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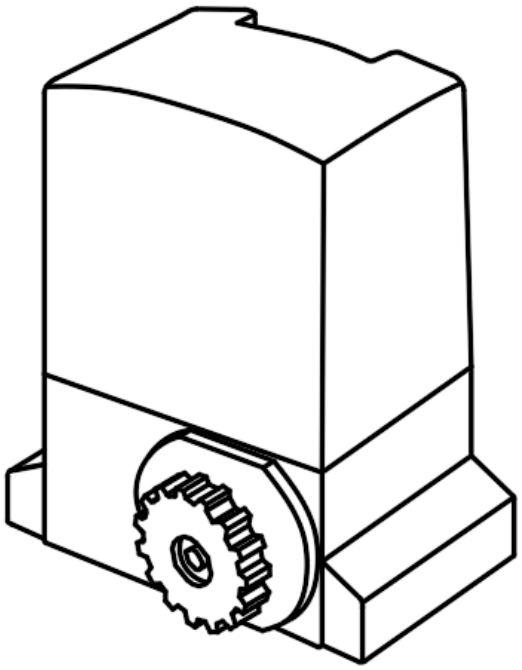
OPERATING INSTRUCTIONS

DRIVE UNIT FOR SLIDING GATES

V-S-800

V-S-1500

V-S-2000



Original manual
V2 - 01/2026

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1. General information

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

Symbol	Description
	Caution/Warning about the need to strictly follow the information contained in the documentation to ensure the safety and full functionality of the device.
	Information particularly useful for installation and operation of the device
	Information on the disposal of used equipment

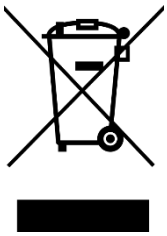
The product has been created and designed for the automatic opening and closing of swing gates. All precautions must be observed during installation and use. Incorrect installation or improper use of the product may result in serious danger to the health or life of people and animals, as well as material 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 complete information on the system's operating instructions in emergency situations and provide the user with the operating instructions included 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 must 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 manufacturer is not liable for damage resulting from improper use of the product. The user manual will be updated as the product develops.



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

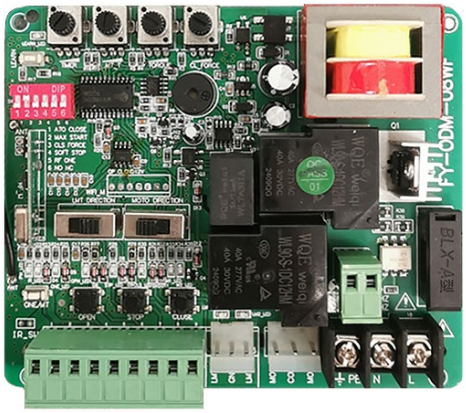
After unpacking the kit, check its condition and completeness. If any items are missing, defective or otherwise problematic, contact the retailer.

The contents of the kit are listed below:

- Drive unit with mounting accessories and controller – 1 pc.
- Remote controls – 4 pcs.

1

1



4

- Drive strip (5 pcs.) with a set of mounting sleeves (15 pcs.)

- Accessories

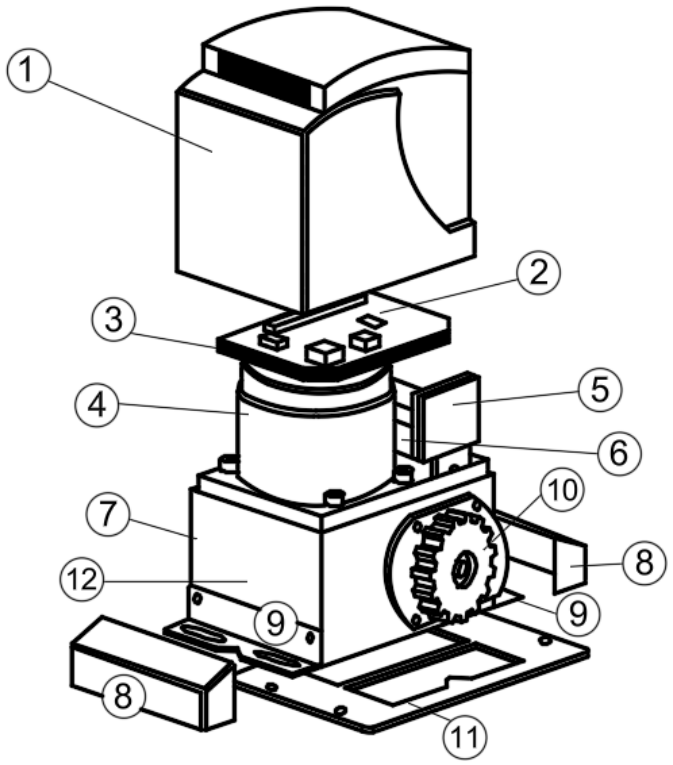
Photocell set – 1 pc.

Signal lamp – 1 pc.

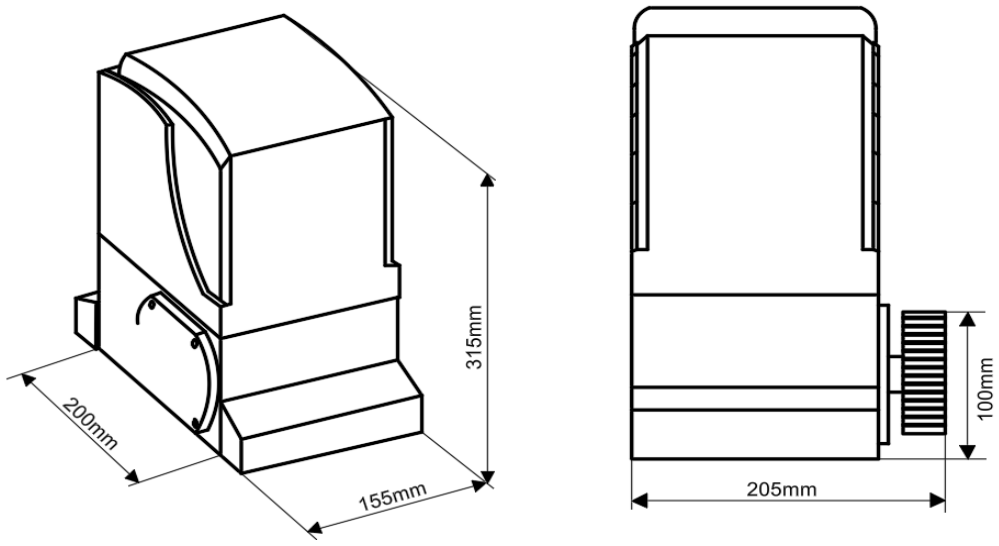
3. Product information

3.1. Technical specifications

Model	V-S-800	V-S-1500	V-S-2000
Power supply	AC 230 V ±10%		
Motor speed	1400 rpm		
Drive rack rotation speed	46.60 rpm		
Max. gate weight	800 kg	1500 kg	2000 kg
Power consumption	370 W	750 W	1000 W
Maximum gate length	20 m	20 m	20 m
Gate speed	12 m/min		
Ambient temperature	-45°C to +55°C		
Limit switch	Magnetic switch		
Protection class	IP55		



1. Automatic cover
2. Main board
3. Main board base
4. Motor stand
5. Limit switch
6. Starting capacitor
7. Clutch release lock
8. Handle covers
9. Mounting brackets
10. Drive wheel
11. Mounting base
12. Drive body



Description of cables in the drive unit

Cable number (from left)	Colour	Description
1	Black	Lower limit switch
2	Blue	Common (GND)
3	Brown	Upper limit switch
4	Black	Motor winding 1
5	Blue	Common (GND)
6	Brown	Motor winding 2
7	Yellow-green	PE protective conductor

3.2. Power supply requirements

- Main power supply 230V AC – 3 x 1.5 mm^{2}[2]
- Photocell
  - Transmitter 2 x 0.5 mm^2
  - Receiver 4 x 0.5 mm^2
- Signal lamp – 2 x 1 mm^2
- Manual control panel (optional) – 2 x 0.5 mm^2or 4 x 0.5 mm^2(single or triple button operation)

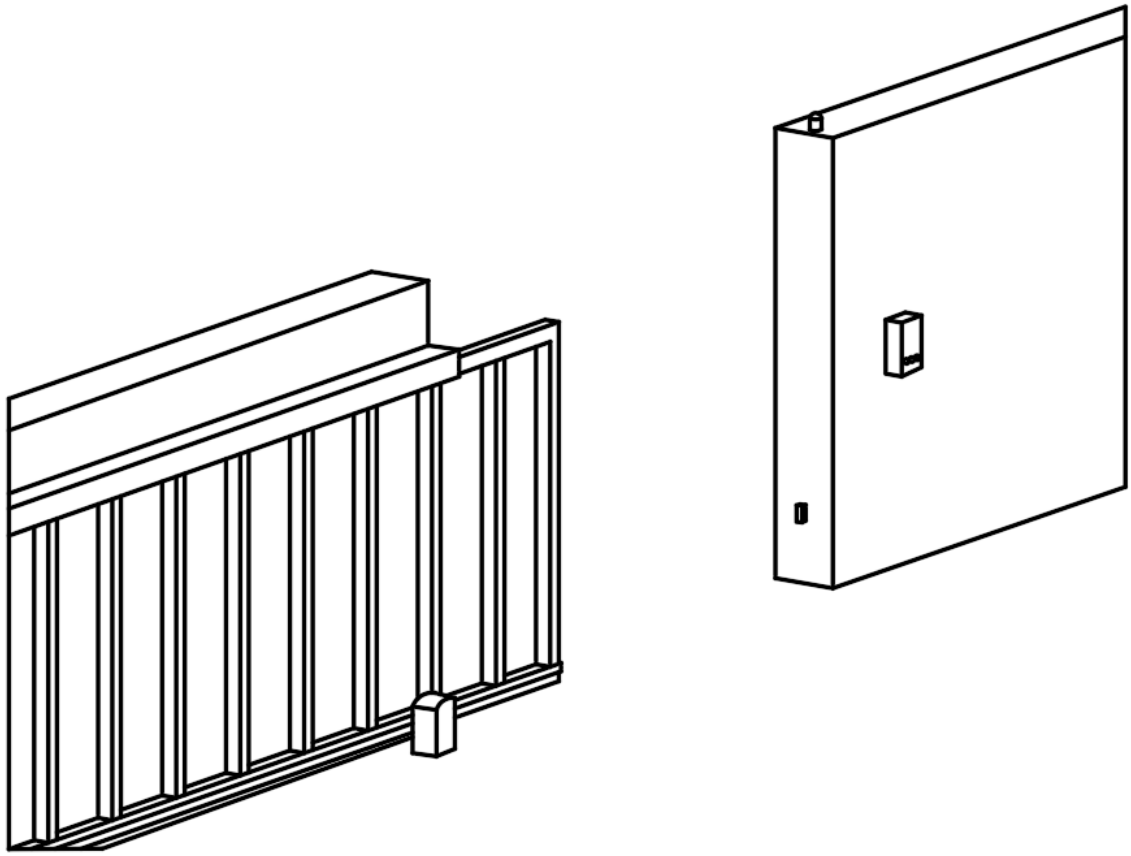
	Take special care when operating at 230V. Use a 10A overcurrent protection device in the drive power supply circuit.

	To connect an external antenna, solder the signal cable to the controller in place of the factory antenna or extend the cable from the factory antenna.

4. Assembly and configuration instructions

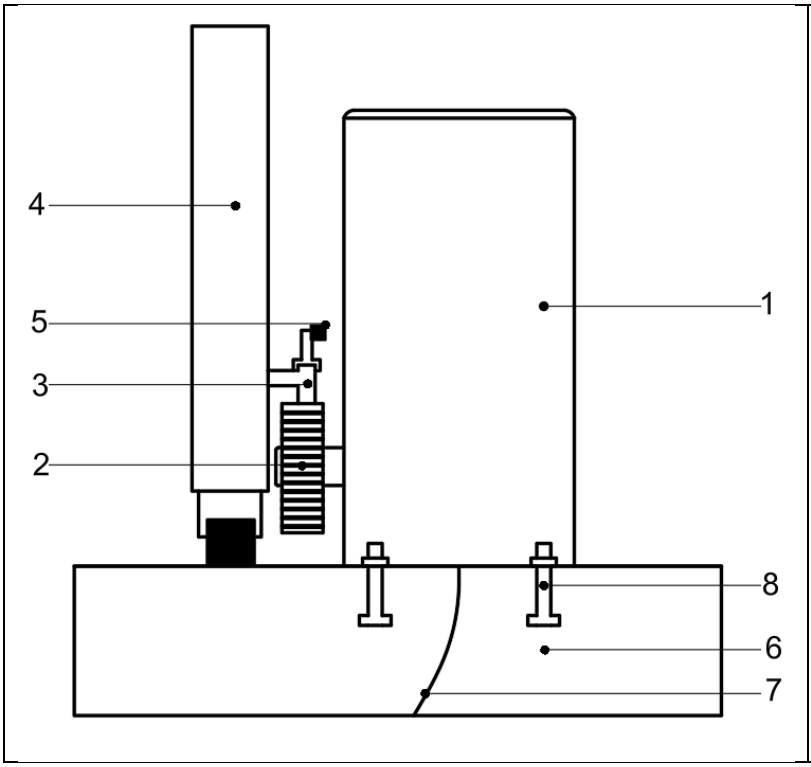
⚠	If you discover any problems with the gate, do not install the drive. If the gate jams, operates with excessive resistance, is crooked or has any other significant defect, first perform maintenance and repair the defects.

The figure below shows 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.



ℹ	During installation, use a cable gland for power cables and control wires. The cable gland must be embedded in concrete beforehand. The cables in the cable gland should be positioned and secured in such a way that they cannot be damaged by contact with any protruding or sharp parts.

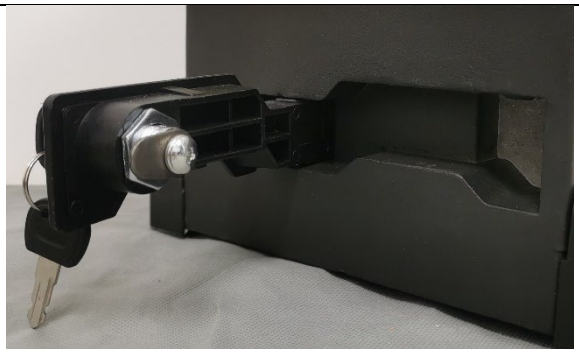
Illustrative diagram of drive mounting



1. Drive unit
2. Drive gear
3. Driven rack
4. Sliding gate
5. Limit switch magnet
6. Foundation
7. Power cable
8. Drive unit mounting (screw, flat washer, spring washer, nut)

4.1. Unlocking the drive

To operate the gate manually, unlock the drive clutch. To do this, open the drive unit clutch cover with a key. You can then move the gate manually. To return to automatic mode, close the drive unit clutch cover. Unlocking the drive allows the gate to be opened manually in the event of a power failure and is also necessary for installation and maintenance work.

Clutch locked	Clutch unlocked
	

4.2.Installation of the drive unit

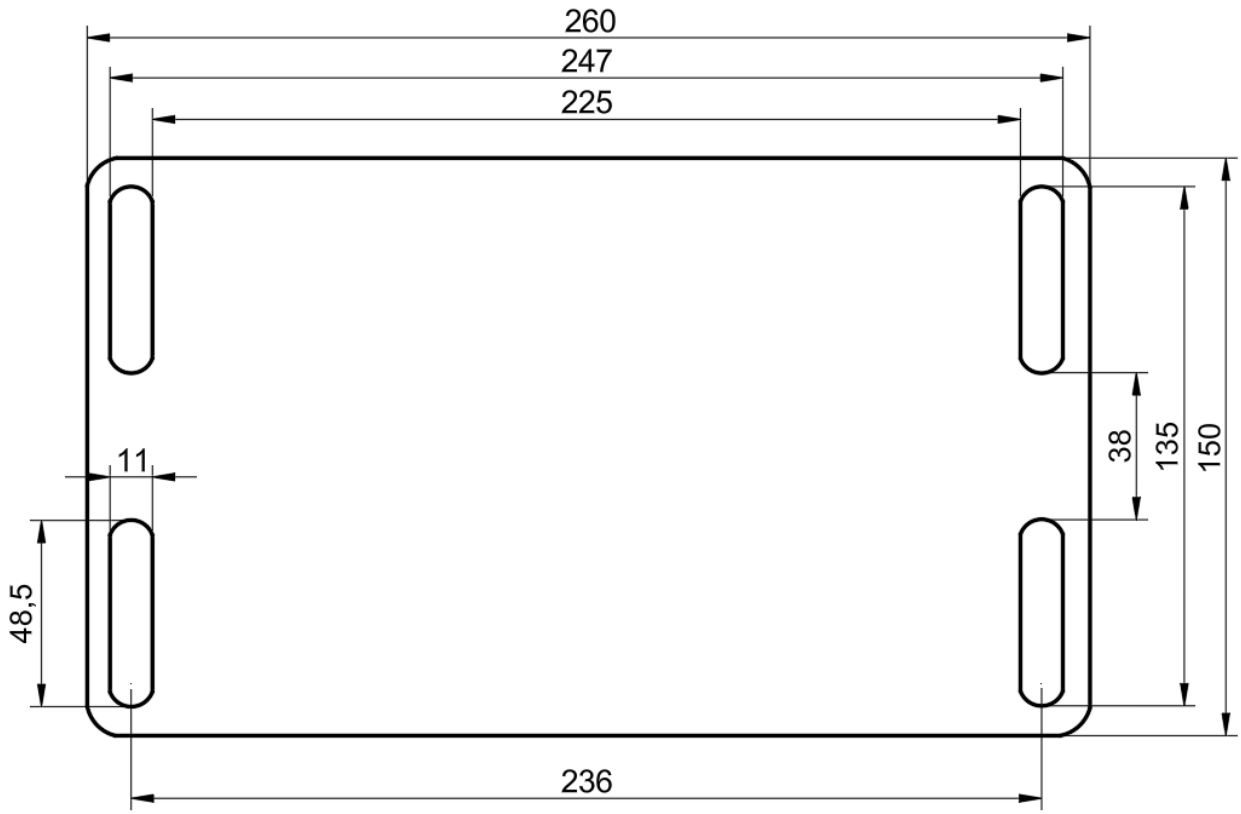
Preparing the foundation for the drive unit

The dimensions of the foundation should be at least 200 mm x 300 mm x 450 mm (width x length x depth). Before installing the drive unit, check that the ground is properly levelled. If the foundation has not been prepared in advance, a metal plate with screws prepared for the drive unit mounting holes (included in the kit) can be placed in it. The drive should be aligned with the gate and secured to the ground with bolts or anchors, washers and nuts. The drive unit should be installed in a location where it will not be exposed to water and where water will be effectively drained in case of rain.

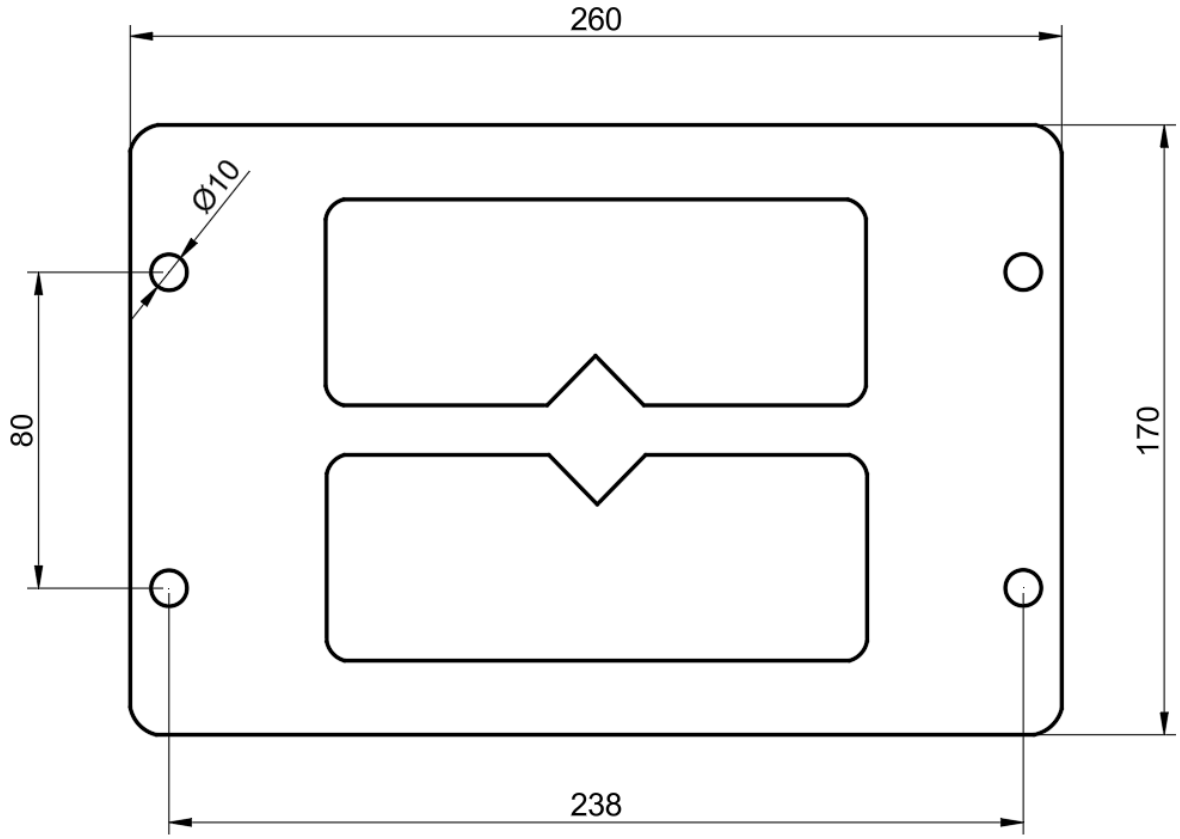
It may be necessary to use spacer sleeves to adjust the height of the drive unit. The fixing screws should be long enough to allow for possible height adjustment of the drive unit in relation to the gear rack (driven).

The drive unit, and in particular the cable gland, must be protected against rodents and pests that could get inside the device and cause damage. This is especially important in situations where the drive unit is mounted above the ground.

Spacing of holes in the drive unit:



Spacing of holes in the mounting plate:



4.3. Mounting the gear rack

Before installing the gear rack, unlock the drive (manual mode) so that the drive wheel can move freely.

Place the gear rack against the gate and the drive wheel. There should be a small gap (1-2 mm) between the rack and the drive wheel. Install the rack at the first point, then move the gate, align the end of the rack with the drive wheel and secure the rack at the next point. Install the remaining racks in the same way, one next to the other.

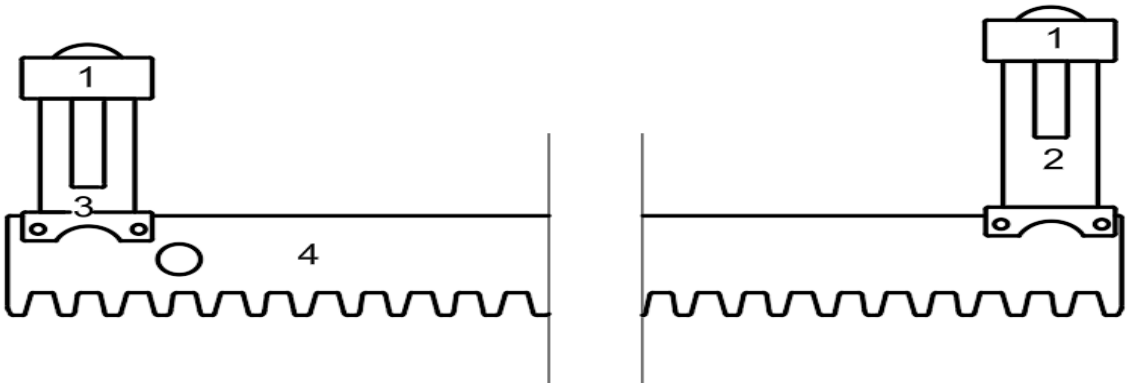
There are metal and nylon strips. Both types can be fastened with screws. Metal strips can also be welded.

4.4.Installation of limit switch magnets

	During the installation and adjustment of limit switches, the gate should be unlocked (manual mode) so that it can be moved freely.

The sensor for magnetic limit switches is located in the drive unit housing. It works with two magnets mounted on a toothed strip attached to the gate.

The magnets should be mounted horizontally. The upper edge of the magnet mounted higher should protrude slightly above the upper edge of the sensor. The lower edge of the magnet mounted lower should protrude slightly below the lower edge of the sensor. The mounting method is shown in the figure below



1. Magnet
2. Magnet mounting for the upper magnetic sensor
3. Magnet mounting for the lower magnetic sensor
4. Toothed strip

To check that the sensors are working correctly, move the gate and check that the appropriate status LEDs light up on the control board. If the sensor does not detect the magnet or the magnet activates two sensors at the same time, adjust its vertical position.

	If the sensors are detected correctly, with the drive switched on, check whether the limit switches are set in reverse, i.e. whether they cause the drive to switch off after detection. If this is not the case, change their position using the **LMT_DIRECTION** switch.

Horizontal position adjustment should be carried out during opening and closing tests and when adjusting the soft start and soft stop functions.

4.5.Adjusting the motor direction

The correct setting of the motor direction is necessary for many functions, including basic ones such as opening and closing. If the motor rotation is set in reverse, e.g. when you want to open the gate, it closes instead, change the direction of operation using the **MOTO_DIRECTION** switch**.**

5. Drive controller

The controller has several LED indicators that show different statuses, such as:

- infrared sensor activation
- opening
- stop
- closing
- reaching the movement limit
- activation of limit switch
- motor operating direction
- adding a new remote control
- activation of the **ONE/MT** button function

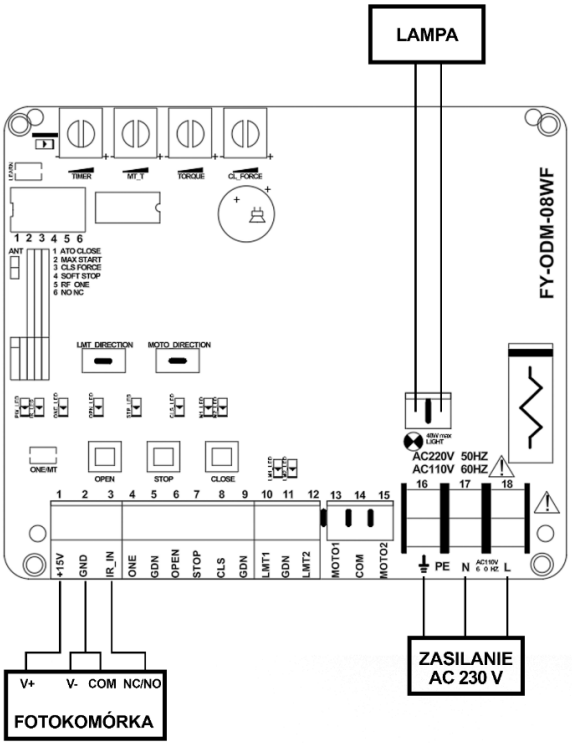
In addition, the main board generates a buzzer sound in certain situations, such as:

- When the power is turned on for the first time and the remote control is unlocked
- When the remote control is locked
- When the gate reaches its end position of opening or closing
- After successfully completing the **SLOW STOP** function configuration

The controller has a motor protection function. If the motor operating time in a single cycle exceeds 120 seconds, the main board will automatically switch off the motor to protect it.

	When configuring the gate controller, it is recommended to stop the gate halfway through its range of motion. Verify that the direction of motor operation corresponds to the direction of gate movement. If the directions do not match, adjust the motor direction or gate movement direction using the **MOTO_DIRECTION** and **LMT_DIRECTION** switches to ensure they match and prevent the gate from malfunctioning.

5.1.Connection diagram and description of connectors



Input/output connectors	
+15V	+15V power output
GND	Common GND line (ground)
IR_IN	Infrared receiver input (photocell)
ONE	Single button input for gate operation
GND	Common GND line (ground)
OPEN	Open button input
STOP	Stop button input
CLS	Close button input
GND	Common GND line (ground)
Limit sensor inputs	
LMT1	Limit switch input 1
GND	Common GND line (ground)
LMT2	Limit switch input 2
Motor outputs	
L1	Motor winding 1 output
COM	Motor common line output GND (ground)
L2	Motor winding 2 output
Power supply input	
PE	Protective conductor (earth) input
N	Neutral cable input
L	Phase cable input
Signal lamp outputs	
LIGHT	Output for connecting a signal lamp (AC 110/230V)

Description of LED indicators

DESIGNATION	Description	On	Off
LEARN_LED	Radio receiver operating status indicator	Remote control pairing mode	
PW_LED	Mainboard power supply	Power connected	No power supply
IR_LED	Photocell status indication	Photocells detect an obstacle	No obstacles detected
ONE_LED	Manual control, cyclic operation	Signal at input active	Signal at input inactive
OPN_LED	Manual control opening	Signal at input active	Input signal inactive
STP_LED	Manual stop control	Signal active at input	Input signal inactive
CLS_LED	Manual closing control	Signal active at input	Input signal inactive
M1_LED	Operating status in direction 1	Voltage at motor output and lamp switched on	Motor output voltage and lamp off
M2_LED	Operating status in direction 2	Voltage at motor output and lamps on	Voltage at motor output and lamp off
LM1_LED	Status of magnetic limit switch 1	Sensor detects end position magnet	Sensor does not detect end position magnet
LM2_LED	Status of magnetic limit switch 2	Sensor detects end position magnet	The sensor does not detect the end position magnet

5.2. Gate control

Single button control

Connect a single manual open button to the **ONE** and **GND** connectors. This button can be used to control the motor in the following sequence: open – stop – close – stop. The main board also features a **ONE/MT_T** button, which performs the same function.

Three-button control

Connect external buttons to the **OPEN**, **STOP**, **CLOSE**, and **GND** connectors to control the motor. There are also three buttons with the same functions on the main board.

5.3. Peripheral devices

Photocell

Photocells are optional, but they significantly improve the safety of the device. Photocells are connected as follows:

- The positive pole of the infrared transmitter and receiver power supply should be connected to the **+15V** 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 **IR_IN** 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.

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.

Alarm lamp

Connect the two wires of the alarm lamp to the connector (**LIGHT**). The polarity of the wires does not matter. The lamp is powered by 230V AC.

Magnetic limit switches

The wires from the limit switch should be connected to the **LMT1, GND** and **LMT2** connectors**.** The blue wire is connected to the **GND** connector**.** The remaining wires (black and brown) should be connected to the **LMT1** and **LMT2** connectors. If the switches indicate the opposite position to the actual one, this can be adjusted using the **LMT_DIRECTION** switch in the controller.

5.4. Selecting and configuring controller functions

The red **DIP** switch is responsible for selecting the controller function. The function is selected by moving the switch to a specific position. **Activation** is performed by moving the slider up. **Deactivation** is performed by moving the slider down.

Available functions:

1. **AUTO_CL** – enables automatic closing of the gate after opening after the time set with the **TIMER** potentiometer has elapsed.
2. **MAX_START** – provides maximum power when starting the gate, which is useful for heavy gates that require more force to start moving. If the **MAX_START** function is disabled, the soft start function (**SOFT START**) is enabled.
3. **CLS_FORCE** – activates the overload protection, which allows the gate to automatically stop and reverse if it encounters an obstacle during closing. The resistance force can be adjusted using the **CL_FORCE** potentiometer**.**
4. **SOFT_STOP** – activates a gradual, gentle stop to prevent the gate from stopping abruptly when it reaches the closed or open position. The closing force can be adjusted using the **MT_T** potentiometer**.**
5. **RF_ONE** – allows you to configure the remote control for single-button operation. If this function is disabled, three buttons (open, stop, close) can be used for control.
6. **NO NC** – Setting the operating mode of photocells and limit switches – normally open (NO) or normally closed (NC) – leave NO as default.

5.5. Adjustment of selected parameters

Movement direction switch on the board (LMT_DIRECTION):

If the direction switch (**LMT_DIRECTION**) on the main board is set in the opposite direction to the end position, simply reverse the position of the direction switch without having to change the connection of the limit sensors.

Motor direction switch on the board (MOTO_DIRECTION):

If the motor is running in the opposite direction to the expected direction, simply reverse the position of the motor direction switch (**MOTO_DIRECTION**) without having to change the motor connection.

Adjustment with potentiometers

To adjust the parameters in the controller, use a small flat screwdriver that fits into the slot in the potentiometer axis. Turning the potentiometer axis clockwise (to the right) increases the value. Turning the potentiometer axis counterclockwise (to the left) decreases the value.

1. Automatic closing time adjustment – TIMER

If the automatic closing function is enabled, use the **TIMER** potentiometer to set the gate closing delay time. The closing delay can be adjusted from 1 to 240 seconds. Once set, the gate will close automatically after the specified time.

2. Soft stop force adjustment – MT_T

To activate the slow motor stop function, press and hold the **ONE/MT_T** button for **3 seconds**. This will activate the soft stop configuration mode. Use the **MT_T** potentiometer to adjust the motor force during soft stop. Turning the potentiometer will increase or decrease the motor force. This adjustment allows you to control how gently the motor stops.

3. Motor torque adjustment – TORQUE

To control **the** motor **torque**, use the **TORQUE** potentiometer to increase or decrease the motor power. This setting regulates the force with which the gate is moved during normal operation.

4. Overload protection force adjustment – CL_FORCE

To adjust the resistance force when closing the gate, use the **CL_FORCE** potentiometer. This adjustment allows you to increase or decrease the resistance force that causes the gate to stop and reopen if it encounters an obstacle while closing.

NOTE! The overload protection should be adjusted taking into account the torque adjustment. Heavier gates will require higher torque, which may require a higher overload protection force setting.

5.6.Soft stop function configuration - SOFT STOP

NOTE: Before activating the soft stop function, configure the door opening and closing operations correctly.

Determining the gate movement range

1. **Enable the SOFT STOP function:** Switch the **SOFT STOP** switch to the ON position.
2. **Start configuration mode:** Press and hold the soft stop configuration button (**MT_T**) for **3 seconds**. The system will check whether the gate is in the fully open position.
   - If the gate is not in the fully open position, the motor will start at maximum power to fully open the gate, then emit a single beep to confirm the stage.
   - The motor will then automatically switch to normal operating power and close the gate until it reaches the fully closed position. The system will emit another beep, indicating that the soft stop function configuration process is complete.
   - If the gate is already fully open, the system will immediately start the motor to close the gate using normal operating power. When finished, the system will emit a single beep to confirm that the soft stop function has been successfully configured.

Adjusting the soft stop speed

1. **Activate the SOFT STOP function:** Switch the **SOFT STOP** switch to the ON position.
2. **Operate the gate:** Press the gate open or close button. When the gate approaches the fully open or closed position, it will automatically slow down and stop smoothly.
3. **Adjust the soft stop force:** Use the **MT_T** potentiometer to fine-tune the motor force for a smooth stop.

5.7.Remote control

Description of button functions in multi-button mode:

1	Open
2	Close
3	STOP/Unlock remote control
4	Lock remote control

Description of button functions in single-button mode:

1	Open/stop/close

Adding a remote control:

Press and hold the **LEARN** button until the **LEARN_LED** above the **LEARN** button lights up. While the **LEARN_LED** is lit, press any button on the remote control (button 1 is recommended). The indicator on the main board will flash three times to confirm that the remote control has been successfully paired and is ready for use.

Deleting all remote controls:

Press and hold the **"LEARN"** button until the **LEARN_LED** on the main board changes from steady to flashing three times. After that, all previously paired remote controls will be deleted. The device will no longer respond to any remote control until a new remote control is added.

Locking and unlocking remote control functions:

- To lock the remote control, press button **4** on the remote control. The main board will emit a beep, indicating that the remote control on/off functions have been deactivated.
- To unblock the remote control, press button **3 on the remote control.** The main board will emit another beep, confirming that the remote control has been unblocked and can be used.

NOTE: You can pair up to 60 remote controls.

6. Photocell

Photocell specifications

Range	Up to 15 m May be reduced by up to 30% in adverse weather conditions (rain, dust, etc.)
Infrared wave frequency	1920 Hz
Power	12–24 V DC/AC
Infrared wavelength	940 nm
Current consumption	RX receiver 15 mA TX transmitter 30 mA
Temperature range	-20°C ÷ 70°C
Current and voltage parameters of the relay	max. 36V 1A
Photocell dimensions	100x40x35 mm

Description of photocell operation

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, **the photocell detects an obstacle** or does not detect the light beam from the transmitting photocell.

When jumper **JP1** is in the **NO** position, the circuit between the **COM** and **NO/NC** contacts is **open** when there is no obstacle. When an obstacle is detected between the **COM** and **NO/NC** contacts, the circuit is **closed**.

When jumper **JP1** is in the **NC** position, the circuit between the **COM** and **NO/NC** contacts is **closed** when there is no obstacle. When an obstacle is detected between the **COM** and **NO/NC** contacts, the circuit is **open**.

6.1. Photocell installation and connection

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.

Photocells should be installed at a height of approximately 20 cm above the ground. Both photocells should be mounted at the same height.

Four wires are required for the receiving photocell and two wires for the transmitting photocell.

- The V+ power supply should be connected to the +15V power source in the controller.
- The V- power supply should be connected to the GND connector in the controller
- The NO/NC photocell signal output should be connected to the IR_IN connector in the controller
- Connect the COM connector of the photocell to the GND connector in the controller

The wires from the V- and COM connectors of the photocell can be connected to the same GND connector in the controller.

Set the JP1 jumper in the photocell to NO (default setting).

7. Signal lamp with antenna

Technical data

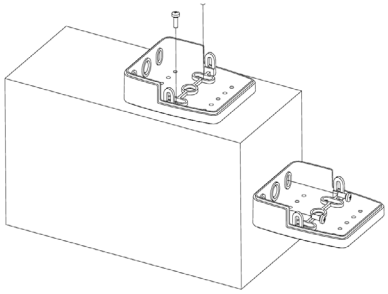
Power supply	AC/DC 12-265 V
Current consumption	40mA (at DC 24 V)
Flashing frequency	1 Hz (once per second)
Nominal power	2 W
Temperature range	-35 to 90
Humidity	10 to 90% RH
Dimensions	approx. 130 x 100 x 220 (width x length x height)
Weight	approx. 250 g
Fuse	glass tube Ø5x20mm F0.5A250V

Required cables:

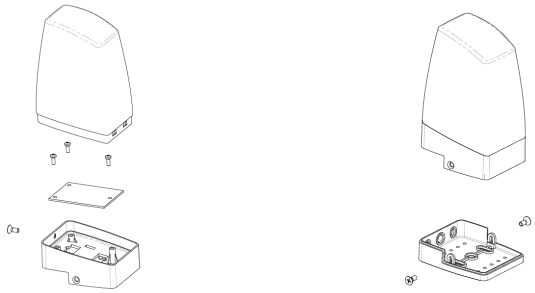
- Shielded antenna cable
- Power cable 2 x 0.5 mm²

7.1. Lamp installation

Mounting on a vertical or horizontal surface



Upper housing installation



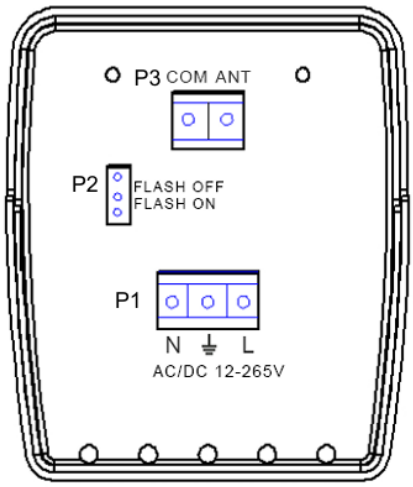
7.2. Lamp connection and lighting mode

Connect the power cables to the P1 connector (L and N contacts).

The P2 jumper is responsible for the lamp lighting mode.

- If the lower pins are connected, the lamp flashes at a frequency of 1 Hz (once per second).
- If the upper pins are connected, the lamp emits a steady light.

The antenna cables should be connected to the P3 connector (ANT contacts for the antenna and COM/GND for the antenna screen).



8. Maintenance

Keep the drive components, i.e. the rack and pinion, clean. In winter, check the drive components for ice and remove it if necessary.

At least once every six months, check the settings of the overload switch, limit magnets and the operation of photocells and limit switches.

9. Troubleshooting

Below are some common problems with sliding gate drives, along with possible causes and potential solutions.

Problem description	Possible cause	Solution
The control board is not responding.	No power supply.	Check that the power supply is properly connected.
The motor does not start.	Damaged start capacitor.	Replace the start capacitor.
	Overload.	Check manually whether the gate can move freely.
	Thermal protection activated.	Restart after 20 minutes.
	Two limit sensors are active.	Disconnect the limit sensors for testing. Adjust the position of the limit sensors
The motor is turning, but the drive is not working.	The clutch pressure spring is worn.	Replace the spring.
	The clutch is disengaged.	Lock the clutch.
The gate only operates in one direction or does not stop at the right moment.	The limit switch position is incorrect.	Adjust the position of the limit switch.
	The limit switch is faulty.	Replace the limit switch.
The clutch is not working.	The clutch lever is damaged.	Replace the lever.
	The clutch is jammed.	Turn the drive gear in both directions.
Nothing happens when the button on the remote control is pressed.	The battery is dead.	Replace the battery in the remote control.
	The remote control is not added to the controller.	Add the remote control.
The remote control cannot be assigned.	The button on the controller does not connect	Clean the button with an alcohol-based cleaner and press it several times until it responds.