## IMPORTANT REMARKS

For any installation problem please contact our Customer Service at the number **+39-0172.812411** operating Monday to Friday from 8:30 to 12:30 and from 14:00 to 18:00.

**V2 has the right to modify the product without previous notice; it also declines any responsibility to damage or injury to people or things caused by improper use or wrong installation.**

⚠ **Please read this instruction manual very carefully before installing and programming your control unit.**

- This instruction manual is only for qualified technicians, who specialize in installations and automations.
- The contents of this instruction manual do not concern the end user.
- Every programming and/or every maintenance service should be done only by qualified technicians.

**AUTOMATION MUST BE IMPLEMENTED IN COMPLIANCE WITH THE EUROPEAN REGULATIONS IN FORCE:**

**EN 60204-1** (Machinery safety. electrical equipment of machines, part 1: general rules)
**EN 12445** (Safe use of automated locking devices, test methods)
**EN 12453** (Safe use of automated locking devices, requirements)

- The installer must provide for a device (es. magnetotermical switch) ensuring the omnipolar sectioning of the equipment from the power supply.
  The standards require a separation of the contacts of at least 3 mm in each pole (EN 60335-1).

- After making connections on the terminal board, use one hose clamp to fix dangerous voltage wires near the terminal board and another hose clamp to fix safety low voltage wires used for accessories connection; this way, in case of accidental detachment of a conducting wire, dangerous voltage parts will not come into contact with safety low voltage ones.

- The plastic case has an IP55 insulation; to connect flexible or rigid pipes, use pipefittings having the same insulation level.

- Installation requires mechanical and electrical skills, therefore it shall be carried out by qualified personnel only, who can issue the Compliance Certificate concerning the whole installation (EEC Machine Directive 89/392, Annex IIA).

- The automated vehicular gates shall comply with the following rules: EN 12453, EN 12445, EN 12978 as well as any local rule in force.

- Also the automation upstream electric system shall comply with the laws and rules in force and be carried out workmanlike.

- The door thrust force adjustment shall be measured by means of a proper tool and adjusted according to the max. limits, which EN 12453 allows.

- Connect the earthing lead of the motors to the electricity grid earth system.

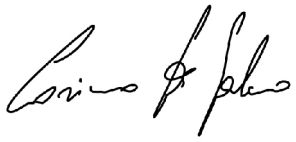
- Observe all necessary precautions (e.g. anti-static bracelet) for handling parts sensitive to electrostatic discharges.

## DECLARATION OF CONFORMITY

V2 S.p.A. hereby declare that EASY2 products conform to the essential requirements established in the following directives:

- 2004/108/CEE (EMC Directive in accordance with standards EN 61000-6-2, EN 61000-6-3 + EN 50336)
- 2006/95/CEE (Low Voltage Directive in accordance with standards EN 60335-1 + EN 60335-2-95 + EN 60335-2-97)
- 99/05/CEE (Radio Directive in accordance with standard EN 301 489-3)

Racconigi, lì 28/01/2010
V2 S.p.A. legal representative.
***Cosimo De Falco***



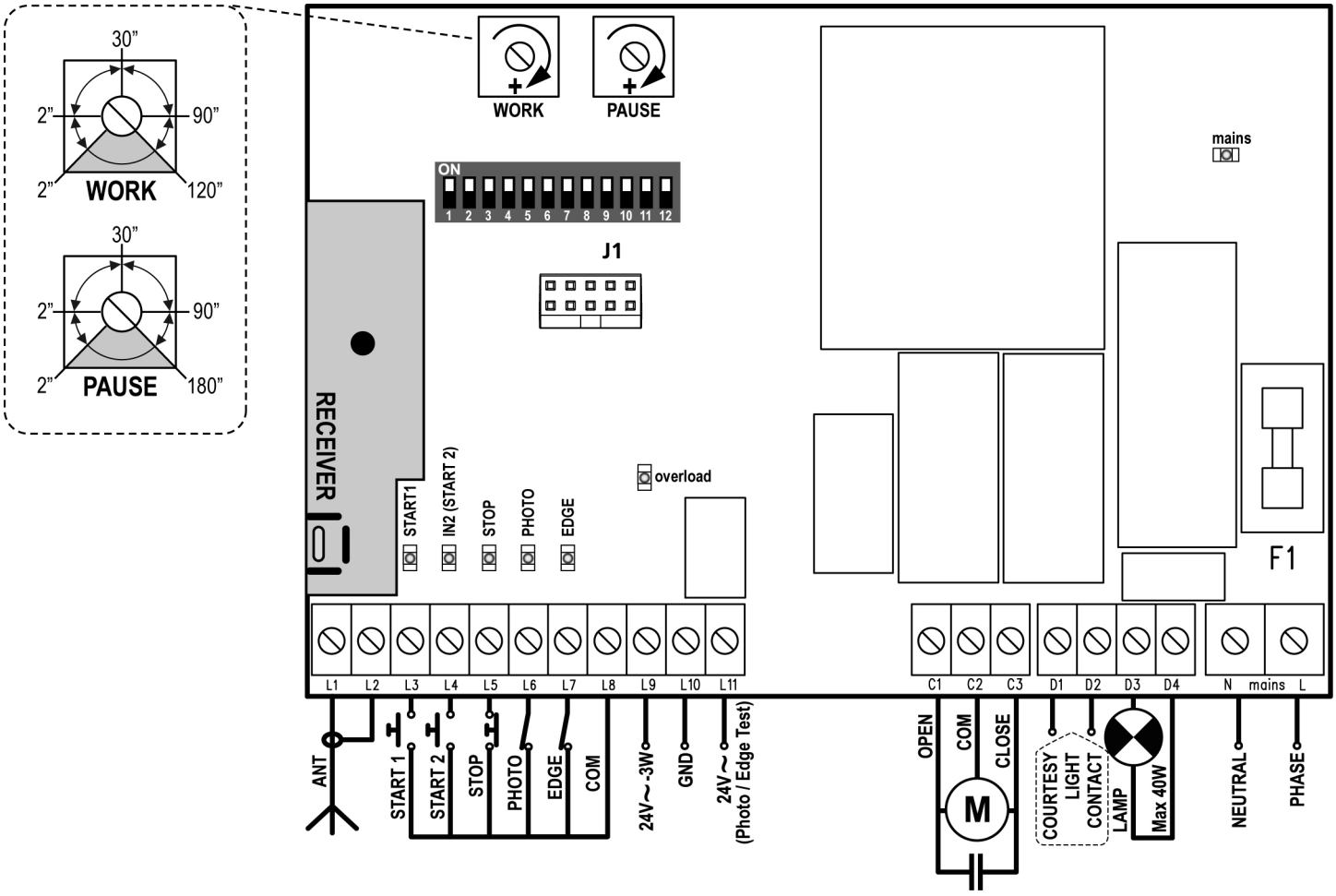
## DESCRIPTION OF THE CONTROL UNIT

The EASY2 control unit is an innovative V2 product guaranteeing safety and reliability for roller shutters and counterweight balanced doors.
The EASY2 design has been aimed at creating a product which adapts to suit all needs, thus obtaining an extremely versatile control unit satisfying all the necessary requirements for a functional and efficient installation.

- 230V - 50Hz or 120V - 60Hz power supplies, depending on the model, for 1 x 700 W max. single phase motor.
- 2 inputs for key selector switch or button activation.
- Input for safety photocell.
- Input for safety edge, capable of handling standard edges with switch normally closed, optical edges and conductive rubber edges with nominal resistance of 8.2 kOhms.
- Output for blinking light, 120/230V - 40W
- Pre-opening safety device testing.
- Dip-switch programmable operational logic.
- Adjustment of the operation time by means of a trimmer.
- Quick plug-in connector for inserting a **Mr1** series receiver.
- LED monitoring of inputs.
- Courtesy light output.
- IP55 casing.

| **TECHNICAL SPECIFICATIONS** | 230V models | 120V models |
|---|---|---|
| Power supply | 230V / 50Hz | 120V / 60Hz |
| Max motor load | 700W | 700W |
| Max accessories load 24V | 3W | 3W |
| Working temperature | -20 ÷ +60 °C | -20 ÷ +60 °C |
| Protection fuse | F1 = 5A delayed | F1 = 8A delayed |
| Dimensions | 170 x 185 x 70 mm | |
| Weight | 800 g | |
| Protection | IP55 | |

## ELECTRICAL CONNECTION TABLE




⚠ **PLEASE NOTE: If not used, the normally closed inputs (STOP, PHOTO, EDGE) must be jumpered with the commands common line COM (-). Disable the functional test for photocells and safety devices (Dip 9 and 12 in the OFF position)**

| | |
|---|---|
| **L1** | Antenna |
| **L2** | Antenna shield |
| **L3** | START1 - Activation input 1 for connection to traditional devices with NO contacts (open/close) |
| **L4** | START2 - Activation input 2 for connection to traditional devices with NO contacts (close/timer) |
| **L5** | STOP command. N.C. switch |
| **L6** | Photocell. N.C. switch |
| **L7** | Edge. Switch N.C. or resistive rubber edge |
| **L8** | Commands common (-) line |
| **L9 - L10** | Power output 24 Vac for RX photocell and accessories |
| **L10 - L11** | Power supply for functional test TX photocell |

| | |
|---|---|
| **C1** | Motor open |
| **C2** | Motor common |
| **C3** | Motor close |
| **D1 - D2** | Courtesy light timer activation switch |
| **D3 - D4** | 230V - 40W / 120V - 40W blinker |
| **N** | 230V / 120V power supply - neutral |
| **L** | 230V / 120V power supply - phase |
| **J1** | NOT USED |

## FAULT MESSAGES

At the start of each operating cycle, the controller performs an operational test of the motor drive circuit (Triac). Furthermore, if enabled by the relative dipswitch, it also performs a test of the photocell and safety device inputs.
If a fault occurs, the cycle does not start.

The messages are indicated by the blinker:
- Blinks about 4 seconds: Triac fault (or motor disconnected)
- Blinks about 8 seconds: Photocell or safety device fault

## ADJUSTMENT OF OPERATING TIMES

The operating times can be adjusted using two trimmers on the controller:

**WORK:** Operating time for the motor (2 to 120 seconds)

⚠ **WARNING: The times must be adjusted with the shutter in standby**

**PAUSE:** Pause time that precedes automatic closure (2 to 180 seconds)

## CONTROL UNIT INDICATORS (LEDS)

The highlighted boxes indicate the state of the LEDs when the roller shutter is resting.

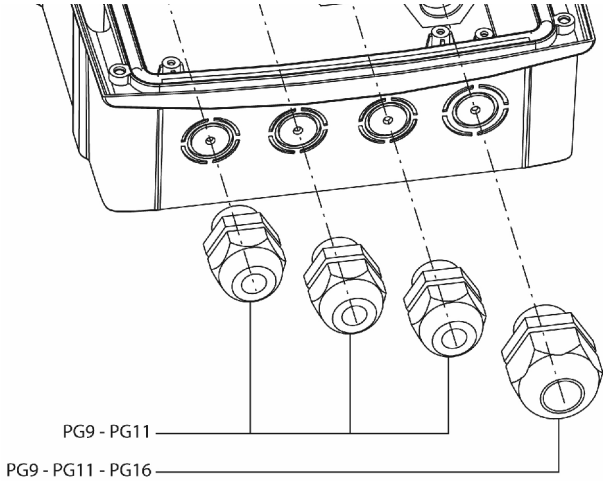
| LED | ON | OFF |
|---|---|---|
| **START** | START1 input closed | START1 input open |
| **IN2** | START2 input closed | START2 input open |
| **STOP** | STOP input closed | STOP input open |
| **PHOTO** | PHOTO input closed | PHOTO input open |
| **EDGE** | Standard edge | |
| | EDGE input closed (edge not pressed) | EDGE input open (edge pressed) |
| | Resistive rubber edge | |
| | EDGE input closed (edge pressed) | EDGE input open (fault) |
| | Edge NO pressed: 8K2 between EDGE input and common (-) | |
| **mains** | Control unit powered-up | Control unit NOT powered-up |
| **overload** | Accessory power supply overload | Accessory power supply within normal operational limits |

## CABLE GLAND ASSEMBLY

The casing can accept 4 cable glands in the special easy-break housings. The type of cable gland is indicated in the figure.

⚠ **PLEASE NOTE:**

- Remove the electronic circuit board before drill the casing.
- Drill the container using a suitably sized cutter, according to the dimensions of the cable gland.
- Fix the cable glands using the special nuts.

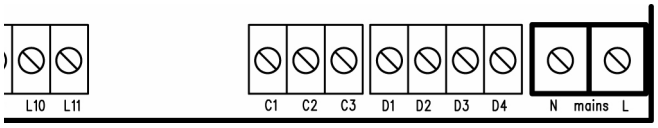



## INSTALLATION

Installation of the control unit, the safety devices and accessories must be performed with the power supply disconnected.

## POWER SUPPLY

The control unit must be powered by means of a 230 V - 50 Hz or 120 V - 60 Hz power line, depending on the model, protected by a differential magnetothermal switch in compliance with legal regulations.
Connect the power cables to the control unit **L** and **N** terminals.

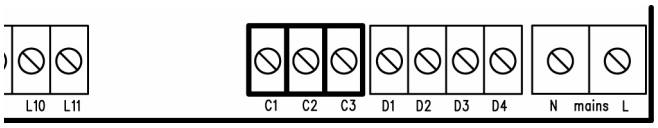



## MOTOR

The controller can drive an alternating current asynchronous motor equipped with limit switch

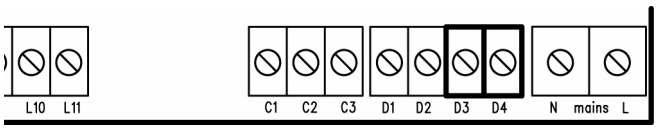
Connect the cables for motor as follows:

- Opening cable to terminal **C1**
- Closing cable to terminal **C3**
- Common return cable to terminal **C2**




## BLINKER

The control unit provides for the use of a 230 V - 40 W or 120 V - 40 W blinker with built-in intermittence.
Connect the cables to terminals **D3** and **D4**.

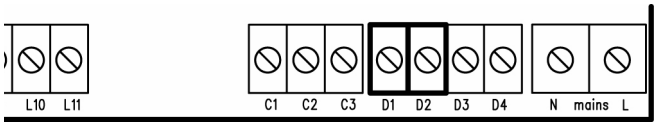



## COURTESY LIGHT

This output has a normally-open clean contact relay which closes for approx. 1 second at the start of an opening phase. This switch may be used to activate a courtesy light timer (max. load: 230V - 4A).

**PLEASE NOTE:** If there is no timer, the courtesy light can be controlled using channel 4 of receiver MR1: bistable or timer programmable channel (read the instructions for the receiver MR1 thoroughly).

The switch is on terminals **D1** and **D2**.



## PHOTOCELLS

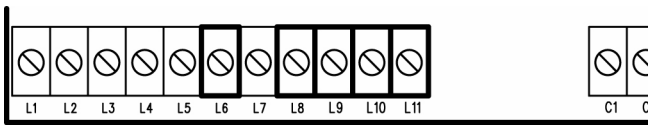
The control unit has a 24VAC power supply for photocells with switch normally closed, and can perform an operational test before starting the roller shutter opening procedure.

The photocell can be used with two settings:

1. **Photocell always active:**
   Intervention of the photocell during opening or closing causes the roller shutter to stop.
   When the photocell restores, the roller shutter re-opens completely.
2. **Photocell NOT active during opening:**
   Intervention of the photocell during opening is ignored.
   Intervention of the photocell during closing causes the gate to re-open completely.

Independently of the setting selected, when the gate is paused while opening, the time count for any automatic re-closure will only start after the photocell restores.

- Connect the photocell transmitter power cables between terminals **L10** (GND) and **L11** (+) on the control unit.
- Connect the photocell receiver power cables between terminals **L10** (GND) and **L9** (+) on the control unit.
- Connect the photocell receiver output between terminals **L6** and **L8** on the control unit.




## SAFETY EDGES

The control unit has an input for controlling safety edges; this input is capable of controlling standard edges with switch normally closed and conductive rubber edges with nominal resistance of 8.2 kOhms.

Edges can be used with two settings:

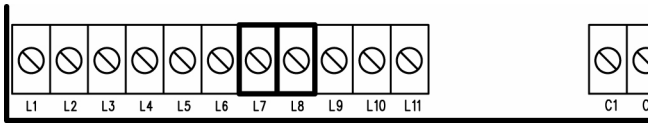
1. **Edge always active:**
   Intervention of the photocell during opening or closing causes the roller shutter to stop.
2. **Edge NOT active during opening:**
   Intervention of the edge during opening is ignored.
   Intervention of the edge during closing causes the roller shutter re-open completely.

Independently of the settings selected, any subsequent automatic re-closure will be cancelled.

**Standard edge with switch normally closed:** connect the edge cables between terminals **L7** and **L8** on the control unit.

In order to satisfy the requirements of standard EN12978, it is necessary to install safety edges with a control unit which constantly monitors correct operation. If control units are used with the option of running tests by means of interrupting the power supply, connect the control unit power supply cables between terminals **L10** (GND) and **L11** (+).

Conductive rubber edge: connect the edge cables between terminals **L7** and **L8** on the control unit.




⚠ **PLEASE NOTE:** operational testing on edges is reserved for optical edges and standard edges (only if equipped with suitable control units).
**DO NOT enable testing if conductive rubber edges are used or standard edges used without a suitable control unit for controlling function.**

⚠ **NOTE:** use the special interface (code 35A024) for connection of the optical bars, de-activating the operational test on the bars.

## START INPUTS

The START1 and START2 inputs are factory set for connection to devices with normally open (NO) contacts. Their operation depends on the operating mode set on dipswitches 1, 2, 3, 4, 5, and 6.

**1. DEAD MAN function (Dip 1 ON)**
The user opens (START1) and closes (START2) maintaining this command active.

⚠ **WARNING:** The settings of Dips 2, 4, 5, and 6 are ignored.

| | | |
|---|---|---|
| **Dip 1** | **ON** | DEAD MAN function enabled |
| **Dip 2** | | CLOCK Function disabled regardless of the position of Dip 2. |
| **Dip 3** | **ON** | Individual Controls: START1 opens, START2 closes (Up-Down) |
| | **OFF** | Unified Controls: START1 opens and closes (Start-Stop) START2 disabled |
| **Dip 4** | | Automatic closure disabled regardless of the position of Dip 4. |
| **Dip 5** | | Condominium logic disabled regardless of the position of Dip 5. |
| **Dip 6** | | Inversion mode disabled regardless of the position of Dip 6. |

**WARNING:** with the DEAD MAN function on, the intervention of the photocell or of the safety edge during the closure phase always makes the rolling shutter to stop.

**2. CLOCK Function (Dip 2 ON)**

⚠ **WARNING:** Set Dip 1 to OFF.

START1 Input: Normal impulse input, able to manage opening and closing, even if the CLOCK function is active.

START2 Input: Timer input. When the START2 input is activated, the shutter opens and closes automatically only after the input is deactivated.
If automatic closure is activated (Dip 4 ON), when the timer is deactivated the shutter does not close immediately; it closes after the set pause time.

| | | |
|---|---|---|
| **Dip 1** | **OFF** | The DEAD MAN function must be disabled |
| **Dip 2** | **ON** | Clock Function enabled |
| **Dip 3** | | START1 and START2 have different functions regardless of the position of Dip 3 |
| **Dip 4** | **ON** | When the START2 input is released, the pause time countdown starts, after which the shutter closes |
| | **OFF** | When the START2 input is released, the shutter closes immediately |

| | | |
|---|---|---|
| **Dip 5** | **ON** | The START1 input impulse is not accepted when opening (Condominium Logic) |
| | **OFF** | The START1 input impulse is accepted even when opening |
| **Dip 6** | **ON** | The input impulse on opening/closure causes direction change |
| | **OFF** | The input impulse on opening/closure causes stop (Step-Step Logic) |

**3. Standard Function (Dip 1 OFF / DIP 2 OFF)**
The following options are available:

Up-Down Operation (Dip 3 ON)
START1 controls opening (open-stop-open-stop)
START2 controls closure (close–stop-close-stop)

Start-Stop Operation (Dip 3 OFF)
START1 controls opening and closure (open-stop-close-stop)
START2 is disabled

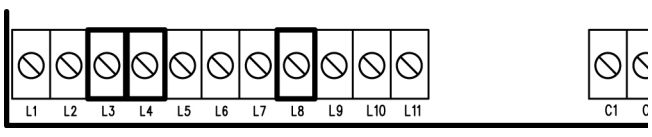
Automatic Closure (Dip 4 ON)
Enable closing at the end of the pause time

Condominium Operation (Dip 5 ON)
Open commands are ignored if the shutter is already opening

Inversion mode (Dip 6 ON)
If Start-Stop operation is enabled, START1 changes the direction of the motion during opening and closing instead of stopping the shutter

| | | | |
|---|---|---|---|
| **Dip 1** | **OFF** | DEAD MAN function disabled | |
| **Dip 2** | **OFF** | Clock Function disabled | |
| **Dip 3** | **ON** | Individual Controls: START1 opens, START2 closes (up-down) | |
| | **OFF** | Unified Controls: START1 opens and closes (start-stop) | |
| **Dip 4** | **ON** | Automatic Closure Enabled | |
| | **OFF** | Automatic Closure Disabled | |
| **Dip 5** | **ON** | START1 ignored when opening (Condominium Logic) | |
| | **OFF** | START1 accepted when opening | |
| **Dip 6** | **ON** | "Direction Change" Logic | Only applied to the START1 input when in the Start-Stop mode. |
| | **OFF** | Step-Step Logic | |

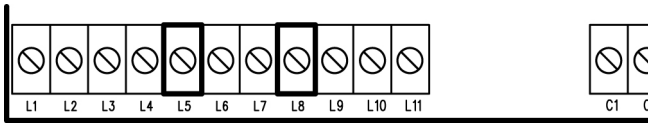
Connect the wires of the device that controls the START1 input between terminals **L3** and **L8** on the controller.
Connect the wires of the device that controls the START2 input between terminals **L4** and **L8** on the controller.




## STOP

The STOP input is intended for devices with the switch normally closed. The STOP command causes the immediate stop of the roller shutter.
If the STOP command is given during opening or pause, then there will be no subsequent automatic re-closure.

Connect the stop input control device cables between terminals **L5** and **L8** on the control unit.




## PLUG-IN RECEIVER

The control unit is suitable for plugging-in an MR1 series receiver with high sensitivity super-heterodyne architecture.

⚠ **PLEASE NOTE:** Disconnect the power to the control unit before performing the following operations. Pay the utmost attention to the direction of insertion of plug-in modules.

The MR1 receiver module has 4 channels, each with an associated command on the control unit:

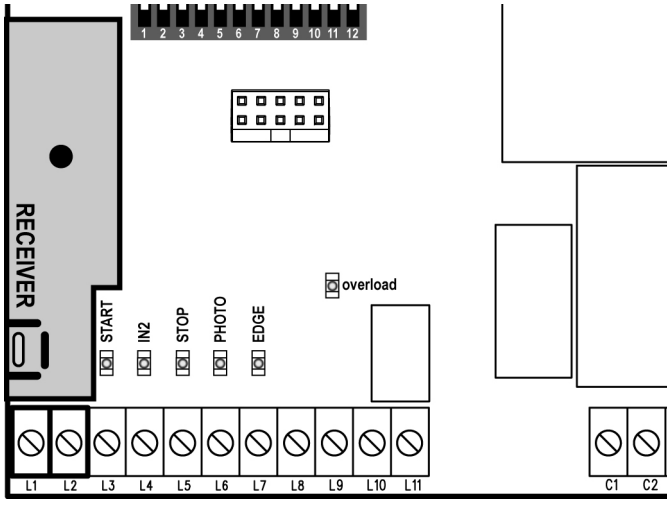
- CHANNEL 1 → START1
- CHANNEL 2 → START2
- CHANNEL 3 → STOP
- CHANNEL 4 → COURTESY LIGHTS

The functional logic for channels 1 and 2 is the same as that set for the START1 and START2 inputs on the terminal board.

⚠ **PLEASE NOTE:**
Read the instructions supplied with the MR1 receiver thoroughly for details on programming the 4 channels and the operational logic.

## EXTERNAL ANTENNA

It is recommended the external antenna be used in order to guarantee maximum radio capacity.
Connect the antenna hot pole to terminal **L1** of the control unit and the braiding to terminal **L2**.




ENGLISH

## PROGRAMMING THE OPERATIONAL LOGIC

It is possible for the control unit to use several different operational logic states, by simply moving the dip-switches located on the card. The functions associated with each individual dip-switch are listed below.

| DIP | FUNCTION | SETTING | | DESCRIPTION |
|---|---|---|---|---|
| 1 | DEAD MAN function | ON | Enabled | The user opens and closes maintaining this command active |
| | | OFF | Disabled | |
| 2 | CLOCK Function | ON | Enabled | When the START2 input is activated, the shutter opens and automatically closes only after the input is deactivated |
| | | OFF | Disabled | |
| 3 | Start Command | ON | Up-Down | START1 controls opening / START2 controls closure |
| | | OFF | Start-Stop | START1 controls opening and closure / START2 is disabled |
| 4 | Automatic Closure | ON | Enabled | The rolling shutter is closed automatically after the time set on the PAUSE trimmer |
| | | OFF | Disabled | The rolling shutter remains open when the open phase ends. Closure must be commanded with another START command |
| 5 | Start when Opening | ON | Enabled | A START command during opening is ignored |
| | | OFF | Disabled | A START command during opening is accepted |
| 6 | Inversion mode (START1) | ON | Enabled | START during opening causes closure. START during closure causes opening. |
| | | OFF | Disabled | Step-Step Operation |
| 7 | Pre-flashing | ON | Disabled | The blinker turns on when the motor is activated |
| | | OFF | Enabled | The blinker turns on for 2 seconds and then the motor is started |
| 8 | Photocell | ON | Always active | Activation of the photocell during opening or closing causes the shutter to stop. When the photocell is reset, the shutter will open completely. |
| | | OFF | NOT active during opening | Activation of the photocell during opening is ignored. Activation of the photocell during closing causes the complete reopening of the shutter. |
| 9 | Test Photocell | ON | Enabled | The controller performs a functional test on the photocells before starting each open or close operation. If the photocells doe not function correctly, the shutter will not move and the blinker will blink for about 8 seconds. **WARNING: Correctly connect the TX of the photocell (see page 10).** |
| | | OFF | Disabled | |
| 10 | Type of Safety Device | ON | Conductive rubber edge | Select this operation if you use conductive rubber safety devices with a nominal resistance of 8K2. |
| | | OFF | Standard or optical edge | Select this option if you use traditional safety devices with a normally closed (NC) contact or with an optical safety device. |
| 11 | Safety Device | ON | Always active | Activation of the safety device during opening or closing causes the shutter to stop. **Automatic closure is cancelled** |
| | | OFF | NOT active during opening | Activation of the safety device during opening is ignored. Activation of the safety device during closing causes the complete reopening of the shutter. **Automatic closure is cancelled** |
| 12 | Test Safety Device | ON | Enabled | The controller performs a functional test of the safety devices before each open or close start. If the safety devices do not function correctly, the shutter will not move and the blinker will blink for about 8 seconds. **Do NOT enable the test function if you use conductive rubber safety devices or traditional safety devices that are not equipped with a special controller for their operation.** |
| | | OFF | Disabled | |

## FAULT MESSAGES

At the start of each operating cycle, the controller performs an operational test of the motor drive circuit (Triac). Furthermore, if enabled by the relative dipswitch, it also performs a test of the photocell and safety device inputs. If a fault occurs, the cycle does not start.

The messages are indicated by the warning light:

- Blinks about 4 seconds: Triac fault (or motor disconnected)
- Blinks about 8 seconds: Photocell or safety device fault