

zero
HOME AUTOMATION

COMANDO 24

CONTROL UNIT
SLIDING GATES AND GARAGE DOORS
24V

IT | EN | FR

ZCOM24 VER1.0 01012018_REV1

USER MANUAL AND CONFIGURATION



CE
made in italy



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1. SAFETY INSTRUCTIONS

STANDARDS TO FOLLOW

ATTENTION:

- To ensure the safety of people, it is important that you read all of the following instructions. Incorrect installation or incorrect use of the product may cause physical injury and material damage.
- Keep these instructions in a safe place for future reference.
- This product was designed and produced strictly for the use indicated in this manual. Any other use, not expressly indicated here in, could compromise the good condition/operation of the product and/or be a source of danger.
- ZERO SRL is not responsible for the improper use of the product, or other use than that for which it was designed.
- ZERO SRL is not responsible if safety standards are not taken into account when installing the equipment, or for any deformation that may occur to it.
- ZERO SRL is not responsible for the safety and proper operation when using components not sold by them.
- Do not make any modification to the operator components and / or their accessories.
- Before installation unplug the automation from the mains power supply.
- The installer must inform the client how to handle the product in case of emergency and provide this manual to the user.
- Keep remote controls away from children, to prevent the automated system from being activated involuntarily.
- The customer shall not, under any circumstances attempt to repair or tune the automation and must call a qualified technician only.
- Connect the automation to a 230V plug with ground wire.
- Control board for indoor use.

2. THE CONTROL BOARD

TECHNICAL SPECIFICATIONS

Power supply:	12/24 VAC 80W
Lightbulb's output:	24 VDC 10W max
Motor's output:	1x24V 60W max
Aux. accessories output:	12 VDC 8W, max
Working temperature:	-20°C a +50°C
Radio Receptor:	Incorporated 433,92 Mhz
OP Transmitters:	Rolling Code
Max. memory capacity:	200 codes max

CONNECTOR'S DESCRIPTION

M1 Connector

- 01 • 12V battery input
- 02 • 0V battery input
- 03 • Motor's input (+) positive
- 04 • Motor's input (-) negative
- 05 • Light bulb connection output (-) negative
- 06 • Light bulb connection output (+) positive
- 07 • Power supply output for accessories 12V AC - 8W máx.
- 08 • Power supply output for accessories 0V

M2 Connector

- 09 • Pedestrian START input (NA)
- 10 • Open/close input (NA)
- 11 • Safety device input PHOTOCELLS- complete direction inversion (NC)
- 12 • STOP button's input (NC)
- 13 • Safety device input EDGE- 2 seconds inversion (NC wire)
- 14 • Opening limit-switch input signal (NC)
- 15 • Closing limit-switch input signal (NC)
- 16 • Safety device and start input common

M3 Connector

- 17 • Antenna cable screen input
- 18 • Antenna input

D Connector

- 19 • 0V VCA transformer supply input
- 20 • 12V VCA transformer supply input
- 21 • 20V VCA transformer supply input

PROGRAMMING PRE-RECOMENDATIONS

Before proceeding to the control board configuration, note the following points listed in the table below in order to better understand the control board function:

M2 Connector

Limit-switches :

14 and 12 • Make sure that the limit switch connections are synchronized with the L6 and L7 LEDs (). Test it by moving the automation limit-switch spring by hand to check that the L6 and L7 LEDs in the correct way (L7 LED turns off with a closing signal and the L6 LED turns off with the opening signal).

Safety circuits:

11 • This circuit allows the connection of all types of safety devices such as photocells, safety edges etc. This device operates only in the gate closing and it reverses the automations movement, when activated.

14 • This circuit allows the connection of all types of safety devices such as photocells, safety bands, etc. This device acts in both opening and closing directions and reverses the automations movement for 2 seconds, when activated.

M1 Connector

05 • This is an intermittent output and must be used with lamps that do not have electrical circuit because the output itself is programmed to create a flashing effect on the bulb (apply only a lightbulb with socket and bulb 24 Vdc 10W max). It does quick flashes when it is opening, it remains off when paused and it flashes slowly during closure.

3. CONFIGURATION

INSTALATION PROCESS

TRANSMITTER PROGRAMMING

01 • Place all the dippers in ON position (UP). In case of not using safety device at 11-12-13/M2 terminal (ex: photocells), place the dipper 8/9/10 in ON to disable it.

02 • Unlock the motor, place the gate in the middle position and re-lock the engine.

03 • Connect the power to the control board check if the limit-switches are activated correctly. When wiring the limit-switches at terminals 01 and 02, the L6 and L7 LEDs will remain lit. When moving the spring manually towards closing position, the L7 LED must turn off and when moving it towards opening position, the L6 LED must go off too. If the LEDs are turning off opposite to the correct way, if L7 for opening and L6 for closing, swap the wires from 14 and 15 terminals. Close the gate and re-lock the motor.

04 • When the gate arrives at the closed position, press the SW1 PROGRAM button located on the control board for 2 seconds until the CODE LED (see connection diagram page) stays illuminated. immediately press the transmitter button you want to be the total opening key.

NOTE: When the transmitter button is pressed, the CODE LED must blink, indicating it is receiving the code.

05 • Release the first button and then press the SW1 PROGRAM button twice to memorize the pedestrian opening button. The CODE LED will blink twice, indicating it is receiving the code. Right away, press the second transmitter button you want to be the pedestrian opening key, release it and wait for the CODE LED turns off.

NOTE: If you select a button other than the nº 2 for pedestrian opening, the control board will recognize it as a complete opening button, which means it will override the first pressed button. If the pedestrian opening is not required then do not press the nº2 button and wait for the CODE LED to turn off.

ONCE CONFIGURED, THE PEDESTRIAN OPENING FUNCTION WILL MOVE THE GATE JUST FOR 8 SECONDS FROM THE CLOSED POSITION AND WILL PERMIT A PARTIAL GATE OPENING.

06 • The transmitter is now configured.

NOTE: After setting up a transmitter type, the control board will only accept transmitters from the same type, it means, if the first transmitter is Rolling Code, they must all be Rolling Code for the central to accept them. To program other transmitters, repeat the steps from nº04.

ERASE ALL THE TRANSMITTERS FROM THE CONTROL BOARD

01 • With the gate closed, hold the SW1 button continuously. The CODE LED lights up and wait for 15 seconds until it turns off. Release the PROGRAM BUTTON SW1 and the LED will flash three times to signal the MEMORY RESET has succeeded.

PROGRAMMING THE WORKING FUNCTIONS

01 • With the gate closed set the Dip-Switches to obtain the required operating functions:

DIP SWITCH FUNCTIONS

DIP 1 - ON and DIP 2 - ON

Step-by-step function with self-closing.

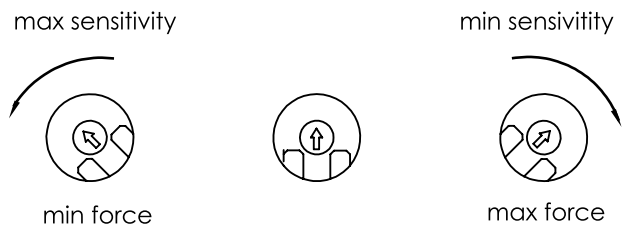
- During the opening it accepts transmitter signals.
- When the gate stops it remains so for the programmed pause time and then automatically closes. (FACTORY SET 60 seconds)
- If it receives a transmitter signal during closing, it reverses.
- In pause time, it anticipates the closing

DIP 1 - ON and DIP 2 - OFF
Condominium function with automatic closing: Transmitters aren't accepted during opening and during closing it reverses direction and stops only at the gate's end. Transmitters are not accepted during the pause time.
DIP 1 - OFF and DIP 2 - OFF
Normal Step-by-step function with automatic closure. Gate opens or closes only if it receives transmitter signals. The behavior will be open-stop-close-stop-open.
DIP 3 - ON
Programming pause time before automatic closing to 60 seconds
DIP 3 - OFF
Programming pause time before automatic closing to 15 seconds
DIP 4 - ON
Enables the SOFT STOP function. <i>The SOFT STOP function is triggered 3 seconds after the control board receives the limit-switch signal. When it receives, it immediately starts soft automation stopping.</i>
DIP 4 - OFF
Disables the SOFT STOP function and stops the gate immediately on limit-switch position.
DIP 5 - ON
Enables blink function 2 seconds before opening commences..
DIP 5 - OFF
Disables blink function 2 seconds before start opening commences.
DIP 6 - ON
Enables more force/torque during the opening operation. The motor force will be double and sensitivity less during opening of that set by TR11 and during closing will be as per the setting of TR11. NOTE: USED ONLY FOR OVERHEAD GARAGE DOORS APPLICATION
DIP 6 - OFF
Enables anti-crushing function during opening and closing, has the same obstacle sensitive function.

DIP 7 - ON
Enables automatic closing 3 seconds after photocells are interrupted
DIP 7 - OFF
Disables automatic closing 3 seconds after photocells are interrupted.
DIP 8 - ON
Disables the M2/11 safety device (PHOTOCELLS) reading.
DIP 8 - OFF
Enables the M2/11 safety device (PHOTOCELLS) reading. NOTE: The DIP SWITCH 8 puts a link across the safety device and common, instead of using a link wire.
DIP 9 - ON
Disables the M2/12 safety device (STOP BUTTON) reading.
DIP 9 - OFF
Enables the M2/12 safety device (STOP BUTTON) reading. NOTE: The DIP SWITCH 9 puts a link across the safety device and common, instead of using a link wire.
DIP 10 - ON
Disables the M2/13 safety EDGE device reading.
DIP 10 - OFF
Enables the M2/13 safety EDGE device reading. NOTE: The DIP SWITCH 10 puts a link across the safety device and common, instead of using a link wire.

FORCE AND SENSITIVITY REGULATION (ANTI-CRUSHING)

The control board has 1 trimmer : TR11 - Allows the automation sensitivity regulation (increases sensitivity by rotating it in the clockwise direction);



If activated between the LIMIT SWITCH positions the motion of the gate is reversed for 2 seconds to free the obstacle impact (moving the trimmer clockwise increases the current force necessary to stop the gate motion). After the limit switch positions, if activated it will stop any motor motion.

Through the DIP 6, the double sense force can be applied for the closing function instead of opening.

NOTE: CHECK THE IMPACT FORCE LIMITS AFTER SETTING. ANTI-CRUSHING FUNCTION DOES NOT AVOID ANY OBLIGATION TO INSTALL THE SAFETY DEVICES RECOMMENDED BY SAFETY REGULATIONS.

PROGRAMMING SAFETY EDGES FUNCTIONALITY

The control panel can accept wire safety edges. USE DIP 10 to set function.

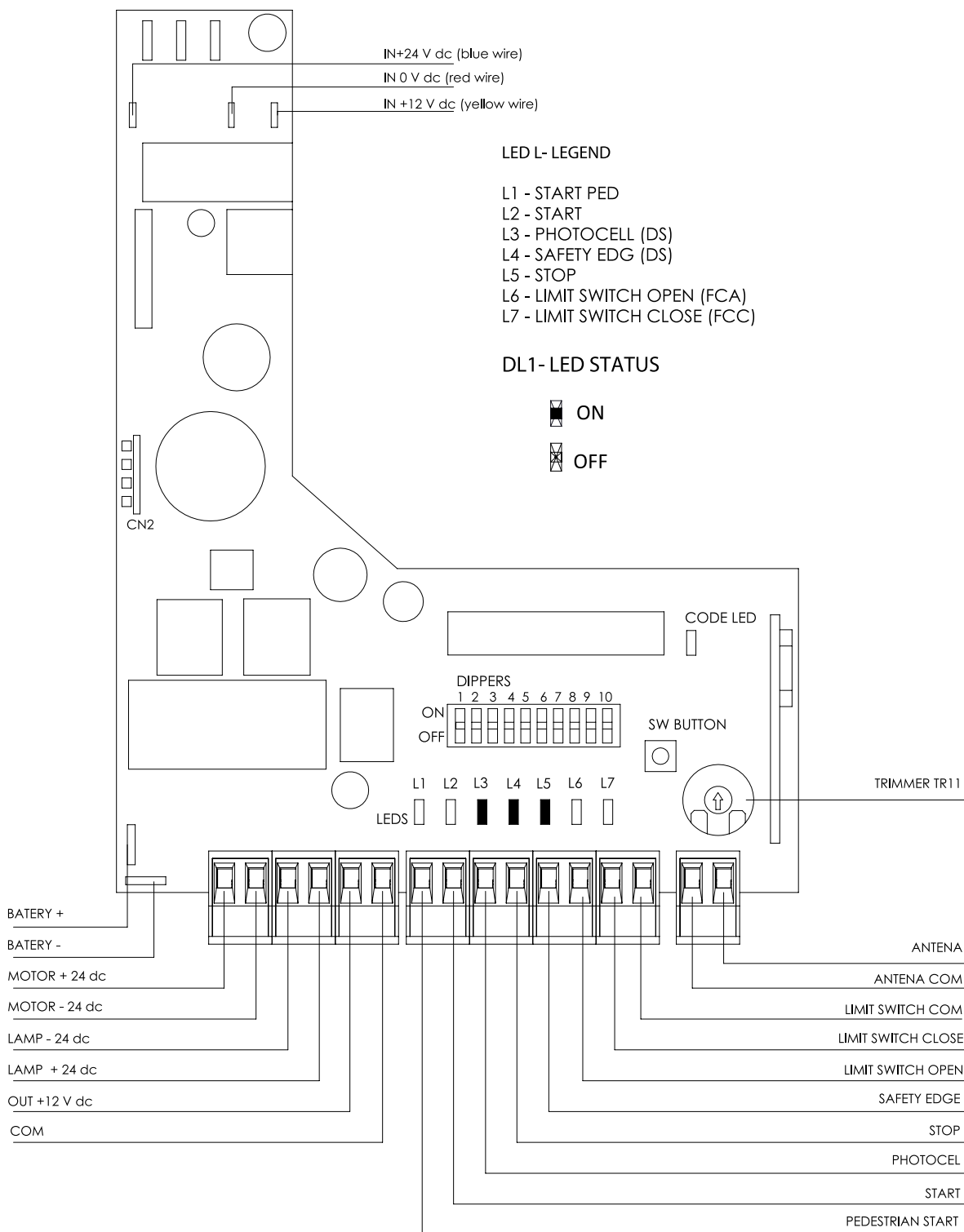
ON-BOARD MAGNETIC LIMIT SWITCH FUNCTION the control unit is equipped with a CN2 connector to accommodate a magnetic limit switch module directly welded on control panel (**on demand and just for Z01 model**).

BATTERY EMERGENCY FUNCTION (BLACK START):

The control board is equipped to operate in emergency with a single 12v battery and with a battery recharging circuit (the microprocessor realizes that it is in emergency and regulates the safety, adapting it to the situation, up to 5 maneuvers with a 1.2AH battery).

NOTE: If black start is activated the gates will move slowly (12V supply) and will not have the flashing light blinking.

CONNECTIONS



LED DESCRIPTIONS

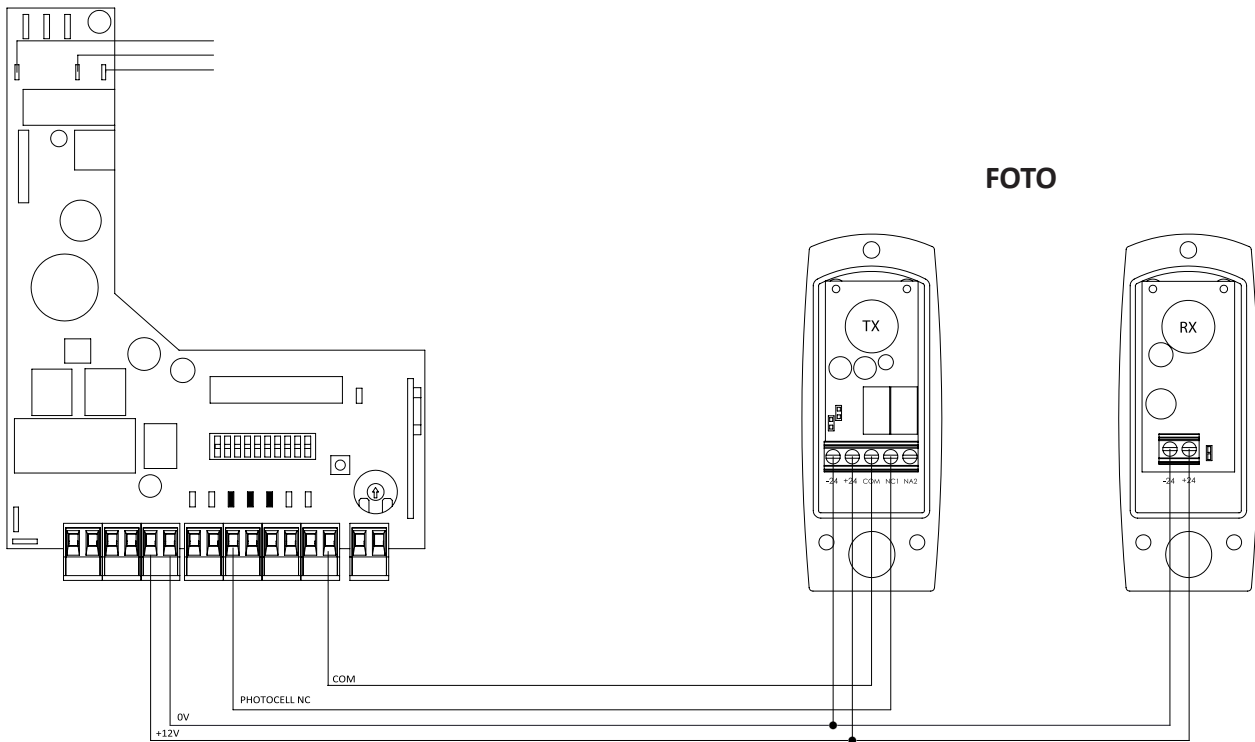
LED	COLOR	FUNCTION DESCRIPTION
L01	RED	Comes on when the PEDESTRIAN start command is activated and goes off when released.
L02	RED	Comes on when the START command is activated and goes off when released.
L03	RED	Always on. Goes off when the photocell is intercepted interrupting the PHOTO beam.
L04	RED	Comes on when SAFETY EDGE is activated and while programming.
L05	RED	Comes on when the STOP command is activated and goes off when released.
L06	RED	Always on. Goes off when the CLOSING LIMIT SWITCH of motor is reached.
L07	RED	Always on. Goes off when the OPENING LIMIT SWITCH of motor is reached
CODE	RED	Blinking when wrongly configured.

DIP SWITCH DEFAULT (FACTORY) SETTINGS

The default settings are highlighted in the boxes with grey background.

DIP 1	ON	WORKING LOGIC: STEP BY STEP WITH AUTOMATIC CLOSURE (for other configuration see the DIP SWICH paragraph)
	OFF	
DIP 2	ON	
	OFF	
DIP 3	ON	GATE PAUSE BEFORE CLOSING 60 SECOND
	OFF	GATE PAUSE BEFORE CLOSING 15 SECOND
DIP 4	ON	SOFT STOP ENABLED
	OFF	SOFT STOP DISABLED
DIP 5	ON	BLINK 2 SECONDOS BEFORE OPENING ENABLED
	OFF	BLINK 2 SECONDOS BEFORE OPENING DISABLED
DIP 6	ON	ANTI-CRUSHING FUNCTION DIFFERENT SENSIVITY WHILE OPENING AND CLOSING (GARAGE DOORS)
	OFF	SAME SENSIVITY FOR ANTI CRUSHING FUNCTION (SLIDING GATES)
DIP 7	ON	AUTOMATIC CLOSING AFTER PHOTOCELLS ARE INTERRUPTED ENABLED
	OFF	AUTOMATIC CLOSING AFTER PHOTOCELLS ARE INTERRUPTED DISABLED
DIP 8	ON	PHOTOCELLS READING ENABLED
	OFF	PHOTOCELLS READING DISABLED
DIP 9	ON	STOP BUTTON READING ENABLED
	OFF	STOP BUTTON READING DISABLED
DIP 10	ON	SAFETY EDGES READING ENABLED
	OFF	SAFETY EDGES READING DISABLED

PHOTOCELLS CONNECTIONS



FOTO

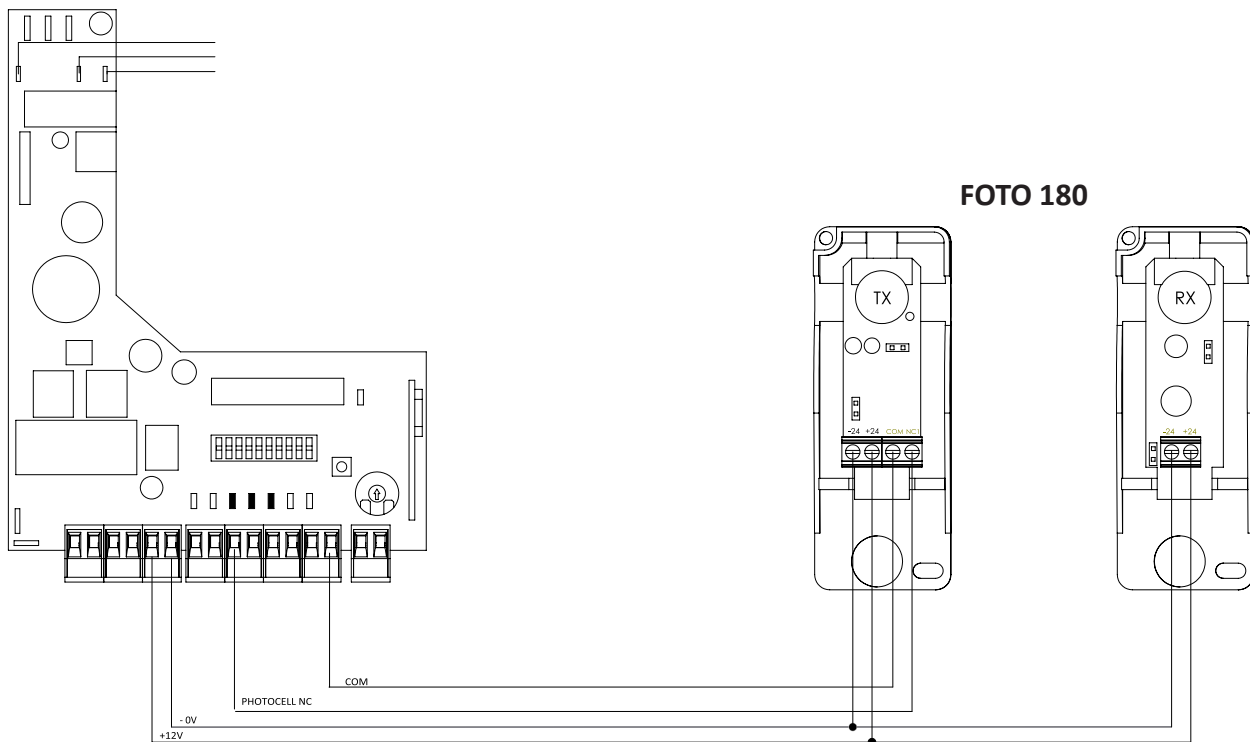
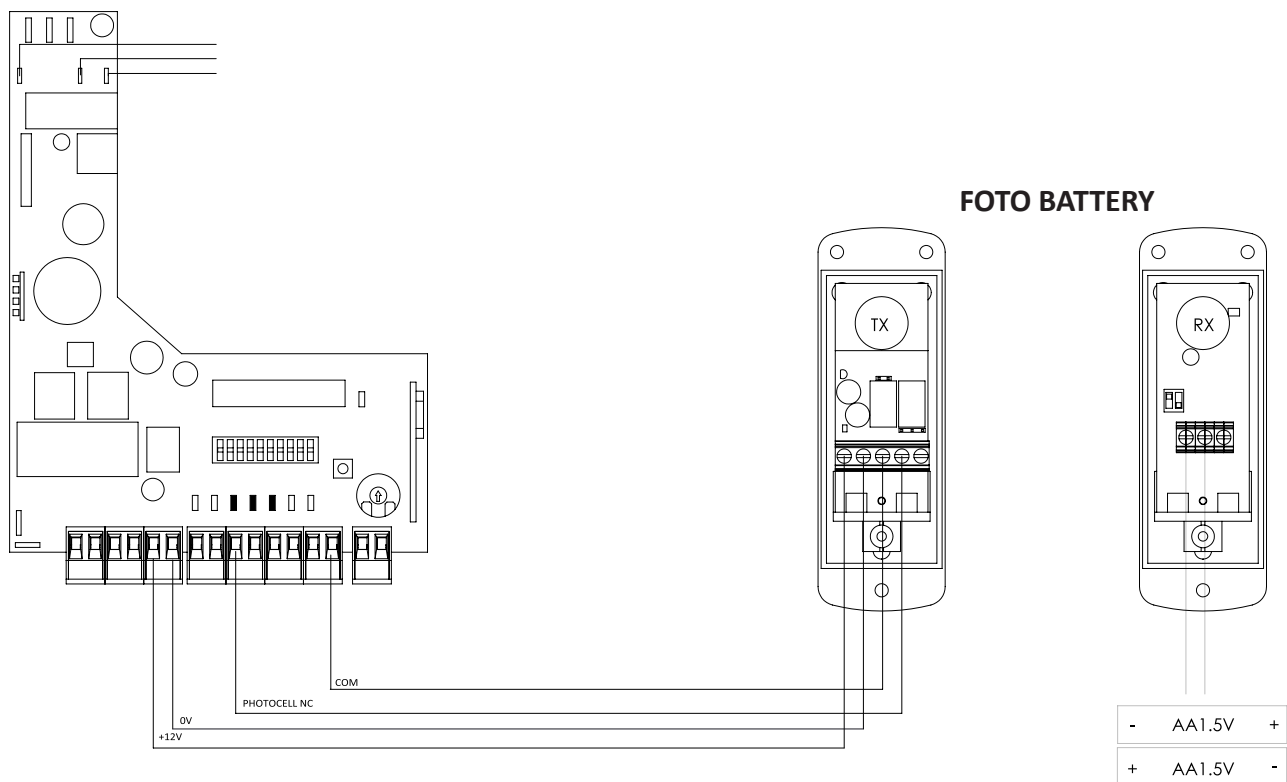
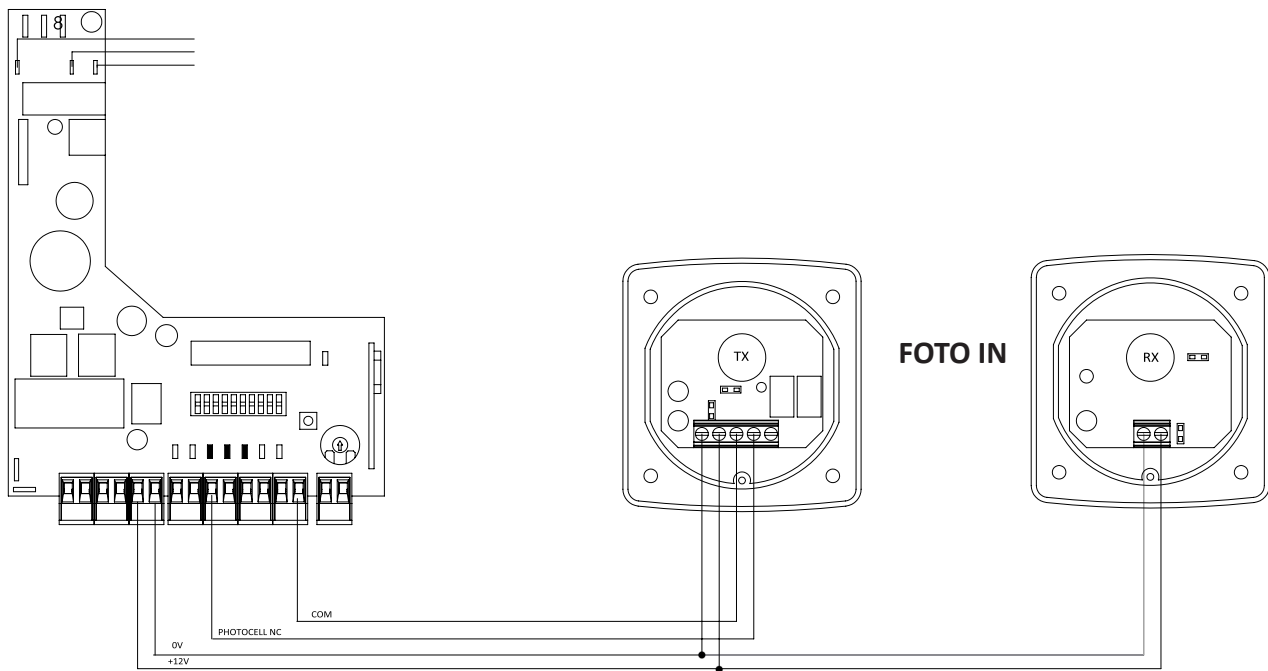
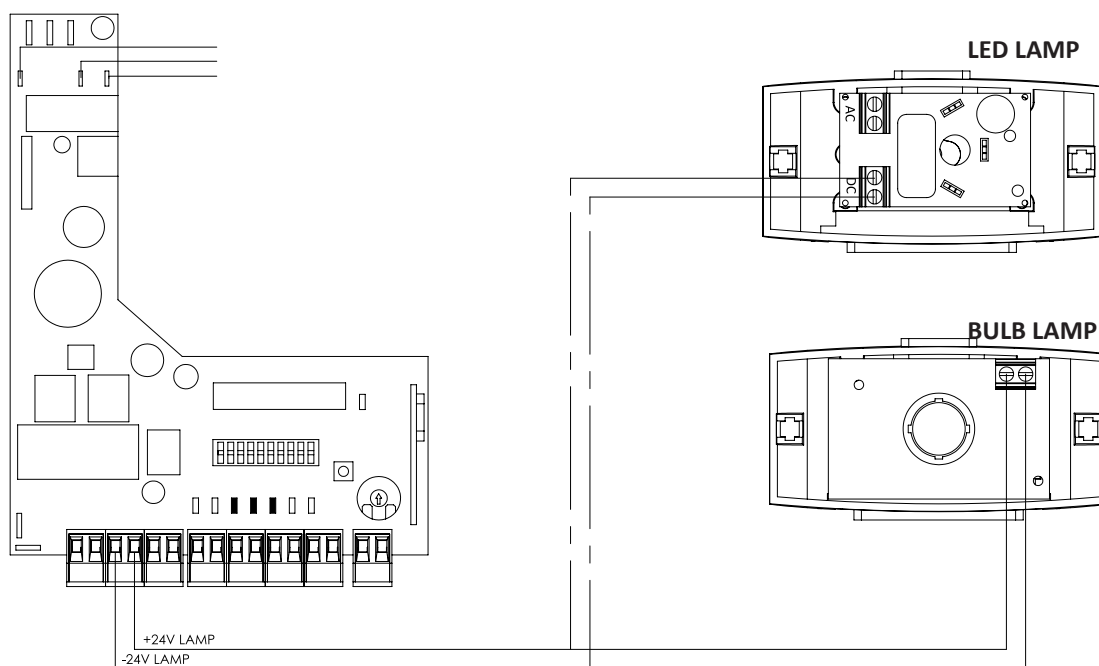


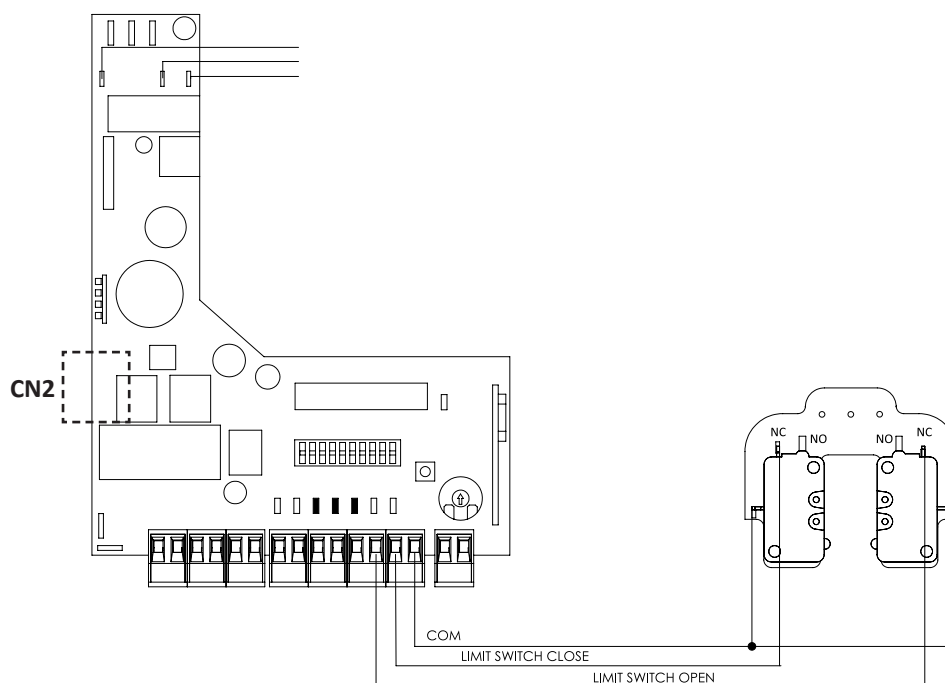
FOTO 180



FLASHING LIGHT CONNECTIONS



LIMIT SWITCH (GATE OPEN/CLOSE POSITION) CONNECTION

**NOTE:**

ON-BOARD MAGNETIC LIMIT SWITCH FUNCTION the control unit is equipped with a CN2 connector to accommodate a magnetic limit switch module directly welded on control panel (**on demand and just for Z01 model, will be also provided two magnetic stoppers for end limit switch positions**).

TROUBLESHOOTING

Problem	Procedure	Behavior	Procedure II
Door doesn't work	Make sure you have 24V power supply connected to control board and if it is working properly.	Still not working.	Consult a qualified ZERO technician.
Motor doesn't move but makes noise	Unlock motor and move the gate by hand to check for mechanical problems on the movement	Encountered problems?	Consult an experienced gate expert.
		The gate moves easily?	Consult a qualified ZERO technician.
Motor opens but doesn't close	Unlock motor and move the gate by hand to closed position. Lock motor again and turn off power supply for 5 seconds. Reconnect it and send start signal using transmitter.	Gate opened but didn't close again.	Check if there is any obstacle in front of the photocells;
			Check if any of the control-devices (key selector, push button, video intercom, etc.) of the gate are jammed and sending permanent signal to control unit;
			Consult a qualified ZERO technician.
Gate doesn't make complete route and revert moving	Unlock motor and move gate by hand to check for mechanical problems on the gate	Encountered problems?	Consult an experienced gate expert.
		The gate moves easily?	Consult a qualified ZERO technician.
LED CODE Blinking	check the safety devices connections and link wire presence if a link is required.		

Discovering the origin of the problem			
1. Open control board and check if it has 24V power supply 2. Check input fuses	3. Disconnect the motor from control board and test it by connecting directly to power supply (battery 12Vdc) in order to find out if they have problems.	4. If the motor works, the problem is on the control board. Pull it out and send it to our ZERO technical services for diagnosis.	5. If the motor doesn't work, remove them from installation site and send to our ZERO technical services for diagnosis.
Check all motion axis and associated motion systems related with the motor and the gate to find out what is the problem.			
1. Check transformer right supply.	2. If transformer are not the problem, disconnect motor from control board and test it by connecting directly to power supply in order to find out if it has problems.	3. If the motor works, the problem is from control board. Pull it out and send it to our ZERO technical services for diagnosis;	4. If the motor doesn't work, remove it from installation site and send to our ZERO technical services for diagnosis
<p>All ZERO control boards have LEDs that indicate the functioning of connections to allow easy diagnosis of faults. All safety devices LEDs (DS) in normal situations remain On. All "START" circuits LEDs in normal situations remain Off. If LEDs devices are not all on, there is some security system malfunction (photocells, safety edges), etc.</p> <p>1 • Close with a link wire all safety systems on the control board (check manual of the control board in question). If the automated system starts working normally check for the problematic device.</p> <p>2 • Remove one link wire at a time until you find the malfunction device .</p> <p>3 • Replace it for a functional device and check if the motor works correctly with all the other devices. If you find another one defective, follow the same steps until you find all the problems.</p>			
<p>If "START" circuits LEDs are turn On, there is a control device sending permanent signal.</p> <p>1 • Disconnect all wires from START terminal input.</p> <p>2 • If the LED turned Off, try reconnecting one device at a time until you find the defective device.</p>			
In case described procedures fell, remove control board and send to our technical services for diagnosis.			
Check all motion axis and associated motion systems related with the motor and the gate to find out what is the problem.			
1. Check trimmer R10 and ensure if setted to MINIMUM value; Turn it in clockwise direction and try again.	3. If the motor doesn't work, remove it from installation site and send to our ZERO technical services for diagnosis.	5. If this doesn't work, remove control unit and send it to ZERO technical services services.	
<p>NOTE: Setting force of the controller should be sufficient to make the gate open and close without stopping, but should stop and invert with a little effort from a person. In case of safety systems failure, the gate shall never cause physical damaged to obstacles (vehicles, people, etc.).</p>			

EC DECLARATION OF CONFORMITY:

The undersigned Mr. ANDREA MARAN , representing the following manufacturer,

ZERO SRL Via Roma 25/A 36077 ALTAVILLA VICENTINA (ITALIA)

Declares that the equipment described below:

Description: Electronic control unit
Model: ZCOM24

Is in compliance with the provisions set down in the following directives:

- 2004/108 EC Directive (EMC Directive)
- 2006/95/CE Directive

and that all the rules and/or technical specifications shown below have been applied:

EN 60335-1,
EN 60204-1,
EN 55014,
EN 6100-3-2,
EN 6100-3-3,
EN 6100-4-2,
EN 6100-4-4,
ENV50140,
EN50081-1,
EN50082-1

ALTAVILLA VICENTINA (VI) – Italia
01-07-2016

and he also declares that it is not allowed to commission the device until the machinery where it will be incorporated or whose it will become a component will have been identified and will have been declared in compliance with the conditions of the 2006/42 EC Directive and with the national legislation that transpose it.

ANDREA MARAN
ZERO SRLS Representative





ZERO SRLS
Via Olona 110, Gallarate (VA) ITALIA

info@miozero.it - www.miozero.it