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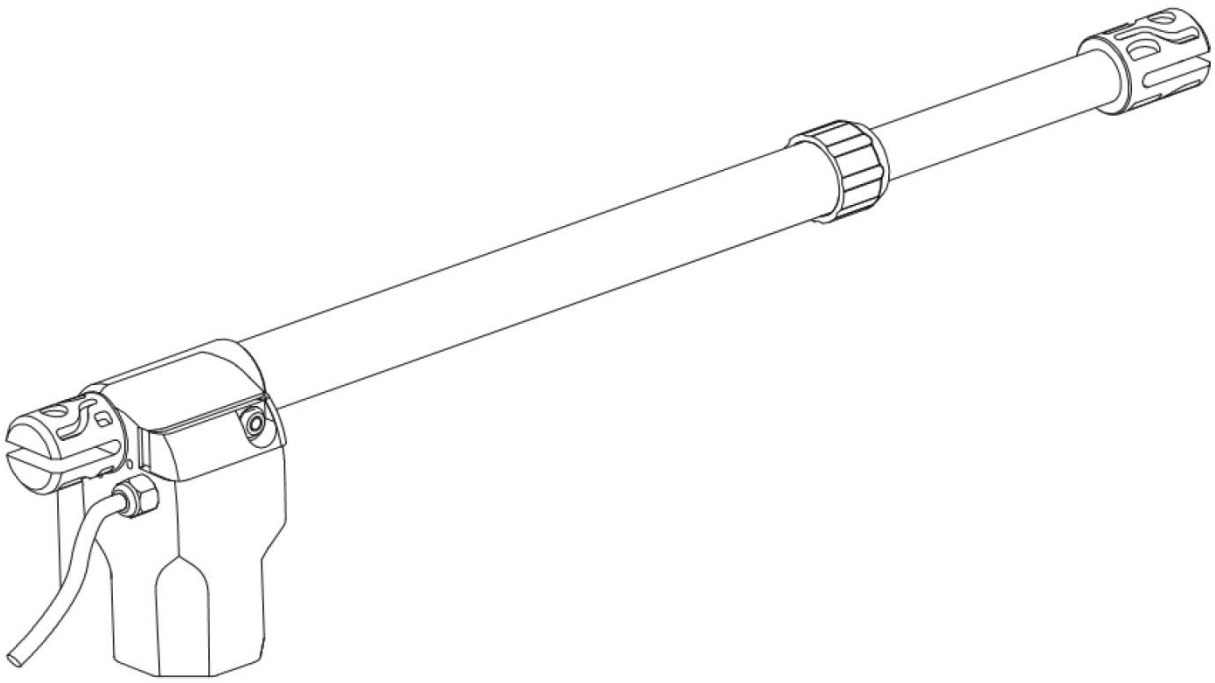
OPERATING INSTRUCTIONS

DRIVE SET FOR SWING GATES

with solar panels and battery

BRAND: VELTRIX

Model: V-D-1000



April 2025

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1. General information

Before installing and using the device, please read this manual carefully and follow the instructions contained herein.

The product has been created and designed for the automatic opening and closing of swing gates. All safety precautions must be observed during installation and use. Incorrect installation or improper use of the product may result in serious danger to the health or life of people and animals, as well as material damage.

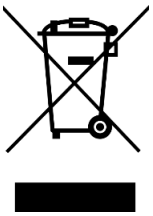
The product should not be operated by children or persons without the appropriate experience and knowledge. For safety reasons, ensure that no animals, children or bystanders are near the gate during use.

The installer must provide full information on how to operate the system in emergency situations and provide the user with the operating instructions supplied with the product. Repairs and modifications should be carried out by qualified persons. The installer is obliged to ensure the safe use of the automation system by securing the area around the gate.

Before starting any installation or maintenance work, the power supply must be switched off. Inspections and maintenance work must be carried out regularly.

Appropriate overload protection devices should be used in the installation network to ensure complete disconnection under the conditions specified by overvoltage category III.

The manual should be kept and stored in a known location throughout the entire period of use of the device. Failure to follow the instructions may result in damage to the device, loss of warranty and lack of guarantee. The seller is not liable for damage resulting from improper use of the product.



Waste electrical and electronic equipment (WEEE) must not be disposed of with other municipal waste. Such equipment should be taken to a specialised WEEE collection point, such as municipal waste sorting centres (PSZOK), collection points run by electrical and electronic equipment retailers (e.g. when purchasing a new device) or another location designated by the local authorities.

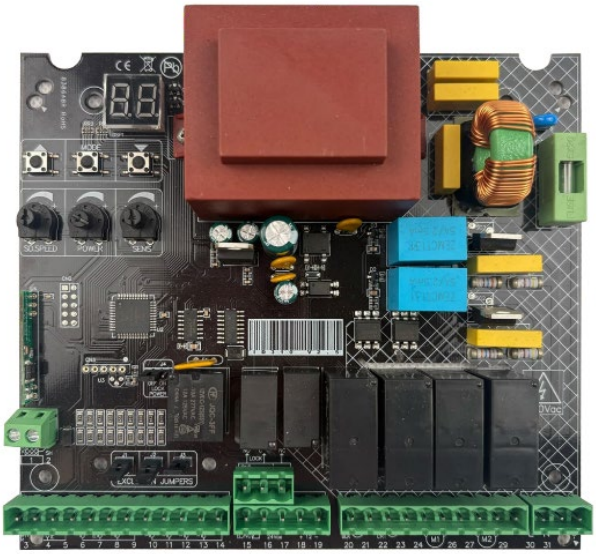
2. Contents of the kit

After unpacking the kit, check its condition and completeness. If any items are missing, defective or otherwise problematic, contact the retailer.

The contents of the kit are listed below:

• Drive actuators with mounting brackets – 2 pcs.

• Drive controller with mounting accessories – 1 pc.



• Limit switch – 1 pc. (optional)

• Remote control – 4 pcs.

• Photocell set – 1 pc.

• Signal lamp – 1 pc.

3. product information

3.1 Key features

• Drive unlocking in the event of a power failure or malfunction – the gate can be operated manually after unlocking the actuator with the included key.

• Obstacle detection: the drive automatically stops the gate if it encounters increased resistance during operation.

• Automatic closing: the automatic closing function can be activated with the option of adjusting the time after which the gate closes.

• Speed adjustment and smooth start - the drive allows you to adjust the speed of opening and closing the gate, and also ensures smooth starting and stopping, which reduces wear and tear on the mechanisms.

• Quiet and smooth operation: the drive is extremely quiet, which increases comfort of use, especially in residential areas.

• Flexible operating mode configuration: the drive is compatible with both single-leaf and double-leaf gates.

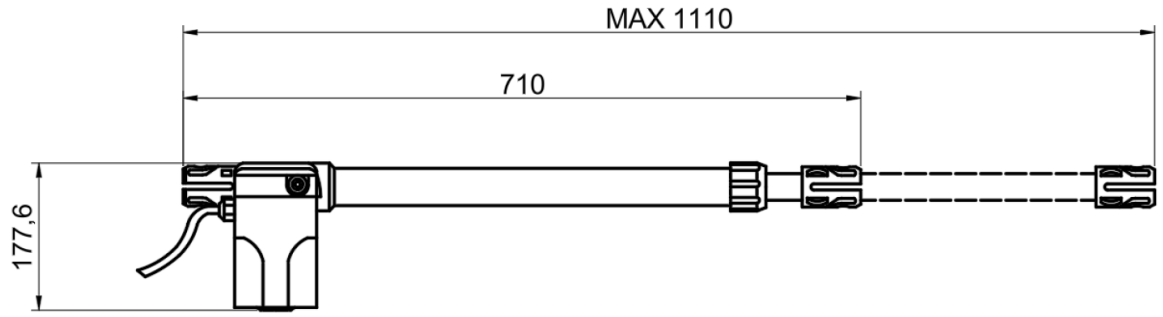
• Expandability: the system can be expanded with various accessories (e.g. solar module, Wi-Fi, photocells, batteries, electric lock, alarm, external control panel), allowing it to be adapted to the specific needs of the user.

• Support for multiple remote controls: up to 99 remote controls can be programmed, which is useful for multiple users.

3.2 technical data

Controller and motor power supply	AC 230V 50Hz
Power	320 W
Maximum arm movement	400 mm
Maximum gate opening angle	100
Maximum length of one leaf	3.5 m
Maximum weight of one leaf	500 kg
Permissible ambient temperature	From -20°C to 50°C
Protection class	IP45

Actuator dimensions in extreme positions (between axes from 675 mm to 1075 mm)



Photocell technical data

Range	Up to 15 m May be reduced by up to 30% in adverse weather conditions (rain, dust, etc.)
Infrared wave frequency	1.92 kHz
Power	12–24 V DC/AC
Infrared wavelength	940 nm
Current consumption	RX receiver 15 mA TX transmitter 30 mA
Temperature range	-20°C to 70°C
Relay	Up to 1A, up to 36V
Dimensions	100x40x35 mm

3.3 Power supply requirements

• Main power supply 230V AC – 3 x 1.5 mm^{22}

• Photocell

  o Transmitter 2 x 0.5 mm^2

  o Receiver 4 x 0.5 mm^2

• Signal lamp – 2 x 1 mm^2

• Manual control panel (optional) – quantity depends on the number of buttons, 0.5 mm^2 .

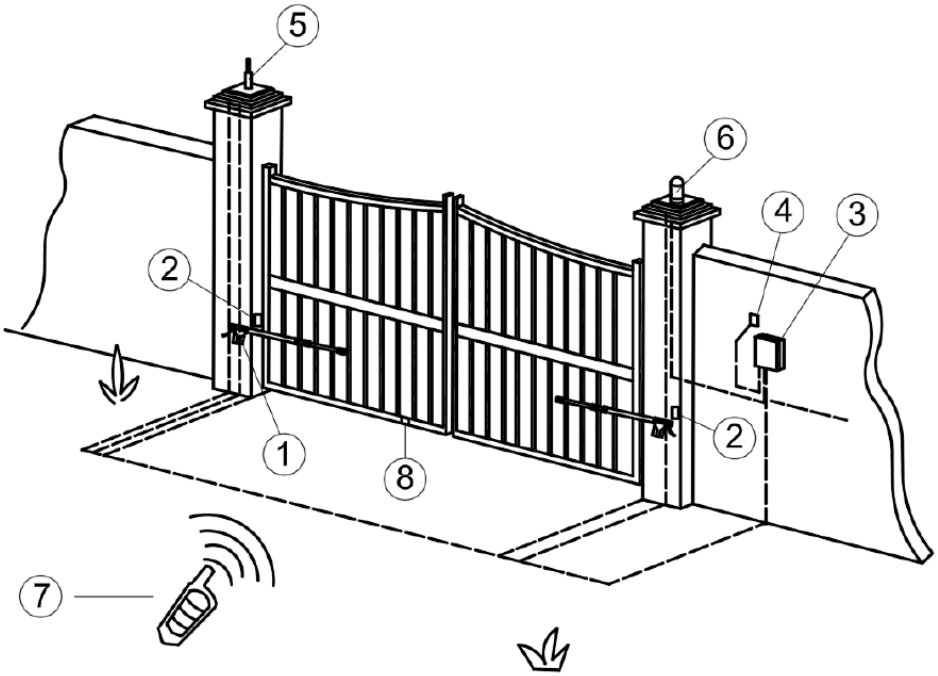
CAUTION! Exercise extreme caution when working with a 230V power supply. A 10A overcurrent protection device must be used in the drive power supply circuit.

4. Assembly and configuration instructions

4.1 Installation information

The figure below shows an illustration of how to install the gate drive. The drive unit must be installed on the inside of the gate so that unauthorised persons cannot access it.

Illustrative diagram of drive mounting:



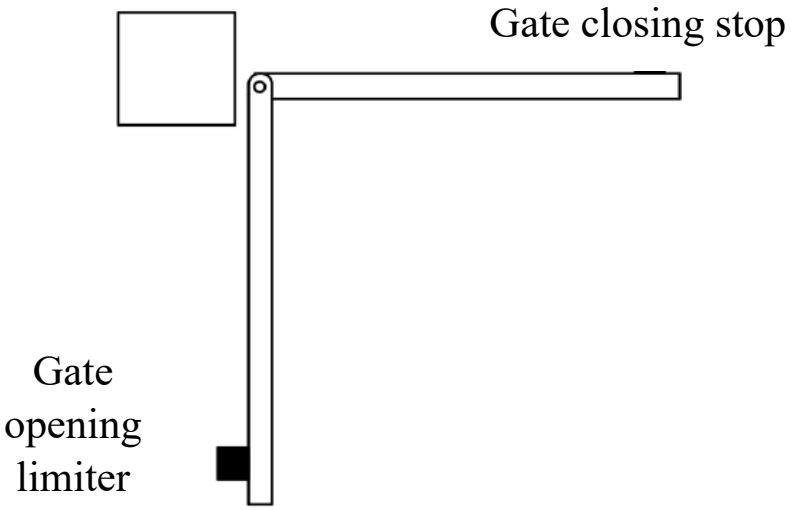
1. Actuators
2. Photocells
3. Drive controller
4. Panel with buttons for gate operation (optional)
5. Antenna (optional)
6. Signal lamp
7. Remote control
8. Gate closing limiter

Before installing the drive, check where the actuator brackets can be mounted, both on the post and on the gate.

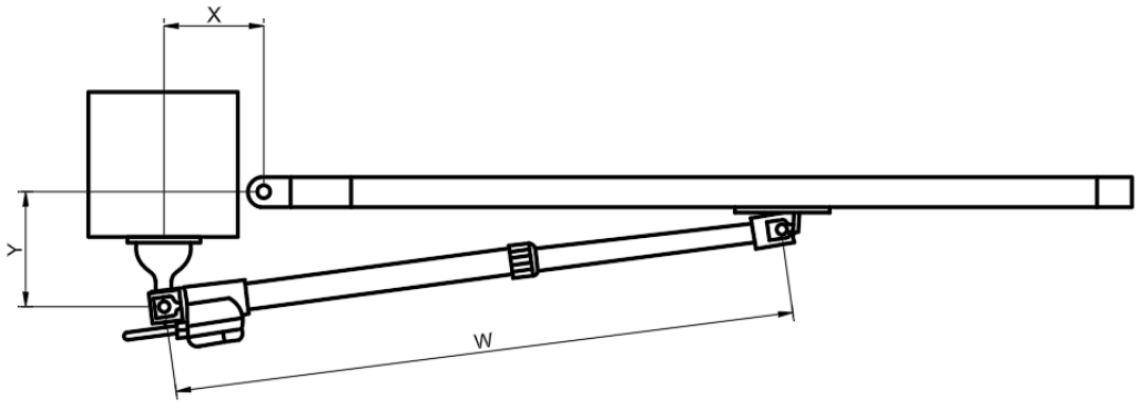
The actuator with gate brackets should be pre-fitted to assess whether it is possible to mount the actuator on both sides without exposing it to bending.

Incorrect installation of the actuator may cause resistance when opening and closing the gate, and using the drive in this way may result in damage.

Limit stop mounting points – limit stops should be installed in such a way that they block further movement of the gate after reaching its maximum opening and closing positions.



Dimensions for actuator installation

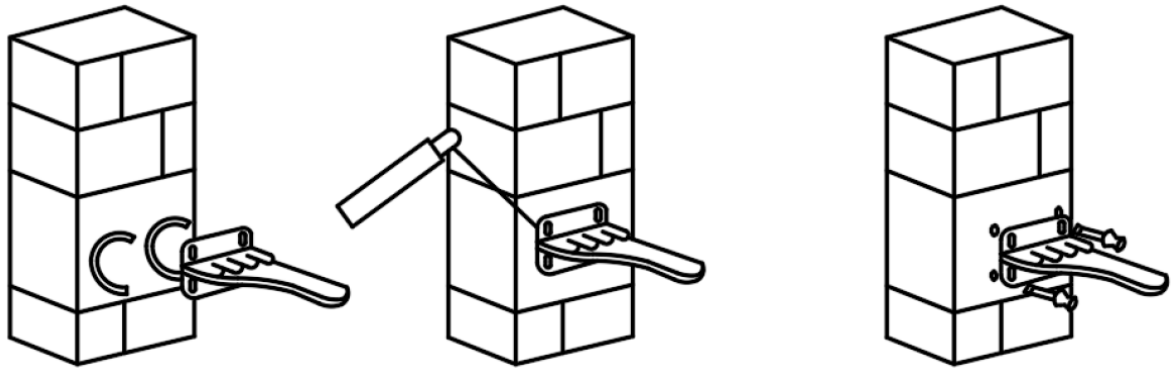


ANGLE	W	X	Y	Distance from gate hinge to front actuator mounting
90	1075	135	250	920
95	1075	150	230	910
100	1075	160	210	905
105	1075	165	190	900
110	1075	165	180	900

NOTE! The dimensions are approximate and depend on many factors – the length of the actuator, the actuator's working range, the thickness of the gate, and the relative distances between the mounting points of the actuator and the gate. In order to determine the mounting points more accurately, we recommend using the gate actuator calculator available on the Internet and/or consulting an experienced installer.

Mounting the rear actuator bracket to the post

Spacing of holes for attaching the bracket to the post:



Depending on the material to which the drive is mounted, the actuator mounting brackets can be bolted or welded to the post.

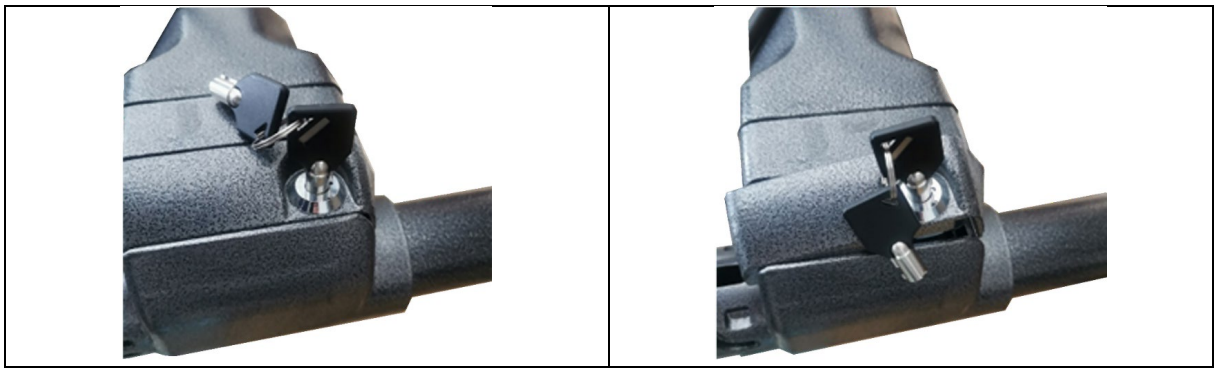
In the case of screws mounted in the post (left drawing), place the bracket in the designated place and tighten the screws.

In the case of welding, drill holes, then place the actuator mounting bracket on the prepared holes and weld the motor bracket to the post.

For concrete posts, drill holes according to the spacing of the holes in the bracket. Then insert the bolts into the concrete, place the motor mounting bracket and tighten.

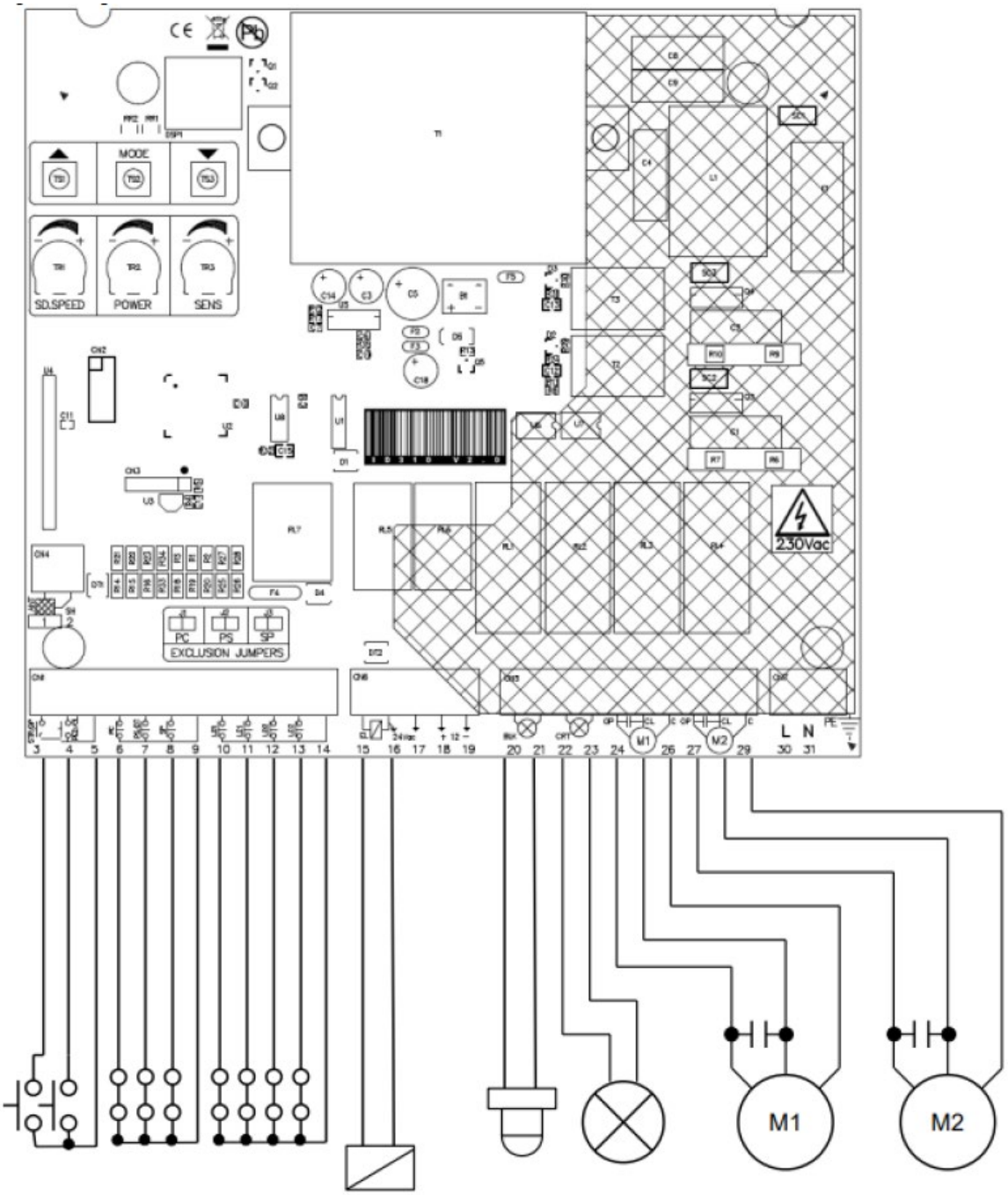
4.2 Unlocking the actuators

Open the drive coupling flap - turn the key to the left, lift the flap, turn the key to the right to keep the drive unlocked. Open or close the gate manually. Then close the drive coupling flap.



5. Drive controller

5.1 Description of connectors



1	Antenna
2	Antenna screen
3	Start/Open (input – function depends on the oL mode in the main menu)
4	Gate mode / Close (input – function dependent on oL mode in the main menu)
5	GND
6	Photocell (input)
7	Photostop (NC) / Analogue edge detection (8K2) / Object detection mode (NO) (input - check the SF function in the advanced menu)
8	Stop (NC/NO input – configure the SP function in the advanced menu)
9	GND
10	Motor 1 open limit switch (NC/NO)
11	Motor 1 closing limit switch (NC/NO)
12	Motor 2 open limit switch (NC/NO)
13	Motor 2 closing limit switch (NC/NO)
14	GND
15	Electromagnetic lock power supply output AC 12V 1A
16	
16	AC 24V 250mA power output
17	
18	DC power output 12V 250mA (+)
19	DC 12V 250mA power output (-)
20	Signal lamp power supply AC 230V 100W
21	
22	Power supply for additional lighting AC 230V 100W (check the Lh function in the advanced menu)
23	
24	Motor output 1 (opening)
25	Motor output 1 (closing)
26	Motor output 1 (neutral cable)
27	Motor output 2 (opening)
28	Motor 2 output (closing)
29	Motor 2 output (neutral cable)
30	AC 230V power supply (phase wire)
31	AC 230V power supply (neutral wire)
32	Earthing (PE)

When connecting motors between the opening and closing windings, connect a starting capacitor (between the black and brown wires).

Jumpers

Jumpers allow you to enable or disable specific functions. Jumpers J1, J2 and J3 disable the functions by default. Jumper J4 allows you to select the power supply for the electromagnetic lock.

J1	**PC**	Jumper disabling the photocell input
J2	**PS**	Jumpers disabling the photostop input
J3	**SP**	Jumpers disabling the stop input
J4	**LOCK POWER**	Electromagnetic lock power supply selection

Knobs

Turning to the left (counterclockwise) decreases the value, while turning to the right (clockwise) increases the value.

TR1	SD.SPEED	Minimum gate speed (speed during deceleration)
TR2	POWER	Motor power adjustment. **NOTE!** During the first 2 seconds after start-up, both motors operate at full power.
TR3	SENS	Adjustment of the force causing the gate to stop when it encounters an obstacle.

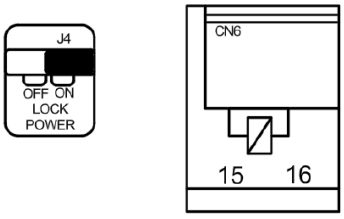
Buttons

▲	Previous option
MODE	Confirmation button
▼	Next option

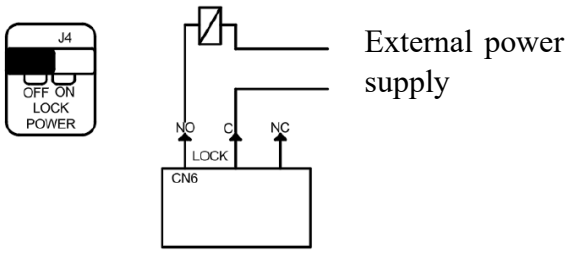
Electromagnetic lock

Depending on the power required by the lock, it is possible to use power directly from the controller (12V 1A) or indirectly using an external power supply (recommended for locks requiring more power – in "dry contact" mode). The connection method for both cases is shown below.

Controlling a lock powered directly from the controller



Controlling a lock with an external power



Input status

During operation, the display shows the status of active inputs as follows:

Symbol	Description	Activation connector	Connector no.
-	No active inputs	-	-
St	Active opening input	ST/OP	3
Pd	Active pedestrian input	PD/CL	4
oP	Active opening input	ST/OP	3
cL	Active closing input	PD/CL	4
Pc	Active photocell input	PC	6
SP	Active stop input	SP	8
PS	Active photostop function	PS/DT	7
dt	Active object detection function	PS/DT	7
o_	[left digit] Active motor open limit switch input 1	LO1	10
c_	[left digit] Active input of motor 1 closing limit switch	LC1	11
_o	[right digit] Active input of motor 2 open limit switch	LO2	12
_c	[right digit] Active input of motor 2 closing limit switch	LC2	13

Limit switches (default NC – change possible in the advanced menu)

		NC	NO
LO1	Motor 1 opening limit switch	Signals closure	Signals opening
LC1	Motor 1 closing limit switch	Signals opening	Signals closure
LO2	Motor opening limit switch 2	Signals closing	Signals opening
LC2	Motor closing limit switch 2	Signals opening	Signals closure

5.2 Simplified configuration

Press the MODE button to enter the main menu and select manual mode (dN). Open the gate to its maximum position (to the stops). When "- -" appears on the display, press and hold the ▲ button until the Au symbol appears on the display. Both leaves will start to close (first the first one, then the second one after a moment). If limit switches are installed and configured, wait until both gate leaves are closed. If there are no limit switches, press the MODE button when the first gate leaf is completely closed and then press the MODE button when the second gate leaf is completely closed. The controller will record the time needed to reach the end positions (between opening and closing). NOTE! After changing the gate speed, the operating time must be reconfigured.

When the power is turned on, the first action is to open. For single-button operation, the sequence is open-stop-close-stop.

5.3 Remote control operation

In 4-button mode, the buttons have the following functions

1 STOP

2 Gate mode (single gate leaf operation – MOTOR 2)

3 Closing 2 gate leaves

4 Opening of 2 gate leaves

In 1-button mode, a specific button takes on the functions of the channel to which it is assigned

c1 – opening/operating two leaves

c2 – closing/operating one gate leaf (gate mode)

LL – additional lighting

5.4 Main menu

To enter the main menu, press and release the "MODE" button when the "--" symbol appears on the display. After releasing the "MODE" button, the "oL" symbol will appear.

Use the ▲/▼ buttons to scroll through the available functions. Press the "MODE" button to select an option.

To exit the menu, select the EH option or press the ▲ and ▼ buttons simultaneously. The menu will also exit if the user does not take any action within 20 seconds.

Symbol	Option description	Available options
oL	Controller operating mode	St At cd oc oA EH
Lc	Remote control configuration	c1 c2 LL rt rn rA EH
Lt	Working time configuration	Au An EH
SP	Time until automatic shutdown	0 – 99
dN	Manual mode	o1 c1 o2 c2 EH
EH	Output	

oL Controller operating mode (available functions mode)

St	Step-by-step command execution (double-leaf mode and pedestrian mode)
At	Step-by-step command execution with automatic closing (double-leaf mode and pedestrian mode)
cd	Multi-family housing mode – after opening, the gate will close automatically after a specified time, ignoring closing signals from other sources
oc	Open/close functions
oA	Open/close functions with automatic closing

Lc Remote control configuration

The remote control configuration menu offers the following functions:

c1	Adding a remote control on channel 1 (support for two gate wings / open)
c2	Adding a remote control on channel 2 (single gate wing operation – motor no. 2 / close)
LL	Adding the function of switching on additional lighting to the remote control
rt	Removing the currently used remote control
rn	Deleting the remote control by indicating its number in the controller memory
rA	Deleting all remote controls from the controller memory

Select the add option and press the button on the remote control to add it to the controller. Each time a remote control is added to the controller memory, the display will show the memory location number to which it has been assigned.

Lt Configuring operating times

Before starting the configuration, set the gate wings in the correct position (gate open or closed) using manual mode (dN).

Operating times can be configured automatically in simplified configuration mode (Au).

Before configuring the operating times, prepare at least one remote control added to the controller. During the configuration of operating times, the safety systems are inactive.

NOTE! If the gate operates in single-leaf mode, connect only motor 2 and enable the single-leaf operation function in the advanced menu.

- ***Au Automatic configuration of operating times***
  The gate must be open before starting the automatic configuration of operating times.
  If limit switches are installed and configured, the operating times will be saved automatically.
  If limit switches are not installed, the user must press the MODE button (or the button on the remote control) when the first gate leaf is closed (motor 1) and when the second gate leaf is closed (motor 2).
  After the gate leaves are closed, all operating times will be saved.
- ***Nn Manual configuration of operating times***
  Before starting the manual configuration of operating times, the gate must be closed. Both gate leaves begin to open and it is possible to set the minimum speed using the knob during this phase. When both leaves are open, press the MODE button (or the button on the remote control).

SP Time to automatic closing

Use ▲/▼ to set the pause time in the range from 0 to 99 seconds. Press **MODE** to confirm. To exit without modification, press the ▲ and ▼ buttons simultaneously.

For automatic closing to be available, select the appropriate controller operating mode (oL menu, At mode, cd or oA).

dN Manual mode

In this mode, it is possible to open and close the gate from the controller. Use the ▲/▼ buttons to select one of the available options:

Symbol	Option description
o1	motor 1 in opening mode
c1	motor 1 in closing mode
o2	motor 2 in opening mode
c2	motor 2 in closing mode
EK	Output

After selecting an option, press and hold the MODE button to use the selected option.

5.5 Advanced menu

To enter the advanced settings menu, press and hold the "MODE" button when the display shows the symbol -- until the symbol tN appears. Use the ▲/▼ buttons to select the option you want to change.

Symbol	**Option description**	**Available options**
tN	Operating time	t1 S1 t2 S2 to dc tc tL tP EH
SG	Single-leaf mode	nt YS EH
D2	Restoring default settings	nt YS EH
Rc	Reducing pressure after completion of work	nt YS EH
Ar	Simplified addition of remote controls	nt YS EH
cS	Easy unlocking of the electric lock	nt YS EH
SS	Soft start	nt YS EH
LS	Limit switch mode	nc no EH
SL	Limit switches connected in series with the motor	nt YS EH
rN	Remote control operating mode	4b 1b EH
LN	Electromagnetic lock operating mode	nt YS EH
PC	Photocell operating mode	nc no EH
SP	STOP input configuration	nc no EH
SF	PS/DT safety input mode	PS dt An EH
bL	Flashing mode	nt YS EH
Lh	Additional lights mode	nt YS EH
Pr	Engine power at minimum speed	01 – 10
cn	Operating cycle counter	
EK	Output	

To exit the menu, select the EK option or press the ▲ and ▼ buttons simultaneously. The menu will exit automatically if the user does not take any action within 20 seconds.

Detailed description of functions:

<table>
<tr><td>tN</td><td>Operating time</td></tr>
<tr><td></td><td>In this menu, you can change the operating times of the controller

<table><tr><td>t1</td><td>Motor 1 operating time</td></tr><tr><td>S1</td><td>Full power operating time (time to slow down) of motor 1</td></tr><tr><td>t2</td><td>Engine 2 operating time</td></tr><tr><td>S2</td><td>Full power operating time (time to slow down) of motor 2</td></tr><tr><td>to</td><td>Motor activation delay during opening</td></tr><tr><td>dc</td><td>Motor activation delay when closing</td></tr><tr><td>tc</td><td>Additional lighting operating time (x10 sec)</td></tr><tr><td>tL</td><td>Electromagnetic lock operating time</td></tr><tr><td>EK</td><td>Exit menu</td></tr></table>
After selecting the operating time to be changed, use ▲/▼ to modify it within the range of 0 to 99 seconds. Press MODE to confirm. To exit without modification, select EK or press the ▲ and ▼ buttons simultaneously.</td></tr>
<tr><td>SG</td><td>Single-leaf mode</td></tr>
<tr><td></td><td>In this menu, you can check or set whether the gate operates in single-leaf mode (motor 2). Use the up/down buttons to select yes, no or exit. Press the Mode button to confirm your selection.</td></tr>
<tr><td>D2</td><td>Restoring default settings</td></tr>
<tr><td></td><td>Selecting Yes (YS) and confirming restores the default settings.</td></tr>
<tr><td>rc</td><td>Reducing pressure after operation</td></tr>
<tr><td></td><td>Enabling this function will cause the motors to briefly reverse direction after completing operation in order to reduce the load exerted by the actuator on the gate. Use up/down to select Yes (YS), No (NT) or Exit (EX). Press the Mode button to confirm.</td></tr>
<tr><td>Ar</td><td>Simplified remote control addition</td></tr>
<tr><td></td><td>Enabling this function allows you to add new remote controls without having to enter the menu.
To add a new remote control, press the button on the remote control you are adding three times, waiting at least 1 second between clicks. Then press the button on the remote control already assigned to the controller three times. When you have finished adding the remote control, the light will flash. The new remote control will be assigned to the same channel as the remote control used for programming.</td></tr>
<tr><td>cS</td><td>Easy unlocking of the electric lock</td></tr>
<tr><td></td><td>This option allows you to perform an additional movement when opening or closing the gate, which makes it easier to unlock and lock the lock.</td></tr>
<tr><td>SS</td><td>Soft start</td></tr>
<tr><td></td><td>Enables a soft start lasting 1 second after the motor starts moving.</td></tr>
<tr><td>LS</td><td>Limit switch mode</td></tr>
<tr><td></td><td>In this menu, you can select the limit switch mode between normally closed (NC) and normally open (NO).</td></tr>
</table>

SL	Limit switches connected in series with the motor
	Enabling this function (YS) allows you to manage limit switches connected in series to the motor winding. When the control unit cannot detect the current flowing through the motor, it detects it as the end of the range.
rN	Remote control mode
	In this menu, you can set the receiver operating mode: 1B - Each transmitter button is read separately. 4B - All 4 transmitter buttons are read together and automatically set for the open, close, pedestrian movement and stop functions.
LN	Electromagnetic lock operating mode
	Enabling this function (Y5) ensures that the lock is always engaged when the gate is closed.
Pc	Photocell operating mode
	In this menu, you can select whether the photocell input is normally closed (NC) or normally open (NO) by default.
SP	STOP input configuration
	In this menu, you can select whether the "STOP" input is normally closed (NC) or normally open (NO) by default.
SF	PS/DT safety input mode
	In this menu, you can set the PS/DT safety input mode between: PS - Photostop (NC): • when closing the gate, when a signal appears at the PS/DT input, the gate will stop and when the signal disappears, the gate will open. • when opening the gate, if a signal appears at the PS/DT input, the gate will stop until the stop signal disappears, after which the gate will open. An – Analogue edge detection (8k2): • When closing the gate, when a signal appears at the PS/DT input, the direction of the gate's operation changes (it opens). • When opening the gate, if a signal appears at the PS/DT input, the direction of the gate's operation changes (it closes) for 1 second. dt - Object detection mode (NO): • when opening the gate, if a signal appears at the PS/DT input, the gate continues to open and closes after it is fully open. When the gate is open, the detection command causes the gate to close immediately. • When closing the gate, if a signal appears at the PS/DT input, the gate reopens fully and then closes. NOTE! The gate will not close when there is an active signal at the PS/DT input (when an object is detected by the photocell).
bL	Flashing mode
	Enabling this function causes the warning light to flash while the gate is in operation. Disabling this function causes the warning light to remain on continuously while the gate is in operation.

Lh	Additional lights mode
	Emergency light mode Enabling this function causes the additional light output to act as a light signalling the opening of the gate.
Pr	Motor power at minimum speed
	Adjustment of motor power at minimum speed. Values from 1 to 10 (10% - 100%). The recommended value is 10 (100%), but if vibrations occur, this parameter can be adjusted.
cn	Operating cycle counter
	Displays the number of controller operating cycles in three groups of two digits, e.g. 123456 is displayed as 12 – 34 – 56.
EK	Exit menu

5.6 Default settings

The default settings are restored after selecting option d2 in the advanced menu.

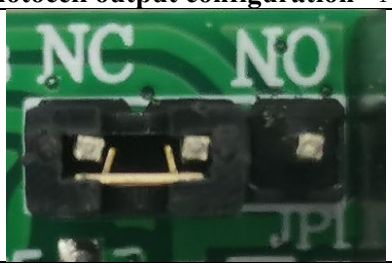
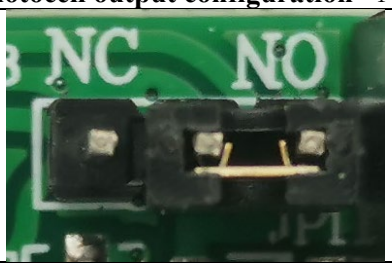
Function	Description	Default value
Main menu		
oL	Controller operating mode	St
SP	Time until automatic shutdown	10
Advanced menu		
SG	Single gate mode	Nt
rc	Reduction of force when closing the gate	Nt
Ar	Automatic configuration of remote controls	Nt
cS	Easy unlocking of the electric lock	Nt
SS	Soft start	Nt
LS	Limit switch operating mode	Nc
SL	Limit switches connected in series with the motor	Nt
rN	Receiver operating mode	1b
LN	Magnetic lock mode	Nt
SP	Mode stop input	Nc
SF	Safety mode input	PS
bL	Flashing mode	Y5
Lh	Hazard warning mode	Nt
T1	Engine operating time 1	30
T2	Motor operating time 2	30
S1	Motor deceleration time 1	20
S2	Motor deceleration time 2	20
to	Wing opening delay	02
dc	Delay in closing the wings	05
tc	Additional lighting operation time (x10)	12
tL	Electrical lock activation time	0

6. Photocell connection

The photocells included in the set significantly improve the safety of the device. The photocells are connected as follows:

- The positive pole of the infrared transmitter and receiver power supply should be connected to the **+12** connector.
- The negative power supply terminal should be connected to the **GND** connector.
- The output cable of the infrared receiver should be connected to the **PC** connector.

NOTE! The receiving photocell should be installed in such a way that it is not exposed to strong sunlight. Solar radiation can significantly affect the sensitivity of the photocell.

Photocell output configuration - NC	**Photocell output configuration - NO**
	

When the red LED is lit, the light beam from the transmitter reaches the receiver, which means there is no obstacle.

When the red and blue LEDs are lit, an object is blocking the light beam, which causes a signal to be sent to open the gate when it is in closing mode.