User Manual

Manual number:
ITKU-13-04-03-15-A

Scales for recipes:

- **WPW/R**
- **WPW/R/H**

MANUFACTURER OF ELECTRONIC WEIGHING INSTRUMENTS

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1. INTENDED USE

Scales with PUE C41H terminal are industrial scales with a possibility of working in high humidity and a wide temperature range -10 ÷ 40°C. The terminal is equipped with fields of LEDs (light emitting diodes). Tarring within the whole range of measurement allows to determine the net mass of loads.

Functions:

- Tarring within the whole measuring range,
- Inscribing tare value,
- Automatic tare,
- Automatic print,
- Continuous transmission,
- Printout configuration (stable/immediate),
- Designing printouts,
- Minimal mass,
- Force measurements in Newtons,
- Cooperation with computers,
- Cooperation with printers,
- Cooperation with external industrial buttons ZERO, TARA, PRINT,
- Cooperation with a barcode scanner,
- Cooperation with a transponder card reader,
- Totalizing,
- +/- control (checkweighing),
- Deviation in percents,
- Top mass latch,
- Dosing / Formulation,
- Counting pieces,
- Weighings animals.

User functions may have attribute of accessibility. For this reason it is possible to adjust scale to individual needs to provide access to only these functions which are currently needed. Attribute determination accessible / inaccessible is possible in user menu and described in further part of manual.

2. PRECAUTIONARY MEASURES

2.1. Precautions

A. Please, read carefully this user manual before and use the device according to its intended use,

B. Devices that are to be withdrawn from usage should be sent back to the producer or in case of own utilization do it according to the law.

2.2. Accumulator/battery pack

WPW scales include gel cell accumulators **SLA** (*Sealed Lead Acid type*) **6V 3** to **4Ah** of capacity. The device connected to mains inteligently monitors the battery state and charges it if possible. After sudden lack of power supply from the mains the device automatically switches to accumulator without breaking operation.

In case of an prolonged storage period in low temperatures, it is not allowed the full discharge of the accompanied batteries.

The worn out accumulator can be exchanged to a new one by the authorized sernice of the manufacturer.

The equipment including accumulators does not belong to your regular household waste. The European legislation requires that electrical and electronic equipment be collected and disposed separately from other communal waste with the aim of being recycled.

Notice:
Some symbols on accumulators identify harmful elements:
Pb = lead,
Cd = cadmium,
Hg = mercury.

2.3. Operation in a strong electrostatic field

If the device is about to operate in a strong electrostatic field (e.g. printing houses etc.) it should be connected to the earthing. Connect it to the clamp terminal signed ⏚.

2.4. Washing scales intended for meat processing industry

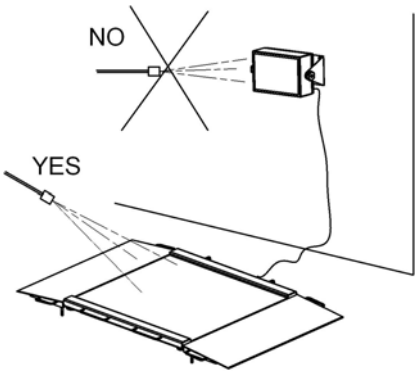
Weighing platforms are made of stainless steel (according to standards PN–0H18N9, EN-1.4301, AISI–304) and silicon elements.

There is an exception, zinc coated overhead scales and painted livestock scales made of mild constructional steel with aluminium cover plate on the platform, polyester overlays and stainless steel or polyamide glands.

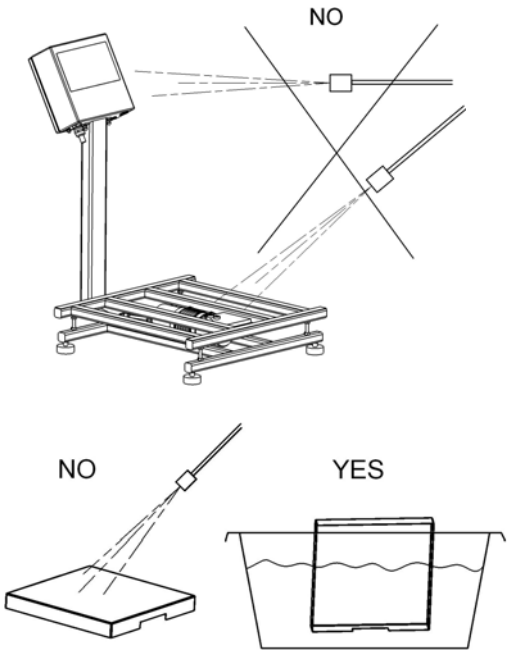
Caution:
Washing and disinfection agents should be matched to the scale.

Platforms of ramp and livestock scales as well as load-bearing structures and weighing tracks of overhead scales can be washed with jet of water (temp. up to +80°C) with an appropriate washing agent. Washing measuring indicators/weighing terminals with the jet of hot water is not allowed.

Caution:
It is advisable to cover measuring indicators/weighing terminals while washing their surrounding with the jet of water.



To wash waterproof platform scales and indicators/terminals neither jet of water nor hot water shall be used, in order not to damage the silicon gaiter that covers the load cell inside the platform and the overlay or glands in the indicator/terminal. To wash pans of platform scales they should be taken off first. Then they can be washed ether with the jet of water or by immersion.



Type:		Water with detergent	Jet of water	Hot water – max 80°C
Ramp scales	Platforms with tracks	yes	yes	yes
	Indicator/terminal	yes	no	no
Livestock scales	Platform with railing	yes	yes	yes
	Indicator/terminal	yes	no	no
Overhead scales	Load bearing structure with he load cell	yes	yes	yes
	Indicator/terminal	yes	no	no
Platform waterproof scales	Platform	yes	no	no
	Indicator/terminal	yes	no	no
	Taken off pan	yes	yes	yes

3. WARRANTY CONDITIONS

A. RADWAG is obliged to repair or change those elements that appears to be faulty because of production and construction reason,

B. Defining defects of unclear origin and outlining methods of elimination can be settled only in participation of a user and the manufacturer representatives,

C. RADWAG does not take any responsibility connected with destructions or losses derives from non-authorized or inappropriate (not adequate to manuals) production or service procedures,

D. Warranty does not cover:

- Mechanical failures caused by inappropriate maintenance of the device or failures of thermal or chemical origin or caused by atmospheric discharge, overvoltage in mains or other random event,
- Inappropriate cleaning.

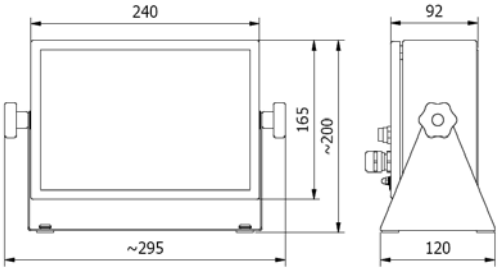
E. Loss of warranty appears after:

- Access by an unauthorized service,
- Intrusion into mechanical or electronic construction of unauthorized people,
- Removing or destroying protection stickers.

F. The detailed warranty conditions one can find in warranty certificate.

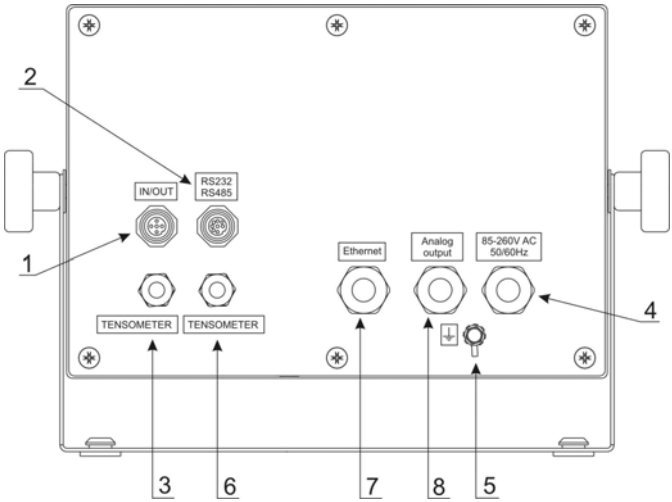
G. Contact with the central authorized service:
+48 48 384 88 00 ext. 106 or 107.

4. MAIN DIMENSIONS



Main dimensions of PUE C41H

5. DESCRIPTON OF CONNECTORS



Terminal connectors

1 – I/O connectors
2 – RS232, RS485 connector
3 – Tensometer gland
4 – Power supply gland
5 – Earthing terminal
6 – Additional platform gland (option)
7 –Ethernet gland (option)
8 – analogue output gland - voltage or current loop (option)

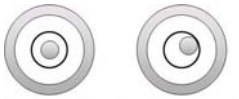
Caution:
In accordance to the number of mounted modules the number and the placement of glands and connectors can vary. Connectors and glands mentioned in the standard solution appears in every option in the same place regardless of the option.

6. UNPACKING AND MOUNTING

A. Take the device out of the package,

B. Put the scale on an even stiff ground,

C. Level the platform using an external
or internal level condition indicator. Use levelling feet to do it.



7. GETTING STARTED

- Switch off the scale using  – keep pressing it for about 0.5 sec,
- Wait for the test completion,
- Then you will see zero indication and following pictograms displayed:

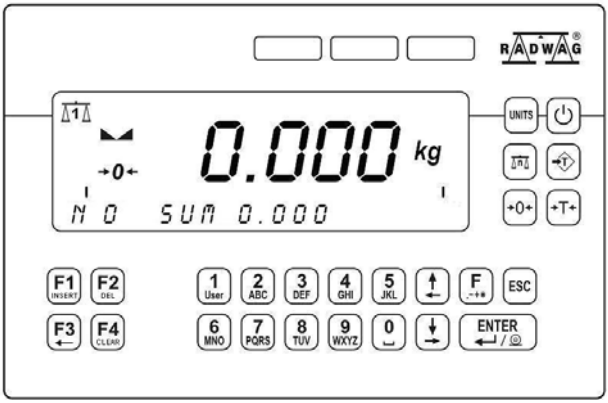
 - zero

 - equilibrium

kg - weight unit

If the indication is not zero – press zero button.

8. KEYBOARD



9. PICTOGRAMS

No	Pictogram	Description
1.	→0←	Zero indication (Autozero zone)
2.		Equilibrium
3.	**kg (g)**	Weighing mode
4.		Battery/accumulator
5.	**Net**	Tare has been introduced
6.	**Min**	Lower threshold
7.	**OK**	Proper mass
8.	**Max**	Upper threshold or **TOP** mode
9.		Counting pieces
10.	%	Weighings in percents
11.	►	Animals weighings
12.		Dosing / filling in recipes
13.	| ------ |	Bargraph
14.	1	First platform
15.	2	Second platform
16.	→|2|←	Second range of weightings'
17.		Communication with a computer

9.1. Battery charge indication

 pictogram is situated in the upper right corner informed about the discharge level or charging process:

-  pictogram blinks: accumulator damaged or no accumulator,
-  pictogram displayed continuously: it is charge between 70% and100%,
-  pictogram displayed continuously: it is charge between 30% and70%,
-  pictogram displayed continuously: it is discharge (less than 30%), connect to the mains to charge,
- Internal elements of  pictograms are displayed in sequence: charging,
- No  pictogram: power supply from mains, battery charges.

10. FUCTIONS OF KEYS

Keys	Description
	Turning on/off the scale
	Toggling between weight units
	Changing active platform
	Inscribing tare value
	Zeroing
	Tarring
	Function key (entering the menu)
	Leaving a function without saving or reaching a higher level of the menu
	Printing out the result or confirming some entered data
	Selection / viewing of articles from the assortment database

F2 DEL	Selection purpose variables
F3 … F4 CLEAR	N/A
↓ →	Work mode selection
↑ ←	N/A
1 User	Log out
2 ABC	Inscribing MIN, MAX thresholds
3 DEF	View of statistics
4 GHI … 5 JKL	N/A
6 MNO … 0 ␣	Programmable keys

***Caution**:*

After pressing F, functions of keys change while in the menu. The way of using them is described farther.

11. MENU - PARAMETERS

11.1. Overview of parameters

The menu has been divided into **10** basic groups. Each group has its individual name starting with the capital letter **P**. Names of groups and their contents are shown below.

PARAMETERS

P 1 SCALE PARAMETERS

P 1.1	PLATFORM 1 PAR.	
P 1.1.1	FITER	AVERAGE
P 1.1.2	MED. FILTER	YES
P 1.1.3	LO THRESH.	20 d
P 1.1.4	TARE MODE	STDRD
P 1.1.5	START UNIT	kg
P 1.1.6	AUTOZERO	YES
P 1.1.7	DOS. FILTER	1
P 1.2	PLATFORM 2 PAR.	

P 1.2.1 FITER	|	AVERAGE
P 1.2.2 MED. FILTER	|	YES
P 1.2.3 LO THRESH.	|	20 d
P 1.2.4 TARE MODE	|	STDRD
P 1.2.5 BASIC UNIT	|	kg
P 1.2.6 AUTOZERO	|	YES
P 1.2.7 DOS. FILTER	|	1
P 1.3 FACTORY NO	|	0

P 2 COM PORTS PARAMETERS

P 2.1 RS 485		
P 2.1.1 BAUD RATE	|	9600
P 2.1.2 DATA BITS	|	8
P 2.1.3 PARITY BIT	|	NO
P 2.1.4 STOP BITS	|	1
P 2.2 RS 232 (1)		
P 2.2.1 BAUD RATE	|	9600
P 2.2.2 DATA BITS	|	8
P 2.2.3 PARITY BIT	|	NO
P 2.2.4 STOP BITS	|	1
P 2.3 RS 232 (2)		
P 2.3.1 BAUD RATE	|	9600
P 2.3.2 PARITY BIT	|	NO
P 2.4 ETHERNET		
P 2.4.1 COMM MODE	|	SERVER
P 2.4.2 IP ADDRESS	|	192.168.0.2
P 2.4.3 SUBNET MSK.	|	255.255.255.0
P 2.4.4 GATEWAY	|	192.168.0.1
P 2.4.5 LOCAL PORT	|	4001
P 2.4.6 HOST IP	|	192.168.0.3
P 2.4.7 HOST PORT	|	2000
P 2.4.8 TIMEOUT	|	60

P 3 DEVICES

P 3.1 COMPUTER		
P 3.1.1 COMP. PORT	|	NO
P 3.1.2 ADDRESS	|	1
P 3.1.3 COMP. PRINT	|	NONE
P 3.1.4 BASIC TRS.	|	YES
P 3.1.5 SYSTEM E2R	|	NO
P 3.2 PRINTER		
P 3.2.1 PRINT PORT	|	NO
P 3.3 BARCODE SCANNER		
P 3.3.1 BARCOD. COM	|	NO
P 3.3.2 START	|	0
P 3.3.3 LENGTH	|	0
P 3.4 TRANSP. CARD READER		
P 3.4.1 READER COM	|	NO
P 3.5 ADDITIONAL DISPLAY		
P 3.5.1 DISPL. PORT	|	NO
P 3.5.2 DISPL. TYPE	|	LCD

P 4 DATE / TIME

P 4.1	DISPL. TIME	* FUNCTION *
P 4.2	SET TIME	* FUNCTION *
P 4.3	DAT. FORMAT	YY-MM-DD

P 5 PRINTOUTS

P 5.1	AUTO. PRINT	WHEN STAB
P 5.2	STAB. PRINT	YES
P 5.3	CHECKWEIGHING	NO
P 5.4	PRINTOUT	STANDARD
P 5.5	PRINTOUT 1	* FUNCTION *
P 5.6	PRINTOUT 2	* FUNCTION *
P 5.7	PRINTOUT 3	* FUNCTION *
P 5.8	PRINTOUT 4	* FUNCTION *

P 6 DATABASES

P 6.1	LOGGING	NO
P 6.2	EDITION	ADMIN
P 6.3	ANON. ACC.	ADMIN
P 6.4	PASS. TYPE	NUM
P 6.5	CODE TYPE	NUM
P 6.6	STATISTICS	GENERAL

P 7 WORK MODES

P 7.1	MODE ACCES.	
P 7.1.1	WEIGHING	YES
P 7.1.2	TOP	YES
P 7.1.3	COUN. PCS	YES
P 7.1.4	CHECKWEIGH.	YES
P 7.1.5	ANIM. WEIGH.	YES
P 7.1.6	DOSAGE	YES
P 7.1.7	INTER. TERM.	YES
P 7.2	BUTTONS FUNCTIONS	
P 7.2.1	B6	NONE
P 7.2.2	B7	NONE
P 7.2.3	B8	NONE
P 7.2.4	B9	NONE
P 7.2.5	B0	NONE
P 7.3	ANIM. WEIGH.	
P 7.3.1	WEIGH. TIME	15
P 7.4	FORMULATION	
P 7.4.1	MULTIPLIER	1.000
P 7.4.2	TARRING	NONE
P 7.4.3	INGRED. CONF.	NO
P 7.4.4	ASK REPT. NO	NO
P 7.4.5	CHUTE TIME	5
P 7.4.6	AUT. T. PRN	NO
P 7.4.7	MINUS DOSING	NO
P 7.4.8	CHECK BATCH NUMBER	NONE

P 8 I/O CONFIG

P 8.1	EXTERNAL BUTTONS	
P 8.1.1	TARE BUTT.	NO
P 8.1.2	PRINT BUTT.	NO
P 8.1.3	ZERO BUTT.	NO
P 8.1.4	START BUTT.	NO
P 8.1.5	STOP BUTT.	NO
P 8.1.6	EXT. START	NO
P 8.1.7	TERM. BUTT.	NO
P 8.1.8	CHUTE PERM.	NO
P 8.1.9	DOSE PERM.	NO
P 8.2	OUTPUT CONF.	
P 8.2.1	MIN	NO
P 8.2.2	OK	NO
P 8.2.3	MAX	NO
P 8.2.4	STABLE	NO
P 8.2.5	CHUTE PL 1	NO
P 8.2.6	CHUTE PL 2	NO
P 8.2.7	DOSE SIGNAL.	NO

P 9 OTHER

P 9.1	LANGUAGE	ENGLISH
P 9.2	DIODES	
P 9.2.1	LED POWER	100%
P 9.2.2	RED DIODES	NON-STAB.
P 9.2.3	GREEN DIOD.	STABLE
P 9.3	POWER SAVE	NO
P 9.4	BACKLIGHT	
P 9.4.1	BL MAINS	YES
P 9.4.2	BL BATTER.	100%
P 9.5	BEEP	YES
P 9.6	KEYPAD TYPE	ABC2
P 9.7	SOFT. VER.	WTLR 1.6.5

P 10 USER CALIB.

P 10.1	PLATF. 1 CALIB	
P 10.1.1	STRT M. ADJ.	* FUNCTION *
P 10.1.2	CALIBRATION	* FUNCTION *
P 10.2	PLATF. 2 CALIB	
P 10.2.1	STRT M. ADJ	* FUNCTION *
P 10.2.2	CALIBRATION	* FUNCTION *

11.2. Navigating within the menu level

Use keyboard to browse the menu.

11.2.1. Keyboard

Entering the main menu, special characters in the editing field
Entering the search procedure of records in databases

Moving up (left)

Moving down (right)

Adding records in a database
adding characters in an editing field

Clearing the editing field
Erasing a record in a database
Selecting and editing general purpose variables

START of dosing procedure
START of weighings animals
Deleting characters in editing field

Clearing editing field
deleting database
zeroing statistics

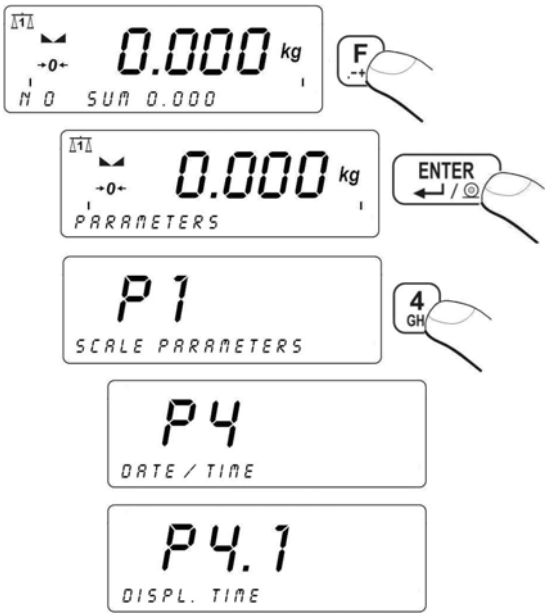
Entering submenus
entering parameters
confirming changes

Skipping changes
leaving the menu level

11.2.2. Quick access

It is possible to move quickly within the parameters' menu using [0] to [9].

Procedure:



11.3. Return to weighing

Press [ESC], until you see **SAVE CHANGES ?**. Then you press: [ENTER] – confirms changes or [ESC] – skips changes. Then the scale returns to weighing.

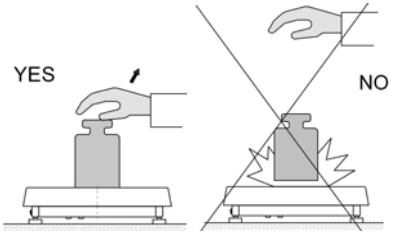
12. WEIGHING

Put a load you want to weigh on the weighing pan. When the ◣◢ pictogram appears it means that the result is stable and ready to read.

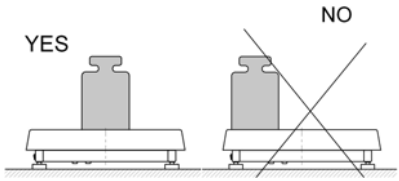
12.1. Operating conditions

In order to assure long-term operation and appropriate measurements of weighted loads following precautions should be taken into consideration:

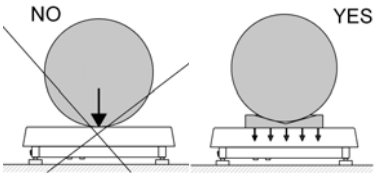
- Loads should be placed on the pan delicately and carefully in order to avoid mechanical shocks:



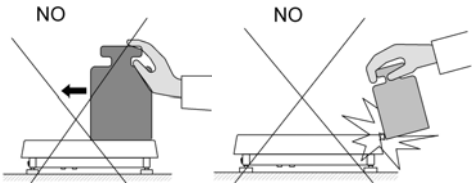
- Loads should be placed centrally on the pan (errors caused by eccentric weighing are outlined by standard PN-EN 45501 ch. 3.5 and 3.6.2):



- Do not load the pan with concentrated force:



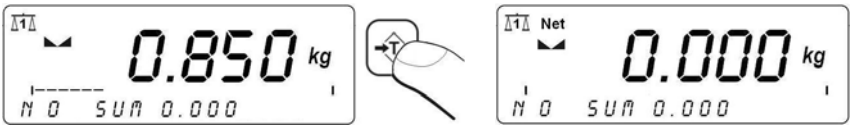
- Avoid side loads, particularly side shocks should be avoided:



12.2. Tarring

In order to determine the net mass put the packaging on the pan.

After stabilising press - →T← (**Net** pictogram will be displayed in the left upper corner and zero will be indicated).



After placing a load on the weight pan net mass will be shown. Tarring is possible within the whole range of the scale. After unloading the pan the display shows the tarred value with minus sign.

Caution:
*Tarring cannot be performer when a negative or zero value is being displayed. In such case **Err3** appears on the display and a short beep sound will be emitted.*

12.3. Inscribing tare value

You can also inscribe a tare value:

Procedure:

While in weighings mode:

- Press [→T],
- In the lower line you will see an editing field:

- Inscribe the tare value:

- Press [ENTER],
- The scale return to weighings mode The inscribed tare value can be seen on the display with **„–”** sign.

Tare can be inscribed anytime in weighings mode.

12.4. Zeroing

To **ZERO** the scale press: [→0←].

The scale will display zero and following pictograms: →0← and ◣◢.
Zeroing is only possible within the scope of **±2%** of full scale.
While zeroing outside the scope of **±2%** you will see **Err2**.

Zeroing is possible only in stable state.

Caution:
*Zeroing is possible only within **±2%** of full range around zero. If the zeroed value is beyond the interval of **±2%, Err2** is displayed and a short beep sound will be emitted.*

12.5. Weighings in two ranges

Switching between the **I range** and the **II range** happens automatically (exceeding Max of the **I range**).

Weighings in the second range is signalled by a pictogram in the top left corner of the display.

Then weighings is done with the accuracy of the **II range** to the moment of returning to zero (autozero range →0←) where the scale switches back to the **I range**.

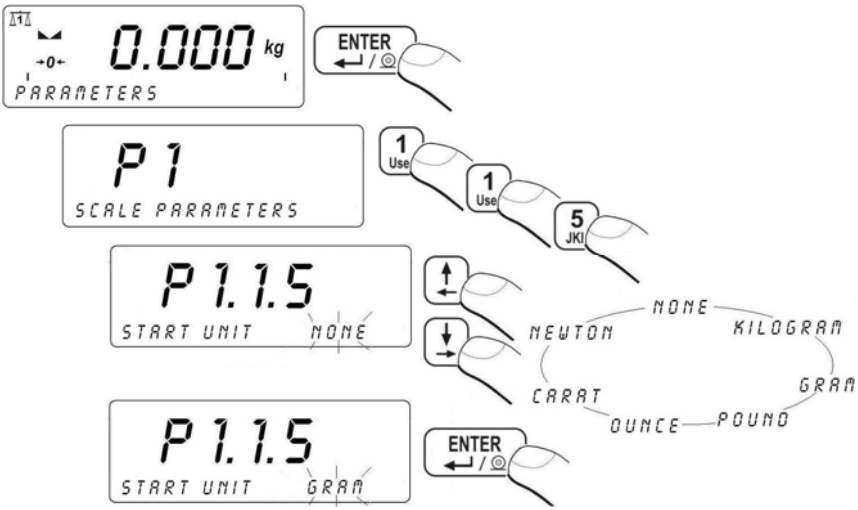
12.6. Toggling between weight units

12.6.1. Selection of basic unit

This function sets the unit that will be set after powering on.

Procedure:

- While In weighings mode press F and then:



Selection:

- When the main unit is [kg], users can select among: [kg, lb, oz, ct, N, g] , for verified scales *[lb, oz, N]* are not accessible;
- When the main unit is [g], users can select among: [g, kg, lb, oz, ct, N] , for verified scales *[lb, oz, N]* are not accessible.

12.6.2. Toggling between weight units

Press the **Units** key to toggle between weight units**.**

Accessible units:

- When [kg] is the basic unit, users can toggle between: [kg, lb, oz, ct, N, g]. For verified scales *[lb, oz, N] are not accessible*;
- When [g], is the basic unit, users can toggle between: [g, kg, lb, oz, ct, N] For verified scales *[lb, oz, N] are not accessible*.

Notice:
The terminal always starts working with the main (calibration) unit.

12.7. Switching between platforms

If a scale is equipped with two platforms press  to change the platform. The active platform is signalled by pictograms in the top left corner of the display.

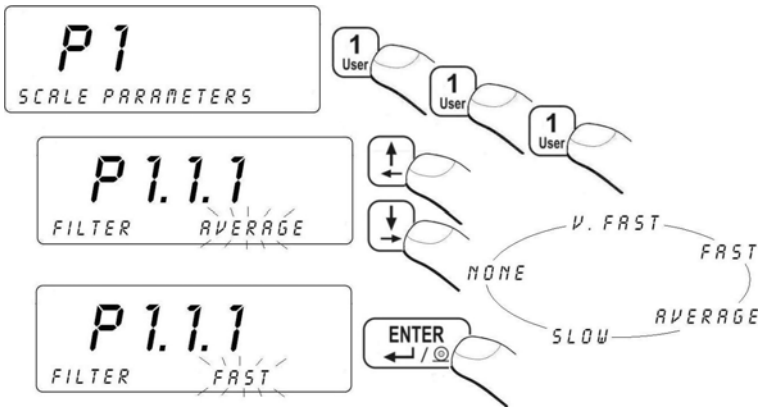
13. MAIN PARAMETERS

Users can adjust the scale to external ambient conditions (filtering level) or particular needs (autozero operation, tare memory). This parameters are present in **<P1 SCALE PARAMETERS>**.

13.1. Filtering level

Procedure:

- Enter **<P1 SCALE PARAMETERS>** and then:



Return to weighing:
See 11.3.

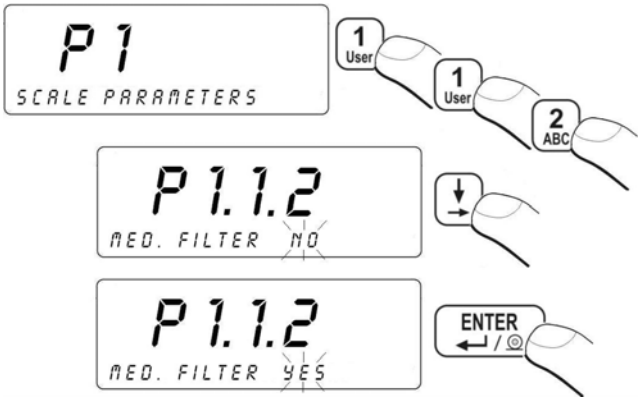
Notice:
The higher filtering level the longer stabilization time.

13.2. Median filter

This filter eliminates short mechanical shocks.

Procedure:

- Enter **<P1 SCALE PARAMETERS>** and then:



NO - filter disabled
YES - filter enabled

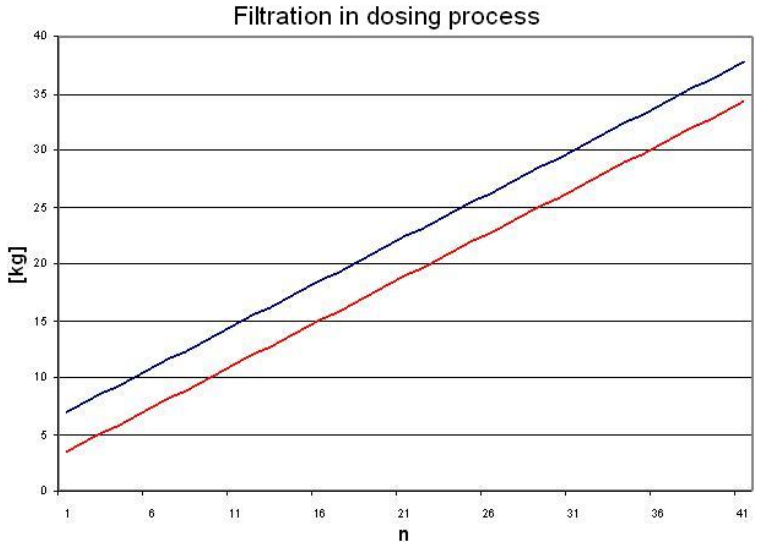
Return to weighing:
See 11.3.

13.3. Dosing filter setting

In PUE 41 terminals an special averaging filter for dosing process has been implemented. The result of this filtration, instead of traditional filters for static weighing, is compared with dosing setpoints. The filter parameter is the number of samples from the A/D converter (1 to 10). When the filter is set to 1 every reading from the A/D converter is compared with the dosing setpoints, which does not introduce any delay. If the filter parameter is set to n>1, the filtering result will be calculated as an arithmetic average from the last n measurements.

$M = \sum_{i=1}^{n} X_i$,where M is a filtering result from samples X_1 to X_n .

As dosing is a kind of dynamic state, which results in continuous changes in measurements, the averaged number of samples in the filter have an effect on the result. An example situation is illustrated below:



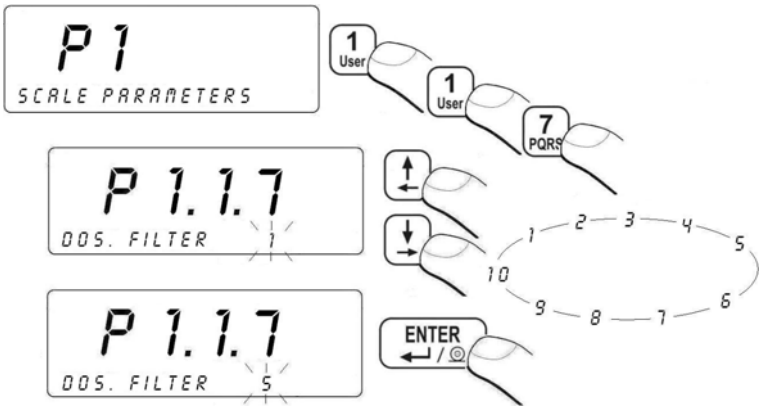
The upper blue line represents results for n=1 samples in the filter buffer (averaging is off). The lower red line represents the same process when the filter is set to n=10. The difference depends on the dynamics (dosing rate) of changes either. The theory shows that the best filter parameter is n=1 because the setpoints can be compared with the current dosed mass. But in practice, there is a noise from different vibration sources registered and sometimes external forces connected with kinetic and potential energy of the poured material. It causes that the filter setting should be matched experimentally.

Caution:

1. *The subsequent readouts of the measured value from the A/D converter is performed every 100 ms.*
2. *This filter operates only in dosing procedures.*

Procedure:

- Enter **<P1 SCALE PARAMETERS >** according to 11.2. of the manual:



Return to weighing:

See 11.3.

13.4. Minimal mass parameter

Parameter **PROG LO** is related to following functions:

- automatic tare,
- automatic operation,
- weighing animals.

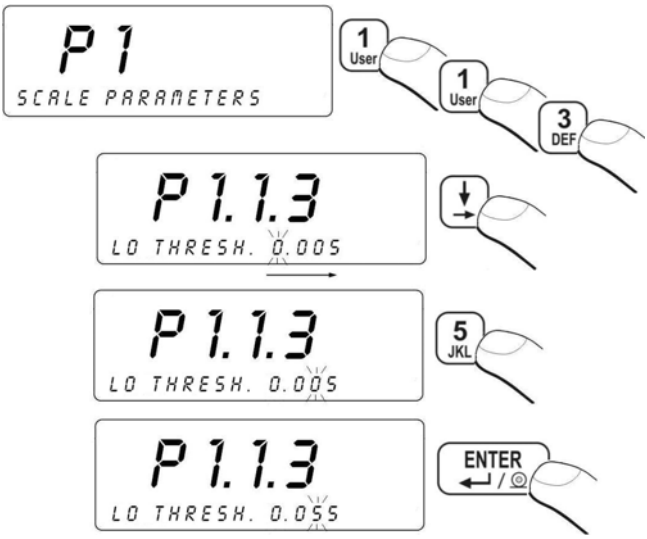
The next automatic tarring can be performed after the indication reaches the gross value below **LO THRESH**.

For automatic weighing the next weighings can be performed after the indication reaches the net value below **LO THRESH**.

The procedure of weighing animals will start after the gross animal mass is greater than **LO THRESH**.

Procedure:

- Enter **<P1 SCALE PARAMETERS>** according to 11.2. and then:



Return to weighing:

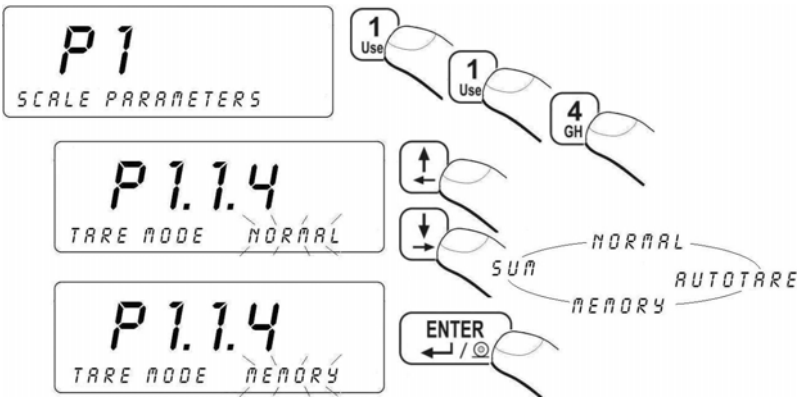
See 11.3.

13.5. Tare function

This parameter allows to set appropriate parameters for tarring.

Procedure:

- Enter **<P1 SCALE PARAMETERS>** according to 11.2. and then:



AUTO - disable automatic tare (the mode is remembered after restart);

NORMAL - tarring by pressing →T←;

MEMORY - tare memory mode - the last tare value is being kept in a non-volatile memory, **Net** pictogram is displayed.

SUM - sum of tares – summing up a product tare value with a tare from the database of tare values or with an inscribed one.

Return to weighing:
See 11.3.

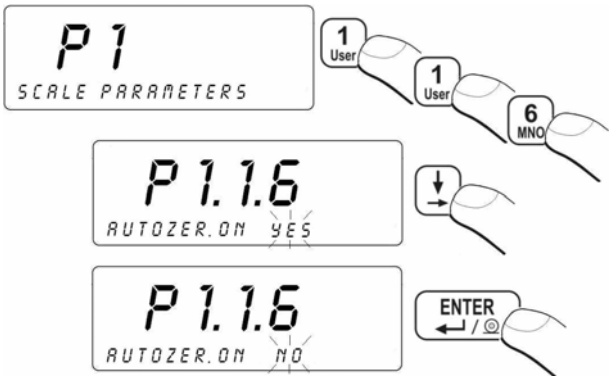
13.6. Autozero

The autozero function has been implemented in order to assure precise indications. This function controls and corrects **„0”** indication. While the function is active it compares the results continuously with constant frequency. If two sequentional results differ less than the declared value of autozero range, so the scale will be automatically zeroed and the pictograms ▁▂ and →0← will be displayed.

When AUTOZERO is disabled zero is not corrected automatically. However, in particular cases, this function can disrupt the measurement process e.g. slow pouring of liquid or powder on the weighing pan. In this case, it is advisable to disable the autozero function.

Procedure:

- Enter **<P1 SCALE PARAMETERS>** according to 11.2. and then:



NO - Autozero disabled
YES - Autozero enabled

Return to weighing:
See 11.3.

14. PORTS PARAMETERS

It is possible to connect external devices (printer, computer) to the ports:

- RS 232 (1)
- RS 232 (2)
- RS 485
- Ethernet

Configuration can be done in: **<P2 COM PORTS PARAMETERS>**.

14.1. RS 232, RS 485 setting

For setting: RS 232, RS 485 use following parameters:

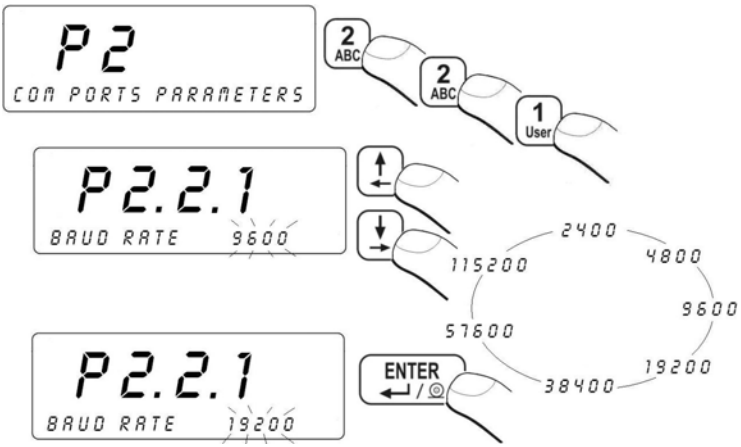
- Baud rate - 2400 - 115200 bit / s
- Data bits - 7, 8
- Stop bit - 1, 1.5, 2
- Parity - NONE, ODD, EVEN

Caution:
There is impossible to set data bits and stop bits for RS 232(2).
They are internally set to 8 bits and 1 stop bit.

14.1.1. Baud rate of RS 232

Procedure:

- Enter **<P2 COM PORTS PARAMETERS>** according to 11.2. and then:



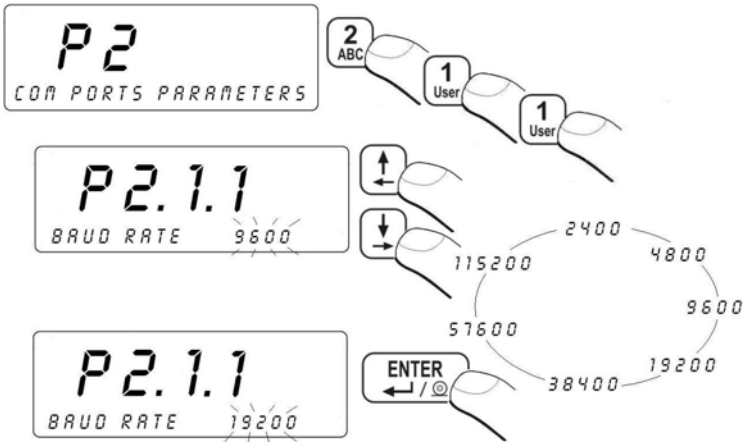
Return to weighing:

See 11.3.

14.1.2. Baud rate of RS 485

Procedure:

- Enter **< P2 COM PORTS PARAMETERS >** according to 11.2. and then:



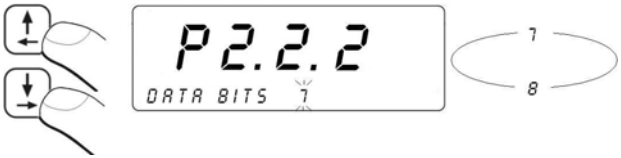
Return to weighing:

See 11.3.

14.1.3. RS 232 parameters

Procedure:

- Enter **<P2.2 RS232 (1)>** and press ENTER,
- Using ↓ scroll to **<P2.2.2 DATA BITS>** and press ENTER:



- The selected value confirm with ENTER,
- Using ↓ go to **<P2.2.3 PARITY BIT>** and press ENTER:

- The selected value confirm with ENTER,
- Using ↓ go to **<P2.2.4 STOP BITS>** and press ENTER:

- The selected value confirm with ENTER,

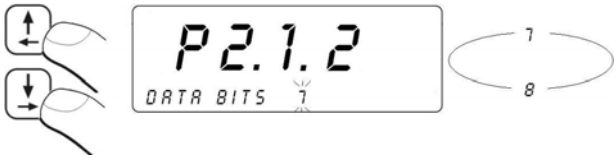
Return to weighing:
See 11.3.

Caution:
*Search chapter 32.2.2 of this manual to find details on connecting the scale with **EDYTOR WPW** via RS232.*

14.1.4. Setting of RS 485 parameters

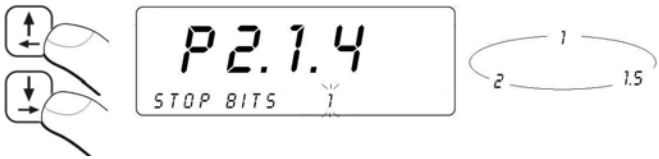
Procedure:

- Enter **<P2.1 RS485>** and press ENTER,
- Using ↓ go to **<P2.1.2 DATA BITS>** and press ENTER:



- The selected value confirm with ENTER,
- Using ↓ go to **<P2.1.3 PARITY BITS>** and press ENTER:

- The selected value confirm with ENTER,
- Using ↓ go to **<P2.1.4 STOP BITS>** and press ENTER:



- The selected value confirm with ENTER,

Return to weighing:

See 11.3.

14.2. ETHERNET setting

ETHERNET can be configured in **<P2.4 ETHERNET>**.

Inventory of default parameters:

No	NAME	VALUE	DESCRIPTION
P2.4.1	WORK MODE	SERVER, CLIENT	Ethernet connection as Server or Client. SERVER – scale waits for connection CLIENT – scale initiates the connection to a HOST.
P2.4.2	IP ADDRESS	192.168.0.2	Setting an IP address.
P2.4.3	SUBNET MASK	255.255.255.0	Setting a subnet mask for Ethernet connection.
P2.4.4	GATEWAY	192.168.0.1	Setting a gateway for Ethernet connection.
P2.4.5	LOCAL PORT	4001	Setting a local port for Ethernet connection. Only for devices that work as SERVER. Servers waits for connection on the specified port.
P2.4.6	HOST IP	192.168.0.3	Setting a host IP address (IP of a device to connect with). Applicable only for devices configured as CLIENTs.
P2.4.7	HOST PORT	2000	Setting a Host port (a port for connection with a computer). Applicable only for devices configured as CLIENTs.
P2.4.8	TIMEOUT	60	Time (in seconds) after which none-active Ethernet connection is being broken. Set to 0 to stop breaking the connection.

Caution:

1. *For appropriate setting of:* ***<P2.4.2 IP ADDRESS>****,* ***<P2.4.3 SUBNET MSK>****,* ***<P2.4.4 GATEWAY>*** *contact the supervisor of the net to connect with;*
2. *The way of connection via ETHERNET to the program* ***EDYTOR WPW*** *is described in chapter 32.2.3.*
3. *The scale does not allow the automatic fetch of net configuration from DHCP servers.*

Return to weighing:
See 11.3.

15. EXTERNAL DEVICES

15.1. Cooperation with a computer

WPW scales can cooperate with computers of IBM PC class.
In submenu **<P3.1 COMPUTER>** you can configure interfaces.

WPW scales can cooperate with the **EDYTOR WPW** program. The indicator window reflects the view of a typical indicator display with all necessary pictograms. The program allows to configure a scale easily, design printout patterns, supervise databases, set parameters, collect and save printouts etc.

Caution:

1. *Installation version of **EDYTOR WPW** is accessible on the Internet: **www.radwag.com.** Look up: Products / Measuring indicators / PUE C41H.*
2. Check chapter 32.2 for details on cooperation with EDYTOR WPW.

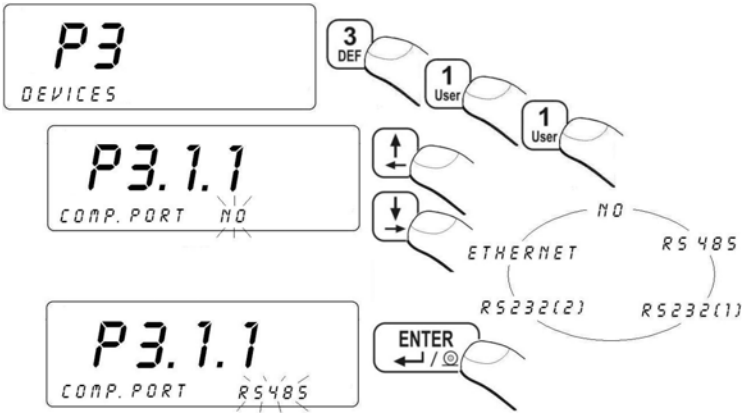
15.1.1. Select the communication port scale-computer

The computer can be connected to:

- RS 232 (1)
- RS 232 (2)
- RS 485
- Ethernet

Procedure:

- Enter **<P3 DEVICES>** according to 11.2. and then:



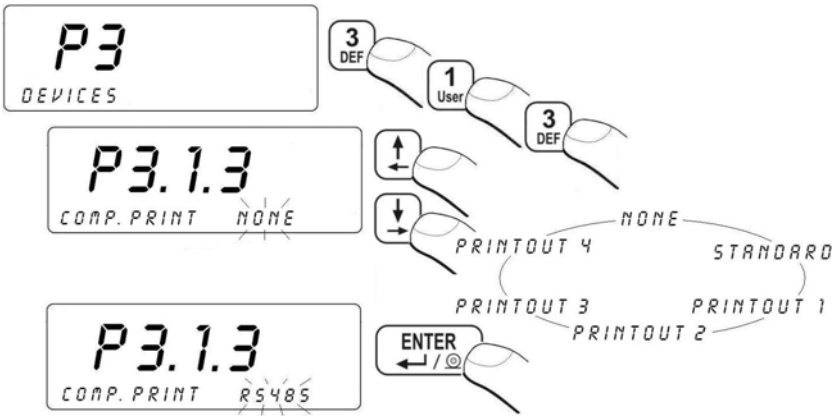
Caution:
Standard scales can communicate with computers only via RS232(1) or RS485.

Return to weighing:
See 11.3.

15.1.2. Type of printout scale – computer

Procedure:

- Enter **<P3 DEVICES>** according to 11.2. and then:



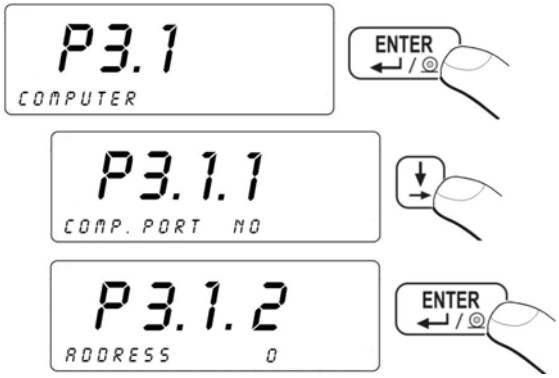
Caution:
The procedure of designing non-standard printouts is described in chapter 17.6 of this manual.

Return to weighing:
See 11.3.

15.1.3. Address setting

Procedure:

- Enter **< P3.1 COMPUTER >** according to 11.2. and then:



- Inscribe a value (0 to 254) and press ENTER.

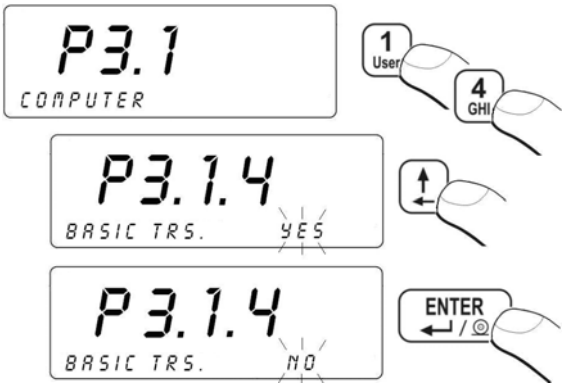
Return to weighing:
See 11.3.

15.1.4. Order operating of communication protocol

User in parameter **<P3.1.4 BASIC TRS.>** has possibility to set communication protocol designed to communicate between RADWAG scale and external device.

Procedure:

- Enter **< P3.1 COMPUTER >** according to 11.2. and then:



Return to weighing:
See 11.3.

15.1.5. Cooperation with „E2R System"

Scales can cooperate with computer software **„E2R System"** that is a modular system for complex production supervising by monitoring of weighings processes.

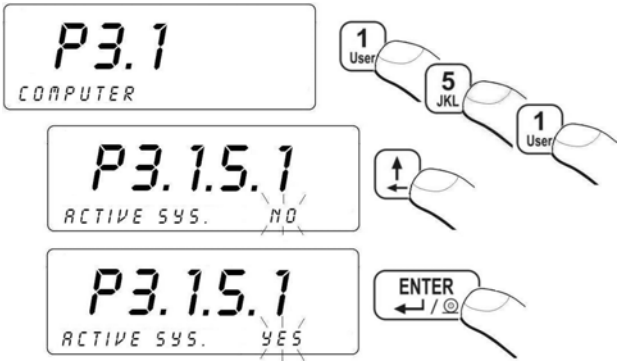
Caution:
*Enabling cooperation of the device with program **„E2R System"** can be done only by the manufacturer or authorized Service.*

15.1.5.1. Enabling „E2R System"

In order to allow the cooperation with **„E2R System"** enable parameter **<P3.1.5.1 ACTIVE SYS.>**.

Procedure:

- Enter **< P3.1 COMPUTER >** according to 11.2. and then:



Return to weighing:
See 11.3.

15.1.5.2. Buffer for weighings

Users can declare the quantity of performed measurements to be saved in the internal buffer in the scale in case of operating **OFF-LINE** (no transmission to **„E2R SYSTEM"**). After reconnecting with **„E2R SYSTEM"** all measurements from the internal buffer will be sent to the database of the computer program.

Procedure:

- Enter **< P3.1 COMPUTER >** according to 11.2. and then:

- Type on the scale keyboard the required buffer length and confirm by pressing button ENTER.

Caution:
*The buffer equal to **0** results in saving all weighings in the database in case of operating **OFF-LINE**.*

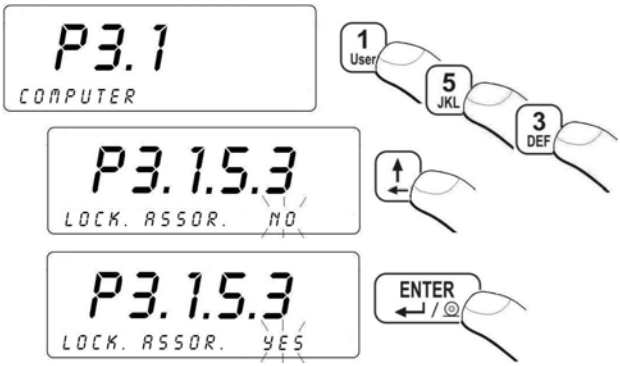
Return to weighing:
See 11.3.

15.1.5.3. The lock of product change

Users can lock changing products by scale operators cooperating with **„E2R SYSTEM”**.

Procedure:

- Enter **< P3.1 COMPUTER >** according to 11.2. and then:



Return to weighing:
See 11.3.

15.2. Cooperation with printers

Press ENTER to send the current measurement together with the weighing unit to a printer.

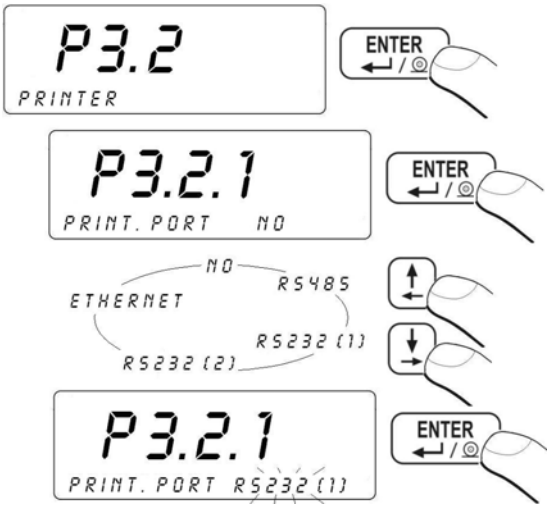
15.2.1. Communication port scale - printer

Following ports can be used:

- RS 232 (1),
- RS 232 (2),
- RS 485,
- Ethernet.

Procedure:

- Enter **<P3.2 PRINTER>** and then:



Return to weighing:
See 11.3.

15.3. Cooperation with a barcode scanner

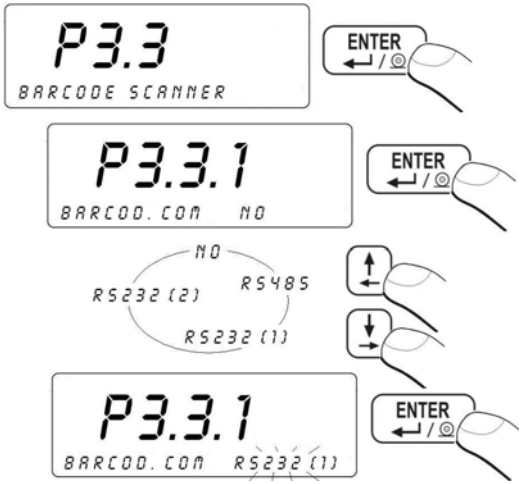
The scale gives possibility to cooperate with barcode scanners.
It is used for quick search of database of assortment.

Caution:
In ***<P2 COM PORTS PARAMETERS>*** *set the baud rate for the same as your barcode scanner requires (default 9600b/s). See details for cooperation with barcode scanners in chapter 32.1 of this manual.*

15.3.1. Select a communication port for the scanner

Procedure:

- Enter **<P3.3 BARCODE SCANNER>** and then select a communication port with the barcode scanner:



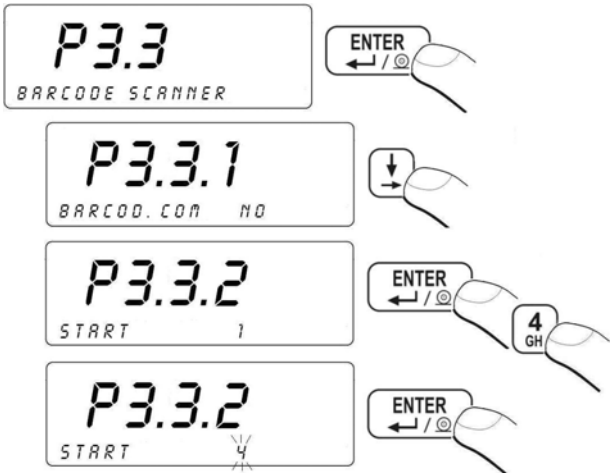
Return to weighing:

See 11.3.

15.3.2. Setting the START parameter

Procedure:

- Enter **<P3.3 BARCODE SCANNER>** and then set the **START** parameter – a character number in barcodes that is to be analysed during the assortment database search:



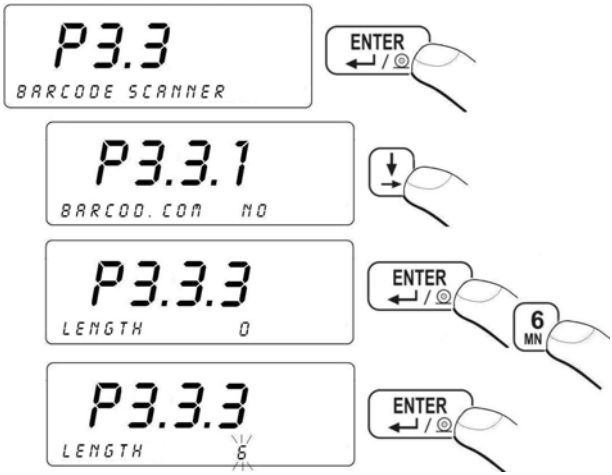
Return to weighing:

See 11.3.

15.3.3. Setting the LENGTH parameter

Procedure:

- Enter **<P3.3 BARCODE SCANNER>** and then set the **LENGTH** parameter – the number if character in barcodes (counting from **START**) that is to be analysed during the assortment database search:



Return to weighing:

See 11.3.

15.4. Cooperation with a transponder card reader

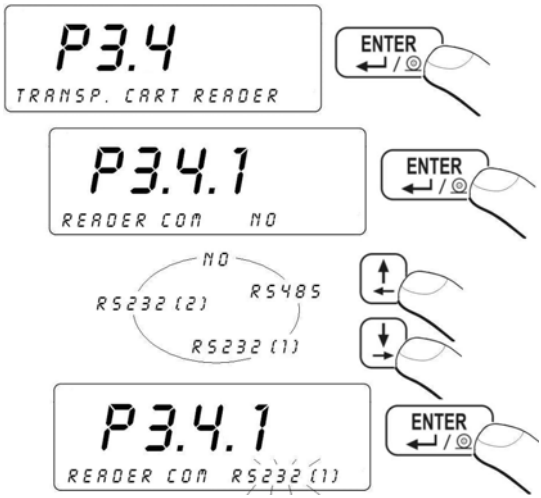
Operators can be logged in after powering up the device or previous logging out by:

- Inscribing a password using the scale keyboard,
- Using transponder cards to log in.

Caution:
In parameters ***<P2 COM PORTS PARAMETERS>*** *set the baud rate for the one that requires the barcode scanner (default 9600b/s).*

15.4.1. Selecting of communication port

In parameters **<P3.4 TRANSP. CARD READER.>** and then select a communication port with the transponder card reader:



Return to weighing
See 11.3.

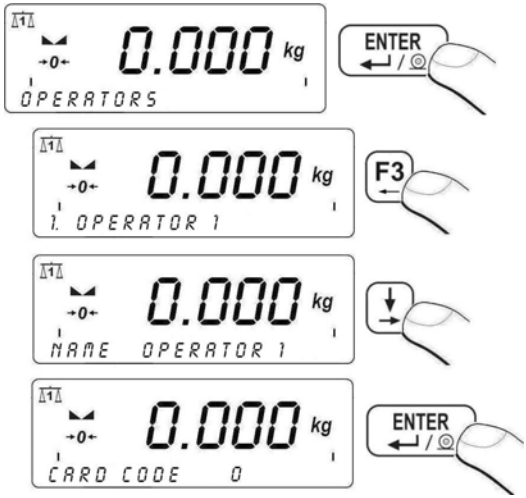
15.4.2. Procedure of ascribing card numbers to operators

In order to log in using a transponder card you need to have it previously ascribed to a specific operator.

Procedure:

- Connect a transponder card reader to RS232/RS485 on the back wall of the terminal,
- Select a communication port (see 15.4.1),

- In parameters **<P2 COM PORTS PARAMETERS>** set the baud rate (default 9600b/s).
- Enter the database of operators and then find and edit the required operator. Find **<CARD CODE>** field:



- Approaching a card to the reader results in displaying the card number in the **<CARD CODE>** field,
- Press ENTER to confirm,
- Return to weighing – chapter 11.3.

15.5. Cooperation with an additional display

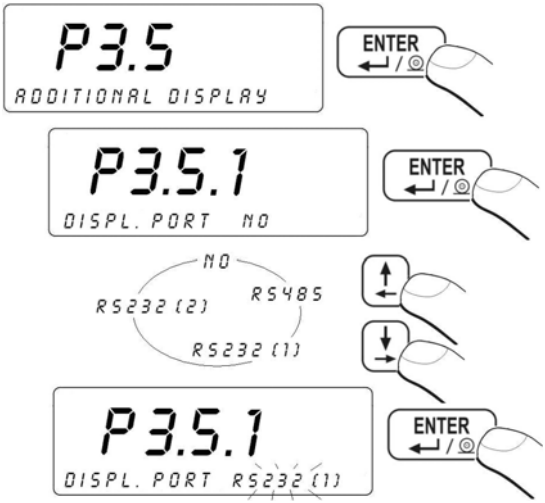
15.5.1. Selecting a communication port

Additional displays can be connected to:

- RS 232 (1)
- RS 232 (2)
- RS 485

Procedure:

- Enter **< P3.5 ADDITIONAL DISPLAY >** according to 11.2. and then:



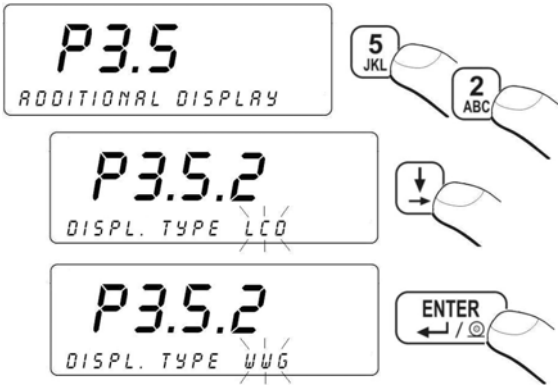
Return to weighing:

See 11.3.

15.5.2. Selecting an additional display type

Procedure:

- Enter **< P3.5 ADDITIONAL DISPLAY >** according to 11.2. and then:



Return to weighing:

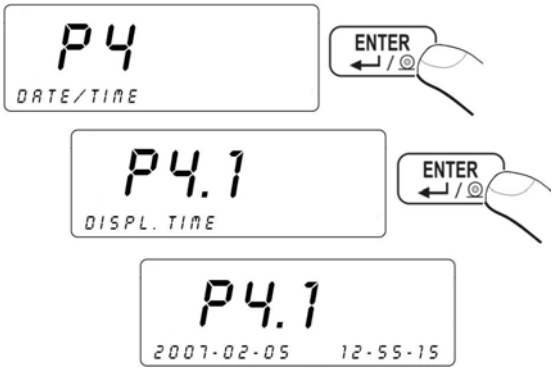
See 11.3.

16. DATE / TIME SETTING

Enter **<P4 DATE / TIME>** to set these parameters.

16.1. Time view

Procedure:

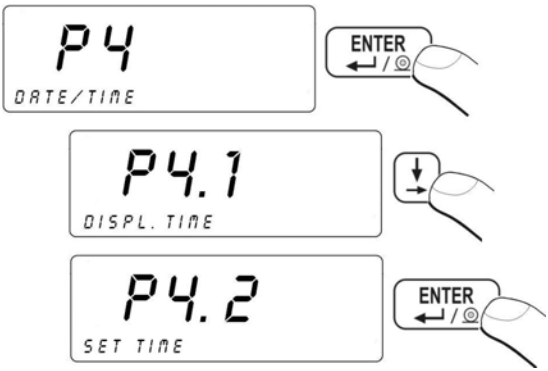


Return to weighing:
See 11.3.

16.2. Time setting

Procedure

- Enter the **DATE / TIME>** and then:



- After pressing ENTER you will see:

- Enter an appropriate value and confirm it with ENTER,
- You will have to enter the following variables in sequence:

  - MONTH
  - DAY
  - HOUR
  - MINUTE

- After confirming the last value with ENTER you will see the current date and time:

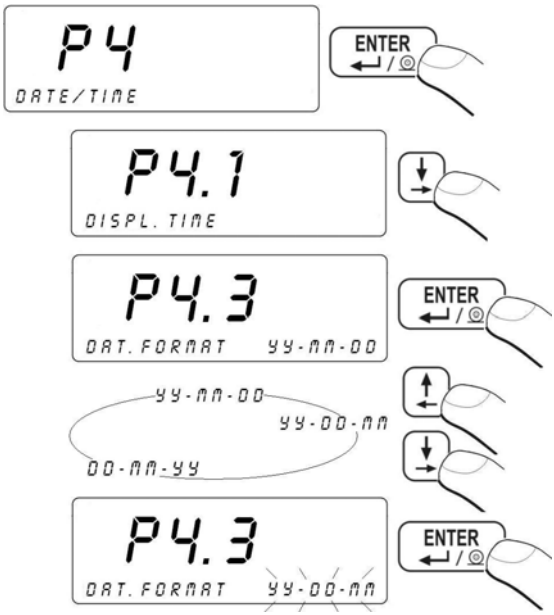
Return to weighing:
See 11.3.

16.3. Date format

Date can be displayed in different format.

Procedure:

- Enter **<P4 DATA / TIME>** and proceed as follows:



YY - MM - DD - year - month – day
YY - DD - MM - year - day - month
DD - MM - YY - day - month - year

Return to weighing:
See 11.3.

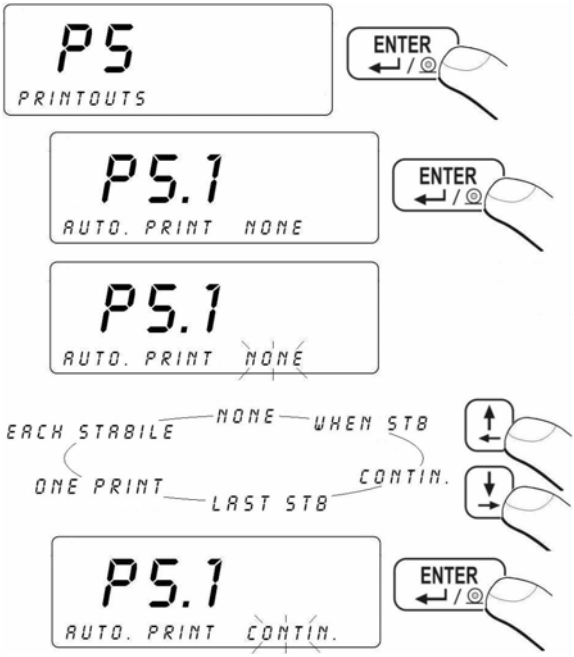
17. PRINTOUTS

17.1. Printout type

Setting the **<P5.1 AUTO. PRINT>** parameter can set a type of printout:

Procedure:

- Enter **<P5 PRINTOUTS>** according to 11.2. and then:



NO	-	manual printout
WHEN STB	-	automatic printout after stabilising
CONTIN.	-	continuous printouts
LAST STB	-	printing the last stable result after taking of a load, before reaching the **LO-**. value
ONE PRINT	-	Single print over **-LO-**
EACH STABILE	-	Automatic printout of each stable measurement over the **-LO-**

Return to weighing:

See 11.3.

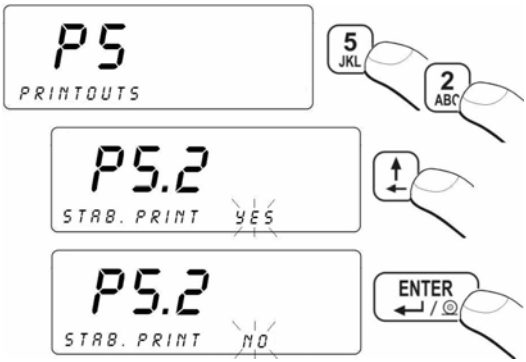
17.2. Printout of stable / unstable data

Enter **<P5.2 STAB. PRINT>**, to set the printout as:

- Stable data,
- Immediate data.

Procedure:

- Enter **<P5 PRINTOUTS>** according to 11.2. and then:



Return to weighing:
See 11.3.

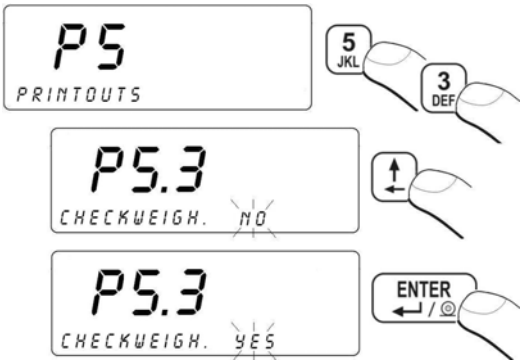
Notice:
In case of verified scales ***<P5.2 STAB. PRINT>*** *is not accessible for users.*

17.3. Checkweighing mode

In this mode printout is possible only when the result is between **Min**, **Max** thresholds.

Procedure:

- Enter **<P5 PRINTOUTS>** according to 11.2. and then:



Return to weighing:

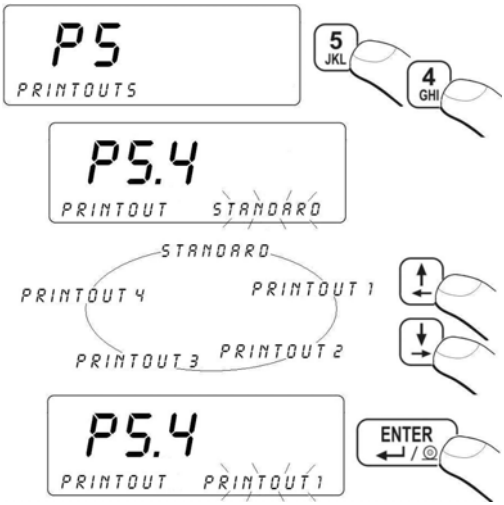
See 11.3.

17.4. Non-standard printouts

Users have possibility to design non-standard printouts in **<P5.4 PRINTOUT>**.

Procedure:

- Enter **<P5 PRINTOUTS>** according to 11.2. and then:



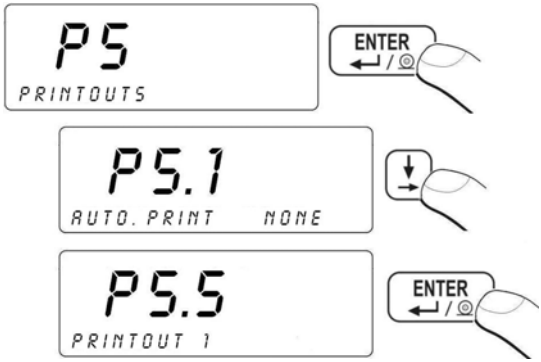
Return to weighing:

See 11.3.

17.5. Designing non-standard printouts

To create a non-standard printout:

- Enter **<P5 PRINTOUTS>** according to 11.2. and then:



- After pressing ENTER, you will see a cursor. Software is ready to accept your data.

Non-standard printout can comprise:

- Constant texts,
- Variables from different work modes (mass, date, thresholds etc.),
- Non-standard printout design can include max. 320 characters,
- Non-standard printout sent to a printer can include max. 640 characters,
- Up to 4 non-standard printouts can be designed.

Caution:

1. *During designing non-standard printouts all special characters like CRLF, tabulators etc. have to be added.*
2. *Examples of designing non-standard printouts can be found in chapter 32.4.*

17.6. Texts in non-standard printouts

17.6.1. Code format

% XXX - sending to a printer a variable **XXX** value

✳ **XXX YY** - sending to a printer **YY** (declared) characters of **XXX** variable value justified to the left.

Caution:
Every non-standard printout should be terminated with ***\0*** *character*

17.6.2. Variables appearing in all modes

CODE	DESCRIPTION
%000	Mass in a basic unit of the active platform
%001	Mass in a current unit of the active platform
%002	Date
%003	Time
%004	Date and time
%005	Calibration unit
%006	Current unit
%007	Min threshold (for checkweighing)
%008	Max threshold (for checkweighing)
%009	Min threshold (for checkweighing) 7 digits
%010	Max threshold (for checkweighing) 7 digits
%011	Net mass in the calibration unit
%012	Gross mass in the calibration unit
%013	Display result in a present unit
%014	Tare in calibration unit
%015	Statistics – ordinal number
%016	Statistics – sum in the calibration unit
%017	Statistics – average value in the calibration unit
%018	Statistics – minimal value in the calibration unit
%019	Statistics – maximal value in the calibration unit
%020	Statistics – unit
%021	Single pcs mass
%022	Standard (nominal) mass in Checkweighing
%023	Platform number
%024	Operator name
%025	Operator code
%038	Article name (assortment)
%039	Article code (assortment)
%040	Article EAN code (assortment)
%042	Minimal mass of article (assortment)
%043	Maximal mass of article (assortment)
%044	Article tare value (assortment)
%056	Net mass (lb)
%058	Number of digits after the point (calibration unit)
%059	Number of digits after the point (current unit)
%060	Net mass in EAN 13 (6-character code)
%061	Net mass in EAN 13 (7-character code)
%064	Net mass in EAN 128

%067	Net mass (lb) in EAN 128
%068	Gross mass EAN 128
%070	Date in EAN 128
%126	Reference quantity for counting pieces
%127	Difference of tare values (a product tare value subtracted from present tare value)
%128	Batch number (6 characters)
%131	Dosing net mass in calibration unit
%132	Present number of records in the weighing database
%134	Batch number (10 characters)
%136	Present correction for dosing in calibration unit
%137	Present corrected MAX threshold for dosing
%138	Loss in weight in per cents
%139	Net mass in calibration unit decreased by loss in weight
%140	Net mass in present unit decreased by loss in weight

17.6.3. Variables for printing out weighings from the database

%073	Weighing net mass
%075	Weight unit
%076	Weighing date
%077	Weighing time
%078	Operator code
%079	Assortment code
%083	Number of series
%084	Platform number
%135	Batch number

This program includes a standard pattern of printouts from the database (pattern name: ✳**WG01**✳), with following variables:

- Net mass of weighing,
- Date,
- Time.

Caution:
*Remember that the name of a new printout design should have the following pattern: ✳**WGXX**✳, where: **XX** – subsequent number of printout.*

17.6.4. Variables for printouts of reports from weighings

%086	Weighing status (threshold for weighing - MIN, OK or MAX)
%087	Sum of weighings
%088	Weight unit
%089	Number of weighings
%090	Start date
%091	End date
%092	Operator code
%093	Assortment code
%095	Recipe code
%096	Batch number printout
%097	Series number
%098	Type of weighings (%, pcs, kg etc.)
%099	Platform number
%129*	Present record name for generating a complex report
%130*	Marking of the space for weighings in a complex report (the variable needs to be situated at the beginning and in the end of the requested printing space)

***)** – Variables for complex report pattern (i.e. with heading and footer). An example of complex report is described in ch.32.5 of this manual.

The program includes 4 patterns of reports from weighings. ✳**RP02**✳ is the English equivalent of ✳**RP01**✳ and ✳**RP04**✳ is an English equivalent of ✳**RP03**✳:

Name	**Comprised variables**
✳RP01✳	Sum of weighings Number of weighings Start date End date
✳RP03✳	Operator code Assortment code Contractor code Sum of weighings Number of weighings Start date End date

Caution:

1. *Remember that the name of a new printout design should have the following pattern: ✳**RPXX**✳, where: **XX** – subsequent number of printout.*
2. *FORMULATION software do not include a database of contractors. That is why the printout ✳**RP03**✳ substitutes „Contractor code" with dashes **< - - - - >**.*

17.6.5. Variables for printouts of reports from recipes

%108	Report date
%109	Report time
%110	Operator code
%111	Operator name
%112	Recipe code
%113	Recipe name
%114	Number of ingredients in the recipe
%115	Status of the recipe
%116	Total mass of recipe
%117	Calibration unit of platform 1
%118	Ingredient mass
%119	Ingredient nominal mass
%120	Deviation of ingredient mass (nominal – real mass)
%121	Ingredient unit
%122	Ingredient code (from the assortment database)
%123	Ingredient name (from the assortment database)
%124	Number of weighing platform
%125	Setting present ingredient for the report (variables concerning ingredients will print an adequate data)
%133	Number of series for the ingredient

This program includes a default report pattern (name: ✳**RCP1**✳), that includes:

- Date and time of report,
- Operator name,
- Recipe name,
- Recipe code,

- Recipe mass,
- Recipe status,
- Ingredient name,
- Ingredient code,
- Ingredient mass,
- Nominal mass of ingredient,
- deviation of ingredient mass.

Notice:
*Remember that the name of a new printout design from recipes should have the following pattern: ✳**RCPX**✳, where: **X** – subsequent number of the designed printout.*

17.6.6. Special characters that can be used in non-standard printouts

\\	Single character - „\"
\c	CRLF
\r	CR
\n	LF
\t	Tabulator
\0	End of printout

Every text in a non-standard printout may include up to 320 characters (letters, digits, special characters, spaces).

Example:

„ R A D W A G ”
D a t e :
T i m e :
M a s s :
S i g n a t u r e : . . . . . .

The inscribed data for:

“ R A D W A G ” \ C \ T D A T E : % 0 0 2 \ C \ T T I M E : % 0 0 3 \ C \ T M A S S : % 0 0 0 \ C \ C \ T \ T S I G N A T U R E : . . . . . \ C \ 0

18. DATABASES

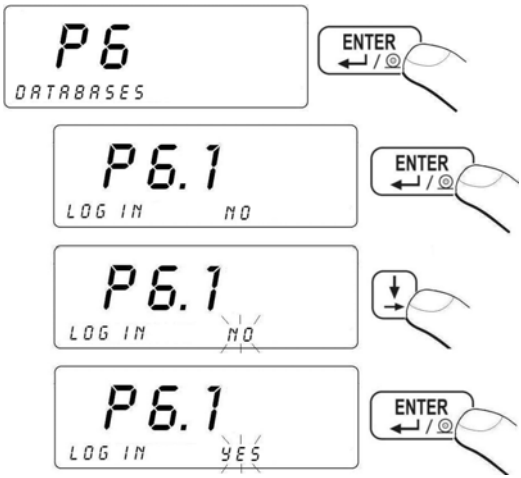
18.1. Logging in

In case of activating of logging procedure (submenu **<P6.1 LOG IN>**), an operator after switching on has to perform a jogging procedure which consists in inscribing a password.

Operators can also use a transponder cards for this procedure provided the terminal is equipped in a transponder card reader.
(see 15.4).

Procedure:

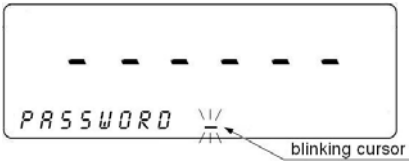
- Enter **<P6 DATABASES>** according to 11.2. and then:



Return to weighing:
See 11.3.

Users can log in even if this procedure is disabled at the start:

- Turn on the device ⏻,
- Press 1 User during a display test,
- Program will show the following window:



Notice:

In case there are no data in the operators' database press ESC *to skip the logging procedure and add at least one operator with the highest level access. If no ADMINISTRATORS are defined there will be no access to some functions designated only for administrators.*

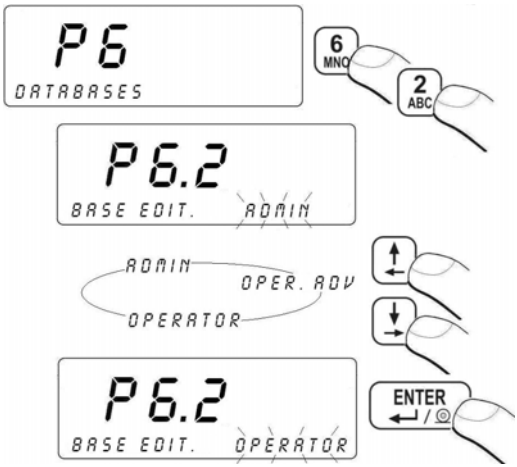
18.2. Access level

18.2.1. Access level to edition of databases

Any administrator is able to set one of three levels of edition of databases: administrator, advanced operator or operator.

Procedure:

- Enter **<P6 DATABASES>** according to 11.2. and then:



Return to weighing:
See 11.3.

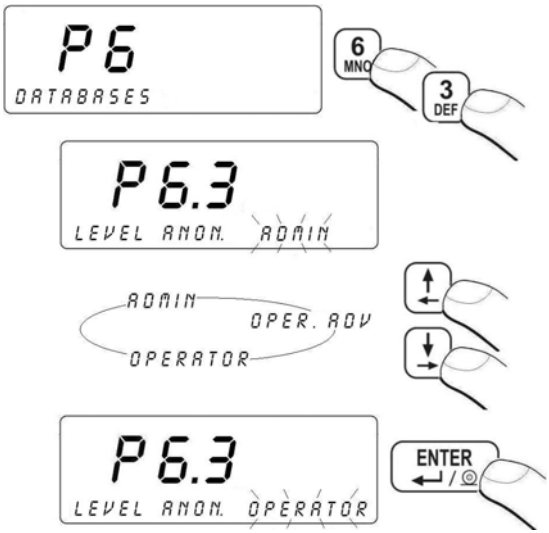
Notice:
This setting is valid although the standard logging is disabled.

18.2.2. Access level for disabled logging

The scale program gives possibility to set an access level in case of disabling logging procedure.

Procedure:

- Enter **<P6 DATABASES>** according to 11.2. and then:



OPERATOR	-	Can perform weighings, edit P1, P4, P9 parameters; cannot edit databases and erase statistics; cannot change weighing thresholds Min, Max, cannot adjust the standard mass in modes “counting pieces” and “deviations”.
ADVANCED OP.	-	Can perform weighings and edit parameters except P8, P10 and P6.1, P6.2, P6.3; can edit databases except operators.
ADMIN	-	Have a full access to parameters and databases, can perform user calibration (in non-verified scales).

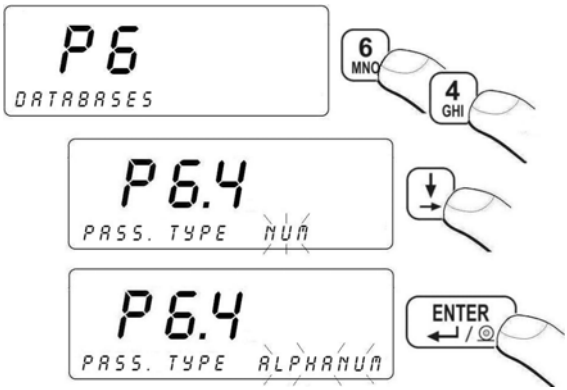
Return to weighing:
See 11.3.

18.3. Password type

It is possible to set the password type to inscribe.

Procedure:

- Enter **<P6 DATABASE>** according to 11.2. and then:



NUM - only digits **0** to **9**
ALPHANUM - alphanumeric password

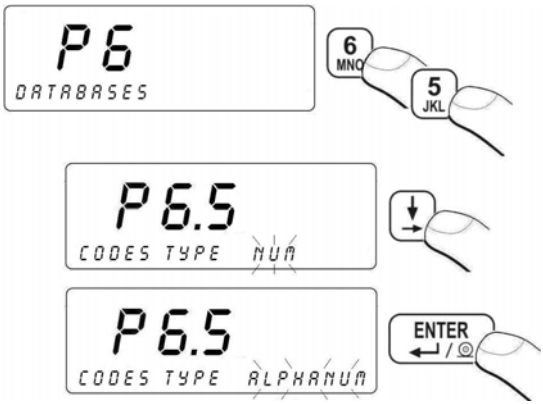
Return to weighing:
See 11.3.

18.4. Type of codes

There is possible to select a type of codes. You can set this in database settings.

Procedure:

- Enter **<P6 DATABASES>** according to 11.2. and then:

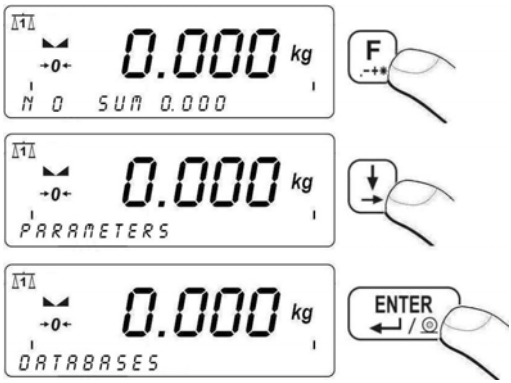


NUM - only digits **0** to **9**
ALPHANUM - alphanumeric password

Return to weighing:
See 11.3.

18.5. Access to edition of databases

Procedure:



Return to weighing:
See 11.3.

Caution:
Users can access different things in the menu according to their Access levels. It also concerns an access to databases.

18.6. Quick searching in databases

Users can search databases using different criteria:

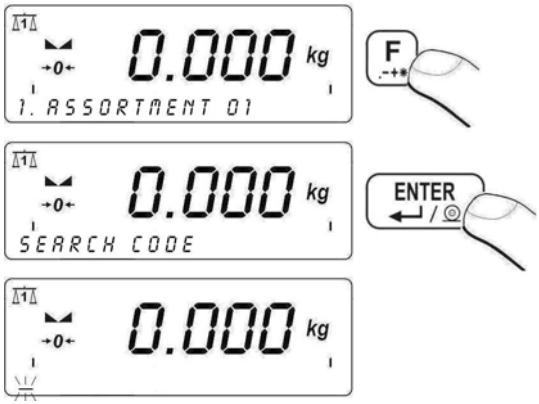
- Code,
- Name,
- Record number.

This procedure is applicable for operators, assortment and recipes.

18.6.1. Quick code search

Procedure:

- While in any work mode press F1 (select / view products in the assortment database) and then:



- Inscribe the product code you search and then press ENTER.
- The program displays the product you search in the bottom line.

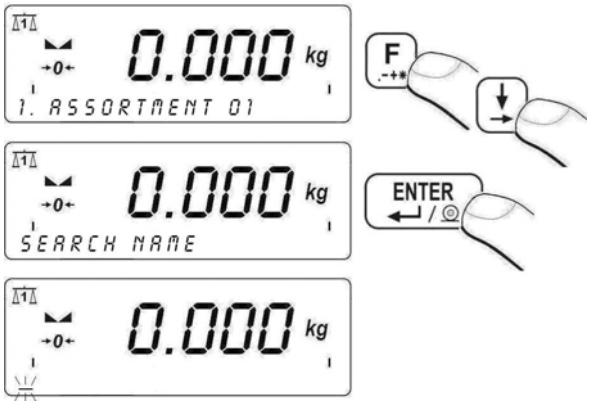
Caution:
If the search result is not successful the ***<NO RECORD>*** *message in the bottom line is displayed for 1 second and then software returns to displaying the current record.*

Return to weighing:
See 11.3.

18.6.2. Quick name search

Procedure:

- While in any work mode press F1 INSETR (select / view products in the assortment database) and then:



- Inscribe the product name you search and then press ENTER.
- The program displays the record you search in the bottom line.

Caution:
You can inscribe a part of the product name to start searching. The program will display the first string it encounters with the same beginning as the inscribed one. If the search result is not successful the ***<NO RECORD>*** *message in the bottom line is displayed for 1 second and then software returns to displaying the current record.*

18.6.3. Quick number search

Procedure:

- While in any work mode press F1 INSETR
  (select / view products in the assortment database),
- Scale program displays the record number one in the bottom line:

- Using numeric keys 0 ␣ to 9 WXYZ enter a required record number,
- Scale program displays the record in the bottom line:

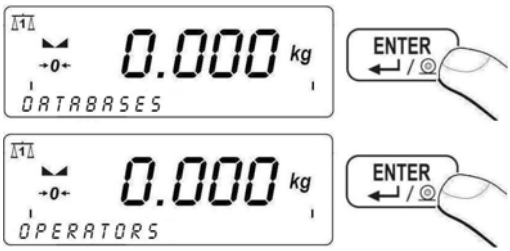
Return to weighing:
See 11.3.

18.7. User database

The database of operators can hold up to 100 records in standard setting of databases.

Procedure:

- Enter databases according to 18.5. and then:



- When the database is empty you will see:

- Press F1 (INSETR) to add an operator,
- In the bottom line you will see the first line for inscribing data.
- You can enter the edition end confirm any data by pressing ENTER. You can select fields using ↓ ↑.

Fields in an operator record:

NAME	Operator name (max. 40 characters)
CODE	Operator code (max. 6 characters)
PASSWORD	Password for logging (max. 8 characters)
CARD CODE	Transponder card code (max. 15 digits)
AUTHORIS.	Access level

- After defining all fields in a record of operator press ESC,
- Then you will see:

- Press ENTER if you want to save,
- You will see an operator name and a position in the database:

- To delete an operator press F2 (DEL),
- To edit a defined operator press F3 (←),
- To delete all records press F4 (CLEAR).

Return to weighing:

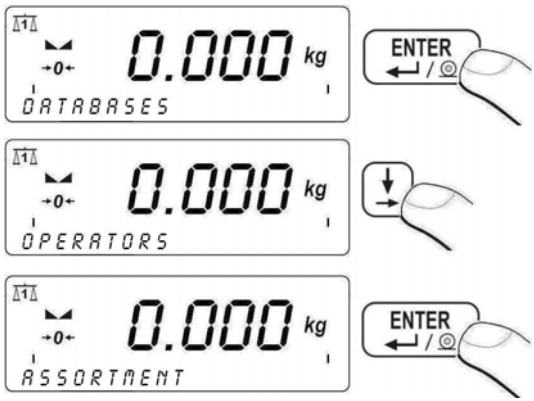
See 11.3.

18.8. Assortment database

The assortment database can comprise up to 3000 records.

Procedure:

- Enter databases according to 18.5 of this manual:



- In case the database is empty you will see:

- Press F1 to add a record,
- You will see the first empty record in editing mode.
- Entering edition and confirming changes can be made by pressing ENTER. Select fields to be changed using keys.

Fields in the assortment database:

NAME	Product name (max. 40 characters)
CODE	Product code (max. 7 characters)
DOSE. OUTPUT NO.	Declaration of output number for precise dosing of a product
FAST DOSE. OUTPUT NO.	Declaration of output number for fast dosing of a product

- After defining all fields press ESC,
- You will see the following inscription:

- Press ENTER to save changes,
- You will see the products name you have edited:

- To erase the selected record press F2 DEL,
- To edit the selected record press F3,
- To clear the database press F4 CLEAR.

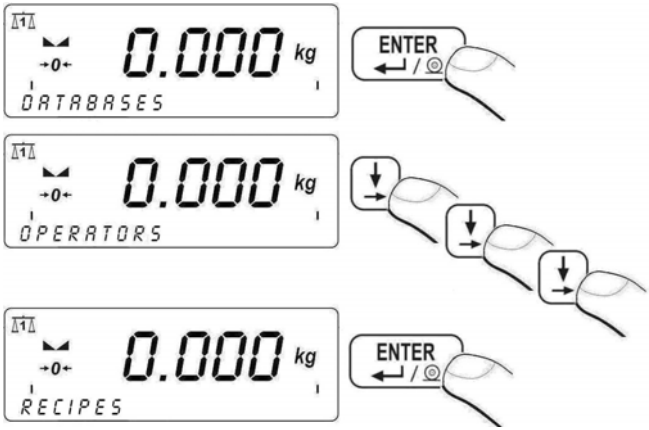
Return to weighing:
See 11.3.

18.9. Database of recipes

The database of recipes can hold up to 500 records.

Defining records:

- Enter the database of recipes according to 18.5 of this manual:



- In case the database is empty you will see:

- To add a new recipe press F1 INSERT,
- In the bottom line you will see the first field.
- Use ENTER key to enter a parameter and confirm a parameter value. Select an appropriate field using ↓ ↑.

Fields in recipe records:

NAME	Recipe name (max 40 characters)
CODE	Recipe code (max 7 characters)
PLATF. 1 TARE	Tare value for platform 1 prescribed to recipe

PLATF. 2 TARE	Tare value for platform 2 prescribed to recipe
INGRED. NUMBER	Number of ingredients in the recipe
INGRED. 1 MASS	Nominal mass of ingredient 1
INGR. 1 MASS MIN.	Minima mass of ingredient 1 or threshold 1 in dosing
INGR. 1 MASS MAX.	Maximal mass of ingredient 1 or threshold 2 in dosing
INGR. 1 PLATF.	Platform number prescribed to the ingredient 1
INGR. 1 CODE	Ingredient 1 code (from the assortment database)
INGRED. 2 MASS	Nominal mass of ingredient 2
Etc.	Menu length is determined by the number of ingredients

- After defining all the fields press ESC,
- In the lower line you can see:

- Press ENTER to save changes,
- In the lower line of the display you will see the name of the inscribed recipe and the subsequent position number in the database:

- To delete a selected recipe in the database press F2 DEL,
- To edit a defined recipe press F3,
- To delete all the recipes press F4 CLEAR.

Return to weighing:

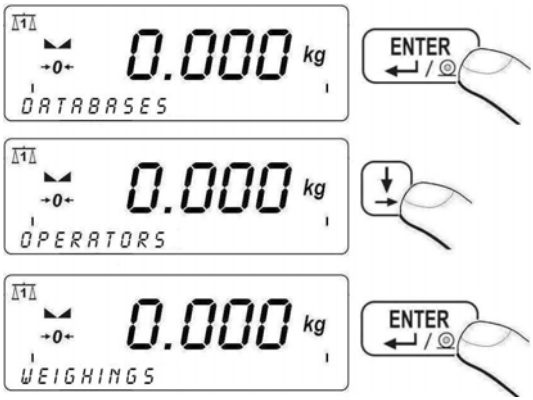
See 11.3.

18.10. Weighings database

Every result sent from the scale to a printer is also saved in the database of weighings. There is possible to save up to 30 000 records in database in standard setting.

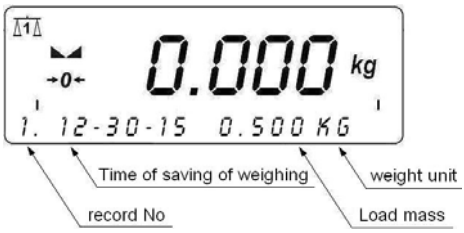
Procedure:

- Enter the database according to 18.5 and then:



- When the database is empty you will see:

- In case when the database is not empty, you will see the first record (date, mass, unit):



- To delete the selected record press F2 DEL,

- To delete all records press F4 CLEAR.
- To print the selected record press ENTER.

Notice:

1. *Single record can be deleted only when first in the database (the oldest record).*
2. *The printout pattern and variables for designing non-standard printouts are described in ch. 17.6 of his manual.*

Return to weighing:
See 11.3.

18.11. Database of tare values

It is possible to hold up to 100 tare values (for every platform).

Procedure:

- Press → T ← twice in any work mode,
- In case when there is no record you will see the following window:

- To enter a tare value F3 ←,
- Using numerical keys 0 ␣ to 9 WXYZ inscribe a value and confirm with ENTER,
- Press ENTER one more time to return to the weighing mode. You will see the entered value with **„–”**.
- To delete a selected tare press F2 DEL,
- To edit a selected tare press F3 ←,
- To delete all tare press F4 CLEAR,

- You can browse the database using ↓ ↑ or by inscribing a position number using 0 to 9 WXYZ.

Caution:
If users confirm a tare value greater than the maximal value (full scale) you will see the following inscription: ***<TOO HIGH VALUE>****.*

Return to weighing:
See 11.3.

18.12. General purpose variables

You can inscribe any text to be memorized for printouts.
You can view or edit them from the level of databases in the menu or using a quick access method by pressing F2 DEL from any work mode (apart from dosing).

18.12.1. Editing general purpose variables

Procedure:

- Enter databases according to 18.5 and then:

- To add or modify a record (inscribing characters like in mobile phones) press F3,
- To add or modify a record (inscribing only digits **0** to **9**) press F4 CLEAR,
- To clear a field press F4 CLEAR when you are in,
- Using appropriate keys inscribe a variable and confirm it by pressing ENTER,
- You can browse the variables using ↓ ↑ or by inscribing a variable position number 0 to 9 WXYZ to get a quick access.

Return to weighing:

See 11.3.

18.12.2. General purpose variables in printouts

The database of general purpose variables can comprise up to 100 records. Each record can hold up to 40 characters. Each variable has prescribed a code number formatted as**% XXX** or ✳ **XXX YY**:

% XXX - inserting to the printer buffer a dedicated variable, where:

XXX – is between 801 to 900, which is equivalent to subsequent records in the database (e.g. code 802 is equivalent to the 2nd position in the database).

✳ **XXX YY -** inserting to the printer buffer a dedicated variable, where **YY** is a declared quantity of characters from a variable **XXX**.

Example:

„RADWAG”
Date:
Time:
Mass:

signature:.....

Where: < „RADWAG”> is a universal variable No 3. After entering non-standard printouts (see 17.5) we design a printout:

% 8 0 3 \ C \ T D A T E : % 0 0 2 \ C \ T T I M E : % 0 0 3 \ C \ T M A S S : % 0 0 0 \ C \ C \ T \ T S I G N A T U R E: . . . . . \ C \ 0

19. REPORTS

19.1. Reports from weighings

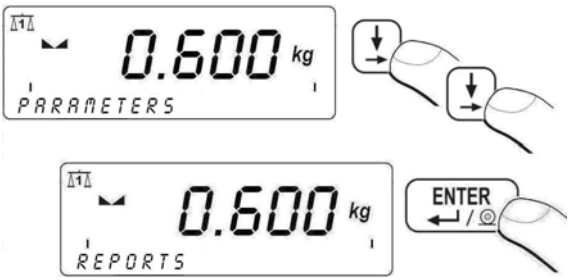
Users can print reports from weighings.

Reports can be filtered according to:

- start date,
- end date,
- operator code,
- assortment code,
- recipe code,
- type of weighing,
- weighing platform number,
- number of series,
- batch number.

19.1.1. Editing reports

While in any work mode press F and then:



Return to weighing:
See 11.3.

19.1.2. Printouts of reports

After entering (see ch. 19.1.1) you will see the following display:

- To edit variables press ENTER,
- Confirm changes by pressing ENTER,
- To filter according to the selected variable press F1 INSETR, and you will see the following window:

- Press → to go to the next variable,

Caution:

Code filter of assortment or operator can have folowing values:

- *ALL (key F2 DEL) – complex report comprising weighings for each product or operator separately,*
- *NON-ZERO (key F3 ←) - complex report comprising weighings for each product or operator separately.*

An example of complex report pattern is described in ch. 32.5 of this manual.

- After editing all variables go to the next item **<PRINT REPORT>** by pressing →.

- Press ENTER, you will see the window:

- Using ↓ ↑ select one of four patterns (details in ch.17.6),
- Press ENTER to print out the report.

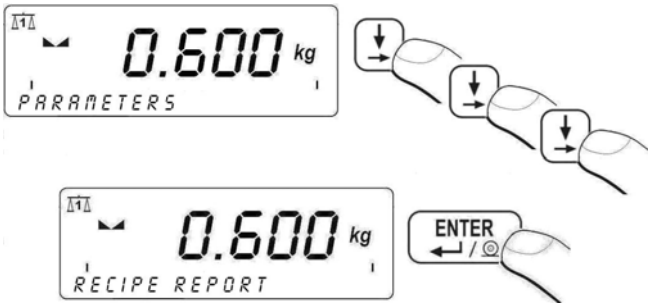
Return to weighing:
See 11.3.

Caution:
If a user disables filtering according all the variables, the program will print out a report from all the weighings.

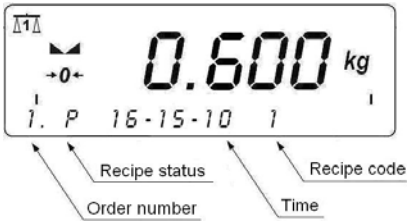
19.2. Reports from recipes

Printout procedure:

- While in any mode of weighing press F and then:



- After pressing ENTER you will see:



- Using ↓ ↑ select a report (report description in ch. 17.6.4 of this manual),
- For viewing data press F3 (report description in ch. 17.6.4 of this manual),
- Press ENTER you will see a printout on the connected printer.

Return to weighing:

See 11.3.

20. CONFIGURATION OF EXTERNAL INPUTS / OUTPUTS

20.1. Configuration of external buttons

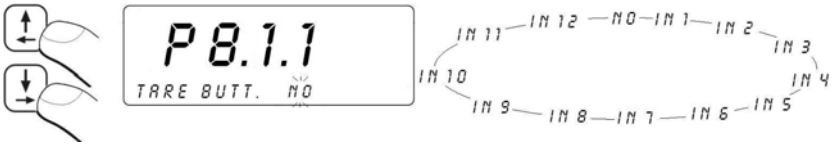
Following external buttons can be connected:

TARE BUTT	Tare button
PRINT BUTT	Print button
ZERO BUTT	Zero button
START BUTT	Start button, Start weighing animals button
STOP BUTT	Button for breaking dosing process, Button for breaking weighing animals
EXT. START	Input signal allowing to START dosing
TERM. BUTT.	Terminating of dosing process
CHUTE PERM.	Perdition input signal for chute
DOSE PERM.	Perdition input signal for ingredients

Procedure:

- To declare a number of input ascribed to the button enter **<P8.1 EXTERNAL BUTTONS>** and then,

- Press ENTER, you will see **<P8.1.1 TARE B.>**,
- Press ENTER:



- Confirm your selection with ENTER,
- Using ↓ go to the next parameter.

Caution:
You can ascribe all your buttons accordingly. Remember that the standard solution has only 3 inputs.

Return to weighing:
See 11.3.

20.2. Configuration of outputs

Users can configure outputs according to their needs.

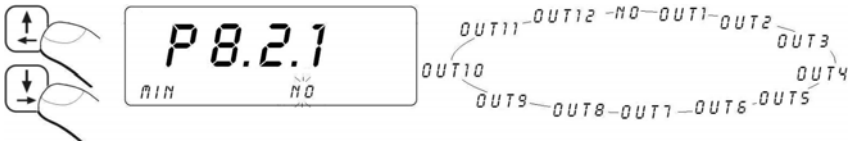
You can declare outputs:

MIN	Mass below the Min threshold
OK	Mass between Min and Max threshold
MAX	Mass over the Max threshold
STABLE	Stable result over the LO threshold
P1 CHUTE	Chute of platform 1
P2 CHUTE	Chute of platform 2
DOSE. SIGNAL.	Signalling of dosing process

Procedure:

- To declare an output number connected with the function, enter **<P8.2 OUTPUT CONF.>** and then:
- Press ENTER, you will see **<P8.2.1 MIN>**,

- Press ENTER:



- Confirm the selected value with ENTER,
- Using ↓ go to the next function.

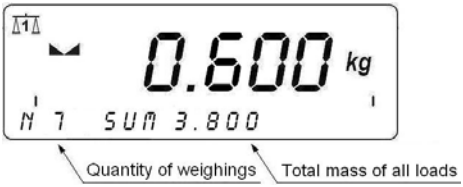
Notice:
You can ascribe all functions to outputs accordingly. Remember that the standard solution has only 3 reed relay outputs.

Return to weighing:
See 11.3.

21. STATISTICS

21.1. Updating statistics

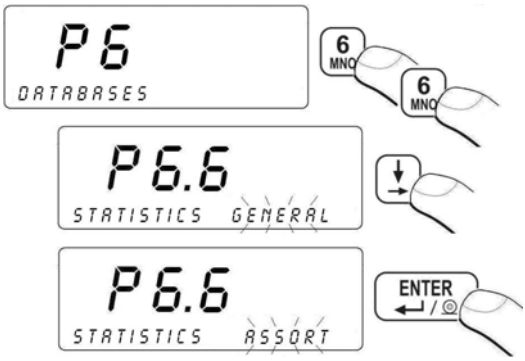
All statistics are updated in real time after every subsequent measurement after putting a load on the pan, reaching equilibrium, and pressing ENTER. Number of weighings and sum are show in the lower line of the display.



Statistics can be calculated globally (does not depend on the selected product) or separately for every product from the assortment database. It can be set in parameters **<P6.6 STATISTICS>**.

Procedure:

- Enter **< P6 DATABASES >** according to 11.2. and then:



GENERAL - global statistics,

ASSORT - statistics for every product.

Return to weighing:

See 11.3.

21.2. Printouts of statistics

Users can print out statistics in any work mode.

Procedure:

Using ↓→ ↑← users can view the current statistics: **SUM** – total mass of all details, **AVG** – every mass of all details, **MIN** – minimal mass, **MAX** - maximal mass.

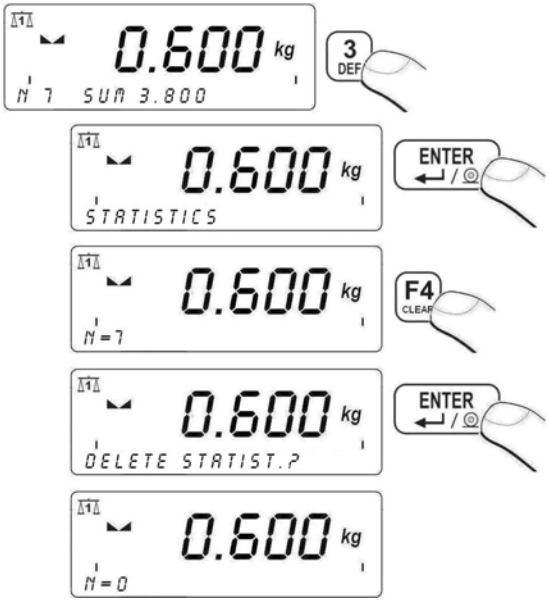
Printout example:

N = 7	-	number of weighing
S U M = 3 . 8 0 0 k g	-	total mass
A V G = 0 . 5 4 3 k g	-	average mass of all loads
M I N = 0 . 2 0 0 k g	-	minimal mass
M A X = 1 . 0 0 0 kg	-	maximal mass

21.3. Zeroing statistics

Users can delete statistics to start a new series of measurements.

Procedure:



Return to weighing:

See 11.3.

Caution:

1. *When a user changes a work mode all statistics are automatically deleted.*
2. *Statistic data are common from all platforms connected (no separate calculations).*

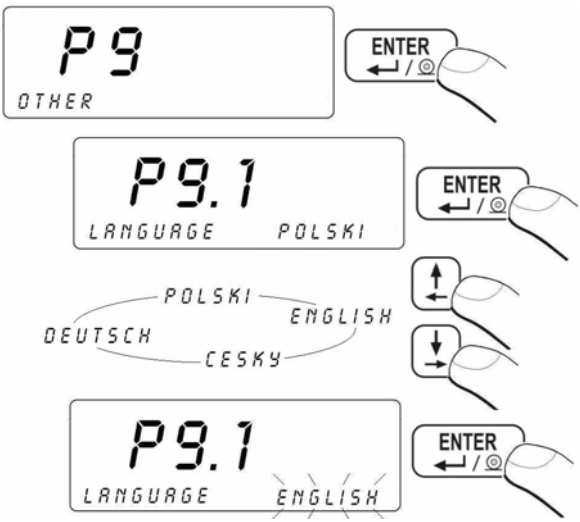
22. OTHER PARAMETERS

Users can set parameters that influence the weighings procedure. There are included in **<P9 OTHER>** e.g. language, backlight, BEEP sound.

22.1. Language setting

Procedure:

- Enter **<P9 OTHER>** according to 11.2. and then:



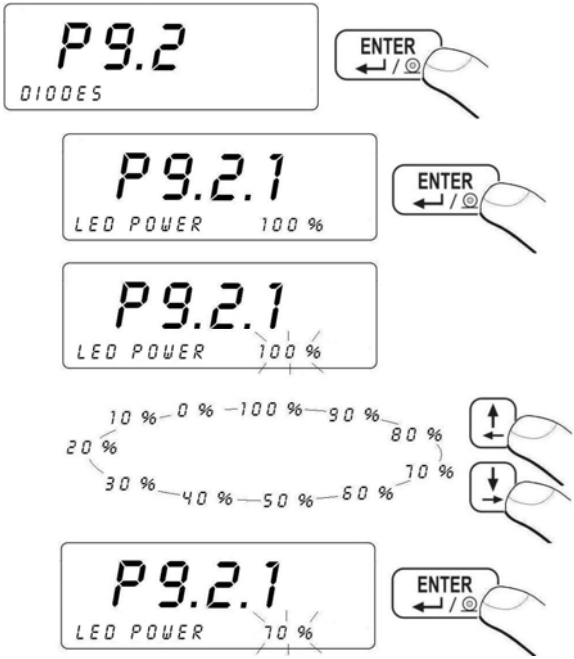
Return to weighing:
See 11.3.

22.2. LED power setting

According to the requirements (e.g. intensity of external light) it is possible to change the light flux from LEDs in the scale of 0% to 100%.

Procedure:

- Enter **<P9.2 DIODES>** according to 11.2. and then:



Return to weighing:

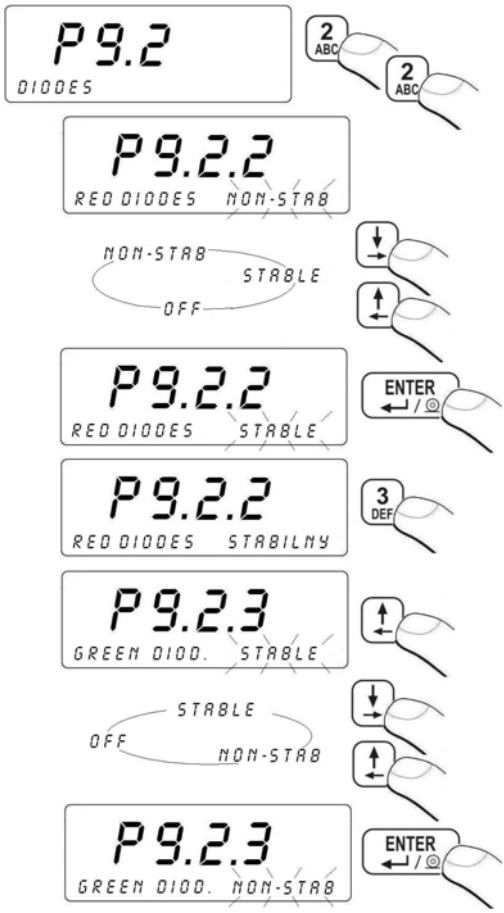
See 11.3.

22.3. Work modes for LEDs

In **<P9.2 DIODES>** users can chose a work mode for LEDs.

Procedure:

- Enter **<P9.2 DIODES>** according to 11.2. and then:



RED LEDS NONSTAB.	diodes start to lit after exceeding the LO threshold (*see 13.3*),
RED LEDS STABLE	diodes start to lit after exceeding the LO and reaching equilibrium,
RED LEDS OFF	diodes not work,
GREEN LEDS NONSTAB.	diodes start to lit after exceeding the LO,
GREEN LEDS STABLE	diodes start to lit after exceeding the LO and reaching equilibrium,
GREEN LEDS OFF	diodes not work.

Return to weighing:
See 11.3

22.4. Automatic power down

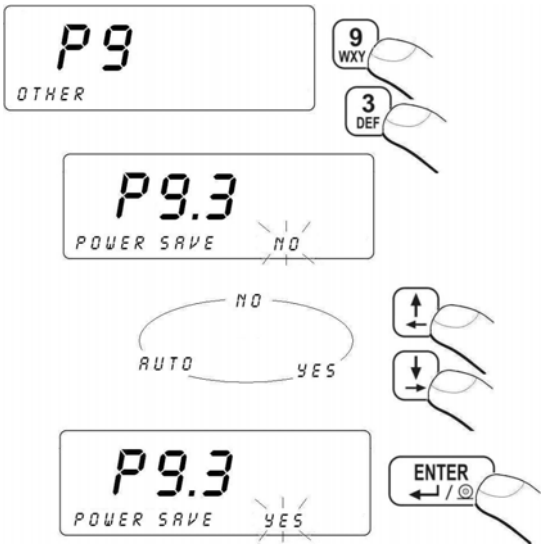
Changes can be made in **<P9.3 POWER SAVE>**. When the **POWER SAVE** function is enabled the device switches off after 5 min. Provided no changes on the pan appeared (no changes on the display).

Function setting	Operation	
	Mains	Accumulator
POWER SAVE = NO	Disabled	Disabled
POWER SAVE = YES	Enabled	Enabled
POWER SAVE = AUTO *	Disabled	Enabled

* power save mode for the internal power supply.

Procedure:

- Enter **<P9 OTHER>** according to 11.2. and then:



Return to weighing:
See 11.3.

22.5. Backlight

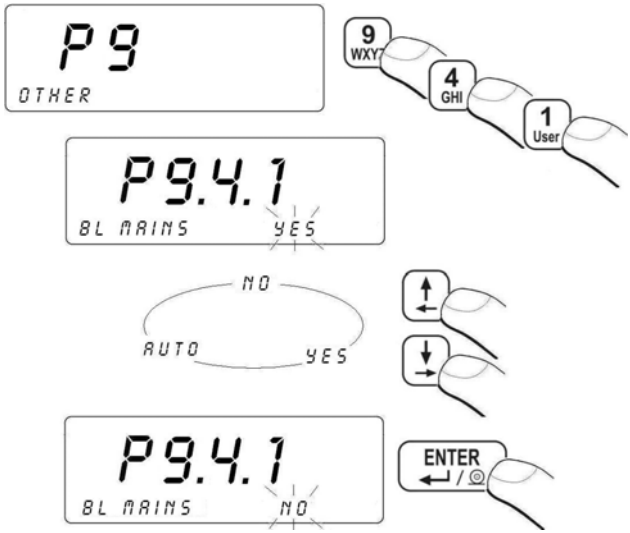
According to the requirements (e.g. intensity of external light) it is possible to:

- Switch on/off or set the backlight operation to AUTO – when supplied from mains,
- Change the backlight intensity in the scale of 0% to 100% - when supplied from an accumulator (lower backlight intensity increases the operation time when supplied from the accumulator).

22.5.1. Backlight – power supply from mains

Procedure:

- Enter **<P9 OTHER>** according to 11.2. and then:



NO - backlight switched off

YES - backlight switched on

AUTO - backlight switched off automatically

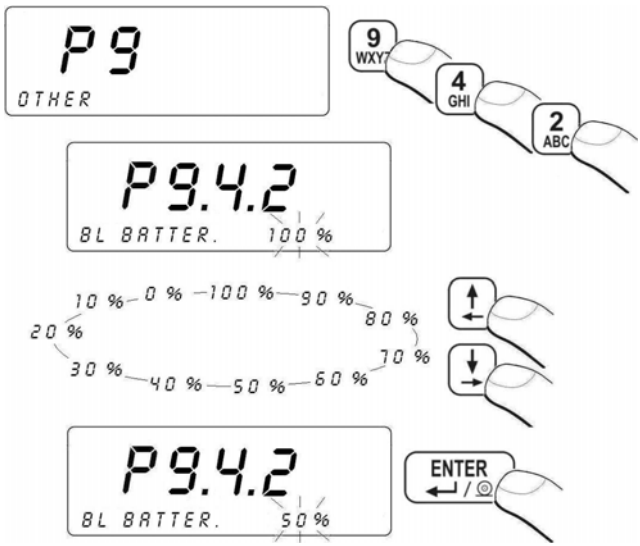
Return to weighing:

See 11.3.

22.5.2. Backlight - power supply from the accumulator

Procedure:

- Enter **<P9 OTHER>** according to 11.2. and then:



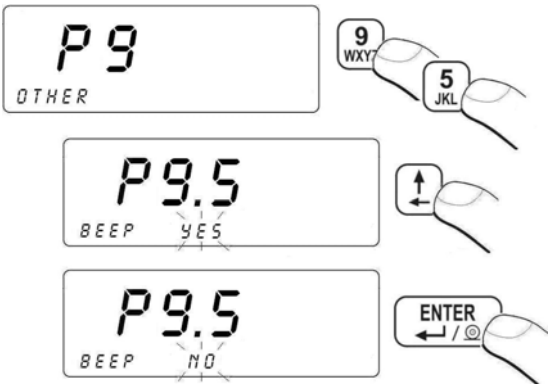
Return to weighing:
See 11.3.

Notice:
Backlight operation shortens time between subsequent recharges of the accumulator.

22.6. "Beep" sound – key-press reaction

Procedure:

- Enter the **<P9 OTHER>** according to 11.2. and then:



NO - no “beep” after pressing keys
YES - “beep” after pressing keys

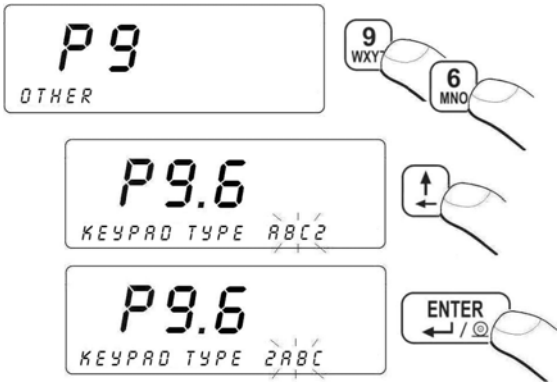
Return to weighing:
See 11.3.

22.7. Keypad modes

The program allows to chose between alphanumeric keypad modes for inscribing texts.

Procedure:

- Enter **<P9 OTHERS>** according to 11.2. and then:



2ABC - Digits come first after pressing a key

ABC2 - Letters come first after pressing a key

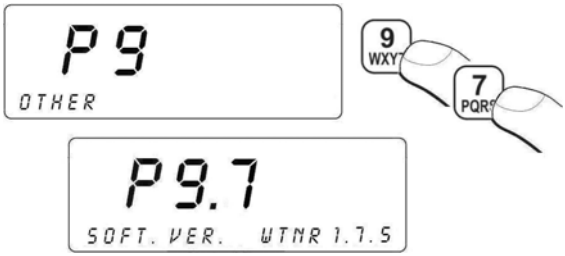
Return to weighing:
See 11.3.

22.8. Software version view

Users **<P9.7 SOFT. VER.>** can view a software version number.

Procedure:

- Enter **<P9 OTHER>** according to 11.2. and then:



Return to weighing:
See 11.3.

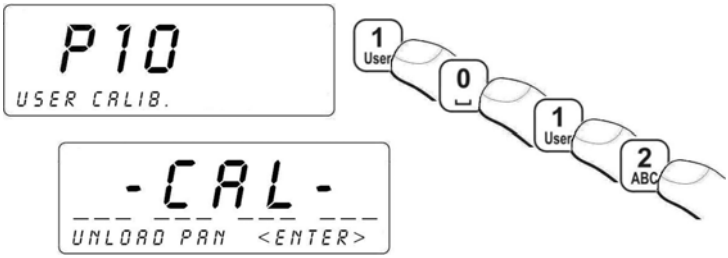
23. SCALE CALIBRATION

An option only for non-verified scale

Scales require to recalculate internal divisions to more suitable ones (e.g. g, kg etc.). In order to do this they require a calibration factor. It is adjusted during the calibration procedure using a mass standard. Calibration should be made when weighing a standard mass shows a different mass value.

23.1. Calibration procedure

- Enter **<P10 USER CALIB.>** according to 11.2. and then:



- Unload the pan,
- Press ENTER. During adjusting a start mass you will see: **ADJ. START MASS**, in the bottom line,
- After completing this procedure you will see the following window:

- Place the required mass on the platform 1 then press ENTER,
- During the calibration process you will see: **ADJ. CALIB. FACTOR**, in the bottom line.,
- After the procedure is completed you will see in: **UNLOAD THE PAN** in the bottom line,
- After taking off the calibration weight :

- Return to weighing, saving parameters.

Return to weighing:

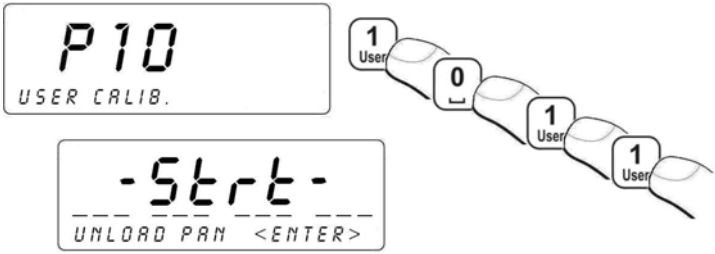
See 11.3.

23.2. Start mass adjustment

It is possible to adjust only a start mass, it helps to correct the start zero when the span does not change.

Procedure:

- Enter **<P10 USER CALIB.>** according to 11.2. and then:



- Unload the scale,
- Press ENTER. During adjusting a start mass you will see: **ADJ. START MASS**, in the bottom line,
- After completing this procedure the scale will return to the following window:

- Return to weighing, saving parameters.

Return to weighing:

See 11.3.

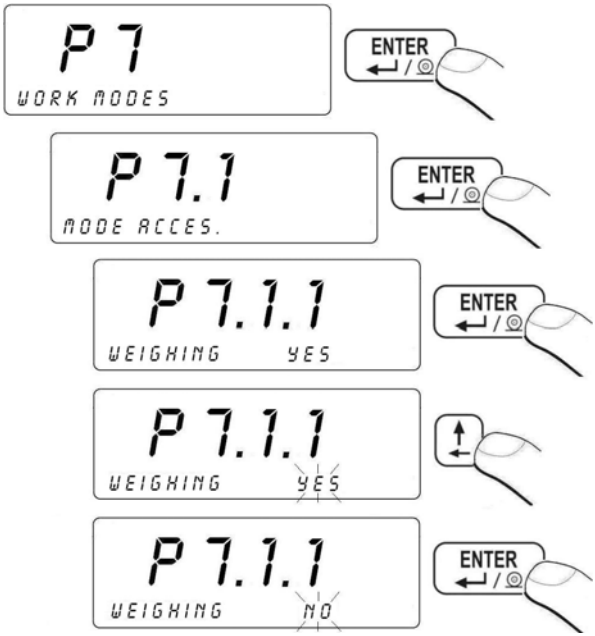
24. WORK MODES

24.1. Accessibility of work modes

In **<P7.1 ACCESSIBILITY>** users can declare work modes that are accessible after pressing .

Procedure:

- Enter **<P7 WORK MODES>** according to 11.2. and then:



NO - mode denied
YES - mode accessible

Return to weighing:
See 11.3.

Caution:
This way you can disable/enable all accessible work modes.

24.2. Programmable keys

In parameter group **<P7.2 KEY FUNCTIONS>** users can ascribe different functions to keys: [6 MNO], [7 PQRS], [8 TUV], [9 WXYZ] or [0 ␣] to get an easiest access to different functionalities.

Procedure:

- Enter **<P7 WORK MODES>** and then:

- Using [↓] and [↑] select a key to ascribe ([6 MNO], [7 PQRS], [8 TUV], [9 WXYZ] or [0 ␣]).
- Enter the parameter pressing [ENTER ↵/◎],
- Using [↓] and [↑] select the required function and press [ENTER ↵/◎].

Return to weighing:

See 11.3.

The inventory of functions accessible for ascribing to keys:

Name	Description
DIGIT. BATCH NO	Inscribing of 6-digit batch number
ALPHA. BATCH NO	Inscribing of 6-character batch number
PRINTOUT 1	Printing non-standard printout No 1
PRINTOUT 2	Printing non-standard printout No 2
PRINTOUT 3	Printing non-standard printout No 3
PRINTOUT 4	Printing non-standard printout No 4
EDIT. PRINTOUT 1	Edit non-standard printout No 1
EDIT. PRINTOUT 2	Edit non-standard printout No 2

EDIT. PRINTOUT 3	Edit non-standard printout No 3
EDIT. PRINTOUT 4	Edit non-standard printout No 4
ASSORTMENT CODE	Quick search of the assortment database using a product code
EAN ASSORT. CODE *	Quick search of the assortment database using a product EAN code
STAT. PRINTOUT	Printing statistics
STAT. PRN. DELETE	Printing statistics with deleting counters
STAT. DELETE	Deleting statistics from the last measurement series
TIME VIEW	Time and date view
WEIGH. REPORT	Edit a report from weighings
WEIGH. DATABASE	Direct access to the database of weighings
VAR. 1 ALPHA	Inscribing universal variable No 1 (40 characters)
VAR. 2 ALPHA	Inscribing universal variable No 2 (40 characters)
VAR. 3 ALPHA	Inscribing universal variable No 3 (40 characters)
VAR. . 4 ALPHA	Inscribing universal variable No 4 (40 characters)
VAR. 5 ALPHA	Inscribing universal variable No 5 (40 characters)
VAR. 1 DIGIT.	Inscribing universal variable No 1 (40 digits)
VAR. 2 DIGIT.	Inscribing universal variable No 2 (40 digits)
VAR. 3 DIGIT.	Inscribing universal variable No 3 (40 digits)
VAR. 4 DIGIT.	Inscribing universal variable No 4 (40 digits)
VAR. 5 DIGIT.	Inscribing universal variable No 5 (40 digits)
KEYPAD MODE	Selecting a keypad mode
LO THRESHOLD	Setting minimal mass as a condition of operation some functions
STRT M. ADJ.	Start mass adjustment procedure (user calibration)
CALIBRATION	Span adjustment procedure (user calibration)
AVER. TIME	Averaging time for weighing animals
N1 *	Setting counter N1 (number of weighings which triggers off automatic printing of c label)
M1 *	Setting mass M1 (mass of weighings which triggers off automatic printing of c label)
N2 *	Setting counter N2 (number of weighings which triggers off automatic printing of cc label)
M2 *	Setting mass M2 (mass of weighings which triggers off automatic printing of cc label)
C LABELS NO *	Setting the number of C labels to be printed

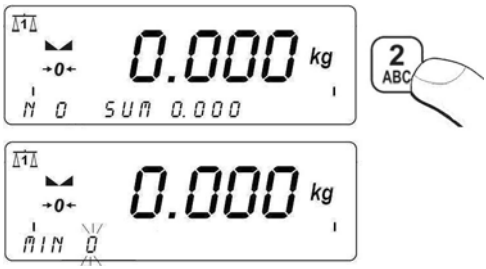
CC LABELS NO *	Setting the number of CC labels to be printed
MULTIPLIER	Setting the recipe multiplier
RECIPE CODE	Inscribing a recipe code for a quick search of recipes
RECIPE REPORT	Access to the database of reports from recipes (e.g. for printing them)
CONTRACTOR CODE *	Inscribing a contractor code for a quick search of contractors
MATERIAL CODE *	Inscribing a material code for a quick search of materials
PRINT C *	Printing a C label
PRINT CC *	Printing a CC label
NEW ASSORT.	Adding a new product to the assortment database
NEW CONTRACT. *	Adding a new contractor to the database of contractors
NEW MATERIAL. *	Adding a new material to the database of materials
NEW RECIPE.	Adding a new recipe to the database of recipes
DIGIT. BATCH NO	Inscribing 10-digit batch number
ALPHA. BATCH NO	Inscribing 10-character batch number
LOSS OF MASS	Loss of mass in per cents

* - This function is not attached to the RECIPE software.

24.3. +/- control according to an inscribed standard mass

While in weighing mode users can define (**MIN**, **MAX**).

Procedure:

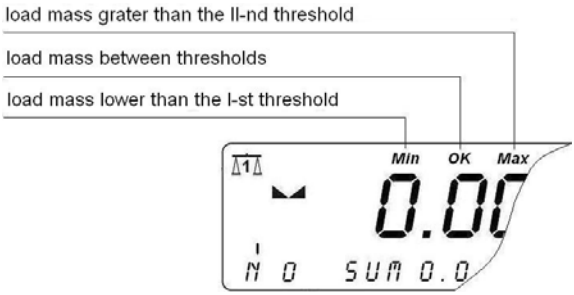


- Using 0 to 9 numerical keys inscribe a **MIN** threshold and confirm with ENTER,
- You will see the following display:

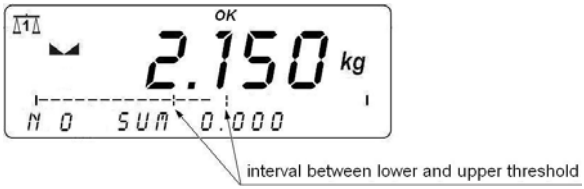
- Using [0] to [9] numerical keys inscribe a **MAX** threshold and confirm with [ENTER],
- Software returns to **WEIGHING**.

While setting these thresholds following features are important:

- Symbols: **Min**, **OK**, **Max** in the upper line of the display:



- Designation of the proper interval (OK) on the bargraph:



- Three **fields of signalling LEDs** over the display:

  Left – red – when this field shines the mass is lower than the **Min** threshold;

  Middle – green – Designation of the proper interval **OK** between **MIN** and **MAX** thresholds;

  Right – red – when this field shines the mass is higher than the **Max** threshold.

Notice:
Users can use this function in other work modes like counting pieces, weighing in percents etc. Only values and units can change.

24.4. Maximal force latch

Procedure:

- Enter the **TOP** work mode:

- **TOP** selection is signalled by the **Max** pictogram in the upper line of the display:

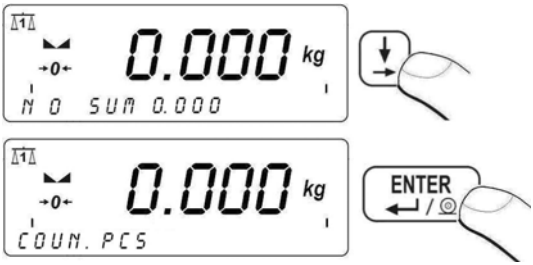
- When a force acting on the pan changes on the display only the maximal value can be seen,
- Remove the acting force,
- Press →0← before the next measurement.

Return to weighing:
See 11.3.

24.5. Counting pieces

The standard software is equipped in a counting pieces procedure. If counting pieces is to be proceeded in a package/container, tare the package/container first.

24.5.1. Enabling work modes

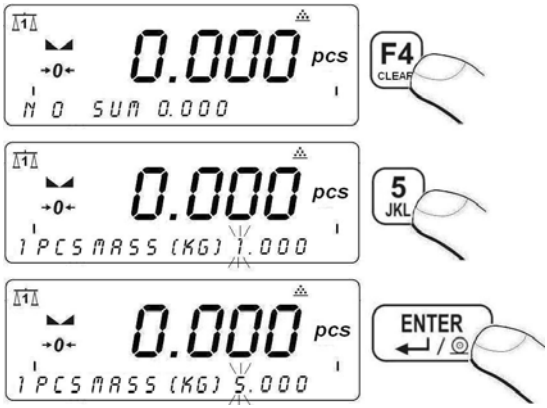


- **COUNTING PCS** procedure is active when pictogram is displayed.

24.5.2. Setting standard mass by inscribing the mass of a single piece

Procedure:

- Enter **COUNTING PCS** and then:



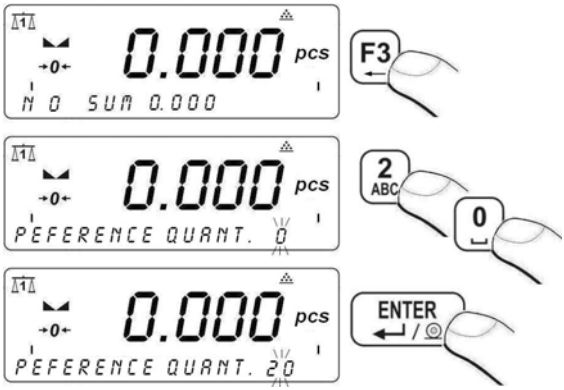
Press ENTER to initialise **COUNTING PCS.** with automatic setting of standard mass.

Notice:
The mass of a single piece cannot be lower than 0.1d and greater than the full scale.

24.5.3. Setting the standard mass by declaring the quantity of a sample

Procedure:

- Enter **COUNTING PCS.** and then:



While inscribing a sample quantity it should be remembered that the mass of a single piece should not be lower than **0.1 d** and the total mass of a sample (all pcs) should not be lower than **1 d**. An error appears when this two conditions are not performed.

- After inscribing a required sample quantity press ENTER and you will see:

If pieces are to be weight in a container put the container first and tare it. Then put a load of pieces, wait for the equilibrium (◣◢) confirm it by pressing ENTER.

Software automatically calculates a single piece mass and goes to **Counting pieces**:

Notice:

If a user confirms a sample with ENTER *with the empty weight pan,* ***<Err6>*** *will be displayed.*

Return to weighing:

See 11.3.

24.6. Deviation in percents in relation to a standard mass

Software can help to control deviations (in %) from a standard (nominal) mass. The standard mass can be settled by weighings or inscribing.

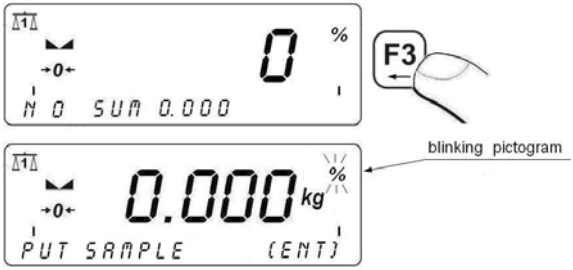
24.6.1. Starting weighing in per cents

- Selection of **DEVIATIONS** is confirmed by displaying "**%"** pictogram in the upper right corner of the display.

24.6.2. Weighing a standard mass

Procedure:

- Enter **DEVIATIONS** and then:



- Put a load to be a standard mass on the weight pan,
- After the equilibrium is reached (◣◢) press ENTER,
- You will see the indication of **100,00%**,
- From this moment all results will be displayed in percents:

Return to weighing:

See 11.3.

24.6.3. Inscribing a standard mass

Procedure:

- Enter **DEVIATIONS** and then:

From this moment all results will be displayed in percents.

Return to weighing:
See 11.3.

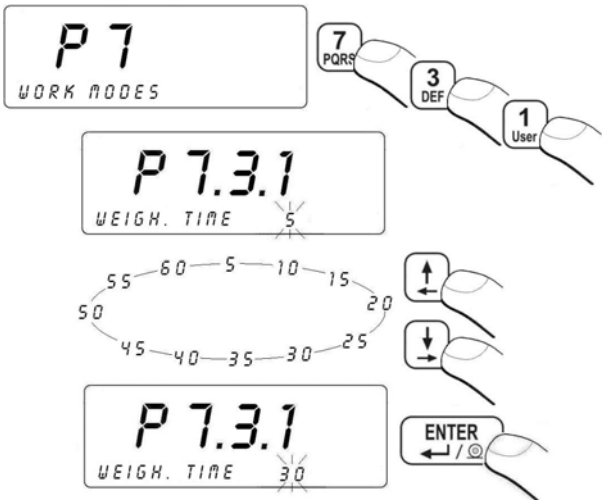
24.7. Weighing animals

24.7.1. Weighing time setting

Users can set in seconds the time of weighing an animal.
During this time averaging is performed.

Procedure:

- Enter **<P7 WORK MODES>** and then:



Return to weighing:
See 11.3.

24.7.2. Starting the work mode

- **WGH. ANIMALS** mode is signalled by showing ► pictogram in the right side of the picture.

24.7.3. Procedure of weighing animals

- After starting **ANIM. WEIGH.** (see 24.7.2) put the animal on the platform,
- Press F3 to start the process of weighing,
- You will see a set of dashes on the display **<- - - - - - - - - - ->** showing the progress of weighing during the time set in **<P7.3.1 WEIGH. TIME>** - (see 24.7.1),
- After the procedure of weighing is completed the result will be latched,
- Additionally you will hear a short “beep” sound and see **Hold** pictogram in the left part of the display:

- Before initiating the next weighings press →0← key,
- Weighing procedure can be terminated while in progress by pressing ESC.

Return to weighing:

See 11.3.

24.8. Recipes – filling/dosing

PUE C41 terminals are equipped in threshold signalling fields and 3 internal optoinsulated inputs supplied from 5÷24V DC and outputs with reed relays freely configurable.

Caution:

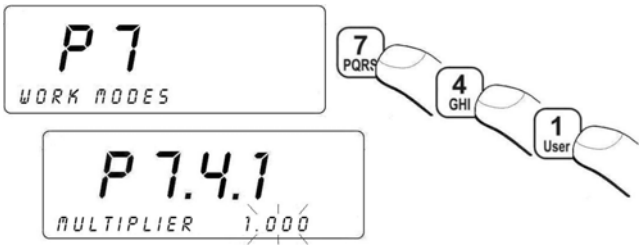
1. *Working mode „Recipes" does not support continuous printouts;*
2. *See an example of dosing with recipes in ch. 32.3 of this manual.*
3. *Inductive loads connected to the dosing indicator should have protections against the coil induction phenomenon. Example connetion diagrams of dosing indicators outputs with direct and alternative current protections are in point 32.6 of the manual.*

24.8.1. Recipe multiplier

Parameter **<P7.4.1 MULTIPLIER>** can proportionally change all the nominal masses of declared ingredients.

Procedure:

- Enter **<P7 WORK MODE>** and then:



- Inscribe a parameter value and confirm it with ENTER

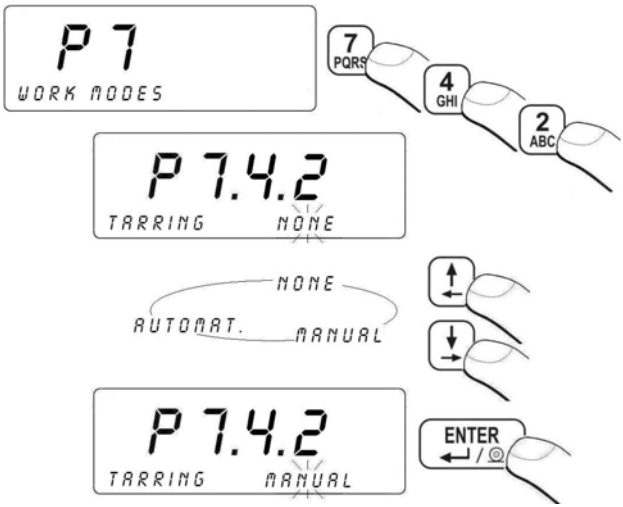
Return to weighing:
See 11.3.

24.8.2. Setting tare in the filling/dosing mode

In **<P7.4.2 TARRING>** you can enable/disable tarring after every ingredient.

Procedure:

- Enter **<P7 WORK MODE>** and then:



NONE	-	Masses of subsequent ingredients are totalized on the main display
MANUAL	-	ingredients tarred manually
AUTOMAT.	-	automatic tarring after every ingredient

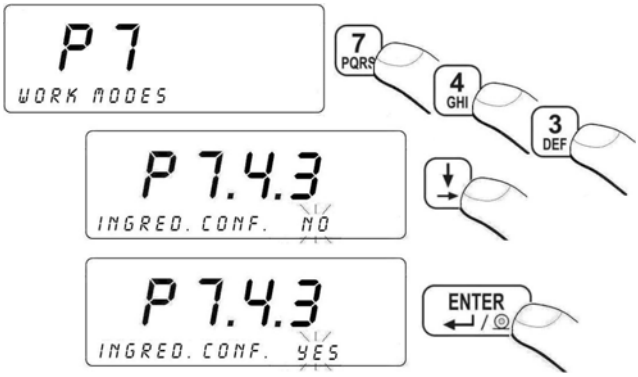
Return to weighing:
See 11.3.

24.8.3. Manual confirmation of every ingredient

In **<P7.4.3 INGRED. CONF.>** you can if ingredients should be confirmed manualny or not and set the parameter to **YES** if you want the manual confirmation or to **NO** for automatic pass to the next ingredient).

Procedure:

- Enter **<P7 WORK MODE>** and then:



Return to weighing:

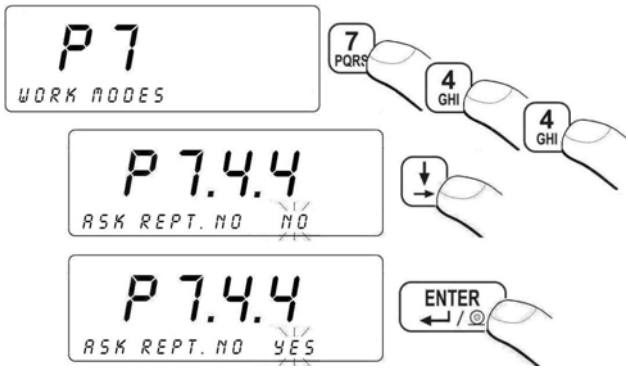
See 11.3.

24.8.4. Number of cycles declaration

In case of setting **<P7.4.4 ASK REPT. NO>** to **YES**, sers can declare at the start of dosing / filling process (see ch.25.6.2) can declare the number of cycles (automatic repetitions of dosing/filling of the selected recipe).

Procedure:

- Enter **<P7 WORK MODE>** and then:



Return to weighing:
See 11.3

24.8.5. Chute time delay

In **<P7.4.5 CHUTE TIME>** users can set an additional period of time that is counted down after mass reaches the level below **LO** value.

Procedure:

- Enter **<P7 WORK MODE>** and then:

Using numerical keys inscribe the required value (0 to 60 s) and confirm it with ENTER.

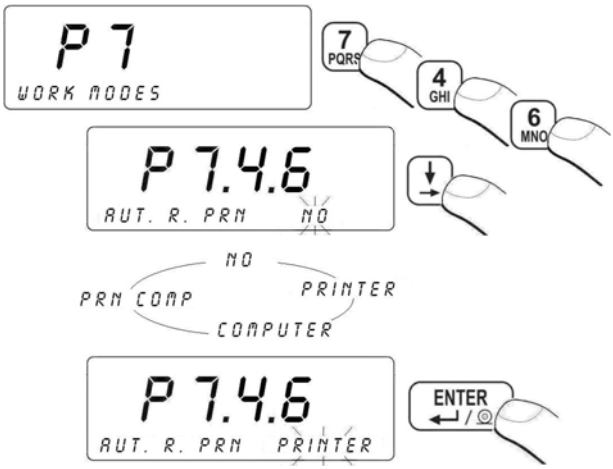
Return to weighing:
See 11.3.

24.8.6. Automatic printout of report

Every dosing / filling procedure may be terminated with printing reports that sums up the process.

Procedure:

- Enter **<P7 WORK MODES>** end then:



NONE	-	No automatic printout
PRINTER	-	Automatic printout on a connected printer
COMPUTER	-	Automatic printout on a connected computer
PRN COMP	-	Simultaneous automatic printout on a connected printer and computer

Return to weighing:

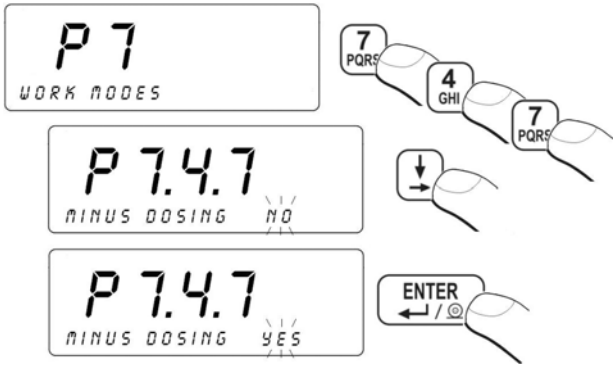
See 11.3.

24.8.7. Negative dosing

Parameter **<P7.4.7 MINUS DOSING>** allows conducting weighings by substracting mass. Indication in this mode is preceded by sign „**-**„. Chute functions are not accessible in this mode.

Procedure:

- Enter **<P7 WORK MODES>** end then:



- Set the parameter and confirm by pressing ENTER

Return to weighing:

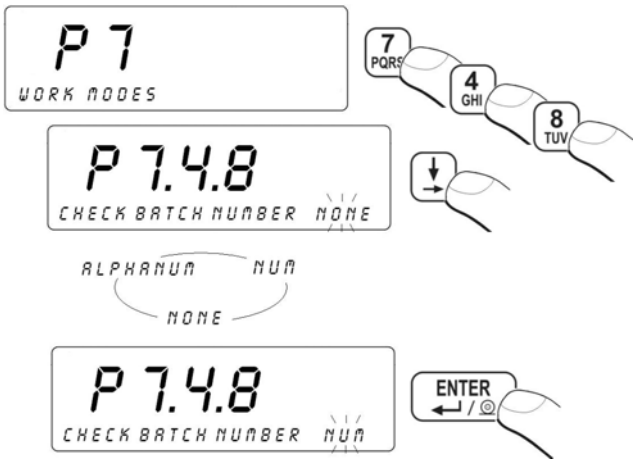
See 11.3.

24.8.8. Product series number

Parameter **<P7.4.8 CHECK BATCH NUMBER>** allows to enter a number of series for each product in a recipe.

Procedure:

- Enter **<P7 WORK MODES>** end then:



NONE - Entering a number of series disabled,

NUM - Possibility of entering a digital number of series,

ALPHANUM - Possibility of entering a alfanumerical number of series. (text message style)

Return to weighing:
See 11.3.

24.8.9. Additional product

An additional product which can be added to a recipe without weighing. Such products are identified by the first character in the product code.

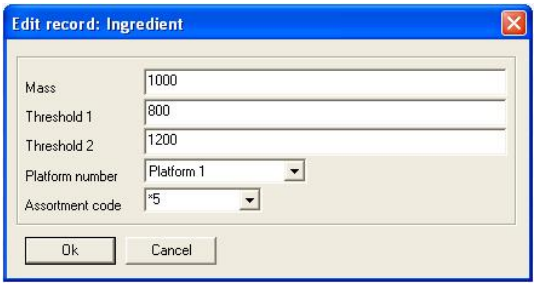
The first character can be:

***** - Weight is estimated by multiplying the entered quantity by unit mass entered in a recipe.

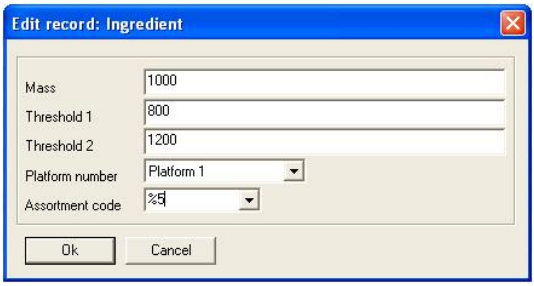
% - Entering the precise product weight.

The example of ascribing a product code for any recipe in the **„Edytor WPW" program**.

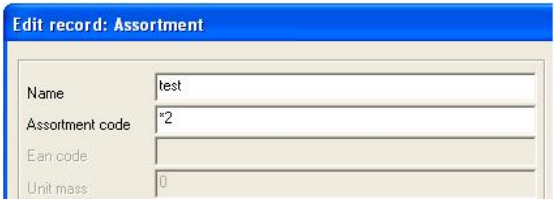
Setting additional ingredient – entering multiplier



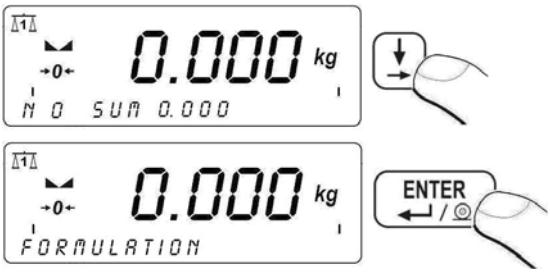
Setting additional ingredient – entering weight



Product codes can be entered for permanent use in the assortment database. In that case the code is visible in the **Assortment code** field.



24.8.10. Work mode setting



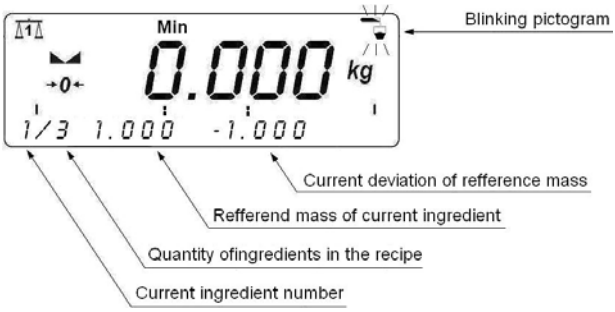
When you select an operating mode **DOSING/RECIPES** it is confirmed by pictogram in the top right corner of the display.

24.8.11. Process of dosing / filling

1. Press F1 to select a required recipe and confirm it with ENTER. In the bottom line you will see the name of the selected recipe,
2. Start process by pressing F3,
3. If **<P7.4.7 MINUS DOSING>** is enabled the dosing process is performed with the „**-**” sign. Weighings registered in the database are of positive value „**+**”,
4. If **<P7.4.8 CHECK BATCH NUMBER>** is set to **ALFA** or **NUM**, there is a number of product series prompted before every weighing,
5. If in the recipe an additional product is defined then its weight or multiplier is set when it appears on the screen.

At the moment you start the process:

- the pictogram starts blinking,
- the keyboard is blocked until the process is completed,
- in the bottom line the first ingredient is displayed for about 1s and then you will see:



6. After weighing the first ingredient you will see the name of the next ingredient in the bottom line and then it will the process of weighing it.

In case if:

- The parameter **<P7.4.3 INGRED**. **CONF.>** is set to **YES** (manual confirmation) the **<CONFIRM INGREDIENT>** message is displayed in the bottom line. Confirm it with ENTER.
- The parameter **<P7.4.2 TARRING>** is set to **MANUAL** the: **<CONFIRM TARRING>** message is displayed in the bottom line. Confirm tarring by pressing ENTER.

7. After the last ingredient you will see the **<RECIPE END>** and then it returns to displaying the recipe name.

   In case if:

   - The parameter **<P8.2.5 P1 CHUTE>** prescribes an output number. After the dosing procedure is completed you will see the **<PLATF. 1 CHUTE>** message (it starts the chute of platform 1) is displayed and the system is waiting for the mass lower than the preset **LO** threshold. The chute will be closed after the time from **<P7.4.5 CHUTE TIME>** is counted down (see ch. 25.5. of manual).

Process stopping:

Users can stop the process of dosing/filling press F4 CLEAR. It is signalled by continuous displaying of . You will see **<RECIPE STOP>** for one second and then the program returns to displaying the recipe name.

Process holding up:

Users can hold up the process by pressing F2 DEL or ESC. It is signalled by blinking of the bottom line. Press F3 to continue the process. When you press F4 CLEAR you stop the process.

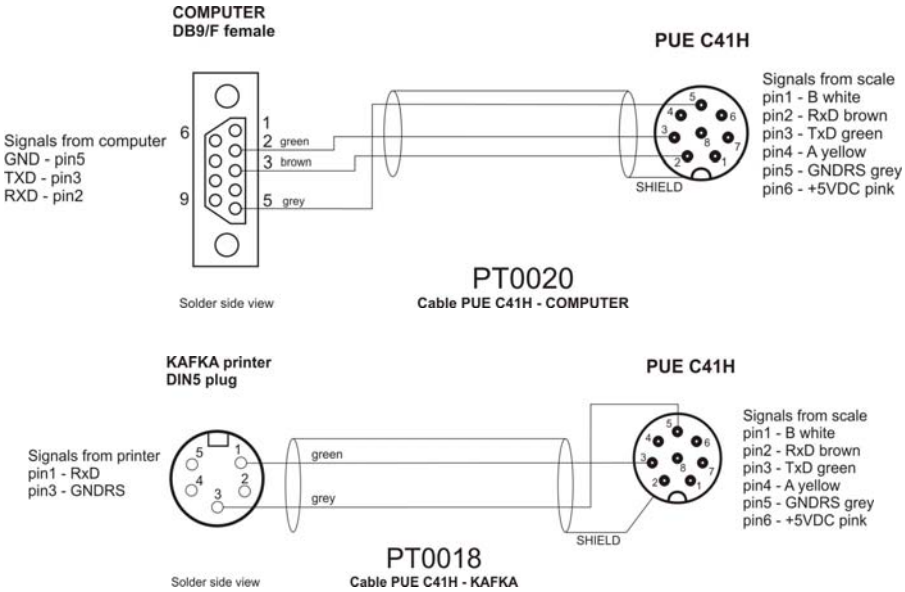
Return to weighing:

See 11.3.

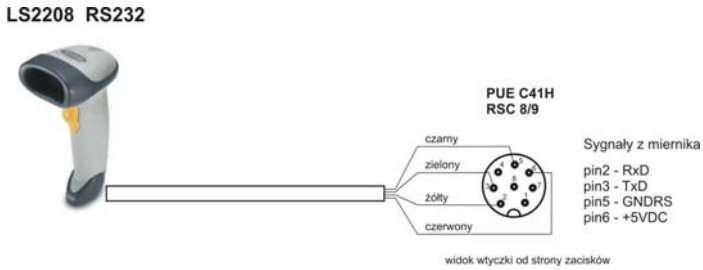
25. DIAGRAMS OF CONNECTION CABLES

The scale in STANDARD version can cooperate with:

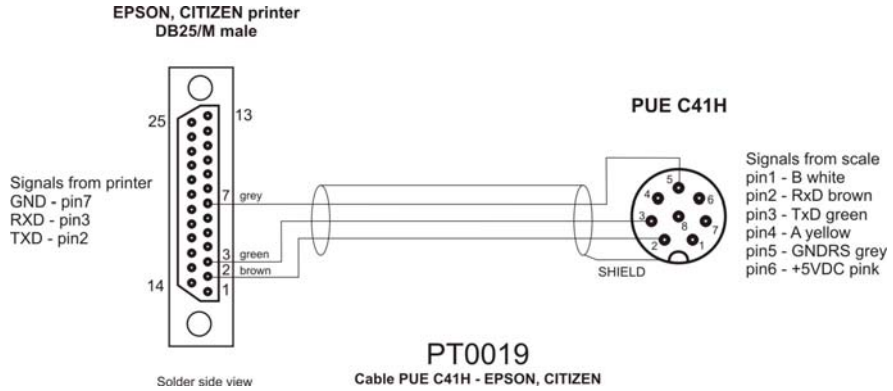
- computers
- slip printers KAFKA, EPSON, KYOLINE
- label printers CITIZEN, ZEBRA,
- external buttons PRINT, TARA, ZERO,
- internal I/O module of 3 optoinsulated inputs / 3 reed relay outputs.



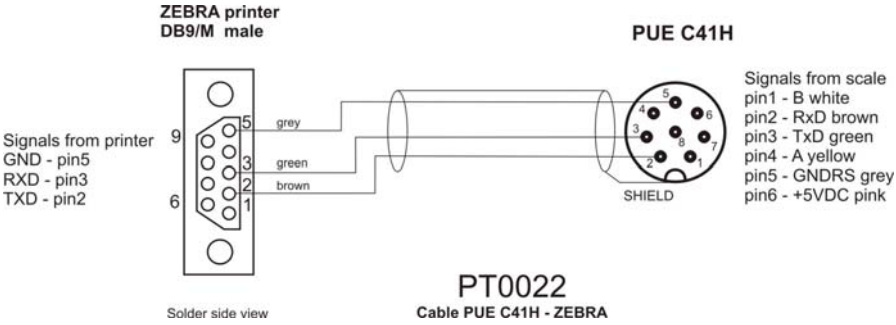
Scale – Kafka or scale KyoLine printer cable



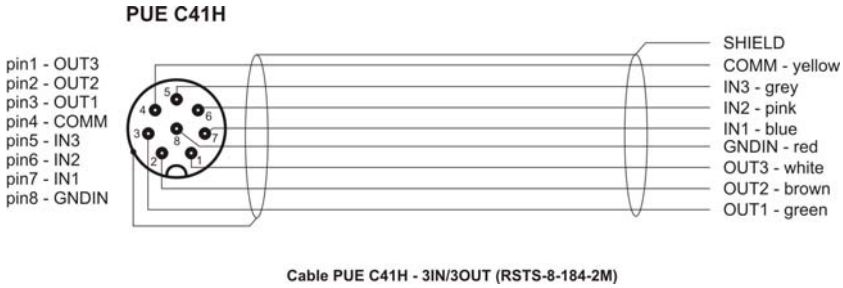
Scale – barcode scanner (LS2208)



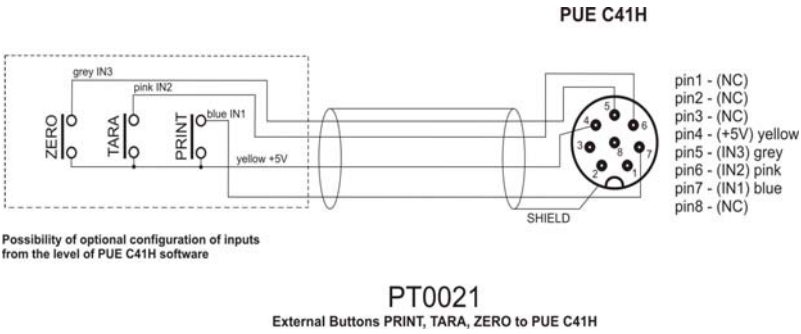
Scale – printer (CITIZEN, EPSON) cable



Scale – Zebra printer cable



Scale - 3IN/3OUT (RSTS-8-184/2M) cable



PRINT, TARA, ZERO external buttons cable

26. CONNECTORS

Caution:
In accordance to the number of mounted modules the number and the placement of glands and connectors can vary. Connectors and glands mentioned in the standard solution appears in every option in the same place regardless of the option.

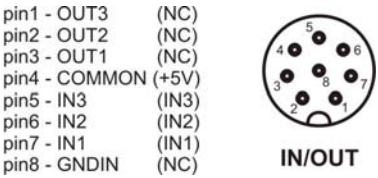
26.1. 3IN/3OUT connector

- **Colours of cable 3IN/3OUT conductors**

  Cable “M12” 8pin (e.g.: RSTS 8 -184/2M)

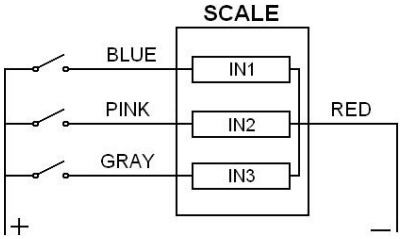
INPUTS		OUTPUTS	
description	**wire colour**	**description**	**wire colour**
GND IN	RED	COMMON	YELLOW
IN1	BLUE	OUT1	GREEN
IN2	PINK	OUT2	BROWN
IN3	GRAY	OUT3	WHITE

- **Description of connector 3IN/3OUT**

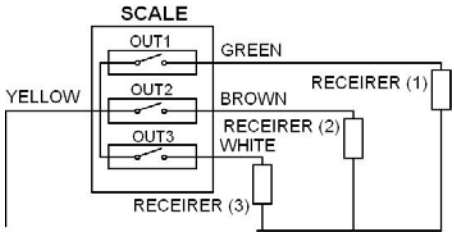


3IN/3OUT connector

Exemplary scheme of connections for inputs:



Voltage for inputs:
from 5V DC to 24V DC



Max voltage for outputs:
24V 0,5A DC/AC

26.2. RS232, RS485 connector

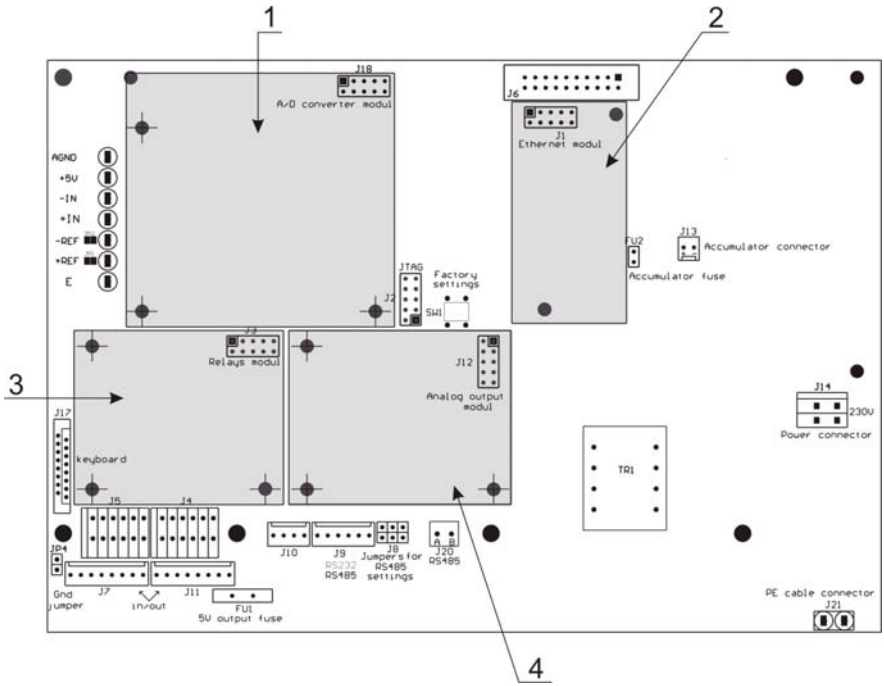
RS232, RS485 connector

27. SPECIFICATION OF ADDITIONAL MODULES

Apart from standard interface, it is possible to equip terminals with additional module increasing functionality of devices:

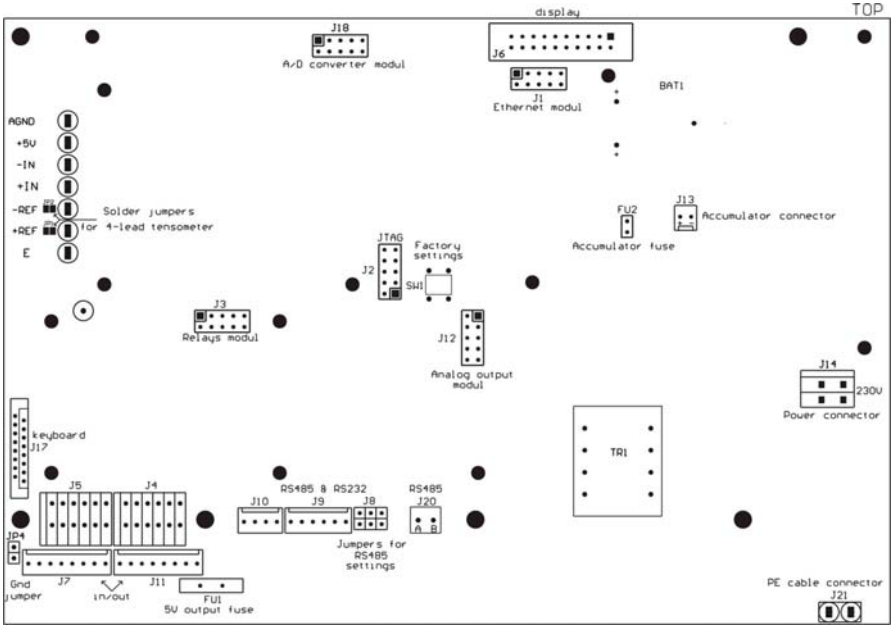
- **ET -** Ethernet module,
- **AN -** analogue outputs module,
- **PK 1 -** relay outputs module,
- **WE 8 -** 8 inputs / 8 outputs module,
- **WE 4 -** 4 inputs / 4 outputs module,
- **DP 1 -** Additional A/D converter module (for second platform)
- **RS D1 -** RS485 led out via a gland

Main board view with some additional modules being installed:



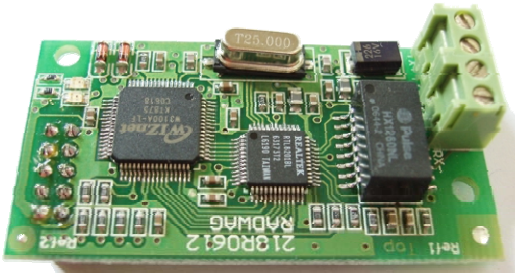
1 - additional A/D module,
2 - Ethernet module,
3 - relay outputs module,
4 - analogue output module.

Main board view with connectors for additional modules:



J18 – DP 1 module
J1 – Ethernet ET 1G, ET 1 D module
J3 – Relay module
J12 – WE 8 module
J12 – AN module

27.1. Ethernet module - ET



Ethernet module PCB

This module is designed according to TCP/IP 10/100 Mbit/s standard.
It comprises two signalling LED's:

- D2 lights - Ethernet connection established,
- D1 blinks - transmission 10Mbit/s or 100Mbit/s.

Module accessible in two versions:

ET 1G : with external connector on the scale housing;

ET 1D : with cable (twisted pair) about 3m length led out via the gland on the scale housing Intended for connecting to a switch (not computer). Terminated with a standard RJ45 plug.

27.1.1. Mounting way in PUE C41H

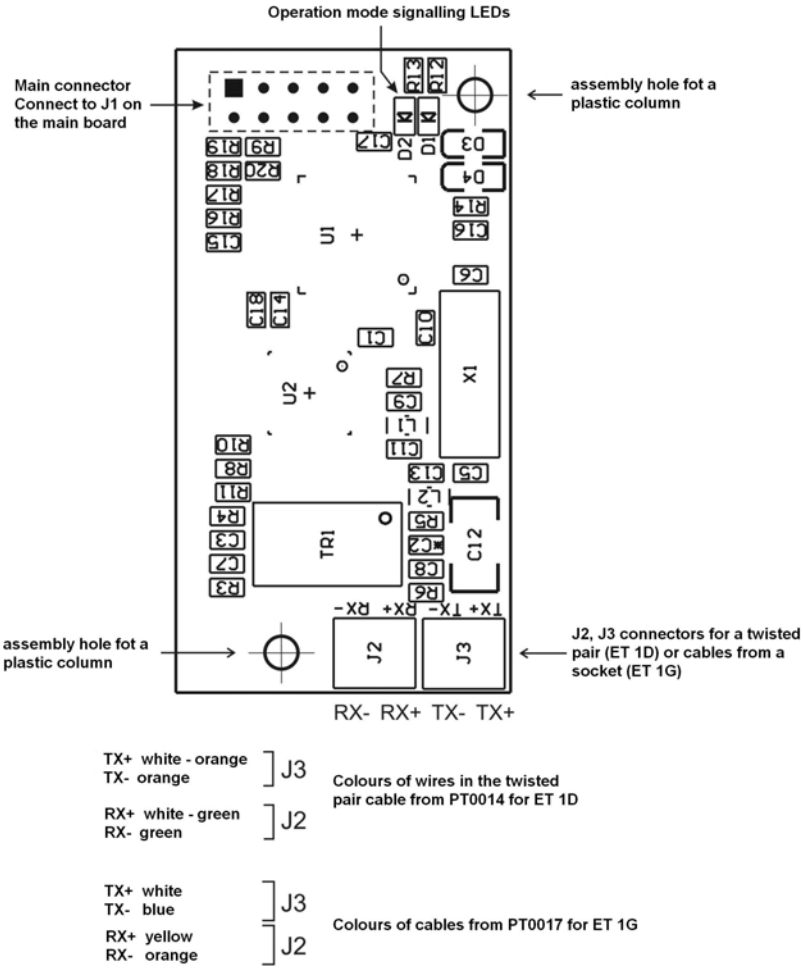
This module is intended for mounting inside PUE C41H indicators.
It is mounted to the main board to the 10-pin **J1** connector.

- For **ET 1G** version of module a 4-pin Ethernet connector is installed on the back wall of the housing.
- For **ET 1D** version of module a gland is installed on the back wall of the housing through which a shielded cable is led out (twisted pair 3m length terminated with RJ45 plug).

Mounting procedure:

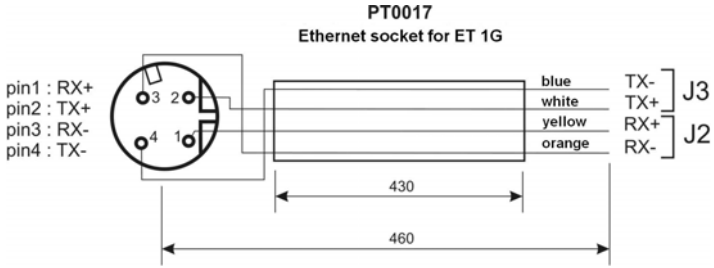
1. Unplug from mains;
2. Unscrew the back wall of the housing;
3. Install the module in **J1** on the main board;
4. During installation turn your attention to plastic columns. They should be placed one side in mounting holes in the main board and the other side in the mounted module;
5. For ET 1G unscrew one of the plugged glands and install a socket instead;
6. For ET 1G version connect wires from **PT0017** socket to **J2** and **J3** connectors on the Ethernet module according to the description below;
7. For ET 1D version unplug one of the glands and led the **PT0014** (twisted pair) cable out;
8. For ET 1D version connect the shield of **PT0014** cable to the indicator housing (screwed terminator, 4mm diameter);

9. Connect the **PT0014** cable to **J2** and **J3** connectors on the Ethernet module according to the description;
10. Cable (twisted pair) or wires from the Ethernet socket connect to the group of wires (unhook band clips fastening the group of wires, lay the cable or conductors from the socket and hook the band clips). Band clips of multiple usage;
11. Screw down the back wall.

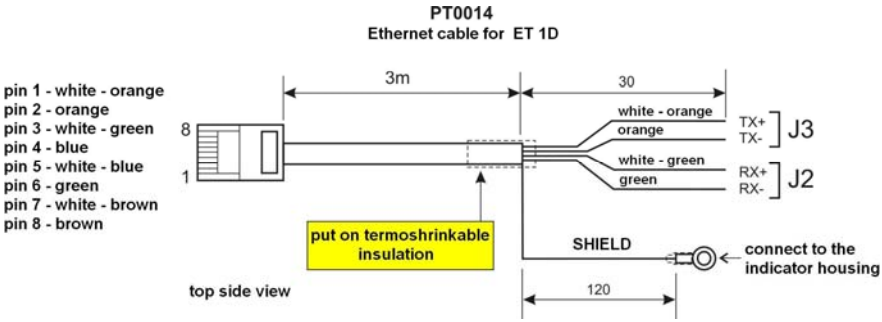


Ethernet module on the main board of PUE C41H

27.1.2. Drawings of sockets and cables for Ethernet

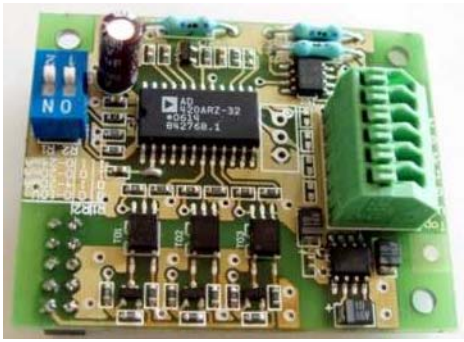


Ethernet socket for ET 1G version



Ethernet cable for ET 1D (version for a SWITCH)

27.2. Analogue output module



Module of analogue outputs

Module accessible in three configurations:

- Voltage output AN 0-10V
- Current output AN 4-20mA
- Current output AN 0-20mA

27.2.1. Technical specification

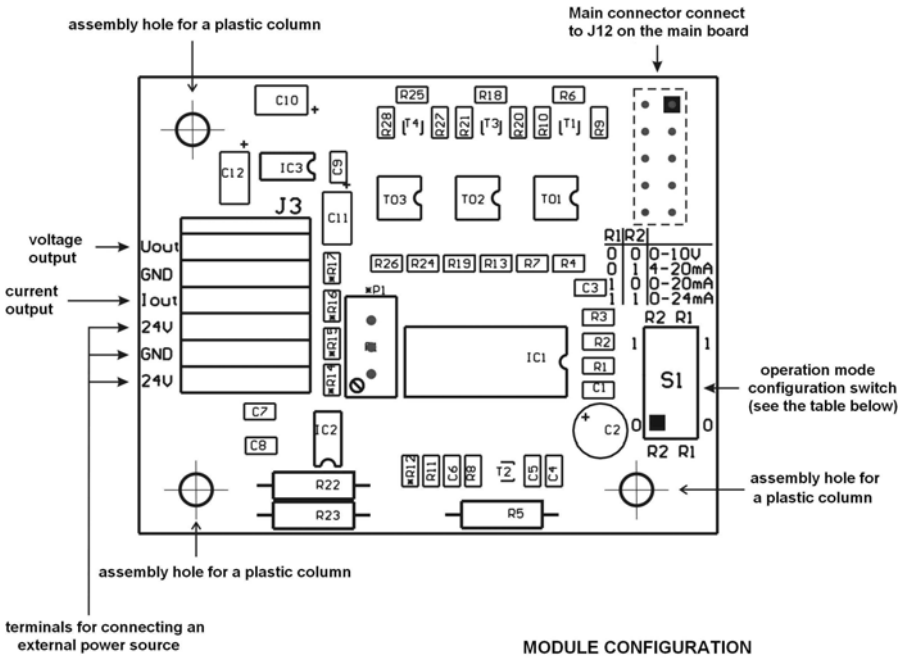
Work modes	4 - 20mA , 0 - 20mA, 0 - 10V
Resolution	16 bit
Current output resistance	<500Ω
Voltage output resistance	>400Ω
Power supply	24V DC (12 - 30V DC) max 40mA

27.2.2. The way of installing inside PUE C41H

These modules are intended to mount inside PUE C41H. They need to be connected to the 10-pin J12 connector. For all configurations of AN, there is a gland installed on the back wall of the housing. A 3-meter shielded cables are led out via the gland. Wires should be free from insulation.

Installing procedure:

1. Unplug the scale from mains;
2. Unscrew and take off the back wall of the housing;
3. Install your module in J12 on the main board;
4. During installation turn your attention to plastic columns. They should be placed one side in mounting holes in the main board and the other side in the mounted module;
5. Led the PT0015 cable through one of the free glands;
6. Connect the PT0015 cable to J3 on the analogue module according to the description below;
7. Connect the PT0015 cable shield to the housing (screwed terminator, 4mm diameter);
8. The cable connect to the group of wires (unhook band clips fastening the group of wires, lay the cable and hook the band clips). Band clips of multiple usage;
9. Screw down the back wall.



MODULE CONFIGURATION

ANALOGUE OUTPUTS' MODULE CURRENT LOOP 4-20 mA SET AS DEFAULT

R1	R2	Operation mode
0	0	0-10V
0	1	4-20mA
1	0	0-20mA
1	1	0-24mA

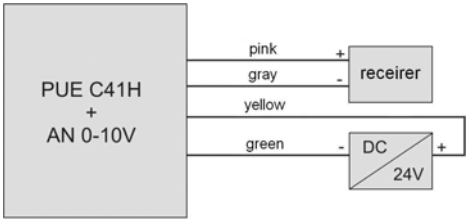
*Mounting of **AN** module on the main board of PUE C41H*

27.2.3. Configuration of work modes of analogue modules

A work mode of analogue modules can be set using **S1** switch according to the drawings above (table „*configuration of analogue modules* ”). Near the **S1** switch on the PCB you can find a description.

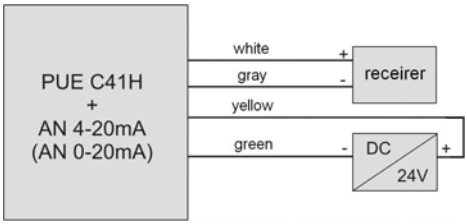
27.2.4. Connections to AN module

Drawing of connections of voltage output:



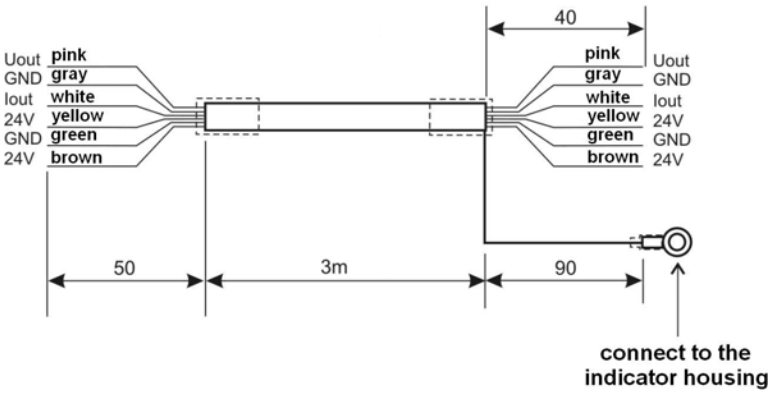
COLOURS OF WIRES	
Colour	**Signal**
Pink	U_{OUT} +
Gray	GND
Yellow	+24V DC
Green	GND

Drawing of connections of current loop:



COLOURS OF WIRES	
Colour	**Signal**
White	I_{OUT} +
Gray	GND
Yellow	+24V DC
Green	GND

PT0015
Analogue outputs' cable



Cable for analogue output

27.3. Relay module - PK1

Relay module PCB - PK1

This is an alternative solution for reed relay outputs present on the main board in the standard solution. The usage of this module excludes the usage of standard reed relay outputs. The advantage of using this module are the electrical parameters of contacts. All outputs can be freely configured (from the level of parameters). The cable is led out via a gland on the back wall of the housing (3m length).

Caution:
PK1 *modules constitutes an alternative solution for reed relays present on board. Using this module disables reed relays' outputs.*

27.3.1. Technical specification

Quantity of relays	4
Wire diameter	0,14 ÷ 0,5mm^2
Current-carrying capacity of contacts	230V AC - 2A, 30V DC - 2A

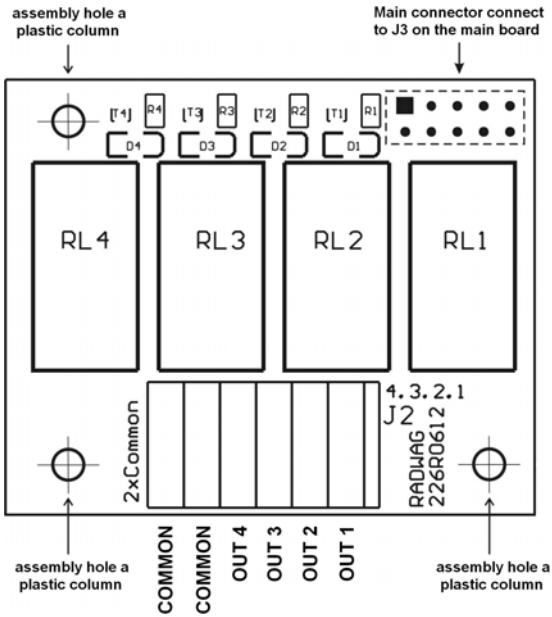
Caution:
When inductive load it is advisable to use a suppression circuit (LC or voltage-dependent resistors) installed next to the receptor. Parameters of these circuits are determined by clients.

27.3.2. Installing in PUE C41H indicators

These module are intended to mount inside PUE C41H indicators.
It is mounted to the main board to the 10-pin **J3** connector. An additional gland is installed on the back wall and a 3m cable is led out through it Wires should be free from insulation.

Installing procedure:

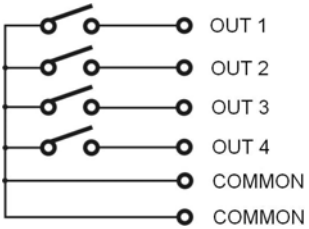
1. Unplug the scale from mains;
2. Unscrew and take off the back wall of the housing;
3. Install your module in **J3** on the main board;
4. During installation turn your attention to plastic columns. They should be placed one side in mounting holes in the main board and the other side in the mounted module PK1;
5. Led the **PT0016** cable through one of plugged glands;
6. Connect the **PT0016** cable to **J2** connector on the PCB according to the description below;
7. The cable connect to the group of wires (unhook band clips fastening the group of wires, lay the cable and hook the band clips). Band clips of multiple usage;
8. Screw down the back wall.



Installing a PK1 module on the main board of PUE C41H

27.3.3. Drawing of cables and outputs

Relay outputs diagram:



SIGNALS AND DESIGNATIONS OF CONDUCTORS	
Wire number	**Description**
1	OUT 1
2	OUT 2
3	OUT 3
4	OUT 4
5 (yellow - green)	Common

27.4. WE 4 - 4 inputs / 4 outputs module

WE 4 module comprises 4 optoinsulated inputs and 4 optoinsulated outputs of reed relays. The input / output wires are led out via a gland on the back wall of the housing (3m length).

Caution:
As standard indicator is equipped with 3 in and 3 out sockets.

27.4.1. Technical specification

Parameters of outputs	
Quantity of outputs	4
Type of outputs	Reed operation contacts
Wire diameter	0,14 - 0,5mm^2
Maximal load-current contact capacity	0,2A DC
Maximal forward voltage	50V DC
Parameters of inputs	
Quantity of inputs	4
Input type	Optoinsulated
Wire diameter	0,14 – 0,5mm^2
Control voltage range	5 -24V DC

27.4.2. Colours of cables for I/O

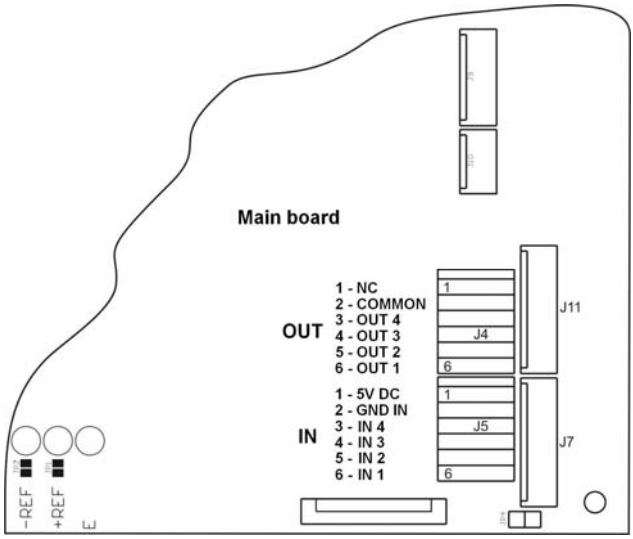
INPUTS		OUTPUTS	
wire number	**description**	**wire number**	**description**
1	IN 1	6	OUT 1
2	IN 2	7	OUT 2
3	IN 3	8	OUT 3
4	IN 4	9	OUT 4
5	GND IN	10 (yellow - green)	COMMON

27.4.3. Installing method in PUE C41H indicators

WE 4 modules are equipped in two cables, one for inputs and one for outputs.

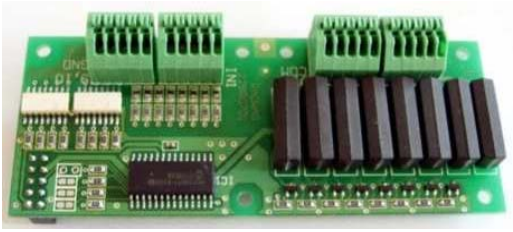
Installing procedure:

1. Unplug the scale from mains;
2. Unscrew and take off the back wall of the housing;
3. If inputs and outputs are installed it the same time, dismount I/O socket and install a PG9 gland instead. LED the **PT0016** cable through it (the same way like in case of relay outputs). If only 4 inputs or 4 outputs are installed unplug one of the existing glands and led the **PT0016** cable through it**.**
4. Connect the **PT0016** cable to the **J5** connector for inputs or to the **J4** for outputs, on the main board of PUE C41H.
5. The cable connect to the group of wires (unhook band clips fastening the group of wires, lay the cable and hook the band clips). Band clips of multiple usage;
6. Screw down the back wall.



Installing WE4 modules on the main board of PUE C41H

27.5. WE 8 - 8 inputs / 8 outputs module



8 inputs / 8 outputs PCB - WE 8

WE 8 modules can be connected as an alternative to the module of analogue output and relay module. Its task is to expand the functionality of an indicator for 8 inputs and 8 outputs freely configurable. It expands functionality of terminals. It comprises on board optoinsulated inputs and outputs freely configurable from the level of indicator.

Caution:
*If **WE 8** module is installed in it does not allow to install **AN** analogue output module and/or **PK 1** module of relays*.

27.5.1. Technical specification

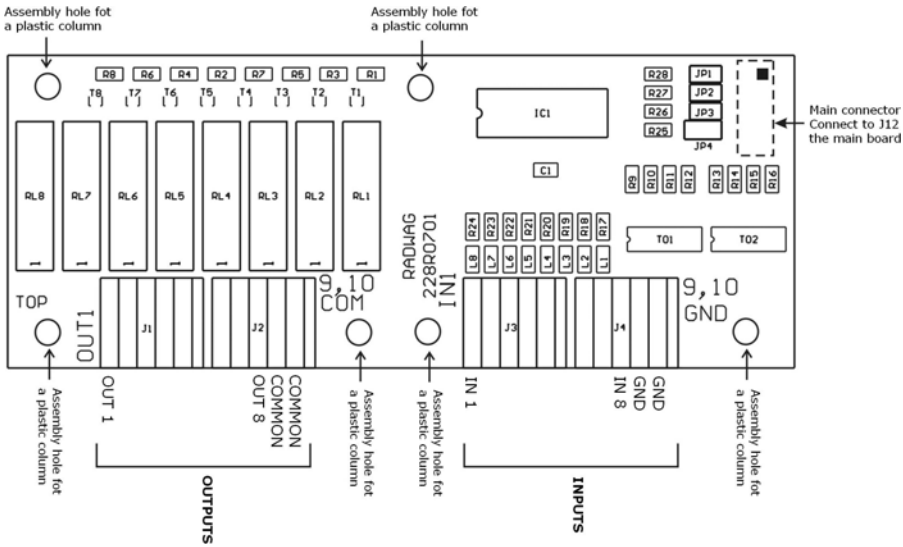
Parameters of outputs	
Quantity of outputs	8
Type of outputs	Reed operation contacts
Wire diameter	0,14 - 0,5mm^2
Maximal load-current contact capacity	0,2A DC
Maximal forward voltage	50V DC
Parameters of inputs	
Quantity of inputs	8
Input type	Optoinsulated
Wire diameter	0,14 – 0,5mm^2
Control voltage range	5 -24V DC

27.5.2. Installing method in PUE C41H indicators

Module is designated for assembly inside indicator PUE C41H. Module is assembled to main board of indicator to 10-pin **J12** connector. For module **WE8** gland is installed on casing lid, 3m cable ended with insulated conductors is led through gland.

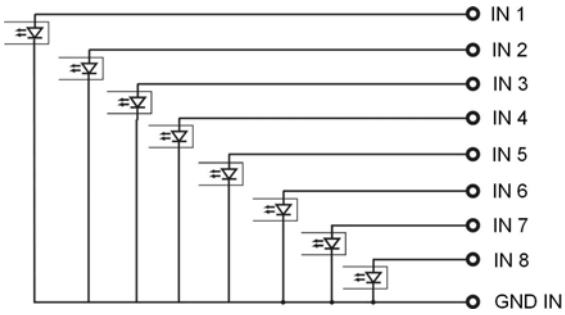
Installing procedure:

1. Unplug the indicator (remove the plug from socket 230V);
2. Unscrew the casing lid (back part of indicator casing);
3. Install the module in connector **J12** on main board;
4. While installing module pay attention to plastic posts fastening to main board. They should be placed in assembly holes in main board and in assembly holes in module WE 8,
5. In one of free glands remove the stopper and led through it cable IN/OUT (if necessary use bigger gland depending on cable diameter);
6. Connect the cable IN/OUT to joint **J1**, **J2** for outputs and **J3**, **J4** for inputs on module 8IN/8OUT according to description given in table;
7. Connect cable IN/OUT to group of conductors (undo band clips fastening group of conductors, lay the cable and clamp band clips – multiple use band clips);
8. Assembly cover of indicator casing.

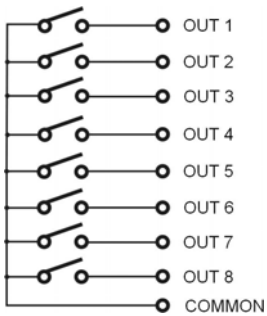


A WE 8 module placement on the main board of PUE C41H

27.5.3. I/O diagram



WE8 inputs diagram



WE8 outputs diagram

27.5.4. Description of input output wires

Signals led out with two cables10x0,5mm^2 with numbered conductors.

INPUTS		OUTPUTS	
Wire number	**description**	**Wire number**	**description**
1	IN 1	1	OUT1
2	IN 2	2	OUT2
3	IN 3	3	OUT3
4	IN 4	4	OUT4
5	IN 5	5	OUT5
6	IN 6	6	OUT6
7	IN 7	7	OUT7
8	IN 8	8	OUT8
9	GND IN	9	COMMON

27.6. DP1 – module for an additional platform

DP1 PCB

DP1 modules increase functionality of PUE C41H indicators by possibility of adding an additional platform. It is intended to mount inside the indicator. DP1 modules require an additional gland to led in the platform cable.

27.6.1. Technical specification

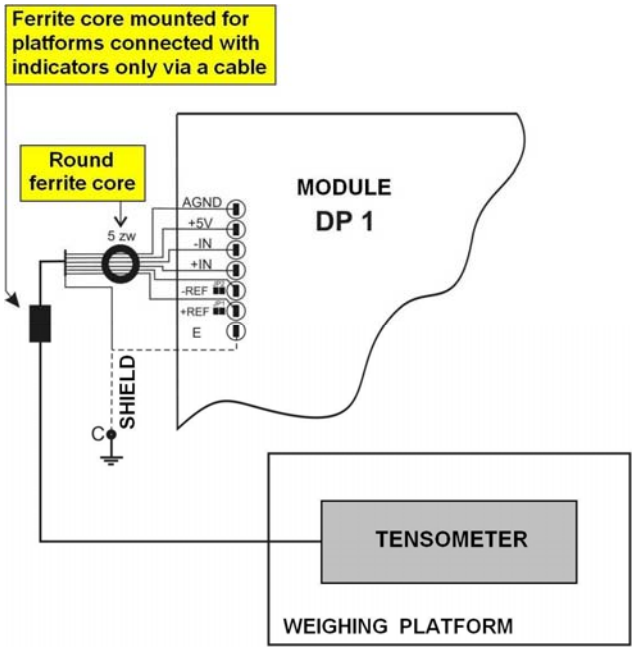
Useful number of internal divisions	8 388 608
OIML class	III
Number of verification divisions	6 000
Maximal change of input signal	19mV
Maximal voltage per verification divisions	3,3 µV
Minimal voltage per verification divisions	1µV
Minimal tensometer impedance	90Ω
Maximal tensometer impedance	1200Ω
Tensometer excitation voltage	5V
Types of tensometers	4 or 6 wires + shield

27.6.2. Colours of wires

RADWAG Designation	Colour	Designation of soldering pads on PCB's.
+INPUT	brown	+ 5V
-INPUT	green	AGND
+OUTPUT	yellow	+ IN
- OUTPUT	white	- IN
+SENSE	grey	+ REF
- SENSE	pink	- REF
EKRAN	yellow-green	(according to the rule of connecting shields)

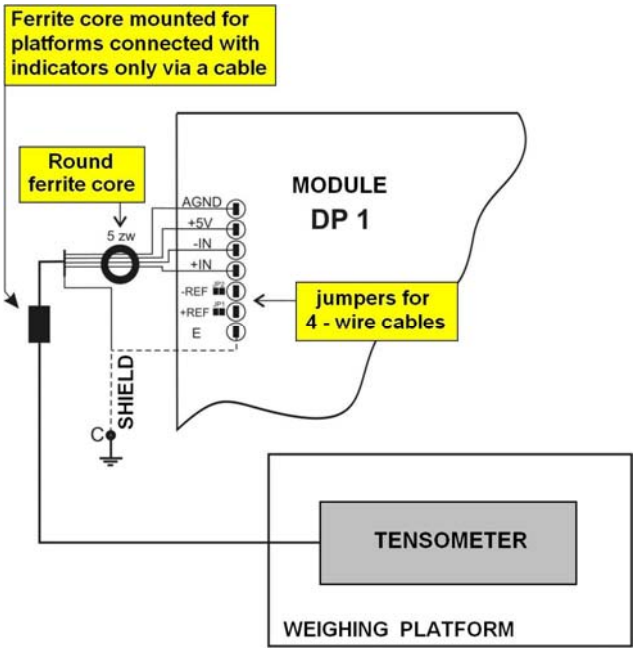
27.6.3. Connecting additional platforms

Connecting 6-wire tensometers



E - tensometer cable shield
REF+ - “SENSE +” from tensometer (JP1 not soldered)
REF- - “SENSE –“ from tensometer (JP2 not soldered)
IN+ - “OUTPUT+” from tensometer
IN- - “OUTPUT-“ from tensometer
+5V - “INPUT+” from tensometer
AGND - “INPUT-“ from tensometer

Connecting 4-wire tensometers



E - tensometer cable shield
REF+ - solder jumper JP1
REF- - solder jumper JP2
IN+ - “OUTPUT+” from tensometer
IN- - “OUTPUT-“ from tensometer
+5V - “INPUT+” from tensometer
AGND - “INPUT-“ from tensometer

The rules of connecting shields from tensometer cable

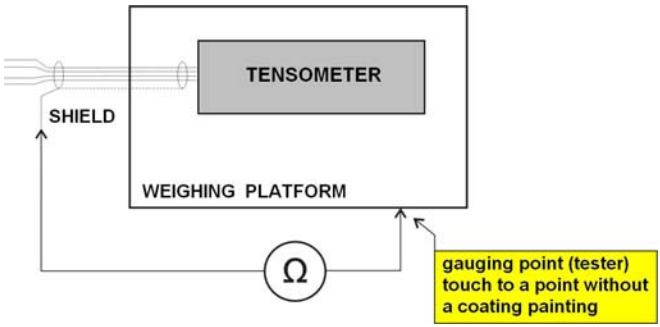
For assuring appropriate operation use the description below to connect the shield of the tensometer properly. In both cases (6- and 4-wire cables) the same way rule are valid:

	platforms connected to indicators in metal housing via a cable only	platforms electrically connected to indicators' metal housings e.g. pillars, racks
Load cells without internal shield connection to the tensometer body	**POINT C**	**E**
Load cells with internal shield connection to the tensometer body	**POINT C**	**POINT C**

Point C – screwed terminal electrically connected to the metal housing of the indicator (possible using of soldering eye)
E – soldering pad on a **DP1** PCB

The way of checking connection between the shield and the tensometer body

Use an ohmmeter for this purpose.

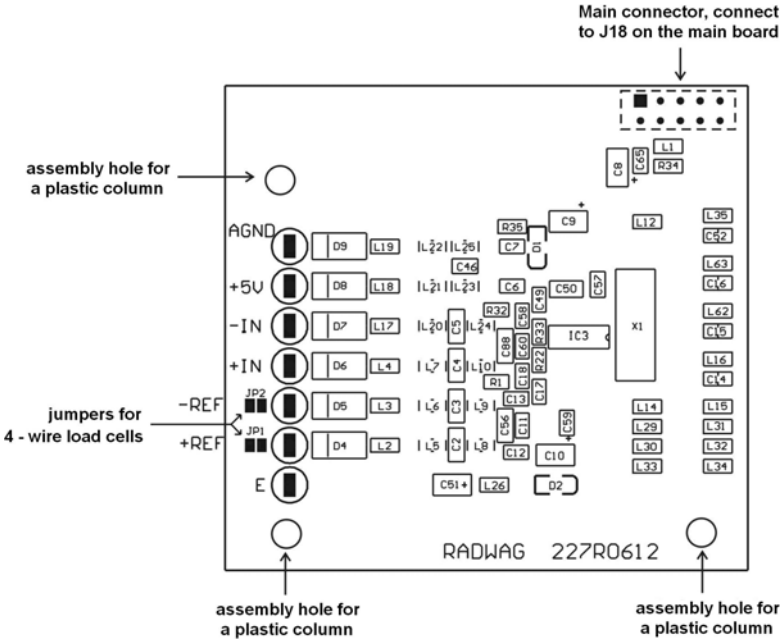


27.6.4. Installing in PUE C41H housing

DP1 modules are intended to mount inside PUE C41H housings.
It is mounted to the main board to the 10-pin **J18** connector. For **DP1** module an additional gland is installed on the back wall of the housing.

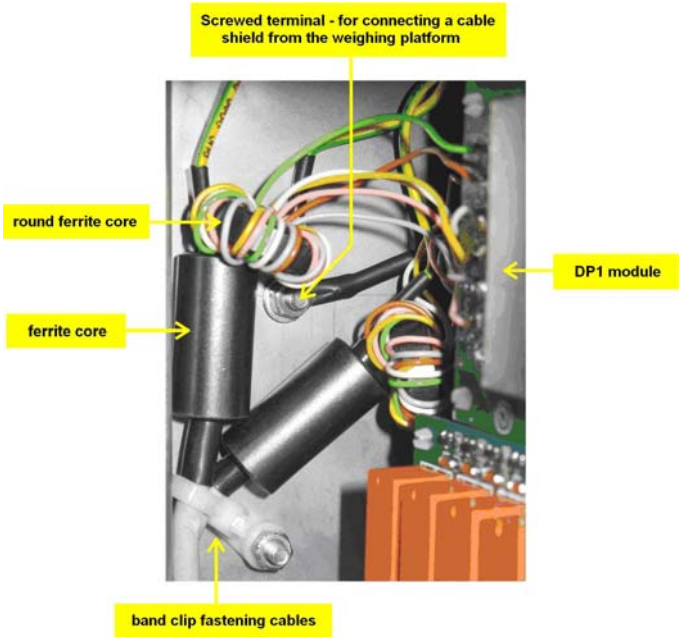
1. Unplug the scale from mains;
2. Unscrew and take off the back wall of the housing;
3. Install your module in **J18** on the main board;

4. During installation turn your attention to plastic columns. They should be placed one side in mounting holes in the main board and the other side in the mounted module **DP1**.



Installing DP1 module on the main board of PUE C41H

5. Led a tensometer cable through the PG7 gland next to the gland of main platform;
6. Put on a ferrite core on the cable (core of appropriate internal diameter);
7. Turn the wires on the ferrite core (5 turns);
8. Solder the wires to the pads on the DP1. **Use soldering iron (no solder guns or Rother inductive devices)**;
9. Fasten the cable to the housing using a band clip (to the screwed terminal on the back wall of the housing);
10. Screw down the back wall.

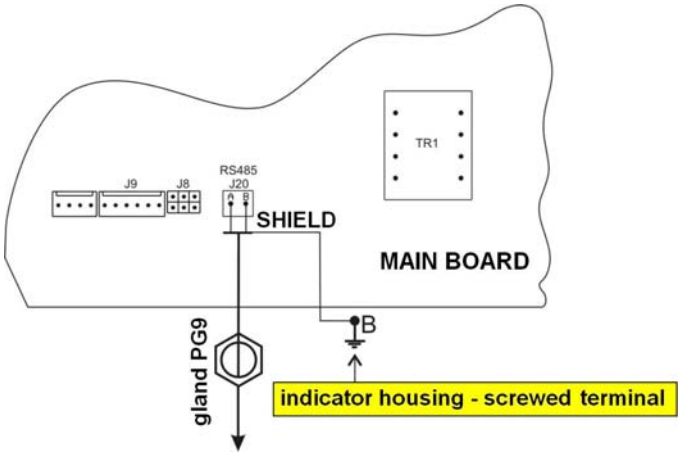


27.7. RS485 led out via RS 1D gland

A version with the **RS485** interface led out via a gland (in the standard solution RS485 is present in a socket). A 3m cable is led out through the gland.

27.7.1. Installing inside the PUE C41H housing

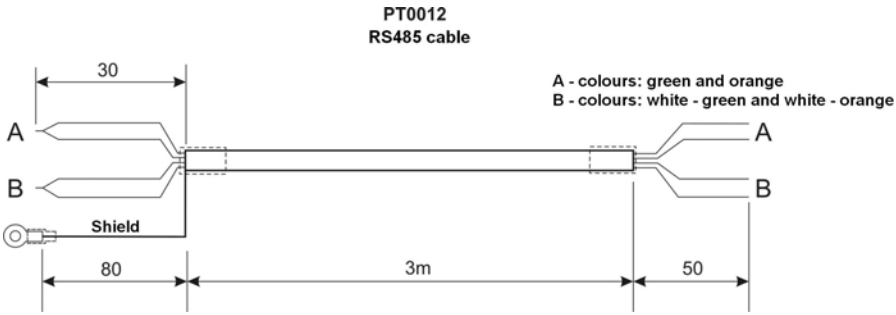
1. Unplug the scale from mains;
2. Unscrew and take off the back wall of the housing;
3. Unplug one of the unused glands and led out the **PT0012** cable through it;
4. Connect the **PT0012** cable to the **J20** connector (ARK type) on the main board of PUE C41H:



PT0012 *cable connecting to the main board of PUE C41H*

5. Connect the **PT0012** shield to the housing (4mm screwed terminal on the back wall)
6. The cable connect to the group of wires (unhook band clips fastening the group of wires, lay the cable and hook the band clips). Band clips of multiple usage;
7. Screw down the back wall.

27.7.2. RS 485 - PT0012 cable drawing



28. COMMUNICATION PROTOCOL

28.1. General information

A. A character protocol scale-terminal has been designed for communication between RADWAG scales and external devices via RS-232 interface.
B. It consists of commands sent from an external device to the scale and a responses from a scale.
C. Responses are sent every time after receiving a command (reaction for any command).
D. Using commands allows users to receive some information about the state of scale and/or influence the operation e.g.: Requesting weighing results, display control.

28.2. A set of commands for RS interfaces

Commands	Description of commands
Z	Zeroing
T	Tarring
OT	Get tare
UT	Set tare
S	Send the stable result in basic unit
SI	Send the result immediately in basic unit
SIA	Get immediate results from both platforms in basic units
SU	Send the stable result in current unit
SUI	Send the result immediately in current unit
C1	Switch on continuous transmission in basic unit
C0	Switch off continuous transmission in basic unit
CU1	Switch on continuous transmission in current unit
CU0	Switch off continuous transmission in current unit
K1	Lock the scale keyboard
K0	Unlock the scale keyboard
S1	Start dosing/filling
S0	Stop dosing/filling
DH	Set lower threshold

UH	Set upper threshold
ODH	Read lower threshold
OUH	Read upper threshold
PC	Send all implemented commands

Notice:

1. *Each command have to be terminated in CR LF;*
2. *The best Policy for communication is not sending another command until the former answer has been received.*

28.3. Respond message format

After sending a request message you can receive:

XX_A CR LF	command accepted and in progress
XX_D CR LF	command completed (appears only after XX_A)
XX_I CR LF	command comprehended but cannot be executed
XX _ ^ CR LF	command comprehended but time overflow error appeared
XX _ v CR LF	command comprehended but the indication below the
XX _ OK CR LF	Command done
ES_CR LF	Command not comprehended
XX _ E CR LF	error while executing command – time limit for stable result exceeded (limit time is a descriptive parameter of the scale)

XX - command name
_ - substitutes spaces

28.4. Command's description

28.4.1. Zeroing

Syntax **Z CR LF**

Possible answers:

Z_A CR LF - command accepted and in progress
Z_D CR LF - command completed

Z_A CR LF - command accepted and in progress
Z_^ CR LF - command comprehended but zero range overflow appeared
Z_A CR LF - command accepted and in progress
Z_E CR LF - time limit for stable result exceeded
Z_I CR LF - command comprehended but cannot be executed

28.4.2. Tarring

Syntax: **T CR LF**

Possible answers:

T_A CR LF - command accepted and in progress
T_D CR LF - command completed

T_A CR LF - command accepted and in progress
T_v CR LF - command comprehended but tare range overflow appeared

T_A CR LF - command accepted and in progress
T_E CR LF - time limit for stable result exceeded

T_I CR LF - command comprehended but cannot be executed

28.4.3. Get tare value

Syntax: **OT CR LF**

Possible answers:

OT_TARA CR LF - command executed

Frame format:

1	2	3	4-12	13	14	15	16	17	18	19
O	T	space	tare	space	unit			space	CR	LF

Tare - 9 characters with decimal point justified to the right
Unit - 3 characters justified to the left

28.4.4. Set tare value

Syntax: **UT_TARE CR LF**, where **TARE** – tare value

Possible answers:

UT_OK CR LF - command executed
UT_I CR LF - command comprehended but cannot be executed
ES CR LF - command not recognised (possible wrong tare format)

Notice:
This protocole uses the dot character as a decimal point for separating the decimal fraction part.

28.4.5. Send the stable result in basic unit

Syntax: **S CR LF**

Possible answers:

S_A CR LF - command accepted and in progress
S_E CR LF - time limit for stable result exceeded
S_I CR LF - command comprehended but cannot be executed
S_A CR LF - command accepted and in progress
MASS FRAME - mass value in basic unit is returned

Frame format:

1	2-3	4	5	6	7-15	16	17	18	19	20	21
S	space	stability	space	sign	mass	space	unit			CR	LF

Example:

S CR LF – computer command
S _ A CR LF - command accepted and in progress
S _ _ _ _ - _ _ _ _ _ _ 8 . 5 _ g _ _ CR LF – command done, mass value in basic unit is returned.

28.4.6. Send the result immediately in basic unit

Syntax: **SI CR LF**

Possible answers:

SI_I CR LF - command comprehended but cannot be executed at the moment
SI_A CR LF - command accepted and in progress
MASS FRAME - mass value in basic unit is returned

Frame format:

1	2	3	4	5	6	7-15	16	17	18	19	20	21
S	I	space	stability	space	sign	mass	space	unit			CR	LF

Example:

S I CR LF – computer command
S I _ ? _ _ _ _ _ _ _ 1 8 . 5 _ k g _ CR LF - command done, mass value in basic unit is returned immediately.

28.4.7. Get immediate results from both platforms in basic units

Syntax: **SIA CR LF**

Possible answers:

SIA_I CR LF - command comprehended but cannot be executed at the moment
MASS FRAME „P1" CR LF
MASS FRAME „P2" CR LF - mass values are immediately returned from both platforms in basic units

Frame format with mass from subsequent platforms as indicator reply:

1	2	3	4	5	6	7-15	16	17	18	19	20	21
P	n	space	stability	space	sign	mass	space	unit			CR	LF

n - weighing platform number
mass - 9 characters justified to the right
unit - 3 characters justified to the left

Example:

Let us assume that both platforms are connected to indicator PUE C41H.

S I A CR LF – computer command
P 1 _ ? _ _ _ _ _ _ 1 1 8 . 5 _ g _ _ CR LF
P 2 _ _ _ _ _ _ _ _ _ 3 6 . 2 _ k g _ CR LF - command done, mass values from both platforms are returned in basic units

28.4.8. Send the stable result in current unit

Syntax: **SU CR LF**

Possible answers:

SU_A CR LF - command accepted and in progress
SU_E CR LF - timeout while waiting for stable results

SU_I CR LF - command comprehended but cannot be executed

SU_A CR LF - command accepted and in progress
MASS FRAME - mass value in current unit is returned

Frame format:

1	2	3	4	5	6	7-15	16	17	18	19	20	21
S	U	space	stability	space	sign	mass	space	unit			CR	LF

Example:

S U CR LF – computer command
S U _ A CR LF - command accepted and in progress
S U _ _ _ - _ _ 1 7 2 . 1 3 5 _ N _ _ CR LF - command done, mass value in current unit is returned.

28.4.9. Send the result immediately in current unit

Syntax: **SUI CR LF**

Possible answers:

SUI_I CR LF - command comprehended but cannot be executed
SUI_A CR LF - command accepted and in progress
MASS FRAME - mass value in current unit is returned immediately

Frame format:

1	2	3	4	5	6	7-15	16	17	18	19	20	21
S	U	I	stability	space	sign	mass	space	unit			CR	LF

Example:

S U I CR LF – computer command
S U I ? _ - _ _ _ 5 8 . 2 3 7 _ k g _ CR LF - command executed and mass returned

28.4.10. Switch on continuous transmission in basic unit

Syntax: **C1 CR LF**

Possible answers:

C1_I CR LF - command comprehended but cannot be executed
C1_A CR LF - command comprehended and in progress
MASS FRAME - mass value in basic unit is returned

Frame format:

1	2	3	4	5	6	7-15	16	17	18	19	20	21
S	I	space	stability	space	sign	mass	space	unit			CR	LF

28.4.11. Switch off continuous transmission in basic unit

Syntax: **C0 CR LF**

Possible answers:

C0_I CR LF - command comprehended but cannot be executed
C0_A CR LF - command comprehended and executed

28.4.12. Switch on continuous transmission in current unit

Syntax: **CU1 CR LF**

Possible answers:

CU1_I CR LF - command comprehended but cannot be executed
CU1_A CR LF - command comprehended and in progress
MASS FRAME - mass value in current unit is returned

Frame format:

1	2	3	4	5	6	7-15	16	17	18	19	20	21
S	U	I	stability	space	sign	mass	space	unit			CR	LF

28.4.13. Switch off continuous transmission in current unit

Syntax: **CU0 CR LF**

Possible answers:

CU0_I CR LF - command comprehended but cannot be executed
CU0_A CR LF - command comprehended and executed

28.4.14. Lock the scale keyboard

Syntax: **K1 CR LF**

Possible answers:

K1_I CR LF - command comprehended but cannot be executed
K1_OK CR LF - command executed

Caution:
This command is not remembered after restart

28.4.15. Unlock the scale keyboard

Syntax: **K0 CR LF**

Possible answers: **K0_OK CR LF** – command in progress

28.4.16. Initiating of dosing/filling

Syntax: **S1 CR LF**

Possible answers:

S1_I CR LF - command comprehended but cannot be executed
S1_OK CR LF - command in progress

28.4.17. Stop of dosing/filling

Syntax: **S0 CR LF**

Possible answers:

S0_I CR LF - command comprehended but cannot be executed
S0_OK CR LF - command in progress

28.4.18. Set lower threshold

Syntax: **DH_XXXXX CR LF**, where: **XXXXX** – mass format

Possible answers:

DH_OK CR LF - command executed
ES CR LF - command not comprehended (wrong mass format)

28.4.19. Set upper threshold

Syntax: **UH_XXXXX CR LF**, where: **XXXXX** – mass format

Possible answers:

UH_OK CR LF - command executed
ES CR LF - command not comprehended (wrong mass format)

28.4.20. Read lower threshold

Syntax: **ODH CR LF**

Possible answers: **DH_MASA CR LF** - command executed

Frame format:

1	2	3	4-12	13	14	15	16	17	18	19
D	H	space	mass	space	unit			space	CR	LF

Mass - 9 characters justified to the right
Unit - 3 characters justified to the left

28.4.21. Read upper threshold

Syntax: **OUH CR LF**

Possible answers: **UH_MASA CR LF** - command executed

Frame format:

1	2	3	4-12	13	14	15	16	17	18	19
U	H	space	mass	space	unit			space	CR	LF

Mass - 9 characters justified to the right
Unit - 3 characters justified to the left

28.4.22. Send all implemented commands

Syntax: **PC CR LF**

Possible answers:

PC_A_"Z,T,S,SI,SU,SUI,C1,C0,CU1,CU0,PC,K1,K0,DH,UH, ODH,OUH,S1,S0,OT,UT" – command executed, the indicator have sent all the implemented commands.

28.5. Manual printouts / automatic printouts

Users can general manual or automatic printouts from the scale.

- Manual printouts can be performed after loading the pan and stabilizing indication by pressing ENTER.
- Automatic printouts can be performed only after loading the pan and stabilizing indication.

Notice:
If a scale is verified printouts of immediate values are blocked.

Format frame:

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

Stability character [space] if stable
[?] if not stable
[^] if an indication over the range
[v] if fan indication below the range
sign [space] for positive values or
[-] for negative values
mass 9 characters justified to the right
unit 3 characters justified to the left
command 3 characters justified to the left

Example 1:

_ _ _ _ _ _ 1 8 3 2 . 0 _ g _ _ CR LF – the printout generated from the scale after pressing ENTER/PRINT.

Example 2:

? _ - _ _ _ _ 2 . 2 3 7 _ l b _ CR LF - the printout generated from the scale after pressing ENTER/PRINT.

Example 3:

^ _ _ _ _ _ _ 0 . 0 0 0 _ k g _ CR LF - the printout generated from the scale after pressing ENTER/PRINT.

28.6. Continuous transmission

The indicator can work in a continuous transmission mode. It can be switched on or off in parameters or using RS232 commands.

Frame format sent by the indicator when continuous transmission is set:

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

Stability character	[space] if stable [?] if not stable [^] if an indication over the range [v] if fan indication below the range
sign	[space] for positive values or [-] for negative values
mass	9 characters justified to the right
unit	3 characters justified to the left
command	3 characters justified to the left

28.7. Configuring printouts

If some information included are redundant or not sufficient and there is a necessity of changes you can design a non-standard printout. There is possible to create up to four standard printouts (see the chapter. 17).

29. ERROR MESSAGES

ERROR "XXX" ESC – RETURN TO PREVIOUS SETTING
(where: XXX – parameter name) – confirmed with **ENTER**
of a wrong value in the user's menu,

Err2 - Value beyond the zero range,

Err3 - Value beyond the tare range,

Err4 - Calibration mass or start mass adjustment error (±1% for weight, ±10% for start mass),

Err5 - Mass of a single piece lower than the 0.1 of scale division,

Err6 - Mass of all pcs (declared as standard) lower than one division,

Err8 - Tarring / zeroing operation time exceeded,

NULL - Zero value from the AD converter,

FULL2 - Measurement range overflow,

HI - Display range overflow,

LH - Start mass error, the mass on the weighing platform is beyond the acceptable range ±20 of start mass

30. TROUBLE SHOOTING

Problem	**Cause**	**Solution**
Scale switches off automatically	„t1" parameter set to „YES" (Power save)	In <P9 OTHERS> change <P9.3 AUTO SWITCH.> to „NO"
„LH" appears on the display	Weight pan not empty when switching on	Unload the pan. Indication returns to zero

31. TECHNICAL PARAMETERS

31.1. Scales for recipes - WPW/R

Scale type	**WPW/R 6 C1/K**	**WPW/R 15 C1/K**	**WPW/R 30 C1/K**	**WPW/R 60 C2/K**
Max capacity	6kg	15kg	30kg	60kg
Readability	2g	5g	10g	20g
Tare range	-6kg	-15kg	-30kg	-60kg
Pan size	290 × 360mm			400 × 500mm
Work temperature	- 10°C to +40°C			
Interfaces	RS 232, RS 485			
Ingress protection rating	IP 66/67			
Power supply	85-265V AC 50Hz and internal accumulator 6V			
Battery operation time	Up to 9 h			
Display	LCD with backlight			

Scale type:	**WPW/R 150 C2/K**	**WPW/R 300 C2/K**	**WPW/R 150 C3/K**	**WPW/R 300 C3/K**
Max capacity	150kg	300kg	150kg	300kg
Readability	50g	100g	50g	100g
Tare range	-150kg	-300kg	-150kg	-300kg
Pan size	400 × 500mm		500 × 700mm	
Work temperature	- 10°C to +40°C			
Interfaces	RS 232, RS 485			
Ingress protection rating	IP 66/67			
Power supply	85-265V AC 50Hz and internal accumulator 6V			
Battery operation time	Up to 9 h			
Display	LCD with backlight			

31.2. Scales for recipes - WPW/R/H

Scale type:	**WPW/R 3 H1/K**	**WPW/R 6 H2/K**	**WPW/R 15 H2/K**	**WPW/R 15 H3/K**	**WPW/R 30 H3/K**
Max capacity	3kg	6kg	15kg	15kg	30kg
Readability	1g	2g	5g	5g	10g
Tare range	-3kg	-6kg	-15kg	-15kg	-30kg
Pan size	150 × 200mm	250 × 300mm		410 × 410mm	
Work temperature	- 10°C to +40°C				
Interfaces	RS 232, RS 485				
Ingress protection rating	IP 66/67				
Power supply	85-265V AC 50Hz and internal accumulator 6V				
Battery operation time	Up to 9h				
Display	LCD with backlight				

Scale type:	**WPW/R 60 H3/K**	**WPW/R 150 H3/K**	**WPW/R 60 H4/K**	**WPW/R 150 H4/K**
Max capacity	60kg	150kg	60kg	150kg
Readability	20g	50g	20g	50g
Tare range	-60kg	-150kg	-60kg	-150kg
Pan size	410 × 410mm		500 × 500mm	
Work temperature	- 10°C to +40°C			
Interfaces	RS 232, RS 485			
Ingress protection rating	IP 66/67			
Power supply	85-265V AC 50Hz and internal accumulator 6V			
Battery operation time	Up to 9h			
Display	LCD with backlight			

Scale type:	WPW/R 150 H5/K	WPW/R 300 H5/K	WPW/R 60 H5/K	WPW/R 150 H6/K	WPW/R 300 H6/K
Max capacity	150kg	300kg	60kg	150kg	300kg
Readability	50g	100g	20g	50g	100g
Tare range	-150kg	-300kg	-60kg	-150kg	-300kg
Pan size	600 × 600mm			800 × 800mm	
Work temperature	- 10°C to +40°C				
Interfaces	RS 232, RS 485				
Ingress protection rating	IP 66/67				
Power supply	85-265V AC 50Hz and internal accumulator 6V				
Battery operation time	Up to 9h				
Display	LCD with backlight				

32. APPENDIX

32.1. Communication with barcode scanners

1. For communication with barcode scanners RADWAG scales use RS232 interfaces and simplex transmission (one direction) without handshaking. Only two wires are required for assuring such a transmission. Used scanners should be equipped in such interface with disabled both hardware and software handshaking.
2. Both scales and scanners have the possibility of setting of transmission parameters. Both devices are required to have the same parameters set : baud rate, number of data bits, parity control, stop bits. e.g. 9600,8,N,1 – baud rate 9600 bit/s , data 8-bits, no parity control, 1 stop bit.
3. Barcode scanners can send additional information apart from the expected barcode e.g. symbology (type of barcode). It is advisable to disable such information because RADWAG devices and software do not use it.
4. Some RADWAG systems can omit unnecessary information by using parameters that mark the beginning and the length of the code required to analyse.

5. A special protocol is required in order the code be received by RADWAG equipment. It is required to program an appropriate *prefix and suffix*. Prefix – one byte 01 hexadecimally, suffix one byte 0D hexadecimally.
6. Most barcode scanners allow to enable/disable different symbologies (barcode types).
7. Programming of scanners is usually performed by reading special barcodes or by using an external software tool.
8. Scanners marketed together with RADWAG systems are always configured according to the rules above.

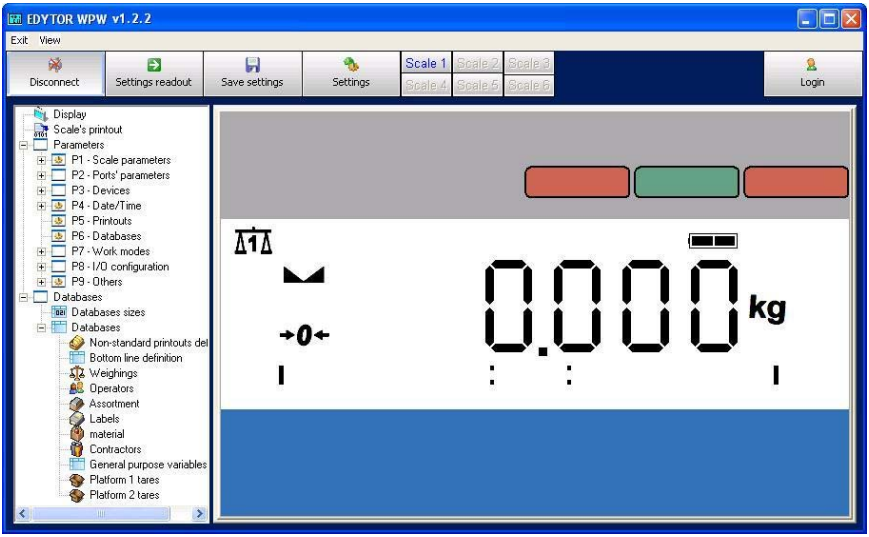
Barcode with required prefix and suffix in hexadecimal format	**Barcode without required –fixes in ASCII format**	**Code type**
01 30 30 32 31 30 31 32 36 0D	00210126	EAN-8
01 30 31 32 33 34 35 36 37 38 39 0D	0123456789	2 of 5
01 43 4F 44 45 20 33 39 20 54 45 53 54 0D	CODE 39 TEST	CODE 39
01 31 31 30 31 32 33 34 35 36 37 38 39 31 0D	1101234567891	EAN-13
01 43 6F 64 65 20 31 32 38 20 54 65 73 74 0D	CODE 128 Test	CODE 128

32.2. Cooperation with „EDYTOR WPW" – PC software tool

Standard WPW scales can be supervised by the accompanied program **EDYTOR WPW**, that can work as an additional display on the monitor and:,

- Edit and change user parameters (filters, date/time, backlight, configuring I/O, port parameters etc.),
- Create, upload, edit, download databases,
- Receive and save printouts in text files,
- Define the bottom line,
- Define non-standard printouts.

32.2.1. Main window

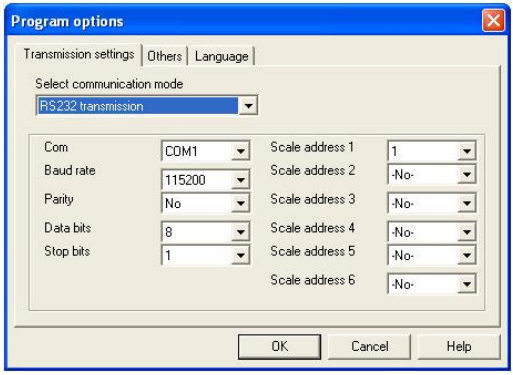


Caution:
*The installation file of **EDYTOR WPW** is accessible on RADWAG website **www.radwag.com.** In Products /Measuring indicators / PUE C41H.*

32.2.2. Setting parameters of RS232

On order to establish the connection with **EDYTOR WPW** through RS232 interface follow the remarks below:

- Run **EDYTOR WPW**,
- Connect the scale to a computer using cable PT0020 (see ch. 25),
- Set the port for communication with a computer – parameter **<P3.1.1 COMP. PORT>** set to **RS232 (1)** (see ch. 15.1.1),
- Set transmission parameters:
  - submenu **<P2.2 RS232 (1)>** (see ch. 14.1.3),
- Click on the button **„Settings”** to show the window below:



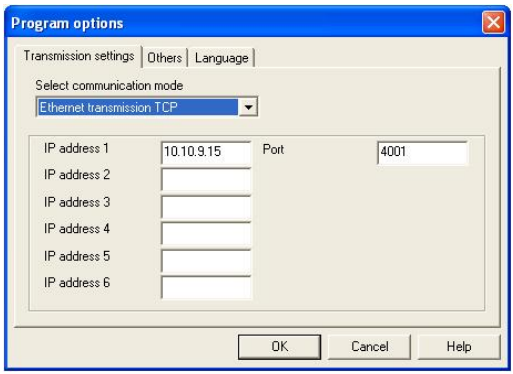
- In the overlap **<Transmission settings>**:
  - Set the communication mode as **„RS232 transmission"**,
  - Select an appropriate com number,
  - Configure the selected port (baud rate, parity, data bits, stop bits),
- Confirm the changes by clicking OK,
- Rerun the program,
- Press the **„Connect"** button,
- The appropriate communication with scales is signalled by pictogram in the left part of the display,
- Transmission problems are signalled by the message window:

32.2.3. Setting Ethernet parameters

On order to establish the connection with **EDYTOR WPW** through Ethernet interface follow the remarks below:

- Power up the scale and run the **EDYTOR WPW** program,
- Connect the scale to a computer/switch using a PT0017 or PT0014 cable (depending on the Ethernet module on board – see ch. 27.1.2),
- Set the port for communication with a computer – parameter **<P3.1.1 COMP. PORT>** set to **Ethernet** (see ch. 15.1.1),

- Set parameters from the **<P2.4 ETHERNET>** group (see ch. 14.2):
  - Parameter **<P2.4.1 WORK MODE>** should be set to **SERVER**,
  - Parameters **<P2.4.2 IP ADDRESS>**, **<P2.4.3 SUBNET MASK>**, **<P2.4.4 GATEWAY>** should be set according to the network supervisor directions,
  - **<P2.4.5 LOCAL PORT>** set the same as in the computer program (in networks some ports can be taken),
  - Parameter **<P2.4.8 TIMEOUT>** set to **0** in order to prevent breaking connection.
- Press the **„Settings"** button:



- In the overlap **<Transmission setting>**:
  - Set the communication type **„Ethernet Transmission TCP"**,
  - **„IP address 1"** the same as **<P2.4.2 IP ADDRESS>** in the scale,
  - „**Port"/"Com"** the same as **<P2.4.5 LOCAL PORT>** in the scale,
- Confirm the changes by clicking 

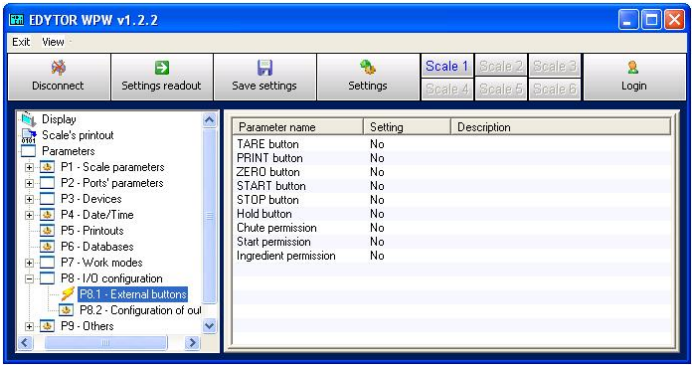
,
- Rerun the program,
- Press the **„Connect"** button,
- The appropriate communication with scales is signalled by pictogram  in the left part of the display,
- Transmission problems are signalled by the message window:

32.3. An example application for dosing recipes

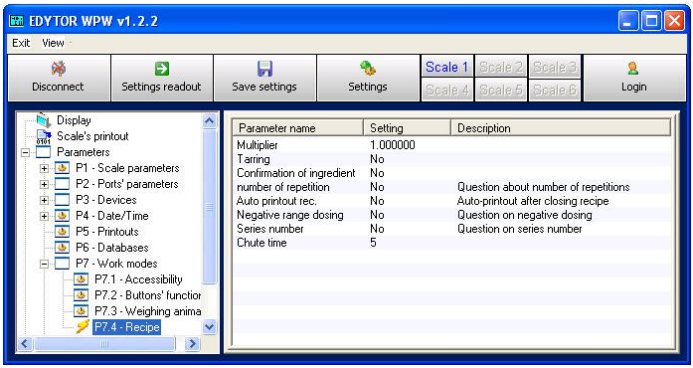
A WPW scale is intended to perform dosing recipes with controlling to speeds of dosing (two thresholds). A silo is the scale pan. The speed of dosing is determined by the rotation speed if the motor coupled with a perpetual screw (worm). The motor is controlled by an inverter which is equipped in two digital inputs (TTL standard), which are connected to the PUE C41 terminal outputs. Every ingredient has a separate dosing section (outputs, inverter, motor). There is also a control desk connected to the system with buttons: START, EMERGENCY STOP.

Procedure:

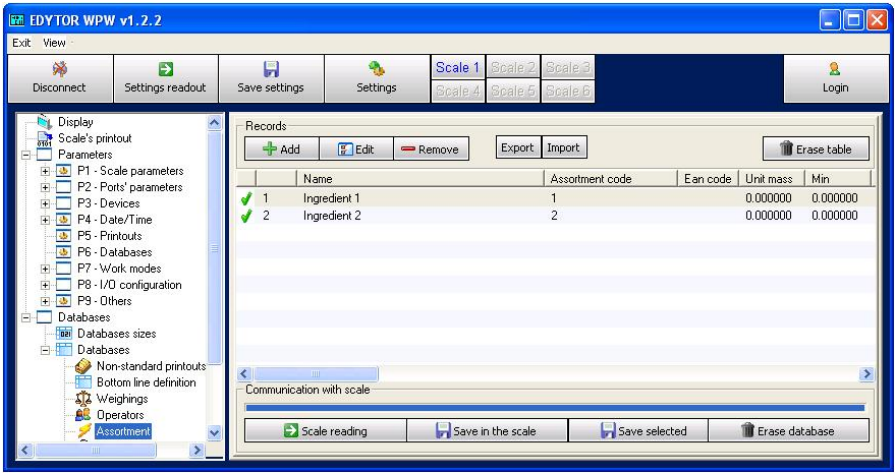
1. Connect the scale to the **EDYTOR WPW** computer tool (see ch. 32.2),
2. Configure external buttons - path: Parameters / I/O / Configuration / External Buttons:



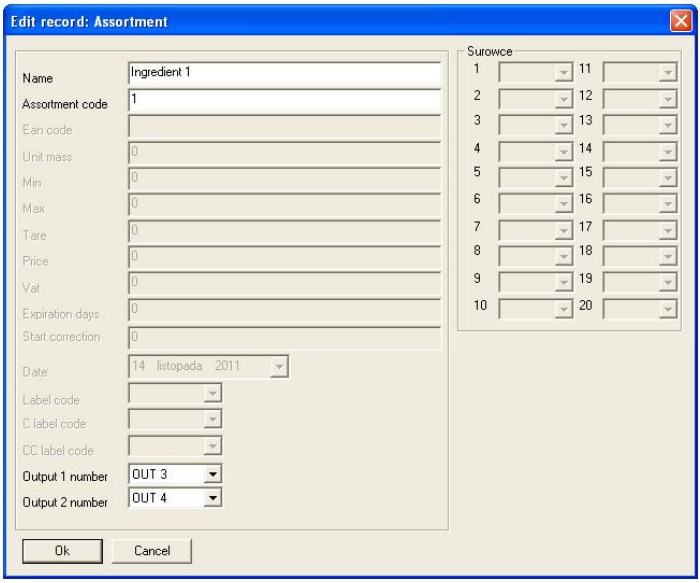
3. Configure the dosing procedure - path: Parameters / Work Modes / Recipe:



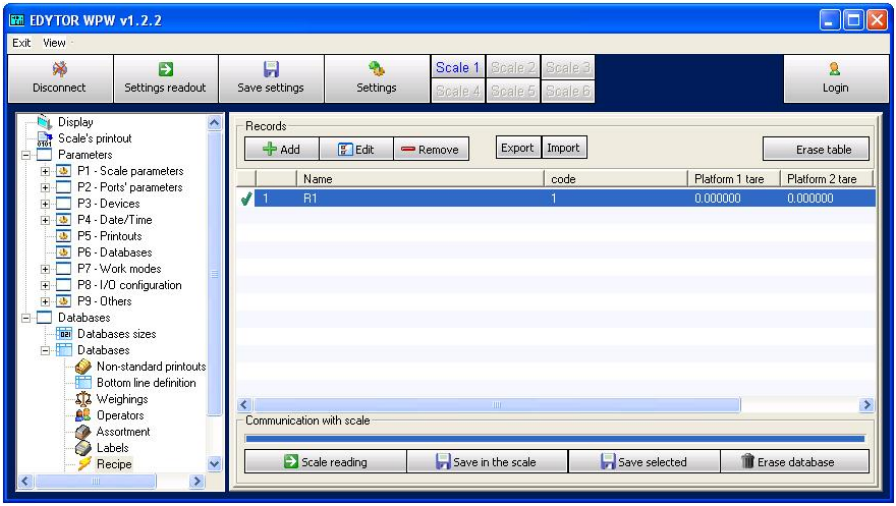
4. Open the assortment database – path: Databases/Bases/Assortment. Pressing [Scale reading] causes uploading the database from the terminal:



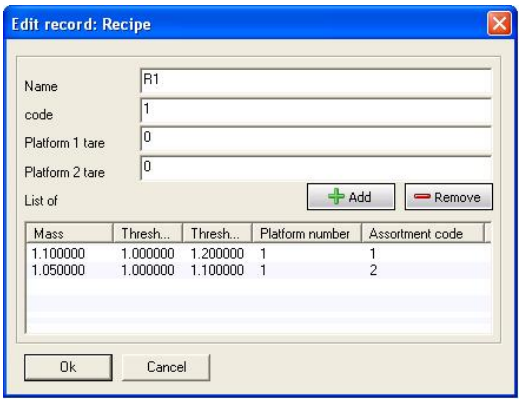
5. Then press [Add]. One record from the assortment database can be added in the window below. The most important thing is assigning outputs to thresholds:



6. Open the database of recipes – path: Databases/Bases/Recipes and then upload the database by pressing [Scale reading]:

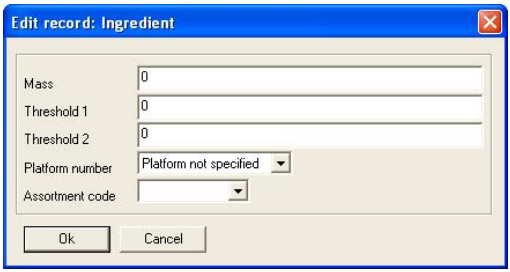


7. Press [Add] to add a new recipe with all necessary parameters:



Caution:
The editing window allows to inscribe separate tare values for both platforms. These tare values are set after the dosing procedure starts before any output is on.

8. In order to add / edit an ingredient press Add:



Caution:
It is advisable that if external automatic systems controlled by PUE C41 terminal outputs are used (see point 5) the text boxes above have following interpretation. ***Threshold1*** *is the limit of the bulk dosing and* ***Mass*** *(nominal) is the limit of the precise dosing.* ***Threshold2*** *is a warning limit over which the dosing procedure is stopped and the next ingredient does not start. The dosing procedure cab be continued after the stable result lower or greater than* ***Mass*** *and greater than* ***Threshold1*** *is measured.*

9. After entering all the required changes save them by pressing Save in the scale.

10. All changes in parameters needs to be saved in the scale by pressing Save settings.

11. Press F1 INSETR on the terminal to select a recipe you want to process.

12. Press **START** on the control desk or F3 on the terminal keypad to start the dossing process.

13. The program performs tarring.

14. The bulk dosing of the first ingredient is started, both outputs prescribed to the ingredient are on. When the mass indication reaches values over ***Threshold1*** one of outputs is switched off that causes decreasing the rotation speed of the motor and dosing is slower. This method of dosing is more precise and effective than the single threshold method of dosing an ingredient with constant speed.

15. Threshold values are declared in recipes. Equivalent rotation speeds are declared in inverters.

Caution:
The inverter(s) used in this example should have the possibility of declaring at least two rotation speeds depending on the inputs' states.

16. After applying the first ingredient software starts dosing the next ingredient according to the method described above using the next section (outputs, motor, inverter).

17. The procedure repeats until the last ingredient is applied.

18. The process of dosing can be stopped any time, especially in emergency situations, by using the **EMERGENCY STOP** button.

19. After the whole recipe is applied another output (declared in parameters) is on and chute is performed. It is possible to set an additional input (see inputs' declaration parameters) that will receive the signal of chute permition for the recipe.

20. When the chute process is performed software controls the mass and if it reaches a value lower than the one set in **-LO-** parameter software starts counting down the time declared in **<P7.4.5. CHUTE TIME>** before the chute is closed.

21. After the mixture is poured down the program is ready to start the next dosing process.

32.4. Example of designing non-standard printouts

„RADWAG"
DATE:
TIME:
MASS:

SIGNATURE:.....

After entering the non-standard printouts edition (see ch. 17.5.) we design the printout:

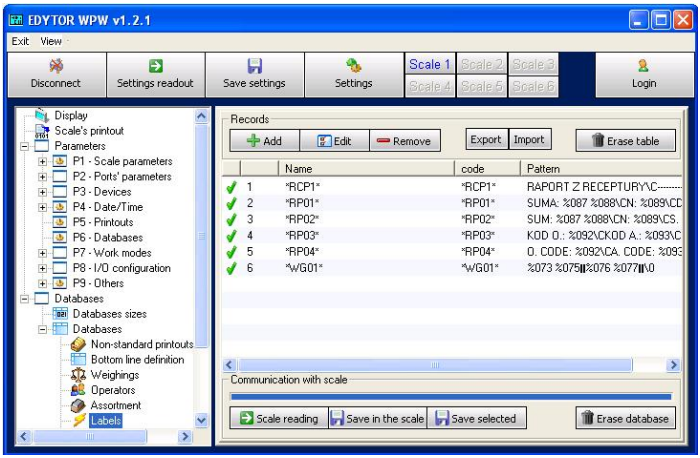
„ R A D W A G " \ C \ T D A T E : % 0 0 2 \ C \ T T I M E: % 0 0 3 \ C \ T
M A S S : % 0 0 0 \ C \ C \ T \ T S I G N A T U R E : . . . . . \ C \ 0

32.5. Example of creating a complex report

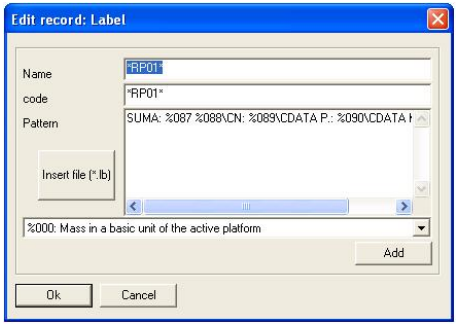
Let us assume that a user wants to designe a complex report including weighings for subsequent products. The user wants to include the company name (header) and simple statistics for weighings of subsequent products as the number and sum of weighings (footer).

Procedure of designing the report pattern:

1. Run program **EDYTOR WPW** and initiate communication with the scale according to ch. 32.2 of this manual,
2. Open database „labels” at: Databases/Databases/Labels. Press Scale reading to upload data from the scale:



3. Edit one of the existing report patterns (*RP01*, *RP02*, *RP03* or *RP04*):



4. Enter the new report pattern:

```
RADWAG WAGI ELEKTRONICZNE
----------------------------------
Product: %129
Weighings:
%130%089.  %073 %075 %076 %077
%130----------------------------------
Number of weighings: %089
Sum of weighings: %087

\0
```

Description of applied variables:

RADWAG WAGI ELEKTRONICZNE – company name (header)

%129	-	The name of present record for the complex report
%130	-	Marking the line for beginning printing weighings in the complex report. (variable have to be placed twice to create the beginning and the end of the loop for printing weighings and separates weighings from other report parts)
%073	-	Net mass of a weighing from the database
%075	-	Weighing unit for printing weighings from the database
%076	-	Dates of weighings for printing weighings from the database
%077	-	Times of weighings for printing weighings from the database
%089	-	Number of weighings (footer)
%087	-	Sum of weighins (footer)
\0	-	Termination of the report (necessary)

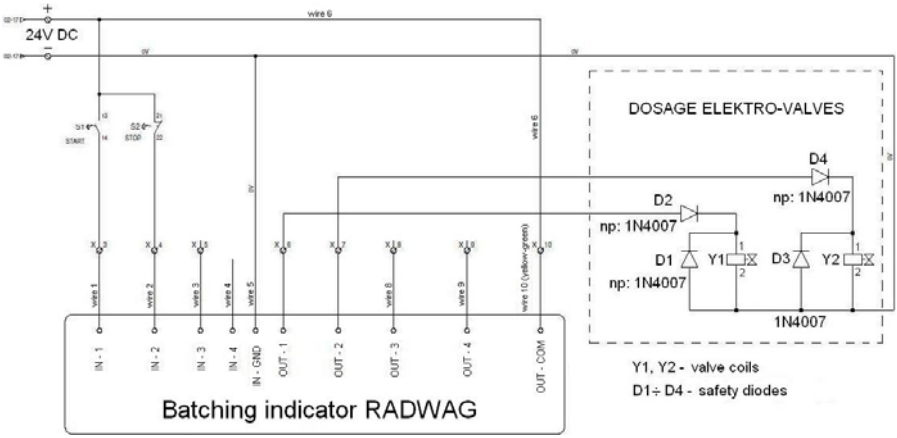
How to print the report:

- Enter the report edition according to ch. 19.1 of this manual,
- According to ch. 19.2 of this manual:
  - Set the product code filter to **<NON-ZERO>**,
  - Go to **<PRINT REPORT>** and choose the report pattern you have modified,
  - Press ENTER and then the report is being printed on the connected printer:

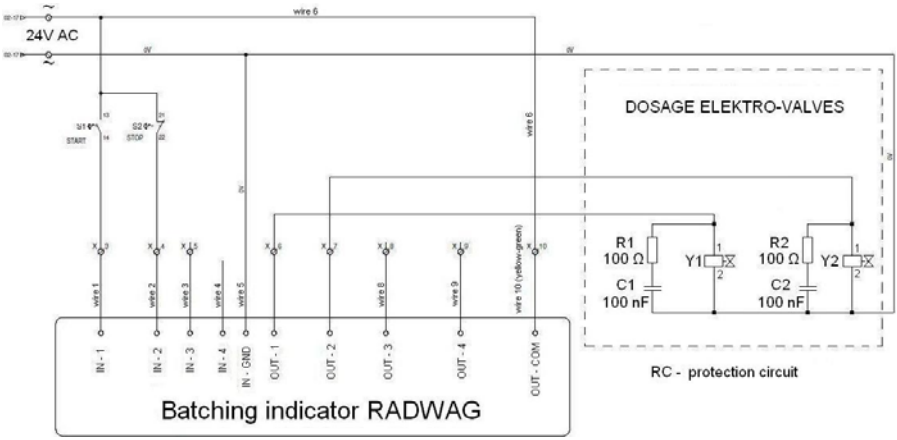
```
RADWAG WAGI ELEKTRONICZNE
----------------------------------
Assortment: Gammos
Weighing
1.   0.190 kg 2009-05-22   7:49:47
2.   0.190 kg 2009-05-22   7:49:48
3.   0.190 kg 2009-05-22   7:49:48
4.   0.190 kg 2009-05-22   7:49:49
5.   0.190 kg 2009-05-22   7:49:49
6.   0.190 kg 2009-05-22   7:49:50
7.   0.190 kg 2009-05-22   7:49:50
8.   0.000 kg 2009-05-22  12:50:38
9.   0.000 kg 2009-05-27   8:20:14
10.  0.000 kg 2009-05-27   8:26:27
11.  0.000 kg 2009-05-27   8:27:07
----------------------------------
Number of weighings: 11
Sum of weighings:    1.330


RADWAG WAGI ELEKTRONICZNE
----------------------------------
Assortment: Bacon
Weighing
1.   1.501 kg 2009-05-22 11:13:45
2.   1.501 kg 2009-05-22 11:13:45
3.   1.501 kg 2009-05-22 11:13:46
4.   1.501 kg 2009-05-22 11:13:46
5.   1.501 kg 2009-05-22 11:13:47
6.   1.501 kg 2009-05-22 11:13:47
7.   1.501 kg 2009-05-22 11:13:48
8.   1.501 kg 2009-05-22 11:13:49
----------------------------------
Number of weighings:  8
Sum of weighings:     12.008
```

32.6. Examples of surge protections

- Connection diagram of dosing indicators outputs with protection for DC:



- Connection diagram of dosing indicators outputs with protection for AC:



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