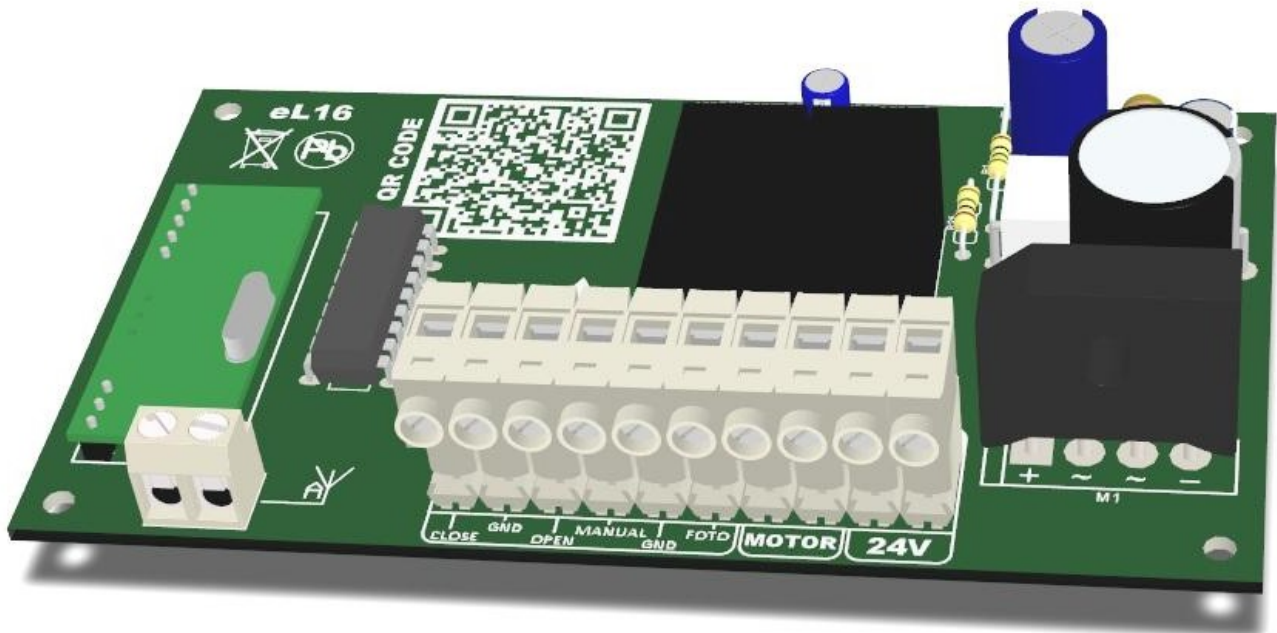


Garage  
drive  
controller  
for 24V  
100W  
motors



# INSTRUCTION MANUAL

eL16E/H



Before installing and using the controller for the first time, read the manual carefully and keep it for future use.

**In accordance with the provisions of the Machinery Directive 2006/42/EC, it is declared that the product cannot be put into operation until the final machine into which it is incorporated or of which it is a component has received a declaration of conformity with the directives and relevant regulations that the final machine must comply with.**

Declarations of conformity and instructions for use of the products of P.P.H.U "eLdrim" Janusz Janowski can be downloaded from: <http://www.eldrim.pl>

Contact:

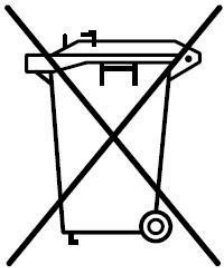
P.P.H.U "eLdrim" Janusz Janowski  
Ul. Franciszkańska 3  
33-300 Nowy Sacz  
tel. 018 4490840 tel/fax. 018 4490848

### **Safety recommendations and precautions.**

Carefully read all warnings and safety rules before installing and using the drive. Incorrect installation and failure to follow the standards in the manual can cause serious accidents.

- Do not connect the drive to the power supply earlier than specified in the instructions, failure to do so may result in the risk of electric shock.
- Before installation, check the mechanical condition of the gate: it should not sway excessively, it should move easily and smoothly.
- Before installation, remove unnecessary cables and secure equipment, such as locks.
- During installation, children, disabled people and motor vehicles are not allowed near the gate.
- All fixed controls should be located near the gate, but away from moving components and out of the reach of bystanders.
- Before repairing or removing any parts of the gate, disconnect the power supply.
- Children and people with mental disabilities cannot control the gate themselves.
- Store and assemble the device out of the reach of children.
- Fluorescent lights must not be used as traffic signals.
- All work related to the proper operation of the device (connection, commissioning, operation) must be carried out in accordance with applicable regulations for the operation of electrical equipment, ESD protection and in accordance with health and safety regulations.
- The methods of electrical installation and its protection against electric shock are defined by the relevant standards.
- All installation activities may be carried out only by persons with the appropriate electrical license.

Failure to follow these instructions can lead to serious injury or damage to the equipment. The manufacturer is not responsible for damage or malfunctions resulting from failure to follow these installation and operation instructions.



In accordance with current regulations for the disposal of unnecessary equipment by private users in the European Union, an item containing such a symbol **MUST NOT be disposed** of with other garbage. In this case, it is the user's responsibility to dispose of it properly by delivering the device to a designated point or manufacturer who will take care of its further disposal. Separate collection and post-processing of unnecessary equipment facilitates environmental protection and ensures that disposal is done in a way that protects human health and the environment. This note also applies to used batteries and accumulators.



# Controller eL16E/H for 24Vdc 100W motors

## 1. Purpose:

The eL16E/H controller is designed for garage drives using 24V DC motors with a power of up to 100W. It is perfect for continuous operation and can be used on private properties and in companies.

## 2. Method of operation:

The drive is controlled via a remote control button programmed into the eL16E/H, or a bell button. In both cases, the operation of the device is identical and is based on sequential execution of commands, i.e. step by step. After the power is switched on, the traffic light will light up for a short moment, the first command is to open, if you give another command while the gate is moving, it will stop. Then the gate can be started in the closing direction. Each transition of the automatic machine from stop to movement or from movement to stop is performed in a gentle manner. The exception is the tripping of the infrared barrier at closing and the tripping of the overload.

### NOTE!

eL16H -cooperates with all transmitters compatible with the Keeloq transmission standard. eL16E -cooperates with all eLdrim transmitters compatible with the Keeloq transmission standard.

Advantages of the controller:

- Soft start and stop, which increases the life of the gate.
- Control by transmitters (to20 on frequency 433.92MHz with dynamic variable code Keeloq .
- Bell-button control.
- Auto-close function.
- Earlier automatic closing of the gate after passing the infrared barrier
- Overload force adjustment
- Automatic opening on overload during closing
- Traffic signal or lighting.
- Infrared barrier can be installed.
- Simple installation and programming procedure.

**The infrared barrier** is an additional security component to be connected to the control. It increases the safety of use before the gate is invaded by a vehicle, person or object in its light.

**Automatic closing** can be activated by toggling the micro switch numbered 1 towards the word ON, which is located on this element (the abbreviation ON taken from English, means on). The closing time is set by "delay time". With this setting, the light changes the working principle. It blinks during opening, after opening it lights up. In closing mode, it blinks to go out when the motor stops. In automatic closing, photocells are required for the safety of the user (so that the gate will not close when there is an obstacle in its light!). In addition, photocells will reduce the opening time. The control will recognize the passing of a vehicle and close the gate after 5s. If the auto-close function is activated, all programming procedures can be carried out in the stop position after closing.

**The overload force** is an indispensable element of protection against crushing of the elements in the gate light. In addition, it protects the motor and the entire gate drive mechanism from damage. The overload force is regulated by the potentiometer marked "P1" and must not exceed 200N.

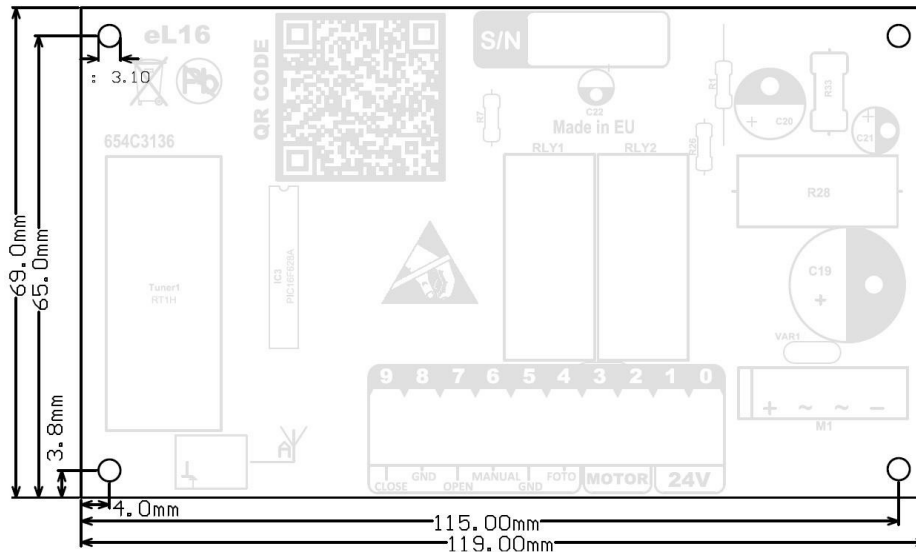
**The traffic light** can work in two variants. In the first as a warning signal - it flashes while the door is moving. In the second, as an auxiliary light for the garage with a delayed switch-off time (this function does not work with the automatic closing option).

**Dynamic closing function.** It is necessary for the proper closing of the swing gate.

### 3. Technical specifications of the controller

<b>Power supply:</b>	24Vac/dc
<b>Power consumption at rest:</b>	<1W (without accessories)
<b>Radio receiver:</b>	433.92 MHz
<b>modulation:</b>	OOK
<b>sensitivity:</b>	1uV for 50oM input
<b>Engin</b>	
<b>e: power supply voltage:</b>	24VDC
<b>power:</b>	<= 100W
<b>Operating temperature range:</b>	-20°C +70°C

#### 3.1 Dimensions of the controller



#### 4. Installation of the eL16E/H controller

1. Install an automation.
2. Pull out the quick disconnect.
3. Connect the wires to the Z1 connector:
  - Manual control (point 6 and 5).
  - Infrared barrier (when installing the barrier, remove the jumper point 5 and 4).
  - Closing and opening type normally-closed limiters (points 9 and 8 closing, points 8 and 7 opening).
  - Power supply (points 0 and 1).
  - Engine (points 2 and 3)
4. Plug the connector into the controller.
5. Set the gate manually in the middle.
6. Turn on the power, the LEDs should light up for about 1 second.
7. Program the transmitter according to the learning procedure in the Programming paragraph.
8. Run the transmitter or manual control of the automatic. The gate must open, if it is otherwise, rewire the motor wires swapping places.
9. Check if the limiters correctly turn off the automatic machine, if not replace the places where they are connected.
10. Adjust the overload force with the potentiometer marked "P1". Make the settings in accordance with the applicable standards!
11. Attach a full cycle of opening and closing twice using the transmitter or manual control, in order to calibrate the operating times of the controller (this will allow the controller to automatically determine the braking moments before the stops).
12. Check the correct operation of the automat, photocells, then you can set additional options.

## OPTIONAL EXTRAS

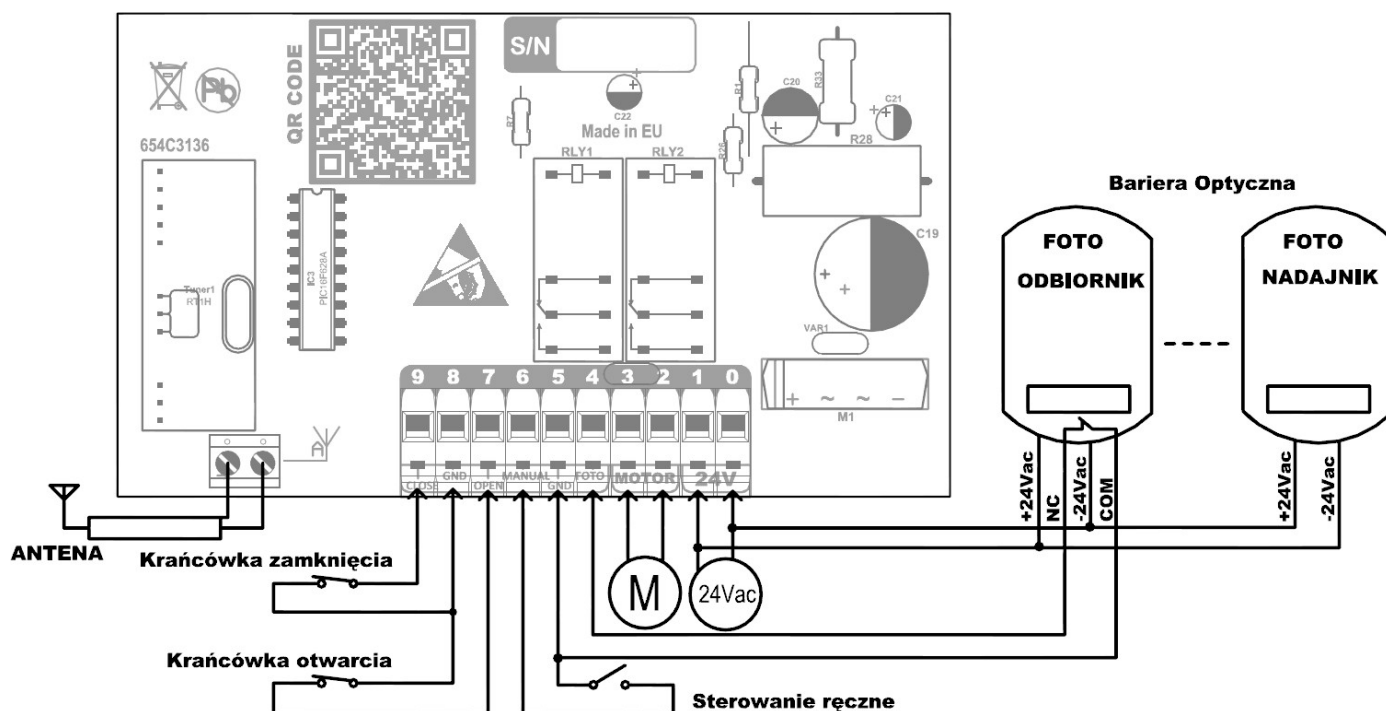
It can be activated by changing the position of the switch located in the micro switch assembly numbered 1 and 2 towards the ON designation (the word ON is located on the switch).

**Automatic closing.** It is necessary to switch the micro switch number 1 in the direction of the word ON. The closing time is determined by the delay time for turning off the light, i.e. one press corresponds to 15s (for a detailed description, see the chapter on programming the delay time).

**The dynamic closing function,** is necessary for the proper closing of the swing gate. It is activated by switching the micro switch number 2 in the direction of the word ON.

Change the position of the microswitches should be done with a soft object such as a pen or pencil, do not use needles, screwdrivers and other sharp tools that can damage the microswitch.

## 4.1. eL16E/H wiring diagram



## 5. Programming settings

Programming of the eL16E/H controller is carried out using the "UCZ" button, LEDs and a double micro switch (these elements are located on the controller board). Programming can be done when the gate is standing (with the auto-close option activated, after closing).

**Learning the delay time for turning off the light after stopping the engine.** To enter the programming mode, press the "UCZ" key for no more than 3s (LEDs will light up). Then we have 3s to start programming. By pressing the same key, we can set the delay time. One press corresponds to 15s (the LEDs after each press of the UCZ key will go out the appropriate number of times (e.g. 4 times -  $4 \times 15s = 1min$ )).

To complete the programming do not press the UCZ button for 3 seconds, the controller after this time will automatically save the settings and return to normal operation, which will be signaled by the LED flashing three times.

Entering the delay time learning mode and not pressing the UCZ button for 3 seconds will disable the delay time (delay time equal to 0) and return the servo to the normal operation mode, which will be signaled by 3 times flashing of the LED.

**Switching on flashing.** Press the "UCZ" key no longer than 3s and wait (about 3s) for the LED light to flash three times. Now the lamp will flash while the motor is running (this option is set by the factory).

**Deleting from the memory of remote controls.** . We recommend performing this procedure first immediately after installation. Press the "UCZ" key and hold it, the LEDs will light up, turn off and then flash five times, then release the held button. When the controller completes the deletion procedure it will go into normal operation mode

**Learning the transmitter code.** The eL16E/H controller allows you to program up to 20 transmitters with a dynamically variable code. Dynamically variable coding complies with Microchip's Keeloq coding specification. Press the "UCZ" key and hold until the LEDs light up and go out, release the held key, now you have about 10 seconds to press the selected transmitter button. When the LEDs light up three times, it means that the learning has been completed successfully. The controller from this moment waits 10 seconds to press the selected button of the next transmitter, if no button is pressed during this time, the controller will automatically exit the programming mode and enter the normal operation mode, which will be signaled by flashing the LED once. Such a solution allows more convenient programming of a larger number of remote controls.

The controller's memory allows you to program up to 20 transmitters, if this number is exceeded then when the controller is in programming mode after pressing the transmitter button, the LEDs will flash twice, then the controller will return to normal operation.

If the number of used remote controls is less than 20, and the controller signals full memory, the memory should be erased and all transmitters should be programmed anew. If the number of transmitters controlling the gate is to be more than 20, you need to buy the eL3 radio module, which will extend the operation by an additional 64 units.

When the LED flashes twice in the transmitter code learning mode, it indicates a learning error, if this message appears, repeat the programming. If the error message still appears, use another working remote control. If the problem persists even after deleting the remote control memory, contact your installer or authorized service center.

### 5 Notes:

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**Distributor/Salesman**