ELZAB 1969
made in biznes

USER MANUAL
ELZAB PRIMA 2
SCALE

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1. Introduction

The ELZAB PRIMA2 is a modern electronic scale with the strain pressure transducer and digital readout of results. It is dedicated to work with cash registers (in particular with cash registers produced by ELZAB) and other devices equipped with RS232 serial interfaces and USB.

The scale is available in three versions with different measurement specifications: as the single interval or double range scale. For comfortable reading of indicated weight the scale is equipped with two built-in LCD displays located on the front and the back of the case. There is also available an optional free-standing display as accessories.

Scale features:

- weighing the goods,
- weighing and subtracting the tare,
- automatic switching off the tare after having weighted the goods,
- automatic zero tracking (maintaining zero while unloaded),
- 3-button keyboard,
- two built-in displays showing the weight, messages and the ZERO, STABILITY, NET and FIXED TARA indicators,
- ability to connect an additional graphic display,
- single interval (d = e = 5 g) or double range (I range: $d_1 = e_1 = 2g$, II range: $d_2 = e_2 = 5g$) scale,
- communication with external devices (cash register, computer, terminal) through the RS232 communication interfaces or USB (CDC class),
- transfer of the weighing results: after pressing the button on the scale, after receiving the command from the communication interface or automatically,
- ability to work in the ELZAB SCALES SYSTEM,
- energy saving mode.

2. Specifications of the Prima2 scale

2.1. Scale presentation

PRIMA 2 scale

2.2. Technical Specifications

- Specifications common for all types of scales:

Scale type	non-automatic, electronic scale with the load strain pressure transducer and digital readout of the weight
Display	5 digits, character height of 12,7 mm
Operating temperature range	-10 °C ÷ 40 °C
Power Supply	5±0.5V / 0,25A (through RS232 interface or USB)
Power consumption	average 1W
Interfaces	1. RS232 (computer, cash register) 2. USB (computer, terminal) 3. RS232 (additional external display)
Number of scale intervals	3000
Initial zeroing range	±10% * Max = ±1.500g
Semi-automatic zeroing range	±2% * Max = ±0.300g

- Specifications of the single interval:

Class of accuracy	III
Scale type	Single interval
Minimum load	Min = 100g
Maximum load	Max = 15kg
Elementary and legalization scale intervals	d = e = 5g
Tare range (subtracting tare)	T = -Max

- Specifications of the double range scale:

Class of accuracy	III	
Scale type	double range	
Weighing range	I	II
Minimum load	$Min = Min_1 = 40g$	$Min_2 = 100g$
Maximum load	$Max_1 = 6kg$	$Max = Max_2 = 15kg$
Elementary and legalization scale intervals	$d_1 = e_1 = 2g$	$d_2 = e_2 = 5g$
Tare range (subtracting tare)	T = -Max	

2.3. Dimensions

Scale type	width [mm]	depth [mm]	height [mm]	total weight [kg]
PRIMA 2	319	307	78	3,9

2.4. Display, keyboard

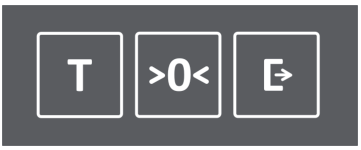
- Built-in display

- Additional external display

There may be displayed the following indicators:

Built-in display	Additional external display	Meaning
		Stable loading indicator
		Exact zero indicator (weight less than ¼ of the e1or e interval)
		Indicator of the tare stored for a single weighing
		Indicator of the tare stored for several weighing
		Scale range indicator (only it the double range scale)

The controls of the scale consists of the three keys.



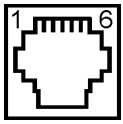
The functions of the keys in the weighing mode are as follows:

T	TARING	Turning on and off the tare
>0<	ZEROING	Zeroing the scale, access to the scale menu
	TRANSMITTING	Transmitting the result to the cash register

2.5. Description of connectors

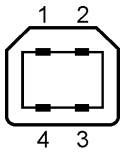
CASH REGISTER/PC (RS232) connector – is used to connect cash register or PC

Contact No.	Signal name
1, 2	+5V–cash register power supply input
3	TxD-serial output
4	RxD-serial input
5, 6	GND



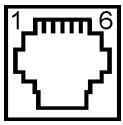
PC **PC/TERMINAL (USB) connector–** is used to connect a PC

Contact No.	Signal name
1	+5V–cash register power supply input
2	D -
3	D +
4	GND



ADDITIONAL DISPLAY connector– is used to connect an additional external display

Contact No.	Signal name
1, 2	+5V – display power supply output
3	TxD – serial output
4	--------
5, 6	GND



3. Technical conditions of installation and operation of the scale

3.1. Installation of the scale

- the scale should be placed on a stable and level surface,
- the scale should be leveled so that the air bubble level indicator was in the center of the circle drawn on the indicator. Level the scale with adjustable bolts. After having leveled the scale check for stability (all bolts touch the ground) and whether the platter is correctly placed on the feet,
- if the scale is working with an external display mount the display on the countertop of the cash box. Connect the display to the scale,
- connect the USB or RS232 scale interface cable with the communicating device. Do not connect or disconnect the interface while using the scale as this may damage the interface.

3.2. Environment

- The scale can be operated at temperatures from -10 to +40 ° C and humidity up to 85% in an atmosphere free from corrosive substances. After a sudden change in temperature by more than 5 ° C the scale should acclimate for 2 hours before connecting the power supply (e.g. putting the scale into warm room after having transported it in the cold). Do not allow the formation of condensation. When working in areas with higher humidity, but within the limits stated above, it is advisable to turn off the power for 24 hours.
- The scale may not be subject to shocks and vibrations, can't work near sources of strong electromagnetic fields, can't be exposed to strong sunlight for long periods and can't work in the direct stream of air or in dusty areas.

3.3. Other operating remarks

- During turning on the power the platform should be empty. After turning the power on the scale automatically runs its test and resets by taking as a zero the actual scale load. During the test, the display shows the version of the program, all indicators light up and the digits change from 0 to 9. After completing the test displayed data shows zero and the →0← and ⊿ indicators light.
- If during subsequent operations of the scale the weight indicator will be different from zero it is needed to reset the scale with empty platter
  - by pressing the >0< key (for small deviations) or
  - by turning off and on the power supply of the scale or
  - perform the scale reset from the main menu.
- Avoid overloading or sudden load shocks of the platter. They can cause damage to the mass transducer.
- It is recommended to check the correctness of weight readings of the scale using a standard weight of at least 1/3 of the scale's range. If you notice that the errors are larger than the limits are the scale should be immediately withdrawn from use and it is needed to contact the service.
- It is especially important to review the readings of weight after having transported and installed the scale, before starting using it. Foreign objects should not touch the platter.
- The whole scale must be kept clean, not only for hygienic and aesthetic reasons but also for measuring. Take care mainly of cleaning the platter and the space under the platter because the gathered crumbs of weighted goods may impede the free movement of platter, as well as affect the functionality of the transmitter. The housing can be wiped with a damp cloth. Too much water should not be used during the cleaning, which could pour into the interior of housing.

Note: Failure to comply with technical installation and operation conditions specified in this user's manual releases the manufacturer from any liability of an inappropriate functioning of the scale.

4. Operation

4.1. Turning on

After turning on the scale the internal test procedure runs for about 15 seconds checking the individual scale components and thermal stabilization of the measuring circuit. During the test all boxes of the display show consecutive digits and all indicators are lit. In order to precisely zero the scale any objects should not be put on the platter during the test and the platter shouldn't be touched. If the stability of the scale will be disrupted the scale will wait to stabilize the load. After successful completion of the test the display should show:

4.2. Weighing

The commodity should be placed as gently as possible near to the central point of the platter. Proceed to load the scale evenly and without shocks or jolts. Negative readings below 20 units are signalized by displaying 0 0 0.0 0 0. When the maximum load is exceeded by 9 units a message is indicated by displaying the n n n n n n. Maximum load is automatically reduced by the tare value if it turned on earlier.

Note: ***Do not overload the scale above the maximum capacity. Overloading can cause damage to the scale and void the warranty.***

After loading the scale the display shows the weight value (e.g. 3,200kg):

4.3. Zero setting

The scale features the →0← indicator signalizing that the scale was reset to zero. The indicator is lit if the current platter load is less than ¼ of e_1 unit.

Initial zero setting when turning on the scale

After turning on the scale and running the display test the scale will be set to zero. The display will show only zero values and the →0←. indicator will be lit. Zeroing is possible if the weighing result during zeroing is stable and is in the range ± 10% of the weighing range of the zero stored during the calibration of the scale.

In case of exceeding the zero range the rAnGE message will be displayed and the scale does not reset. The scale is locked until removing the load exceeding the acceptable range.

Zero setting with the use of the key

Zeroing is possible in the range no greater than ± 2% of the maximum scale readings in relation to the zero stored during turning on the scale (so-called "initial zero"). To reset the scale press the >0< key. The scale will be reset if the two conditions are met:

- current indication is within the range no greater than ± 2% in relation to the load stored just after turning on the scale,
- indication of the scale will achieve stability within 5 seconds after pressing the key.

In case of exceeding the zeroing range the rAnGE error is displayed and the scale does not reset. In case of instability the zeroing is not effected and the noStAb error is displayed**.**

Automatic zero setting for negative readings

This reset type is done automatically if during several seconds the scale readings are negative or the scale in under loaded. Other terms and conditions of zeroing are the same as for the reset with the use of the key.

Zero maintaining i.e. „zero tracking"

This feature prevents from "sliding" of the scale's zero resulting from various external factors that may affect the zero indication. It consists of an automatic reset when the platter is unloaded. Other terms and conditions of zeroing are the same as for the reset with the use of the key.

4.4. Tarring

The scale features the tare subtracting function (subtracting the tare reduces the weighing range by the tare value). Activity of this function is signalized by NET indicator.

To activate the function press the T key. If the scale is stable or will achieve stability within 1 second the current platter load will be considered as the platter value. In case of instability the tarring is not effected and the nOStAb error is displayed.

The maximum tare value depends on the type of scale and is indicated in the Section **2.2 Specifications** of this manual.

Turning off the tare is effected after removing the load from the platter and pressing another time the T key or automatically after removing weighted commodity. In order the tare turns off automatically there should be effected the process of weighing the commodity what takes place when the load of the platter is stable and greater then the "Minimum Result" MinrES set in the "User Menu" MEnU.

Example of weighing with tarring:

- the scale is set to zero, the →0← and ⊿ indicators are lit,
- load the scale (e.g. with a basket),
- the scale indicates 0.788 kg, press the T key,
- the tare value is imputed, the scale indicates 0.000 kg and the ⊿ NET indicators are lit,
- remove the load (a basket),
- the scale indicates -0.788 kg, the →0←, ⊿ and NET indicators are lit,
- put again the load on the platter (basket + its content),
- the scale indicates 0.506 kg, the result is stable, the ⊿ and NET indicators are lit,
- read or transit the result of weighing, press the key,
- remove the load,
- tare will be switched off automatically,
- the scale indicates 0.000 kg, the →0← and ⊿ indicators are lit.

The scale enables setting the fixed tare value which is signalized by the lit PT indicator.

Turn on the tare by pressing another time the T key while inputting the tare value or by single pressing if the FIXED TARE setting = tArE 1. It is possible to input several tare values if the consecutive tare values are growing.

Example of multiple inputting of the tare value:

- the scale is set to zero, the →0← and ⊿ indicators are lit,
- load the scale,
- the scale indicates 0.788 kg, press the T key,

– the tare value is imputed, the scale indicates 0.000 kg and the [⊿] [NET] indicators are lit,
– put additional load on the platter,
– the scale indicates 1.230 kg, press again the [T] key,
– the new tare value is imputed, the scale indicates 0.000 kg, the [⊿] and [NET] indicators are lit,
– to lock the tare as it would not be automatically turned off after removing the load press again the [T] key,
– the tare is locked, the scale indicates 0.000 kg and the [⊿], [NET] and [PT] indicators are lit,
– To turn off the tare remove the load and press the [T] key.

4.5. Transmission

Transmission of the weighing result by the RS232 or USB interface can be effected manually after pressing the [⇥] key, automatically in the continuously way or once after the result has been stabilized. Transmission mode can be set in the "User Menu" [MEnU] in the "Transmission Mode" [trAnS].

The weighing result can also be requested by the computer through the interface.

5. Configuration of the scale

To operate the menu of the scale there are used all three keys of the scale. Their functions are as follows:

Key	Meaning	Key	Meaning
T	previous menu item	>0<	selection of the menu item
⊡→	next menu item	T + ⊡→	exit from menu

5.1. Main menu

Structure of the scale's main menu:

MAIN MENU

Entrance to the menu: press and hold for 2 seconds the >0< *key*

MEnuU	USER MENU
MEnuS	SERVICE MENU
AdJNo	CALIBRATION NUMBER
rESEt	RESET OF THE SCALE
EHIt	EXIT FROM MENU

MEnuU – **USER MENU** The menu contains functions useful during the installation and operation of the scale concerning among others the transmission parameters, configuration of the measurer and display.

MEnuS – **SERVICE MENU** The menu is designed for qualified scale repairers. The service menu is described in detail in the Service Manual for the PRIMA 2 scale.

AdJNo – **CALIBRATION NUMBER** Displaying the scale calibration number.

rESEt – **RESET OF THE SCALE** This function enables to reset the scale without turning off the power.

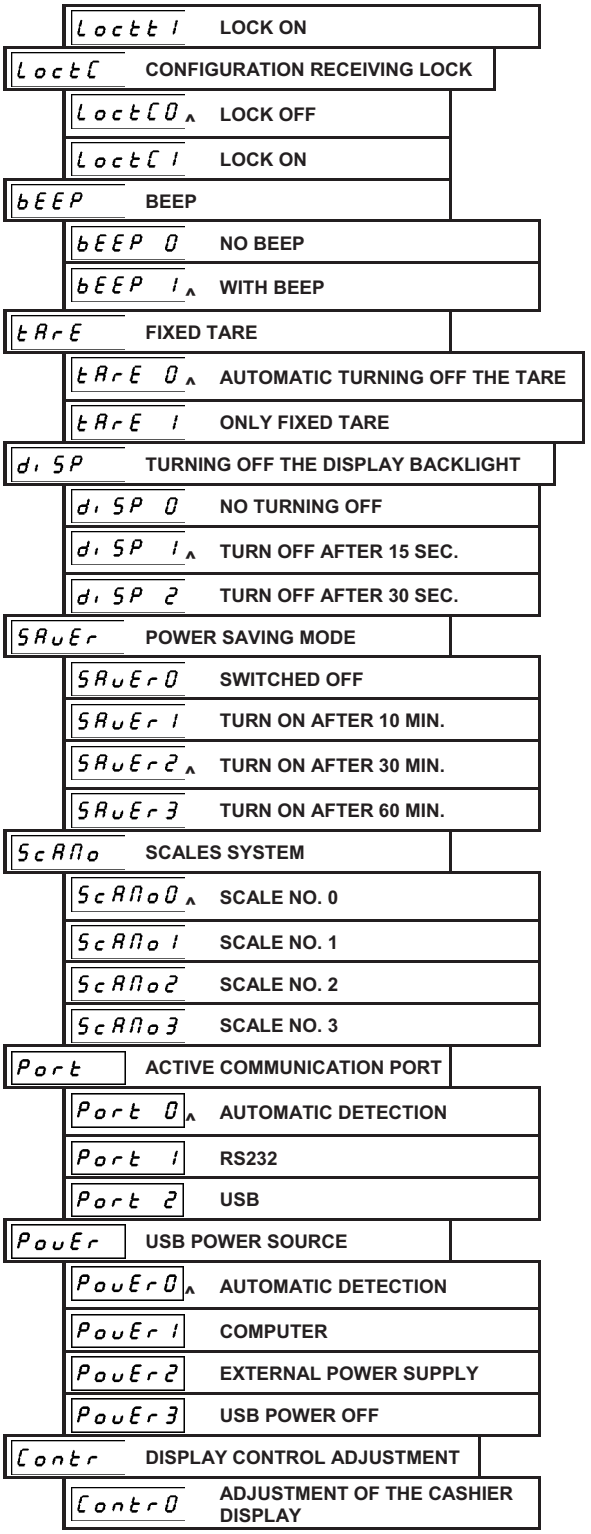
EHIt – **EXIT FROM MENU** Exit from the menu to the weighing mode.

5.2. User menu MENU

Structure of the "User Menu" MENU is shown below. Default values are marked with "^".

MENU	**USER MENU**
Entrance to the menu: press 2 x the [E] *key and after press 2 x the* [T] *key and confirm with the* [>0<] *key).*	
Proto	**PROTOCOL TYPE**
Proto0	**ELZAB BASIC**
Proto1 ^	**ELZAB EXTENDED**
Proto2	**CAS**
bAud	**TRANSMISSION SPEED**
bAud 0	**1200 bits/sec**
bAud 1	**2400 bits/sec**
bAud 2	**4800 bits/sec**
bAud 3 ^	**9600 bits/sec**
bAud 4	**19200 bits/sec**
bAud 5	**28800 bits/sec**
bAud 6	**38400 bits/sec**
bAud 7	**57600 bits/sec**
PArAn	**TRANSMISSION PARAMETERS**
PArAn0	**7-EVEN-1**
PArAn1	**7-ODD-1**
PArAn2	**7-SPACE-1**
PArAn3	**7-MARK-1**
PArAn4	**8-NONE-1**
PArAn5 ^	**8-EVEN-1**
PArAn6	**8-ODD-1**
PArAn7	**8-SPACE-1**
PArAn8	**8-MARK-1**
CtPAr	**PARITY CHECKING**
CtPAr0 ^	**NO CHECKING**
CtPAr1	**CHECKING ENABLED**
StAbF	**STABILITY CONDITION**
StAbF0	**THE HIGHEST STABILITY**
StAbF1 ^	**HIGH STABILITY**

StAbF2	LOW STABILITY
StAbF3	THE LOWEST STABILITY
n.rES	MINIMUM RESULT
n.rES0	00 x e
n.rES1 ^	01 x e
n.rES2	02 x e
n.rES3	04 x e
n.rES4	05 x e
n.rES5	10 x e
n.rES6	20 x e
n.rES7	50 x e
trAnS	TRANSMISSION MODE
trAnS0 ^	AFTER PRESSING THE KEY
trAnS1	AUTOMATIC. STABLE
trAnS2	AUTOMATIC. COUNTINOUS
n.nuS	SENDING THE MINUS
n.nuS0 ^	ONLY POSITIVE
n.nuS1	POSITIVE AND NEGATIVE
FrAnE	TRANSMITTING THE RESULT FRAME
FrAnE0 ^	ONLY STABLE
FrAnE1	STABLE AND UNSTABLE
StAbt	STABILITY WAITING TIME
StAbt0	0 SECOND
StAbt1	1 SECONDS
StAbt2	2 SECONDS
StAbt3 ^	4 SECONDS
StAbt4	6 SECONDS
StAbt5	8 SECONDS
StAbt6	10 SECONDS
StAbt7	12 SECONDS
Loctr	DATA RECEIVING LOCK
Loctr0 ^	LOCK OFF
Loctr1	LOCK ON
Loctt	TRANSMISSION KEY LOCK
Loctt0 ^	LOCK OFF


LocktE 1
LOCK ON
LoctC
CONFIGURATION RECEIVING LOCK
LoctC0
LOCK OFF
LoctC 1
LOCK ON
bEEP
BEEP
bEEP 0
NO BEEP
bEEP 1
WITH BEEP
tArE
FIXED TARE
tArE 0
AUTOMATIC TURNING OFF THE TARE
tArE 1
ONLY FIXED TARE
di SP
TURNING OFF THE DISPLAY BACKLIGHT
di SP 0
NO TURNING OFF
di SP 1
TURN OFF AFTER 15 SEC.
di SP 2
TURN OFF AFTER 30 SEC.
SAuEr
POWER SAVING MODE
SAuEr0
SWITCHED OFF
SAuEr 1
TURN ON AFTER 10 MIN.
SAuEr2
TURN ON AFTER 30 MIN.
SAuEr3
TURN ON AFTER 60 MIN.
ScANo
SCALES SYSTEM
ScANo0
SCALE NO. 0
ScANo 1
SCALE NO. 1
ScANo2
SCALE NO. 2
ScANo3
SCALE NO. 3
Port
ACTIVE COMMUNICATION PORT
Port 0
AUTOMATIC DETECTION
Port 1
RS232
Port 2
USB
PouEr
USB POWER SOURCE
PouEr0
AUTOMATIC DETECTION
PouEr 1
COMPUTER
PouEr2
EXTERNAL POWER SUPPLY
PouEr3
USB POWER OFF
Contr
DISPLAY CONTROL ADJUSTMENT
ContrD
ADJUSTMENT OF THE CASHIER DISPLAY

Contr 1	ADJUSTMENT OF THE CLIENT
Contr2	ADJUSTMENT OF THE ADDITIONAL DISPLAY

StAnd	RESTORE TO FACTORY SETTINGS
UErPG	PROGRAM VERSION
SEtt	SETTINGS READING
EH, t	EXIT FROM MENU

Proto – PROTOCOL TYPE

Setting value		Meaning
Proto0	ELZAB BASIC	Sets the type of communication protocol of the **CASH REGISTER/PC CONNECTOR**.
Proto 1 ^	ELZAB EXTENDED	
Proto2	CAS	

bAud – TRANSMISSION SPEED

Setting value		Meaning
bAud 0	1200 bits/sec.	Setting the serial transmission speed of the **CASH REGISTER/PC CONNECTOR**.
bAud 1	2400 bits/sec.	
bAud 2	4800 bits/sec.	
bAud 3 ^	9600 bits/sec.	
bAud 4	19200 bits/sec.	
bAud 5	28800 bits/sec.	
bAud 6	38400 bits/sec.	
bAud 7	57600 bits/sec.	

PArAn – TRANSMISSION PARAMETERS

Setting value		Meaning
PArAn0	7-EVEN-1	Setting the serial transmission speed of the **CASH REGISTER/PC CONNECTOR**.
PArAn 1	7-ODD-1	
PArAn2	7-SPACE-1	
PArAn3	7-MARK-1	
PArAn4	8-NONE-1	
PArAn5 ^	8-EVEN-1	
PArAn6	8-ODD-1	
PArAn7	8-SPACE-1	
PArAn8	8-MARK-1	

CtPAr – PARITY CHECKING

Setting value		Meaning
CtPAr0 ^	**NO CHECKING**	The parity checking means that bytes with the wrong parity bit are discarded, and the scale signalizes it by a beep.
CtPAr1	**CHECKING ENABLED**	

StAbF – STABILITY CONDITION

Setting value		Meaning
StAbF0	**THE HIGHEST STABILITY**	This parameter determines the criterion of the result stability. If the criterion is not met, the result of weighing is considered as unstable. The smaller the number of this setting the stringent the stability criterion. A stable result is an obligatory condition for activation of main scale functions: zeroing, tarring, weighing and sending the measurement result. If after loading the scale doesn't send the result or send it with a few seconds delay, the stability criterion should be broadened, that is the number of setting should be increased.
StAbF1 ^	**HIGH STABILITY**	
StAbF2	**LOW STABILITY**	
StAbF3	**THE LOWEST STABILITY**	

MirES – MINIMUM RESULT

Setting value		Meaning
MirES0	**00 x e**	Specifies the minimum result sent by the scale and the minimum automatically disabled tare value.
MirES1 ^	**01 x e**	
MirES2	**02 x e**	
MirES3	**04 x e**	
MirES4	**05 x e**	
MirES5	**10 x e**	
MirES6	**20 x e**	
MirES7	**50 x e**	

trAnS – TRANSMISSION MODE

Setting value		Meaning
trAnS0 ^	**AFTER PRESSING THE KEY**	The result is sent by scale only at the request of the operator e.g. after pressing the key or by the request through the interface.
trAnS1	**AUTOMATIC. STABLE**	The result is automatically sent by scale, just once, after loading and stabilizing the indication. Before putting the commodity on the platter the display should show →0← and ⊿. The result is sent only when the **MINIMUM RESULT** setting is deferent from MirES0. *Example: the "***MINIMUM RESULT***" value was set at MirES6 that is 20 x e = 040 g the load put on scale was 036 g -> the scale doesn't send the result, the load was increased to 042 g -> the scale sends the result.*
trAnS2	**AUTOMATIC.CONTINUOUS**	The scale sends the results continuously at 0,12 sec. time intervals. The unstable results are not sent but the result frame (containing the signs 0x20 in place of the digits) can be sent if the "**SENDING FRAME**" was set at FrAmE1 that is for "**STABLE AND UNSTABLE"** value.

MinuS – TRANSMITTING THE MINUS

Setting value		Meaning
MinuS0 ^	**ONLY POSITIVE**	The negative result is considered as unstable and is not sent.
MinuS1	**POSITIVE AND NEGATIVE**	The negative result can be sent if it is stable.

FrAmE – TRANSMITTING THE RESULT FRAME

Setting value		Meaning
FrAmE0 ^	**ONLY STABLE**	The result frame is sent only when the result is stable.
FrAmE1	**STABLE AND UNSTABLE**	The result frame is sent after stabilizing the result or after the time witch is set in "**STABILITY WAITING TIME"** menu StAbt. If the result hasn't stabilized during that time the frame that is sent contains the signs 0x20 in place of the result digits.

StAbt – STABILITY WAITING TIME

Setting value		Meaning
StAbt0	**0 SECOND**	Specifies the waiting time for stabilizing the result. Time runs from the moment of requesting the result by key pressing or serial interface. If the time was set at 0 seconds the result must be stable at the moment of requesting the result.
StAbt1	**1 SECONDS**	
StAbt2	**2 SECONDS**	
StAbt3 ^	**4 SECONDS**	
StAbt4	**6 SECONDS**	
StAbt5	**8 SECONDS**	
StAbt6	**10 SECONDS**	
StAbt7	**12 SECONDS**	

Loctr – DATA RECEIVING LOCK

Setting value		Meaning
Loctr0 ^	**LOCK OFF**	The scale receives the commands via the **CASH REGISTER/PC CONNECTOR.**
Loctr1	**LOCK ON**	Receiving the data via the **CASH REGISTER/PC CONNECTOR** is locked.

Loctt – TRANSMISSION KEY LOCK

Setting value		Meaning
Loctt0 ^	**LOCK OFF**	Data can be transmitted by using the key.
Loctt1	**LOCK ON**	Transmission of the data by using the key is locked.

LoctC – CONFIGURATION RECEIVING LOCK

Setting value		Meaning
LoctC0 ^	**LOCK OFF**	Receiving the data from ELZAB cash registers for automatic configuration of the scale is unlocked.
LoctC1	**LOCK ON**	Receiving the data from ELZAB cash registers for automatic configuration of the scale is locked.

bEEP – BEEP

Setting value		Meaning
bEEP 0	**NO BEEP**	The acoustic error signaling switched off.
bEEP 1^	**WITH BEEP**	The acoustic error signaling switched on.

tArE – FIXED TARE

Setting value		Meaning
tArE 0^	**AUTOMATIC SWITCHING OFF THE TARE**	Single pressing of the T key switches on the tare but doesn't switch on the fixed tare. The fixed tare is switched on only after pressing the key for another time. If the "fixed tare" function is switched off the tare will be automatically turned off after weighing the goods and removing them from the platter.
tArE 1	**ONLY FIXED TARE**	Single pressing of the T key switches on the "fixed tare". After removing the loading the tare isn't automatically switched off.

diSP – TURNING OFF THE DISPLAY BACKLIGHT

Setting value		Meaning
diSP 0	**NO SWITCHING OFF**	The display backlight remains switched on.
diSP 1^	**SWITCH OFF AFTER 15 SEC.**	The display backlight is switched off after 15 or 30 sec. of the scale inactivity.
diSP 2	**SWITCH OFF AFTER 30 SEC.**	

SAuEr – POWER SAVING MODE

Setting value		Meaning
SAuEr0	**SWITCHED OFF**	Power saving mode is inactive.
SAuEr 1	**TURN ON AFTER 10 MIN.**	Power saving mode will be activated after 10, 30 or 60 minutes of the scale inactivity.
SAuEr2^	**TURN ON AFTER 30 MIN.**	
SAuEr3	**TURN ON AFTER 60 MIN.**	

ScAno – SCALES SYSTEM

Meaning
This setting allows you to specify the number of the scale while it is working in the scale system. The number can be entered by using the ⮆ and T keys and confirmed by pressing the >0< key. There is possible to enter the values in the range from 1 to 4. The default value is 1. Each of scales working in the system should have different scale number entered.

Port – ACTIVE COMMUNICATION PORT

Setting value		Meaning
Port 0^	**AUTOMATIC DETECTION**	Scale receives data from **CASH REGISTER/PC (RS232)** and **PC/TERMINAL (USB)** connectors**.** The answer from the scale is sent via the **PC/TERMINAL (USB)** connector when the scale is connected to the device via this connector. Otherwise the response is sent via the **CASH REGISTER/PC (RS232)** connector.

Setting value		Meaning
Port 1	**RS232**	Communication with the scale is effected via the **CASH REGISTER/PC (RS232)** connector.
Port 2	**USB**	Communication with the scale is effected via the **PC/TERMINAL (USB)** connector.

PouEr – USB POWER SOURCE

Setting value		Meaning
PouEr0^	**AUTOMATIC DETECTION**	Scale automatically detect from which device it is powered via the **PC/TERMINAL (USB)** connector. If it is powered from the power supply with USB connector the scale starts automatically after switching on the power. If it is powered from the computer or the terminal the scale starts only after setting the proper communication with this device.
PouEr1	**COMPUTER**	Select this option when to the **PC/TERMINAL (USB)** connector of the scale is connected the computer which also supplies the scale via this connector. The scale starts after switching on the power but only after setting the communication with the computer.
PouEr2	**EXTERNAL POWER SUPPLY**	Select this option when to the **PC/TERMINAL (USB)** connector of the scale is connected the power supply with the USB connector. The scale starts immediately after switching on the power.
PouEr3	**USB POWER OFF**	Powering the scale from the **PC/TERMINAL (USB)** connector is disabled. To enable working of the scale the external power supply should be connected to the **CASH REGISTER/PC (RS232)** connector of the scale.

Contr – DISPLAY CONTRAST ADJUSTMENT

Setting value		Meaning
Contr0	**CASHIER DISPLAY ADJUSTMENT**	The function enables to adjust the contrast of the cashier display.
Contr1	**CLIENT DISPLAY ADJUSTMENT**	The function enables to adjust the contrast of the client display.
Contr2	**ADDITIONAL DISPLAY ADJUSTMENT**	The function enables to adjust the contrast of the additional display.
After choosing the display the Cont message will be displayed and from that moment there will be possible to adjust the contrast using the T and → keys. Pressing the >0< key saves the value in the memory.		

StAnd – RESTORE TO FACTORY SETTINGS

Meaning
This setting allows to restore to factory settings marked with „^" sign. The selected settings should be confirmed by pressing the >0< key.

UErPG – PROGRAM VERSION

Meaning	
u 1.01	The version number of the main program.
u 1.01U	The version number of the cashier display program.
u 1.01C	The version number of the client display program.
v 1,01A	The version number of the additional display program.

SEtt – READING OF SETTINGS

Meaning					
This function shows all currently chosen settings in the User Menu MEnU. For example for the factory settings there will be chosen the following data:					
1.	1	3	5	0	1
	Proto l Protocol Type: ELZAB EXTENDED	bAud 3 Transmission Speed: 9600 BITS/SEC.	PArAmS Transmission Parameters: 8-EVEN-1	CtPAr0 Parity Checking: NO CHECKING	StAbF l Stability Condition: HIGH STABILITY
2.	1	0	0	0	3
	MirES l Minimum Result: 01xe	trAnS0 Transmission Mode: AFTER PRESSING THE KEY	MinuS0 Transmitting the minus: ONLY POSITIVE	FrAmE0 Transmitting the result frame: TRANSMITTING THE RESULT FRAME	StAbt3 Stability waiting time: 4 SECONDS
3.	0	0	0	1	0
	LoctrD Data receiving lock: LOCK OFF	LocttD Transmission key lock: LOCK OFF	LoctCD Configuration receiving lock: LOCK OFF	bEEP l Beep: WITH BEEP	tArE 0 Fixed tare: AUTOMATIC SWITCHING OFF THE TARE
4.	1	2	0	-	-
	di SP l Turning off the display backlight: SWITCH OFF AFTER 15 SEC.	SAvEr2 Power saving mode: TURN ON AFTER 30 MIN.	ScANo0 Scales system: SCALE NO. 0	Port 0 Active communication port AUTOMATIC DETECTION	PovEr0 USB power source: AUTOMATIC DETECTION

EHit – EXIT FROM MENU

Meaning
Exit from the User Menu to the weighing mode.

6. Communication with the scale

The communication of the scale with external devices (e.g. cash register, computer) is effected via the **CASH REGISTER/PC** connector (RS-232 interface). To communicate via the USB connector the virtual serial port driver should be installed on the device cooperating with the scale. The driver can be downloaded from www.elzab.pl.

The communication with external devices can be affected by functioning of the scale in the situations like: unstable result, overloading and under loading of the scale, transmission mode settings or the minimum result settings. The scale can react for those states in different ways depending on its settings.

All the communication parameters can be changed in the "User Menu" MEnU. They are permanently stored in the non volatile scale memory. The factory settings can be reset by using the "Restore to factory settings" StAnd function. The factory settings allow the scale to cooperate with every cash register produced by ELZAB SA factory which was approved by the Ministry of Finance since 2001.

6.1. Configuration of the communication parameters of the scale

Configuration of the communication parameters of the consists of choosing an appropriate protocol by using the "Protocol type" Proto function. Selection of the protocol automatically sets default transmission parameters of the RS-232 interface for the given protocol. If the scale is working with the customized communication settings the transmission parameters of the RS-232 can be changed manually by the use of the "Transmission Speed" bAud and "Transmission parameters" PArAn functions.

6.2. Description of the ELZAB protocol

6.2.1. Reading the weight

6.2.1.1. Request of the stable result

Byte No.	1	2	3	4	5
Symbol	ESC	M	ETX	-	LF
ASCII (hex) code	0x1B	0x4D	0x03	0x61	0x0A

The scale is waiting for the stabilization of the result. If within the specified time (set in the "Stability waiting time" StAbt) the result will stabilize it will be transmitted. If within that time the result will not stabilize the request will be canceled and if in the "Frame sending" FrAnE function the "Stabile and unstable" FrAnE1 parameter was set there will be sent the answer frame containing blank spaces in place of the result digits.

- The bit No. 4 decides in what format will be sent the weighing result:

Byte No. 4	Format of the result
0x61	Basic or extended format depending on settings chosen in the menu of the scale
0x71	basic format
0x81	extended format

- When the scale is operating in the scales system the bit No. 5 takes the form of:

The scale No. in the scales system	Byte No. 5
Scale No. 0	**0x0A**
Scale No. 1	**0x1A**
Scale No. 2	**0x2A**
Scale No. 3	**0x3A**

6.2.1.2. Request for immediate result

The Byte No.	1	2	3	4	5
Symbol	ESC	M	ETX	-	LF
ASCII (hex) code	0x1B	0x4D	0x03	0x62	0x0A

If the result is stable it will be transmitted. If the result is unstable and in the "Frame Sending" FrAnE function the "Stabile and unstable" FrAnE1 parameter was set there will be sent the response frame containing blank spaces in place of result digits. Otherwise nothing will be sent.

- The bit No. 4 decides in what format will be sent the weighing result:

Byte No. 4	Format of the result
0x62	Basic or extended format depending on settings chosen in the menu of the scale
0x72	basic format
0x82	extended format

- When the scale is operating in the scales system the bit No. 5 takes the form of:

The scale No. in the scales system	Byte No. 5
Scale No. 0	**0x0A**
Scale No. 2	**0x1A**
Scale No. 3	**0x2A**
Scale No. 4	**0x3A**

6.2.1.3. Response in the basic format

No.	Symbol	ASCII (hex) code	Description	Example: weight: 13.045kg
1	SYMBOL	0x20 lub 0x2D	0x20 (space) - positive result 0x2D (minus) - negative result	0x20
2	Space	0x20	Space	0x20
3	D5	0x30 .. 0x39 or 0x20	Digit 0 .. 9 (MSD) or space	0x31
4	D4	0x30 .. 0x39	Digit 0 .. 9	0x33
5	PD	0x2E	Decimal	0x2E
6	D3	0x30 .. 0x39	Digit 0 .. 9	0x30
7	D2	0x30 .. 0x39	Digit 0 .. 9	0x34
8	D1	0x30 .. 0x39	Digit 0 .. 9 (LSD)	0x35
9	CR	0x0D	CR	0x0D
10	LF	0x0A	LF	0x0A

6.2.1.4. Response in the extended format

No.	Symbol	ASCII (hex) code	Description	Example: weight: 13.045kg
1	ESC	0x1B	ESC	0x1B
2	STAB	0x53 or 0x55	0x53 („S") – stable result 0x55 („U") – unstable result	0x53
3	SUMBOL	0x20 or 0x2D	0x20 (space) - positive result 0x2D (minus) - negative result	0x20
4	M5	0x30 .. 0x39 or 0x20	Mass 0 .. 9 (MSD) or space	0x31
5	M4	0x30 .. 0x39	Mass 0 .. 9	0x33
6	PD	0x2E	Decimal	0x2E
7	M3	0x30 .. 0x39	Mass 0 .. 9	0x30
8	M2	0x30 .. 0x39	Mass 0 .. 9	0x34
9	M1	0x30 .. 0x39	Mass 0 .. 9 (LSD)	0x35
10	CR	0x0D	CR	0x0D
11	LF	0x0A	LF	0x0A

6.2.2. Checking the host connection of the scale

6.2.2.1. Request

Byte No.	1	2	3	4	5
Symbol	ESC	M	ETX	-	LF
ASCII (hex) code	0x1B	0x4D	0x03	0x66	0x0A

- When the scale is operating in the scales system the bit No. 5 takes the form of:

The scale No. in the scales system	Byte No. 5
Scale No. 0	**0x0A**
Scale No. 1	**0x1A**
Scale No. 2	**0x2A**
Scale No. 3	**0x3A**

6.2.2.2. Response

As the response the scale will send 1 bit with code: 0x1D

6.2.3. Sending the name of weighted commodity

Displaying the name of weighted commodity is only possible on the additional external display.

No.	Symbol	ASCII (hex) code	Description	**Example:** YELLOW GRAPEFRUIT
1	ESC	0x1B	ESC	0x1B
2	M	0x4D	M	0x4D
3	ACK	0x06	ACK	0x06
4	Z18	0x20 .. 0x7F	1 Name symbol	0x47 (‘G’)
5	Z17	0x20 .. 0x7F	2 Name symbol	0x52 (‘R’)
6	Z16	0x20 .. 0x7F	3 Name symbol	0x45 (‘E’)
7	Z15	0x20 .. 0x7F	4 Name symbol	0x4A (‘J’)
8	Z14	0x20 .. 0x7F	5 Name symbol	0x50 (‘P’)
9	Z13	0x20 .. 0x7F	6 Name symbol	0x46 (‘F’)
10	Z12	0x20 .. 0x7F	7 Name symbol	0x52 (‘R’)
11	Z11	0x20 .. 0x7F	8 Name symbol	0x55 (‘U’)
12	Z10	0x20 .. 0x7F	9 Name symbol	0x54 (‘T’)
13	Z9	0x20 .. 0x7F	10 Name symbol	0x59 (‘Y’)
14	Z8	0x20 .. 0x7F	11 Name symbol	0x20 (‘ ’)
15	Z7	0x20 .. 0x7F	12 Name symbol	0xBD (‘Ż’)
16	Z6	0x20 .. 0x7F	13 Name symbol	0xE0 (‘Ó’)
17	Z5	0x20 .. 0x7F	14 Name symbol	0x9D (‘Ł’)
18	Z4	0x20 .. 0x7F	15 Name symbol	0x54 (‘T’)
19	Z3	0x20 .. 0x7F	16 Name symbol	0x45 (‘E’)
20	Z2	0x20 .. 0x7F	17 Name symbol	0x20 (‘ ’)
21	Z1	0x20 .. 0x7F	18 Name symbol	0x20 (‘ ’)
22	NW	0x0A .. 0x3A	Scale No.	0x0A
23	LF	0x0A	LF	0x0A

- When the scale is working in the scales system the scale No. byte takes the following forms:

Scale No. in the scales system	Byte No. 22
Scale No. 1	**0x0A**
Scale No. 2	**0x1A**
Scale No. 3	**0x2A**
Scale No. 4	**0x3A**

6.2.4. Reading of the program version

6.2.4.1. Request

Byte No.	1	2	3	4	5
Symbol	ESC	M	ETX	-	LF
ASCII (hex) code	0x1B	0x4D	0x03	0x6A	0x0A

- When the scale is operating in the scales system the bit No. 5 takes the form of:

The scale No. in the scales system	Byte No. 5
Scale No. 0	**0x0A**
Scale No. 1	**0x1A**
Scale No. 2	**0x2A**
Scale No. 3	**0x3A**

6.2.4.2. Response

No.	Symbol	ASCII (hex) code	Description	Example: version: 1.00
1	TYPE	0x21	The unique device id	0x22
2	VERSION	0x00 .. 0x09	Digit 0 .. 9	0x01
3	NUMBER_H	0x00 .. 0x09	Digit 0 .. 9	0x00
4	NUMBER_L	0x00 .. 0x09	Digit 0 .. 9	0x00

7. Error messages

7.1. Messages and errors displayed on the scale display

SAVE	Saving the settings after changing the scale configuration.
nnn.nnn	The scale load exceeds the maximum scale range. Decrease the load.
uuu.uuu	The scale load is less than -20*e_1. Reset the scale or power it off and on.
ChProd	The new article should be placed on the scale because the weighting result of the product presently placed on the scale has been already sent to the cash register or PC. This message is displayed only when pressing the [→] key.
LoUcc	Low power voltage of the scale. Error displayed while functioning with voltage less than 4,3 V.
rAnGE	Zeroing or tarring range exceeded. Decrease the load and restart zeroing or tarring.
NoStAb	Zeroing and tarring can't be effected because of unstable load.
PAr.tY	Wrong transmission parameters of the RS232 interface.

FbLoct	Function non accessible at the moment.
ErrUAL	Błędna wartość wprowadzonej danej.
------	Scale blocked. Report the fault to the service.
Err 01	A/C converter error. You should remove the cause of interferences.
Err 02	EEPROM memory error. Report the fault to the service.
Err 03	FLASH memory error. The scale returns to factory settings.
Err 04	Communication error on the SPI bus. Report the fault to the service.
Err 05	Initiation of the FLASH memory after it was cleared up. Report the fault to the service.

7.2. Errors signalised acoustically

If the acoustic signal occurs when the display is switched off it means that:

Three consecutive single signals (*---------,*---------,*---------)	USB interface communication error. The most common reason of the error is lack of the virtual serial port driver installed on the computer. This error is signalised after turning on the scale.
Three consecutive double signals (-*-*------,-*-*------,-*-*------)	To low power voltage (< 4,5V). Error signalized during switching on or rest of the scale.
Three consecutive quadruple signals (-*-*-*-*--,-*-*-*-*--,-*-*-*-*--)	To high power voltage (> 5,5V). Error signalized during switching on or rest of the scale.

8. Conformity assessment (legalization)

Scales provided by ELZAB have undergone the conformity assessment procedure (legalization) and are ready for use in the trade settlements in accordance with applicable law. Confirmations of compliance with the above requirements are as follows:

1. large letter M on a green background placed on the scale nameplate,
2. set of metrological control characteristics, placed in accordance with the drawings set out below,
3. compliance of the markup number placed on the nameplate with the markup number stored in the non-volatile memory of the scale.

The markup number stored in the non-volatile memory of the scale can be checked any time, as follows:

1. The scale should be in the weighing mode and indicate the weight 0.000 kg.
2. Press the >0< key and hold it until the displays shows the scale menu: MEnU.
3. Pressing the → or T key go to the menu item: AdJNo.
4. Press the >0< key. The display will show the markup number stored in the non-volatile memory of the scale, e.g.:

Damage to the scale nameplate, to the metrological control characteristics or non-compliance of the markup number placed on the scale nameplate with the markup number from the non-volatile memory of the scale means the loss of validity of legalization. That scale may not be used for trade settlements and must be re-legalized. Also reparation of the scale may require its re-legalization.

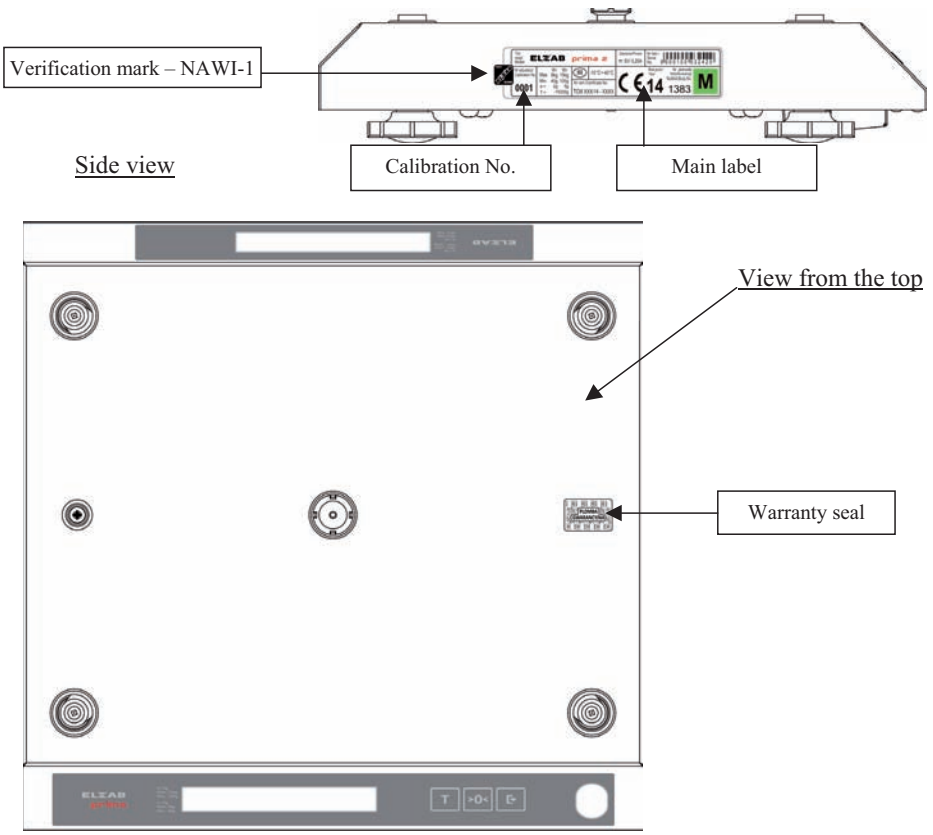
The confirmation of the conformity assessment is the Declaration of Conformity, a copy can be downloaded from www.elzab.pl. A copy of the declaration may be required during the re-legalization of the scale.

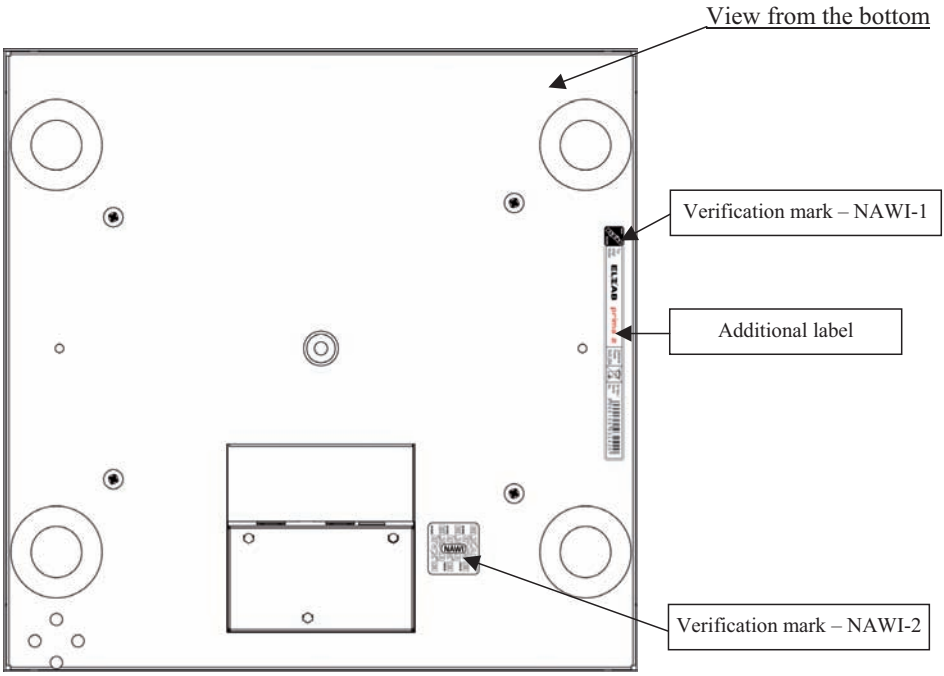
Periodical re-legalization is required to meet national laws. Please consult this requirement in organization that has competence in this area of activity.

The obligation to undergo the periodic re-legalization and maintain the security features intact lies with the user of the scale.

The pictures below show the location of the legalization features, nameplates and warranty seal of the PRIMA2 scale.

ELZAB Prima 2 scale (without a platform)




View from the bottom
Verification mark – NAWI-1
Additional label
Verification mark – NAWI-2

DO NOT PLACE THIS PRODUCT INTO THE WASTE CONTAINER !

This device is marked with a cross-lined waste container symbol according to 2002/96/EU Directive on Waste Electric and Electronic Equipment. Such marking informs that after usage equipment can not be trashed together with other household waste.

An user obligation is to return wasted equipment to a party collecting wasted electric and electronic equipment. Parties collecting such equipment organise a system, including local collection points, shops and other units, allowing to return such equipment. This Directive assures an user free of charge utilisation of such delivered equipment. This device is made of materials which can be recycled or utilised after becoming out of use. Proper handling of wasted electric and electronic equipment reduce demand for row materials and contribute in avoiding harmful consequences for environment and health of people caused by dangerous components and not proper storing and utilising of such equipment.

This manual is dedicated to the following scale models:

ELZAB PRIMA 2 scale (different versions) – code: WG2

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			Last edition date:	13-01-2015

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