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Cap. Soc. €60.000,00 i.v.

CONTROL BOARD BRAIN1

GBR

INFORMATION:

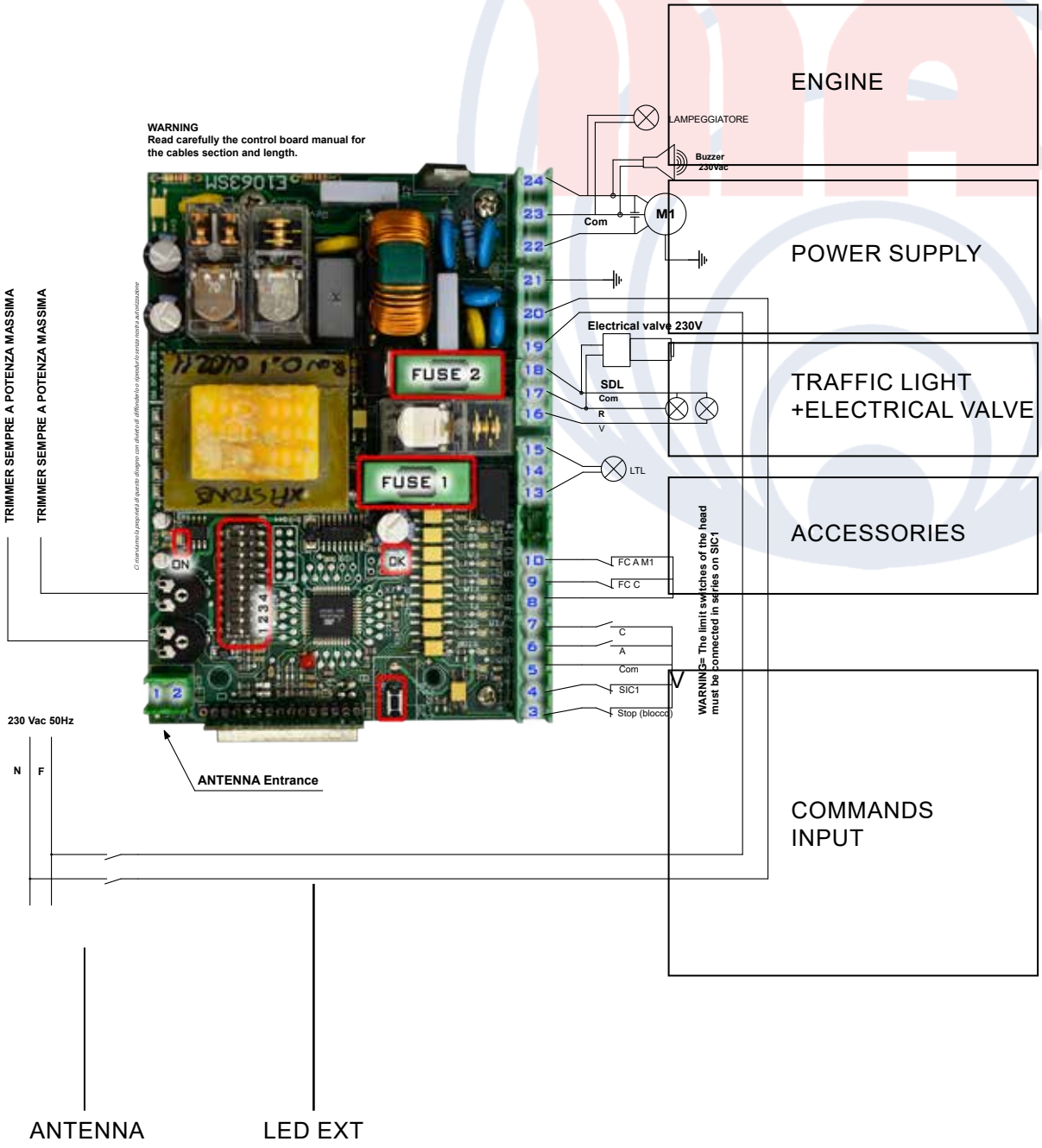
Customer:

Installing Company:

Timbre&Signature

CAREFULLY READ THE MANUAL BEFORE USE

CONTROL BOARD



Before the installation, please read carefully this manual .
The company declines any responsibility in case of non compliance with the laws in the country where the installation is done.

CONNECTION OF CONTROL BOARD

INPUTS	TERMINAL	CONTACT
External antenna protection	1	
External antenna signal	2	
CH CLOSE button+ CLOCK function	7	NA
AP OPEN button	6	NA
C COMMON	5	
F2(4) SECURITY DEVICE: SIC1+2 (sensitive head + photocells + coil)	4	NC
ST STOP EMERGENCY	3	NC
Fn LIMIT SWITCH BOLLARD 1		
FA1 Limit switch OPEN M1 (**Fn OPEN**)	10	NC
FC1 Limit switch CLOSE M1 (**Fn CLOSED**)	9	NC
C Common	8	

OUTPUTS	TERMINAL	NOTES
POWER SUPPLY OF AUXILIARY ACCESSORIES	13 14	24Vac MAX280mA
LED BRIGHT HEADS BOLLARDS (is recommended to install a diode)	+13 15	24Vac
TRAFFIC LIGHT WITH TWO LIGHTS (red/green) MAX 300W	16 17 18	GREEN LIGHT RED LIGHT COMMON (neutral)
ELECTRIC VALVE	17	230Vac 160W
ENGINE1*		
OPENING PHASE	22	230Vac MAX500W
COMMON	23	
CLOSING PHASE	24	

***500W MAX FOR ENGINE -> MAX DURATION 10 SECONDS**

POWER SUPPLY INPUT OF CONTROL BOARD	TERMINAL	NOTES
CABLE ENTRY COMING FROM LINE DISCONNECTOR 230Vac 50 Hz	19 20	PHASE NEUTRAL
BOARD MASS (for GROUND connection)	21	

NOTES	mA (interruption)	FUSES
FUSES FOR ENGINE + TRAFFIC LIGHT (Engine absorbs 2500mA) Traffic light MAX 500W(Relay maximum amperage of working 5A)	6300	F2
FUSES FOR INPUTS + ACCESSORIES + LED (Led absorbs 30mA, input boards 70mA)	315	F1

NOTES	ACRONYM	LED
The LED diagnosis state has been realized at the first ignition of 1 column of the bollard totally lowered.		
It lights when there is electrical network	ON	ON
LED for control board programming **It flashes for few seconds** **It is turned off during the functioning**	OK	OFF
It lights up when the button is pushed	F1 (6)	OFF
It flashes when the button/clock is pushed	F1A (7)	OFF
It turns off when the stop button is pushed (stop button with self-holding)	STOP (3)	ON
It turns off with coil detection / sensitive head	F2 (4)	ON
It turns off when the bollard is UP	FC (9)	ON
It turns off when the bollard is DOWN	FA (10)	OFF
NOT USED	SS	
NOT USED	SS2	

DIP SWITCH	SIGLA	DEFAULT
3.l) CLOCK FUNCTIONING (page 7)	Dip 1	OFF
3.m) PISTONS MAINTENANCE (page 7)	Dip 2	OFF
3.n) EXCLUSION LIMIT SWITCH TIME (page 8)	Dip 4	OFF
Dip 3-5-6-7-8-9-10	Dip 3-5-6-7-8-9-10	OFF

WARNING:
The grounding cable must be necessarily connected with the predisposed control board terminal: terminal number 21.
EVERY BOLLARD HAS LABELLED CABLES FOR THE ELECTRICAL CONNECTION WITH THE CONTROL BOARD.
The current laws obligate this connection to avoid inopportune starting or missing stops in case of breakdowns (both on input side and output side).

2.0 TECHNICAL NOTES

2.a) INPUTS AP(6) / CH(7)

The contacts to insert in these two inputs are free of tension (N.A.), AP input makes the bollard goes down, CH input raises the bollard.

INPUT AP(6)

It is possible to connect in parallel to this entry the following devices:

- N.A. Button
- Emergency vehicles sound recognizer (sirens, police, ambulance, etc.)
- Access control: telepass, reading plate, magnetic coil, ecc.

INPUT CH(7)

It is possible to connect in parallel to this input the following devices::

- N.A. Button
- Clock contact (optional hardware) (activate the programming)

2.b) SIC1+2 SAFETY INPUT F2(4)

It has been projected for the input of any safety device (even if they are connected in series).
This input allows the reversal of running direction (only if the bollard is closing the passage).

Devices connectable to this input:

-Magnetic detector with single/double coil.
-Active modulated infrared photocells.
-Pre-calibrated pressure switch
-Positive opening limit switch installed under the sensitive head.
-Any devices that respect the current laws

2.c) OUTPUTS

Specific circuit for the ignition of an engine to improve the performances of the bollard (prevention against malfunctions, route defusing, ex. glued contacts).

2.d) TRAFFIC LIGHTS (16-17-18)

It has been projected to ensure a safe passage of the vehicle in the passage protected by the bollard. The green light will appear when the passage will be free from any obstacle.

2.e) ELECTRICAL VALVE (17-18)

It has been projected to guarantee the passage even in case of power failure.
The electrical valve will make the bollard go down up to the ground level.

2.f) OUTPUT 24V (13-14)

It is used for the power supply of the auxiliary devices (ex. Photocells).

2.g) LED LIGHTS SENSITIVE HEAD 24F (13-15)

It has been projected to supply 1 flashing bright head.

2.h) INSTALLATION

- The control board must be installed in a protected and dry place with its own protection box.
- Install a circuit breaker of type 0,03A, high sensitivity to the supply of the control board.
- Make sure the supply of the control board is 230Vac ±10% 50Hz.
- For the control board, electrical motor, flashing light, traffic lights, electrical valve; use cables with wire not less than 1,5mm ² up to 50m of distance; for limit switches and accessories of command and safety use cables with wires of 1mm ². For distances of more than 50 meters use the appropriate wires with the suitable section for the installation. Note: for applications such as lights, cameras etc. use static relays.
- The installation should be made by competent staff and in compliance with the legislation in force
- Before starting the installation, verify the integrity of the control board.
- The installation, the electrical connections and the regulations must be done to the letter.
- Packaging Materials (cardboard, plastic, polystyrene, etc.) should not be dispersed into the environment.
- Do not install the control board in environment exposed to danger or disturbed by electro-magnetic fields. The presence of gas or flammable smokes is a great danger for safety.
- Provide on the supply network a protection for extra tensions, a switch/ disconnecting switch and/or differential fit for the product and with the current law.
- The constructor declines every responsibility if other devices and/or components incompatible with the product for integrity are installed, safety and functioning of the product.
- For reparation or substitution, only original spare parts must be used.
- The installer must give all the information related to the functioning, maintenance and use of the single parts and of the system in its entireness following the Directive Machine (see laws EN 12635, EN 12453 and EN 12445).

3.0 PROGRAMMING - FUNCTIONING

3.a) RESET OF THE CONTROL BOARD

This function allows to go back to the basic programming;
Working time 8 seconds;
Traffic lights waiting time 10 seconds;
Limit switch delayed of 200 ms;
Automatic reclosing excluded;
Basic radio code: button 1 of a TX type 53200 with DIP 1,3,5,7,9 ON and DIP 2,4,6,8,10 OFF

RESET PROCEDURE:

1) Push 1 time the PROG button (the OK and EXT LEDs are fixed on)
2) Push and keep pushing simultaneously the AP (6) and CH (7) buttons
3) After about 3 seconds the LED OK starts to flash quickly
4) Release the AP(6) and CH(7) buttons
5) When the OK LED ends to flash and turns itself off, the reset is finished..

3.b) RADIO CODES PROGRAMMING:

PROCEDURE:

1) Push 1 time the PROG button (the OK and EXT LEDs are fixed on).
2) Send the radio code to be memorized by keeping a distance of at least 50 cm from the control board.
3) If the code has been memorized, the LED OK flashes.
4) If there are other codes to be memorized, repeat from point 3
5) Push 2 times the PROG button (the OK led turns itself off) to exit from the radio codes programming.

3.c) COMBINATION RADIO FUNCTION

If no input is active during the sending of the code to be memorized (point 3b), the command is matched with the "Start-Stop" function (STEP BY STEP).
To match the radio command with the OPEN function, activate the input AP (6) while sending the code.
To match the radio command with the CLOSE function, activate the input CH (7) while sending the code.
To match the radio command with STOP function, activate the input STOP (3) (open the contact) while sending the code.

3.d) CANCELLATION SINGLE RADIO CODE:

PROCEDURE:

1) Push twice the PROG button (The LED OK is fixed ON while the LEDs EXT flash).
2) Send the radio code to be cancelled.
3) If the led OK flashes 3 times, the code has been cancelled. Instead, if it flashes 1 time slowly, it means that the radio code isn't present in memory.
4) If there are other codes to be cancelled, repeat from point 3
5) Push 2 times the PROG button to exit from the radio codes cancellation (the OK led and the external leds turn their selves off)

3.e) CANCELLATION OF A GROUP OF CODES:

It allows to delete all the same type codes with a single operation.

PROCEDURE:

1) Push 2 times the PROG button (the led OK is on, whereas the leds EXT flash)
2) Select the group to be cancelled:
   - button AP(6) >> canc. All the codes OPEN
   - button CH (7) >> canc. All the codes CLOSE
   - button STOP(3) >> canc. All the codes STOP
   - Opening F2(4) >> canc. All the codes (STEP BY STEP)
3) The OK led quickly flashes during the cancellation
4) When the led OK turns off, the procedure is finished

3.f) PROGRAMMATION TIME OF AUTOMATIC RECLOSING:

PROCEDURE:

1) Push and keep pushed the PROG button (the led OK and the leds EXT are on, fixed)
2) After about 3 seconds, the led OK starts to flash
3) Release the PROG button, the led OK keeps flashing
4) Push and keep pushed the CH(7) button for the time you wish to memorize
5) When the CH(7) button is released, the led OK turns off and the procedure is finished

During the normal functioning the automatic reclosing can be excluded by sending the Start/Stop command during the pause or by activating the emergency stop.

3.g) CANCELLATION OF THE AUTOMATIC RECLOSING

PROCEDURE:

1) Push and keep pushing the PROG button (the led OK and the leds EXT are on, fixed).
2) After about 3 seconds, the led OK starts to flash
3) Release the PROG button, the led OK keeps on tflashing.
4) Open the contact to the STOP(3) input (if there is, push STOP button)
5) The led OK flashes to indicate that the cancellation is happening
6) When the OK led turns off, the procedure is finished

3.h) PROGRAMMING OF THE TRAFFIC LIGHTS WAITING TIME:

PROCEDURE:

The waiting time of traffic light is the available time for a vehicle to cross and free the passage since when the traffic light is red until the bollard starts its climb.
Meanwhile, the leds incorporated in the head keep flashing (see image “A” at page 8, point 5.)
In order to define the waiting time, it is necessary to time how much a vehicles takes for crossing and freeing the passage. (see image “A” at page 8)

PROCEDURE:

1) Push and keep pushed the PROG button (the led OK and the leds EXT are on, fixed)
2) After about 3 seconds the led OK starts flashing.
3) Release the PROG button, the led OK keeps on flashing.
4) Push and keep pushed the AP button for the time you wish to memorize.
5) When the AP button is released, the OK led turns off and the procedure’s finished

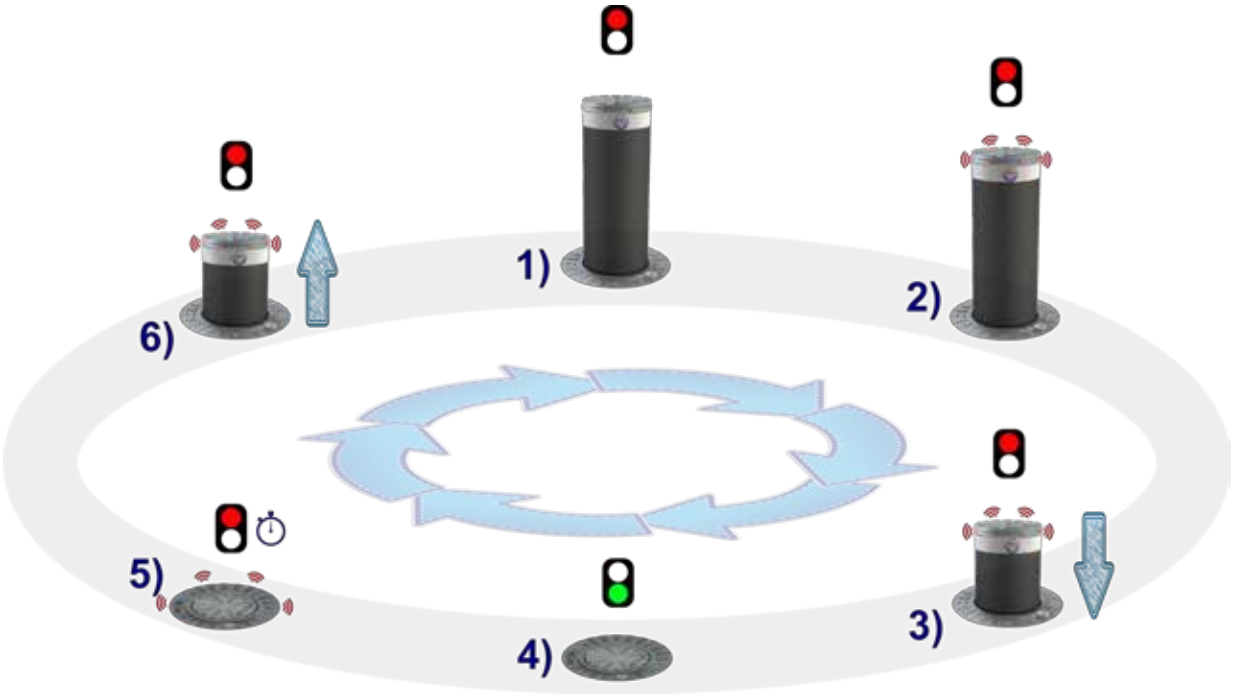


image A

3.i) PISTONS WORKING TIME PROGRAMMING:

PROCEDURE:

1) Push and keep pushed the PROG button (the led OK and the led EXT are on, fixed)
2) After about 3 seconds, the led OK starts flashing
3) Release the PROG button, the led OK keeps on flashing
4) Open the contact F2(4) for the time you wish to memorize
5) When the contact F2(4) is closed, the led OK turns off and the procedure is finished

3.l) CLOCK PROGRAMMING:

To program the clock, the DIP1 must in ON.

Note: connect the clock contact without tension in place of the CH input (terminals 5-7).

Thanks to this function, the road will be open until the contact of the clock is closed and it will close when the clock contact is open.

In case of power failure, at the revival of power the central guarantees the reopening or the reclosing even if the clock has commuted while the central was off.

When the clock contact is closed, the pause management is excluded. If during the automatic reclosing of the clock, the security F2(4) intervenes, the bollard reopens and it will try to reclose after 5minutes The closing attempts will continue until the bollard isn't closed or coming a user's command.

3.m) ACTIVATION OF HYDRAULIC PRESSURE RETENTION:

To activate this function, DIP 2 must be in "ON".

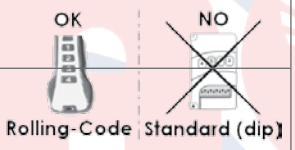
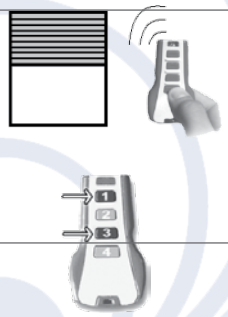
When the system is in CLOSE state, the control board check the position of closing limit switches.

If the limit switches have inverted their state, due to pistons lowering, the control board commands the closing of the bollard. The control is done every 10 minutes and the forced closing lasts up to the reaching of the limit switches or to a maximum of 3 seconds. Before the forced closing the bollard makes some signalling flashes. The flashing light doesn't work during the forced closing. During the forced closing the safeties F2(4) don't order the inversion but only the stop.

3.n) EXCLUSION OF THE DELAY TIME OF THE LIMIT SWITCHES:

Usually, the engines stop after 250ms from the opening of the contact of the limit switches. Thanks to this procedure it is possible to exclude the delay letting stop the engines as soon as the limit switch contact is open. It turns on placing the DIP4 in ON.

3.o) RADIO / REMOTE CONTROL PROGRAMMING:

<table>
<tr><th>RADIO CONTROL REMOTE PROGRAMMING</th><th>OPERATIONS</th><th>PICTURES</th></tr>
<tr><td rowspan="5">This procedure allows to guarantee a new radio code without directly operating on the board.
The programming operations occur all by radio using a remote control already programmed on the control board.
If there are more codes to be memorized, it is necessary to repeat every time this procedure from the beginning.
This function is available only if in the control board are only memorized Rolling-Code codes.</td><td>The function of the new radio code can be selected during the programming following the same criterion for the standard memorisation.</td><td rowspan="2"> 
</td></tr>
<tr><td>1) Send a command to the control board with a remote control IRIS RC type already added in memory.</td></tr>
<tr><td>2) Within 8 seconds, push simultaneously 1 and 3 buttons of the IRIS RC remote control used in the previous point. The control board is entered into programming.</td><td>  </td></tr>
<tr><td>3) Within 8 seconds, send the new radio code of the remote control to be memorised (Rolling-Code type).

If no code is sent, the control board exits from the programming after 8 seconds automatically.</td><td> 
</td></tr>
<tr><td>4) Check that the new code memorised perfectly works, otherwise repeat the procedure.</td><td></td></tr>
</table>

4.0 SAFETY WARNINGS FOR MAINTENANCE AND USE

WARNINGS
These warnings are integral and essential parts of the electronics and they are to be given to the final user. So it is necessary to keep this manual. Read carefully the instruction book which gives important indications about the installation. The wrong installation or the improper use of the control board may be a source of serious danger.

MAINTENANCE
To guarantee the efficiency of the control board professional staff must make the maintenance in times decided by the installer, by the producer and by the legislation in force. The operations of installation, maintenance, reparation and cleaning must be documented. This documentation is to be kept by the user.

FOR THE USER
Read carefully the instructions and the documents enclosed. The product must be used according to the use designed by the constructor. Any other use is to be considered improper and dangerous. Moreover, the information in this document and in the enclosed documents may be modified without notice. MAC s.r.l. declines all responsibility. In case of maintenance, cleaning, breakdown or malfunction of the product, turn off the power supply and avoid any attempt of intervention except when indicated. Call MAC s.r.l. staff before any maintenance or sending of damaged/ broken material.

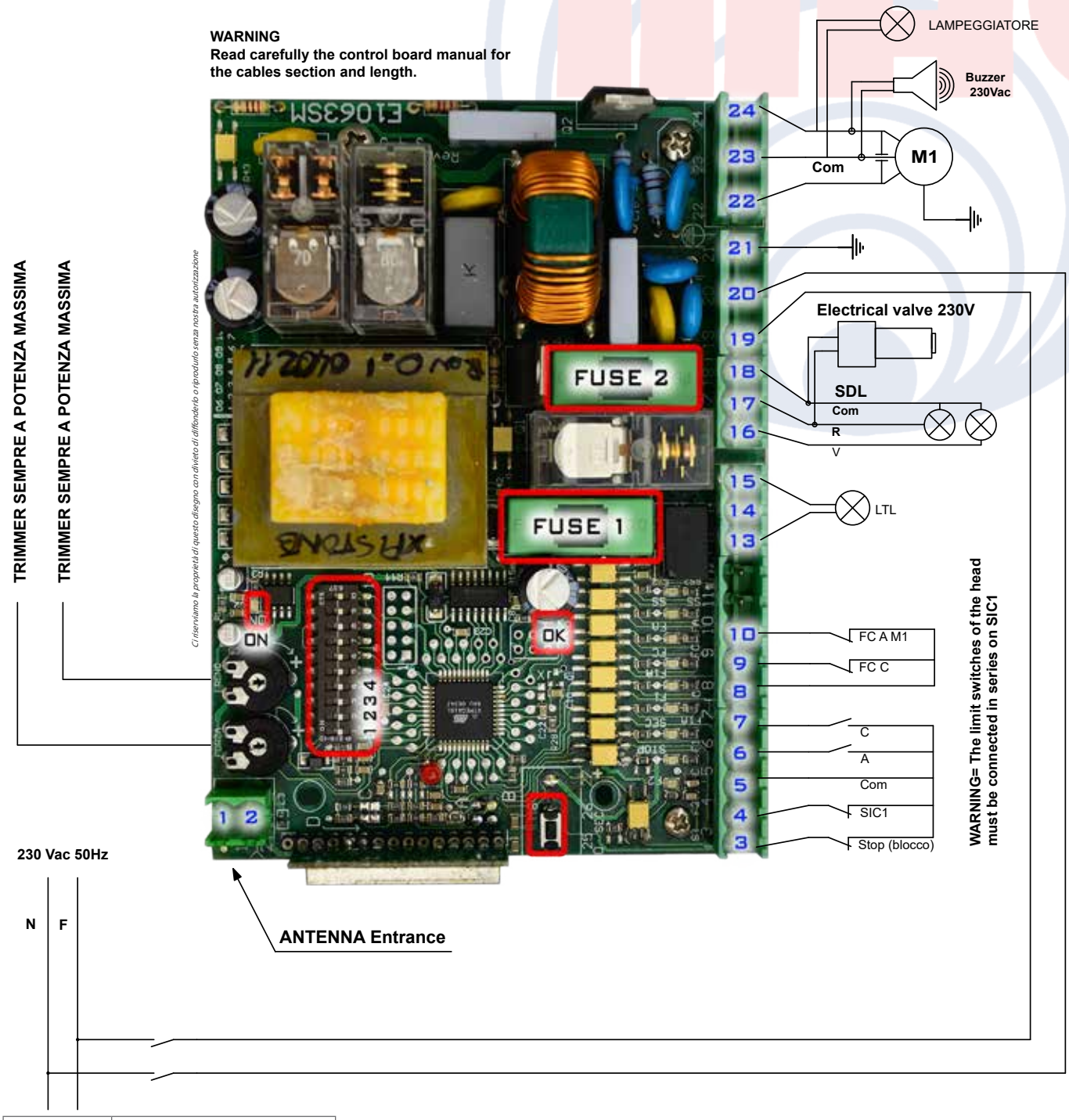
WARRANTY

The warranty is twenty-four (24) months starting from the selling date of the control board. It decays in case of: negligence, mistake or wrong use of the product, use of non-compliance accessories to the specifics of the builder, tampering operated by the customer or by a third party, natural causes (lightnings, floods, fire, etc.), vandalism acts, changes in the environmental conditions in the installation place. The warranty does not include, moreover, the parts subject to wear. (batteries, oil, etc.). The purchase of the product implies the complete acceptance of the general sale conditions.

Guide for the causes research of some drawbacks

N	DRAWBACKS	PROBABLE CAUSES	HYPOTHESIS OF FAULT	SOLUTIONS
1	BOLLARD NO RAISES (wrong connections)	-wrong sense of rotation -reversed limit switches -lack of power supply -control board damaged -fuses damaged	-wrong connection of electrical engine -wrong limit switch connection -sectional swtich open -control board damaged -high absorption peak -short circuit on the engine, electrical valve, inputs, output24Vac, traffic light	-rewire the electrical engine on the control board (reverse rise/fall wires) -rewire magnetic limit switches (reverse limit switch close with open-rise) -reactivate sectional switch -replace the control board -replace the fuse with others appropriate -check and fix the breakdown
2	BOLLARD NO RAISES COMPLETELY (during the raise, the bollard stops)	-bollard stops at the mid of the stroke - magnetic limit switches are closed (lights FC1 e FA1 switch on about MOT1)	-wrong programmation of working time -magnetic limit switch out reading zone of magnet	-program again the working time -establish the right position for limit switches reading between the magnet and the sensor(bringing near the magnetc limit switch)

WARNING
Read carefully the control board manual for the cables section and length.



A	
C	
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FC A M1	
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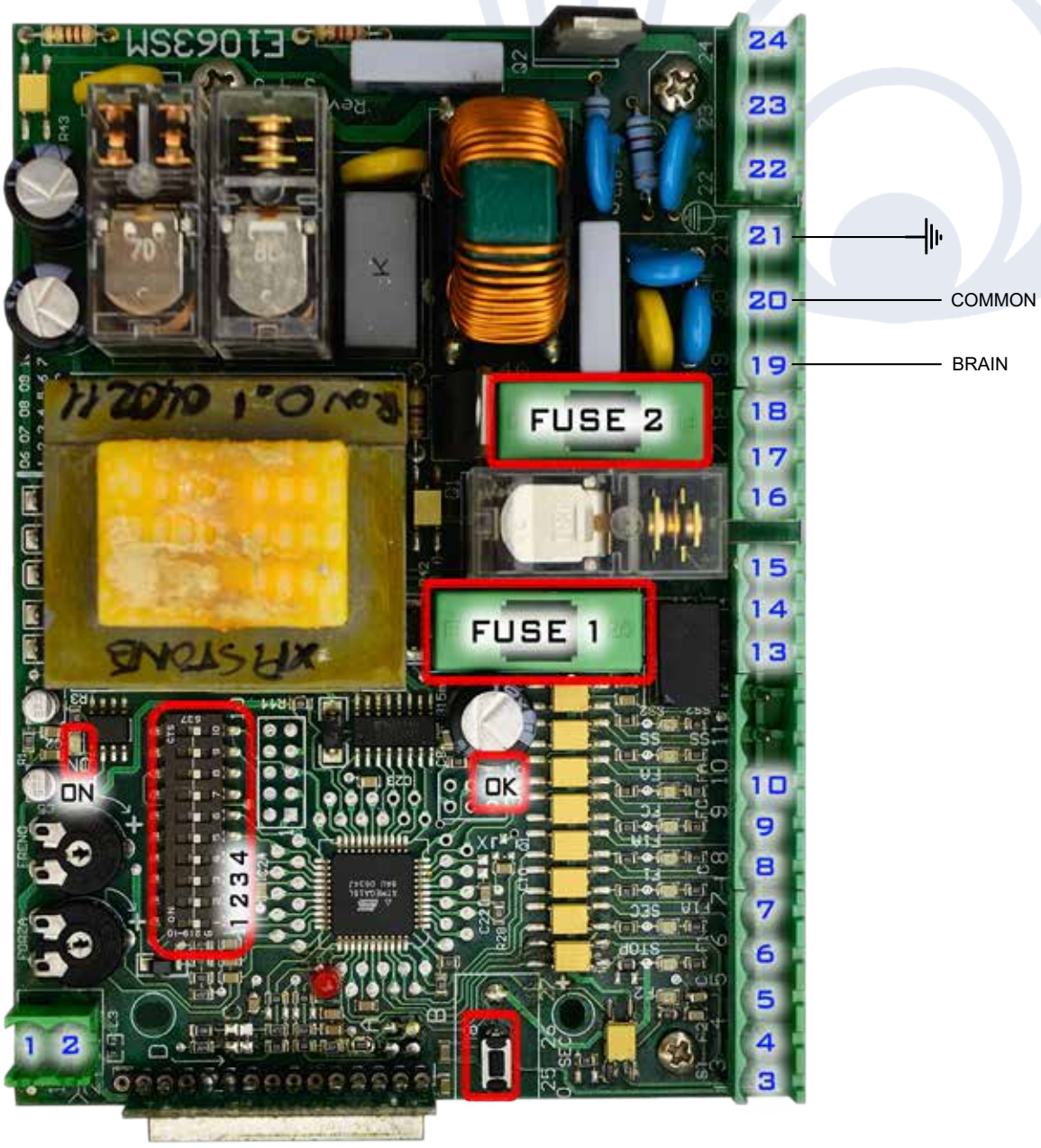
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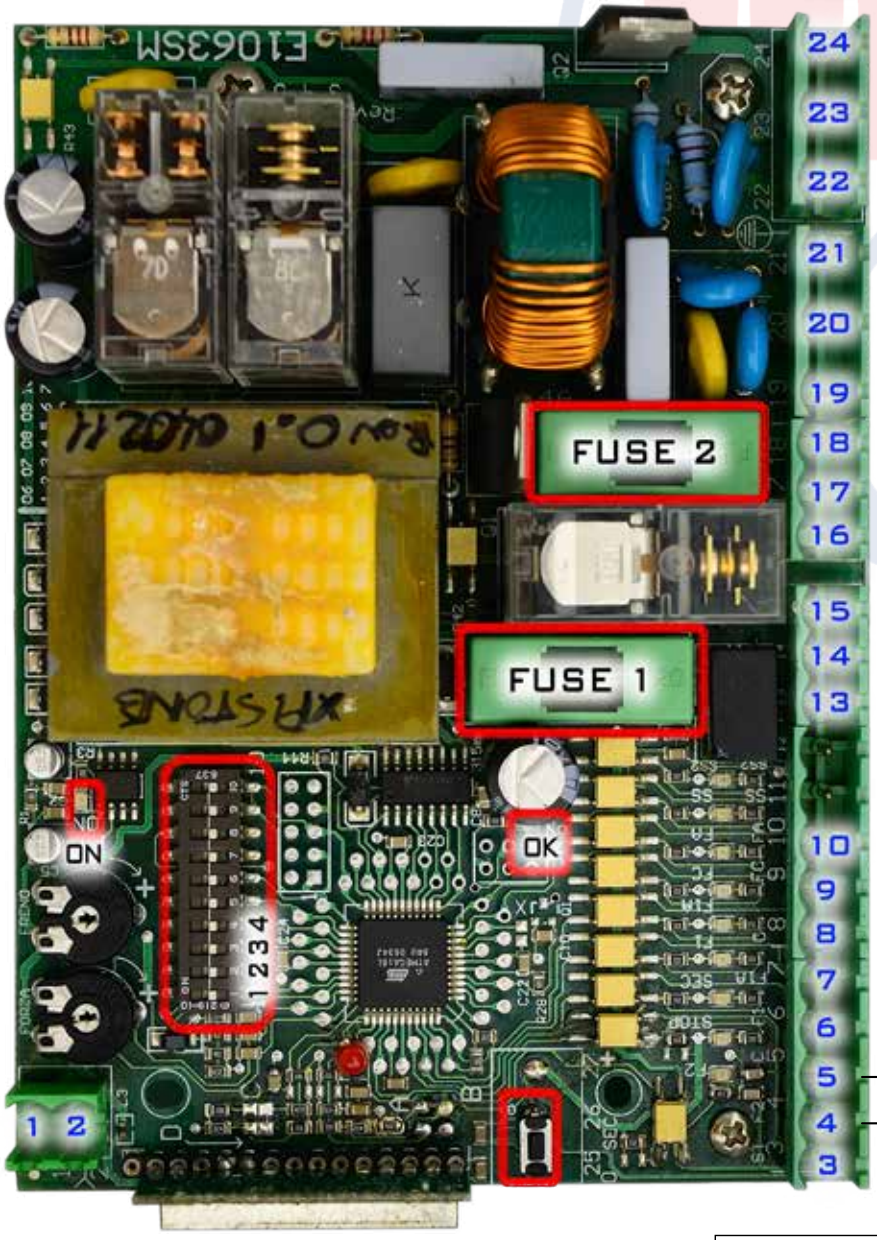

Connection in series with the other securities connected on this clamp

230 Vac 50Hz