram has been assigned (search by name), **<Name>** edit box gets displayed.
- Enter product name and press ✓ key to confirm.
- The product of a given name gets displayed on the list.

29.3.2. Quick Search by Code

- Enter the selected database.
- Activate function keys, to do it press KEYBOARD MODE key.
- Press key to which C pictogram has been assigned (search by code), **<Code>** edit box gets displayed.
- Enter product code and press ✓ key to confirm.
- The product of a given code gets displayed on the list.

29.4. Adding Database Record

- Enter the selected database.
- Activate function keys, to do it press KEYBOARD MODE key.
- Press the key to which + pictogram (add) is assigned. The new record is automatically edited.

29.5. Deleting Database Record

- Enter the selected database.
- Activate function keys, to do it press KEYBOARD MODE key.
- Press the key to which 1 pictogram (delete one by one) is assigned. Message **<Delete record?>** is displayed.
- Press ✓ key to confirm. The selected record gets deleted.

29.6. Deleting Database Content

- Enter the selected database.
- Activate function keys, to do it press KEYBOARD MODE key.
- Press the key to which pictogram (delete all database records) is assigned. Message **<Delete all records?>** is displayed.
- Press ✓ key to confirm. All database records get deleted.

29.7. Database Editing

29.7.1. Operators

Operators database stores list of users permissioned to operate the weighing device.

List of parameters defined for an operator:

Name	Operator name (43 characters maximum).
Code	Operator code (15 characters maximum).
Password	Operator password, used in the course of logging-in operation (15 characters maximum).
Card number	Transponder card number for logging via a transponder card scanner.
Permissions	Operator's permission levels (Administrator, Advanced Operator, Operator, None).

29.7.2. Products

Product database stores lists of all products that can be weighed, counted, controlled.

List of parameters defined for a product:

Name	Product name (43 characters maximum).
Code	Product code (15 characters maximum).
Name 2	Additional name (43 characters maximum).
Code 2	Additional code (15 characters maximum).
Min [3)]	Low limit of weighing within ranges (Result control).
Max [3)]	High limit of weighing within ranges (Result control).
Tare	Tare value (set automatically when the product is selected).
Mass[1)]	Product mass.
Deviation type [4)]	Declared deviation type: unit of mass or value in [%].
Low deviation [4)]	Low deviation of ingredient mass in 'Formulations' mode.
High deviation [4)]	High deviation of ingredient mass in 'Formulations' mode.
Fast dosing threshold [2)]	Value of mass for rough dosing in the case of the automatic 2-stage dispensing.
Dosing threshold [2)]	Target mass value to be dosed.
Dosing outputs [2)]	Outputs for precise dosing in the case of the automatic 2-stage dispensing.
Fast dosing outputs [2)]	Outputs for rough dosing in the case of the automatic 2-stage dispensing.
Dosing correction [2)]	Constant dosing correction value.

Price	Unit price of a product.
VAT	VAT value given in [%].
Shelf-life in days	Shelf-life time of a product (number of days).
Label	Template of a single label assigned to a product.
C Label	Template of a cumulative label assigned to a product.
Weight Loss	Weight loss given in [%].
Weight entered manually 4)	Manual mode for entering ingredient mass (ingredient is not weighed).
Platform number	Assigning platform number to a formulation ingredient.

1)	Variable name is conditioned by the working mode. For Weighing and Dosing modes the variable name is **„Mass”**. For Parts Counting mode the variable name is **„Part mass”**. For Percent Weighing mode the variable name is **„Reference sample mass”**.
2)	Variables available for a product exclusively in **Dosing** working mode.
3)	Variables NOT available for a product in **Formulations** working mode.
4)	Variables available for a product exclusively in **Formulations** working mode.

29.7.3. Packaging

Packaging database features list of product containers. When carrying out weighing, upon selection of particular packaging, a respective tare value is triggered automatically. The tare value is displayed with minus sign.

List of parameters defined for a packaging:

Name	Packaging name (43 characters maximum).
Code	Packaging code (15 characters maximum).
Mass	Packaging weight value (set automatically when the packaging is selected).

29.7.4. Customers

Customers database features a list of names of customers for whom the measurements are carried out.

List of parameters defined for a customer:

Name	Customer name (43 characters maximum).
Code	Customer code (15 characters maximum).
TIN	Tax identification number (15 characters maximum).
Address	Customer address (43 characters maximum).
Postal code	Customer postal code (7 characters maximum).
City	Customer city (43 characters maximum).

Discount	Discount for a customer given in [%].
Label	Template of a label assigned to a customer.

29.7.5. Formulations

Formulations database stores all created recipes. The recipes can be carried out automatically by weighing of particular ingredients.

List of parameters defined for a formulation:

Name	Formulation name (43 characters maximum).
Code	Formulation code (15 characters maximum).
Ingredients	Defining formulation ingredients, and preview of formulation ingredient quantity.
Target value	Preview of total mass of formulation.

29.7.6. Dosing Processes

Dosing Processes database features list of dosing processes that can be realised through successive process steps performance.

List of parameters defined for a dosing process:

Name	Dosing process name (43 characters maximum).
Code	Dosing process code (15 characters maximum).
Process steps	Defining dosing process steps (80 steps maximum).

29.7.7. Vehicles

List of parameters defined for a vehicle:

Name *	Vehicle name (44 characters maximum).
Code	Vehicle code (16 characters maximum).
Card number	Transponder card number for driver logging.
Tare	Tare value (set automatically when the product is selected).
Description	Supplementary vehicle info (44 characters maximum).

***)** *- In the case of declaration that the vehicle type is to be selected manually, entering a new registration number causes automatic adding of a new vehicle record to the database with a name and a code corresponding to the registration number*.

29.7.8. Labels

Labels database features a list of label templates that can be assigned to a product or a customer in order to activate operation in labelling mode.

List of parameters defined for a label:

Name	Label name.
Code	Label code.
Project *	Label project.

)** *- An example of how to make and send label template to a scale memory is to be found in* ***ANNEX 02 *manual.*

29.7.9. Universal Variables

Universal variable database comprises universal variable templates. You can assign the templates to function keys. This allows you to easily enter any text/number/letter that you want to print, to a weighing device memory.

Values of 3 universal variables V_1, V_2, V_3, entered to a weighing device memory will be saved to a record of a completed weighing.

List of parameters defined for a universal variable:

Code	Universal variable code (15 characters maximum).
Name	Universal variable name (43 characters maximum).
Value	Universal variable value, it is to be printed and/or saved to a weighing record (32 characters maximum).

30. REPORTS

Weighing device software comprises the following reports:

Report name	Max records qty
Weighings	50000
Alibi	500000
Dosing reports	5000
Formulation reports	5000
Vehicle weighing reports	5000

Access path: **<** ⌂ **/ Reports>**.

⚠	***Database of Alibi reports is protected against deletion.***

30.1. Export

Export of reports carried out using the USB flash drive.

Procedure:

- Enter the selected reports database.
- Activate function keys, to do it press KEYBOARD MODE key.
- Connect the USB flash drive to the USB A port.
- Press the key to which pictogram (export) is assigned.
- The program automatically saves exported data to a USB flash drive file, respective messages are displayed to confirm successfully completed operation.
- The file name is correlated with the name of exported reports database:

Reports database	File name and extension
Weighings	Weighing xxxxxx.wei
Alibi	Alibi xxxxxx.ali
Dosing reports	Dosing reports xxx xxx.dos
Formulation reports	xxxxxx.for
Vehicle weighing reports	xxxxxx.veh

Where: *xxxxxx – scale serial number.*

Files can be read using **ALIBI Reader**, PC software designed by RADWAG. You can download the software from RADWAG website: www.radwag.pl.

30.2. Deletion

N/a in the case of Alibi reports database.

- Enter reports database.
- Activate function keys, to do it press KEYBOARD MODE key.
- Press the key to which pictogram (delete all records of report database) is assigned. Message **<Delete all records?>** is displayed.
- Press key to confirm. All database records get deleted.

30.3. Preview

30.3.1. Weighings

Each weighing result sent from the weighing device to a printer is saved to a weighing report. You can preview data of particular weighings.

List of parameters defined for a completed weighing

Date	Weighing date.
Time	Weighing time.
Stable	Stable weighing result marker.
Result	Weighing result given in a specific unit (%, pcs).
Mass	Net weight.
Tare	Tare value.
Operator	Operator name.
Product	Product name.
Customer	Customer name.
Lot number	Lot number (16 characters maximum).
Batch number	Batch number (16 characters maximum).
Result control	Weighing threshold within which the measurement was carried out.
Min	Minimum weighing threshold (result control).
Max	Maximum weighing threshold (result control).
Universal variable 1	Value of universal variable 1.
Universal variable 2	Value of universal variable 2.
Universal variable 3	Value of universal variable 3.
Platform number	Number of platform using which the weighing was carried out.
Weight Loss	Weight loss given in [%].
Mass with weight loss included	Measured weight value minus the weight loss value.

30.3.2. Alibi

Each weighing result sent from the weighing device to a printer is saved to Alibi report. You can preview data of particular weighings.

List of parameters defined for a completed weighing

Date	Weighing date.
Time	Weighing time.
Result	Weighing result given in a specific unit (%, pcs).
Mass	Net weight.
Tare	Tare value.

30.3.3. Dosing reports

Dosing report is generated automatically after completion of each dosing process. You can preview data for particular reports.

Status	Information regarding correctness of dosing process realisation. Status values: **Aborted**, **Completed**.
Start date	Date of dosing process start.
End date	Date of dosing process end.
Operator	Operator carrying out the dosing process.
Customer	Customer for whom the dosing process is carried out.
Dosing process	Completed dosing process name.
Operator	Operator carrying out the dosing process.
Customer	Customer for whom the dosing process is carried out.
Preset mass	Declared net dosing mass.
Preset tare	Declared tare value.
Sum	Dosed net weight in an adjustment unit.
Difference	Difference between the net value of mass that is to be dosed and a value of automatic dosing threshold.
Correction	Dosing correction value.
Measurement quantity	List of weighings performed within the dosing process.
Platform number	Number of platform using which the dosing was carried out.

30.3.4. Formulation reports

Formulation report is generated automatically after completion of each formulation process. You can preview data for particular reports.

Status	Formulation status. Status values: **Ongoing**, **Aborted**, **Completed**.
Start date	Formulation start date.
End date	Formulation end date.
Formulation	Formulation name.
Operator	Operator performing formulation process.
Customer	Customer for whom the formulation is carried out.
Ingredient quantity	Number of formulation ingredients.
Measurement quantity	Number of weighings performed within the formulation cycle.
Lot number	Lot number assigned to a formulation.
Measurements	List of weighings performed within the formulation cycle.
Preset mass	Sum of declared nominal masses of the ingredients.

Sum	Total weight value of the performed formulation.
Difference	Difference between the sum and the value of expected target weight.

30.3.5. Vehicle Weighing Reports

At the end of each vehicle weighing transaction, a vehicle weighing report is generated automatically. You can preview data for particular reports.

Vehicle weighing report number:

X / y y / M M / d d / H H / m m / s s, where:

X	Transaction type, and values: EE – Entry/Exit; CW – control weighing.
yy	Transaction end year.
MM	Transaction end month.
dd	Transaction end day.
HH	Transaction end hour.
mm	Transaction end minute.
ss	Transaction end second.

List of parameters defined for „Entry/Exit" transaction

Status	Transaction status. Values: Completed, Aborted.
Vehicle	Vehicle registration number.
Transaction type	Performed transaction type (Entry/Exit).
Start date	Transaction start date.
End date	Transaction end date.
Load mass	Weight value of vehicle load.
Weighing 1 mass	Weight value of weighing 1.
Weighing 2 mass	Weight value of weighing 2.
Operator	Operator carrying out the transaction.
Product	Transaction-assigned product.
Customer	Transaction-assigned customer.

List of parameters defined for „Control weighing" transaction

Vehicle	Vehicle registration number.
Transaction type	Performed transaction type (Control weighing).
Date and time	Date and time of the performed transaction.
Mass	Weighed vehicle mass.

Operator	Operator carrying out the transaction.
Product	Transaction-assigned product.
Customer	Transaction-assigned customer.

31. IMPORT / EXPORT

Import/export option facilitates the following:

- archiving of reports,
- copying databases between weighing devices of the same series,
- copying parameters between weighing devices of the same series.

Import/export operation can be carried out by means of a USB flash drive comprising **<FAT files system>**.

Procedure:

- Connect the USB flash drive to the USB A port.
- The weighing device detects the USB flash drive automatically, as a result **<Import / Export>** box is displayed.

31.1. Data Export

Function designed to allow export of databases and/or user parameters. **<Export>** submenu functions: All databases, Products, Operators, Formulations, Dosing processes, Vehicles, Packaging, Customers, Non-standard printouts, Universal variables, Weighings, Alibi, Formulations reports, Dosing reports, Vehicle weighing reports, Parameters.

When you run **<All databases>** function, files storing particular database data are saved to the USB flash drive, the file names are correlated with database names. The file extensions are specific, file-stored data is encoded therefore the file content is not readable for standard computer programs. Data stored in files of weighings and Alibi reports can be read using special RADWAG-designed PC software.

31.2. Data Import

<Import> function allows you to copy and transfer databases and operator's parameters between weighing devices of the same series. It is both quick and reliable method of entering data error-free. **<Import>** submenu functions: All databases, Products, Operators, Formulations, Dosing processes, Vehicles, Packaging, Customers, Non-standard printouts, Universal variables, Parameters.

⚠	***Report data cannot be imported.***

32. ERROR MESSAGES

⚠ Start mass out of range. Unload the weighing pan.	⚠ High limit of weighing range exceeded. Unload the weighing pan.
⚠ Low limit of weighing range exceeded. Install weighing pan.	⚠ Zeroing out of range. Press tarring button or restart the scale.
⚠ Tarring out of range. Press zeroing button or restart the scale.	⚠ Zeroing/tarring time out of range. Weighing indication unstable.
⚠ Display capacity out of range Unload the weighing pan	