



USER MANUAL

HLB23

SOFTWARE

DESIGNATION	NOTES
B23:1.0.1/2.0.0	HLB23
B23:1.0.1/2.1.0	After detecting the movement, the time for the passage is extended to 2 minutes
B23:1.0.1/2.2.0	Adding the switch DIP 1 possibility of queuing to go off.

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UPROSZCZONA DEKLARACJA ZGODNOŚCI UE
SIMPLIFIED EU DECLARATION OF CONFORMITY

Nr:
7/2017/D1



PRODUCENT/HEREBY,

STER-TRONIC

Okulickiego 24, 33-300 Nowy Sącz

niniejszym oświadczam, że typ urządzenia eLB23 jest zgodny z dyrektywami:

EMC 2014/30/UE, ROHS 2011/65/UE

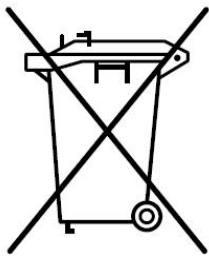
declares that the equipment eLB23 is in compliance with Directives:

EMC 2014/30/UE, ROHS 2011/65/UE

Pełny tekst deklaracji zgodności UE jest dostępny pod następującym adresem internetowym:

The full text of the EU declaration of conformity is available at the following internet address:

www.ster-tronic.com



In accordance with the applicable regulations on the disposal of unnecessary equipment by private users in the European Union, an item containing this symbol **MAY NOT** be disposed of with other waste. In this case, the user is responsible for proper disposal by delivering the device to a designated point or to the manufacturer who will take care of its further disposal. Separate collection and recycling of unnecessary equipment facilitates environmental protection and ensures that disposal is carried out in a manner that protects human health and the environment This notice also applies to used batteries and accumulators.

SAFETY CONSIDERATIONS

Before installing and using the controller for the first time, carefully read the instruction manual and save it for future reference.

DESIGNATION OF SYMBOLS



IMPORTANT SAFETY NOTES!



NOTE!

Pursuant to the provisions of the Machinery Directive 2006/42/EC, it is hereby stated that the product may not be put into service until the final machine to which it is incorporated or subassembled receives a declaration of compliance with the directives and the relevant provisions the final machine has to meet.

GENERAL RECOMMENDATIONS

- The assembly and maintenance person as well as all users of the turnstile must be familiar with the Installation and Operating Instructions.
- Keep the assembly and operating instructions in an accessible place.
- Use the product for its intended purpose.
- Observe and comply with safety regulations and standards in the respective countries.
- The controller must be assembled, connected and started for the first time by qualified personnel only.
- Install the controller only with properly installed turnstiles.

- Before performing any work at the device, disconnect supply voltage and prevent from accidental switching the power back on. This also applies to battery power supply.
- Disconnect the device from power source and isolate electronic circuits in case of any welding work being done nearby.
- Refer to the applicable standards and regulations for details on electrical installation methods and the electric shock protection measures required.
- The manufacturer assumes no liability for any damage or interruptions caused by not observing these installation and operating instructions.



Observe all mounting instructions. Incorrect assembly can lead to serious injury.

OPERATING THE DEVICE

- Use the device only when installed in accordance with applicable standards and when ensures safety of the user.
- The turnstile can only be used by trained personnel.
- Children and people with intellectual disabilities can not use the controller themselves.
- Do not put your hands or other body parts into moving gate or its moving parts.

SAFETY CONSIDERATIONS

- Do not insert any objects or mechanical parts into the moving parts of the turnstile.
- Pass through the turnstile only after unlocking.
- Immediately repair any defects which may affect the safety.
- Operate the controller in non-explosive areas.
- Do not use the controller in an aggressive atmosphere.
- Do not use fluorescent lamps as indication lights.
- Perform inspection and maintenance work at least every 6 months.

INSTALLATION

- Use only the turnstile when in working order and according to its intended purpose, taking into account the threats involved and safety principles and follow the installation and operating instructions.
- The turnstile must move correctly within its operating range.
- Observe health and safety regulations during installation.
- Install in accordance with applicable standards.
- The installation of the controller may only be carried out only by qualified personnel with the appropriate authority.
- The installation should be carried out meeting the rules of basic ESD discharge protection.
- Do not connect the power supply any time earlier than stated in the manual, otherwise this may present a risk of electric shock.

DEVICE DESCRIPTION

PURPOSE

HLB23 is designed to control a turnstile. It uses two **24VDC** electric locks (max **1A**). It is suitable for continuous operation, it can be used on private premises and in companies to work with external access control systems.

BENEFITS OF THE CONTROLLER

- Two independent control outputs for electric locks.

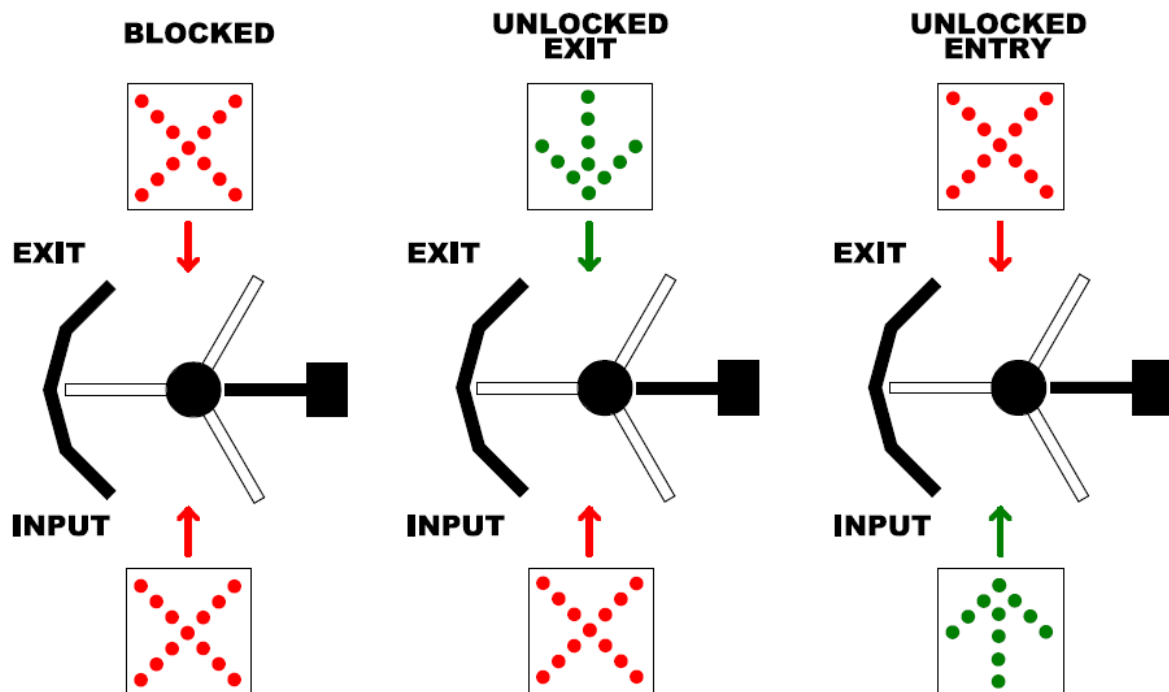
- Angle of rotation **90°** or **120°**.
- Working with **HLA27** type absolute encoder.
- Feedback output for an access control system.
- Two outputs for signal devices **PASS/LOCKED**.
- Queuing function
- DIN rail mounting.
- Easy installation and programming.

OPERATING PRINCIPLE

WARNING!

The design of the winch must enable evacuation (OUTPUT) in the event of a power failure. The EZ1 electric lock during normal operation is switched on and controls the OUTPUT, and the EZ2 electric lock is off and the INPUT is controlled.

The Turkish turnstile can be in three main states: **blocked**, **unlocked input**, **unlocked output**. In the **blocked state**, **EZ1** is switched on and **EZ2** is switched off - there is no possibility of moving in both directions. When the passage in a given direction is forbidden, the red X signaling indicator lights up, while the green arrow ↑ indicates the possibility of passage.



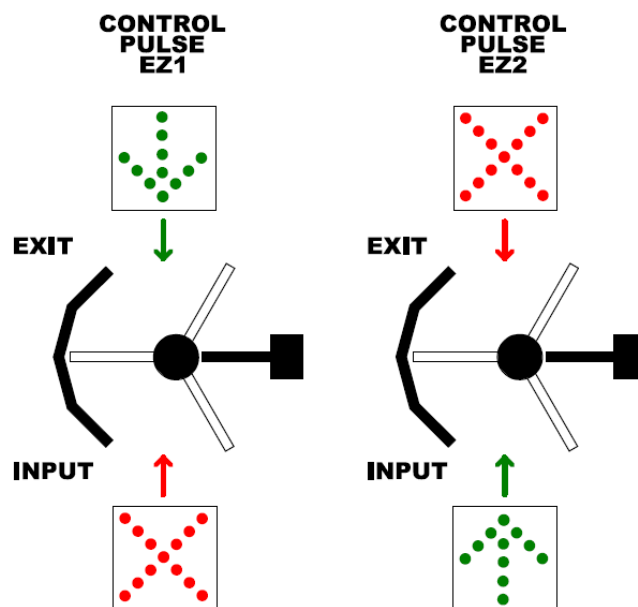
In the blocked state, a short pulse (<3s) at the **CONTROL EZ1** input unblocks the **OUTPUT** and a short pulse at the **CONTROL EZ2** input unblocks the **INPUT** - the stall is unlocked in the desired direction until it reaches the set passage angle or if no movement is detected within **5s**. If the controller detects motion, but the transition is not completed, the turnstile will be blocked after 5s - version B23: 1.0.1 / 2.0.1 or 2min - from version B23: 1.0.1 / 2.1.0.

Queuing on

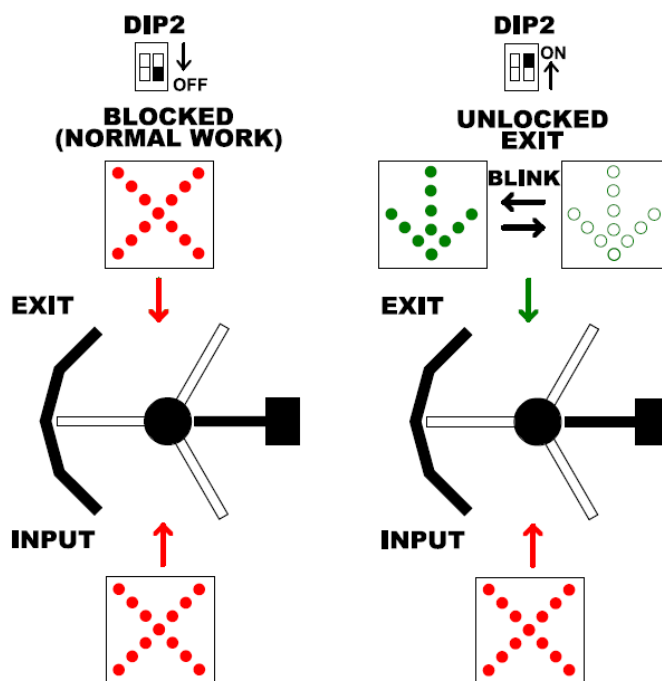


Queuing off

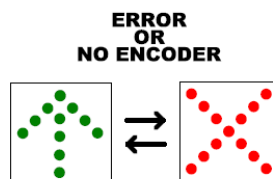




Additionally, by setting **DIP2** switch to the **ON** position, you can unblock the **EXIT**. In this state, to exit, no control pulses are required at the **CONTROL EZ1** input, and the green arrow flashes on the **OUTPUT** indicator. The input is possible after providing a control impulse to the **CONTROL EZ2** input.



For correct operation, it is necessary to connect an absolute encoder defining the turnstile locking positions. In the absence or error of the encoder, the signal switches \uparrow and X flash alternately.



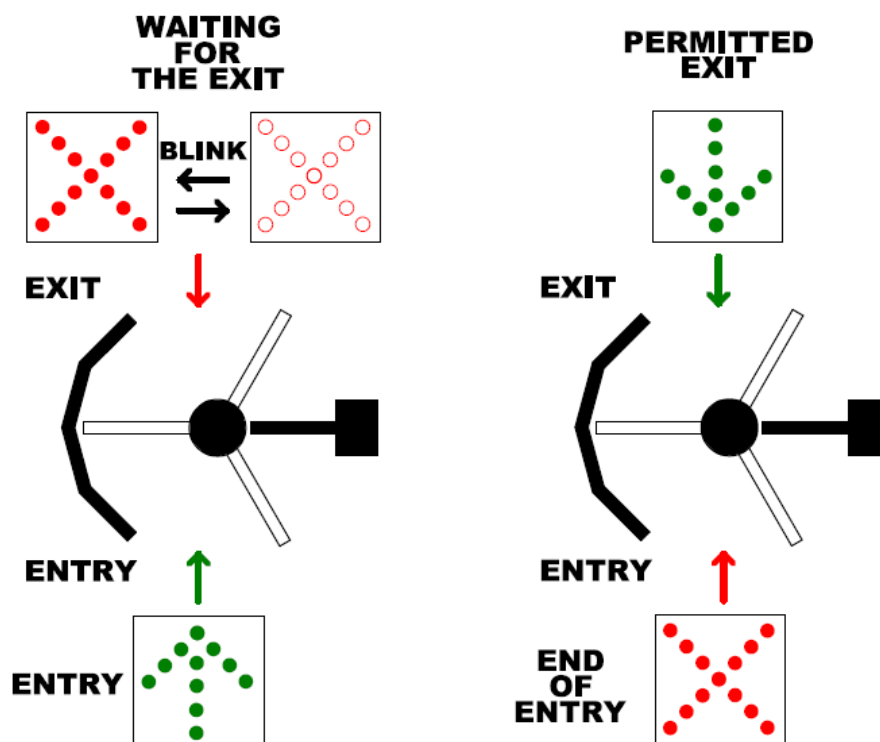
WARNING!

*The controller recognizes the direction of movement - after unblocking the electromagnetic lock **EZ1** the winch must turn in the direction of the **OUTPUT** (contrary to the movement of the hands), and for **EZ2** in the direction of **ENTRY** (according to the direction of movement).*

The initial position must be programmed before the first start-up. During this procedure, a 90 ° or 120 ° transition angle is also selected.

The controller allows you to queue the transitions. The control pulses during the time of waiting and passing are counted. The turnstile is blocked after turning by the sum of all counted angles or if no movement is detected within 5s of the last pulse. If the pulses are from different inputs, first the direction that was first started is operated. Waiting for the end of the passage on the other side is signaled by the flashing of the X siren.

From version B23: 1.0.1 / 2.2.0, the queue function can be turned on and off by means of the DIP1 switch - to enable it, set DIP1 to ON to turn OFF. With the queuing function disabled, the HLB23 responds to control signals only when the previous pass cycle ends and the pulses during the transition are ignored.



WARNING!

After each control pulse, the potential-free PASS output is switched on for 0.5s, which can be used, for example, to confirm the transition to the access control system.

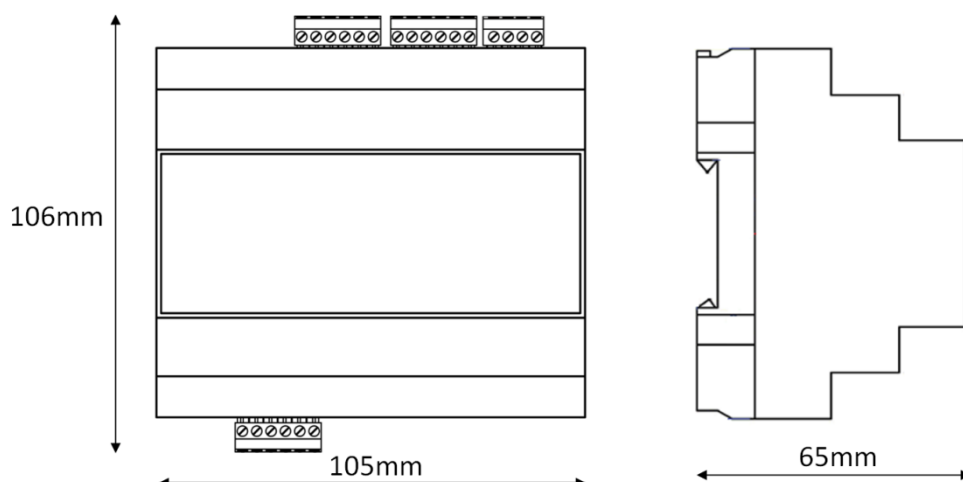
The STATUS output is used to signal the status of electro-catch (common) and is activated when the winch is unlocked (possible transition).

TECHNICAL DATA

Controller power supply	24VDC
Operating temperature range	-20 to +70°C
Power consumption in standby	<3W (with no accessories)
Maximum output capacity of CH2 channel	1A/30VDC, 0.3A/60VDC, 0.5A/125VAC
Maximum auto-locking time	25 min
Maximum operating time	2 min

Maximum interval time	10 s when unlocking 20 s when locking
Weight	120 g

DIMENSIONS



CONTROLLER INSTALLATION

Ensure that all safety instructions are met before installation.



Any installation work may only be carried out **ONLY** by qualified personnel. Electrical installation and connection of electronic devices may only be carried out only by duly authorised electricians.

1. Turn off the power supply.
2. Install the controller mechanically.
3. Remove the quick connectors.
4. Connect wires to the quick connectors as described on the controller housing or wiring diagram:

4.1. Connection of passage signalling devices.

Two HLA31 LED signalling devices are connected to the controller. When passage in a given direction is forbidden, the red signal light **X** is lit, and the green arrows indicates an open passage. The connection is made using a 6-pin IDC tape observing the polarity of the connectors.



The maximum output capacity of the signalling devices is 100mA (1 output).

4.2. Connection of the STATUS output

The **STATUS** output is used to signal the state of the electric locks (common) and is energised when the turnstile is unlocked (passage allowed).

NC – NC contact of the potential-free output
COM – common contact of the potential-free output
COM – NO contact of the potential-free output



Maximum output capacity of the output 2A / 30VDC

4.3. Connection of the **PASS** output

After each control pulse, a potential-free **PASS** output is energised for **0.5 s** which can be used, for example, to confirm the passage to an access control system.

NC – NC contact of the potential-free output
COM – common contact of the potential-free output
COM – NO contact of the potential-free output



Maximum output capacity of the output 2A / 30VDC

4.4. Connection of buttons/**CONTROL EZ1** and **CONTROL EZ2** control inputs

The connection should be made with a 2x 0.5mm conductor (the conductor type should comply with CEI standards 20-22; CEI EN50267-2-1), the maximum cable length depends on its electrical parameters. Therefore, the general rule to be observed is that, for the required cable length, its resistance should not exceed 100 ohm. Typically, using 0.5 mm conductors not exceeding 20 m in length is sufficient for proper controller operation. For longer distances required, 4 x 0.5 (mm²) cables can be used with their conductors connected in parallel in pairs to increase the conductor cross sectional area (2x 1mm²).

CONTROL EZ1 –momentary push-button of the EZ1 control –conductor 1
COM –momentary push-button of the EZ1 control –conductor 2
CONTROL EZ2 –momentary push-button of the EZ2 control –conductor 1
COM –momentary push-button of the EZ2 control –conductor 2

4.5. Connecting the **EZ1** and **EZ2** electric locks

Two electric locks are connected to the controller: **EZ1** for the first direction and **EZ2** for the other. Applying voltage causes locking of the electric lock. Consider the output capacity while selecting an electric lock (see TECHNICAL DATA).

EZ1 - –EZ1 electric lock solenoid negative
EZ1 + –EZ1 electric lock solenoid positive
EZ2 - –EZ2 electric lock solenoid negative
EZ2 + –EZ2 electric lock solenoid positive



Electric lock 24 VDC max. 1A

4.6. Connecting the encoder/encoders

For correct operation, an absolute encoder type **HLA27** is required to determine the locking position of the turnstile. The connection is made using a 10-pin IDC tape.

ENCODER –IDC10 encoder IDC tape



Before the initial start up, a procedure for determining zero position is absolutely required.

4.7. Connecting the power supply

The controller is supplied with a voltage **24VDC**.

+24VDC –positive supply wire

GND –negative supply wire



Select the output of the power supply according to the connected actuators and accessories.



The 230Vac input power supply of the 24VDC source should be protected by the use of an external overcurrent circuit breaker (selected to ensure automatic shutdown of the power supply in accordance with applicable standards) and a RCD IΔn 30mA residual current device.

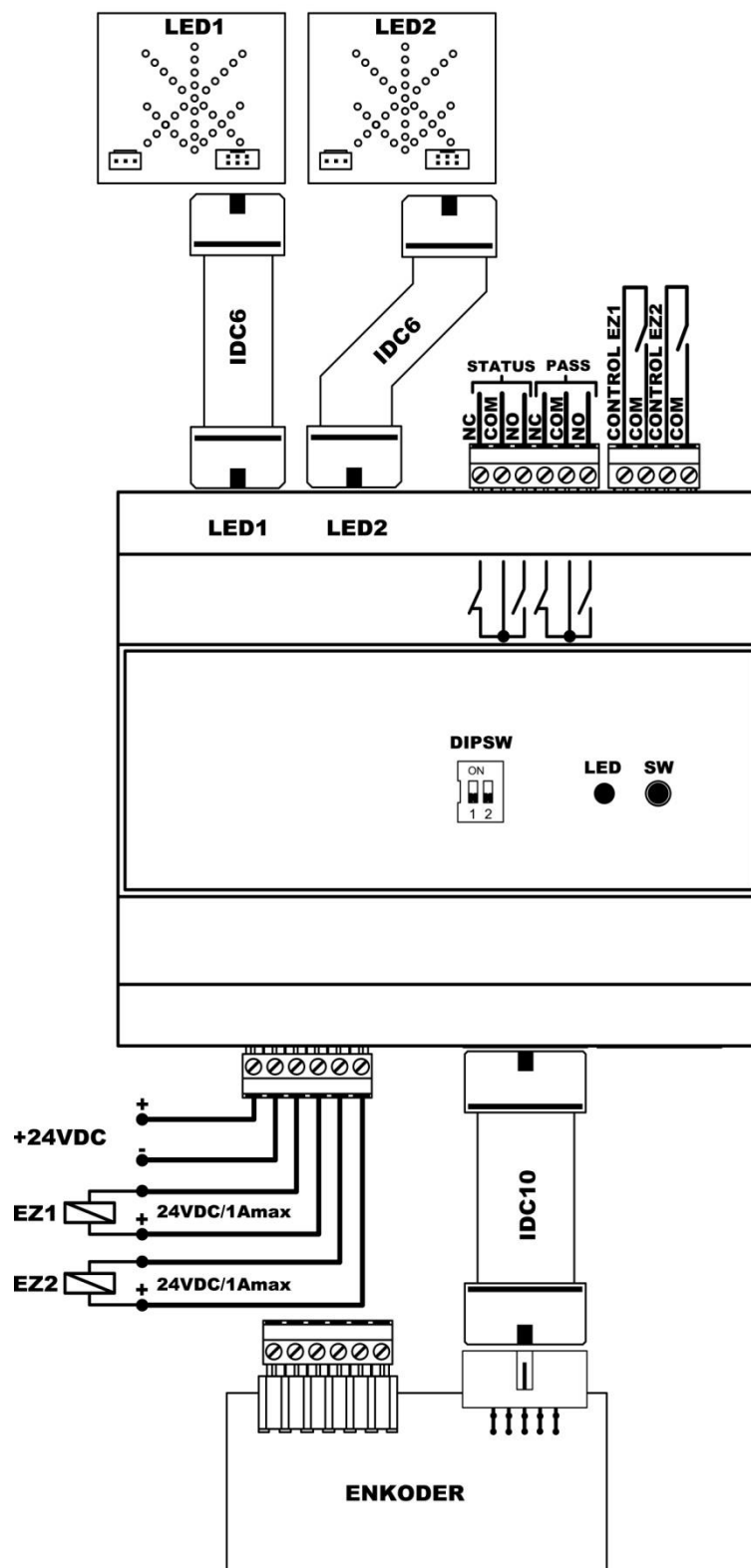
5. Place the quick connectors back into the controller.



Check the power supply, grounding and wiring before starting up. The wires should not be too long, it is not allowed to wind the remaining cable in loops and simultaneous routing of power supply to the controller, motor and control cables.

- 6. Turn on the power supply.**
- 7. Program the initial position.**
- 8. Use DIPSW to configure the as required.**
- 9. Check the entire equipment for correct operation and all connected safety, signalling and control components.**
- 10. Give training to all turnstile users.**

CONNECTION DIAGRAM



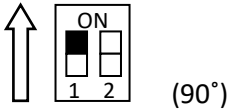
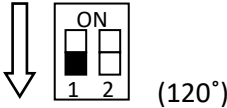
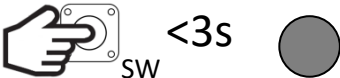


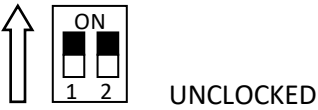

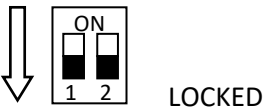



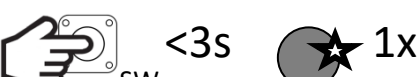

PROGRAMMING THE SETTINGS

The controller is programmed with the **SW** button, **LED** and **DIPSW** dip switches on the controller housing.

PROGRAMMING THE ENCODER INITIAL POSITION

It is required to connect an absolute encoder defining the turnstile locking positions. For correct operation, it is necessary to determine the starting position.

Before programming the settings, select the type of turnstile (three-armed or four-armed).

Set the turnstile type with the DIP1 switch.	
Set the turnstile type with the DIP1 switch.	
Hold the SW button pressed for less than 3s . On pressing the button the LED illuminates.	
Release the SW button.	
The LED will begin blinking slow.	
Setting the DIP1 to ON position releases the electric lock EZ1 , and the DIP2 unlocks the EZ2 electric lock and the turnstile can be rotated.	
Set the turnstile in a position to be locked.	
Set DIP1 and DIP2 dip switches to OFF position. The electric locks will be locked and the rotating the turnstile will be impossible.	
Hold the SW button pressed.	
The LED will flash 3 times.	
Release the button. The procedure is done. When the LED stops blinking, the controller returns to normal operation.	
To quit the procedure without saving the settings short press the SW button. The LED will flash once and the controller returns to normal operation.	
WARNING! Set the DIP1 and DIP2 switches to the desired position.	

NOTES

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