

Manual instruction

(PUE C/31)

Instruction number
LTI-04-01/03/06/A

WPT 3C/1
WPT 6C/1
WPT 10C/1

WPT 5C
WPT 12C
WPT 24C
WPT 30/60C

Laboratory Balances



MANUFACTURER OF ELECTRONIC WEIGHING EQUIPMENT

RADWAG 26 – 600 Radom, Bracka 28 Street, POLAND

phone +48 48 38 48 800, phone/fax +48 48 385 00 10

Sales Department +48 48 366 80 06; www.radwag.pl



March 2006

TABLE OF CONTENTS

1. INTENDED USE	3
2. KEYBOARD	4
3. FUNCTIONS OF KEYS.....	4
4. GETTING STARTED AND OPERATION.....	6
5. USER'S MENU	8
6. WEIGHING	10
6.1. Selection of the basic weight unit	10
6.2. Choice of weighing unit (temporary)	12
6.3. Setting accessibility of operating modes	13
7. TARING AND ZEROING	16
8. OTHER PARAMETERS	17
8.1. Backlight operation.....	17
8.2. Backlight operation with battery supply	18
8.3. "Beep" signal – reaction on pressing keys	19
8.4. Automatic switching off	19
8.5. Battery supply level check	21
9. MAIN SETTING PARAMETERS	22
9.1. Filter setting.....	22
9.2. Autozero function.....	23
9.3. Tare memory	24
10. SETTING OF RS 232 PARAMETERS.....	25
10.1. Type of printout.....	26
10.2. Determining minimal mass for some functions.....	27
10.3. RS232 baud rate	28
10.4. Setting parameters of serial transmission.....	29

11. OPERATION MODES	30
11.1. Counting pieces of the same mass	30
11.2. +/- control referring to the inscribed standard mass.....	33
11.3. Control of % deviation referring to the inscribed standard mass	36
11.3.1. Mass of standard determined by its weighing.....	36
11.3.2. Mass of standard inscribed to scale memory	37
11.4. Automatic tare.....	38
11.5. Measurement max force on the pan – latch	39
12. USER'S CALIBRATION (option).....	40
12.1. Calibration.....	40
12.2. Start mass adjustment.....	42
13. COOPERATION WITH PRINTER.....	43
14. COOPERATION WITH COMPUTER	43
15. COMMUNICATION PROTOCOL FOR RS232	44
15.1. Respond message format.....	44
15.2. Manual printout	45
15.3. Continuous transmission.....	46
16. ERROR COMMANDS.....	47
17. TECHNICAL PARAMETERS.....	47

1. INTENDED USE

Platform scales are designed for fast and precise measurements of weighed loads masses and direct commercial settlements.

Tarring in full weighing range enables to determine net mass of weighed loads. Additional display is additional equipment of scale. It is to control mass of weighed load by another person.

Functions of scale:

- backlight of display
- level of filtration
- autozero function
- setting baud rate of transmission
- continuous data transmission for RS 232
- automatic operation for RS 232
- print setup(stable/unstable)
- designation minimum mass for function operating
- counting pieces
- +/- mass control
- percentage deviation from standard mass
- latch of maximum scale indication
- automatic tare
- memory of tare
- automatic scale switch-off
- user calibration

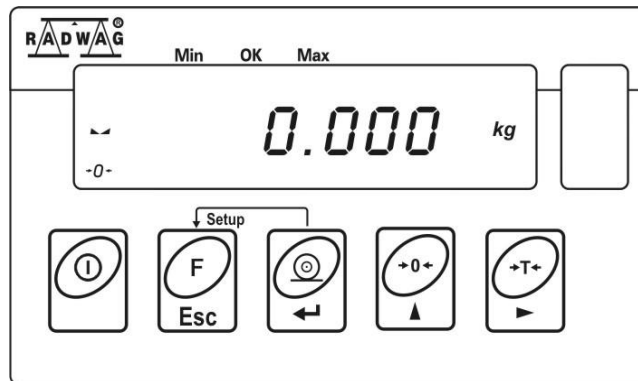
User functions may have attribute of accessibility. For this reason it is possible to adjust scale to individual needs to provide access to only these functions which are currently needed.

Attribute determination accessible/inaccessible is possible in user menu and described in further part of manual.

Notice:

- *RS 232 connector is installed in some types of scales optionally, on client's request. If your scale does not have this connector, setting bod, rEPL, cont functions does not influence the operation.*

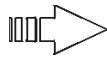
2. KEYBOARD



3. FUNCTIONS OF KEYS



- switch on/off power supply (keep pressing the button for about 1 second)



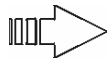
- function key (selection of operating mode)



Sending result of weighing to printer or computer



- scale zeroing








- scale tarring

Notice:

*After pressing **F +PRINT** key functions of particular keys change for time of programming the function. Method of use is described in further part of the manual.*

SIGNS ON DISPLAY

No	Message	Description
1.	FIL	Filtering level
2.	bAud	RS232 baud rate
3.	PCS	Counting pieces
4.	HiLo	+/- control in relation to reference mass
5.	rEPL	Automatic printout of display status
6.	StAb	Data will be printed when stable
7.	Auto	Control and correction of zero indication of scale
8.	t1	Time-lag switch
9.	toP	Measurement of max. force influencing weighing pan
10.	→0←	Scale in autozero range (indication = precise zero)
11.		Result of measurement is stable (ready for readout)
12.	PCS	Scale in operating mode counting pieces
13.	kg (g)	Scale in operating mode weighing
14.		Low level of batteries, accumulator (scale will switch off soon) or damaged scale adapter/supplier.
15.	Net	Scale is tarred.
16.		+/- control in relation to reference mass – setting lower threshold or mass below first range
17.		+/- control in relation to reference mass: mass of load between set threshold
18.		+/- control in relation to reference mass– setting upper threshold or mass above upper threshold.

4. GETTING STARTED AND OPERATION

- Scale should be unpacked and placed on even stable base far away from heat sources. Then install the weighing pan and level the scale using levelling feet of the scale and the level indicator.
- For low profile scales – screw in the levelling feet and level out the scale using levelling feet of the scale and the level indicator. If this way is not sufficient, steel washers should be put under the levelling feet.
- Switch on the scale using **ON/OFF** scale (keep pressing the button for about 1 second)
- Now wait until the scale test is over and indication (equal zero) appears:

→0←

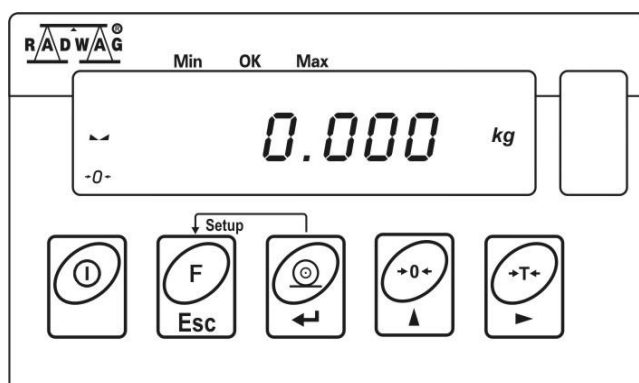
- precise zero indication



- result of weighing is stable

kg

- scale in operating mode - weighing



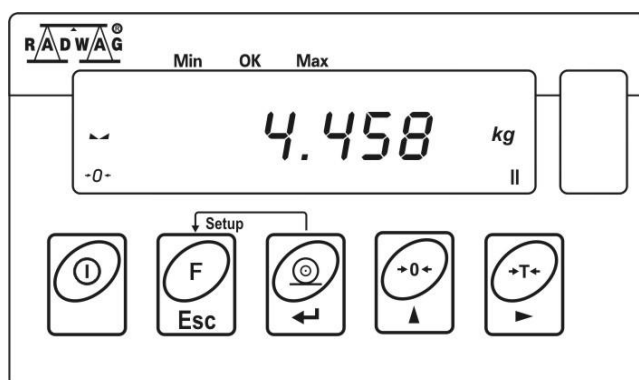
Scale is ready to work

Weighing for dual range scales

Switching from weighing **I range** to weighing in **II range** occurs automatically without participation of operator (after exceeding Max **I range**).

Weighing in **II range** is signaled by displaying a pictogram in lower right corner of display.

After removing load scale goes back to zero. Weighing is still with accuracy of **II range** until it shows the exact zero.



Return from weighing in **II range** to weighing in **I range** can be performed automatically, after removing loads from the weighing pan and entering the AUTOZERO zone – signaled by **→0←**.

Then the symbol of the second range is being switched off and the scale returns to weighing with the accuracy of the **I range**.

5. USER'S MENU

The menu is divided into **6** basic groups. Each group has its individual name starting with the capital letter **P**.

Names of groups and their contents are shown below.

P1 rEAd			
P1.1	FiL		2
P1.2	Auto		YES
P1.3	tArF		no
<hr/>			
P2 Prnt			
P2.1	Pr_n		StAb
P2.2	S_Lo		
P2.3	bAud		4800
P2.4	S_rS		8d1SnP
<hr/>			
P3 Unit			
P3.1	StUn		kg
<hr/>			
P4 Func			
P4.1	FFun		ALL
P4.2	Funi		YES
P4.3	PcS		YES
P4.4	HiLo		YES
P4.5	PrcA		YES
P4.6	Prcb		YES
P4.7	AtAr		YES
P4.8	toP		YES
<hr/>			
P5 othr			
P5.1	bL		Auto
P5.2	bLbt		50
P5.3	bEEP		YES
P5.4	t1		YES
<hr/>			
P6 CAL			
P6.1	St_u		
P6.2	uCAL		

5.1. Browning user's menu

User moves in the menu using the scale keyboard.

5.1.1. Keyboard



+



enter to the main menu



selection of parameter a menu level or change of active parameter value



entering selected submenu or activation of a parameter for a change



change confirmation



leave a function without changes or move one level higher in the menu

5.1.2. Powrót do funkcji ważenia



Introduced changes in the scale memory will be saved after return to weighing by the procedure of saving changes.

Press several times **F** key until display indicates the message **SAvE?**.


When display indicates question press **PRINT/ENTER** to confirm changes or **F** – to cancel introduced changes .

After pressing an appropriate key, scale will go back to weighing



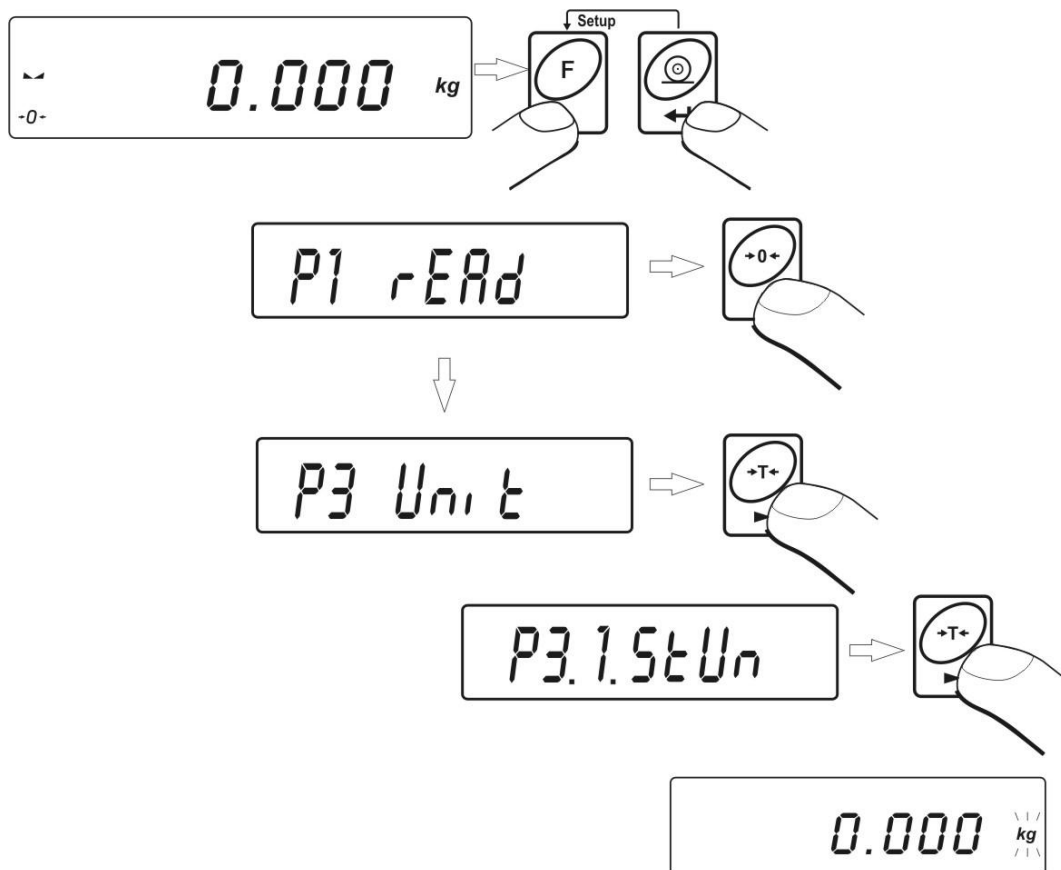
Return to weighing


6. WEIGHING

Place a load on the weighing pan. After reaching stability the  pictogram is marked, read weighing result.

6.1. Selection of the basic weight unit

Function is used for setting the initial unit with which the scale will start after switching on. Enter the submenu **P3 Unit**



press  key several times. Display will indicate by turns available units.





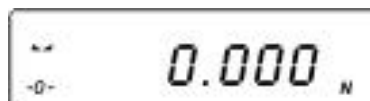
After choosing basic unit press  key. Chosen unit will stop blinking.



Possibilities of choice:

- When main unit is [kg], an user can set one of the following units: [kg, lb, N] (lb is accessible only in non-verified scales)
- When main unit is [g], an user can set one of the following units: [g, ct]

Go back to weighing using procedure of saving changes
(see chapter - 5.1.2. – return to weighing)



NOTICE:

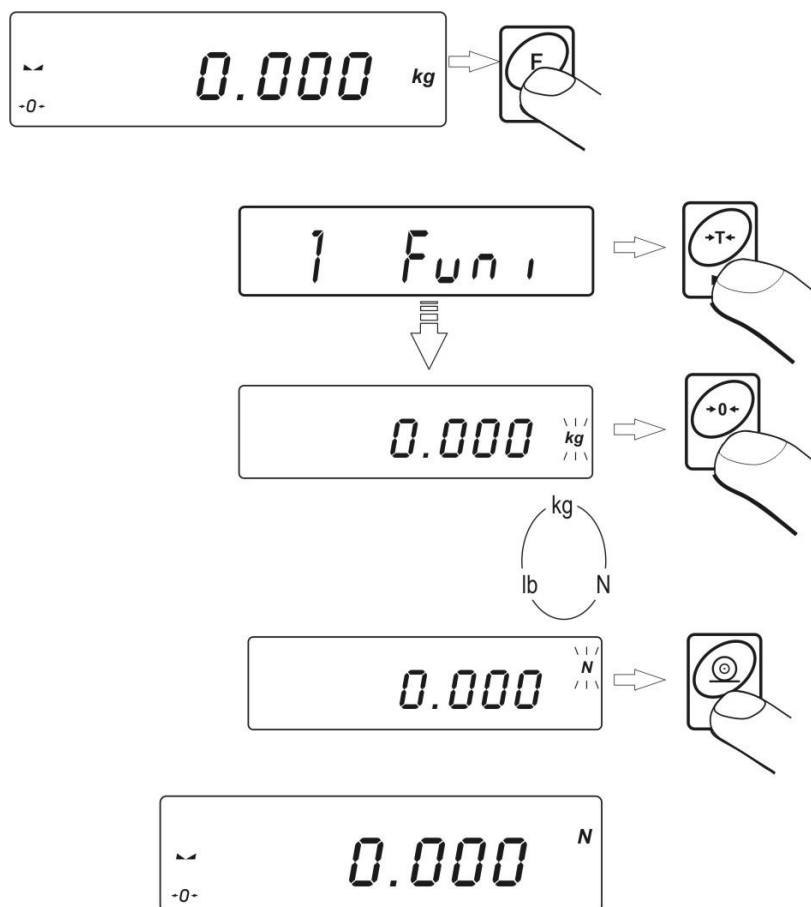
Scale after switching on will start with the newly set basic unit.

6.2. Choice of weighing unit (temporary)

Function enables choice of unit with which mass on the pan will be indicated. Unit will be valid until change of unit or switching on and off the scale.

Procedure:

Press **F** key



After confirmation of selected unit, the scale will go back to weighing in this unit.

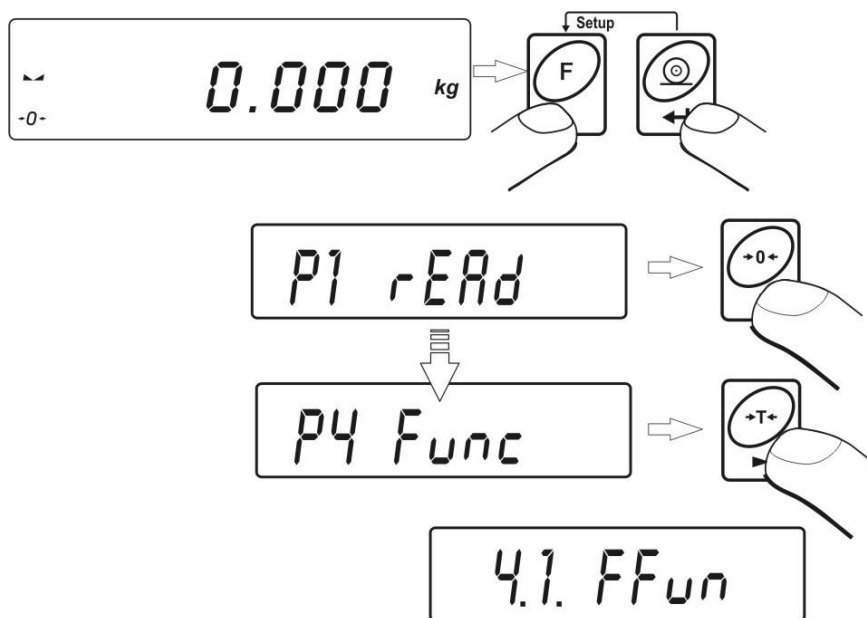
Possibilities of choice:

- When main unit is [kg], an user can set one of the following units: [kg, lb, N] (lb is accessible only in non-verified scales)
- When main unit is [g], an user can set one of the following units: [g, ct]

6.3. Setting accessibility of operating modes

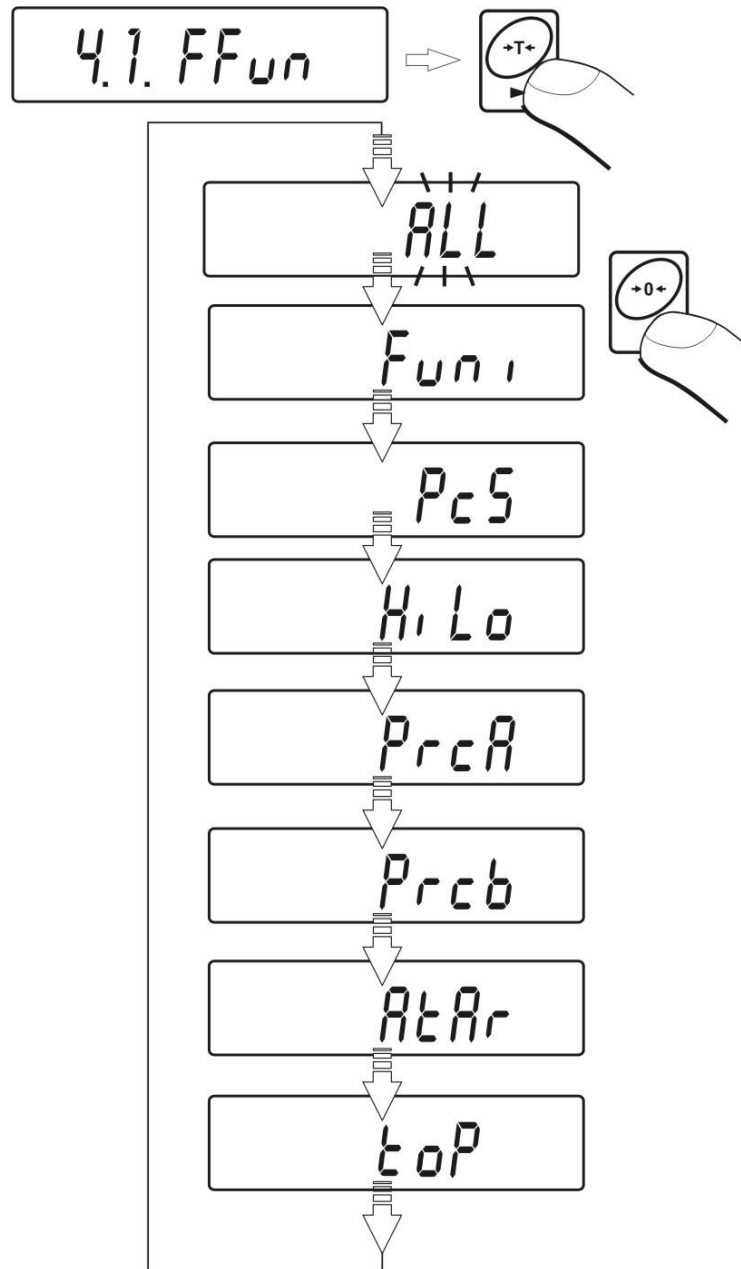
In this group of parameters users declares functions which are to be accessible for user after pressing **F** key.

Enter **P4 Func**



6.3.1 Setting accessibility of operating modes (for user)

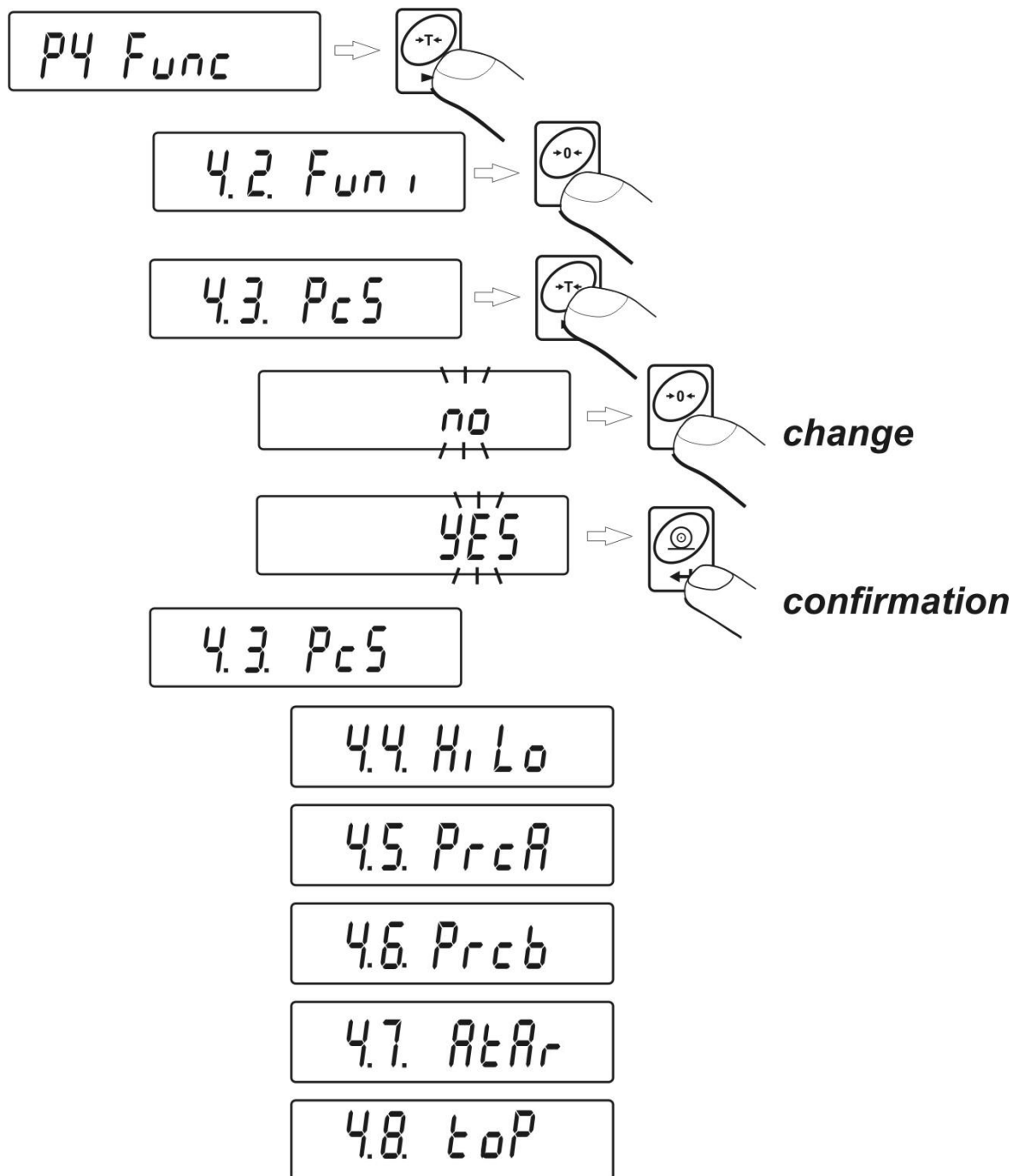
This function enables user to set if ,after pressing **F** key, all operating modes will be accessible (**ALL**) or only one from the list chosen and used by operator.



After choosing setting press **PRINT** key. The program will return to displaying name of submenu **P4.1 FFun**.

6.3.2 Setting contents of P4.1 FFun to “ALL”

This is the function to disable all modes that are not intended to use by operators. It accelerates the access to used modes.



no – mode is disabled;

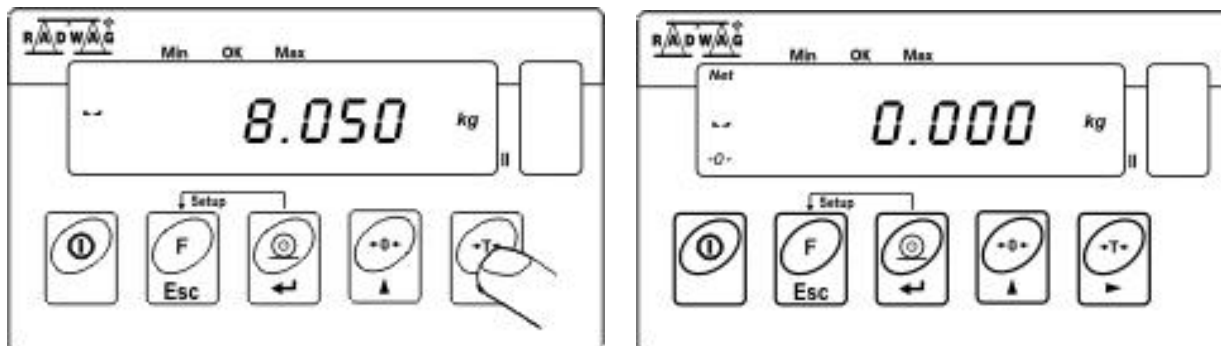
YES – mode is enabled

Return to weighing

(see - 5.1.2. – return to weighing)

7. TARING AND ZEROING

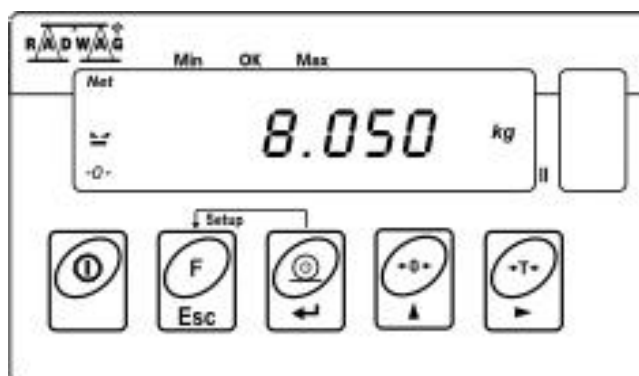
In order to determine a net mass place a package of load and when indication is stable press **TARE** key (mass indication will go back to zero, **Net** symbol will be displayed on the left side of the display).



After placing a load, the display will indicate net mass.

Taring can be done repeatedly in full weighing range of the scale.

When using tare function pay attention on not exceeding maximum weighing range. After removing the load and the package display will show indication of sum of tarred masses with minus sign.



Zeroing

Zeroing display status is possible only in range up to $\pm 2\%$ of maximum scale capacity. If zeroed value is bigger than $\pm 2\%$ of maximum capacity display will show **Err 2** message.

The new zero point is treated by the scale as the precise zero.

Zeroing is possible while stable status is shown on the display.

8. OTHER PARAMETERS

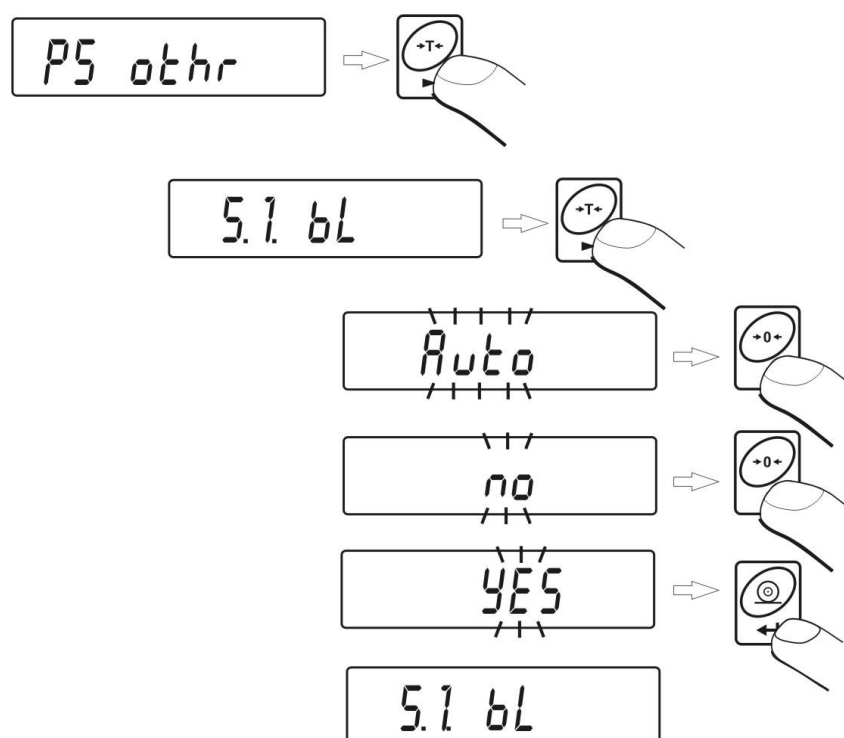
Users can set parameters which have influence on operation of the scale. These parameters are included in P5 othEr e.g. backlight and „beep” signal.

Enter **P5 Others** submenu according to point 6.1.

The software recognizes the source of supply, (mains, battery) i and automatically selects the way of backlight operation:

- **bL** – for adapter supply
- **bLbt** – for battery supply

8.1. Backlight operation



bL no – backlight off

bL YES – backlight on

bL Auto – backlight switched off automatically if the indication does not change for 10 seconds.

Return to weighing

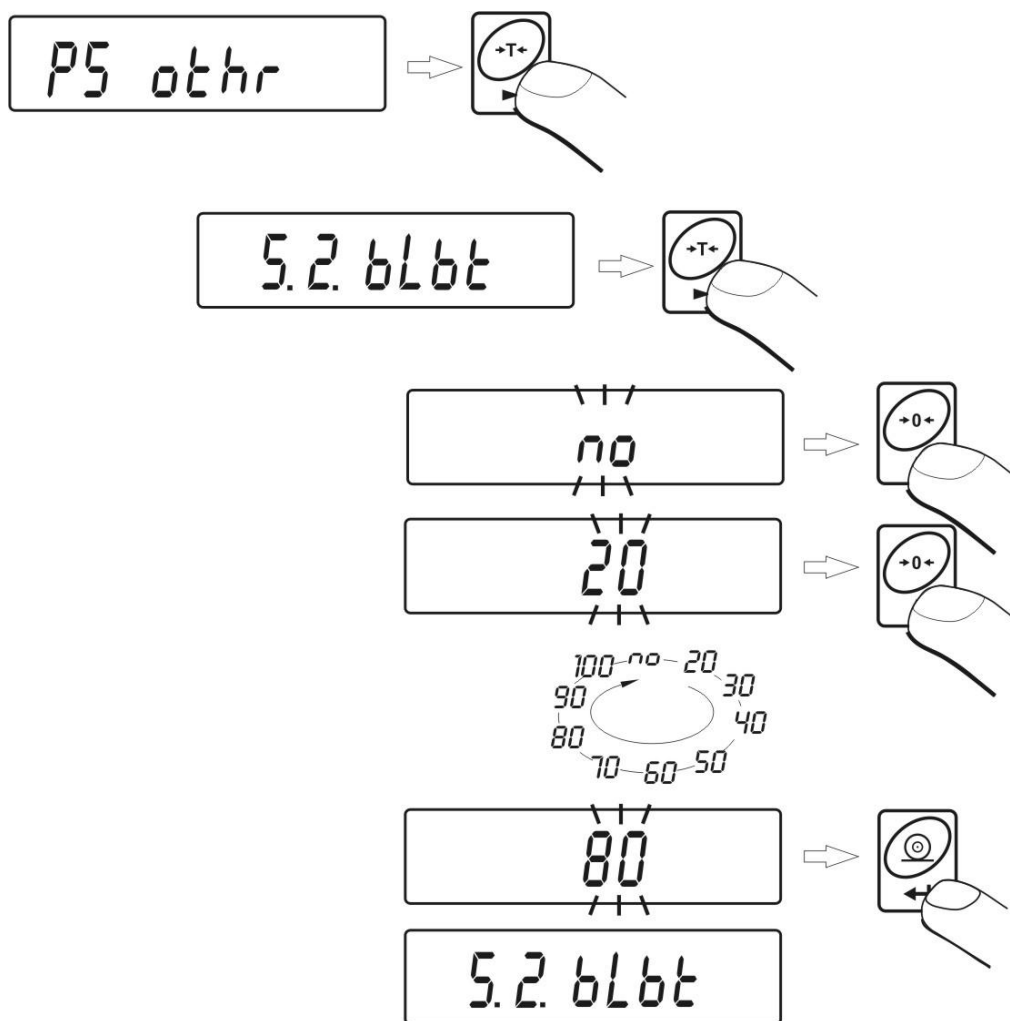
(see - 5.1.2. – return to weighing)

NOTICE:

If result of weighing doesn't change for 10 seconds, backlight will turn off automatically. Backlight is automatically turned on when indication on display changes.

8.2. Backlight operation with battery supply

Considering the readability and power consumption users can change the intensity of backlight from 0% to 100%. Lower backlight intensity is advisable to lengthen the time of battery working. While using battery supply backlight switches off automatically if the indication does not change for 10 seconds.



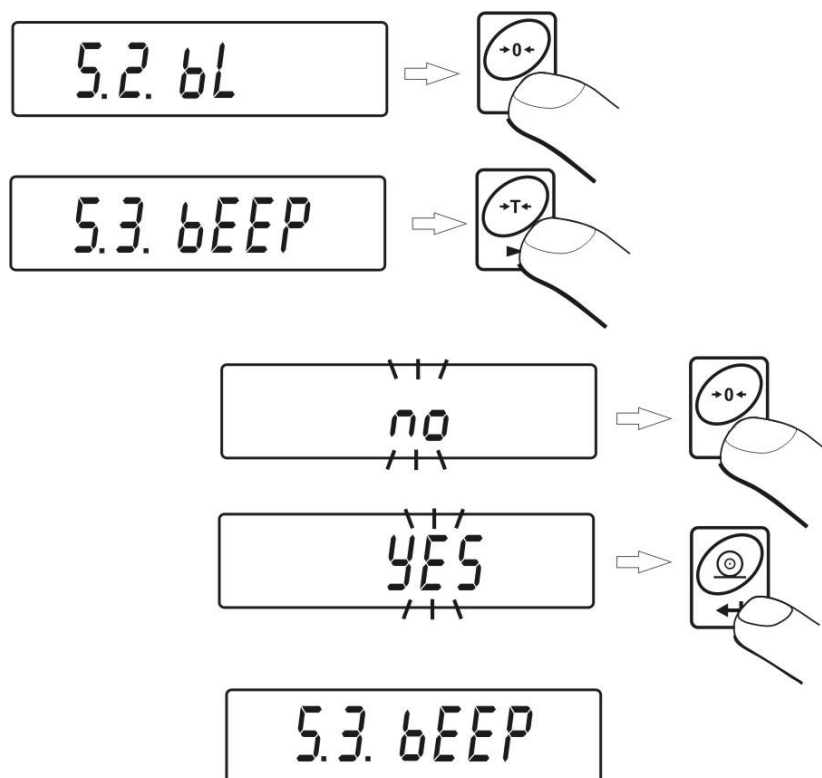
Return to weighing

(see - 5.1.2. – return to weighing)

Notice:

The intensity of backlight influences the time of battery discharge .

8.3. “Beep” signal – reaction on pressing keys



bEEP **no** – signalling of pressing key is disabled
bEEP **YES** - signalling of pressing key is enabled

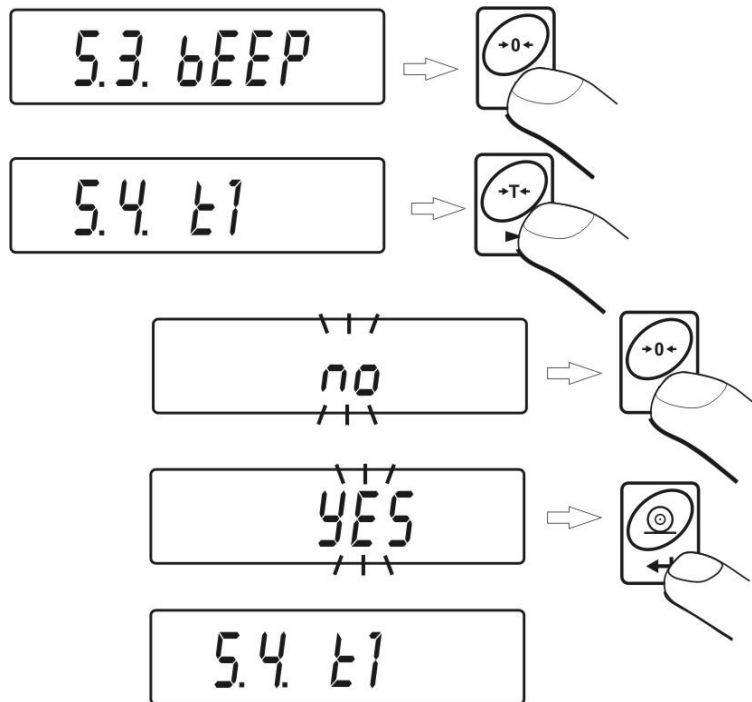
Return to weighing

(see - 5.1.2. – return to weighing)

8.4. Automatic switching off

This function is essential for economical exploitation of battery. The scale will switch off when (function **t1 = YES**) no weighing took place (indication of display didn't change) in 5 minutes. This function can be switched off (**t1 = No**).

Procedure:




t1 YES - function is active (for battery supply)

t1 No - function is off (for buffer and power supply)

Return to weighing



(see - 5.1.2. – return to weighing)

If during operating with battery supply software detects too low level of battery voltage, display will indicate symbol . This means that batteries should be changed immediately or must be charged.

If this pictogram blinks it means that the battery is being charged.

Operating of indication of low battery and automatic switch off.

Low battery level signalization:

-  pictogram appears in the display to show low supply voltage on battery clamps
- after a period of time working on low battery the scale switches off in order to prevent the battery from excessive discharging.
- Battery loading is signalled by blinking the  pictogram.

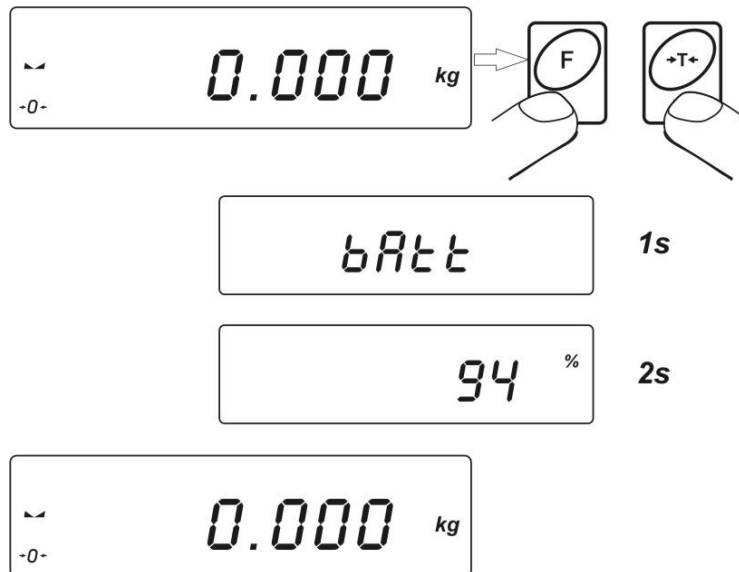
8.5. Battery supply level check


This function is to check the level of battery supply.

It works only if:

- Weighing mode is set
- Battery supply is set in parameters

Procedure:



After displaying the level of batteries (in per cents) the program returns to weighing. The symbol  (bat low) switches on when the voltage level drops to 18% of the accepted level of voltage.

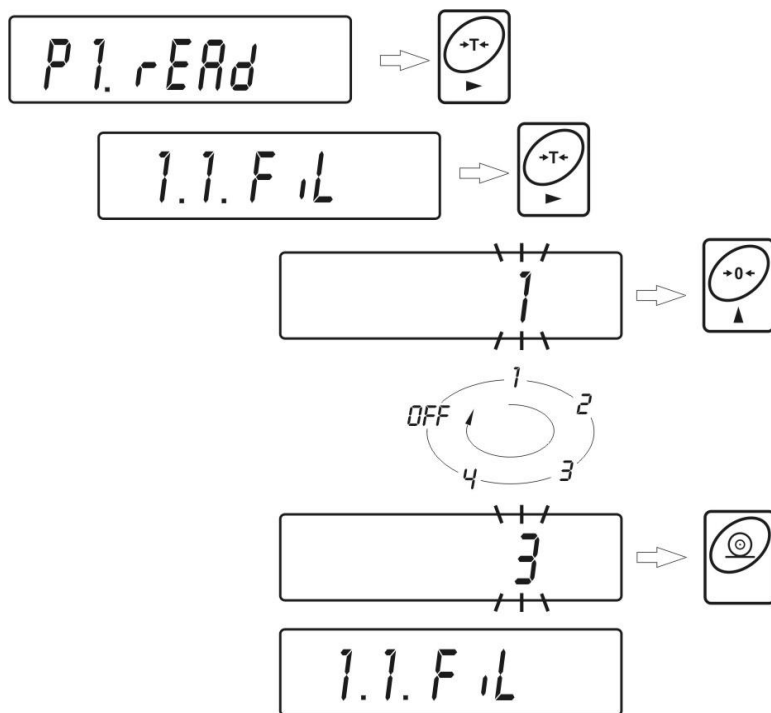
9. MAIN SETTING PARAMETERS


User can adjust scale to external conditions (filter range) or own needs (autozero working, memory of tare value).

These parameters are accessible in group <P1 rEAd> and will help users to adjust scale to external conditions (vibrations, draughts) in which scales operate.

9.1. Filter setting

Procedure:



- using  key select the value of filtering

- OFF** – Filtering is off
- 1 - 4** - Filtering intensity

Return to weighing


(see - 5.1.2. – return to weighing)

NOTICE

Filter range can influence the time of stabilization

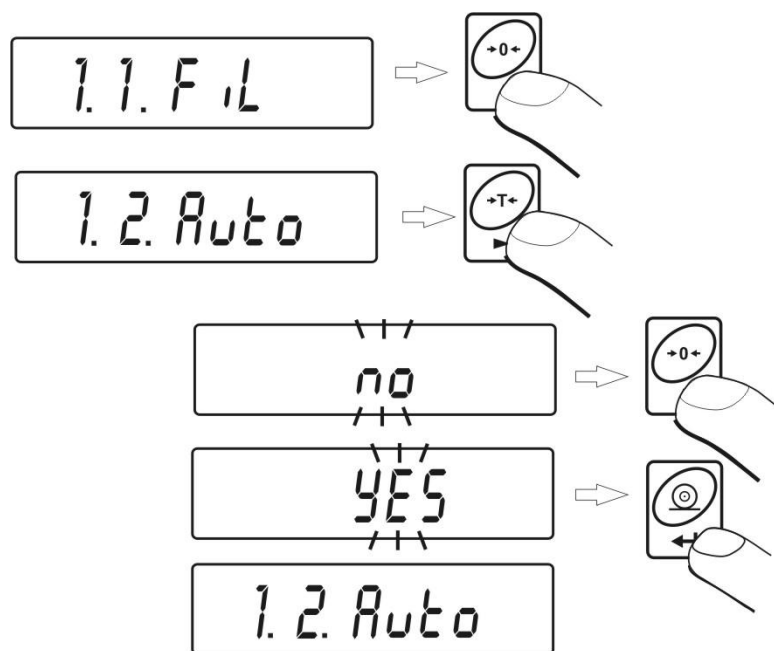
9.2. Autozero function

In order to ensure precise indication „AUTOZERO” function has been introduced. The intended use of this function is automatic control and correction of zero indication of the scale.

When function is active comparison of results takes place at assumed time intervals. If results differ by value smaller than declared AUTOZERO range e.g. one division, scale will be zeroed automatically, stable state will be marked –  and zero indication – **→0←** will be displayed.

When AUTOZERO function is enabled, each result starts from precise zero. However there are some cases where this function can be disturb in measurements. It can be (e.g.) very slow load placing on the pan (e.g. load pouring) in such case correction system of zero indication can also correct indication of real mass of load.

Procedure:



AUTOZERO	no	– autozero off
AUTOZERO	YES	- autozero on

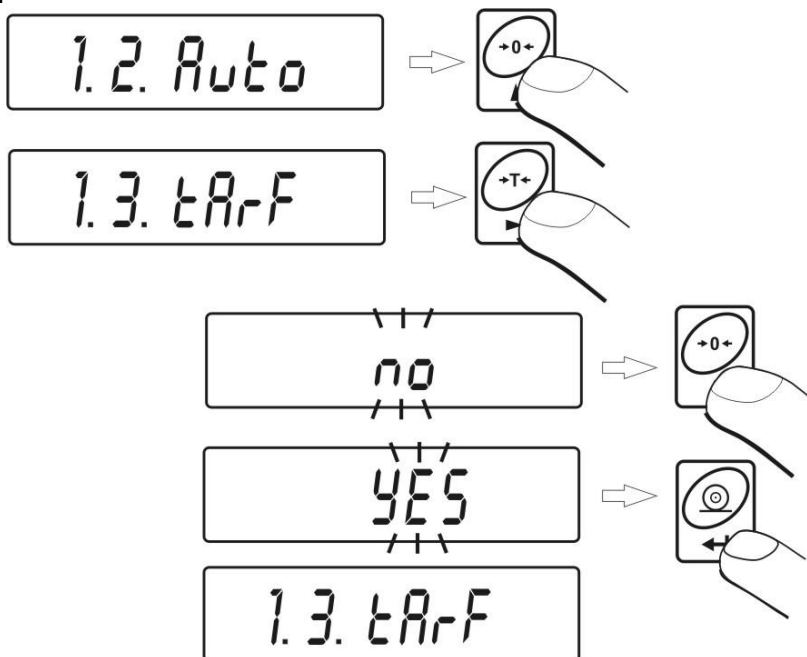
Return to weighing

(see - 5.1.2. – return to weighing))

9.3. Tare memory

This function is created to store the last tare value in the scale memory. It is automatically displayed after a restart of the scale. Tare value is displayed with minus sign, and display indicates **Net** symbol.

Procedure:



tArF no – function of automatic tare disabled
tArF YES – function of automatic tare enabled

Return to weighing

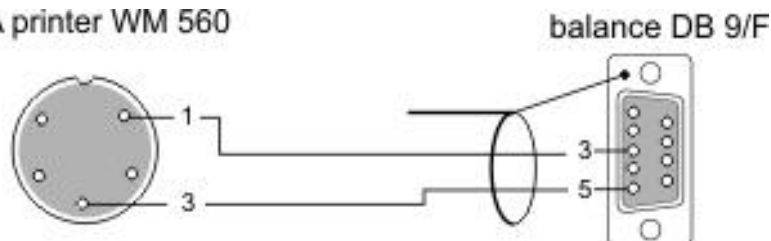
(see - 5.1.2. – return to weighing)

10. SETTING OF RS 232 PARAMETERS

External device connected to RS 232C socket must be supplied from common main e.g. with common antishock protection preventing from existence of potentials difference on zero wires and connected device.

Scheme

KAFKA printer WM 560



Transmission parameters programmed in scale:

- Speed of transmission - 2400 – 38400 bit / s
- Data bits - 7, 8
- Stop bit - 1, 2
- Parity control - none, even, odd

There are three ways of sending the indicated value through serial interface to an external device:

- **Manually** - after pressing **PRINT** key
- **Automatically** – after stabilizing of indication
- **Continuously** – when it is set in parameters or by RS232 command
- **On request** – when an external device sends a request command. See additional functions - „**List of scale - computer commands**”

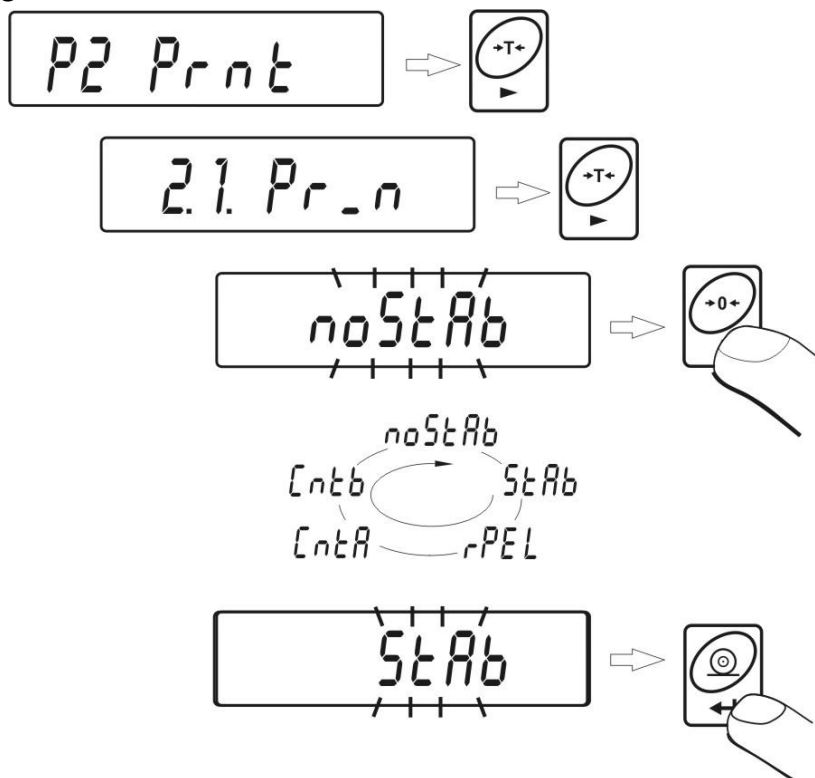
It is possible to set conditions of sending present mass by RS232:

- **stable** – information is sent after the result is stable
- **non-stable** – the current value of the display is sent immediately regardless it is stable or not. It can be sent on request by the RS232 or after pressing **PRINT**, it is marked with <?> in front of the mass value.

10.1. Type of printout

It is possible to set different types of printouts.

Procedure



- noStAb** – immediate printout (even if not stable) – *not accessible in verified scales*
- StAb** – printout of stable results
- rEPL** – automatic operation
- CntA** – continuous transmission in a basic unit
- Cntb** – continuous transmission in a current unit

Return to weighing

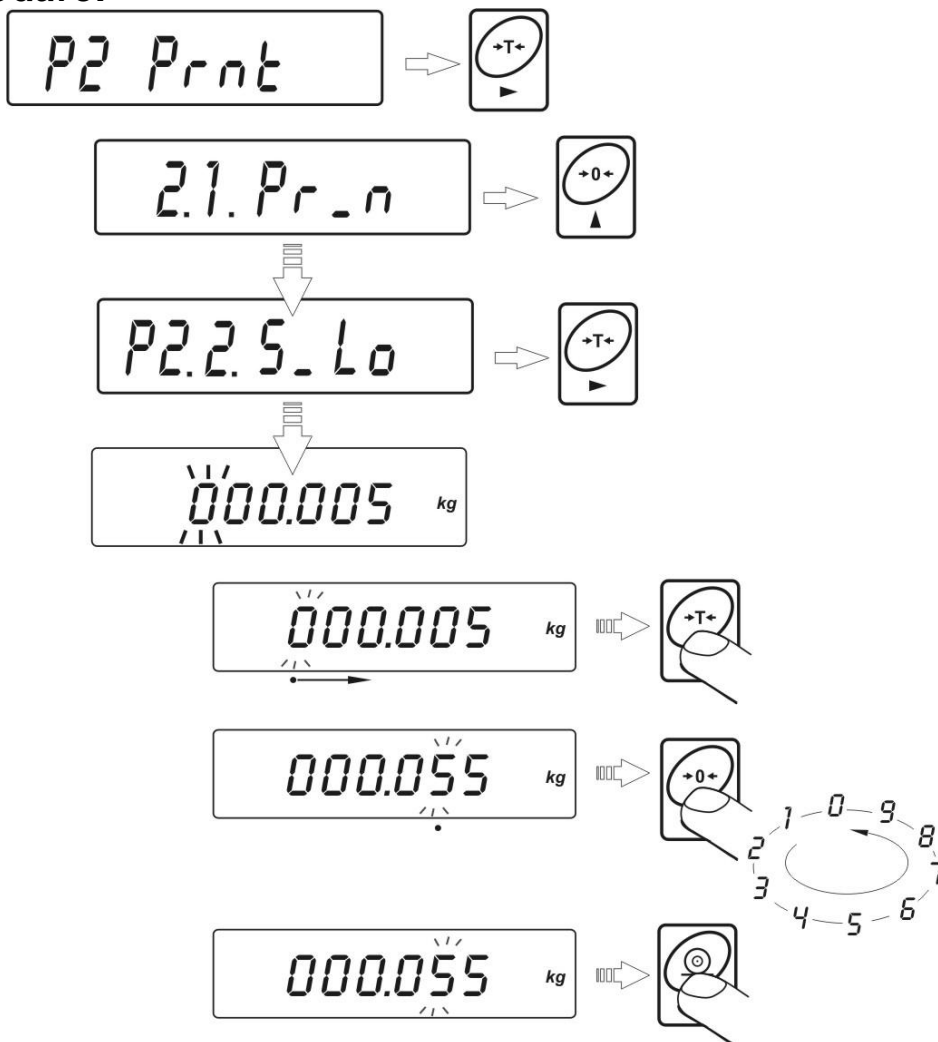
(see - 5.1.2. – return to weighing)

10.2. Determining minimal mass for some functions

This program gives possibility to set function of **automatic tare** or **automatic operation**.

- The next tarring will not be performed unless the measurement (gross) is below the value **S_Lo**.
- For automatic operation the next measurement is not sent until the measurement (net) drops below the inscribed value **S_Lo**.

Procedure:

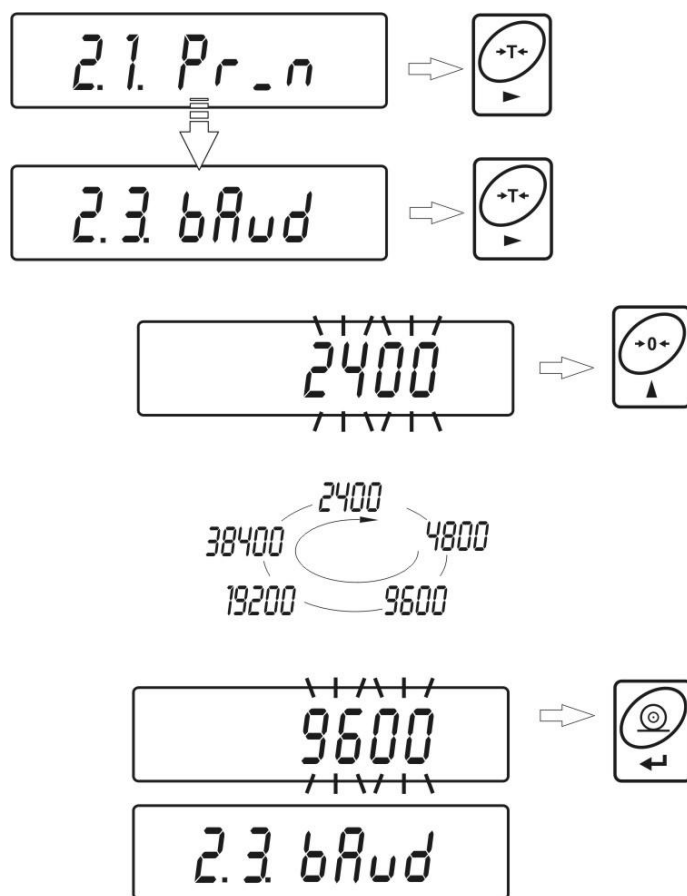


Return to weighing

- (see - 5.1.2. – return to weighing)

10.3. RS232 baud rate

The method of setting the baud rate:

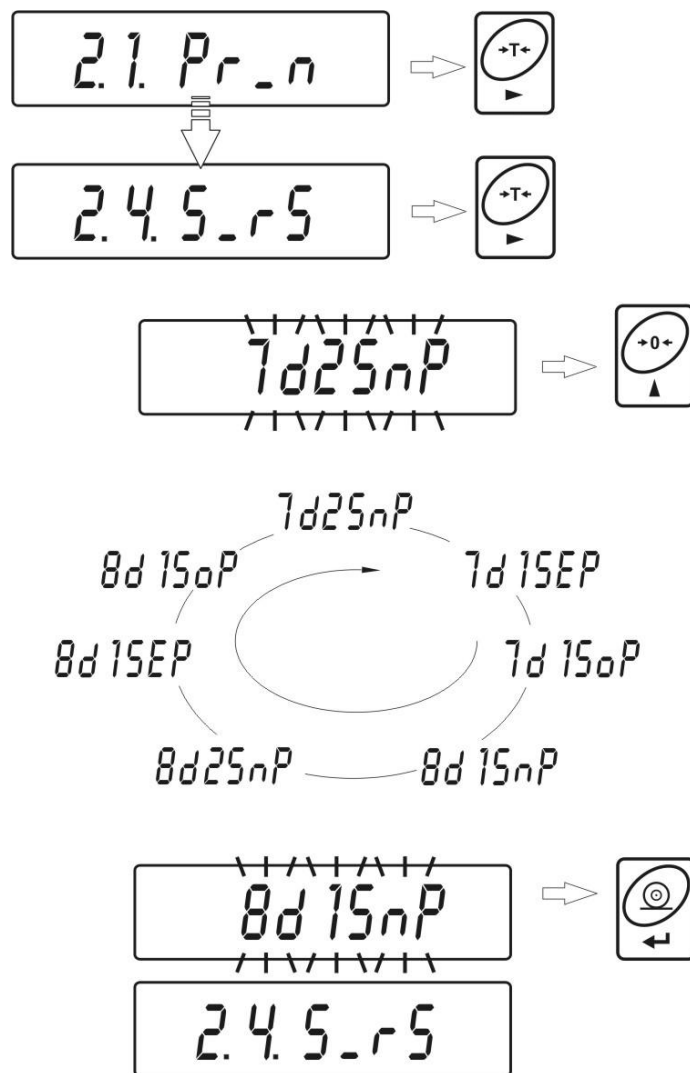


Return to weighing

(see - 5.1.2. – return to weighing)

10.4. Setting parameters of serial transmission

Procedure



- 7d2SnP** - 7 bits of data; 2 stop bits, no parity control
- 7d1SEp** - 7 bits of data; 1 stop bit, EVEN parity control
- 7d1SoP** - 7 bits of data; 1 stop bit, ODD parity control
- 8d1SnP** - 8 bits of data; 1 stop bit, no parity control
- 8d2SnP** - 8 bits of data; 2 stop bits, no parity control
- 8d1SEp** - 8 bits of data; 1 stop bit, EVEN parity control
- 8d1SoP** - 8 bits of data; 1 stop bit, ODD parity control

Return to weighing

(see - 5.1.2. – return to weighing)

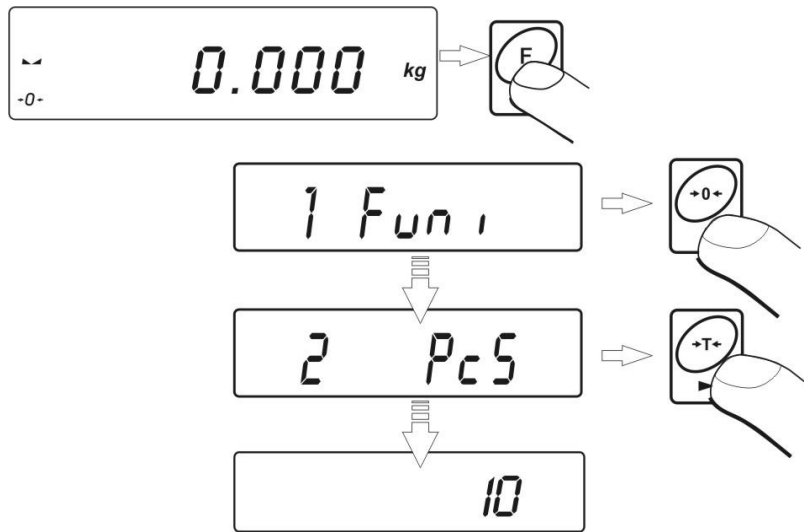
11. OPERATION MODES


11.1. Counting pieces of the same mass

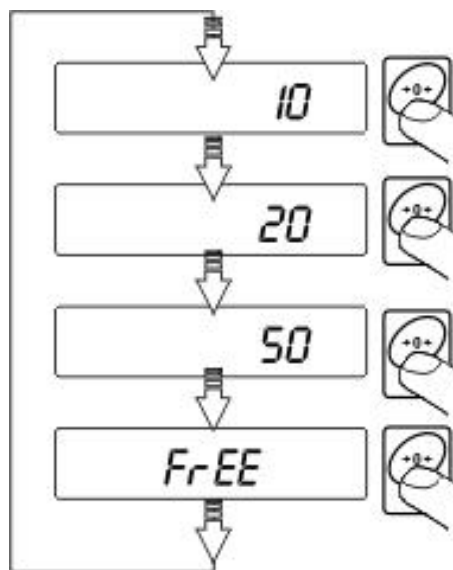
Standard solution is equipped with option of counting small pieces of the same mass. Counting pieces does not operate with other scale functions. It is possible to execute a tare function in this operating mode in order to tare a container value.



To use this option:

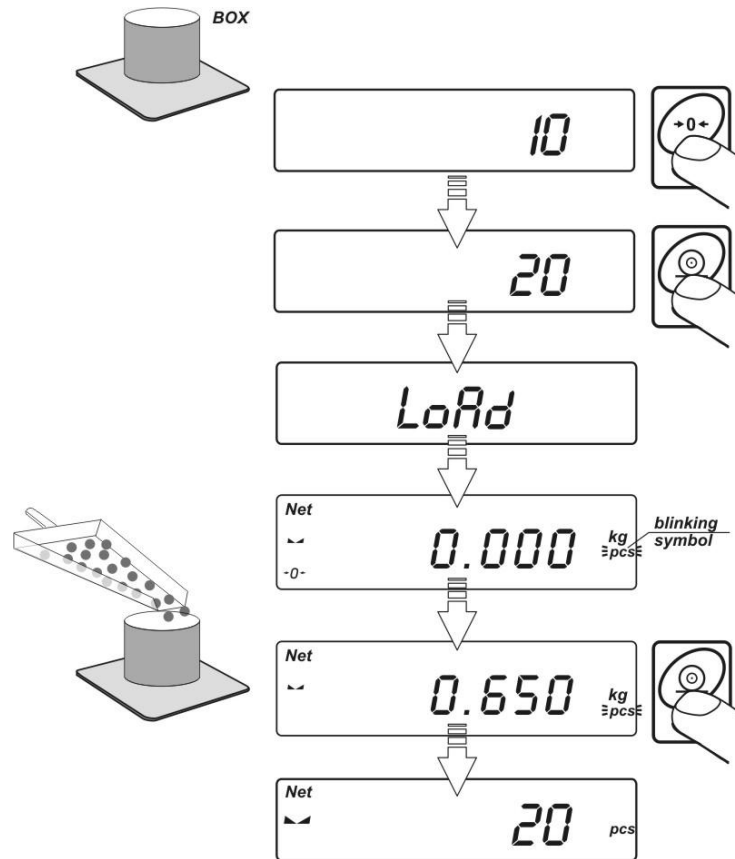
- enter to PIECE function.



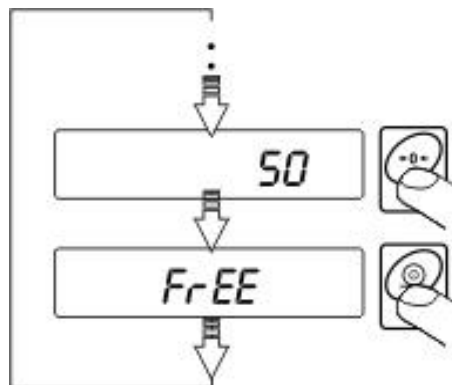
- press  key to start setting quantity of sample, you have a few options to chose from



- pressing  key to choose of value (10, 20, 50pcs. or free)
- if you want to choose one of them e.g. 20pcs press  and proceed as shown in the picture

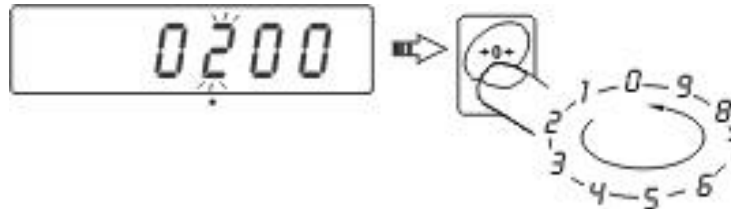


- If the option **FrEE** was chosen, you must enter the quantity of sample, which will serve to determine the mass of a single detail

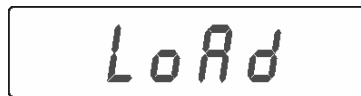




- By pressing **TARE** key you choose digit position to change



- Pressing **ZERO** you change value of digit
 - Confirm the entered value by pressing **PRINT** key
 - The display will indicate a **LoAd** message – place on the pan as many details as entered during option



- Press **PRINT** key – scale will indicate quantity of sample (PCS symbol is active)



- add remaining details, display will indicate their quantity.

Return to weighing

- press **F** twice

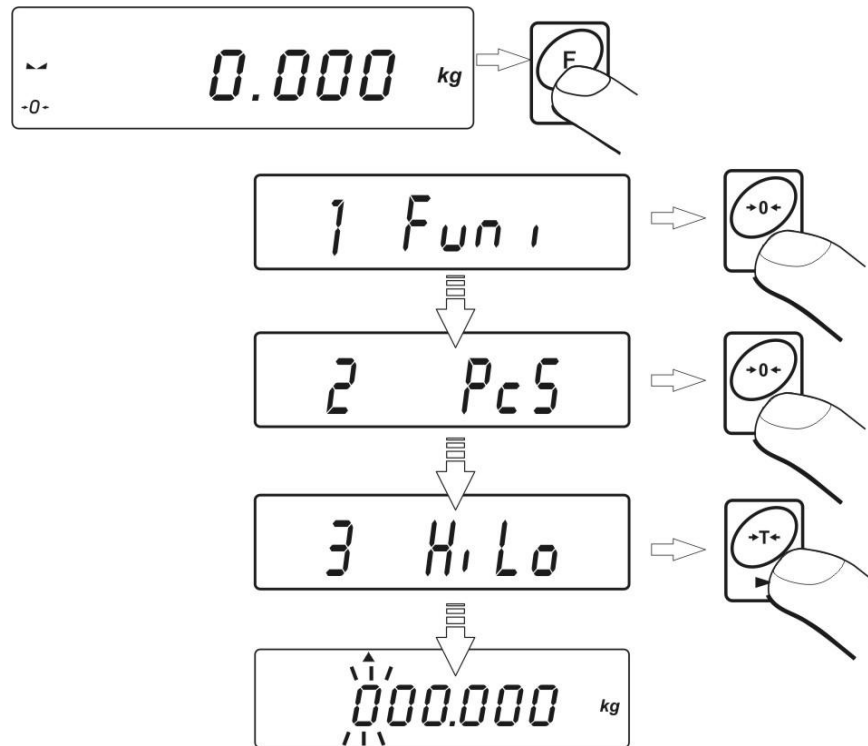
Notice:

*If an user presses the **F** key when details are not present on the pan, the message **-Lo-** will be indicated for a few seconds and the scale will automatically return to weighing.*

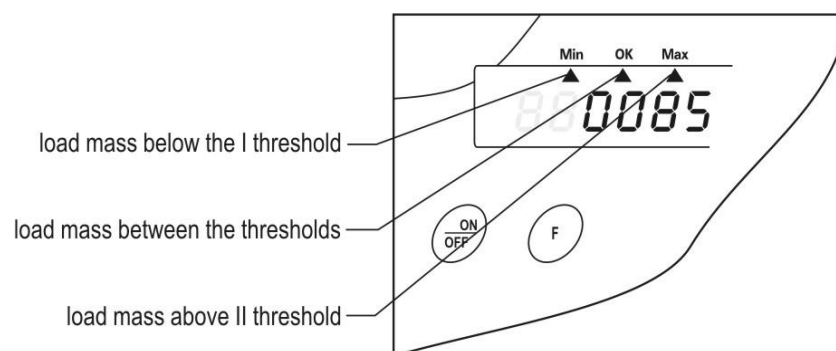
11.2. +/- control referring to the inscribed standard mass

Procedure:

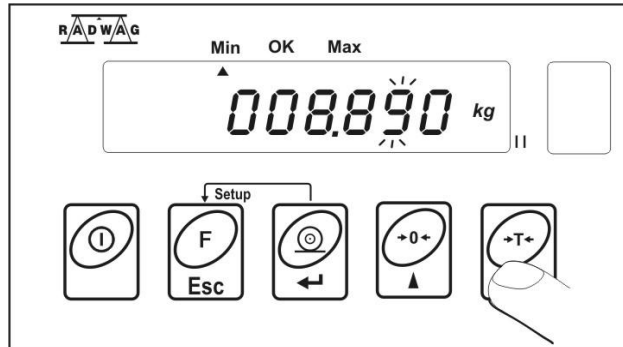
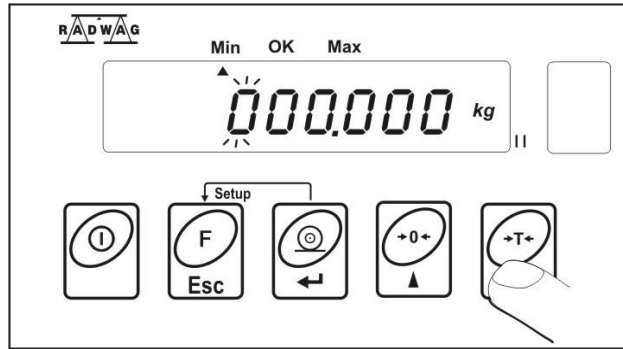
- Enter the function.



During setting threshold values following cases take place:

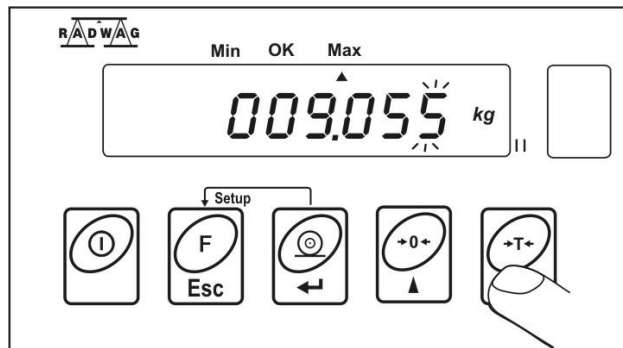
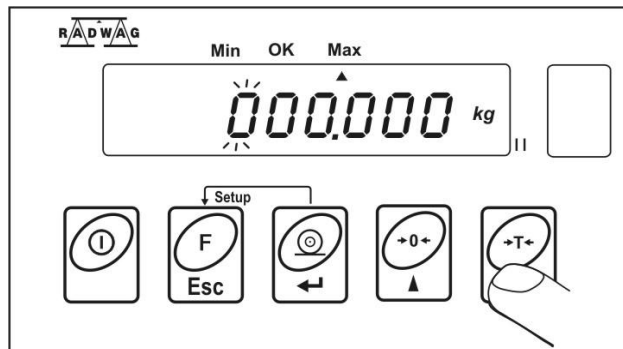


SET LOWER THRESHOLD

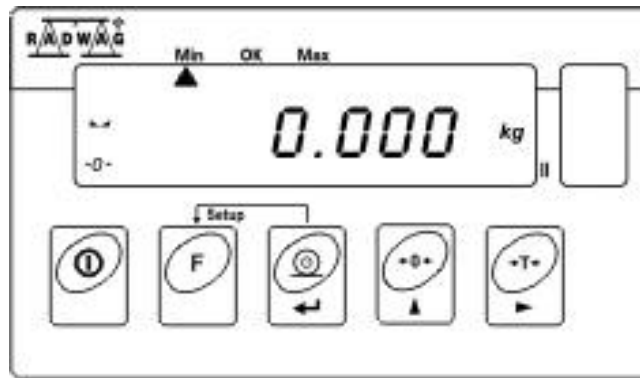


TARE – selection of the digit to set; **ZERO** - selection of the digit value; **PRINT** – confirmation of the entered values

SET UPPER THRESHOLD



TARE – selection of the digit to set; **ZERO** - selection of the digit value; **PRINT** – confirmation of the entered values



NOTICE:

If a user erroneously enters a value of the lower threshold higher than the upper one, the scale will indicate an error message and will return to weighing.

Return to weighing

- Press the **F** key twice

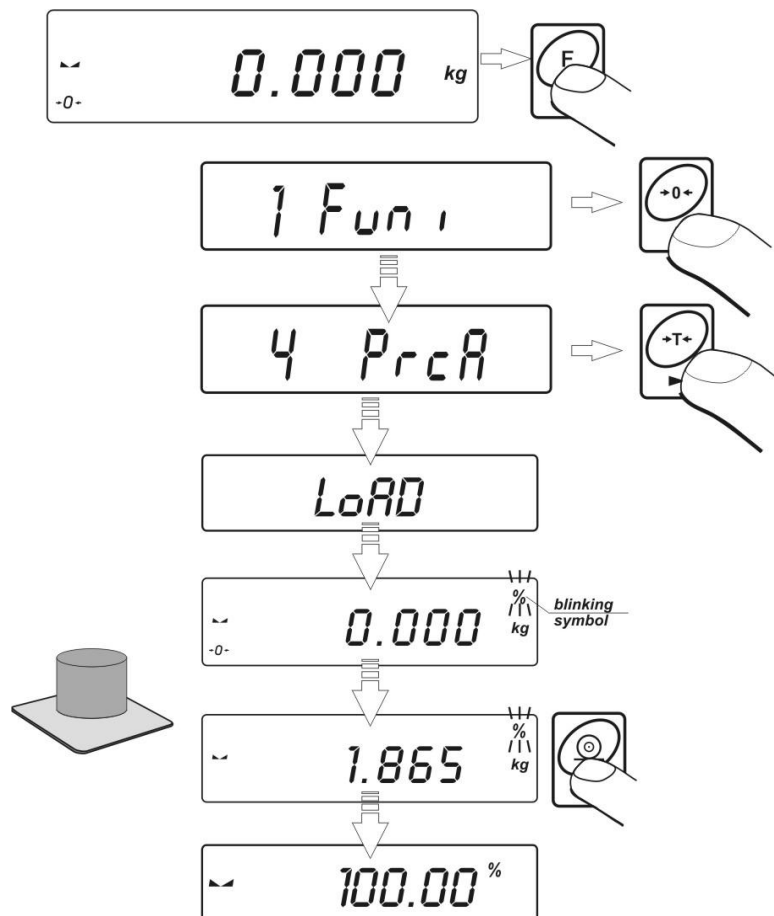
11.3. Control of % deviation referring to the inscribed standard mass

Scale software enables control of deviation (in %) of weighed loads mass referring to the inscribed standard mass. Mass of standard can be determined by its weighing (**PERC A** function) or entered to the scale memory by an user (**PERC B** function)

11.3.1. Mass of standard determined by its weighing.

Procedure:

- Enter the function



- place an load on the pan which mass will be accepted as standard
- press **PRINT** to confirm this operating mode
- after few seconds the indication **100,00%** will be displayed

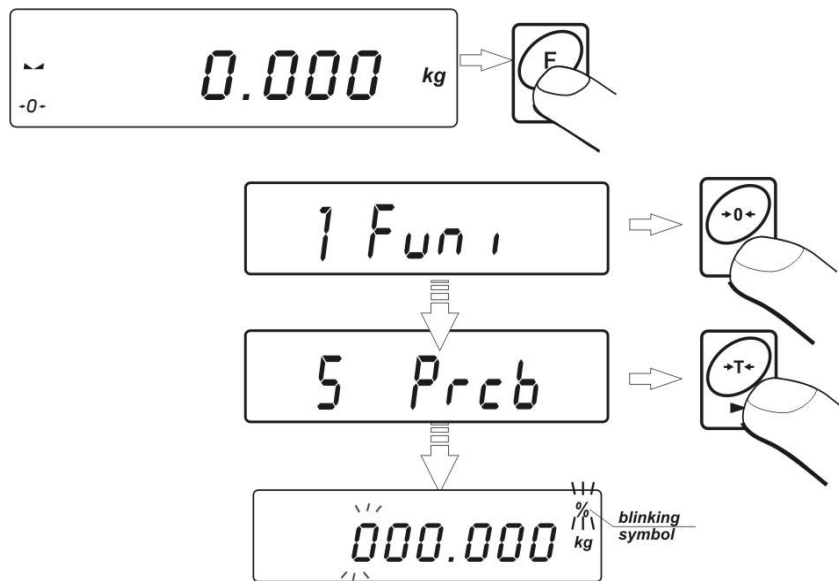
From this moment display will not indicate mass of weighed load but deviation of load mass placed on the pan referring to the mass of standard (in %).

~ 6526 %

11.3.2. Mass of standard inscribed to scale memory

Procedure:

- Enter the function.

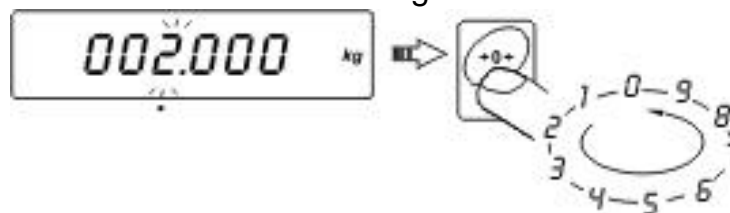


- The display will show an indication as above:
- Using keys

TARE – selection of a digit to set



ZERO - setting the value of the selected digit



set **value of mass of standard**, enter it to scale memory using **PRINT** key – display will indicate: **0,00%**



From this moment display will not indicate the mass of weighed load but deviation of the load mass placed on the pan referring mass of standard (in %)

Return to weighing

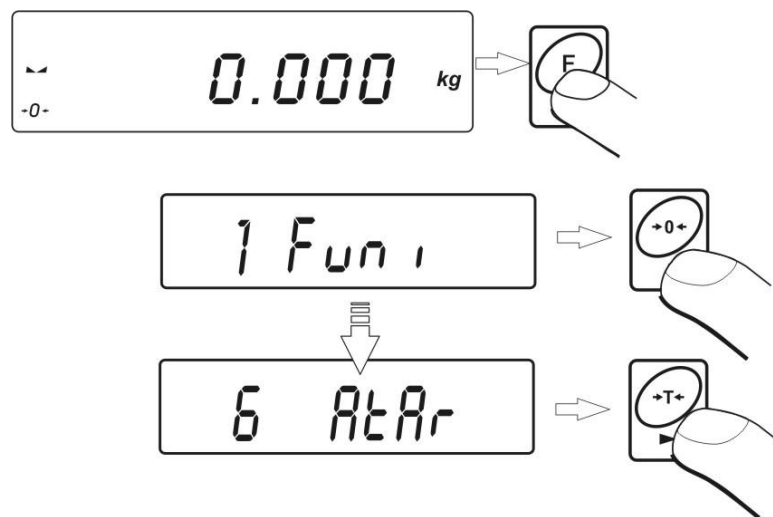
- press **F** twice

11.4. Automatic tare

This function is useful for fast net mass determination of weighed load in case when tare value of is different for each load. In case when the function is active the cycle of scales operating looks as follows:

- press zeroing key when the pan is empty
- place the container for pieces
- when indication is stable **automatic tarring** of the container mass will be performed (**Net** marker will appear in the upper part of the display)
- place a sample into the package
- display will indicate net mass of sample
- remove the sample together with the container
- display will indicate tare mass with minus sign
- place a container for the next sample. When indication is stable automatic tarring will take place (**Net** marker will appear in the upper part of the display)
- place next sample into the package

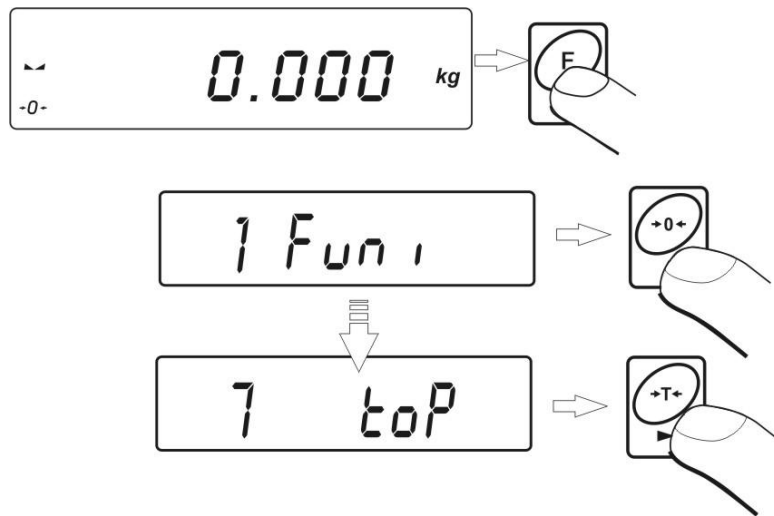
Procedure:



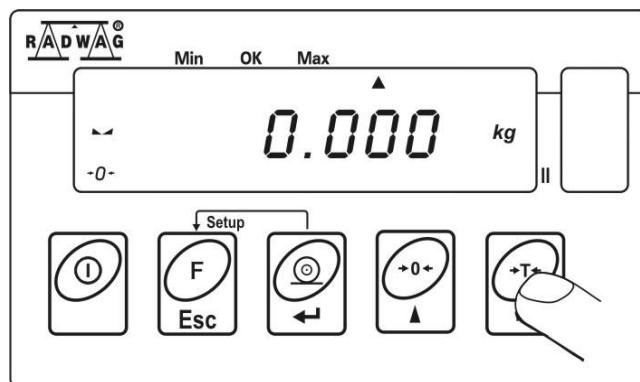
Resignation from function

- press **F** twice

11.5. Measurement max force on the pan – latch



Confirmation of choice of **toP** function is indication of the **Max** pictogram.



- apply a force to the weighing pan. The display of scale will latch the maximum value of the force
- remove loads from the pan
- before the next measurement press the **→0←** key

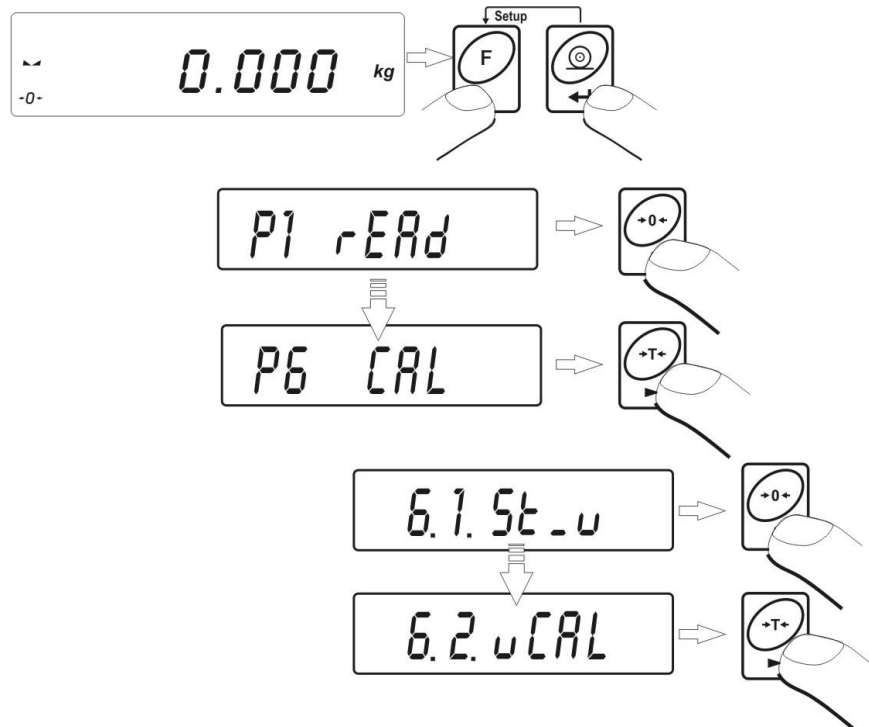
Return to weighing

- press **F** twice

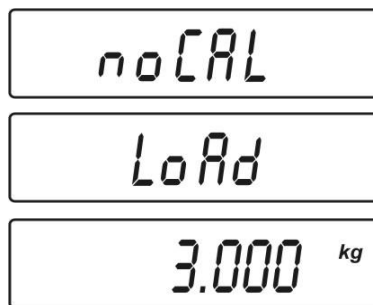
12. USER'S CALIBRATION (option)

Confirmation of high accuracy of weighing requires periodical correcting calibration factors in the scale memory – it is adjustment of the scale. Calibration should be performed when we start weighing or dynamic change of temperature occurs. Before starting calibration remove loads from the pan

12.1. Calibration Procedure



- following inscriptions will appear



A new start mass is adjusted during this period of time. After that a mass of calibration weight is shown (e.g. 3 000kg).

- Put the calibration weight on the weighing pan and press **PRINT**
- Process of calibration will be performed.

CAL

- After completion of the process of calibration the following screen will appear

unLoAd

- take off the weight , then the following sequence of screens will appear.

donE

6.2. uCAL

- return to weighing performing the procedure of saving parameters.

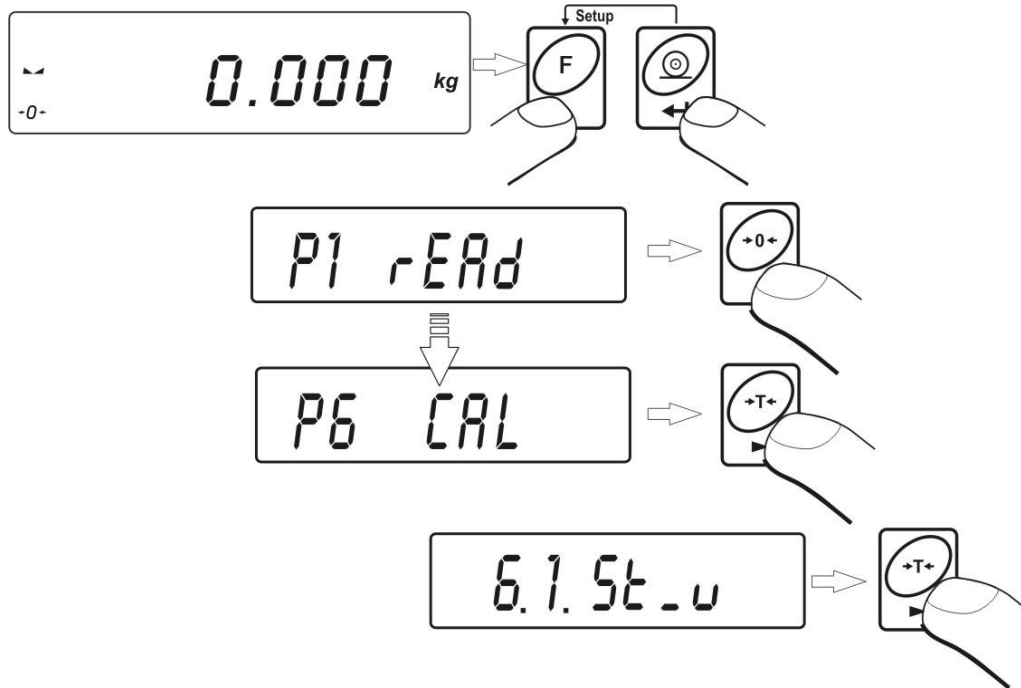
Return to weighing

(see - 5.1.2. – return to weighing)

12.2. Start mass adjustment

If the scale does not require the full calibration process it is possible to adjust only a new start mass.

Procedure



- the display will show the following information

StCAL

donE

- after the completion of the start mass adjustment the following screen will appear

6.1.5t.u

13. COOPERATION WITH PRINTER

Each time the **PRINT** key is pressed a current mass value together with mass units is sent to RS 232 interface.

Depending on setting of **STAB** parameter it can be printed out with temporary or stable value. Depending on setting of **REPL** parameter, printout will be automatic or manual.

One of thermal printer in KAFKA series can cooperate with each platform scales:

a) **KAFKA**

Only result of weighing with mass unit can be printed

b) **KAFKA 1/Z**

This printer is equipped with an internal real time clock. Both date and time can be printed.

c) **KAFKA SQ S**

This printer is equipped with an internal real time clock and possibility of running statistics from measurements. Statistic contents: quantity of samples, sum of masses of all samples, average value, standard deviation, variation factor, min value, max value, difference max - min

14. COOPERATION WITH COMPUTER

Sending weighing results to the computer can be done:

- **manually** - after pressing **PRINT** key
- **in continuous way** – after function activating or sending an appropriate command
- **automatically** – when the result is stable (if **REPL YES** and before placing a load, the scale indicated a value below **Lo** value)
- **on demand sent from a computer** – see List of commands

15. COMMUNICATION PROTOCOL FOR RS232

Table 0-1 A set of commands for Rs232 interface

Commands	Contents
Z	Zeroing
T	Tarring
S	Send the stable result in basic unit
SI	Send the result immediately in basic unit
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
PC	Send all implemented commands

Each command hale to be terminated in CR LF

15.1. 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 _ E CR LF – error while executing command – time limit for stable result exceeded

XX – command name

Command	Space/ 3rd character of command	Stability character	space	sign	mass	space	unit	CR	LF
---------	---	------------------------	-------	------	------	-------	------	----	----

Command – 1 – 3 characters

In case a command includes 3 characters the last character substitutes the following space. This way the length of the frame remains unchanged.

- Stability character – [space] if stable
- [?] if not stable
- [^] if an indication over the range
- [v] if an 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

15.2. Manual printout

Users can generate printouts manually by pressing **PRINT** key

Setting (see - 10.1)



If the scale is verified the immediate printouts are blocked (only stable results can be sent)

Frame form

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

- Stability character – [space] if stable
- [?] if not stable
- [^] if an indication is over the range
- [v] if an indication is 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

15.3. Continuous transmission

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

Continuous transmission setting

(see - 10.1)

- **C1 CR LF** – Switch on continuous transmission in basic unit
- **C0 CR LF** – Switch off continuous transmission in basic unit
- **CU1 CR LF** – Switch on continuous transmission in current unit
- **CU0 CR LF** – Switch off continuous transmission in current unit

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

Stability character

– [space] if stable

[?]

if not stable

[^]

if an indication over the range

[v]

if an 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

16. ERROR COMMANDS

"Err2" - value beyond the zero range

"Err3" - value beyond the tare range

„Err4” – Calibration mass or start mass beyond the acceptable range
($\pm 1\%$ for weight, ± 10 for start mass).

„Err5” – Mass of a single piece lower than the scale division.

"Err7" – power down time was too short (should be over 3s)

"Err8" – operation time exceeded taring/zeroing

„NULL” – zero value from the AD converter

„FULL2” – measurement range overflow

„LH” – start mass error, the mass on the weighing platform is beyond
the acceptable range ± 10 of start mass.

17. TECHNICAL PARAMETERS

Type *	WPT 3C1	WPT 6C1	WPT 10C1	WPT 5C	WPT 12C	WPT 24C	WPT 30/60C
Maximum capacity	3kg	6kg	10kg	5kg	12kg	24kg	60kg
Minimum capacity	1g	2g	2g	4g	4g	10	10g
Reading Division	0,05g	0,1g	0,1g	0,1g	0,2g	0,5g	1/2g
Tare range	-3kg	-6kg	-10kg	-5kg	-12kg	-24kg	-60kg
Operating temperature range	-10°C ÷ 40°C						
Power supply	230 V AC / 11 V AC						
	Option: internal rechargeable battery pack 12 V			Standard 6xR6 alkaline batteries			
Pan size	165 x 165mm			250 x 300mm			
RS 232 interface	standard						

* - scales with internal battery pack are marked as **WPT xx/CA**

*Instruction number
LTI-04-01/03/06/A*

MANUFACTURER
OF ELECTRONIC WEIGHING EQUIPMENT



RADWAG 26 – 600 Radom
Bracka 28 Street
POLAND

Central phone +48 48 38 48 800
phone/fax. + 48 48 385 00 10
Sales Department + 48 48 366 80 06
www.radwag.pl



DIN EN ISO 9001:2000
CERTYFIKAT Nr 71 100 C206