//AXIS

ME-03 meter

User manual

Content:

1. General information

ME-03/N/GLCD meter replaces standard meters produced by AXIS in order to extend functionality by cooperation with ZEBRA label printers (with EPL-2 and ZPL-2 protocol).
Meter is equipped with hermetic housing made from stainless steel and graphical display.
Meter can be a part of industrial platform scale produced by AXIS.

2. Set

Basic set consists:
1. Meter
2. TN/20/10/7-3C90 core – 1 pc (if only weighing meter is ordered)

3. Technical data

| Parameter	ME-03/N/GLCD
Designation	to III class scales one and two-ranged with verification units number n $\leq$ 6000
Max verification units number	6000
Internal resolution	1:16 777 216
Power supply	AC: 230V 50Hz DC: 12V or accumulator 6V ÷ 12 V
Keyboard	Function keys, alphanumeric keys
Display	Graphical
Transducer supply voltage	DC: 5V or 5V keying(choper)
Voltage measurement range	-10 mV ÷ 10 mV or 0 mV ÷ 10 mV
Maximal voltage signal for stable loading	+ 10 mV
Minimal voltage signal for stable loading	- 10 mV or 0 mV
Minimal allowable input signal corresponding to verification unit *e*	0,3 µV
Sensor impedance range	40÷4000 Ω
Work temperature range	- 10 °C ÷ +40 °C
Part of limiting error	0,5
Sensor connecting	4 or 6 conductor system
Maximal cable length	75 m/mm^2
Primary measurement module functions	- gross and net weight indication - automatic and semi-automatic zeroing - semi-automatic tare, - connection with label printer (RS232C)
Enclosure type	ODN
Security level	IP65
Dimensions	270x180x86mm
Weight	3kg

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

4. General view and meter's mounting method

Basic version (on cable):

Space for ~230V wire

Space for sensor wire
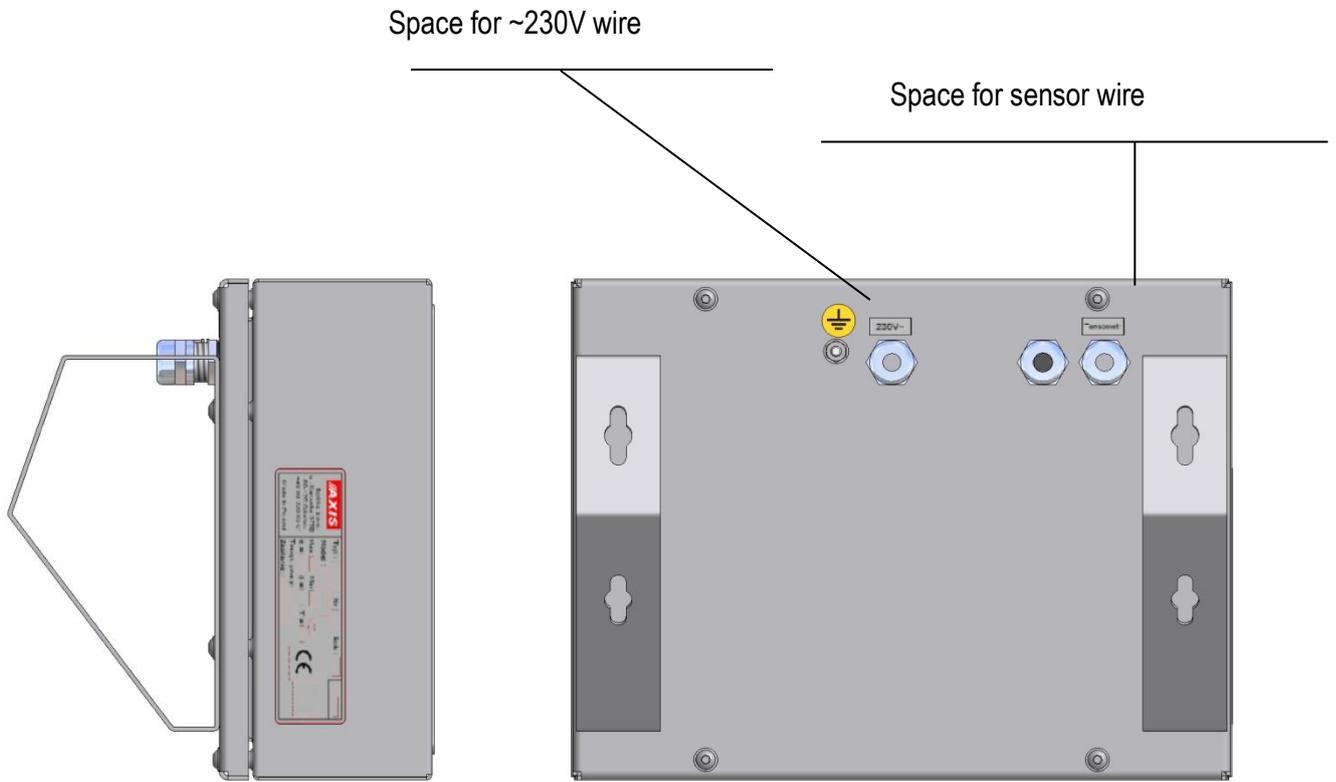
On column mounting version:
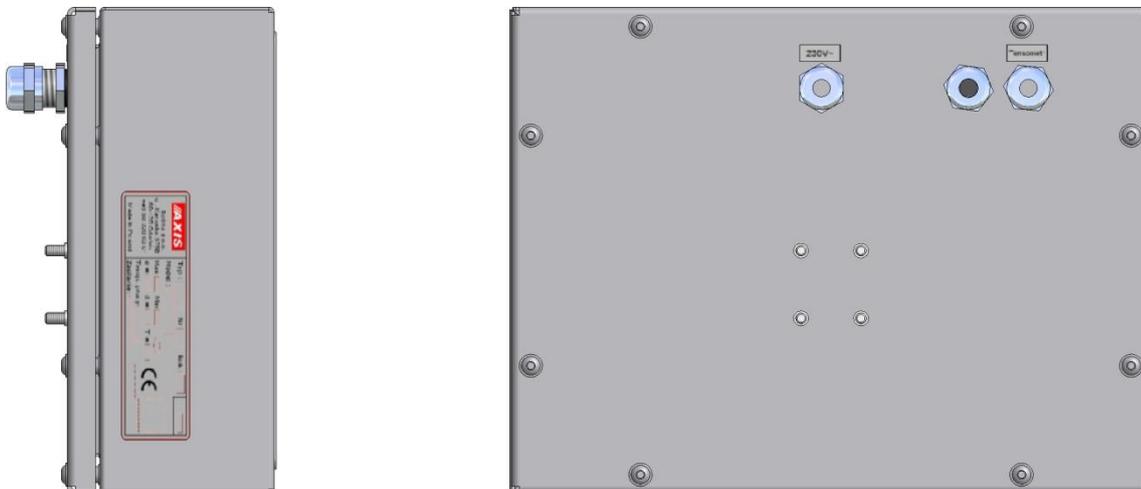
Assembly	ME-03/N/GLCD
Meter grip assembly	
3 ways to mount the meter to wall	
Mounting to wall or desktop	2 holes Φ5/10, spacing 256mm
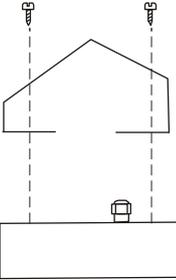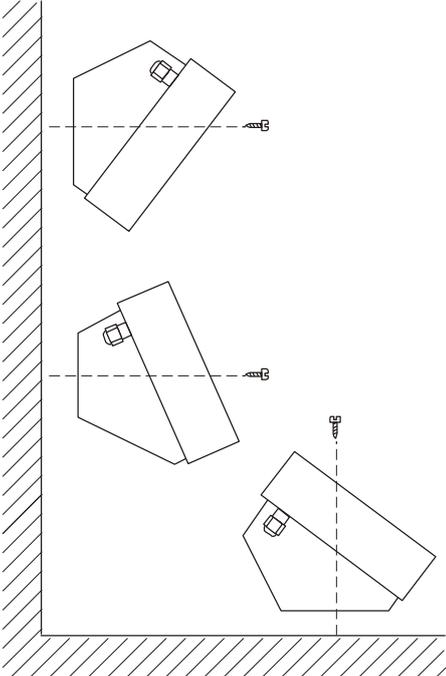
5. Keys and indicators
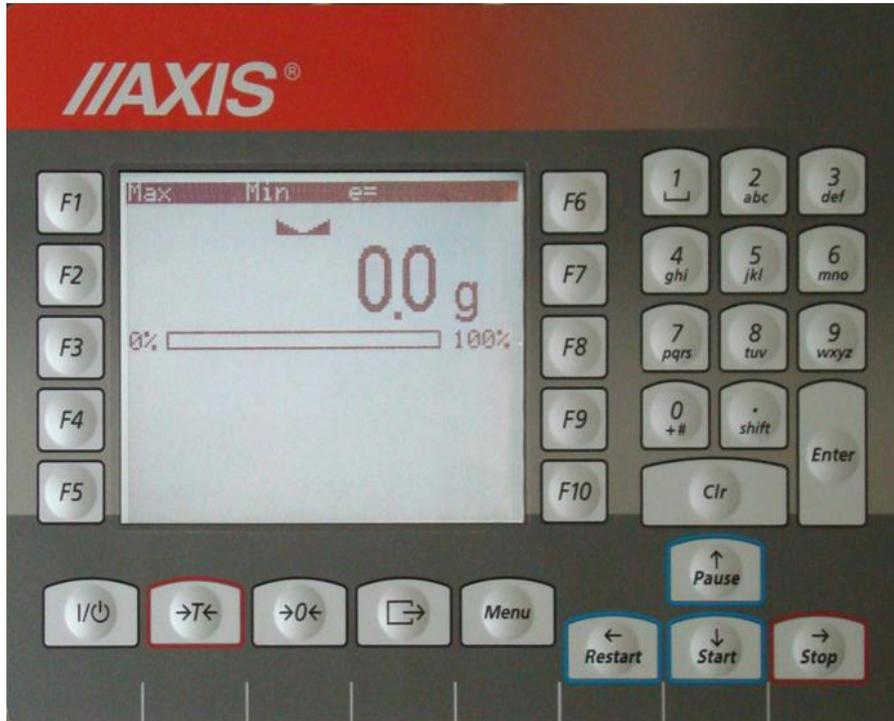
| key	I/⏻	- switch-on / switch-off (standby),
"	→T←	- tare,
"	→0←	- zeroing,
"	⤷	- **label printout,**
"	*MENU*	- menu,
"	**F1**	- **label number selection**; hold longer – temporary selection of other product for the actual label,
"	F2	- cumulative label printout level I (if it is set)
"	F3	- cumulative label printout level II (if it is set)
"	F4	- inscribing code 1 (operator)
"	F5	- inscribing code 2 (contractor/buyer)
"	F6	- inscribing code 3 (lot/batch)
"	F7	- inscribing code 4
"	F8	- turn on/off inscribed tare value
"	F9	- switching indication between weighing – pieces counting (PCS); hold longer – entering pieces counting function
"	F10	- switching indication between weighing – total weight (TOTAL)
"	START (↓)	- menu navigation,
"	STOP (→)	- menu navigation (enter)
"	RESTART (←)	- menu navigation (back to previous level),
"	PAUSE (↑)	- menu navigation,
indicator	→0←	- zero indication (scale not loaded),
"	◠◡	- weighing result stabilization,
"	NET	- net weight (after using →T←),
"	MODE	- special function menu turning on indicator
"	B/G	- gross weight (after using TARE i klawisza ↱↴)
"	g, kg, ct, lb,mg	- indication unit,

"	*pcs*	-	pcs indication,
"	*OFF*	-	scale turned off by ⏻ key (standby)
"	*MIN*	-	weighing result below threshold I (*thr* function),
"	*OK*	-	weighing result between I and II threshold,
"	*MAX*	-	weighing result above II threshold,
line	Indicator	-	load indicator (0-100%)
Additional	indicators		(visible after activation of proper print field):
	NR :	-	label number
	P_ID :	-	product ID
	NA_P :	-	product name
	U_ID :	-	User ID
	NA_U :	-	User name
	P_NR:	-	Product no

6. *Security rules*

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

- To supply the scale use power outlet with protective contact (not for scales with external feeder).

- Repairs and essential scale regulations can be made only by authorized personnel.

- 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.

- Do not use a scale when its cover is opened.

- Do not use a scale in explosive conditions.

- Do not use a scale in high humidity.

- If a scale seems not to operate properly, plug it out of the mains and do not use it until checked by authorized service.

7. Rules proceeding with used up scales

	According to obligatory rules concerning environment protection used electronic devices should not be put in a container with normal waste.
● • After exploitation used scale should be given to special units authorized to collect used electronic equipment or to the place where the device was bought.	

8. Assembly and connecting tensometric sensors

To build a scale basing on ME-03 indicator contact authorized manufacturer.

> **Before connecting 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 core ⌀20mm.
The core should be placed within 30mm from the place of its connection.

Single strain gauge scheme inside ME-03:

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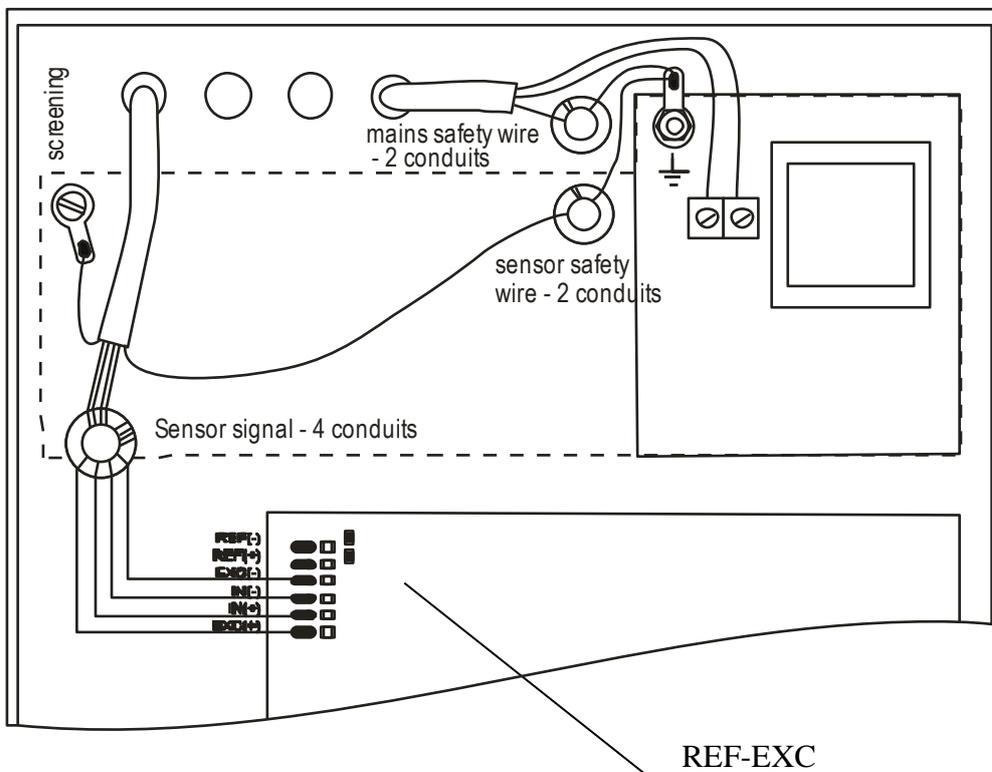
When 6-wires connection of strain gauge transducers is used (REF+ and REF) jumpers shown on the picture above should be soldered out from the main board (jumpres connect REF+ with EXC+ and REF- with EXC-).

Diagram of common wires and shields in the platform balances:

POMOST   SUMATOR   MIERNIK

Płyta główna

GND   GND

Sumator

GND   GND   GND

W

Z
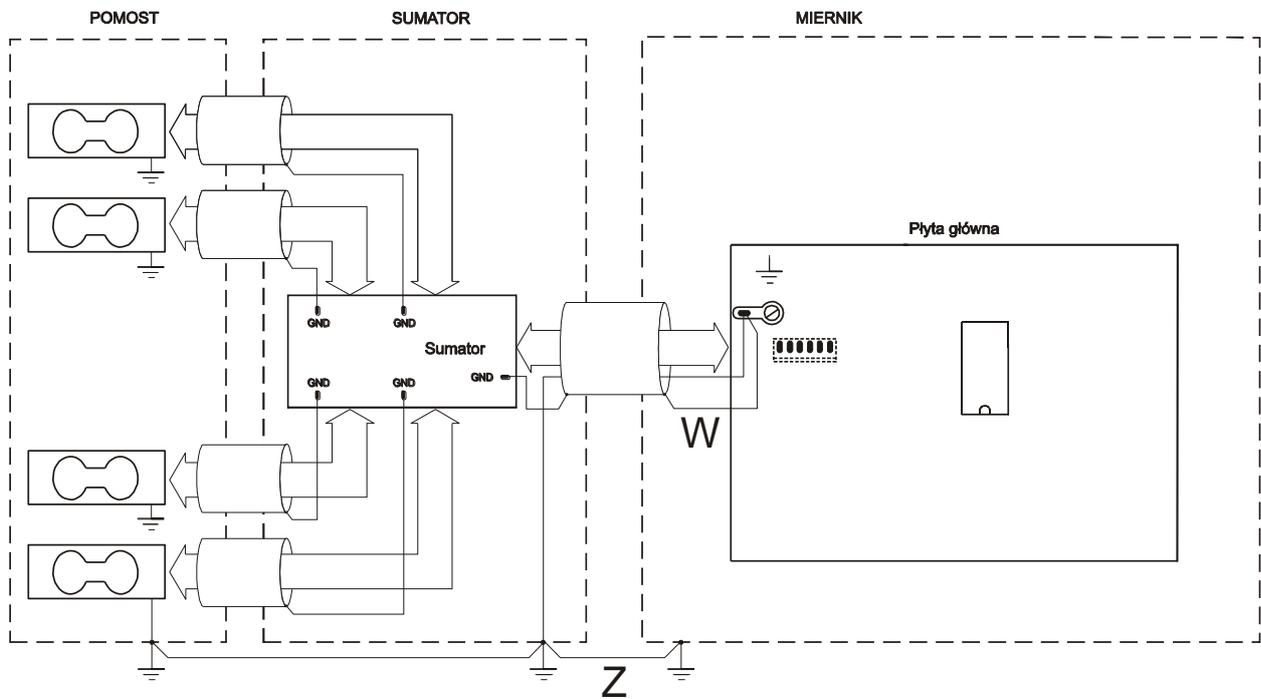
Caution:
The galvanic connection of sensors and adder housing is necessary.
In normal conditions grounding is made only by using W conductor.
In conditions of increased electrostatics grounding should be made with additional Z conductor (minimum 2,5 mm2).
Connect conductors from external devices to meter sockets, led out wires or to bar on supply board inside the meter (option). During leading out wires from meter housing use hermetic culverts in housing.

__All devices connected to the scale should be supplied from the same phase 230V.__

9. Meter connections description

ME-03/N/GLCD:

Seal wires for interfaces

~230V
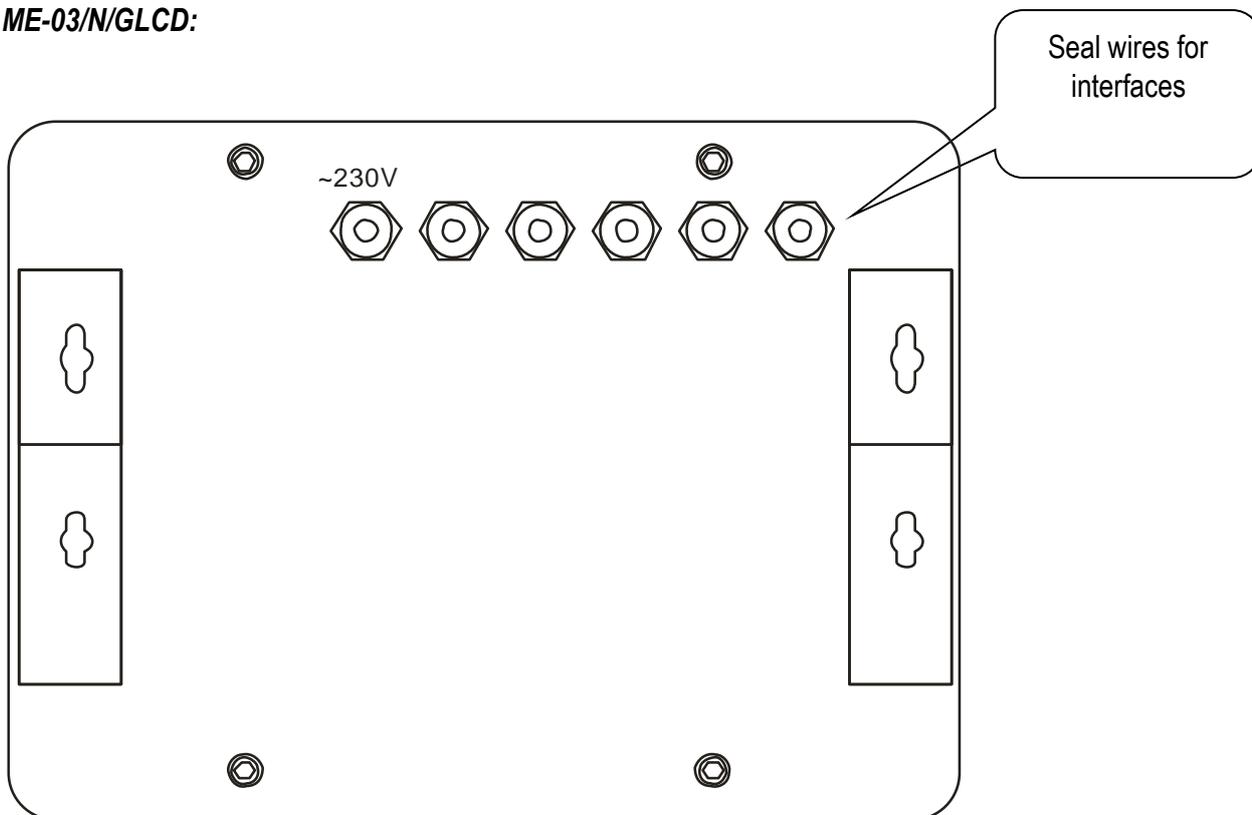
9.1 Threshold interface

P1-P3 (THRESHOLDS) outputs are used to connect dosing or signalling (option) devices. There are opto-isolators of an open collector type with 50mA / 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)..

Optional 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 might change

Direct connection of transmitter to THRESHOLD output diagram:
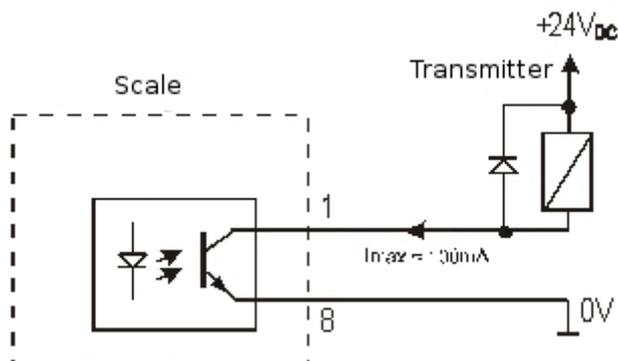
* in option without an interface – 10 is in the place of 8

Outputs are adapted for direct connection 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 box (feeder, 3 transmitters like above).

9.2   External keys

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. ME-03 meters can be eqipped with external keys (option od demand).

Marker numbers and outer wires colors indicators:

Nr	External keys input	Wire color
12	⤷	Yellow
13	MENU	Brown
15	→0←	Green
18	→T←	White
20	+24V (external supplier)	Pink
21	I/⏻	Blue
22	HR	Red
23	B/G	Purple

* colors might change

External key connecting is shown below. It is crucial to use external supply (24V) in order to make current flow through scale transoptor input. This way of connection provides galvanic separation of the scale from automatics systems which increases resistance to external interference and increases reliability.

External keys connecting:

Standard
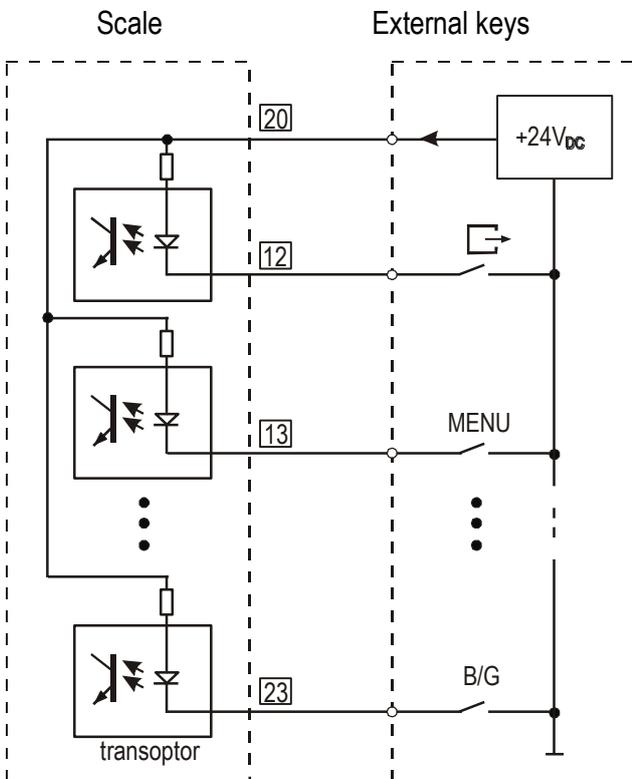
Option with interface
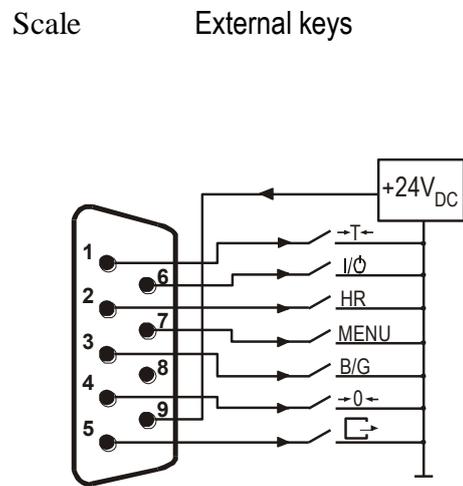
9.3   *Data transmission LonG protocol*

Long protocol is used for communication with computer or standard receipt printer (AXIS C-001, Picco M, MEFKA-1 PDT).

Transmission parameters: 8 bits, 1 stop bit, no parity, baud rate 9600bps,

RS232C interface description
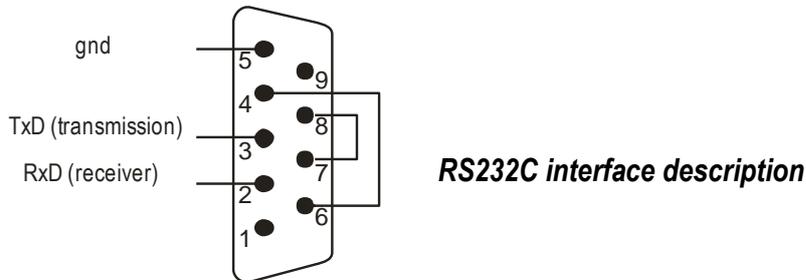
Data exchange (communication):

- Readout of scale indication

    Computer→Scale: **SI** CR LF (53h 49h 0Dh 0Ah),
    Scale→Computer: scale response according to description below (16 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

- Readout of actual indication
    Computer→Scale: **Sx1** CR LF – initiaton signal
    Scale→Computer: scale sends 16 bytes (the same as SI commad)
- Readout of stabilization indicator and actual indication
    Computer→Scale: **Sx3** CR LF – initiaton signal
    Scale→Computer: scale send indicator S (stable) or U (unstable) + 16 bytes (the same as SI command).

Attention:
Network number different than zero (*SErIAL / 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.
For example: Using a program to test RS232 interface (program is available in www.axis.pl / programy komputerowe) for scale number 1 please write: *$0201* to log in, then *SI*, and write: *$03* to close communication.

- Asking about scale presence in system (testing scale connection with computer):
    Computer→Scale: **SJ** CR LF (53h 4Ah 0Dh 0Ah),
    Scale→Computer: **MJ** CR LF (4Dh 4Ah 0Dh 0Ah),

- Displaying a inscription on scale's display (text communicate from computer):
  Computer→Scale: **SN** n n X X X X X X CR LF,   nn-displaying time in seconds; XXXXXX-6 signs to display
  Scale→Computer: **MN** CR LF (4Dh 4Eh 0Dh 0Ah),

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

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

- Scale turning on / off (calling I/⏻ key press):
  Computer→ Scale: **SS** CR LF (53h 53h 0Dh 0Ah),
  Scale →Computer: without response,

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

- Setting threshold 1 value (option):
  Computer→ Scale: **SL** *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 threshold 2 value (option):
  Computer→ Scale: **SH** *D1...DN* CR LF (53h 48h *D1...DN* 0Dh 0Ah),
  D1...DN – threshold value, maximum 8 characters
  Scale →Computer: without response.
- Setting threshold 3 value (option):
  Komputer→Waga: **SM** *D1...DN* CR LF (53h 4Dh *D1...DN* 0Dh 0Ah),
  gdzie: *D1...DN* – threshold value, maximum 8 characters
  Waga→Komputer: without response.

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

SCALE   COMPUTER
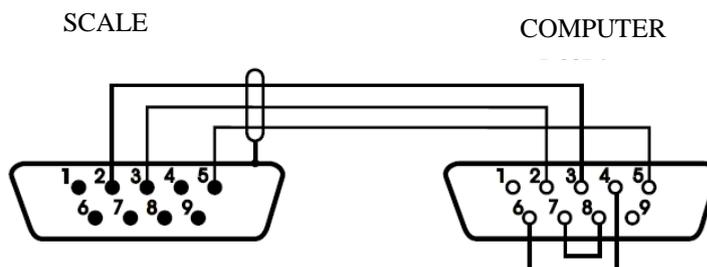
9.4   Data transmission EPL protocol

Transmission parameters: 8 bits, 1 stop bit, no parity, baud rate 9600bps,

- After using ⤷ key in scale:
- Scale→Label printer : set of instruction in EPL-2 language that initialize label printing:

US	-	Steering instruction
FR"0001"	-	Label number define instruction
?	-	Instruction that starts list of variable signs
mm:gg	-	5 signs: minutes:hour
rrrr.mm.dd	-	10 signs: year.month.day
masa	-	10 signs: scale indication+ mass unit
P1	-	Steering instruction

Attention:

1. Except variable signs constant signs can also be inscribed e.g. factory name, product name and so on.
2. In standard only one label pattern is possible to printout (number 0001). Using bigger amount of patterns (other label numbers) is possible thanks to *LAbEL* special function.
3. To achieve label printout, label printer must have inscribed label pattern (label pattern is created on computer and using computer it is saved to label printer memory). Label pattern is designed by ZEBRA DESIGNER program which is supplied together with label printer.
4. Scales parameters and transmission protocol must corespond to label printer type.

WE-5 connection cable (connects scale with ZT230 label printer – MM adapter also required; can be also used to connect scale with computer)
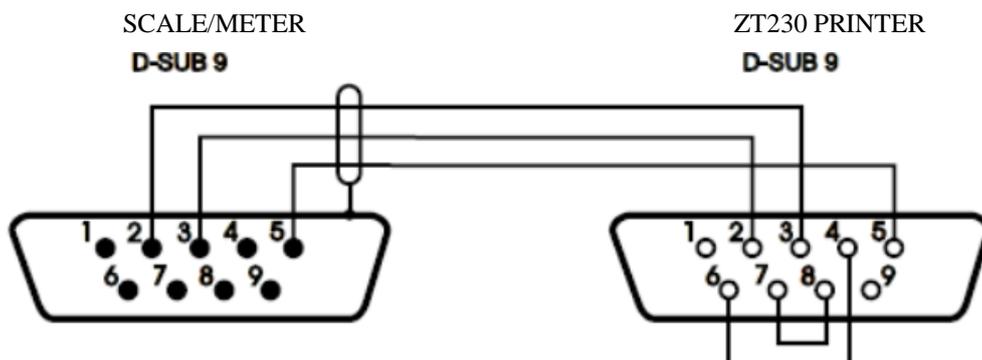
10.   *Exploitation general rules*

1. Before each measurement make sure that zero indicator is displayed. If zero indicator does not display or "----" communicate appears, press →0← key and wait until zero indication and zero indicator appears.

2. The scale is equipped with a tare equal to its range. To tare the scale press →T← key (left or right). Storing a tare value does not extend measuring range, but only subtracts it from a load placed on a pan. To make weight control easier and to avoid range overdrawing, the scale (with LCD) is equipped with a load indicator (graduated in percentages).

3. Weighing result should be read when the indicator "◣ ◢" lights, which signalises result stabilization.

4. When the scale is not used but it is necessary to be ready to work immediately, it can be switched off by pressing I/⏻ key. The scale reading system is then switched off to "standby" mode (signalled by the indicator "OFF" in version with the LCD display). To switch the scale on press I/⏻ key. The scale is immediately ready to operate maximum accuracy (after self tests).

5. Weighed sample should be placed in the centre of the pan.

⚠ ***Place the scale on a platform to avoid dropping weighed objects on the pan.***

⚠ ***Do not overload the scale more than 20% of maximum load (Max).***

6. Protect the scale against dust, aggressive dusts and liquids. To clean the scale wash it with water with soap and dry it afterwards.

7. A scale equipped with accumulators (option) automatically charges during normal work with feeder and controls accumulator state. Charging control is executed by *bAtterY* special function. The function enables to readout charging state and also to turn off charging in case of using normal batteries (instead of accumulators). Meter signalizes an accumulators discharge on LCD display and after around 1h the scale switches itself off to avoid discharging the accumulator below threshold voltage.

⚠ ***Do not allow to fully discharge the accumulator as this could damage it!***

After discharge signalising appears an accumulator should be charged as quickly as possible by connecting external feeder. Charging is more effective when scale is turned off with I/⏻ key, then charging time is about 10 hours..

11.   Balance checking and adjustment

It is advised to check scale indication accuracy before and after series of measurement using any load with known weight.

To check the scale with legal verification use a calibration weight with valid calibration certificate. In case permissible error is exceeded it is advised to contact the nearest service to calibrate the scale.

Adjusting (calibration) scale should be made if the scale precision is not sufficient. A standard of mass should be used with Max value taken from scale technical data table. In case of legalized scales with inaccessible calibration (secure seal) contact with service is recommended.

12. *Start-up*
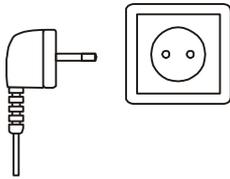
In scales with direct supply when pan is unloaded put the plug into socket.
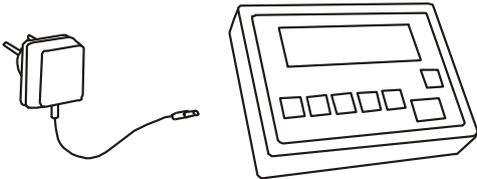
In scales with external supplier connect the supplier plug into meter and then (if scale is unloaded) plug it to wall socket.

Scale turning on sequence:

AXIS

AXIS Sp. z o.o.
Ul.Kartuska 375B
80-125 Gdańsk
www.axis.pl

F1 F2 F3 F4 F5 F6 F7 F8 F9 F10

Producer data.

TAROWANIE

- - - - -
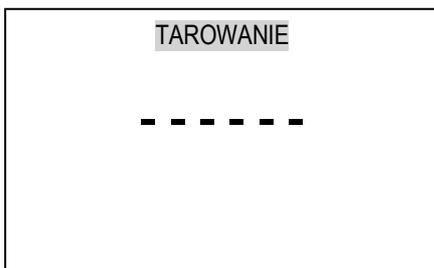
Scale tare.
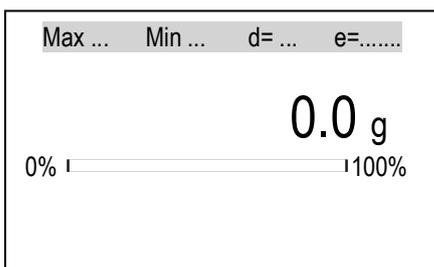
Zero indication means that the scale is ready to work.

Max ...   Min ...   d= ...   e=.......

0.0 g

0% 100%

Attention: UnLOAd communicate means that the scale is loaded or transport secure elements located under the scale's platform were not taken out.

13. Weighing with tare
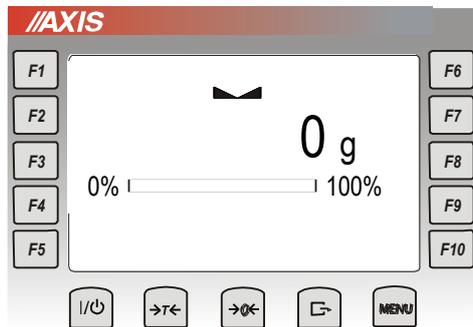
If the scale is not loaded and →0← indicator doesn't indicate, press →0← key.
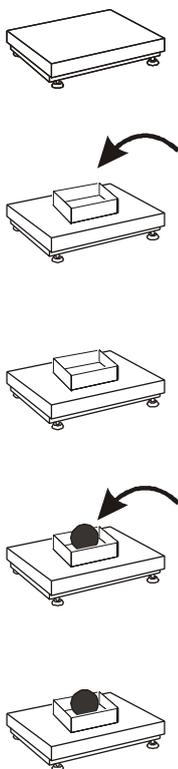
Zero indication and →0← indicator mean that the scale is ready to work.

After putting container (package) tare the scale using →T← key. NET indicator will show up.
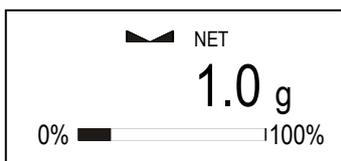
Put on weighted object and readout net weight (NET indicator shows that scale indicates net weight).

14. Scale menu - diagram
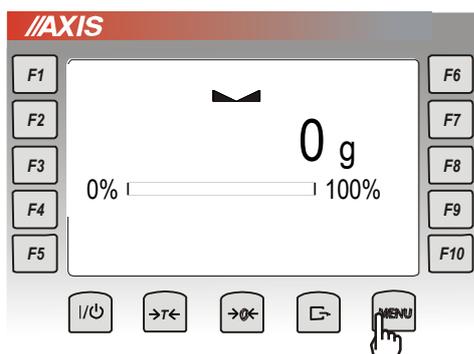
Scales with ME-03 meter besides basic metrological functions have also other user functions (labelling) and configuration options.
Standard meter is equipped with one RS232C interface. On following pages diagram for meter with 2xRS232C and THR out (threshold) is presented.

USER MENU

1. Applications
2. Setup
3. Info
4. Exit

APPLICATIONS
☐ Label Port 1
☐ Printout Port 2
☐ Threshold
    Exit

Description on pages 24-25

CONFIGURATION
1. Calibration
2. Auto-zeroing
3. Unit
4. Interface
5. LCD settings
6. Language
7. Time&date
8. Keyboard
9. Power
10. Firmware Update
11. Defaults
12. Service
13. Exit

CALIBRATION (only scales without leg.ver)
1. Calibration
2. Calibration STP (step by step)
3. Load: ....
4. Exit

AUTO-ZEROING
1. Status : <ON><OFF>
2. Exit

UNIT
☐ Gram   [g]
☐ Kilogram   [kg]
☐ Carat   [ct]
☐ Funt   [lb]
☐ Ounce   [oz]
☐ Ounce troy   [ozt]
☐ Grain   [gr]
☐ Pennyweight   [dwt]
    Exit

.

INTERFACE
1. Port 1
2. Port 2
3. Exit

INTERFACE\PORT 1
1. Mode :   <RS232><RS485>…
2. Baudrate: 9600
3. Bits :   8-bit
4. Parity :   none
5. Sending: STAB
6. Protocol: ZPL
7. RS addr.:   none
8. Defaults
9. Exit

KONFIGURACJA
1. Calibration
2. Auto-zeroing
3. Unit
4. Interface
5. LCD settings
6. Language
7. Time&date
8. Keyboard
9. Supply
10. Firmware Update
11. Defaults
12. Service
13. Exit

LCD SETTINGS
1. Contrast: ▭
2. Backlig.:<OFF, ECO,BAT,ON>
3. Negative: <OFF,ON>
4. Exit

LANGUAGE
1. Langua. : <ENG>
2. Exit

TIME&DATE
1. Time: gg:mm:ss
2. Date: rrrr:mm:dd
3. PIN
4. 12/24
5. Form:<YYYY-MM-DD>
   < MM-DD-YYYY> <DD-MM-YYYY>
6. Show: <OFF><ON>
7. Exit

KEYBOARD
1. Beep: : <OFF><ON>
2. Exit

SUPPLY
1. Charging: <OFF><ON>
2. Level: ....
3. Auto-OFF:<OFF><BAT><ON>
5. Exit

APPLICATIONS
- ☐ Label Port 1
- ☐ Printout Port 2
- ☐ Thresholds
-   Exit

APPLICATION\LABEL\PORT 1
1. Label no. :   1
2. Fields
3. Order
4. Labels database
5. Users base
6. Show label
7. Exit

PRINTOUT\ FIELD \PORT 1
- ☐ Label number
- ☐ Product ID
- ☐ Product name
- ☐ User ID
- ☐ User name
- ☐ Expiration date
- ☐ CODE 1 Operator
- ☐ CODE 2 Contractor
- ☐ CODE 3 Lot number

PRINTOUT\ORDER\PORT 1

Displays fields activated in Fields option

LABEL\DATA\PORT 1

Displays active fields and their values

LABEL\BASE L\PORT 1
1. Add
2. Edition
3. Delete
4. Print
5. Copy
6. Exit

BASE L\ADD \PORT 1
1. Label No:
2. Data
3. Print mode
4. Exit

ADD\DATA\PORT 1
1. Product ID
2. Product name
3. User ID
4. Expiration date
5. CODE 1 Operator

BASE L\COPY\PORT 1
1. Label no.:
2. From no.
3. To no.
4. Copy
5. Exit

BASE L\DELETE\PORT 1
1. Delete all
2. Delete one
3. Exit

ADD\MODE\\PORT 1
1. Print mode: <SCALE><AUTO>
2. Type EAN var: <SxxxxxS><Sxxxx.
3. EAN variable: <Price><Quant.>…
4. Label pcs: 0
5. Label I pcs: 0
6. Label II pcs: 0
7. Label I No.:   0
8. Label II No.:   0
9. Exit

BAZA L\PRINT\PORT 1
1. Print all
2. Print one
3. Exit

LABEL\BASE U\PORT 1
1. Add
2. Edition
3. Delete
4. Print
5. Exit

BASE U\ADD\PORT 1
1. Number :
2. Data
3. Exit

BASE U\ADD \PORT 1
1. User ID
2. User name
3. Exit

BASE U\DELETE\PORT 1
1. Delete all
2. Delete one
3. Exit

BASE U\PRINT \PORT 1
1. Print all
2. Print one
3. Exit

PRINTOUT\PORT 2
☐ Header
☐ User ID
☐ User name
☐ Date
☐ Time
☐ Printout No
☐ Product ID
☐ Product barcode
☐ Product name
☐ Count/Percent
☐ APW/Reference
☐ Net
☐ Tare
☐ Gross

APPLICATIONS\THRESHOLDS
1. Status: <OFF><ON>
2. MIN: none
3. MAX: none
4. ZERO: none
5. Outputs: <OFF>
6. Buzzer: <OFF>
7. Exit

15.   Menu navigation rules

Menu position selection is done by moving cursor on selected option (navigation keys - arrows) and pressing *ENTER* key (or →).

During inscribing data/number use numerical keys. Multiple pressing of the same key enables in some menu options to inscribe letters. During inscribing, besides numerical keys, use ← key to erase last position.

Exit option enables to move to previous menu level (also ← key can be used).

16.   Labels

16.1 General rules

To print label it is necessary to fulfill following conditions:
1. Label printer must have stored form (label project made on computer and by computer uploaded to printer memory).
2. Scale must have correctly set label in memory (previously added by user).
3. Parameters and transmission protocol must be corresponding to printer type. Use printer with EPL / EPL-2 / ZPL-2 protocol produced by Zebra company from our offer.

Label project (form) is made using ZEBRA DESIGNER software (look designing labels in annex).

Scale has 2 print modes:
a) SCALE mode – scale sends instructions to printer and data quantity equal to variable fields on label project. Before first printout carefully activate proper fields (which will be send to printer), insert data for chosen fields (if it is necessary eg. product name or product ID) and set their order for sending.
This mode can be used for all ZEBRA printers with EPL / EPL-2 / ZPL-2 protocol. For connection with scale use MM adapter (in set).

b) AUTO mode – in this mode there is a bidirectional communication between scale and printer. Before first printout insert only data for selected fields (if it is necessary eg. for product name or product code).
This mode can be used with Zebra ZT230 printers only with EPL / EPL-2 protocol. To connect with scale use WE-05 type AXIS cable (in set) and MM adapter (in set).

In following chapters You can find description of all necessary actions needed to link scale with label printer.
These actions in sequence are:
1) Add label to label database
2) Set fields to printout (Only SCALE print mode)
3) Set sequence of the fields for printout (only SCALE print mode)

16.2 Labels database

Labels database (max 1000) enables to add, edit or erase labels from scale's memory. Information stored in the labels enable the scale to cooperate with printer. The printer must have label project stored in memory. Label project (graphical project) is created on computer (ZebraDesigner software).

To add, edit or erase label enter MENU:

USER MENU

1. Applications
2. Setup
3. Info
4. Exit

Choose *Applications* option

APPLICATIONS
☐ Label Port 1
☐ Printout Port 2
☐ Threshold
   Exit

Choose *Label* option

APPLICATION\LABEL\PORT 1
1. Label no. :   1
2. Fields
3. Order
4. Labels database
5. Users base
6. Show label
7. Exit
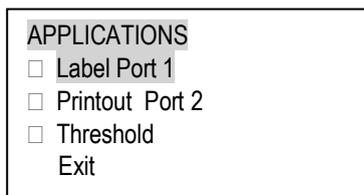
Choose option *Labels database*

LABEL\BASE L\PORT 1
1. Add
2. Edition
3. Delete
4. Print
5. Exit
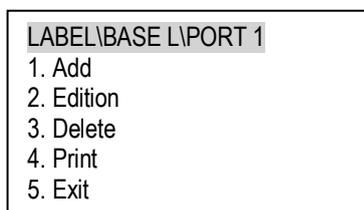
After entering *Labels database* user can choose:

- *Add* – add new label to database
- *Edition* – edit previously added label
- *Delete* – delete selected labels from memory
- *Print* – sends to port (RS232C interface) labels list and labels parameters. By connecting computer to scale (and using *Communication* software) user can readout the list. Alternatively user can connect standard receipt printer (eg. AXIS C-001) and receive list printout .

16.2.1 Adding label to database

```
LABEL\BASE L\PORT 1
1. Add
2. Edition
3. Delete
4. Print
5. Exit
```

To add label to database choose *Add*.

```
BASE L\ADD \PORT 1
1. Label No:      1
2. Data
3. Print mode
4. Exit
```

Insert label number, which You want to add.

Subsequently there are two options to choose from: *Data* and *Print mode*.

```
ADD\DATA\PORT 1
1. Product ID
2. Product name
3. User ID
4. Expiration date
5. CODE 1 Operator
6. CODE 2 Contractor
7. CODE 3 Lot number
8. CODE 4
9. CODE 5 Scanner
10. Tare setting
11. Price per kg
12. Price per pcs
13. VAT
14. EAN 13 fixed
15. EAN 13 variable
16. APW
17. Thr MIN
18. Thr MAX
```

In *Data* option user can inscribe information, which are needed for his label such as product ID, product name or price per kg.

Table 1

Field name	Max signs quantity
Product ID	16 (alphanumeric)
Product name	20 (alphanumeric)
User ID	8 (alphanumeric)
User name	20 (alphanumeric)
Expiration date	4 (number of days)
CODE 1 – Operator	12 (alphanumeric)
CODE 2 - Contractor	12 (alphanumeric)
CODE 3 - Lot	12 (alphanumeric)
CODE 4	12 (alphanumeric)
CODE 5 from barcode r.	32 ((alphanumeric)
Tare	7
Price / kg	7
Price / piece	7
VAT	7
EAN13 – fixed	12
EAN13 – variable with weight, price or quantity	7
APW	16
Thr MIN	16
Thr MAX	16

It isn't necessary to inscribe any data if user doesn't need it on label. In case when user needs only net weight and data on printout then *Data* option can be omitted.

User can also add labels database using *Scale database* computer program. The software is possible to download from our webpage www.axis.pl and is designed for users that will add big quantities of labels.

```
ADD\MODE\\PORT 1
1.Print mode: <SCALE><AUTO>
2. Type EAN var: <SxxxxxS><Sxxxx.
3. EAN variable: <Price><Quant.>…
4. Label pcs:        0
5. Label I pcs:      0
6. Label II pcs:     0
7. Label I No.:      0
8. Label II No.:     0
9. Exit
```

```
ADD\MODE\\PORT 1
1.Print mode: <SCALE><AUTO>
2. Type EAN var: <SxxxxxS><Sxxxx.
3. EAN variable: <Price><Quant.>…
4. Label pcs:        0
5. Label I pcs:      0
6. Label II pcs:     0
7. Label I No.:      0
8. Label II No.:     0
9. Exit
```

```
ADD\MODE\\PORT 1
1.Print mode: <SCALE><AUTO>
2. Type EAN var: <SxxxxxS><Sxxxx.
3. EAN variable: <Price><Quant.>…
4. Label pcs:        0
5. Label I pcs:      0
6. Label II pcs:     0
7. Label I No.:      0
8. Label II No.:     0
9. Exit
```

The second option is *Print mode*.

The *Print mode* has following options:

- *Print mode* – meter working mode change:

- *SCALE* – scale sends to printer steering commands and data quantity compatible with variable fields on label project. Before first printout carefully activate proper fields, insert data for selected fields (if it is necessary eg. product name or product ID) and set sequence of the data. The mode can be used for all ZEBRA printers with EPL / EPL-2 / ZPL-2 protocol. For connection with printer use AXIS WE-2 cable.

- *AUTO* - in this mode there is a bidirectional communication between scale and printer. Before first printout insert only data for selected fields (if it is necessary eg. for product name or product code).

This mode can be used with Zebra ZT230 printers only with EPL / EPL-2 protocol. To connect with scale use WK-1 type AXIS cable.

- *EAN variable* – different EAN-13 barcode formats:

- CCCCCC*SXXXXXS*
- CCCCCCC*SXXXXS*
- CCCCCC*XXXXXXS*
- CCCCCC*VXXXXXS*
- CCCCCCC*XXXXXS*

where

    C – constant part of code (inscribed in *Data* option)

    S,V – check digit added by printer

    S – check digit calculated by scale from XXXXX

    X – variable part of code (depends on weight, price or quantity)

- *EAN variable* – setting variable part of code (X) depended on weight, price or quantity.

- *Label pcs* – quantity of printed copies of selected label

- *Label I pcs* – quantity of printed copies of inclusive label I level

- *Label II pcs* – quantity of printed copies of inclusive label II level

- *Label I No.* – Inclusive label I level number for actual label. Don't configure the inclusive label.

- *Label II No.* – Inclusive label II level number for actual label. Don't configure the inclusive label.

16.2.2 Label edition

Label edit enables to make changes in previously stored labels in memory. Changes are made in the same way as during adding new label. More information in chapter 16.2.1.

16.2.3 Delete label

```
LABEL\BASE L\PORT 1
1. Add
2. Edition
3. Delete
4. Print
5. Exit
```

Delete option enables to remove from memory unnecessary labels. User can erase single label or all labels.

```
BASE L\DELETE\PORT 1
1. Delete all
2. Delete one
3. Exit
```

16.2.4 Print label list

Print option enables to printout labels list or single label together with data (parameters).
Sample printout for label with number 2:

0002;2   ;1234;Scale;1;1;0;1313;0;0;0;;0;3.5;0;0;;;0;0;0

↑   ↑   ↑   ↑   ↑

Label no 2   product ID product name   code 1   price per kg

Sequence of data according to <u>table 1</u> situated on page 28. 0 or empty parameter means lack of data.

16.2.5 Copy label settings

```
LABEL\BASE L\PORT 1
1. Add
2. Edition
3. Delete
4. Print
5. Copy
```

User can copy all label settings from one previously added label to others.
Choose *Label no.* to inscribe number of previously added label, which settings You want to copy.
From no. and *To no.* enables to choose labels numbers range where You want to copy settings.
After inscribing *Label no., From no.* and *To no.* choose *Copy*.

```
BASE L\COPY\PORT 1
1. Label no.:      1
2. From no.   2
3. To no.      100
4. Copy
5. Exit
```

16.2.6 **Pieces counting (*APW*)**

```
ADD\DATA\PORT 1
1. Product ID
2. Product name
3. User ID
4. Expiration date
5. CODE 1 Operator
6. CODE 2 Contractor
7. CODE 3 Lot number
8. CODE 4
9. CODE 5 Scanner
10. Tare setting
11. Price per kg
12. Price per pcs
13. VAT
14. EAN 13 fixed
15. EAN 13 variable
16. APW
17. Thr MIN
18. Thr MAX
```

```
APW SETTING
1. Activation
2. Sample size:        2
3. Mass from scale
4. Mass from PORT 1
5. Mass from PORT 2
6. APW:
```

```
APW SETTING
1. Activation
2. Sample size:        2
3. Mass from scale
4. Mass from PORT 1
5. Mass from PORT 2
6. APW:
7. Wiécie
```

```
APW SETTING
1. Activation
2. Sample size:        2
3. Mass from scale
4. Mass from PORT 1
5. Mass from PORT 2
6. APW:
```

If user wants to print pieces quantity on label then he must choose *APW* during adding/editing label.

User can also use shortcut F9 key (press and hold).

APW consists of following options:

- *Activation/Deactivation* – pieces counting function activation/deactivation,

- *Pieces quantity* – inscribing pieces quantity which is on pan/platform,

- *Mass from scale* – downloads actual mass which is on pan/platform, divides it by pieces quantity and calculates unitary mass *APW*,

- *Mass from PORT 1* – if scale works in a set with auxiliary scale then it can download from it unitary mass through interface no. 1,

- *Mass from PORT 2* - if scale works in a set with auxiliary scale then it can download from it unitary mass through interface no. 2,

- *APW* - manually inscribe unitary mass using numerical keyboard.

To printout pcs quantity it is necessary to inscribe unitary weight (option *Pieces quantity*+*Mass from scale* or manually using *APW*) and activate the function.

If user wants to do pieces counting on scale, then after inscribing unitary weight and activating function, he returns to main screen. On main screen instead of mass, pieces quantity appears. To change the view (pieces quantity/weight) press briefly F9 key.

16.3 Users base

```
USER MENU

1. Applications
2. Setup
3. Info
4. Exit
```

```
APPLICATIONS
□  Label Port 1
□  Printout  Port 2
□  Threshold
    Exit
```

```
APPLICATION\LABEL\PORT 1
1. Label no. :        1
2. Fields
3. Order
4. Labels database
5. Users base
6. Show label
7. Exit
```

```
LABEL\BASE U\PORT 1
1. Add
2. Edition
3. Delete
4. Print
5. Exit
```

```
BASE U\ADD\PORT 1
1. Number :
2. Data
3. Exit
```

```
BASE U\ADD \PORT 1
1. User ID
2. User name
3. Exit
```

Users database (max 100) enables to save in scale's memory user ID (max 8 signs) and user's name (max 20 signs).
The information can be printed.

Screens on left show how to add new user.
Attention: *User ID must be filled to add new user.*

Edition proceeds similarly to adding and enables to change ID or name of previously saved user.

Deleting enables to erase one or all users from scale's memory.

Printing enables to printout list of all users.

16.4 Fields to printout (SCALE mode)

```
┌─────────────────────────────────┐
│ ///AXIS                         │
│  F1            ⌣          F6    │
│  F2          0  g         F7    │
│  F3                        F8    │
│  F4   0% ├──────────┤ 100%  F9  │
│  F5                        F10   │
│                                 │
│   I/⏻   →T←   →0←   ⎗   MENU   │
│                           🖑     │
└─────────────────────────────────┘
```

```
┌─────────────────────────────┐
│ USER MENU                   │
│                             │
│ 1. Applications             │
│ 2. Setup                    │
│ 3. Info                     │
│ 4. Exit                     │
└─────────────────────────────┘
```

```
┌─────────────────────────────┐
│ APPLICATIONS                │
│ ☐ Label Port 1              │
│ ☐ Printout  Port 2          │
│ ☐ Threshold                 │
│    Exit                     │
└─────────────────────────────┘
```

```
┌─────────────────────────────┐
│ APPLICATION\LABEL\PORT 1    │
│ 1. Label no. :        1     │
│ 2. Fields                   │
│ 3. Order                    │
│ 4. Labels database          │
│ 5. Users base               │
│ 6. Show label               │
│ 7. Exit                     │
└─────────────────────────────┘
```

```
┌─────────────────────────────┐
│ PRINTOUT\ FIELDS \PORT 1    │
│ ☐ Label number              │
│ ☐ Product ID                │
│ ☐ Product name              │
│ ☐ User ID                   │
│ ☐ User name                 │
│ ☐ Expiration date           │
│ ☐ CODE 1 Operator           │
│ ☐ CODE 2 Contractor         │
│ ☐ CODE 3 Lot number         │
└─────────────────────────────┘
```

Fields option enables to select fields, which are going to be send to printer. In SCALE working mode, selecting the fields is mandatory.
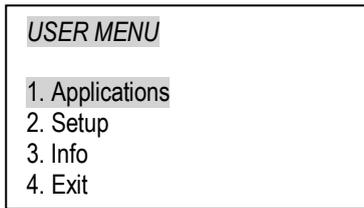
After entering Menu, choosing *Applications* and then *Label*, enter label number which You want to configure (*Label no.* option), and choose *Fields* option.
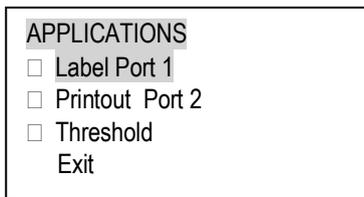
In fields option select (by using ENTER key) which field will be send to printer.
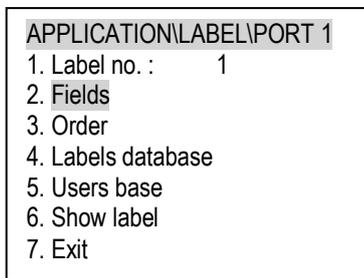
Attention: The quantity of selected fields must be accordant with quantity of variable fields on label project.
More information in Annex A and B.
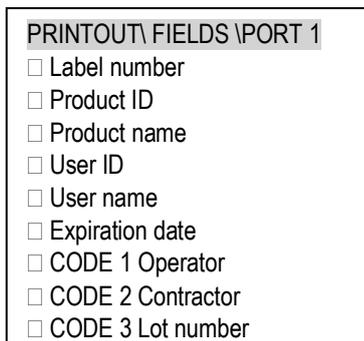
A field can be selected by ∨ or ■ (by pressing second time ENTER key) symbol. If user won't be printing cumulative labels or using cumulative fields then the selection symbol is not important. We suggest to use standard ∨.
If user will print cumulative labels then according to needs use table below:

| Selection symbol	for standard field	☐	∨	■
	for cumulative field*	☐	∨	■
Printed label	Std field	-	Yes	Yes
	Cumulative field*	-	Yes	-
Printed cumulative label	Std field	-	-	Yes
	Cumulative field*	-	Yes	Yes

*fields: Net-I, Gross-I, Number of packages-I, Net-II, Gross-II, Number of packages-II, Count-I, Count-II

During setting, fields are set for actually edited label and for cumulative labels (if they are set chapter 16.2.1)
Attention: Cumulative label fields are set only during setting base label.
Date and time field shows up only if activated (Show option - chapter 17.5)

16.5 Fields order (SCALE mode)
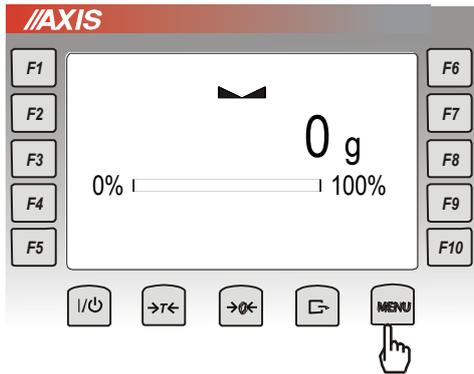
After activation of selected fields user must set the order/sequence in which the fields are send to printer. To do that choose *Order* option.

USER MENU

1. Applications
2. Setup
3. Info
4. Exit
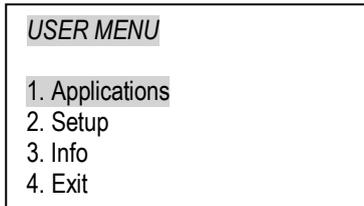
List of activated fields (in previous option *Fields*) will show up. After entering selected field You will see sequence number. The number can be erased (by ← key) and user can inscribe new number using numerical keys.

APPLICATIONS

☐ Label Port 1
☐ Printout Port 2
☐ Threshold
    Exit
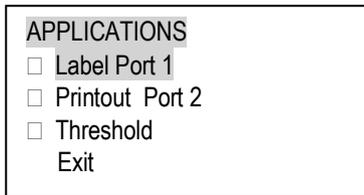
ATTENTION: ZebraDesigner 2.2: Fields sequence should conform to sequence of adding variable fields on label project. Project made in ZebraDesigner 2.5: Fields sequence should conform to location of fields on label project (from top to bottom). More information in Annex A and B.

APPLICATION\LABEL\PORT 1
1. Label no. :   1
2. Fields
3. Order
4. Labels database
5. Users base
6. Show label
7. Exit

PRINTOUT\ORDER\PORT 1
1. Product ID
2. Product name
3. EAN 13
4. Exit

PRINTOUT\ORDER\PORT 1

Product name

2
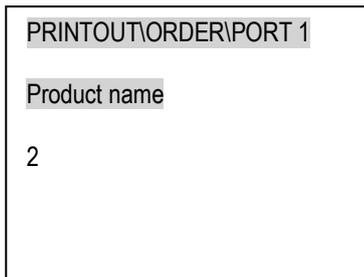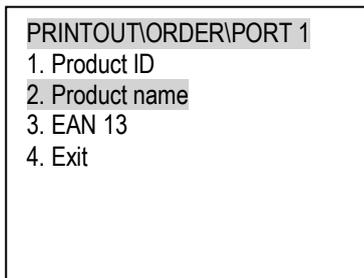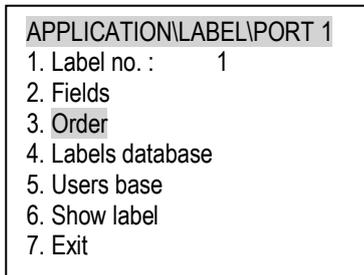
17.   Configuration

17.1 Auto-zeroing

Auto-zeroing special function ensures that balance's indications close to zero will be corrected automatically and when the pan is unloaded zero indication will be maintained (regardless of environment conditions).

CONFIGURATION
1. Calibration
2. Auto-zeroing
3. Unit
4. Interface
5. LCD settings
6. Language
7. Time&date
8. Keyboard
9. Power
10. Firmware Update
11. Defaults
12. Service
13. Exit

To turn on the function use navigation keys and *ENTER* key, select *Status ON*.

AUTO-ZEROING
1. Status : <ON><OFF>
2. Exit

17.2 Unit selection

Option enables to select measurement unit:

- *Gram*
- *Kilogram* (1kg=1000g),
- *Carat* (1 ct= 0,2 g),
- *Pound* (1 lb=453,592374g),
- *Ounce* (1oz=28,349523g),
- *Ounce troy* (1ozt=31,1034763g),
- *Grain* (1gr=0,06479891g),
- *Pennyweight* (1dwt=1,55517384g),

17.3   Setting serial port parameters (Interface)

The function allows setting independently communication parameters of serial ports (executed in RS232C, RS485, USB or LAN standard). If the scale is equipped with one serial interface (standard) then user is allowed to configure only one port.

```
INTERFACE\PORT 1
1. Mode :     <RS232><RS485>…
2. Baudrate: 9600
3. Bits :      8-bit
4. Parity :    none
5. Sending:  STAB
6. Protocol:  ZPL
7. RS addr.:  none
8. Defaults
9. Exit
```

- transfer protocol *(Protocol)*:
  LONG –cooperation with computer or receipt printer,
  EPL – cooperation with label printer EPL2 language,
  EPL_d – cooperation with special label printers,
  ZPL2 – cooperation with label printer ZPL2 language,
  PEN-01 – cooperation with PEN-01 data logger,
  SCANN –cooperation with HD42A barcode reader.

- Transmission speed (*Baudrate*): *4800, 9600, 19200,… 115 200bps*,
- Number of bits in byte (*Bits*): *7, 8,*
- Parity control (*Parity*):
  none – no control,
  Odd,
  Even,

- RS addr. (*no*):
  (if the scale doesn't work in multipost network then none should be selected),

- Transmission mode (*Sending*):
  StAb – transmission after ⤷ key is used and result is stable,
  noStAb – transmission after ⤷ key is pressed without need of stabilisation,
  Auto - automatic transmission after load is put on and result is stable (*Auto*),
  Cont - continuous transmission, about 10 results per second (*Cont.*),
  Remove – transmission after unloading.

17.4 Language selection (Language)

```
LANGUAGE
1. Langua. : <ENG>
2. Exit
```

Language option enables to change user menu language. User can choose: Polish (PL), German (DE), Spanish (ESP) or English (ENG).

17.5 Setting date and time

```
TIME&DATE
1. Time:    gg:mm:ss
2. Date:    rrrr:mm:dd
3. PIN
4. 12/24
5. Form:<YYYY-MM-DD>
  < MM-DD-YYYY>  <DD-MM-YYYY>
6. Show: <OFF><ON>
7. Exit
```

Function enables setting actual time/date and displaying format.

Additional options:
PIN – after inscribing security code PIN [4 digits] time/date edition will be secured with the code
Show – turn it on if You need date/time on printouts.

17.6 Keyboard

```
KEYBOARD
1. Beep: :  <OFF><ON>
2. Exit
```

Function enables to turn on and off the beep signal when key is pressed.

18.   *Troubleshooting and maintenance*

1. Scale should be kept clean and protected from dust, aggressive pollen and liquid.

2. Take care that no dirt is between pan and casing of the scale. If dirt is noticed take the pan off (lift it up). Clean dirt and then put the pan on.

3. In case of improper operation caused by a short-lasting lack of power supply, switch the scale off by unplugging it from the mains, and then after several seconds switch it on.

4. „*SErvic(e)*" message displayed after turning on unbiased scale means scale sensor mechanical damage.

5. Every repairs performed by unauthorized persons are forbidden.

6. To repair the scale, please contact nearest service centre. The list of authorised service centres is given in guarantee card and on www.axis.pl website.

Failure messages:

Message	Possible cause	Recommendation
C-1 ... 6 (more than 1min.)	negative result in one of the autotests	contact service centre
unLOAd / SErvic(e)	Scale loaded while switching on	Take the load off the pan
	mechanical damage of scale sensor	contact service centre
L	no pan on the scale	put the pan on
	mechanical damage of the scale	contact service centre
H or unload	overweight of the scale	take a load off the pan
	mechanical damage of the scale	contact service centre
indicator does not work ►◄	unstable scale position, ground vibration, air flows	locate the scale in place where stable results are maintained
	damage of the scale	contact service centre
- - - - - -	taring not finished	contact service centre
- -	Taring not achieved (to small load or B/G use)	Scale zeroing or once again press B/G
- -	Zeroing with too big load	Scale tare

Annex A

## Simple label project and label printout (Scale mode)

Scale and label printer cooperation requires to design label project on computer and uploading it to printer's memory. Afterwards the printer is connected to scale. Scale sends variable data (eg. net weight, tare, product id) which fills empty spaces in the designed project.

In manual following set is descripted:

- Scale with ME-03 meter,

- Label printer Zebra ZT230,

- ZebraDesigner 2.5 software,

Following points describe standard actions and sequence of actions which will enable fast cooperation between scale and printer:

1) Sample label, which we want to obtain:

Static (fixed) elements

AXIS Sp. z o.o.
Product code:

12345678

Net weight: 100 g
Gross weight: 300 g
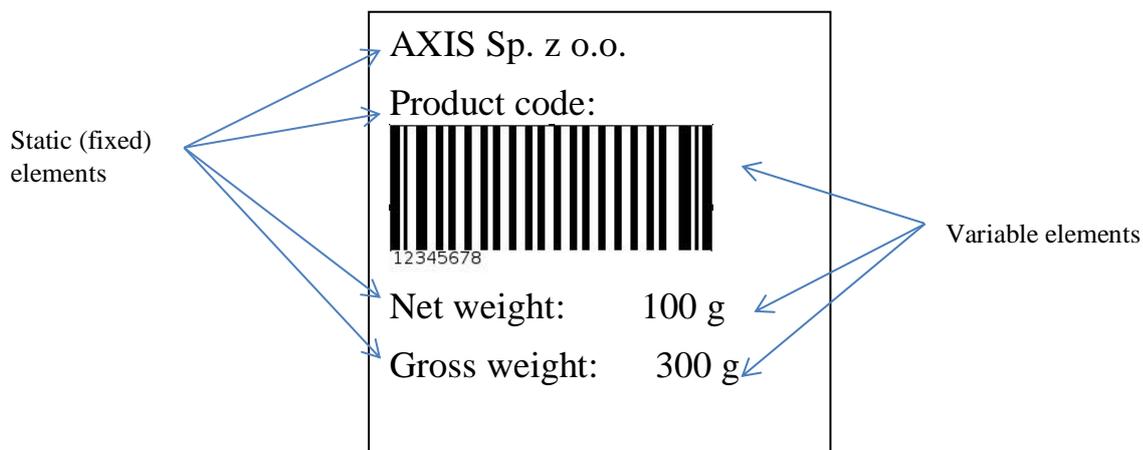
Variable elements

On label there are static elements (inscribed text) and variable elements, downloaded during printout (net weight, gross weight and 8-digit code).

2) Before designing label project (on computer), weighing meter must be prepared for cooperation:

- Add label to labels database (16.2.1 chapter)

- Activate fields to printout (16.4 chapter)

- Set sequence (order) of fields (16.5 chapter)

ATTENTION: Remember the sequence (order) of fields set in scale. The sequence must be repeated during label design (from top to bottom)!

After these actions the file sent to printer should look like below (EPL mode):

```
P1
US
FR"0001"
?
23770
    19 g
    19 g
P1
```

*0001* is the label number inscribed in scale.

*23770*  is the product code inscribed in scale.

Sent file can be checked by connecting scale to computer and using freeware AXIS *Communication*.

**3)** During creating new label project in ZebraDesigner software, user is asked to choose label printer type and dimensions of label. Afterwards user can start to add static and variable elements:

**a)** Adding static elements – Press *Text* key and point space (left mouse button) on label where it should appear. Afterwards *Text Wizard* window will appear.
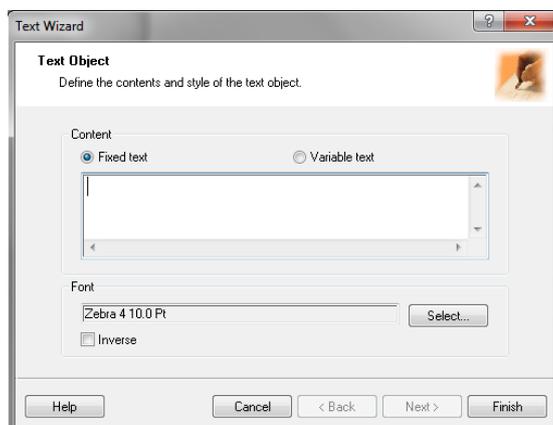


Inscribe text, which You need on label and press *Finish*. In case of our sample label we insert text 4 times (*Product code,  AXIS Sp. z o.o., Nett weight* and *Gross weight*).

**b)** Adding variable elements:

- Barcode: Press *Bar code* key and point space on label where it should appear. In *Bar code Wizard* window choose *Variable bar code data*, choose code type (*Define* key) and press *Next*. In following window press *Next* once again. In next window *Keyboard input* inscribe any letter (the letter doesn't have any effect but must be inscribed), set max signs value according to table 1 page 28 and press *Finish*. For the sample label these actions must be done once (don't inscribe prefix or suffix).

- Text: Press *Text* and point place (mouse left button) on label where it should appear. In *Text Wizard* window choose *Variable text* option and press *Next*. In following windows do the same actions as during creating barcode. For sample label, text must be added twice.

***ATTENTION: The order (sequence) of displayed elements on label is important for proper cooperation with scale! User should remember in which sequence (order) he set fields in scale and use the same order during designing label (from up to bottom).***
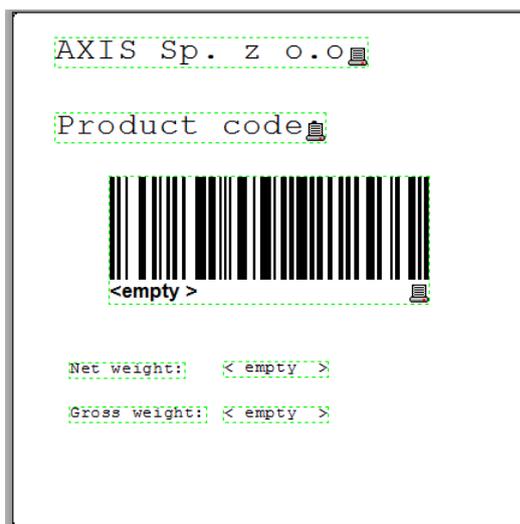


*Finished project design ZebraDesigner*
*(depending on EPL or ZPL language and software version the project look may differ)*

4) Save project as a 4 digit number eg. 0001 (project name must be the same as the number added in scale) and send to printer ( *File -> Send to printer* ). If there are many types of memory choose Internal Flash.

5) Connect printer to ME-03 meter. Check if transmission speed (baud) is 9600bps in printer and scale.

6) Set is ready to work.

*Annex B*
# Simple label project and label printout (Auto mode)

In auto mode only selected types of Zebra printers work eg. ZT230. Scale and label printer cooperation requires to design label project on computer and uploading it to printer's memory. Afterwards the printer is connected to scale. The label printer sends 'questions' to scale about data eg.: net weight, gross weight, product code etc.

In manual following set is described:

- Scale with ME-03 meter,

- Label printer Zebra ZT230,

- ZebraDesigner 2.5  software,

Following points describe standard actions and sequence of actions which will enable fast cooperation between scale and printer:

**1)** Sample label, which we want to obtain is:
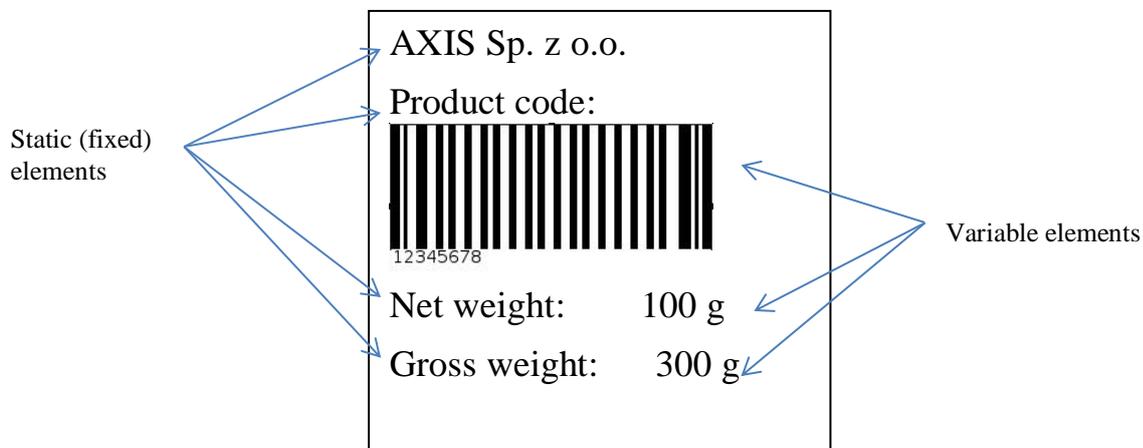
Static (fixed) elements

AXIS Sp. z o.o.

Product code:



12345678

Net weight:          100 g

Gross weight:        300 g

Variable elements

On label there are static elements (inscribed text) and variable elements, downloaded during printout (net weight, gross weight and 8-digit code).

**2)** Before designing label project (on computer), weighing meter must be prepared for cooperation:

- Adding label to label database (16.2.1 chapter). Set Auto print mode (only EPL).

**3)** During creating new label project in ZebraDesigner software, user is asked to choose label printer type and dimensions of label. Afterwards user can start to add static and variable elements:

a) Adding static elements – Press *Text* key and point space (left mouse button) on label where it should appear. Afterwards *Text Wizard* window will appear.
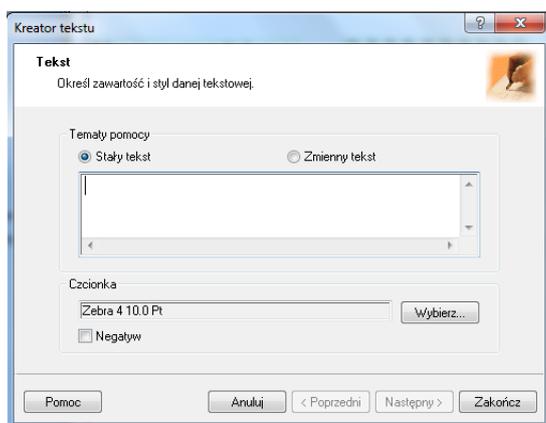


Inscribe text, which You need on label and press *Finish*. In case of our sample label we insert text 4 times (*Product code, AXIS Sp. z o.o., Nett weight* and *Gross weight*).

b) Adding variable elements:

| lp. | Field | Auto codes | Max signs |
|-----|-------|------------|-----------|
| 1. | Label no | %001 | 4 |
| 2. | Product ID | %002 | 16 |
| 3. | Product name | %003 | 20 |
| 4. | User ID | %004 | 4 |
| 5. | User name | %005 | 12 |
| 6. | Expiration date | %006 | 12 |
| 7. | Code 1 – operator code | %007 | 12 |
| 8. | Code 2 – client's code | %008 | 12 |
| 9. | Code 3 – lot number | %009 | 12 |
| 10. | Code 4 - | %010 | 12 |
| 11. | Code from barcode reader | %011 | 32 |
| 12. | Tare | %012 | 7 |
| 13. | Price / kg | %013 | 7 |
| 14. | Price / szt | %014 | 7 |
| 15. | VAT | %015 | 7 |
| 16. | EAN13 - static | %016 | 12 |
| 17. | EAN13 – variable with weight, price or quantity | %017 | 12 |
| 18. | Unitary weight | %018 | 8 |
| 19. | Threshold Min | %019 | 7 |
| 20. | Threshold Max | %020 | 7 |
| 21. | Net weight | %021 | 16 |
| 22. | Gross weight | %022 | 16 |
| 23. | Value – price * kg | %023 | 16 |
| 24. | Value – price * pcs | %024 | 16 |

| 25. | Date | %025 | 10 |
|---|---|---|---|
| 26. | Time | %026 | 5 |
| 27. | Net weight sum (for cumulative label) | %027 | 16 |
| 28. | Gross weight sum (for cumulative label) | %028 | 16 |
| 29. | Quantity of cumulative labels | %029 | 16 |
| 30. | Net weight sum for II level cumulative label | %030 | 16 |
| 31. | Gross weight sum for II level cumulative label | %031 | 16 |
| 32. | Quantity of II level cumulative labels | %032 | 16 |
| 33. | Pieces quantity | %033 | 16 |
| 34. | Cumulative pieces counting | %034 | 16 |
| 35. | II level cumulative pieces counting | %035 | 16 |

- Barcode: Press *Bar code* key and point space on label where it should appear. In *Bar code Wizard* window choose *Variable bar code data*, choose code type (*Define* key) and press *Next.* In following window press *Next* once again. In next window *Keyboard input* insert auto code from table above (eg. for code 4 inscribe %010), set max signs quantity (for code 4 it is 12) and press *Finish*. For sample label do it once (no prefix or suffix).

- Text: Press *Text* and point place (mouse left button) on label where it should appear. In *Text Wizard* window choose *Variable text* option and press *Next*. In following windows do the same actions as during creating barcode. For sample label, text must be added twice.



*Finished project design ZebraDesigner*
*(depending on EPL or ZPL language and software version the project look may differ)*

4) Save project as a 4 digit number eg. 0001 (project name must be the same as the number added in scale) and send to printer ( *File -> Send to printer* ). If there are many types of memory choose Internal Flash.

5) Connect printer to ME-03 meter. Check if transmission speed (baud) is 9600bps in printer and scale.

6) Set is ready to work.