

ST/500B

ChM[®]

SINGLE ELECTRONIC
TOURNIQUET CONTROL UNIT
EZO-01 TYPE
Cat. No. 30.0025.000



www.chm.eu

All comments should be addressed to



ChM sp. z o.o. Lewickie 3b,16-061 Juchnowiec K., Poland
tel. +48 85 86 86 100, fax: +48 85 86 86 101
www.chm.eu e-mail: chm@chm.eu

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The manufacturer reserves the right to introduce design changes.

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Read the Instructions for Use prior to the first use.

1. INDICATIONS

EZO-01 electronic single tourniquet control unit is used to supply compressed air to tourniquets used to control the blood flow in the extremities in order to produce bloodless surgical field.

The built-in compressor and DC battery allow the functioning of the device without its connection to the compressed air and electrical AC 230V network. Thanks to that, EZO-01 can be used during patient's transportation, power supply AC 230V failure and when there is lack of compressed air network in the facility.



DO NOT use the unit in the presence of oxygen, nitrous oxide or a mixture consisting of flammable anesthetics and air.


2. SPECIFICATIONS AND EQUIPMENT

Power supply	230 V \pm 10 %, 50 Hz \pm 2 %
Battery life	90min
Power consumption	60W
Work factor	Compressed air (<i>compressed by built-in compressor</i>)
Output pressure (<i>in tourniquet</i>)	100÷550mmHg with 5mmHg increments
Setting range of time	1÷99min. with 1min. increments
Dimensions (H/W/D)	20.5cm x 21cm x 22.5cm
Weight	4kg
Ingress Protection Rating	IP20, EN 60529



The manufacturer reserves the right to structural changes.

Equipment supplied with the device.

	name	Pcs
	Power cord AC 230V, 5m	1
	Tourniquet control unit air hose - blue cat. No. 30.0035.010	1

3. ACCESSORIES



EZO-01 unit should only be used with original accessories provided by ChM sp. z o.o.

3.1. TOURNIQUETS

No	Product name	The range of use (limb circumference in cm)	Dimensions	Cat. No
1	Single arm tourniquet	25÷40	64x13	30.0009
2	Single tourniquet for children	14÷20	50x6	30.0010
3	Single femoral tourniquet	38÷58	85x14	30.0012
4	Single femoral tourniquet	38÷58	120x13.5	30.0013
5	Single femoral tourniquet	38÷58	140x13.5	30.0008
6	Conical single femoral tourniquet	40÷60	110x11	30.0014
7	Single arm tourniquet long	38÷58	82x8	30.0015
8	Single arm tourniquet	25÷40	62x7	30.0016
9	Single tourniquet for babies	10÷17	30x3	30.0017

3.2. MOBILE STAND FOR TOURNIQUET CONTROL UNITS [30.0040.000]

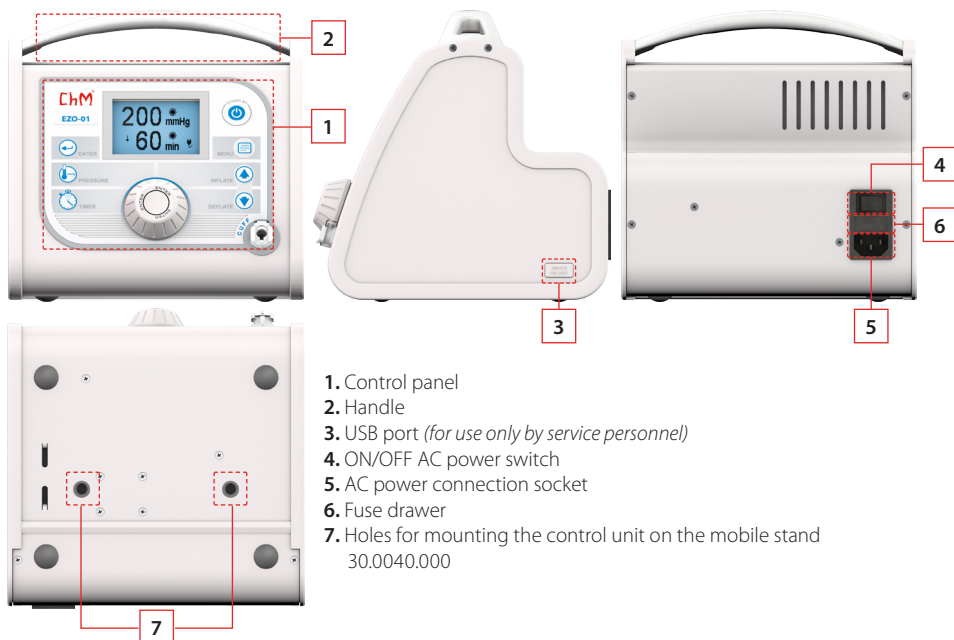
The stand is used as a mobile platform for the tourniquet control unit, as well as the accessories needed to be used with the device, such as tourniquets, skin protection padding, power cords and other accessories.

Technical parameters	
Dimensions (H/W/D)	900 x 570 x 570 mm
The height with the control unit	1100 mm
Weight	9 kg

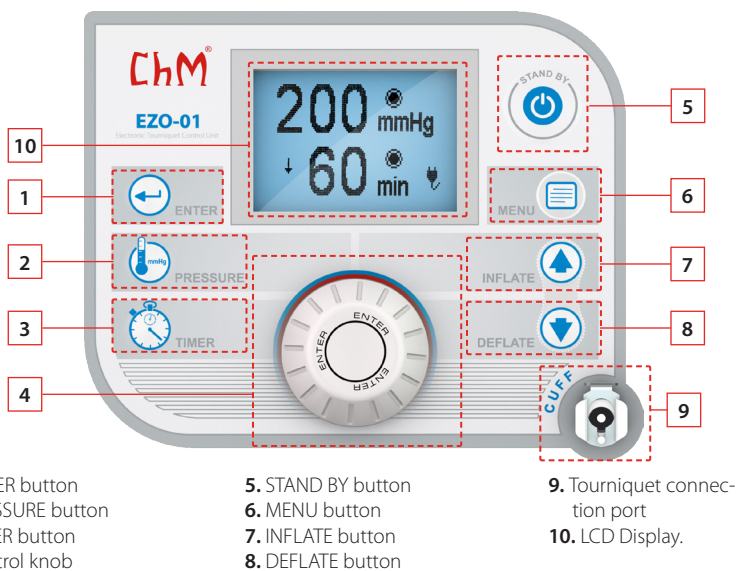


Tourniquets and stand are additional accessories of the control unit and are offered as a separate accessory. Prior to use, consult Instructions for Use supplied with these products.



4. CONSTRUCTION






4.1. CONTROL PANEL



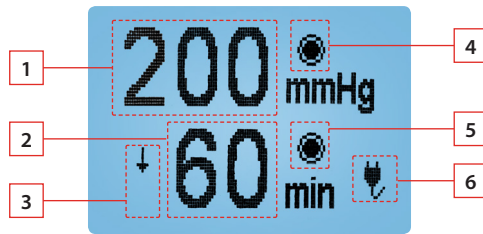
Control panel elements

- | | | |
|---|---|---|
| 1 |  | <p>ENTER
It approves changes introduced to: time, pressure, and in the menu options.</p> |
| 2 |  | <p>PRESSURE
Entry into the pressure settings.</p> |
| 3 |  | <p>TIMER
Entry into the time settings.</p> |
| 4 |  | <p>CONTROL KNOB
Turn of the control knob:
changes the time and pressure (<i>after entering the pressure or time settings</i>).
navigates the menu options (<i>after entering the MENU window</i>).

Pressing the control knob equals pressing the ENTER button.</p> |
| 5 |  | <p>STAND BY
It turns on/off the EZO-01</p> |
| 6 |  | <p>MENU
Entry into the EZO-01 settings window.</p> |
| 7 |  | <p>INFLATE
It activates the process of filling up the tourniquet and the work of EZO-01 control unit.</p> |
| 8 |  | <p>DEFLATE
It activates the process of emptying the tourniquet and finishes the work of EZO-01 control unit.</p> |
| 9 |  | <p>TOURNIQUET CONNECTION PORT
Place where the ChM tourniquet is connected to the EZO-01 control unit.</p> |

4.2. THE DISPLAY MAIN WINDOW

The main window is displayed when the control unit is turned on and when the control unit cooperates with the tourniquet.



1. The value of the pressure in the tourniquet
2. The value of the time of occlusion
3. Counting down ↓ / Counting up ↑
4. The control unit in edit mode of tourniquet pressure
5. The control unit in edit mode of occlusion time
6. Mains power ⚡ / Battery power 🔋 (with information on the battery charge level)

5. USAGE

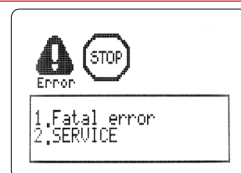
5.1. EZO-01 CONTROL UNIT ACTIVATION

Use AC power cord (*supplied with the device*) to connect the EZO-01 to 230V/50Hz network with a protective grounding. Turn the switch located on the back panel of the device ON. Press the STAND BY button located on the control panel. The internal auto-test will be activated. Afterwards, the main window will be displayed.




If the internal auto-test result is negative, an error message will appear on the screen.


Further work with the device will not be possible. Contact the device manufacturer.








Connect the tourniquet (*using a spiral hose supplied with the control unit*) to the slot located on the control panel.

5.2. USE OF THE DEVICE WHEN BATTERY POWERED


In the case of: power failure, when the control unit is not plugged in or the switch on the back panel is OFF, the EZO-01 automatically switches into battery power mode. The battery power icon , will be displayed as well as information on the battery charge level (*tab. 1*).

Operating time of the EZO-01 on battery power is dependent on many factors. When the battery charge level goes below 30%, initiate battery charging by connecting the control unit to AC 230V power network (*the display shows the mains power icon ).*


Icon	Battery charge level
	100÷70%
	70÷50%
	50÷30%
	30÷10%
	10÷0%

Tab.1. Battery charge level

5.3. OCCLUSION PRESSURE

Push the PRESSURE button. The display will show the value of the required pressure and the icon  indicating that the unit is in pressure edit mode. By turning control knob, set the desired pressure (*in the range from 100 to 550 mmHg*). Confirm the selected value pressing ENTER button or control knob. If the pressure selection is performed before inflating the tourniquet, once approved, the displayed value returns to the value of 000 (*the actual pressure in the tourniquet*). If the pressure is edited after inflating the tourniquet, pressure approval automatically changes the pressure in the tourniquet to the selected one.

5.4. OCCLUSION TIME

Push the TIMER button. The display will show the value of the required time and the icon  indicating that the unit is in time edit mode. By turning control knob, set the desired time [in the range from 1 to 99 min]. Confirm the selected value pressing ENTER button or control knob. Time edit mode is completed. The time can be changed both, before and after inflating the tourniquet.

The clock is activated automatically when the tourniquet is being inflated. When the selected time has been reached, a beep sound will be emitted. If the tourniquet is not deflated or new time is not set, the timer will start to count up from the 00.



The tourniquet does not get deflated when the selected occlusion time is reached.

The occlusion time (*after inflating the tourniquet*) may be displayed as:

- the increasing value from zero to the set value, the arrow facing up will be displayed ↑
- the decreasing value from the set value to zero, the arrow facing down will be displayed ↓

One of the abovementioned options is selected acc. to p.5.7 of these instructions.

5.5. TOURNIQUET INFLATION

Press and hold pressed for minimum 2s INFLATE button. The control unit will start to fill in the tourniquet, what will be shown on the display as an increasing pressure level up to the selected one. Automatically, the occlusion time measurement will be activated.



Inflating loose, not applied on a limb or rolled into a tight roll tourniquet can cause its damage.

5.6. TOURNIQUET DEFLATING

Press and hold pressed for minimum 2s DEFLATE button. The control unit will start to empty the tourniquet, what will be shown on the display as an decreasing pressure level down to 000 value. Automatically, the occlusion time measurement will be stopped.

5.7. MENU

Changes in other parameters of the EZO-01 unit are introduced from the settings window when pressing the MENU button. For navigation in the settings window and changes introduction, use the control knob. Press MENU button to leave the (*Options*) settings window.



Initiation of settings window is not possible during the operation of the control unit with the tourniquet (*after its inflating*).

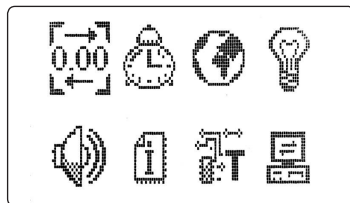

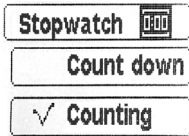

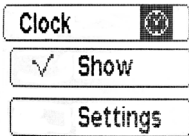

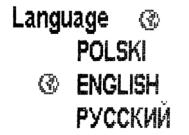

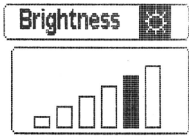

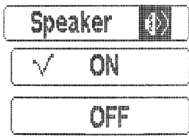

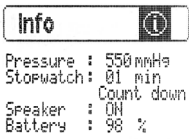

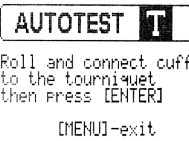

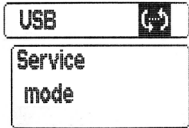


Fig. 2. The menu window

ICON	DESCRIPTION	WINDOW VIEW
	<p>Timer settings. Two options:</p> <ul style="list-style-type: none"> Count down (<i>from the specified value down to zero</i>); Count up (<i>from zero up to specified value</i>) 	
	<p>Settings of the system clock. Two options:</p> <ul style="list-style-type: none"> Show (<i>show the date and time settings</i>) Settings (<i>set the date and time</i>) 	
	<p>Language options. Three possible options:</p> <ul style="list-style-type: none"> Polish English Russian 	
	<p>Display settings. Six levels of brightness.</p>	
	<p>Speaker. Key Tone. Two options:</p> <ul style="list-style-type: none"> ON OFF <p>No option to mute the alarm.</p>	
	<p>Information concerning general EZO-01 parameters:</p> <ul style="list-style-type: none"> Last pressure value Last time value Speaker (<i>on/off</i>) Battery level 	
	<p>Autotest. Defining the efficiency of the unit control - tourniquet system. See p. 5.7.1 of these instructions.</p>	
	<p>Data Transfer Mode. Repairs can only be performed by qualified service personnel.</p>	

Tab. 2. Description of available options of the menu window

5.7.1. TESTING



For testing, use tourniquet that will be used during the procedure. When replacing the tourniquet, the testing should be repeated.

Connect the **ChM** tourniquet using the spiral air hose supplied with the EZO-01 control unit to the tourniquet connection port located on the control panel. Roll up the tourniquet tightly and secure against unrolling. Then enter the Menu and select Autotest. During the testing, the tourniquet will be inflated and the device will check the tightness of the system: control unit – tourniquet. If the system is tight, the testing will end with a PASS sign - the control unit and tourniquet can be used during the procedure. Displayed FAILED sign indicates that the system is not tight. Check the condition of the tourniquet, air hoses, pneumatic connectors and their connection. Eliminate leaks if possible (*e.g. replace defective tourniquet or air hose*). Run the test again.



Should it be impossible to remove or detect the leaks, it is strictly forbidden to use the set: control unit-tourniquet for surgery. Only the set with positive test results (*PASS displayed*) can be used for surgery

6. USE OF EZO-01 CONTROL UNIT DURING THE PROCEDURE



Prior to use, read p. 5 USAGE of these instructions.



Before using the EZO-01 control unit in surgical procedure for the first time, the device should be cleaned in accordance with section 9 of this manual.



The EZO-01 control unit can only be used by qualified medical personnel familiar with the operation of the device, such as anesthetists, who control the device outside the operating field.

Prior to each use:

- perform a visual inspection of the product,
- verify the basic functioning of the unit control (*inflating, deflating, etc.*),
- verify the battery charge (*use control unit only with fully charged battery*),
- perform the testing in accordance with section 5.7.1 of these instructions,
- prepare a replacement unit.



Should any defect appear, do not use the device until the defect is removed or until the defect is deemed to have no negative effect on the proper functioning of the device.

Connect the device to the AC 230V network during the procedure. The device functioning on the battery power during the procedure is allowed only in the case of failure of AC power (*for more information about working on battery power - see p.5.2 of these instructions*). Set the occlusion pressure and time. Apply the tourniquet on the operated limb. Make sure that the pneumatic hose has not been bent. Inflate the tourniquet by pressing INFLATE button. If it is necessary to regulate the occlusion pressure or time, these changes can be introduced

after inflating the tourniquet.

When the occlusion time is reached, a beep sound will be emitted. If the tourniquet is not deflated or new time is not set, the timer will start to count from the 00.



The tourniquet does not get deflated when the selected occlusion time is reached.

Press and hold for minimum 2 sec. DEFLATE button to empty the tourniquet. After emptying the tourniquet (*the display shows the 000 pressure value*), remove the tourniquet from the limb, then disconnect it from the unit control. The EZO-01 may be switched off by pressing STAND BY button.



The surgeon decides about the: setting values of the control unit (*pressure, occlusion time, etc.*), the place the tourniquet is applied, the moment the tourniquet is inflated, deflated and other parameters.

7. GRAPHIC AND SOUND MESSAGES

EZO-01 single tourniquet control unit is equipped with a range of graphic and sound messages that inform the user about relevant parameters or irregularities during the operation. The table (Tab. 3.) lists the causes of the messages, types of messages and the actions to be taken.

Cause	Message	Action
Low battery level	- graphic information - sound signal	- begin the process of charging the battery, connect the control unit to AC 230V 50Hz network, switch on the rear panel must be in ON position
Leakage in control unit - tourniquet system.	- graphic information - sound signal	- verify the tightness of cords, tourniquets and all connections between the tourniquet and the control unit. Remove the leakage. If the leakage cannot be removed, depending on its place, replace the tourniquet or the control unit.
Occlusion time limit reached	- sound signal	- action depends on a surgeon's decision (<i>deflating the tourniquet, continuation of occlusion</i>)

Tab. 3.


8. ELECTROMAGNETIC COMPATIBILITY

8.1. ELECTROMAGNETIC EMISSIONS

Emission test	Compliance	Electromagnetic environment – guidance
RF emissions, CISPR 11	Group 1, Class B	The device uses RF energy only for its internal function. Therefore, its RF emission is very low and it is not likely to cause any interference in nearby electronic equipment.
Harmonic emissions IEC 61000-3-2	Class A	The device is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Voltage fluctuations / flicker emissions, IEC 61000-3-3	Comply	

8.2. ELECTROMAGNETIC IMMUNITY

Immunity test standard	IEC 60601-1-2 test level	Compliance level	Electromagnetic environment – guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±6kV contact ±8kV air	±6kV contact ±8kV air	Floors should be made from wood, concrete or ceramic tile. If floors are covered with a synthetic material, the relative humidity should be at least 30%.
Electrical fast transient / burst IEC 61000-4-4	±2kV for power supply lines ±1kV for in/ out lines	±2kV for power supply lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1kV line to line ±2kV line to earth	±1kV line to line ±2kV line to earth	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply lines IEC 61000-4-11	<5% U_t (0.5 cycle) 40% U_t (5 cycles) 70% U_t (25 cycles) <5% U_t (5 seconds)	<5% U_t (0.5 cycle) 40% U_t (5 cycles) 70% U_t (25 cycles) <5% U_t (5 seconds)	Mains power quality should be that of a typical commercial or hospital environment. If the user of the device requires its continuous use even during power outages, it is recommended that the device be connected to an emergency power supply.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3A/m	3A/m	Ut - mains supply voltage Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

Immunity test standard	IEC 60601-1-2 test level	Compliance level	Electromagnetic environment – guidance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 800 MHz	V1 = 3V/m	Portable and mobile RF communications equipment should be used no closer to any part of the device, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance $d = 1.17 \sqrt{P}$ $d = 0.35 \sqrt{P}$ 80 MHz to 800 MHz $d = 0.70 \sqrt{P}$ 800 MHz to 2.5 GHz where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in metres (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey a), should be less than the compliance level in each frequency range b). Interference may occur in the vicinity of equipment marked with the following symbol: 
Radiated RF IEC 61000-4-3	3 V/m 80 kHz to 2500 MHz	E1 = 3V/m	

a) Field strengths from fixed transmitters, such as base stations for radio telephones (*cellular/ cordless*) and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the device is used exceeds the applicable RF compliance level above, the device should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the device.

b) Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 10 V/m.

8.3. SEPARATION DISTANCES

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in metres (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

Rated maximum output power of transmitter (W)	Separation distance according to frequency of transmitter [m]		
	150 kHz to 80 MHz $d = 1.17 \sqrt{P}$ [m]	80 MHz to 800 MHz $d = 1.17 \sqrt{P}$ [m]	800 MHz to 2.5 GHz $d = 2.33 \sqrt{P}$ [m]
0.01	0.12	0.04	0.1
0.1	0.37	0.11	0.32
1	1.2	0.35	1.0
10	3.7	1.1	3.2
100	12	3.5	10

9. CLEANING AND DISINFECTION



Before cleaning or disinfection, disconnect the device from 230V network!

The outer surfaces of the device should be cleaned with a soft, moistened (*not dripping*) cloth with a mild detergent solution then wiped dry. In the case of contaminating the housing of the device with infectious agents (*blood, body fluids, etc.*), disinfection using disinfectants with a neutral pH is recommended. In such cases, soak a soft cloth in disinfectant, wipe the housing and allow it to dry.



Do not allow the detergents or disinfectants to enter inside the device housing. Should the detergents or disinfectants enter inside the device housing, switch the device off, disconnect from 230V network and send it to the manufacturer for cleaning processes.



The EZO-01 control unit should NOT be sterilized

10. STORAGE

The device should be stored in a clean and dry room, off the direct sun, at the temperature of 15 ÷ 30°C and humidity of 20 to 70%.

11. WARRANTY AND SERVICE

When servicing, warranty and post-warranty repairing is concerned, please contact the manufacturer's representative or contact **ChM** directly

ChM sp. z o.o.

Lewickie 3b

16-061 Juchnowiec Kościelny, POLAND

tel: +48 85 86 86 100

fax: +48 85 86 86 101

e-mail: chm@chm.eu

www.chm.eu



Do not repair or replace parts of the EZO-01 electronic single tourniquet control unit by yourself! The changes made will render the warranty void.

The warranty does not include product damage due to: negligence, inappropriate usage, usage not in accordance with the intended purpose, mechanical damage.

Accessories and spare parts are presented in **ChM**'s catalogues.

Warranty and non-warranty services are to be handled solely by the manufacturer - **ChM**.



It is recommended to perform technical inspection and calibration of the device at the manufacturer's site at least once every 12 months.

12. THE LIFETIME AND DISPOSAL

The **ChM** sp. z o.o. does not define the maximum number of uses for the EZO-01 control unit. The useful life of the device depends on many factors including the method and duration of each use, applied cleaning and disinfection and the handling between uses. Nonetheless, the lifetime of the EZO-01 control unit is assumed for 10 years. After this period, the product should be sent to the manufacturer in order to: determine the device further suitability for use, perform maintenance works, repairs or to recommend the user to purchase a new unit. The device should be disposed of in accordance with the applicable electrical and electronic equipment law. It is recommended that the battery be replaced at least once a year.



Worn-out lithium-ion battery must be disposed of in accordance with the current law on waste electrical and electronic equipment.

13. LABELS AND WARNINGS

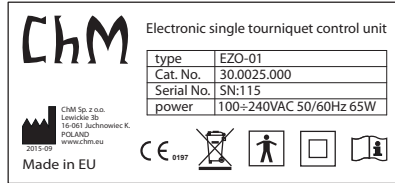


Fig. 3. Data plate

Warnings

**Danger!**

Risk of electric shock.
Do not remove the cover.
Repairs may be performed by qualified
service personnel only.

**Danger!**

Explosion hazard.
Do not use in the presence
of flammable gases.

**Caution!**

Use in the safe place
and avoid any accidental
damage.

**Caution!**

For use by trained
personnel only.
Power input: 230V/50Hz.
Battery only for use
during power outage
or patient's transportation.

Fig. 4. Warnings marked on the casing.

SYMBOL	CONCEPT, MEANING	EXPLANATION
	It is forbidden to dispose of the product into unsorted municipal waste.	The waste devices and other electronic and electrical products should be collected separately and disposed of in accordance with the applicable law on waste electrical and electronic equipment.
	Class II	The product with double or reinforced insulation.
	BF Type of Application	The degree of protection against electric shock.
	European conformity mark with the number of the notified body	Certifies compliance of the unit structure with the guidelines of the European Community
	Instructions For Use	Before the first use, refer to the instructions for use.

Tab. 4. Explanation of the symbols on the date plate

14. TROUBLESHOOTING

The following table lists some potential problems that may occur while using the device. For each problem, the most likely causes are provided.



If any other problems than the ones listed below have occurred or if the suggested actions have not solved the problem, please contact the manufacturer.
DO NOT perform repairs on your own unless otherwise stated in this manual.

Problem	Possible causes	Solution
Accidental or unintended operations of the device	The device driver wet due to improper clearing	Leave to dry Send to ChM service
	System error	Send to ChM service
	System failure	Send to ChM service
	Incomplete information provided in the safety instructions	Report to the manufacturer
	Overheating of the device	Send to ChM service
	Strong electromagnetic interference	Turn off all electrical equipment not in use; Change the location of electrical equipment; Plug in electrical equipment to other available outlets
No response of the device to the set parameters	Exceeding the declared lifetime of the device (10 years)	Send to ChM service for checking the further usefulness of the product
	System failure	Send to ChM service
	System hand up	Turn the device off and then back on
Tourniquet does not inflate	Overheating of the device	Send to ChM service
	The air hose may be bent or incorrectly connected	Check the hose and the connection
	Damaged tourniquet	Replace the tourniquet for a new one
	Damaged pneumatic air hose	Send to ChM service Replace the air hose
Tourniquet does not deflate	System failure	Send to ChM service
	The air hose may be bent or incorrectly connected	Check the hose and the connection
	Damaged tourniquet	Replace the tourniquet for a new one
	Damaged pneumatic circuit	Send to ChM service Replace the air hose
Dropping of the device	System failure	Send to ChM service
	System failure	Send to ChM service
	Display damage	Send to ChM service
	Battery damage	Send to ChM service
	Appearance of dangerous voltage on the device housing	Send to ChM service
	Damage to the power cord	Replace the power cord for the new one
	Damage to the air hose	Replace the air hose for the new one

Problem	Possible causes	Solution
Unit does not turn ON.	Unit not plugged in and battery fully depleted	Plug in the unit
	The unit is plugged in but the switch is OFF and battery is fully depleted	Turn the switch ON
	Damaged power cord	Replace the power cord for the new one
	Battery failure	Send to ChM service
	System failure	Send to ChM service
The device does not maintain the set pressure	The air hose may be bent or incorrectly connected	Check the hose and the connection
	Damaged tourniquet	Replace the tourniquet for a new one
	Damaged air hose	Replace the air hose for the new one Send to ChM service
	System error	Send to ChM service
	Exceeding the declared lifetime of the device (10 years)	Send to ChM service for checking the further usefulness of the product
Tourniquet cannot be connected to the unit	Damaged air hose	Replace the air hose for the new one Send to ChM service
	Using tourniquets other than ChM 's	Use ChM tourniquets
Discoloration and scratches on the surface of the device	Use of detergents other than those recommended by the manufacturer	Consult the Instructions for Use of the unit
	Overheating of the device	Send to ChM service
	Exceeding the declared lifetime of the device (10 years)	Send to ChM service for checking the further usefulness of the product
Unit switches off		Charge the battery
	Battery fully depleted	Replace the battery for the new one in the manufacturer's service
	System error	Send to ChM service
	System failure	Send to ChM service
	Strong electromagnetic interference	Turn off all electrical equipment not in use; Change the location of electrical equipment; Plug in electrical equipment to other available outlets
Too short battery life	End of battery life	Send to ChM service Consult the Instructions for Use of the unit
	Failure to follow manufacturer's instructions	Consult the Instructions for Use of the unit
	Exceeding the declared lifetime of the device (10 years)	Send to ChM service for checking the further usefulness of the product
Information cannot be read from the device display	Display failure	Send to ChM service
	System failure	Send to ChM service
	System error	Send to ChM service
Unit cannot be set to STANDBY	Pressure sensed in tourniquet	Deflate the tourniquet
	System failure	Send to ChM service
Alarm indicating a leaking system	The air hose may be bent or incorrectly connected	Check the hose and the connection
	Damaged tourniquet	Replace the tourniquet for a new one Send to ChM service
	Damaged pneumatic air hose	Replace the air hose for a new one
	System failure	Send to ChM service

Problem	Possible causes	Solution
Alarm indicating discharged battery	Battery fully depleted	Charge the battery
	Battery failure	Send to ChM service
	System failure	Send to ChM service
No external power supply icon when the device is plugged in	The device is not plugged in	Plug in the device
	Damaged power cord	Replace the power cord for the new one
	The switch is OFF	Switch ON
	No mains voltage	Check the voltage in the mains
	System failure	Send to ChM service
The battery does not charge	The device is not plugged in	Plug in the device
	The unit is plugged in but the switch is OFF and battery is fully depleted	Turn the switch ON
	Battery failure	Send to ChM service
Possible electrical shock	Damage to the power cord	Send to ChM service
		Turn off all electrical equipment not in use
Electrical interference	Occurrence of electrical noise	Change the location of electrical equipment
		Plug in electrical equipment to other available outlets
The unit has been sterilized	Staff negligence	Send to ChM service
	Negligence of Instructions for Use supplied with the product	

ChM sp. z o.o.

Lewickie 3b

16-061 Juchnowiec Kościelny

Poland

tel. +48 85 86 86 100

fax +48 85 86 86 101

chm@chm.eu

www.chm.eu



CE 0197
ISO 9001
ISO 13485