VIMAR

Installer manual

SL24.T

24 Vdc control unit for sliding gate

ELVOX Gates

SL24.T

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1 - Product characteristics

Control unit for governing sliding gear motors at 24 Vdc with a maximum power of 80 W, equipped with an encoder interface to detect obstacles and control the speed, and an integrated 433 MHz receiver.
The control panel:
- can customize the slow-down distance and speed for both opening and closing
- has an obstacle detection system
- has LEDs input diagnostics and programming
- has a removable radio memory
- has an integrated receiver with a capacity of 200 remote controls (hard-coded or rolling-code)
- has current control to protect the electric motor

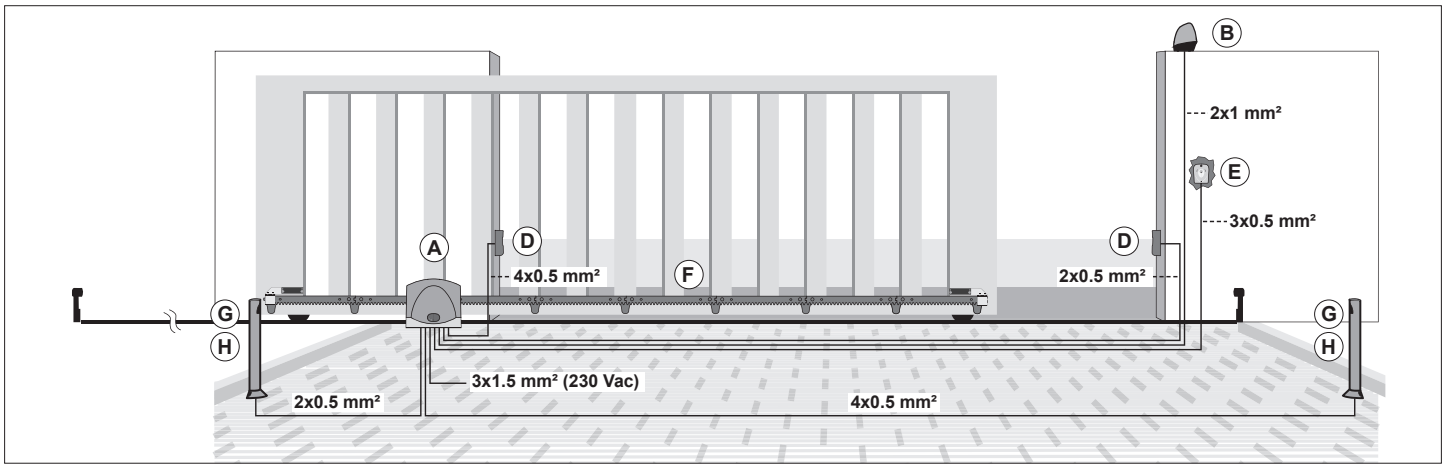
Tecnichal characteristics

Supply	230 Vac
Motor power supply	24 Vdc
Maximum motor power	80 W
Output for flashing light	24 Vdc 10 W max
Accessories power supply	24 Vdc 500 mA
Receiver memory	200 remote controls
Receiver frequency	433 MHz
Remote controls code	Rolling code or fixed
Fuse F1 (line protection)	ATO 15 A
Fuse F2 (accessory protection)	5x20 mm F3.15 A
Operating temperature	-10 ÷ +50°C

Controllable actuators

Ref.	Description
ESM2	ACTO 600D 24 V 600 kg sliding gate actuator w/ Dip & Trimmer control panel

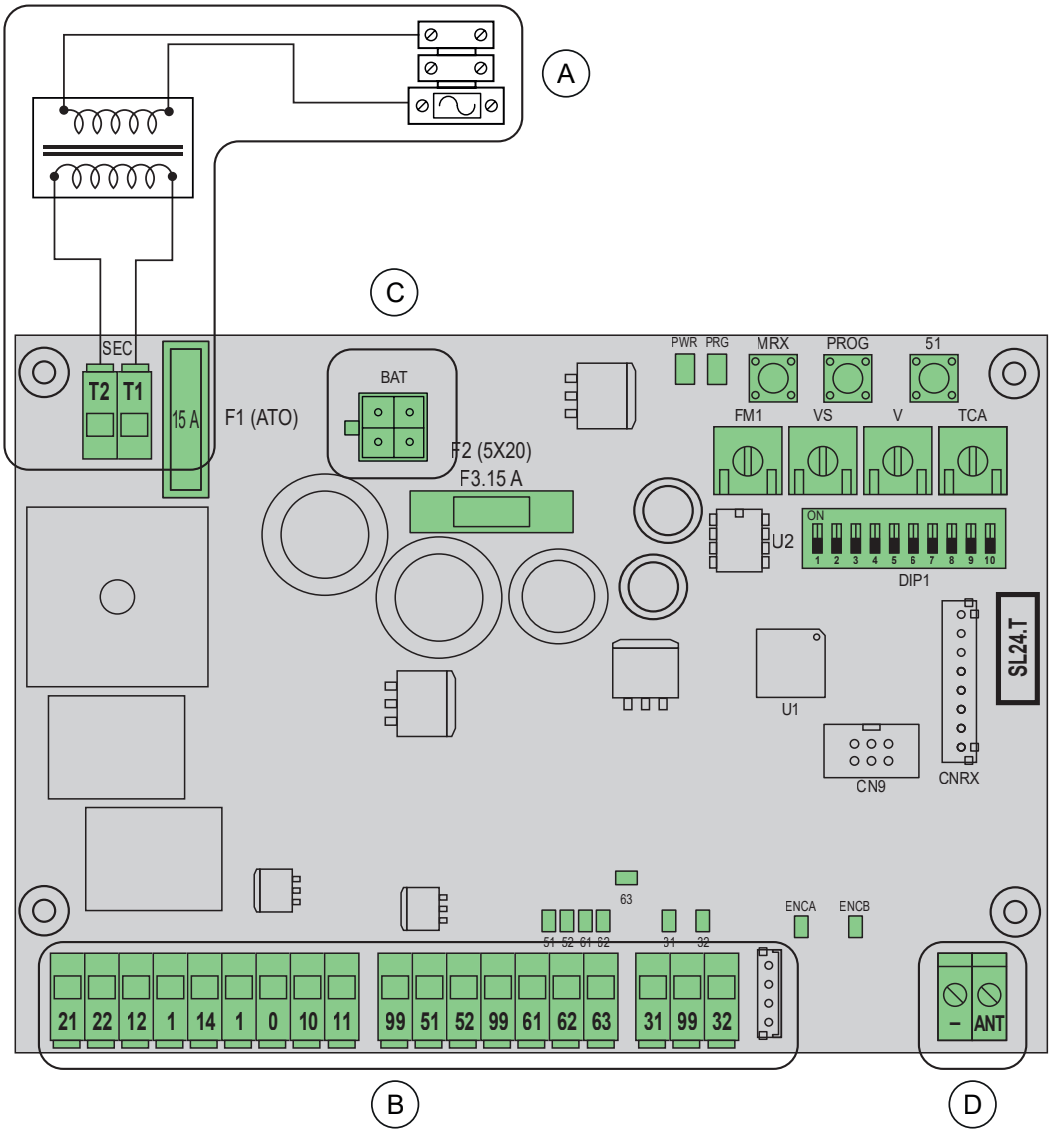
2 - Example of installation

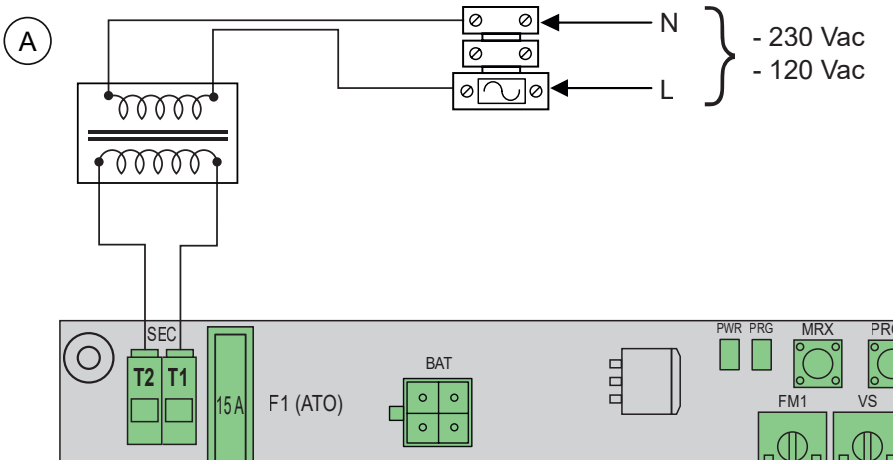


Components for implementing a complete system

Main Components		Accessories (optional)	
Description	**Ref.**	**Description**	**Ref.**
Actuator	A	Post-mounted photocells	G
Blinking	B	Posts	H
Wall-mounted photocells	D		
Key selector	E		
Rack	F		

3 - Description of the terminal blocks





SL24.T

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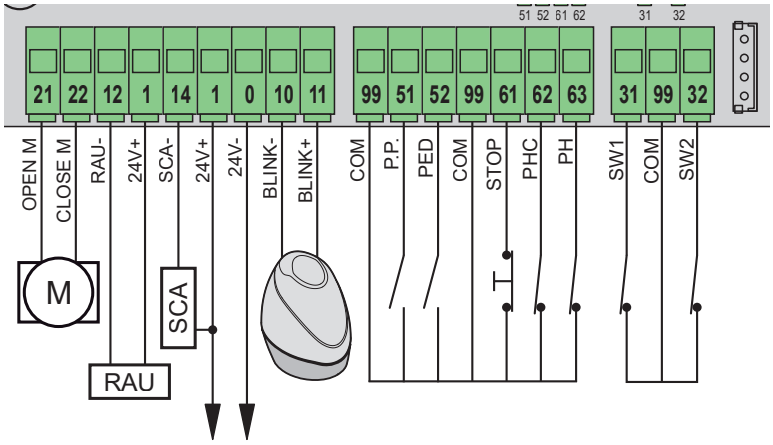

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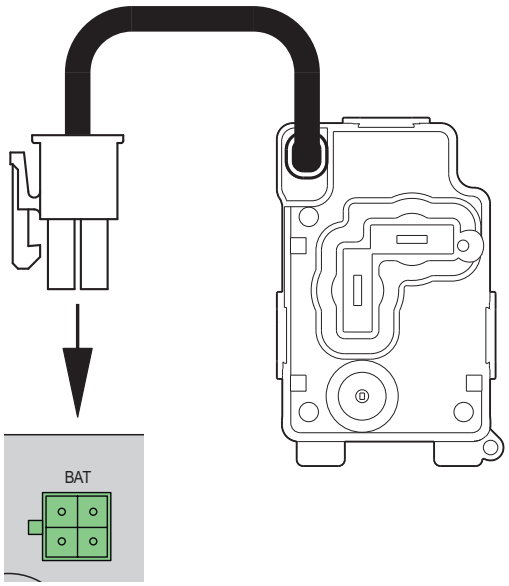

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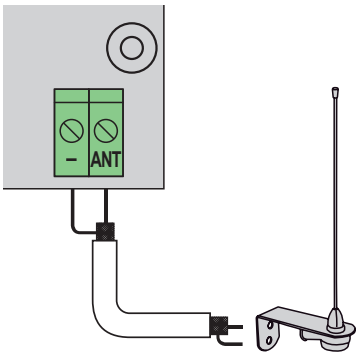


Terminal	Description	Rated data
T1	Transformer secondary connection	24 Vac
T2	Transformer secondary connection	
21	Opening motor	24 Vdc 80 W
22	Closing motor	
12	Auxiliary radio/courtesy light negative output	24 Vdc 120 mA
1	Accessories positive	
14	Gate open warning light negative output	24 Vdc 120 mA
1	Accessories positive	
1	Accessories positive	24 Vdc 500 mA
0	Accessories negative	
10	Flashing light negative	24 Vdc 15 W max
11	Flashing light positive	
99	Common inputs	
51	Step-by-step (N.O.)	
52	Pedestrian (N.O.)	
99	Common inputs	
61	Stop (N.C.)	
62	Closing photocell (N.C.)	
63	Photocell (N.C.)	

Terminal	Description	Rated data
31	Limit switch 1	
99	Common inputs	
32	Limit switch 2	
-	Aerial earth	
ANT	Aerial signal	

3.1 - Description of output function

0-1	**Accessories power supply:** 24 Vdc output Functions according to the DIP 5 setting. DIP 5 = ON: Permanent power supply. DIP 5 = OFF: Photo-test active, the negative terminal (0) turns off for a few fractions of a second before the start of movement, so any accessories that require a permanent power supply (e.g. photocell receivers) must get the negative from an input common (terminal 99)
10-11	**Blinking:** 24 Vdc output powered when the gate is moving
12-1	**Courtesy light (LCO) or Auxiliary Radio Output (RAU):** 24 Vdc Courtesy Light or Auxiliary Radio output: With DIP 6 = OFF it is for a Courtesy Light: - it turns on when the gate is moving and remains on for 100 s after it has stopped. With DIP 6 = ON it is an Auxiliary Radio Output: - it turns on for 1 s on pressing the button that was saved on the remote control as the 2nd radio channel
14-1	**Gate Open Indicator Output (SCA):** 24 Vdc output to indicate the gate movements: - it flashes slowly during opening - it is on continuously when the gate is open - it flashes fast during closing - it is on when the gate is closed

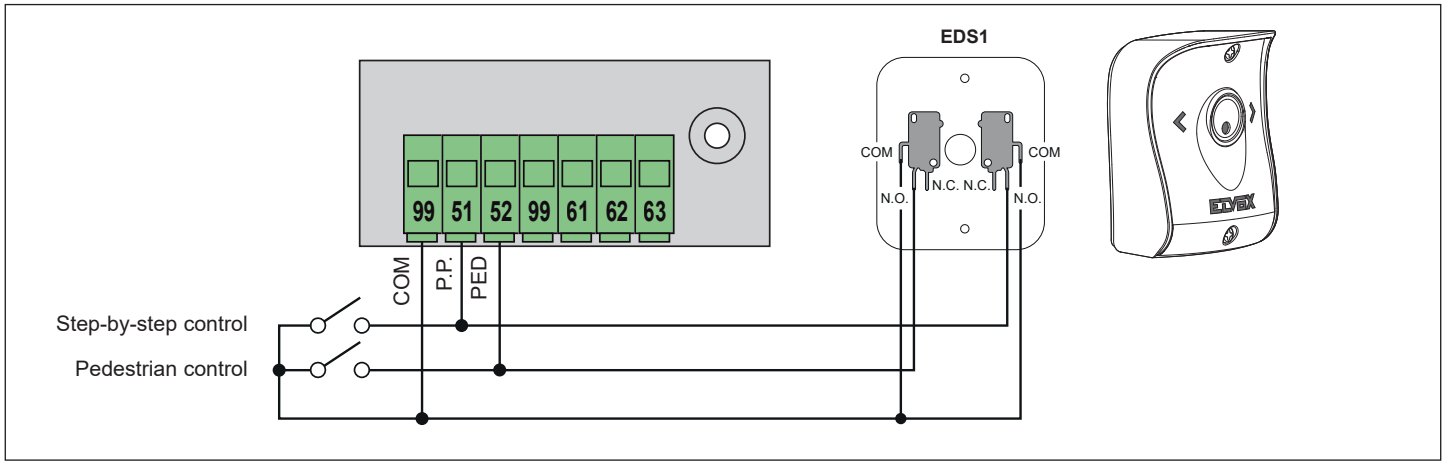
Note:
Using the photo-test requires specific wiring of the safety devices (par. 4.3).

3.2 - Descrizione della funzione degli ingressi

51	**Step by step (N.O.):** Sequential control input, to control the full gate travel. It operates with the following cycle: open-stop-close-stop
52	**Pedestrian (N.O.):** Control input to open the gate for pedestrians (leaf 1 opens fully if it is double-leaf, it opens by 50% if it is single leaf)
61	**Stop (N.C.):** Stops the gate. If not used, jumper with the common (99)
62	**Closing photocell - PHC (N.C.):** When engaged, it allows opening if the gate is stationary, it does not trigger during opening, it does not allow closing if the gate is open and resets the automatic closing time when released, and it immediately reopens during closing. If not used, jumper with the common (99)
63	**Photocell - PH (N.C.):** Functions according to the DIP 4 setting. DIP 4 = OFF: It is active during both closing and opening; when engaged, it does not allow opening if the gate is stationary, it stops the movement during opening and continues when released, it does not allow closing if the gate is open and resets the automatic closing time when released, it stops the movement during closing and reopens when released. DIP 4 = ON: safety edge, N.C. voltage-free contact if DIP 7 = OFF, 8k2 resistive safety edge of DIP 7 = ON; when engaged, it does not allow opening if the gate is stationary, it disengages during opening, it does not allow closing if the gate is open and resets the automatic closing time when released, and it disengages during closing. If not used, jumper with the common (99) and set DIP 7 = OFF

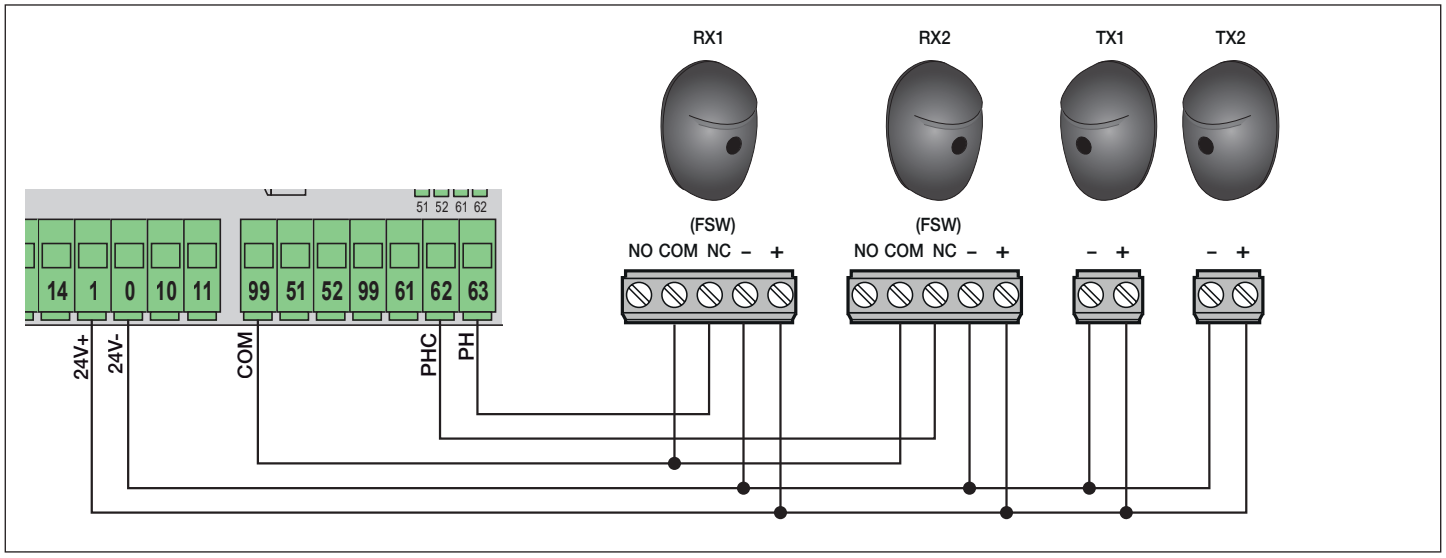
4 - Connecting accessories

4.1 - Key switch and control devices

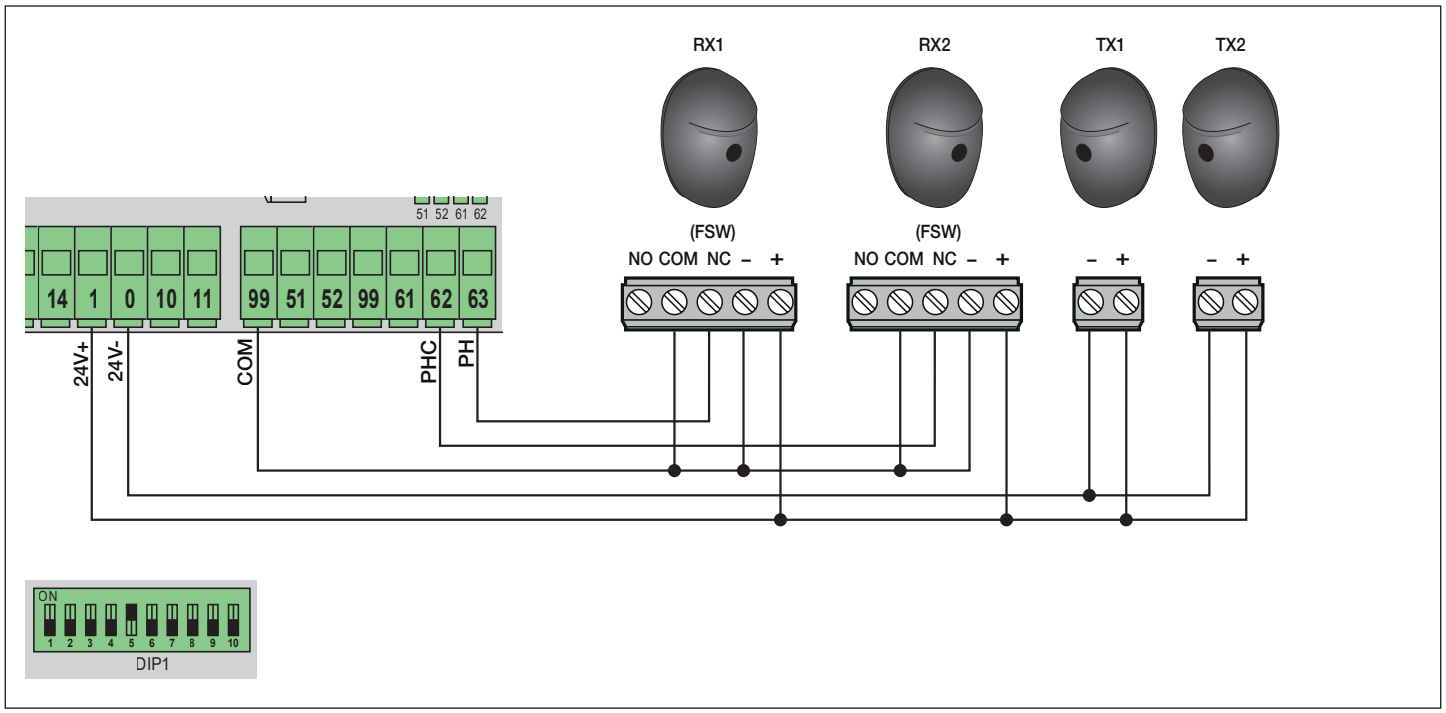


4.2 - Photocells and photocells when closing

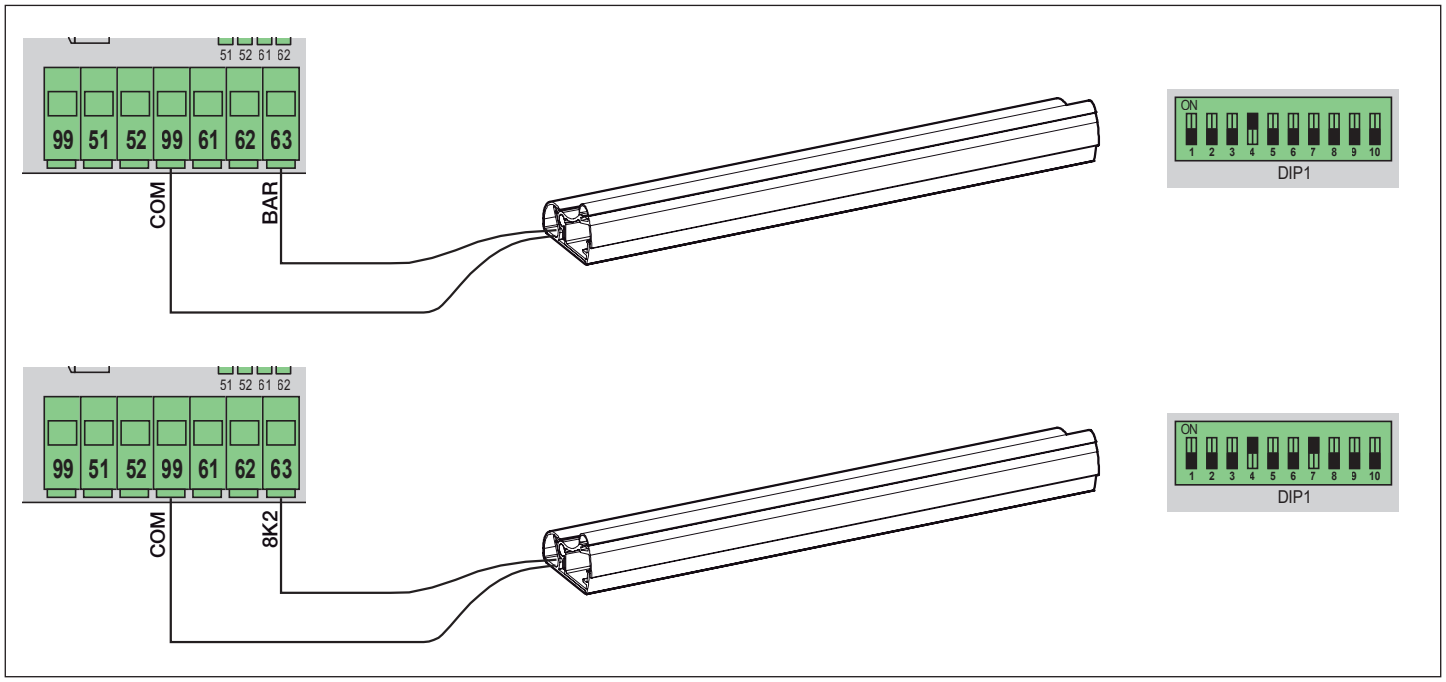
Normally closed contact (when the photocells are not engaged the 62 and 63 LEDs must be on), if not used then jumper 62 to 99 and 63 to 99, you must observe the polarity of the power supply for the photocells:



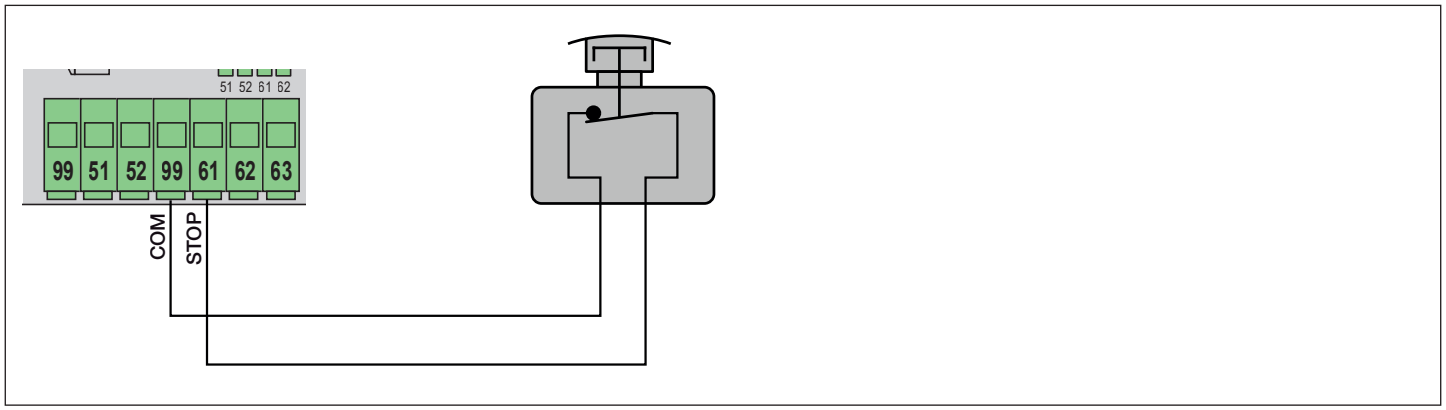
4.3 - Photocells and photocells when closing with photo-test active (DIP 5 = ON)



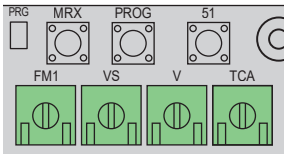
4.4 - Sensitive edge



4.5 - Stop push button



5 - Trimmer functions

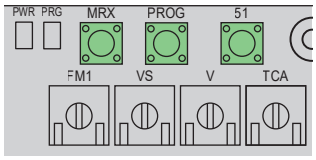


Trimmer	Description
FM1	Power of motor (adjusts the torque of motor, turn the trimmer clockwise to increase the force)
VS	Slow-down speed (adjusts the slow-down speed of the motor, turn the trimmer clockwise to increase the speed)
V	Standard speed (adjusts the standard speed of the motor, turn the trimmer clockwise to increase the speed)
TCA	Automatic re-closing time (adjustable from 2 to 120 seconds, turn the trimmer clockwise to increase the time)

Note:
Adjusting the VS (slow speed) or V (standard speed) trimmer, will cause the PRG LED to flash fast RED to indicate that the speed settings have changed. Pressing button 51 opens and closes the gate fully to save the current consumption while moving at the new speeds; when fully closed, LED DL6 turns off, and the new values are saved.

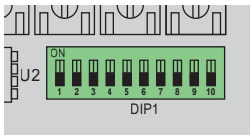
The control panel is equipped with an obstacle detection system:
- if there is an obstacle while opening, the gate stops and closes for 1 second; automatic closing remains on.
- if there is an obstacle while closing, the gate stops and opens fully; automatic closing remains on. If the control panel detects 5 consecutive obstacles during closing, the gate will open and remain open, after which a step-step control is necessary to close the gate at reduced speed up to the closing limit switch.

6 - Button functions



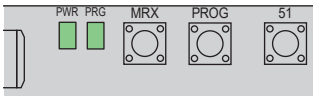
Button	Description
PROG	Button for programming the travel
MRX	Button for programming or deleting remote controls
51	Step-by-step command button

7 - DIP-switch functions



Dip	Function	Status	Description
DIP 1	Automatic closing	OFF	Automatic closing off
		ON	Automatic closing on
DIP 2	Apartment block	OFF	Apartment block on (while the gate is opening, you cannot stop the movement with a radio command or with inputs 51 (step-by-step) or 52 (pedestrian). With automatic closing on (DIP 1 = ON) and the gate open, an additional step-by-step command (terminal 51 or radio command) renews the pause time, and if input 51 remains engaged, the control panel suspends the pause count until the input is disengaged (for connecting any coils or a timer)
		ON	Apartment block off
DIP 3	Pre-flash	OFF	Pre-flashing off
		ON	Pre-flashing on, before the gate moves the flashing light comes on for 3 seconds
DIP 4	Input 63 type	OFF	Input 63 is for internal photocell
		ON	Input 63 is for safety edge (see DIP 7 for the safety edge type)
DIP 5	Photo test	OFF	Photo-test function off
		ON	Photo-test on: the negative accessory power supply terminal (0) turns off for a few fractions of a second before the start of movement, so any accessories that require a permanent power supply (e.g. photocell receivers) must get the negative power supply from an input common (terminal 99)
DIP 6	Output 12	OFF	Output 12 for Courtesy Light (LCO): each time the gate moves, the output remains on for 100 s. The remote control buttons saved on the second radio channel give a pedestrian command
		ON	Output 12 for Auxiliary Radio output: the remote control buttons saved on the second radio channel turn the output on for 1 s
DIP 7	Safety edge type	OFF	Safety edge with normally closed contact
		ON	Resistive safety edge, normally open contact with a parallel balancing resistor of 8.2 kOhm
DIP 8	Fast closing	OFF	Fast closing off
		ON	Fast closing function on: if the closing photocell (terminal 62) is engaged, the automatic closing time is set to 5 seconds when it is released
DIP 9	Not used		
DIP 10	Opening direction	OFF	Gate opening to the left
		ON	Gate opening to the right

8 - LED functions

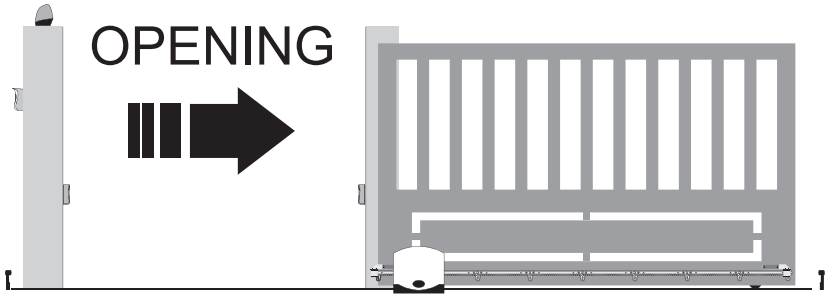


LED	Status	Description
PWR	OFF	No mains power supply
	ON	Mains power supply OK
PRG (or flashing light)	2 flashes	Photocell test failed (incorrect wiring or photocells engaged)
	3 flashes	Problem detected in the circuit that activates motor
	4 flashes	Problem on encoder (encoder damaged or wired incorrectly)
	5 flashes	Serious EEPROM error (EEPROM missing or damaged)
	6 flashes	Motor timeout (gear motor not engaged or damaged)
	7 flashes	Fuse F2 blown
	8 flashes	Motor overcurrent error
	9 flashes	Inverted motor power supply cables (terminals 21-22)
ENCA	OFF	When the motor is operating: first encoder channel signal absent (encoder not working)
	ON	When the motor is operating: first encoder channel present (it flashes very fast, depending on the motor rotation speed)
ENCB	OFF	When the motor is operating: second encoder channel signal absent (encoder not working)
	ON	When the motor is operating: second encoder channel present (it flashes very fast, depending on the motor rotation speed)
31	OFF	Limit switch 1 contact (RH magnet-holder bracket) open (limit switch engaged)
	ON	Limit switch 1 contact (RH magnet-holder bracket) closed (limit switch engaged)
32	OFF	Limit switch 2 contact (LH magnet-holder bracket) open (limit switch engaged)
	ON	Limit switch 2 contact (LH magnet-holder bracket) closed (limit switch not engaged)
51	OFF	Step-by-step input (term. 51) not engaged
	ON	Step-by-step input (term. 51) engaged
52	OFF	Pedestrian input (term. 52) not engaged
	ON	Pedestrian input (term. 52) engaged
61	OFF	Stop contact (term. 61) open (engaged)
	ON	Stop contact (term. 61) closed (not engaged)
62	OFF	Closing photocell (term. 62) engaged
	ON	Closing photocell (term. 62) not engaged
63	OFF	Photocell or safety edge (term. 63) open (engaged)
	ON	Photocell or safety edge (term. 63) closed (not engaged)

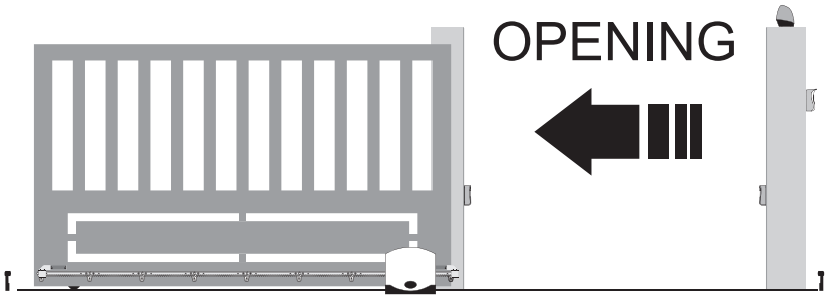
9 - Gate travel calibration

NOTE: To perform this procedure, the gate must be stationary.
CAUTION! THE SAFETY DEVICES ARE DISABLED DURING GATE TRAVEL CALIBRATION.

Before performing calibration, check the direction of the motor (DIP 10 = OFF, opening to the left, DIP 10 = ON opening to the right).



DIP1



DIP1

9.1- Quick calibration
(slow-down at 50 cm during opening and 75 cm during closing, pedestrian opening at 1 metre)

No.	Press push-button	Step	Description
1	-	Preparation	Move the gate to approximately 1 metre from closing.
2	PROG	Procedure activation	Press the programming pushbutton PROG for at least 3 seconds, until the PRG LED starts flashing slowly, and then release it.
3	51	Gate closing	Press pushbutton 51: the motor closes at reduced speed up to the closing limit switch.
4	-	Gate opening	The motor opens at reduced speed up to the opening limit switch.
5	-	Gate closing	The motor closes at normal speed up to the closing limit switch.
6	-	End of procedure	The PRG LED turns off. End of procedure.

9.2- Advanced calibration
(slow-down and pedestrian distance programmed by the installer)

No.	Press push-button	Step	Description
1	-	Preparation	Move the gate to approximately 1 metre from closing.
2	PROG	Procedure activation	Press the programming push-button PROG and hold it down; the PRG LED will start flashing slowly; keep PROG pressed until the PRG LED flashes fast, and then release it.
3	51	Gate closing	Press pushbutton 51: the motor closes at reduced speed up to the closing limit switch.
4	-	Gate opening	The motor opens at normal speed.
5	51	Setting the slow-down point when opening	Press 51 to set the slow-down starting point when opening the gate.
6	-	Completion of opening	The gate continues until it reaches the opening limit switch.
7	-	Gate closing	The motor closes at normal speed.
8	51	Setting the slow-down point when closing	Press 51 to set the slow-down starting point when closing the gate.
9	-	Complete closure	The gate continues until it reaches the closing limit switch.
10	-	Gate opening	The motor opens at normal speed.
11	51	Setting the pedestrian distance	Press 51 to set the pedestrian opening space.
12	-	Gate closing	The motor closes until the closing limit switch is reached.
13	-	End of procedure	The PRG LED turns off. End of procedure.

10 - Remote control programming

Note: Remote control programming can only be done with the automatic gate system stationary

Step-by-step programming

No.	Press push-button	Signal PRG LED	Description
1	MRX	Off	Press the MRX push-button and hold it down until the green PRG LED starts flashing slowly
2	Remote control push-button	Slow flashing	Press the remote control push-button that you want to save
3	-	Fixed 1 s	Button of the saved remote control (new remote control)
		3 flashes	Memory full

Programming the second radio channel

No.	Press push-button	Signal PRG LED	Description
1	MRX	Off	Press the MRX push-button and hold it down until the green PRG LED starts flashing fast
2	Remote control push-button	Fast flashing	Press the remote control push-button that you want to save
3	-	Fixed 1 s	Button of the saved remote control (new remote control)
		3 flashes	Memory full

Deleting a remote control

No.	Press push-button	Signal PRG LED	Description
1	MRX	Off	Press the MRX push-button and hold it down until the green PRG LED starts flashing very fast
2	Remote control push-button	Very fast flashing	Press the button on the remote control to delete
3	-	Fixed 1 s	Deletion successful

Complete deletion of the receiver

No.	Press push-button	Signal PRG LED	Description
1	-	Off	Remove power from the control panel and disconnect any batteries
2	MRX	On continuously	Reapply power to the control panel without releasing the MRX button until the PRG LED turns off
3	-	Off	Receiver deleted completely

After deleting all of the remote controls, the first one saved configures the control panel to accept only rolling-code or hard-coded remote controls.

11 - Battery operation

When the control panel is battery powered, the motor speed is reduced to 15% of that used when powered from the mains. During battery operation, the PWR LED remains off, output 12 (Auxiliary Radio/Courtesy Light), output 14 (Gate Open Indicator) and output 10-11 (Flashing Light) are off, and output 0-1 (accessory power supply) are only on during the movement of the gate.

12 - Troubleshooting

Problem	Cause	Solution
The automation system does not work	No mains supply	Check the power line switch
	Blown fuse	Replace the blown fuse with one of the same value
	Control and safety inputs not working	Check the diagnostic LEDs (61, 62 and 63 must be on)
You cannot save the remote controls	Safety devices open	61, 62 and 63 must be on
	Batteries of the remote control discharged	Replace the batteries
	Remote control not compatible with the first one saved	The first saved remote control configures the control panel to save only rolling-code or hard-coded remote controls
	Memory is full	Delete at least one remote control or add an external receiver (maximum capacity 200 remote controls)
As soon as the gate starts, it stops and reverses	The motor torque is insufficient	Increase the power with the FM1 trimmer
After a command, the flashing light flashes twice, but the gate fails to open	Photo test failed	Check the electrical wiring (see paragraph 4) and DIP 5. Check the alignment of the photocells
The flashing light does not work during movement	No mains power supply and motors are battery powered	Check the mains power supply
The gate detects an obstacle even when it is not there	Poor or no clearance between the pinion and rack	Check the rack-pinion clearance
	Force trimmer too low	Raise force trimmer
	Gate mechanics stiff	Service the gate
During slowdown, the gate stops and reverses	The slowdown speed is too low	Increase the value of trimmer VS
The movement of the gate is inverted (with TCA enabled, the gate reopens automatically instead of closing)	Incorrect DIP 10 setting	Change the position of DIP 10

Regulatory compliance

Vimar SpA declares that this electronic device complies with EU directives 2014/53, 2006/42/CE, 2014/30/EU, 2014/35/EU. The full text of the declaration of EU compliance is on the product sheet available at the following Internet address: www.vimar.com.

CE

SL24.T installer EN 01 2104

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