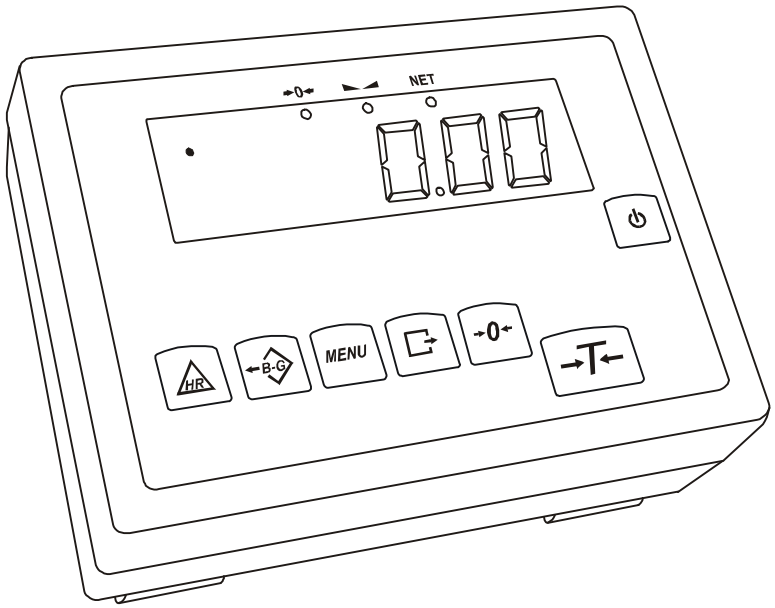


SE-01 INDICATOR

Engineering documentation

File DTR-SE01-039-06-09 B-42 GB

Contents:

1 General information

The Se-01 meter is the ready subassembly, designed for single- or double-range balances, using the extensometer force sensors.

The meter is used in few types, differing in housing structure and displays size:
- SE-01/A/18 – OSA aluminium housing, powder coated, displays 18 mm (LED) or 14 mm (LCD)
- SE-01/N/18 – OSN stainless steel housings, hermetic (IP65), displays 18 mm (LED) or 14 mm (LCD)
- SE-01/N/25 – ODN stainless steel housing, hermetic (IP65), displays 25 mm (LED) or 14 mm (LCD)

As a standard, the SE-01/A/18 is a subassembly of platform B series balances, the SE-01/N/18 – of stainless and hermetic balances, the SE-01/N/25 – of platform 4B balances produced by AXIS.

Each meter has the set of special functions: automatic zeroing, pieces counting, comparing with threshold values, etc., which may be available for the user or not – according to the order.

In the further manual part the SE-01 meter operation is described, as the part of complete balance.

2 Certificates

Test certificate of SE-01 indicator (No PL CB 1) was issued by Main Office for Measurements in Warsaw (Notified Body No 1440).

SE-01/N/18(25) indicators are of IP65 protection class, confirmed with the research carried out by The Research Laboratory of The Electrotechnology Institute in Gdańsk, accredited by Polish Centre for Accreditation.

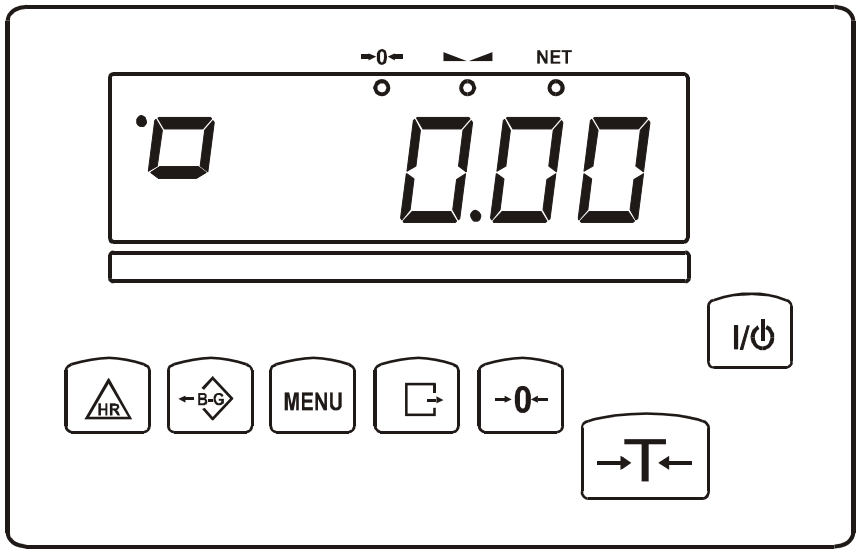
The indicator may be used as a base for scales conforming EN 45501 Metrological aspects of non-automatic weighing instruments harmonized with the Council Directive 90/384/EEC amended with 93/68/EEC.

NACE Classification: 29.24.23.

3 Completeness

A standard set consists of:
1. SE-01 indicator
2. Ferrit TN/20/10/7-3C90– 1 pcs
3. Ferrit TN/16/9,6/6,3-3E27 – 2 pcs
4. RS232C connector (option with RS232C, indicator SE-01/N/18 and 25)
5. SE-01 indicator engineering documentation
6. Guarantee card
7. Mounting guide (on demand)

4 Keys and indicators

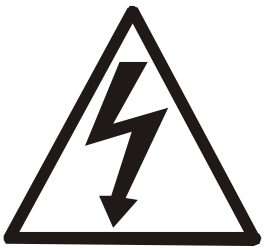


key	I/⏻	- switch-on / switch-off (standby),
key	→T←	- tare (subtract package weight from weighed mass),
key	→0←	- zeroing (when the platform is empty),
key	⎘	- result printout,
key	*MENU*	- special function menu,
key	*B/G*	- gross,
key	*HR*	- high resolution,
indicator	→0←	- zero indicator,
indicator	⌣	- result stabilization indicator,
indicator	*NET*	- net weight indicator (indication with subtracted tare)
indicator	▪	- gross mass (after use of B/G key),
indicator	▫	- indicator of pieces counting (indications in pieces)

LCD option:

indicator	*MODE*	- special function setting,
bar indicator		- total load indicator (graduated 0-100%)
indicator	*OFF*	- standby,
indicator	*B/G*	- gross mass (key B/G),
indicator	*pcs*	- pieces counting
Max, Min, d, e, III		- metrological parameters and accuracy class.

5 Security rules



To avoid electrical shock or damage of a scale or connected peripheral devices, it is necessary to follow the security rules below.

1. All repairs and necessary regulations can be made by authorized personnel only.
2. To avoid fire risk use a feeder of an appropriate type (supplied with a scale). Pay attention that supply voltage is compatible with specified technical data.
3. Do not use a scale when its cover is opened.
4. Do not use a scale in explosive conditions.
5. Do not use a scale in high humidity.
6. If a scale seems not to operate properly, plug it out of the mains and do not use it until checked by authorized service.

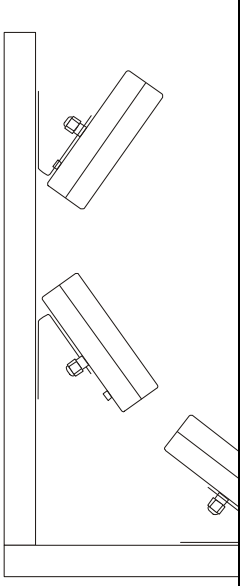
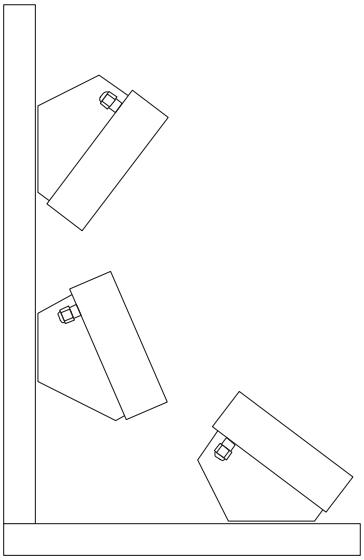
6 Technical data

Parameter	SE-01/A	SE-01/N/18	SE-01/N/25
Max verification units number	6000e (3000e/range - in multi range scale)		
Part of error(pi)	0,5		
Accuracy class	III		
Readability (d)	1, 2, 5, 10, 20 (g. dkg, kg)		
Verification unit (e)	free		
Tare range	full		
Input signal range	2,4÷9,5mV (option 10mV) 4,8÷19mV (option 20mV) 9,6÷38mV (option 40mV) 19,2÷72mV (option 80mV)		
Minimal input signal (ΔUmin/e)	0,4μV/e		
Working temperature	-10÷40°C		
Max sensor number	6szt.		
Sensor excitation	5V AC 25Hz		
Sensor impedance range(RL)	40÷4000Ω		
Sensor connecting	system 4 or 6-line for sensor system 6- line for sensor		
Maximal cable length (l/S)	75m/mm^2		
Opto-isolator output load capacity (option)	100mA, 24V		
Casing option	OSA	OSN	ODN
Dimensions	190x140x70mm	200x146x77mm	238x182x77mm
Casing security level (IP)	-	IP65	IP65
Power supply	230V, 50Hz, 6VA		
Weight	1,8kg	2,3kg	2,3kg

The available ranges of double-range balances:

Maximum load (Max2/Max1)	15/6kg	30/15kg	60/30kg	120/60kg	150/60kg	200/60kg	300/150kg
Minimum load	40g	100g	200g	400kg	400g	400g	1kg
Readability (d2/d1))	5/2g	10/5g	20/10g	50/20g	50/20g	100/50g	100/50g
Verification units (e2/e1)	5/2g	10/5g	20/10g	50/20g	50/20g	50/20g	100/50g

The metrological parameters of the balance are indicated on the rating plate.

Installation	SE-01/A	SE-01/N/18	SE-01/N/25
Installation system			
Fixing	2 holes Φ5, spacing 59mm	2 holes Φ5, spacing 6.30in	2 holes Φ5, spacing 7.99in

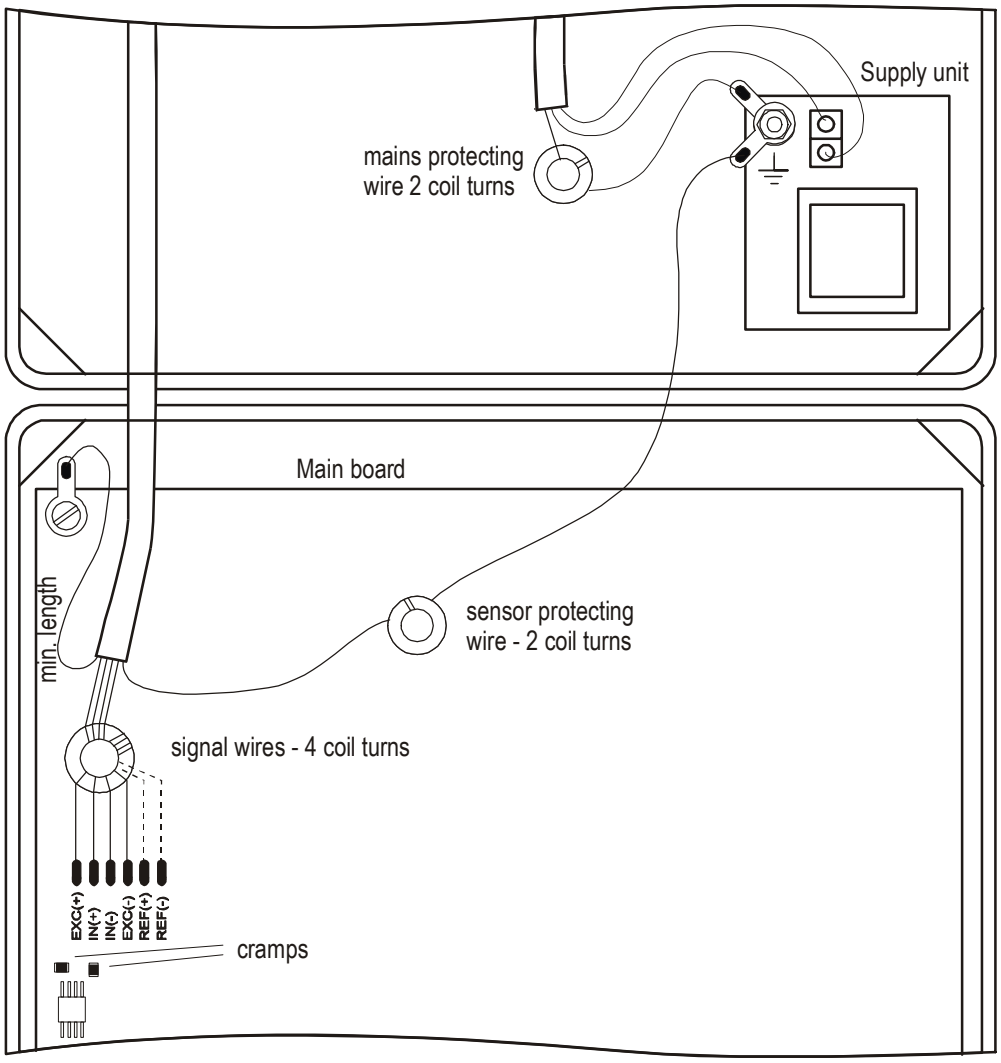
7 Preparations

1. To build a scale basing on SE-01 indicator contact authorized manufacturer service point or use Installation Guide delivered with the indicator.
2. The manufacturer gives a full guaranty for SE-01 indictor only when the indicator was mounted by AXIS Sp. z o.o. In other cases the guaranty obligation is taken over by the final contractor of the weighing device.

Before connecting the sensors to the indicator unplug the device from the mains to avoid damaging the indicator!

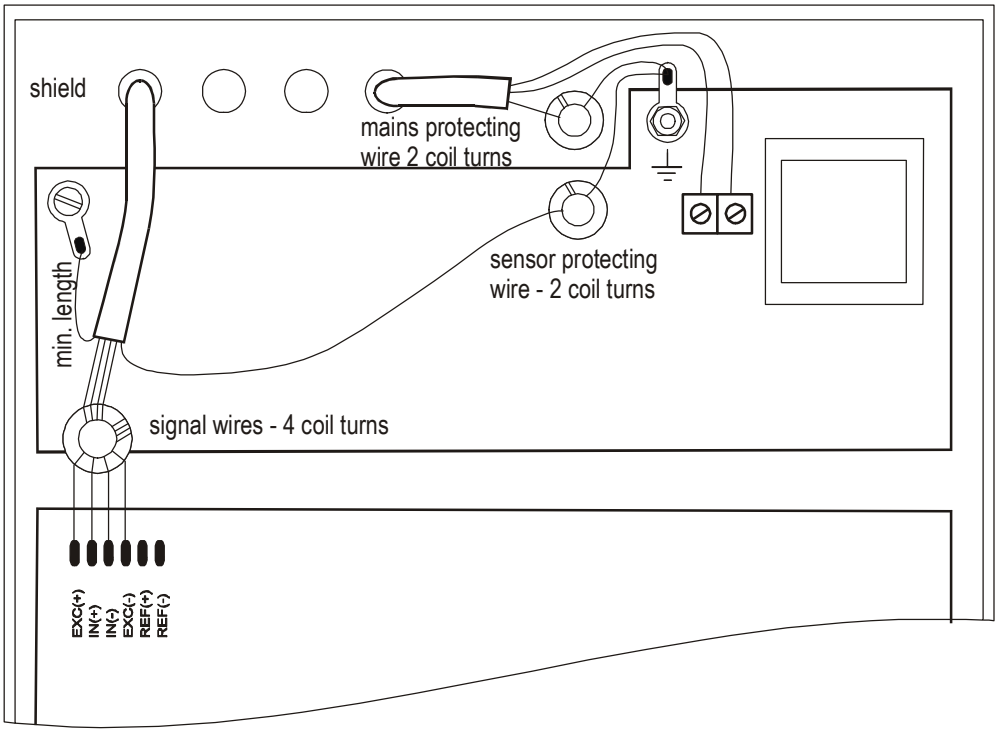
To comply CE marking requirements, for connecting the wires use filtering cores delivered with the indicator, appropriate for signal type: sensor(s) wires – ϕ20mm core, protecting wires - ϕ16mm (see the diagram below). The cores should be placed within 30mm from the place of its connection.

Electric diagram SE-01/A:



When 6-wires connection of strain gauge transducers is used (REF+ and REF-) jumpers shown on the picture above should be soldered out from the main board.

Electric diagram SE-01/N/18 and SE-01/N/25:

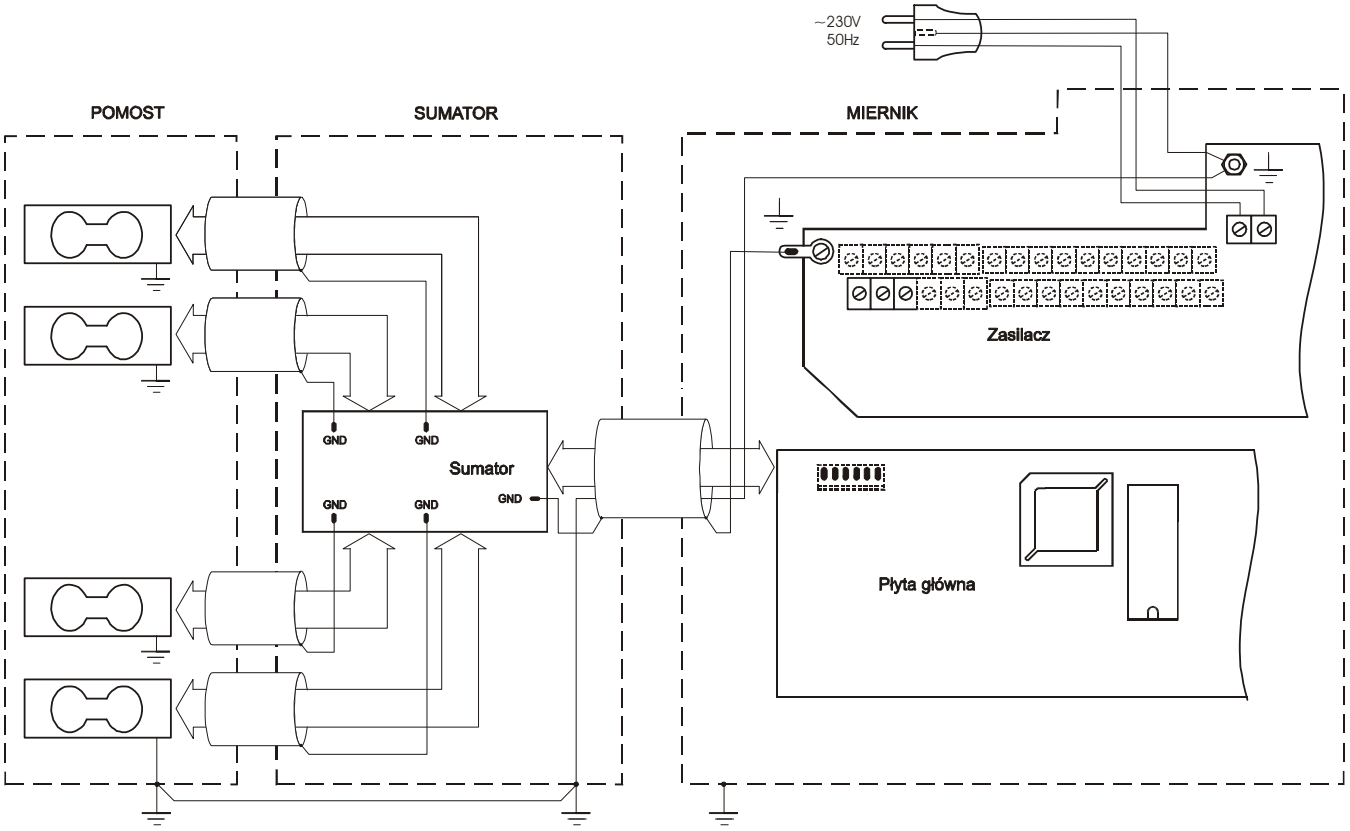


1. Connect the external devices cables to the meter sockets, or in the SE-01/N/.. meters to the board strip inside the meter, using the hermetic penetrations in the housing (the SE-01/N.. strip drawing is shown below).

All devices should be powered from the same line (phase) 230V.

To feed the scale use only mains socket with ground contact.

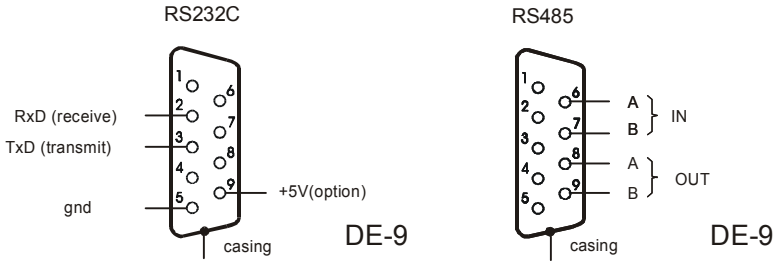
Diagram of common wires and shields in the platform balances:



Caution:

The galvanic connection of sensors and adder housing is necessary.

7.1 Comunication interfaces



In SE-01/A/18 indicator an interface is placed on indicator's housing. In SE-01/N/... indicators interfaces are ends of wires which go out from an indicator.

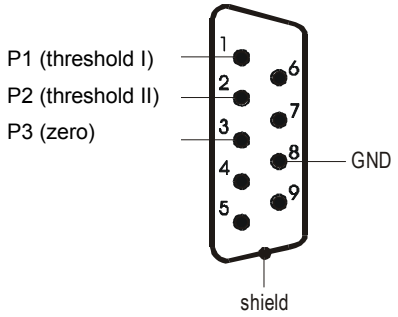
Attention:

1. To connect scale's wire with RS232C interface (described above) to a computer, RS232C adapter should be used which is included as the equipment of SE-01/N/18 and SE-01/N/25 indicators (electric diagram of RS232C adapter is the same as WK-1 wire).
2. In case of using the scanner, the RS232C port is divided into two separate connectors. Receiver and 5V power supply are for the scanner, and transmitter for the computer.

7.2 Transmitter interface

P1-P3 (THRESHOLDS) outputs are used to connect dosing or signaling (option) devices. There are opto-isolators of an open collector type with 100mA / 24V maximum load. They can be connected directly to transmitters inputs or to MS3K/P board offered by AXIS separately or in ST 3K/P control box (3 transmitters, own power supply).

In SE-01/A/18 indicator THRESHOLD interface is placed on indicator's housing.

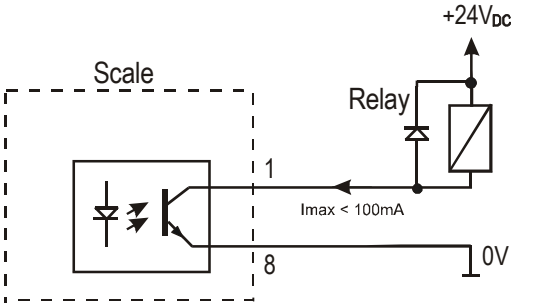


In SE-01/N/... indicators outer wires have digital markers.

Marker No.	Signal	Wire color*
1	P1 (I threshold)	green
2	P2 (II threshold)	white
3	P3 (zero)	brown
10	GND (indicator ground)	black or yellow

* colors can be changed

Diagram for direct connect a transmitter to THRESHOLD output:



* in option without an interface – 10 is in the place of 8

Outputs are adapted for direct connect RM96P transmitter of DC24V input voltage and AC250V 8A output. Transmitter's coil has to be secured with diode e.g. 1N4148.
It is recommended to use MS 3K/P electronic board (3 transmitters of RM96P type – max. load of 3A/250V) or complete ST 3K/P control (feeder, 3 transmitters like above).
The way THRESHOLD outputs work is described in the separate document (*Special functions description*).

7.3 External key interfaces

The input of external keys allows to place (make double) selected scale keys into control box or operator's workstation. As a standard the input is taken out with a wire for direct connect to a control panel. SE-01/A/18 indicators can be equipped with external key interfaces (as an option on demand).

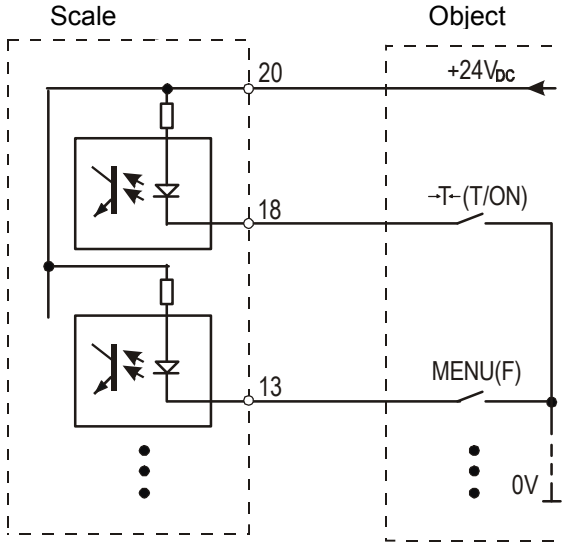
External keys require external 24V DC feeder, which ensure galvanic isolation of a scale from automatic systems.

Marker numbers and outer wires colors of SE-01/N/18 (SE-01/N/25) indicators:

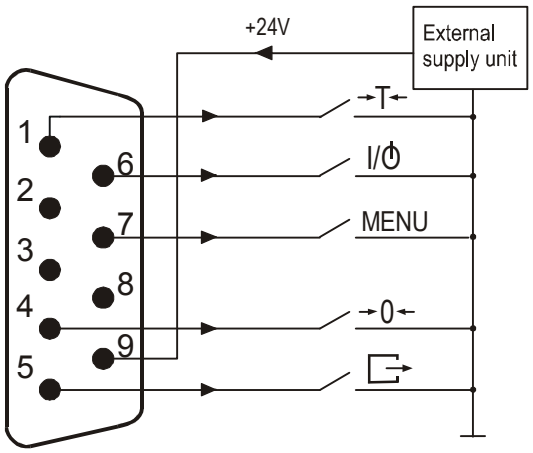
Marker No.	External keys inputs	Wire color*
12	⊏→ (P)	yellow
13	MENU (F)	brown
15	→0←	green
18	→T← (T/ON)	white
20	+24V (voltage of external feeder)	pink
21	I/⏻ (⏻)	blue
22	HR	red
23	B/G	violet

* colors can be changed

External keys connecting – standard configuration:



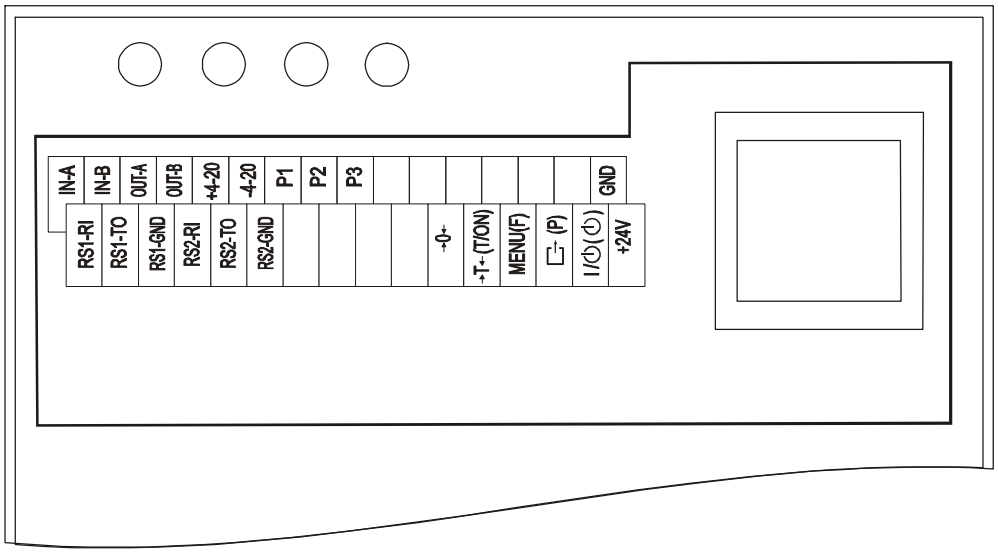
External keys connecting – the option with an interface:



7.4 Strip for connecting external devices

Inside SE-01/N/18 and SE-01/N/25 indicators housing there is a strip with communication ports, transmitters and external keys connections on it.

The draft of SE-01/N/18 (SE-01/N/25) indicators strip:



Strip description:

IN-A(+), IN-B(-), OUT-A(+), OUT-B(-)	- input and output of RS485 interface,
+ 4-20	- (+) analog output 4-20mA (optionally 0-10V or 0-20mA),
- 4-20	- (-) analog output 4-20mA (optionally 0-10V or 0-20mA),
P1-P3(THRESHOLDS)	- opto-isolator outputs for transmitters,
GND	- external ground (opto-isolators emitters),
RS1 - RI, TO i GND	- main RS232C interface (e.g. for a computer),
RS2 - RI, TO i GND	- additional RS232C interface (e.g. for a printer),
→0←, →T←, MENU, ⮆, I/⏻ →0←, T/ON, F, P, ⏻	- external keys inputs,
+24V	- an input of external feeder voltage input supplying opto-isolators.

8 General Rules

1. After switching-on the power, the scale proceeds with self-tests and zeroing the scale. During start-up the scale should not be loaded (does not apply to tank scales, where scales are not zeroed after start-up).
2. Before each measurement make sure that zero indicator is displayed. If zero indicator does not displayed or "----" communicate appears, press →0← key and wait until zero indication and zero indicator appears.
3. The scale is equipped with a tare equal to its range. To tare the scale press →T← key. Storing a tare value does not extend measuring range, but only subtracts it from a load placed on a pan. If the scale is not loaded →T← key does not operate – to zero the scale press →0← key.
4. Weighing result should be read when the indicator "▂ ▂" lights, which signalizes stabilization of a result.
5. Weighed sample should be placed in the centre of the platform.

Do not drop weighed objects on the platform!

Do not overload the scale more then 20% of maximum load (Max).

6. Protect the scale against dust, aggressive dusts and liquids. To clean it is advised to wash the scale with water and dry it afterwards.
7. Each indicator may be equipped on demand with a set of special functions: constant tare, total weight and many more.

9 Indicator cooperation with other systems

Opto-isolators outputs of P1-P3 signals (open collector) are destined for external signaling or dosing devices control. Interface work is controlled by function of comparing with threshold values (*tHr*).

10 Cooperation with computer or printer

In indicators equipped with one serial RS232C (RS485) interface there are two possible modes of interface work:

Standard mode

The scale sends weighing result when initial signal form computer appears or ⇨ key of the scale is pressed.

Automatic mode (for cooperation with a printer)

Data is sending automatically after a sample is put on and scale indication becomes stable. Next transmission is possible after sample is taken off. Successive measurement number and weighing result are sending.
The choice of serial interface work mode is made by use of *LPt* special function (see further).

The description of data transmission protocol in standard mode (Long protocol)
A scale sends data with following settings:
Communication parameters: 8 bits, 1 stop bit, no parity, baud rate 4800bps.

Available orders and scale responses:

- initialising signal (data send order):
  Computer→Scale: S I CR LF (53h 49h 0Dh 0Ah),
  Scale→Computer: scale response according to description below (16 bytes),

  Description of response bytes:

Byte	1	-	sign or space
Byte	2	-	space
Byte	3÷4	-	digit or space
Byte	5÷9	-	digit, decimal point or space
Byte	10	-	digit
Byte	11	-	space
Byte	12	-	k, l, c, p or space
Byte	13	-	g, b, t, c or %
Byte	14	-	space
Byte	15	-	CR
Byte	16	-	LF

- scale tarring (calling →*T*← key press):
  Computer→Scale: S T CR LF (53h 54h 0Dh 0Ah),
  Scale→Computer: without response,

- scale turning on / off (calling I/⏻ key press):
  Computer→ Scale: S S CR LF (53h 53h 0Dh 0Ah),

Scale →Computer: without response,

- scale zeroing (calling *→0←* key press):
  Computer→ Scale: S Z CR LF (53h 5Ah 0Dh 0Ah),
  Scale →Computer: without response,

- entering to special function menu (calling *MENU* key press):
  Computer→ Scale: S F CR LF (53h 46h 0Dh 0Ah),
  Scale →Computer: without response,

- setting low threshold value:
  Computer→ Scale: S L *D1...DN* CR LF (53h 4Ch *D1...DN* 0Dh 0Ah)
  D1...DN – threshold value, maximum 8 characters („-" – negative value, digits, dot – decimal separator), number of digits after dot should be the same as on scale display,
  Scale →Computer: without response,
  Example:
  · in order to set low threshold 1000g in scale B1.5 (d=0.5g) the following order should be sent:
  S L 1 0 0 0 . 0 CR LF (53h 4Ch 31h 30h 30h 30h 2Eh 30h 0Dh 0Ah),
  · in order to set low threshold 100kg in scale B150 (d=50g) the following order should be sent:
  S L 1 0 0 . 0 0 CR LF (53h 4Ch 31h 30h 30h 2Eh 30h 30h 0Dh 0Ah),

- setting high threshold value:
  Computer→ Scale: S H *D1...DN* CR LF (53h 48h *D1...DN* 0Dh 0Ah),
  D1...DN – threshold value (see)
  Scale →Computer: without response.

Note:
Network number different than zero (*F..-rS / nr* function) changes scale working mode: communication with a computer is possible after logging the scale in with 02h scale_number command. To log the scale out use 03h command.

The description of data transmission protocol in automatic mode
Every time weighing is done in the moment when indications becomes stable the scale sends successive three-digit number (counter value) and result of the weighing. If an indication is zero there is no transmission from the scale. Weighing counter is cleared after each choosing of automatic mode (see further – *LPt* function).

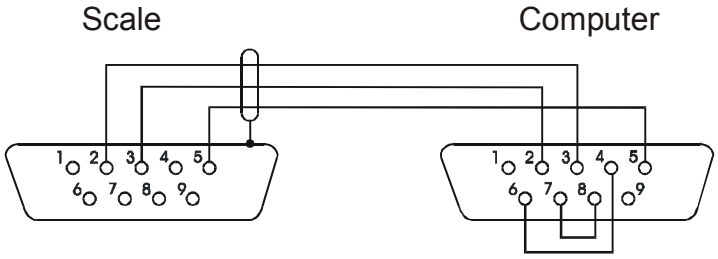
The sequence of sending values is the following:

1. Three digits of successive measurement number(digits are sending in order form highest to lowest).
2. Two space characters separating a number from scale indication.
3. Scale indication (as in *LONG* protocol).

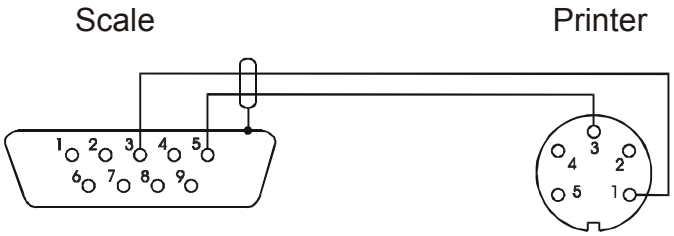
Scanner operation method description (option)

Each time, when the scanner sends the 16-character record, containing the operator name or code, preceded with the EOT (04H) prefix.

Connecting cable WK-1 *(scale – computer / 9-pin):*



Connecting cable WD-1 *(scale – Kafka printer):*



Internal switches settings of KAFKA printer:

SW-1	SW-2	SW-3	SW-4	SW-5	SW-6	SW-7	SW-8
on	off	on	off	off	on	off	off

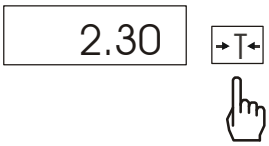
AXIS offers computer programs for cooperation with scales which description and demo versions are available on www.axis.pl website. Furthermore a free program for testing of scale serial interface is also placed there.

11 Basic functions

To make clear how to manage with each function, in further part of instruction descriptions are replaced with pictures.

- put a load on the pan

- remove the load from the pan

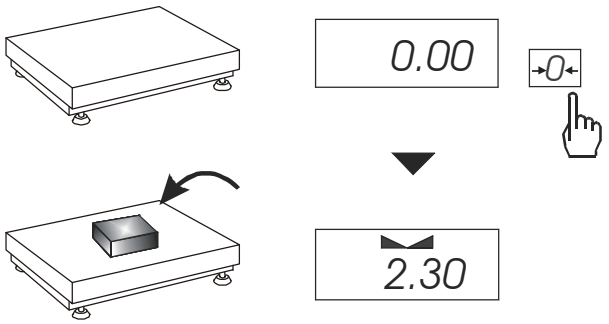


- press the key when indication is displayed

- forced change

- automatic change

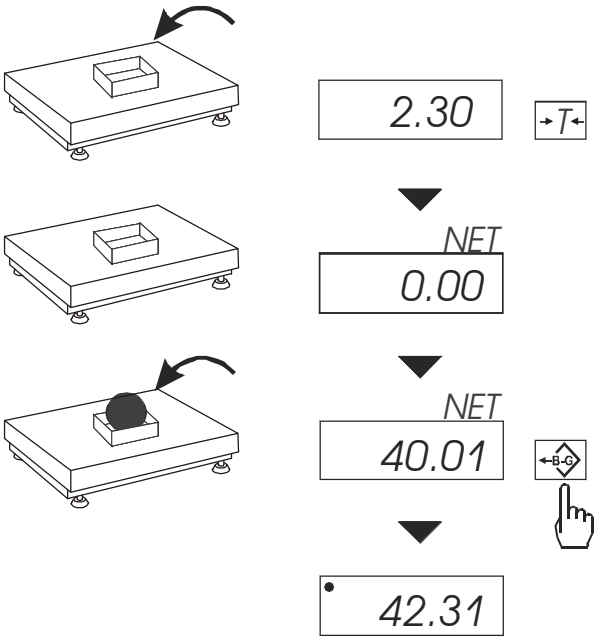
11.1 Normal weighing



Press *→0←* key (*→T←* key in non-legalized scales*)*, which zeros the scale, operates only when the pan is empty .

Weighing result should be read when the indicator "▬" lights.

11.2 Weighing with tare



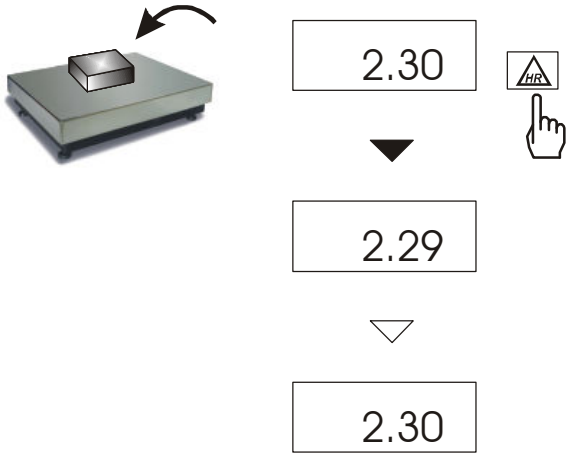
The scale is equipped with tare equal to its range.

Joint value tare and mass net can not cross a maximum of scale.

To display gross weight press *B/G* key.

Note:
Press *B/G* key to return to net weight indication.

11.3 Increased readibility



Press *HR* key to display the weighing result (for 5s.) with the highest readability possible. This function is especially helpful in scales with legal verification with d=e.

The weighing result with increased readability can be used for informational purposes only and cannot be printed or sent to a computer with ⮆ key.

12 Special functions

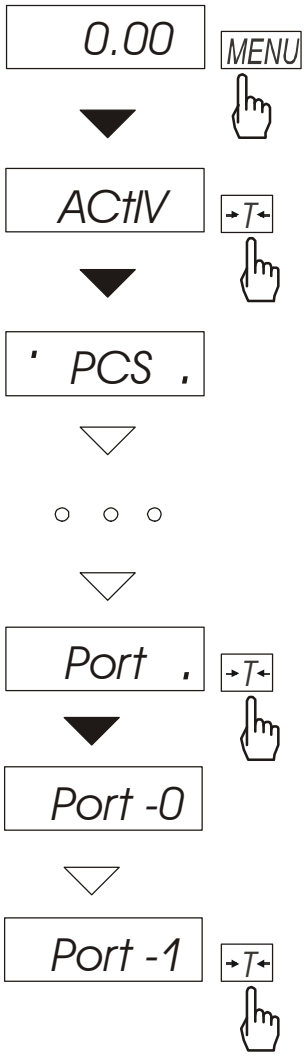
List of available functions:
- menu customization function (*ACtIV*),
- removal of all function from menu (*dEFAUL*).
- autozeroing function (*AutoZE*),
- pieces counting function (*PCS*),
- function for setting serial port working (*PrInt*)
- function for setting serial port (*Port*)
- entering tare function (*tArE*)
- recipe weighing function (*rECIPE*),
- weighing large animals function (*LOC*)
- force measuring function *(nEWto)*
- maximum value indication function (*UP*)
- anti-disturbance filter function (*FILtEr*)
- average calculating function (*AVErA*)
- percentage weighing function (*PErC*),
- extended calibration function (*CALIb*)
- setting time of stabilisation function (*Stb*)
- selecting label number function (*LabEL*)
- automatic switching off scale function (*AutoOF*)
- entering reference zero (*Zero*)
- determining solids and liquids density function (*dEnSIt*)
- calculator for good packaging control (*tP*) - option*
- statistical calculations *(StAt)*- option*
- paperweight calculation function *(PAP)* - option*

function with additional equipment require:
- options with the clock:
  - setting current date and time function (*dAtE*)
  - total weight function (*totAL*)
- options with the transoptors connectors:
  - checkweighing function (*thr*)

* Functions offered with special version of scale software (with limited possibility of using other special functions).

User create own menu by choosing function in *ACtIV* function (described in chapter 14.1).

12.1 Menu customization function (ACtIV and dEFAUL)



Among available user functions it is possible to select these, which should be displayed after pressing *MENU* key. It allows avoiding displaying whole list of available functions, which makes operation time longer.

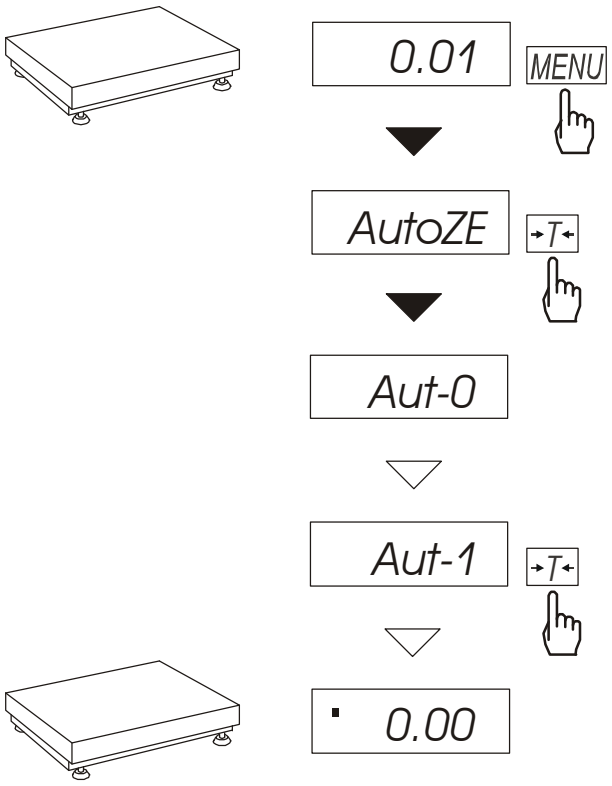
Operation sequence shown in the pictures on the left causes adding function for setting serial interface RS232C parameters (*Port*) to function menu.

After switching on *ACTIV* function a dot is displayed on the right side (to distinguish from regular menu). Chosen functions are displayed with a dot on the left side.

In every moment, it is possible to restore primary (manufacture) settings choosing *dEFAULt* special function.

In order to remove function from menu in the last operation in place of selecting *Port -1* choose *Port -0.*

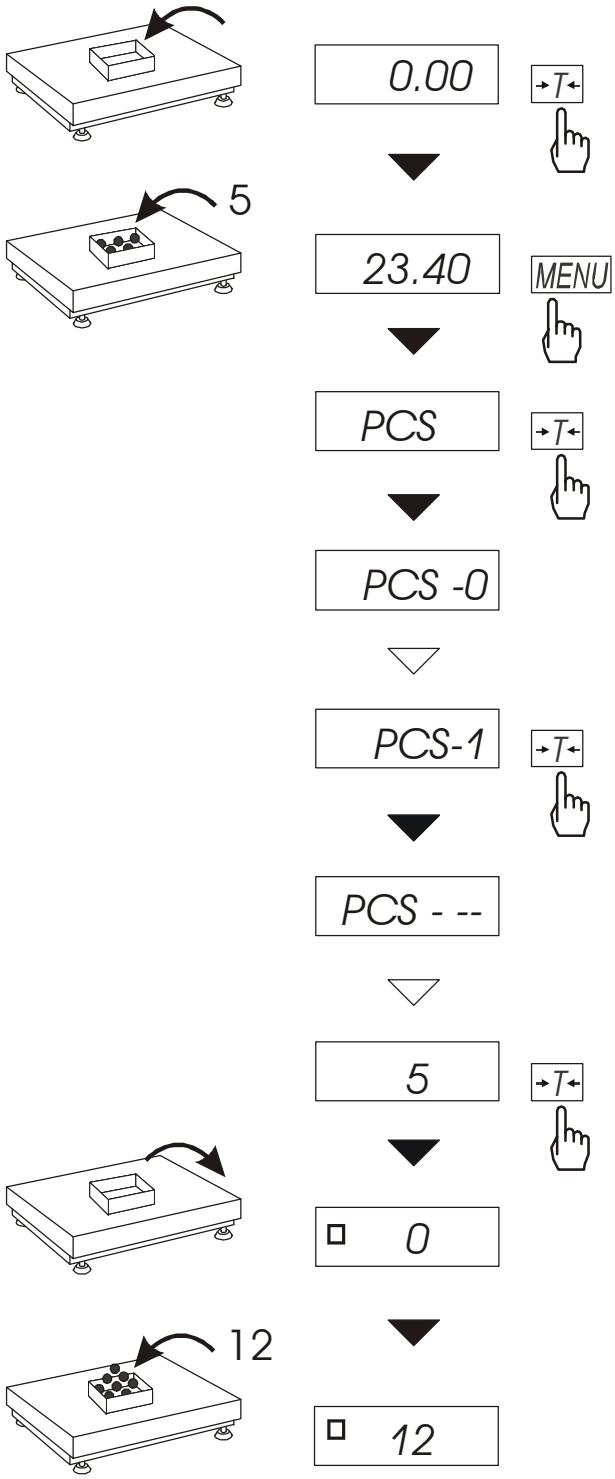
12.2 Autozeroing function (AutoZE)



When *F..-Aut* function is activated, the scale automatically ensures stable zero indication if the pan is empty or if zero indication was acquired by pressing →*T*← key.
To leave the function press *MENU* key, then with →*T*← key chose *AutoZE* and *Aut-0*.

Note:
Autozeroing function is activated automatically for 10 min. after switching-on.

12.3 Pieces counting (PCS)



This function enables to count identical pieces, e.g. turnbuckles or buttons.

A measurement is performed in two phases:

- first phase - single piece weight calculation on the basis of defined pieces amount (*5, 10, 20, 50, 100, 200* or *500* pieces),
- second phase – pieces counting.

It is advised that single piece weight is not less than one reading unit and sample weight used in first phase is bigger than 100 reading units.

To leave function press *MENU* key and then with □□□ key chose *PCS* and *PCS-0*.

Note:

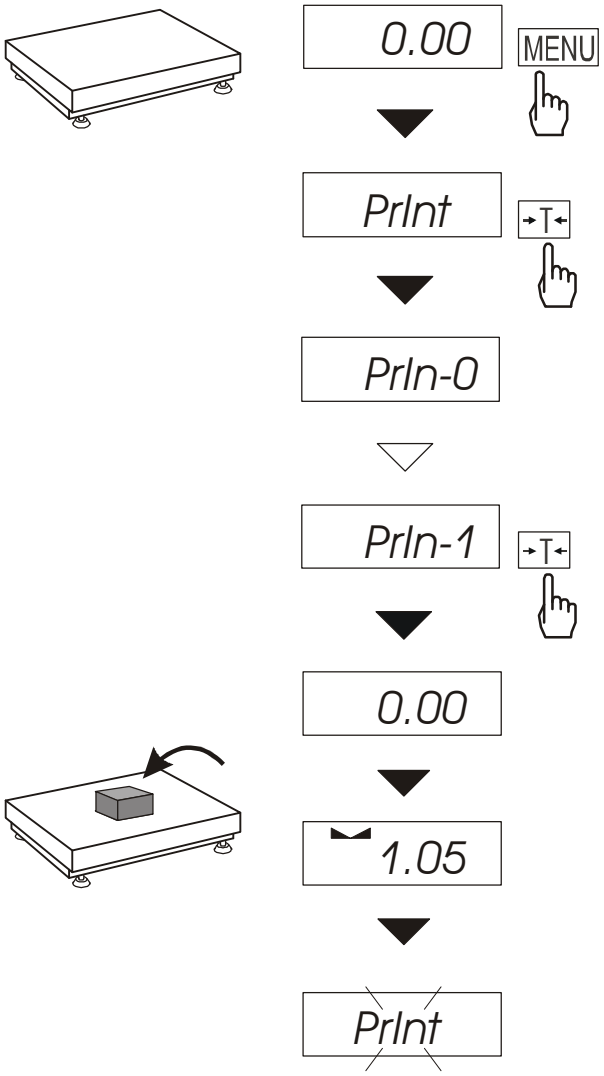
1. Err-3 communicate signalises that a sample was not put on the pan.
The same communicate appears if single piece weight is less than one reading unit (it is possible to count pieces but measuring error is bigger).

2. To chose previously used pieces amount select " _ _ " in first phase (in case no value was chosen, error communicate appears

3. During pieces counting →T← key function does not change.

4.In scales equipped with LCD display, weighing unit is visible and "□" sign is replaced with "pcs ".

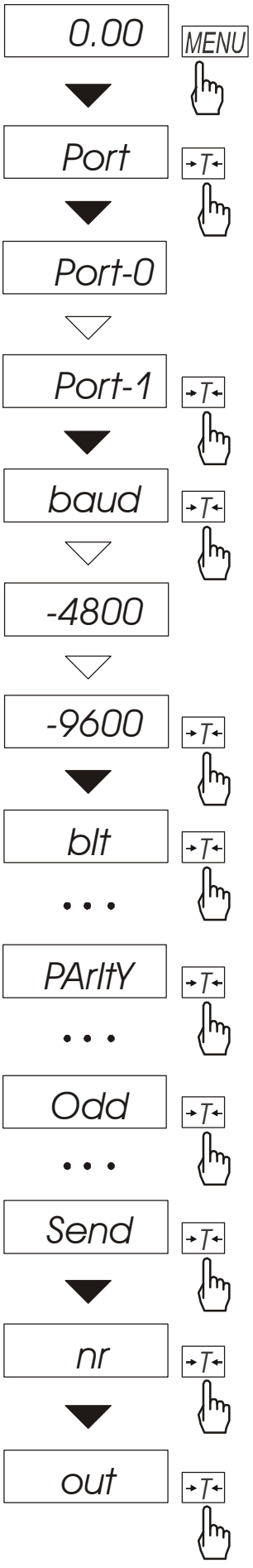
12.4 Printer cooperation settings (PrInt)



Activate the function for automatic serial port working mode (cooperation with a printer.
After activation the scale prints a header. Weighing result with a successive measurement number is printed automatically after result stabilisation (without using ⮕ key).

To select computer cooperation mode (⮕ key activated and weighing results without successive numbers) press *MENU* key, then with →*T*← key chose *PrIn-0* and *PrIn-1*.

12.5 Serial port parameters setting (Port)



The function enables to set the following transmission parameters (standard parameters underlined:

- transmission protocol *(Prot)*:
  LonG - printer,
  ELtron – label printer,
- transmission speed (*bAud*: *1200, 4800, 9600, ...*),
- the number of bits in a byte (*bit*: *7, 8*),
- parity control (*PArItY*: *0, 1; Odd: 0, 1*),
- network number when working in multistand computer system (when working as a single scale the value should be "0",
- continuous transmission – without using ⇨ key, approx. 10 results per second (*SEnd: 0, 1*).

Protocol *Eltron* automaticly activated function *LAbEL*.

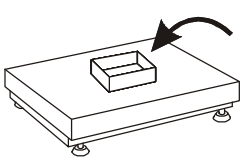
To set desired transmission parameters activate *Port* function, choose appropriate parameter and press →*T*← key to accept needed parameter value. The example at the left presents how to set transmission speed value to 9600bps.

To leave the function choose *out* option.

12.6 Constant tare (tArE)

This function enables to measure gross weight of a sample placed in a container of a known weigh value (stored in the memory) and to display calculated net weight of the sample. Tare value is recalled from the memory with *→0←* key when the pan is empty. Tare value may be entered using the keypad or by sampling container weight from the pan.

Operation sequence:



1.70 — MENU

tArE — →T←

tAr -3 — →T←

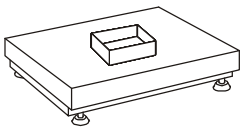
\- — →0← … →0←

1 — ⊏→

1. — →T←

1.0 — →0← … →0←

1.7 — MENU



NET

0.00

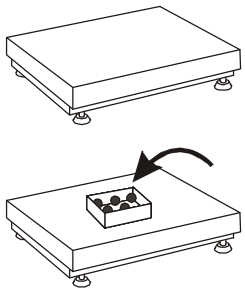
The following options are possible:
- *tAr-0* – leave the function,
- *tAr-1* – activate the function with the previous tare value,
- *tAr-2* – sample tare value from the pan,
- *tAr-3* – enter tare value with keys: *→0←*, ⊏→, *→T←* and *MENU*
- *tAr-4* – printout a setting value of tare

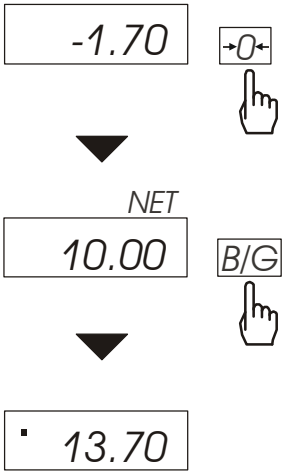
If the function is active, *NET* indicator is displayed.

Options *tAr-1* enables to activate the function with previous tare value after leaving the function with *tAr-0* option.

Note:
Tare value is stored in memory also after unplugging the scale from the mains.

Weighing with constant tare:





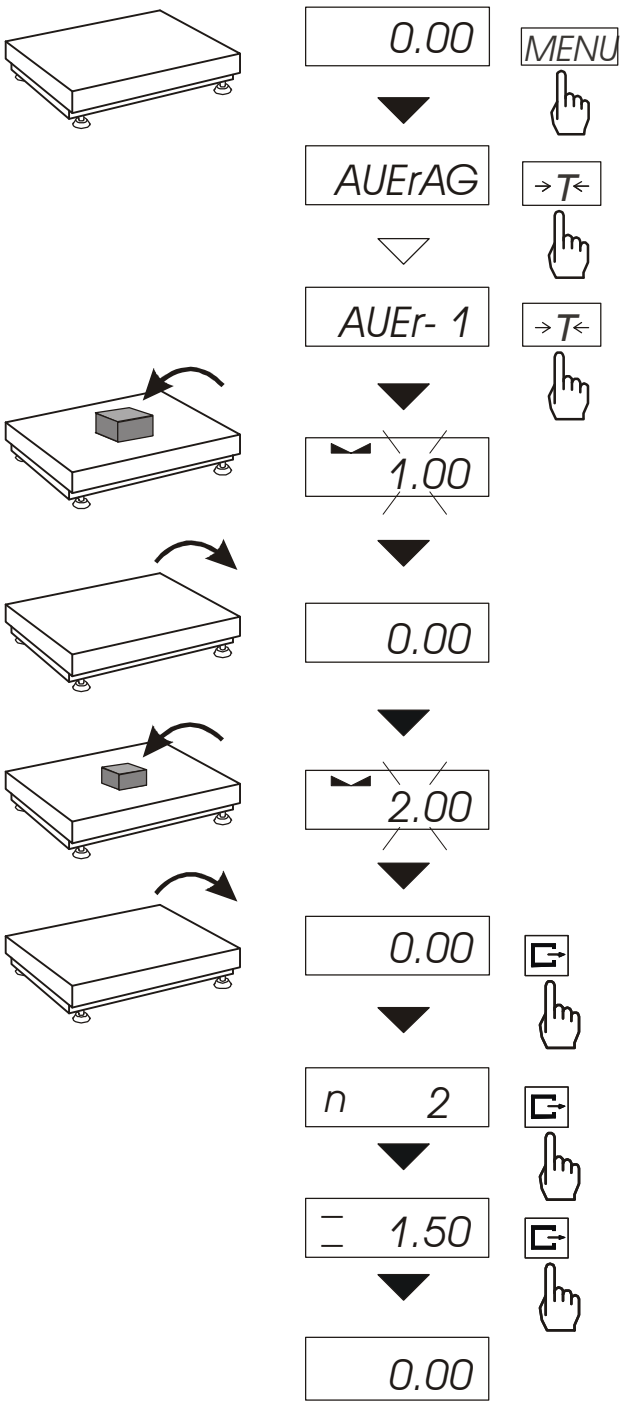
When *tAr* function is activated, press →*0*← key to zero the indication and to recall tare value from the memory. Tare value is displayed with ”-” sign.

B/G key enables for instant switching between net and gross weight.

Note:
When the pan is empty →*T*← key does not operate – to tare the scale use →*0*← key.

12.7 Average calculation function (AVErAG)

The function allows for calculating average value of performed measurement series. During series of measurements successive results are registered automatically when scale indication is stabilised.



Press *MENU* key and select *AUErAG* pressing →*T*← key.
The following will be shown successively on display:
- *AUEr-0* – leaving function,
- *AUEr-1* – measurement with average calculation..

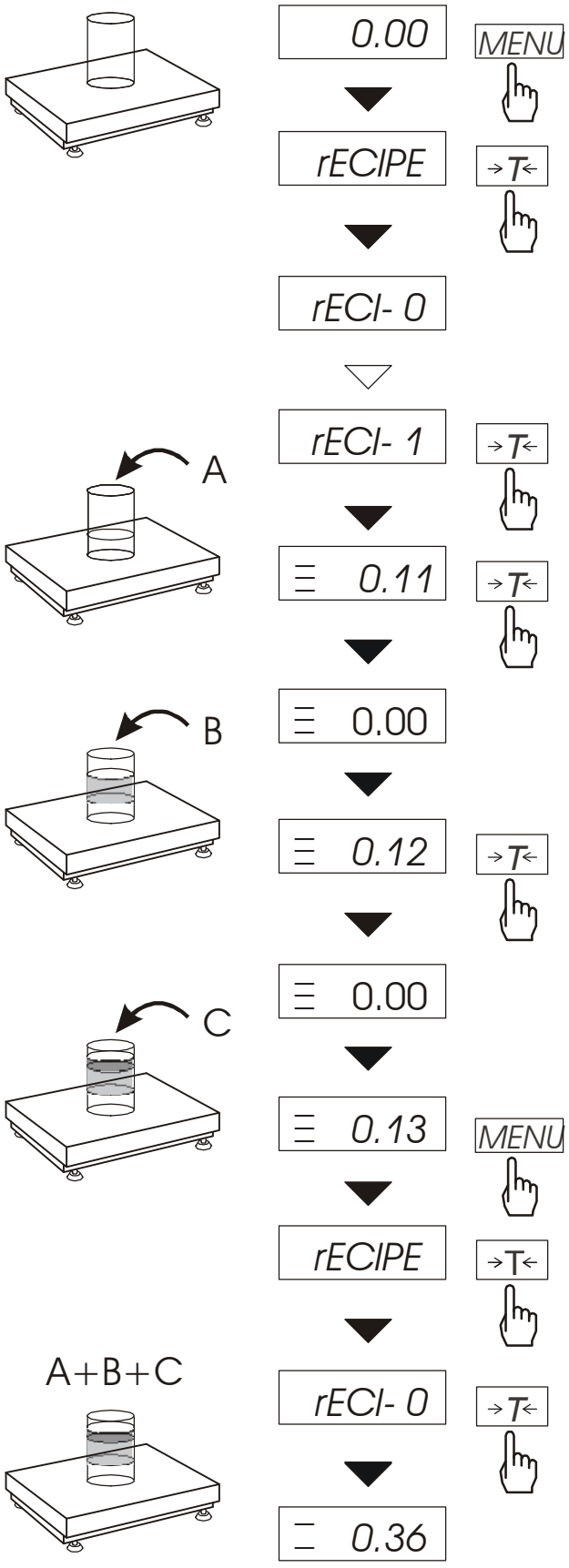
Select *AUEr-1*. It will allow weighing with simultaneous storing results into summing register for average calculation
Measurement registration is performed automatically in the moment when scale indication becomes stable. Short time displaying of „ - - ” denotes that load can be taken off and new one can be put on. Results above scale Min are registered only. Number of measurements is limited to 9999.
In order to read average value ⊏→ key should be used.
- first pressing causes displaying number of measurements (n).
- second displaying causes displaying average value (=).
- third pressing allows continuing average calculation.

If a printer is connected to scale the following report will be printed :

```
Date: ...                Time.
...

MEASUREMENS No   =   ...
AVERAGE VALUE    =   ...
```

In order to finish calculation press *MENU* key, and then select *AUEr* i *AUEr-0*.

12.8 Recipe weighing function (RECIPE)



This function allows for separate weighing of several ingredients in one container with a possibility of control total weight of all weighed components.

The function has the following options:

- *rECI-0* – leave the function with possibility of reading to read total weight,
- *rECI -1* – start recipe weighing
- *rECI -2* – continue previous recipe.

When preparing a recipe successive ingredients (A, B, C, etc.) are weighed each time starting from zero indication. In order to allow this after weighing of each ingredient tare the scale.

After weighing of several ingredients reading total weight is possible (despite scale taring). In order to do that press *MENU* key, select *rECIPE* function once more and use *rECI -0* option.

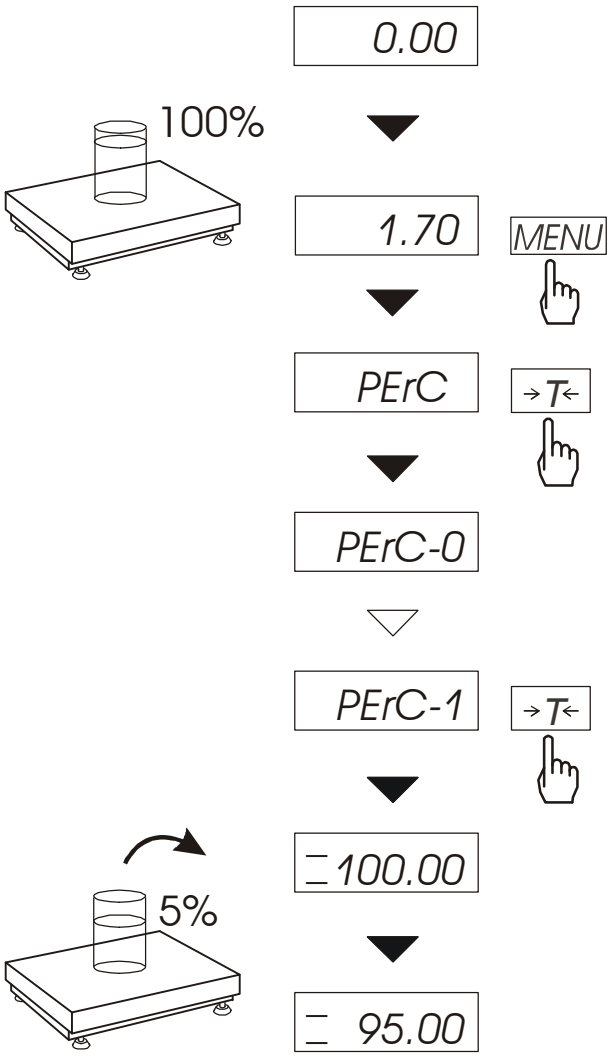
Sign „$\bar{=}$” signals total weight indication. Recipe is finished when $\rightarrow T\leftarrow$ key is pressed.

When „$\bar{=}$” sign is displayed recipe continuing is possible. *rECI -2* option is used for that.

Note:

Sign „≡” on the left side of display informs about *rECIPE* function activity.

12.9 Percentage weighing function (PErC)



This function allows displaying weighing result in percents.
A measurement is performed in two phases:
- first phase – weighing a reference sample (100%),
- second phase – measuring specific sample as a percentage of the reference sample.

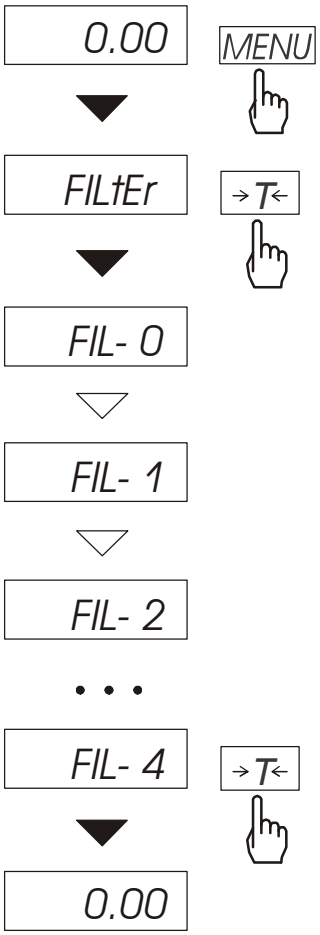
Weighing result is displayed in different format, depending on the weight value of reference sample. For weight values of reference sample 0÷3,5% of weighing range result is displayed in format *100*, for range 3,5÷35% - in format *100.0*, and above 35% - in format *100.00*.

„%" sign is replaced with „$\bar{\ }$" indicator.

The function has the following options:
- *PErC-0* – disable the function,
- *PErC-1*– set current scale indication as 100% and activate percentage weighing,
- *PErC-2* – continue percentage weighing after exiting to normal weighing.

Note:
During percentage weighing →*T*← key has its normal function.

12.10 Anti-disturbance filter function (FILtEr)



This function allows using digital filter with selected intensivity during weighing. Filter reduces the influence of mechanical vibrations (air blasts, base vibrations) on measurement result.

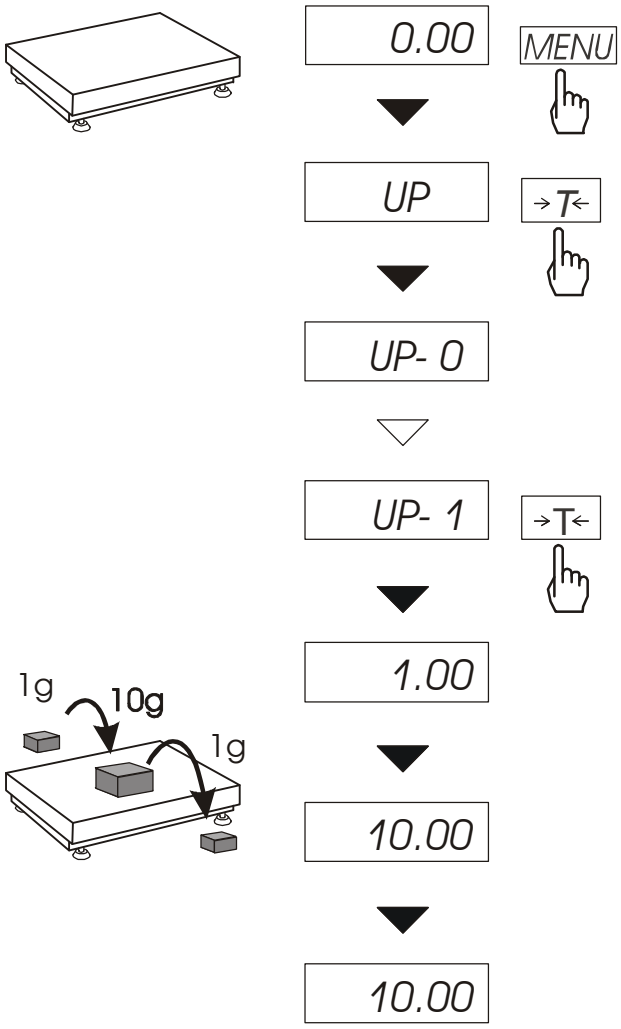
Press *MENU* key and select *FILtEr* pressing →*T*← key.
The following options will be shown successively on display:
- *FIL-0* – work without
- *FIL-1* - filter I (weak)
- *FIL-2* - filter II (medium)
- *FIL-3* - filter III (sharp)
- *FIL-4* - filter IV (very sharp)

Select on of four filters. This will cause starting weighing with selected filter.

In order to go back to normal weighing use *MENU* key once more and choose *FILtEr* and *FIL-0*.

12.11 Function for maximum value indication (UP)

This function allows holding on display maximum value shown by the scale in a while.

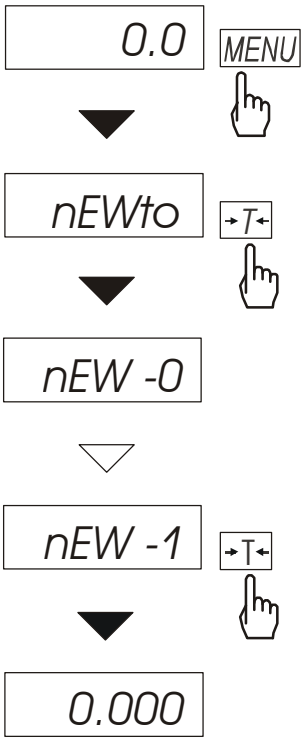


Before measurement scale should be tared.

After using *MENU* key and selecting *UP* function the highest mass result will be hold on display.
Pressing →*T*← key will cause result zeroing.

Note:
Autozeroing function and the stabilisation indicator are deactivated when UP function is running. Weighing result is continuously averaged from 5 measurements.

12.12 Force measuring function (nEWto)



Function activation causes displaying result in force units (N).

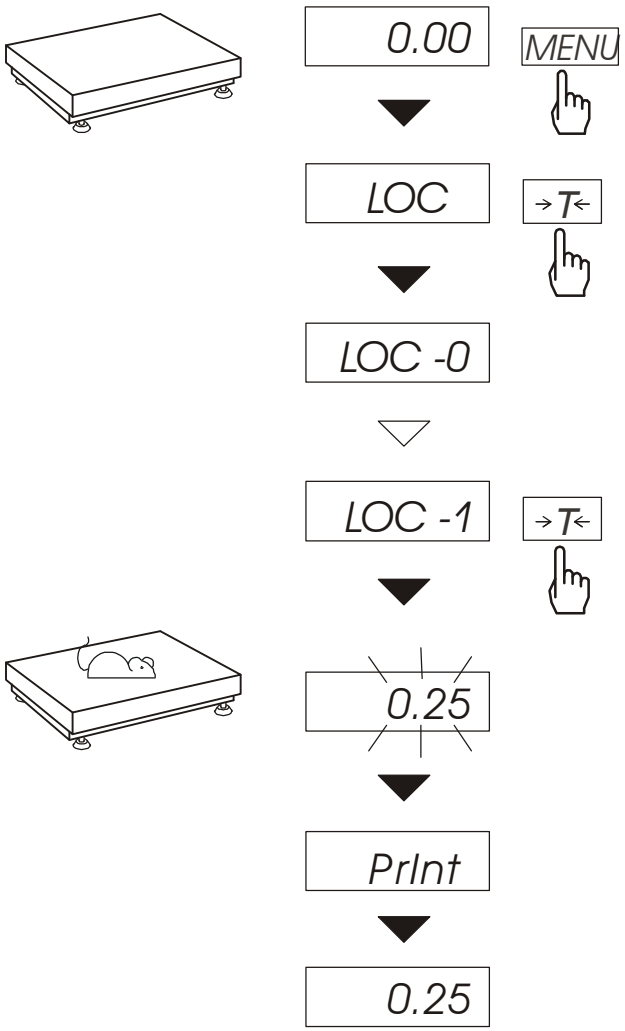
Press *MENU* key.

Using →*T*← key choose *NEWto* function, and then *NEW-1*.

Note: 1N≈0,1019kg

12.13 Function for weighing large animals (LOC)

The function allows weighing animal moving on the scale.



Press *MENU* key.
When *LOC* function is displayed press →*T*← key.
The following options appear on display successively:
- *LOC-0* – leave the function,
- *LOC-1* – automatic weighing after loading the scale,
- *LOC-2* – the measurement initiated manually by pressing ⮆ key.

When *LOC-1F..-1* is displayed press →*T*← key.
Tare the scale using →*T*← key if necessary and place the animal on the pan.

Wait until the weighing result is averaged – scale display will be blinking. Then scale will show stable averaged result and will send it through serial port. Final result is displayed on the display and send via serial port to computer or printer.
The result remains on display for about 30 second.

Important notes:
1. The loads less than Min are not averaged.
2. In the case when placing the animal takes more than 5s, it is advised to use LOC-2 option (measurement initiated manually). It will allow performing measurement in right moment pressing ⮆ key.

12.14 Checkweighing function (thr)

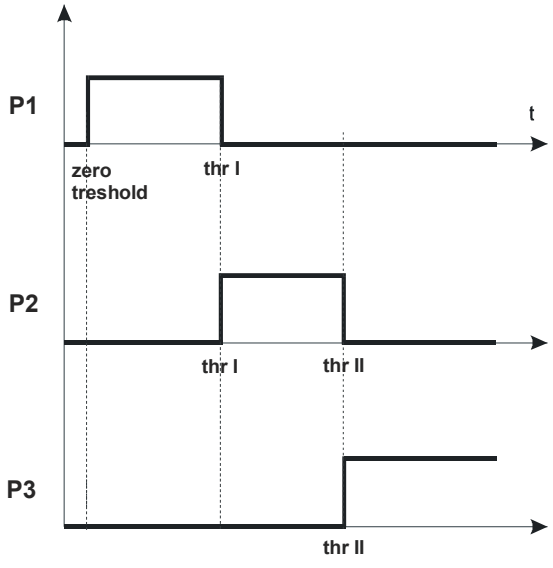
This function allows comparing weighing result with two programmed reference values: lower and upper threshold. Comparison result is signalled with indicators (MIN, OK, MAX) and sound signal generated when threshold values are exceeded. If comparison result is:
- smaller than lower threshold – the scale signals MIN (yellow colour),
- between threshold values - the scale signals OK (green colour, with the short sound signal),
- greater than upper threshold - the scale signals MAX (red colour, long sound signal).

The checkweighing results can be use to control:
- optical indicator (*Indication* mode),
- batching devices (*Batching* mode).
-

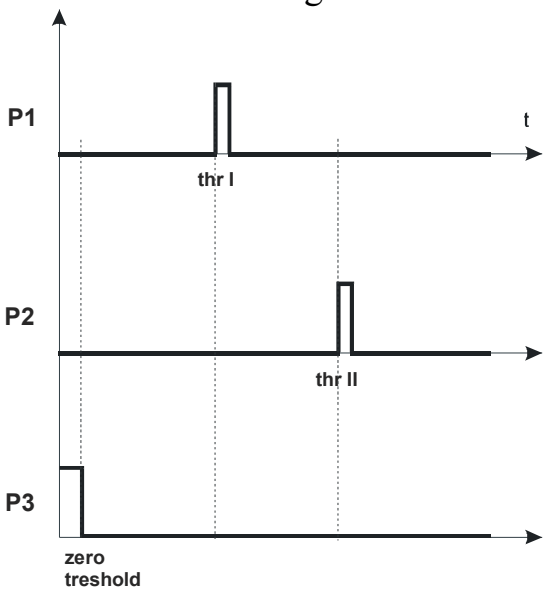
Standard scale is set for cooperation with optical indicator.

On outputs P1-P3 (*Relays* socket) short-circuit states appear as result of comparison scale indication with threshold values.
On the chart below output states are shown during increasing load on the scale for both working modes:

Indication mode:

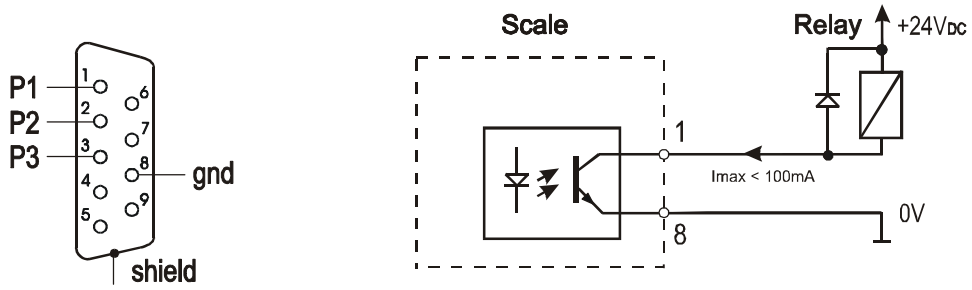


Batching mode:



In *Batching* mode on P1 (thr I) and P2 (thr II) outputs short-circuit impulses appears for time of 0,5s. On P3 (zero) output short-circuit state appears when indication does not exceed threshold value signalling zero load.

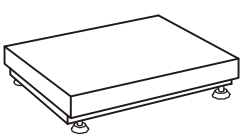
Relays connection diagram:

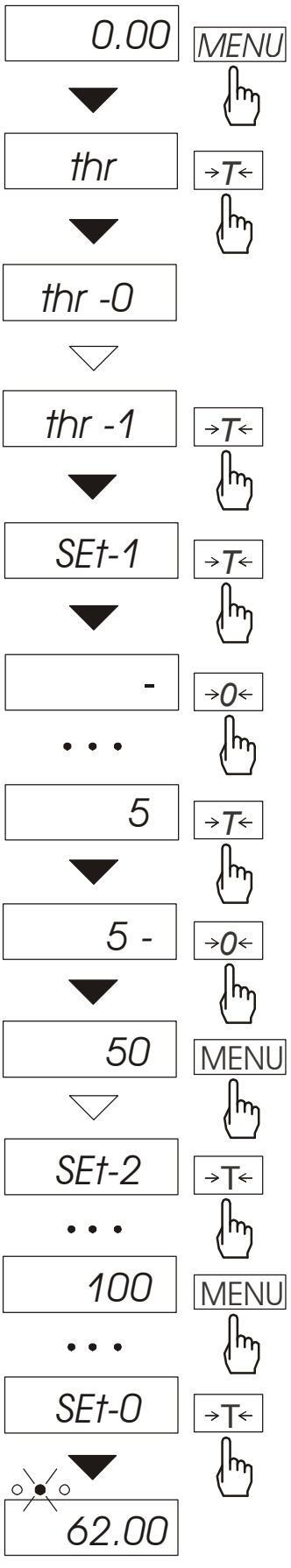


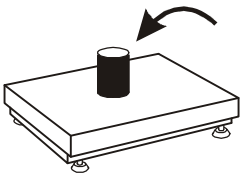
Relays output is the open collector transoptor output with load capacity 100mA / 24V. Transmitter inputs must be protected with diodes, e.g. 1N4148.
It is advised to use MS3K/P electronic board (sold separately), consisting of RM96P transmitters, with DC24V input voltage and AC250V, 3A output.

Important notes:
1. After switching the scale on, both thresholds are set to maximum values.
2. When setting upper threshold value, pay attention that its value is not below lower threshold value.
3. Setting lower and upper threshold value is possible after sending appropriate orders from computer, what is described in scale user manual.

Operation sequence:







Press *MENU* key and choose *thr* pressing →*T*← key.
The following options are displayed successively:
- *thr-0* – deactivate the function,
- *thr-1* – activate the function,
- *thr-P* – check last threshold values (press ⊏ key several times),
- *thr-t* – choose *Relays* socket mode:
  0 – exit to weighing
  1 – *Batching* mode
  2 – *Indication* mode.

Choose *thr-1*option using →*T*← key. The following options for entering thresholds are displayed:
- *SEt-0* - go to weighing with signalling threshold excess,
- *SEt-1* - set lower threshold value,
- *SEt-2* - set upper threshold value,
- *SEt-3* - set zero signalisation threshold.

Using →*T*← key select *SEt-1* option.
Set lower threshold value using the following keys:
→0← - digit increase,
⊏ - decimal point,
→T← - move to next digit,
MENU - finish.
Then select *SEt-2* option and enter upper threshold value.

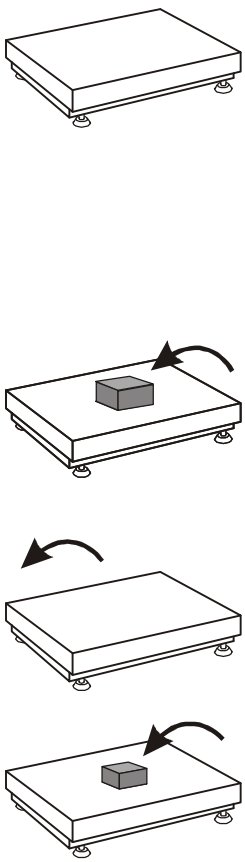
Choosing *Set-0* option will cause starting work with signalisation of exceeding thresholds and zero.

To change *Relays* socket mode use *thr-t* option. Default option is *Indication*.

To leave the function, press *MENU* key and then choose *thr* and *thr-0* options.

12.15 Total weight function (totAL)

The function allows calculating total weight for series of measurements, which can be greater than scale capacity. It allows calculating total weight as well as average value.



Press *MENU* key.
When *totAL* is displayed press →*T*← key.

The following options appear successively:
- *tot-P* - report printout without clearing total register,
- *tot-0* - clearing total register, report printout and leaving the function,
- *tot-1* - working with receipt printout after each measurement,
- *tot-2* - working without receipt printout.

Press →*T*← key when *tot-1* is displayed.
Perform measurement series pressing ⊏→ key for storing results into total register.

In order to print and display results enter to function choosing *total* and *tot-P* option from menu

The results are display in the following sequence:
- total weight (≡)
- number of registered measurements (n),
- average value (=),

regarding that moving to display successive result is performed after pressing ⊏→ key.

In order to go back to total weighing without zeroing total register press ⊏→ key third time.

To leave the function with clearing total register, select *total* function from menu and choose *tot-0* option. When It will cause the scale prints the communicate informing about clearing registers.

The form of receipt after each measurement:

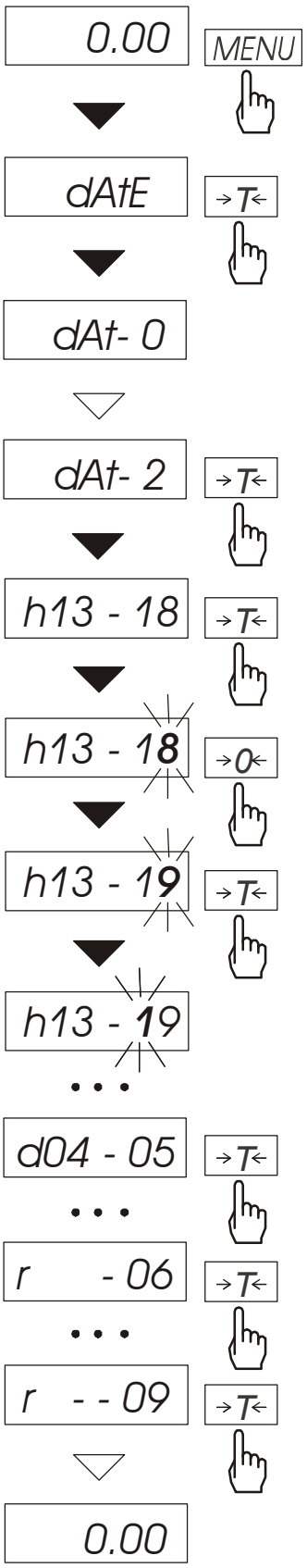
Report form:

```
 Date:      ...      Time.
...
 measurement no
weight
 measurement no
weight
```

```
 Date:      ...      Time.
...
 TOTAL WEIGHT
=
 NUMBER OF
SAMPLES  =
 AVERAGE VALUE
=
```

Note:
When the scale has not an internal clock, Date and Time do not appear on printout.
Maximum number of measurements 99 999.
Maximum total load 99 999 000d.
The weighing unit of the total value from the register (Total) is the same as the weighing unit stated on the keypad or is 1000 times greater, what is signalled by "o" indicator at the left of the display.
If the registered value is too big to be displayed, "E" communicate appears on the display.
If the number of series is too high and cannot be displayed, "Err1"communicate appears on the display.

12.16 Function for setting date and time (dAtE)



The function allows setting current date and time of scale internal clock and mode of its use.

The function has the following options:
- *dAt-0* – deactivate date and time during printout of current weighing result,
- *dAt-1* – activate date and time during printout of current indication (⊏→ key),
- *dAt-2* - change current date and time.

The example at the left presents how to set current date and time using *dAt-2* option.
On successive positions digits are changing automatically or manually using →*0*← key several times.
In order to choose appropriate digit and move to the next position use →*T*← key.

After setting proper date and time it should be activated with *dAt-1* option.

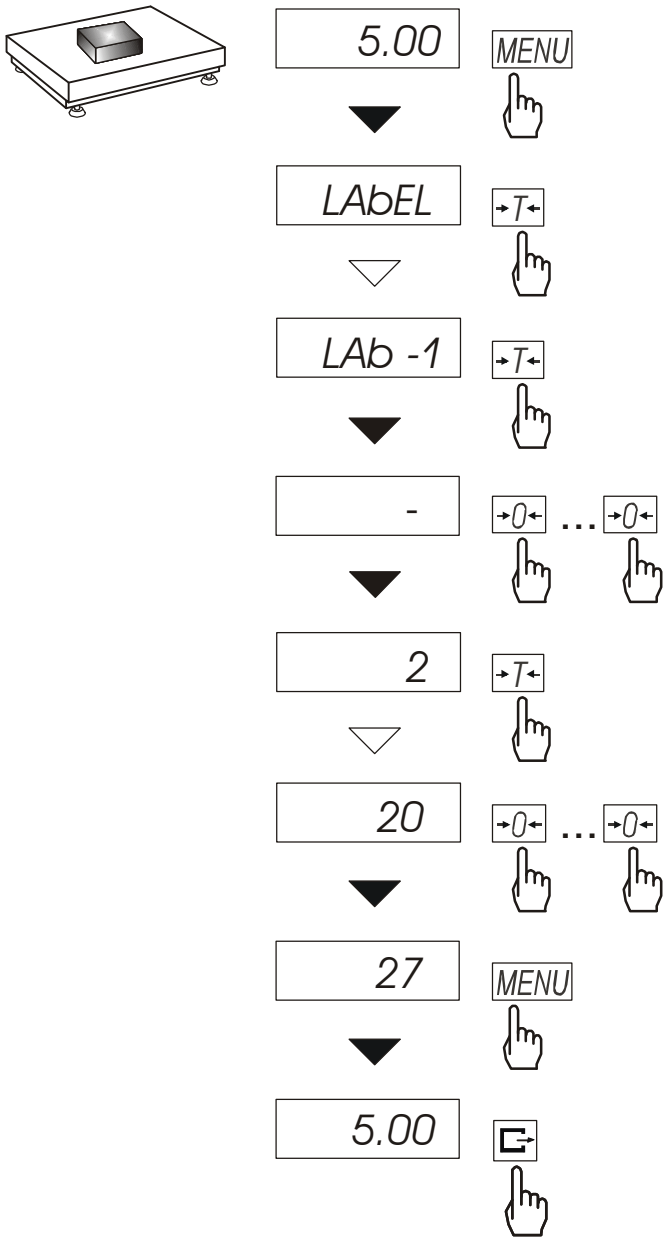
Time format: *h gg – mm*
(gg - hour, m - minute).

Date format: *d mm – dd*
(m - month, d - day).

Year format: *r - rr*
(r - two last year digits).

12.17 Function for selecting label number (LAbEL)

The function appears in scales with *ELTRON* data transmission protocol. This protocol allows printing scale indication and optionally date and time on label printer, as variable texts. Other data, e.g. company address, product name, its bar code can appear on label as constant fields. Label forms used by user, named as a numeric value (max. 4 digits) should be previously stored in printer memory according to printer user manual. Choosing label form is performed by entering label number using *LAbEL* function.



Press *MENU* key.
When *LAbEL* is displayed press *→T←* key.
The following options appear successively on display:
- *LAb-0* – leave without changes,
- *LAb-1* – enter label number,

Using *→T←* key select *LAb- 1*.

For entering label number the following keys should be used:
→0←- increase digit,
→T← - move to next digit,
MENU – finish entering.

After putting load on and pressing ⮆ key data is sent to a printer.

Format of data sent to label printer:

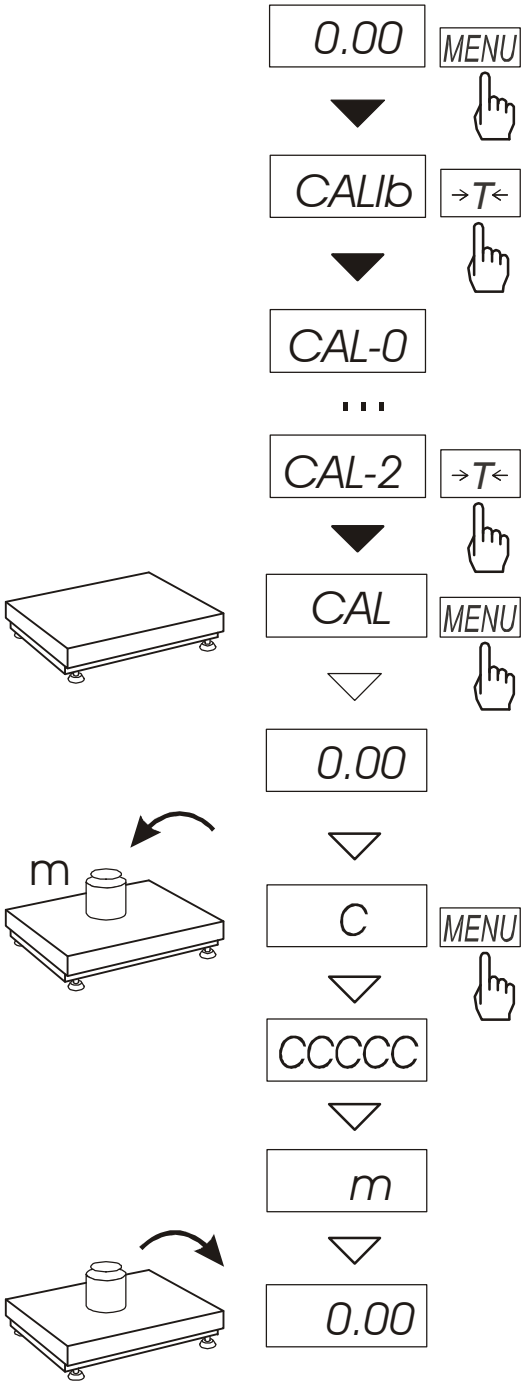
```
US              (55 53 0D 0A)
FR"0001"        (46 52 22 30   30 30 31 22   0D 0A)
?               (3F 0D 0A)
00:00           (30 30 3A 30   30 0D 0A)
2000.00.00      (32 30 30 30   2E 30 30 2E   30 30
0D 0A)
   10  g        (20 20 20 20   20 31 30 20   20 67 0D
0A)
```

12.18 External calibration (CALIb)

Note: This function is enabled in non legalized scales only.

Calibration of sensitivity should be make when aaccuracy of scale is not satisfactory. Could use standard mass equal of maximum range of scale (*Max*).

Operation sequence:



Press *MENU* key to call functions menu and to choose *CALIbr* with →*T*← key.

The following options appear successively on display:
- *CAL-0* – leave without calibration,
- *CAL-1* – quick calibration – without confirms by *MENU* key,
- *CAL–2* – calibration with confirms
- *out* – leave without changes

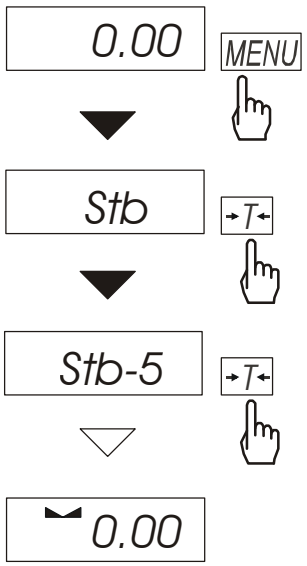
Press *MENU* when communicate *CAL-2* is display.
Confirm readiness to calibration by press *MENU* key – pan must be empty.

When communicate C is display put a standard mass (equal of maximum) to a pan and press *MENU* key.

Wait to end of calibration process.

12.19 Setting time of stabilization function (Stb)

The function allows changing stabilisation time of scale indication and connected with it the time of waiting for starting result printout on a printer connected to the scale.



Press *MENU* key.
When *Stb* is displayed press →*T*← key.

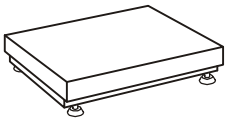
The following options appear successively on display:
- *Stb-0* – deactivate the function,
- *Stb-1* – the longest stabilisation time,
- *Stb-2* – long stabilisation time,
- *Stb-3* – medium stabilisation time,
- *Stb-4* – shorter stabilisation time,
- *Stb-5*– the shortest stabilisation time.

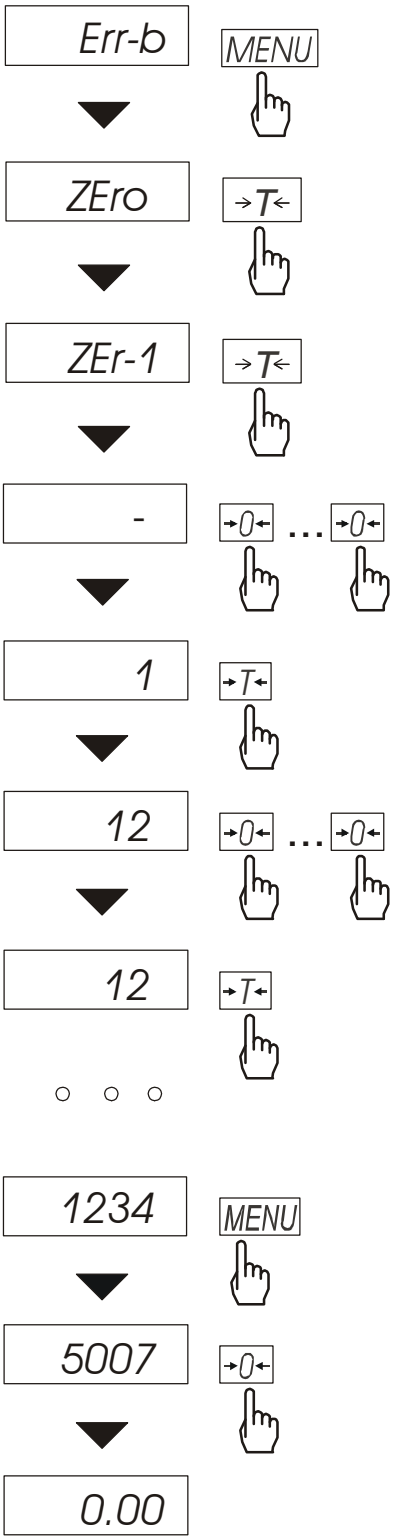
After choosing one of the options weighing with activated filter is started..
In order to go back to normal work of the scale choose *Stb–0* option.

12.20 Entering reference zero function (Zero)

Note: This function is enabled in non legalized scales only.

ZER function allows entering new value of reference zero (value referred to empty pan) without need of contacting with authorised service centre.





Press *MENU* key.
When *Zero* is displayed press →*T*← key.

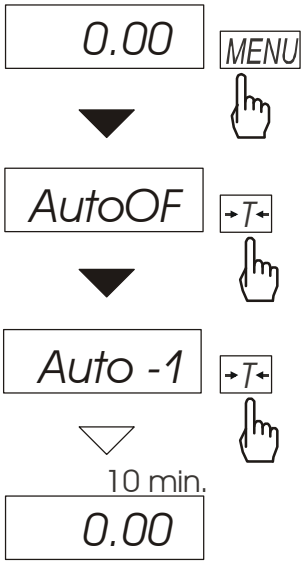
The following options appear successively on display:
ZEr-0 – activate function,
ZEr-1 – enter new zero value,
ZEr-2 – enter new protecting code.

Using →*T*← key, choose *ZEr-1* and enter access code for function (in new scale it is 1234). Direct result from A/C converter will appear on scale display.
When the pan is empty press →*0*← key.

Wait for finishing zeroing process.
In order to change access code use *ZEr-2* option. Entering value is performed similarly as with *ZEr-1* option.

12.21 Automatic switching off the scale function (AutoOF)

The function is helpful in scales supplied from accumulator. The function causes scale to switch off automatically after c.a. 10 minutes of not using it. Switching function on causes last entered zero and tare values are remembered in scale memory. After next start-up of the scale these values are restored.

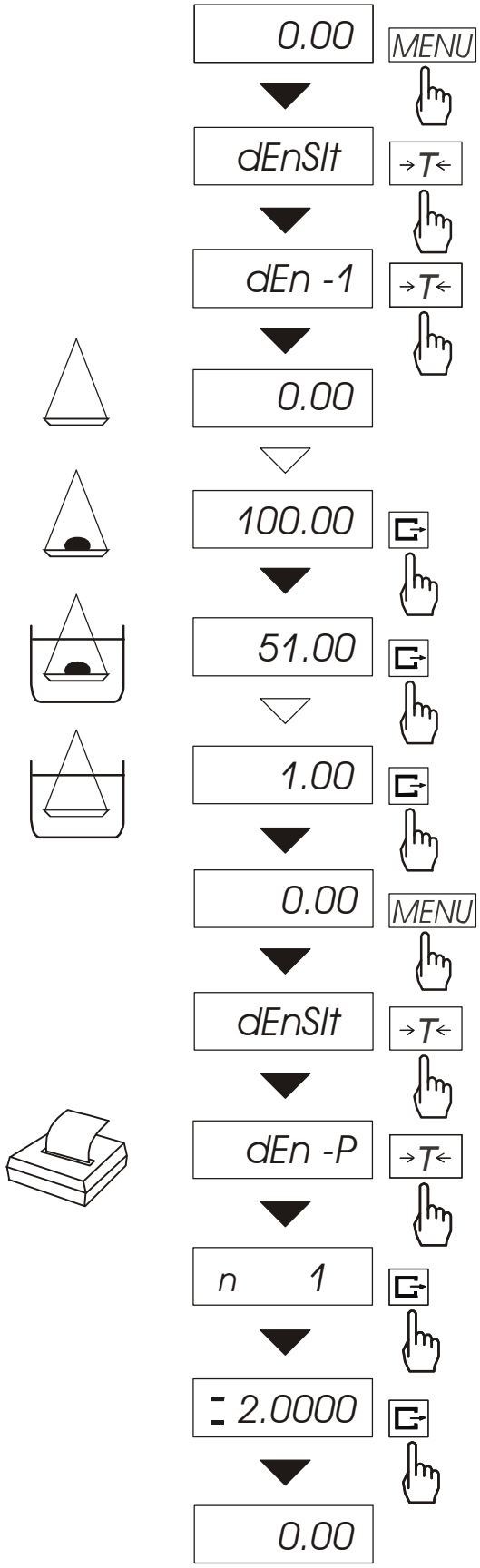


Press *MENU* key.
When *AutoOF* is displayed press →*T*← key.

The following options appear successively on display:
Auto-0 – activate function,
Auto-1 – deactivate function.

After function activation scale will control changes of its indications. If the scale will not be used and scale indications will not be changing, after time of c.a. 10 minutes the scale will switch off remembering its settings (zero and tare).
Switching on the scale is performed after pressing I/⏻ key.

12.22 Density determining function (dEnSIt)



The function allows determining solid density basing on its weight in the air and in liquid of known density using the formula below:

$$g = \frac{m_1}{m_1 - m_2 + m_3} * g_{liquid}$$

where: m_1-weight in the air
m_2- weight in liquid
m_3- hanger weight
g_{liquid} – liquid density
By default:

$$g_{liquid} = 1 g/cm^3$$

(for distilled water).

When using liquid other than distilled water, choose *dEnSIt* from menu and use *dEn-2* option to enter liquid density taking into consideration its temperature.

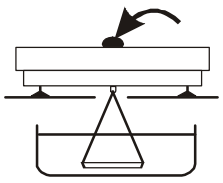
To enter value use the following keys:
→0← - digit increase,
⊏→ - decimal point,
→T← - move to next digit,
MENU - finish.
The measurement is performed in three phases:
-measurement in the air,
-measurement in liquid,
-hanger weighing

To read density determination result, enter *dEnSIt* function menu and use *dEn-P* option. First pressing ⊏→ key causes displaying successive measurement number. Second pressing ⊏→ key causes displaying and printing result, and then going to the next density measurement.

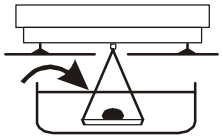
If a printer is connected to the scale, printout of solid density measurement results will be performed in the following form:

Date: ...		Time. ...
MEASUREMENT No.	=	
WEIGHT in air	=	g
WEIGHT in liquid	=	g
HANGER WEIGHT	=	g
LOAD DENSITY	=	g/cm^3
LIQUID DENSITY	=	g/cm^3

It is recommended to use pan hanging below balance, weighing in the air and in liquid is performed then in the following way.



Phase I: measurement in the air.



Phase II: measurement in liquid.

12.23 Calculator for good packaging control (tP)

Note: This function is enable for special orders substitutable with other functions.

The function allows performing not destroying control of 60, 100 or 160 samples of packed goods. Calculation formula complies with the description of reference method described in act of law from 26.07.2001 (with later changes).
Scale operator enters nominal net mass (Qn) and sample quantity taken for control (quantity refers to total quantity of samples 1 and 2 in description of reference method.
Accepting successive measured packages (storing in register) is performed automatically after load is put on and scale indication is stable.
Each time after load is put on printout is performed: measurement number, result, date and hour.
Accepting next measurement is possible after taking last load off.

For obtained measurement series scale calculates:

- $\bar{x}$ -average mass as (sum x)/n

- Min -minimal mass in n samples

11.5

11.5 - Max -maximal mass in n samples

- R = Max-Min -the difference between max and min

- S -standard deviation $S = \sqrt{\frac{1}{(n-1)}\sum_{n}(x_n - \bar{x})^2}$

- defective samples count -count of samples with mass Qn-2T1<x< Qn-T1

-disqualifying samples count -count of samples with mass <Qn-2T1

Results of statistical calculations and histogram are printed on a printer.

Operation sequence:

1. Press *MENU* key.
2. When "F..-tP" is displayed press $\rightarrow T\leftarrow$ key.
   The following options appear successively on display:
   - "F..-0"- leave function,

- "F..-1"- measurements,
- "F..-2"- enter product data: product code and batch size,
- "F..-3"- enter control parameters: nominal mass Qn and measurement number,
- "F..-4"- select mode for data transmission (automatic or manual).

[Entering product data]

3. Press →*T*← key when "F..-2" is displayed.
   The following options appear successively on display:
   - "Cod"- product code [6 digits],
   - "n" - batch size,
   - "out" - exit,
4. Press →*T*← key when "Cod" is displayed.
   Previously entered product code will be displayed one by one with "out" option.
   In order to enter new product key press →*T*← key when previous code is displayed, and after "-" appears use keys:
   →0← - change digit,
   →*T*← move to next digit,
   MENU - finish.
   If previous code is valid, choose "out" pressing →*T*← key.

5. Press →*T*← key when "n" is displayed.
   Previously entered batch size will be displayed one by one with "out" option.
   In order to enter new batch size press →*T*← key when previous value is displayed using keys: →*0*←, *T* and *MENU* as above.
6. Press →*T*← key when "out" is displayed.

[Entering control parameters]

7. Press →*T*← key when "F..-3" is displayed.
   The following options appear successively on display:
   - "O_n"- nominal mass (Qn),
   - "-20", "-60", "-100", "-160", "n" – select available measurement quantity (total quantity of samples),
   - "out" - exit,
8. Press →*T*← key when "O_n" is displayed.
   Previously entered nominal mass will be displayed one by one with "out" option.
   In order to enter new nominal mass press →*T*← key when previous value is displayed using keys: →*0*←, *T* and *MENU* as above.
9. Select measurement quantity pressing →*T*← key. Selected quantity should comply with requirements of good packaging act of law (it depends on control kind and batch size). Letter n denotes full control.
10. Press →*T*← key when "out" is displayed.

[Selecting mode for data transmission]

11.Press →*T*← key when "F..-4" is displayed.
The following options appear successively on display:
- „Auto" – automatic data transmission after scale indication is stable,
- „Recz" – manual data transmission by operator using ⮆ key,
- „out" – exit.

12.Choose appropriate option pressing →*T*← key.
13.Press →*T*← key when "out" is displayed.

[Measurements]
14.Press *MENU* key.
15.When "F..-tP" is displayed press →*T*← key. Select "F..-1".
16.Printout is performed.
17.Put successive good packages

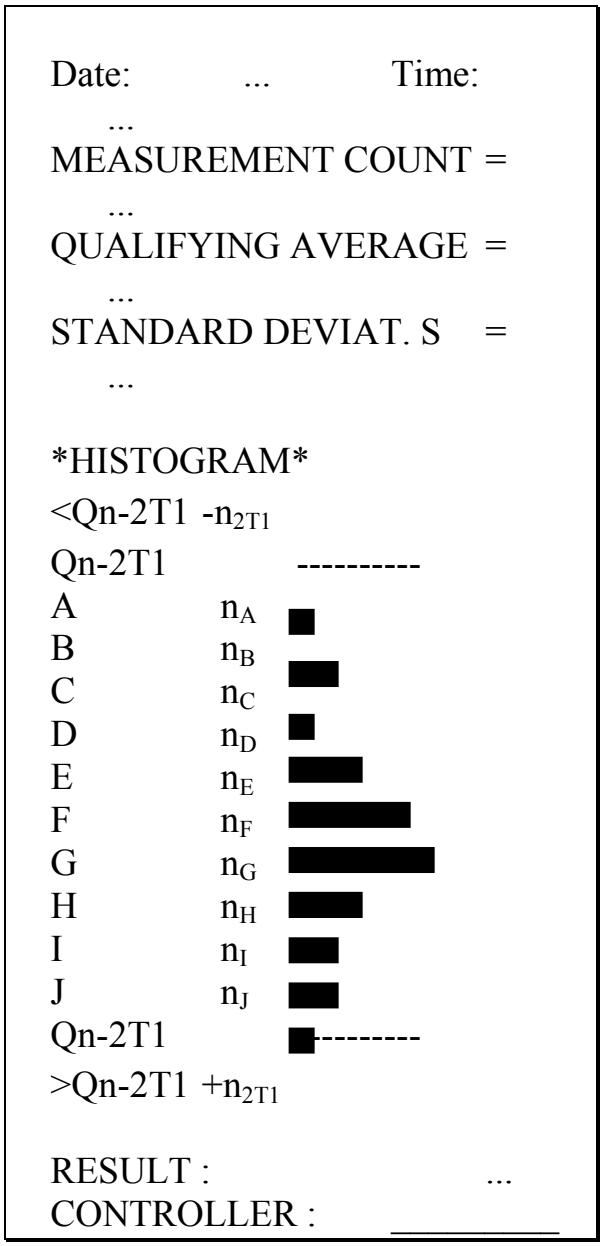
1..1.1.1.1 Successive results will be printed in table with indication of their values using "*" character referred to limit values.

18.After performing last measurement "END" text will appear and summarising report of control results will be printed:

```
   PLACE OF
   CONTROL:
.....................................
   Date:          ...      Time:   ...

   CONTROL NO.:
.....................................
   SCALE TYPE              :        ...
   FACTORY NO.             :
      ...
   BATCH SIZE              :        ...
   VALUE Qn                :        ...
   VALUE Qn-T1             :        ...
   VALUE Qn-2T1            :
      ...

                    Qn-2T1     Qn
Qn+2T1
   ... g            *
   ... g                       *

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

19. In order to finish working with the function and reset results register, press *MENU* key, and when "F..-tP" and "F..-0" is displayed press $\rightarrow T\leftarrow$ key.

Note: Activating TP function causes that indicators signal exceeding limit values Qn-2T1 and Qn+2T1.



12.24 Statistical calculations function (StAt)

Attention: Function is available on demand and it replaces other special functions.
This function evaluates from series of measurements (max 500) statistical parameters of weighting process. Adding successively measurements to register is automatic and it occur after the scale is loaded and its indications stabilize.
After each loading printout is made with: number of measurements, result, date and time.
Next measurement is made after taking off earlier load.

For the obtained measurements series the scale evaluates:

- n - number of samples
- sum x - sum of all samples $sum\_x = \sum x_n$
- $\bar{x}$ -average value (sum x)/n
- min -minimal value from n samples

11.5 - max -maximal value from n samples

- max-min -maximal value minus minima value
- S -standard deviation $S = \sqrt{\frac{1}{(n-1)}\sum_n (x_n - \bar{x})^2}$
- srel -variance factor $srel = \frac{S}{\bar{x}}$

Statistical calculations results can be printed.
11.5
Order of operations:

1. Press *MENU* key.
2. When *F..-StA* is displayed press →*T*← key.
   The following options are displayed:
   - *F..-P* – statistical data printout,
   - *F..-0* - out of function, register zeroing, statistic data printout,
   - *F..-1* - enter or continue function,
3. Press →*T*← key when *F..-1* is displayed.
4. Put on successively objects on pan, (remove after indication stabilization) in order to add them to measurement register.
5. In order to obtain printed statistical results from measurements series press *MENU* key.
   When sign *F..-StA* is displayed, press →*T*← key.
   When *F..-P* is displayed press again →*T*← key.

This will cause printout of calculated statistics and histogram:

LSL - allowable lower value,
USL - allowable upper value,
A, B, C, .. – measurement intervals,
n_A ... – amount of measurements in A interval;
measurement is in A interval if it is bigger or equal to A interval threshold and smaller than B interval threshold.
n_B ... - amount of measurements in B interval;
measurement is in B interval if it is bigger or equal to B interval threshold and smaller than C interval threshold.

Thresholds are printed under histogram.

-NG - amount of measurements under allowable lower value
+NG - amount of measurements above allowable upper value

To finish work with this function and zeroing result register press *F* key, then during "*F..-StA*" and "*F..-0*" is displayed, press →*T*← key. This will cause printing message about register zeroing.

Cooperation between statistics function with computer and printer.

The scale can be equipped with two RS232C connections marked as RS232C-I (computer) and RS232C-II (printer). After each printer data printout, identical set of data is send to computer. After S A CR LF (53h 49h 0Dh 0Ah) initialization signal is sent by computer, the scale sends to computer statistical data contained in histogram.

Data: ... Hour.
...
SAMPLES = ...
TOTAL MASS = ...
AVER MASS = ...
MIN MASS = ...
MAX MASS = ...
MAX – MIN = ...
S = ...
SREL = ...

HISTOGRAM
LSL ...
USL ...
DIV ...

-NG ...
LSL
A n_A
B n_B
C n_C
D n_D
E n_E
F n_F
G n_G
H n_H
I n_I
J n_J
USL
+NG ...

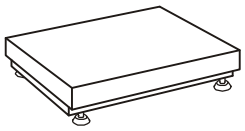
A ~ ...
B ~ ...
C ~ ...
D ~ ...
E ~ ...
F ~ ...
G ~ ...
H ~ ...
I ~ ...
J ~ ...
...

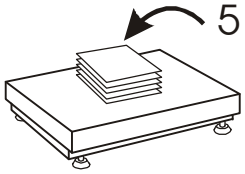
Measurement made by :
_____

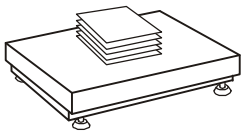
12.25 Paperweight calculation (PAP)

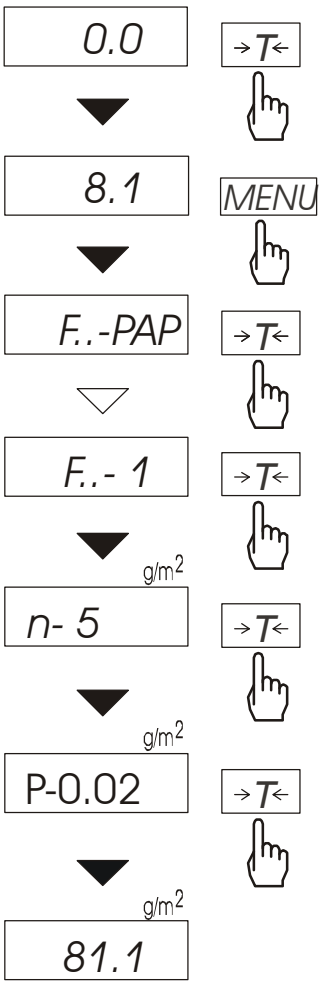
Note: This function is enable for special orders substitutable with other functions.

This function enables to calculate paperweight of 1m^2 of paper basing on samples of known area. For quick access, the function is accessible directly by pressing *MENU* key.









The balance must be tared just before the measurement.
Place the specific sample quantity of the same area (possible values: 1, 2, 5, 10, 20, 50, 100).

Press *MENU* key to access Function Menu. To enter the function press *→T←* key when *F..-PAP* is displayed.
n is the number of samples placed on the pan. To choose previously used value, select … option.

"P" is the area of a single sample. It is possible to choose standard values (0,02 or 0,1g/m^2) or enter specific value ("A" option).
To enter the value use the following keys:
▼ - digit increase,
⮡ - decimal point,
→T← - next digit,
MENU - end.
The result of paperweight measurement is finished with "=" mark pointing g/m^2 unit.

The balance is ready for the next measurements

Note:
1. Err-3 communicate signalises that a sample was not put on the pan.
The same communicate appears if single piece weight is less than one reading unit .

13 Maintenance and troubleshooting

1. The scale should be kept clean.
2. Take care that no dirt gets between the casing and the pan. If found any, remove the pan (lift it up), remove dirt and then replace the pan.
3. In case of improper operation caused by short-lasting power supply decay, unplug the scale from the mains and then plug it again after few seconds (or switch the power off and on with the power switch if installed).
4. If the scale is switched on with empty pan and "Err-b" communicate appears, the load cell has been mechanically damaged – please contact our nearest service.
5. It is forbidden to make any repairs by unauthorized persons.
6. To repair the scale, please contact our nearest service.

Emergency messages:

Message	Reason	Recommendation
C-1 ... 6 (over 1min.)	autotest negative result	contact the service
Err-b	balance loaded during turning on	remove load from the balance
	balance sensor mechanical failure	contact the service
L	no pan	place the pan
	balance mechanical failure	contact the service
H	balance overload	remove load from the balance
	balance mechanical failure	contact the service
indicator does not work	balance unstable, base vibrations, air blows	place the balance in location, assuring the indications stability
	balance damage	contact the service
- - - - - -	tare setting not finished	contact the service
- -	tare setting unsuccessful (too low load or B/G pressed)	zero the balance or pres B/G again
- -	zeroing with too high load	set the tare

Declaration of Conformity CE

We:

AXIS Spółka z o.o. 80-125 Gdańsk, ul.Kartuska 375B declare with full responsibility, that the balance meters:

SE-01

marked with CE mark are consistent with:

1. Standard PN-EN 61010-1:2004 Safety requirements for electrical equipment for measurement, control and laboratory use. General requirements harmonized with the directive 73/23/EEC (Low Voltage Directive),
2. Standard PN-EN 55022:2000 Electromagnetic compatibility (EMC) – Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement, and PN-IEC 61000-4-3 Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques - Radio-frequency electromagnetic field immunity test, harmonized with 89/336/EEC directive (electromagnetic compatibility).

Additional information

- Conformity evaluation for the Council Directive 73/23/EWG and 89/336/EWG were carried out by Laboratorium Badawcze Oddziału Instytutu Elektrotechniki w Gdańsku, accredited to PCA.
- The inspection certificate no. PL CB 1 issued by Central Office Of Measures in Warsaw (Notified Unit No. 1440).

  (The meter may be used for constructing of balances, consistent with PN-EN 45501 standard: Specification for metrological aspects of non-automatic weighing instruments, issued in December 1999, harmonized with the 90/384/EEC council directive, changed by 93/68/EEC council directive).

Gdańsk, 3.03.2005 year

Authorized by the Director AXIS Sp. z o.o.:

Production manager mgr inż. Jan Kończak

Podpis