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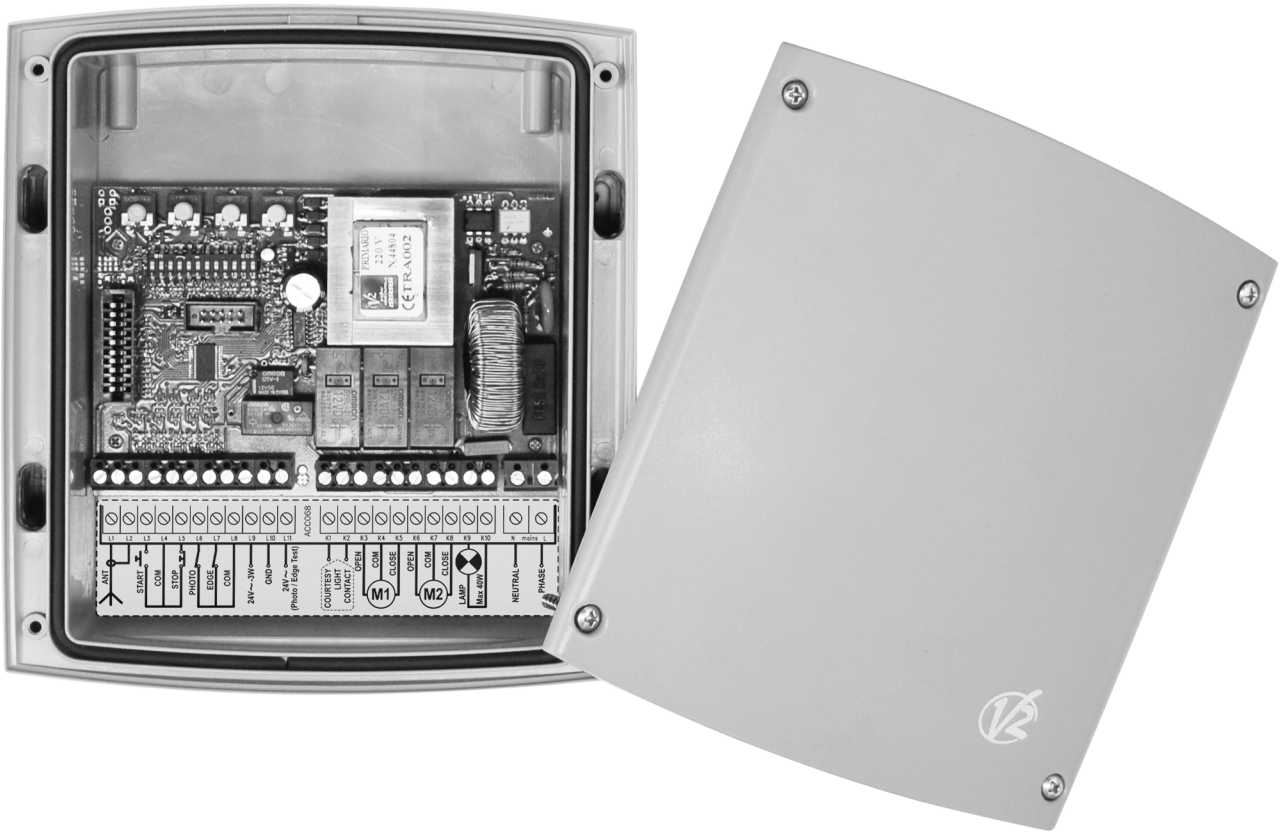
City7 (Pr. 1.0)



I **CENTRALE DI COMANDO ANALOGICA PER CANCELLI A BATTENTE**

GB **ANALOGUE CONTROL UNIT FOR SWING GATES**

F **ARMOIRE DE COMMANDE ANALOGIQUE POUR PORTAILS BATTANTS**

E **CUADRO DE MANIOBRA ANALÓGICO PARA CANCELAS A BATIENTE**

P **QUADRO DE COMANDO ANALÓGICO PARA PORTÕES DE BATENTE**

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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 CITY7 products conform to the essential requirements established in the following directives:

- 89/336/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 60335-2-103)
- 99/05/CEE (Radio Directive in accordance with standard EN 301 489-3)

Racconigi, lì 14/06/2007
V2 S.p.A. legal representative.
A.Livio Costamagna

DESCRIPTION OF THE CONTROL UNIT

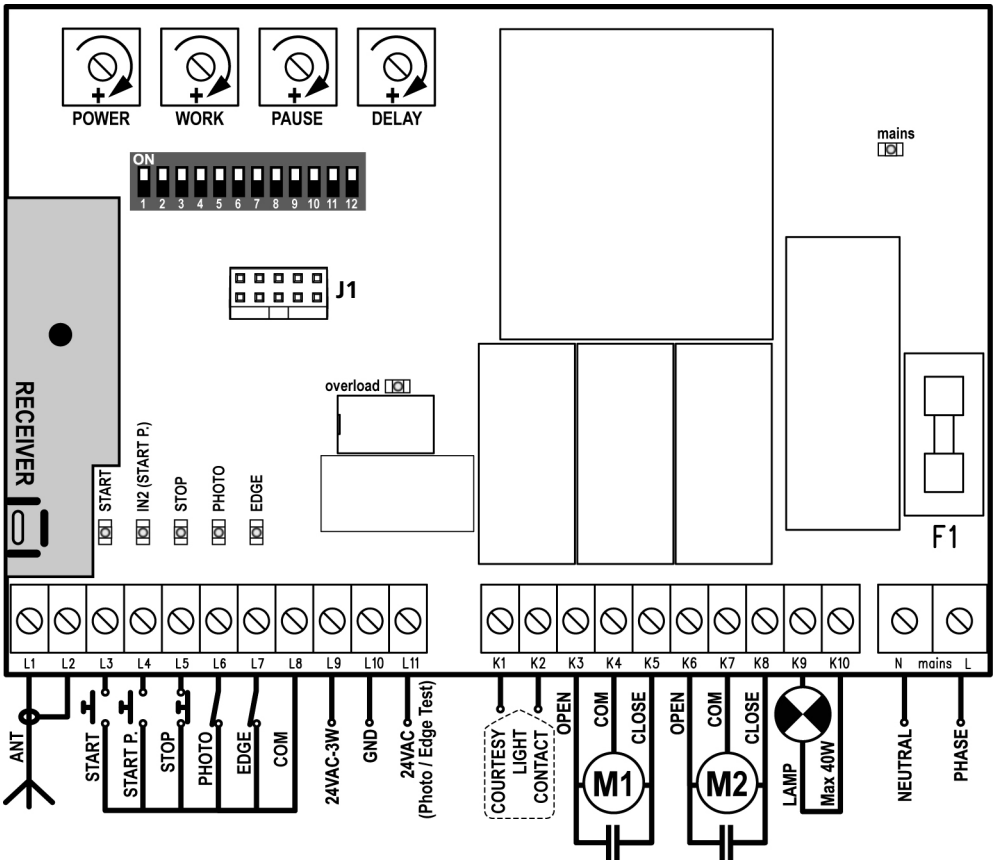
The CITY7 control unit is an innovative V2 product guaranteeing safety and reliability for swing gate automation.
The CITY7 design has been aimed at creating a product which adapts to suit all needs, thus obtaining an extremely versatile control unit satisfying all the necessary requirements for a functional and efficient installation.

- 230V - 50Hz or 120V - 60Hz power supplies, depending on the model, for 2 single phase motors (700W global).
- Input for keyswitch or push-button.
- Input for safety photocell.
- Input for safety edge, capable of handling standard edges with switch normally closed and conductive rubber edges with nominal resistance of 8.2 kOhms.
- Pre-opening safety device testing.
- Dip-switch programmable operational logic.
- Adjustment of motor power and 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 motors 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 (-)



L1	Antenna
L2	Antenna shield
L3	Opening command for a standard connection device with switch normally open.
L4	Pedestrian opening command for a standard connection device with switch normally open.
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	24 VAC power output for photocells and other accessories
L10 - L11	Power supply for functional test TX photocell

K1 - K2	Courtesy light timer activation switch
K3	Motor 1 open
K4	Motor 1 common
K5	Motor 1 close
K6	Motor 2 open
K7	Motor 2 common
K8	Motor 2 closed
K9 - K10	230V - 40W / 120V - 40W blinker
N	230V / 120V power supply - neutral
L	230V / 120V power supply - phase
J1	NOT USED

ADJUSTMENT OF THE POWER AND OPERATIONAL TIMES

The power and operating times may be adjusted by means of 4 trimmers located on the control unit:

POWER: motor power.
WORK: motor operating time (5 - 120 seconds).

⚠ **PLEASE NOTE:** it is recommended that operating times be set with the slow down function disabled (DIP 5 OFF).

PAUSE: pause time before automatic re-closure (5 - 120 seconds).
DELAY: time delay between the two gate leaves (0 - 60 seconds).

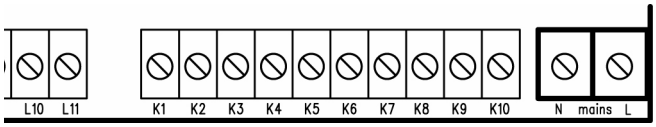
CONTROL UNIT INDICATORS (LEDS)

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

LED	ON	OFF
START	START input closed	START input open
IN2	START P. input closed	START P. 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

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

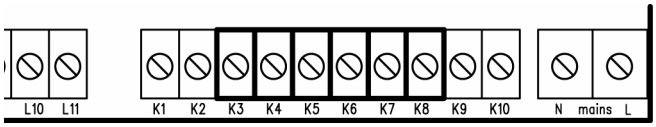
POWER SUPPLY
The control unit must be powered by means of a 230 V - 50 Hz or 120 V - 60 Hz power line, depending on the model, protected by a differential magnetothermal switch in compliance with legal regulations.
Connect the power cables to the control unit **L** and **N** terminals.



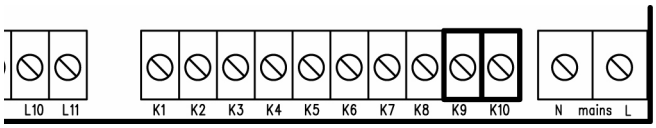
MOTORS
The control unit can control one or two asynchronous AC motors. If the control unit is used to control only one motor, then this must be connected to the terminals relating to motor 1.

Connect the cables for motor 1 as follows:
- Opening cable to terminal **K3**
- Closing cable to terminal **K5**
- Common return cable to terminal **K4**
- Start-up capacitor between terminals **K3** and **K5**

Connect the cables for motor 2 (if present) as follows:
- Opening cable to terminal **K6**
- Closing cable to terminal **K8**
- Common return cable to terminal **K7**
- Start-up capacitor between terminals **K6** and **K8**



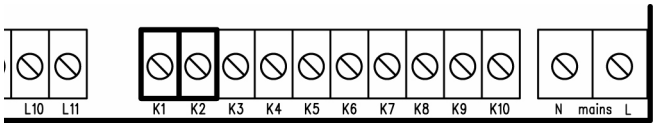
BLINKER
The control unit provides for the use of a 230V - 40W or 120V - 40W blinker with built-in intermittence.
Connect the cables to terminals **K9** and **K10**.



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 - 4 A).

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 **K1** and **K2**.

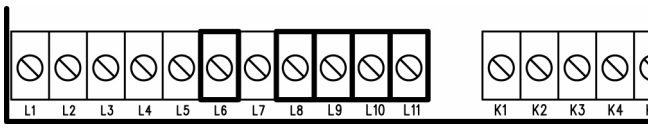


PHOTOCELLS
The control unit has a 24VAC power supply for photocells with switch normally closed, and can perform an operational test before to starting the gate opening procedure.

The photocell can be used with two settings:
1. **Photocell always active:**
   Intervention of the photocell during opening or closing causes the gate to stop.
   When the photocell restores, the gate 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.



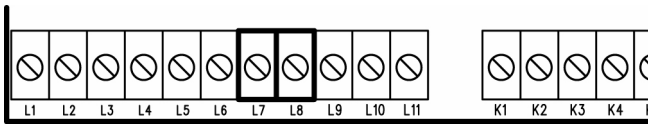
SAFETY EDGES
The control unit has an input for controlling safety edges; this input is capable of controlling standard edges with switch normally closed and conductive rubber edges with nominal resistance of 8.2 kOhms.

Edges can be used with two settings:
1. **Edge always active:**
   Intervention of the edge during opening or closing causes inversion of the direction of movement in order to free the body that caused the edge to intervene.
   The gate stops after approx. 3 seconds.
2. **Edge NOT active during opening:**
   Intervention of the edge during opening is ignored.
   Intervention of the edge during closing causes the gate to re-open completely.

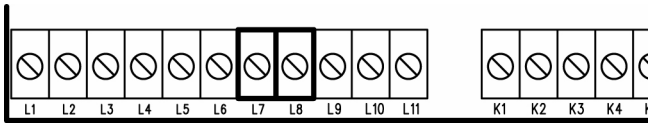
Independently of the settings selected, any subsequent automatic re-closure will be cancelled.

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 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 INPUT

The START input is preset for connecting devices with the switch normally open. Function depends on the mode of operation set by means of dip-switch 4.

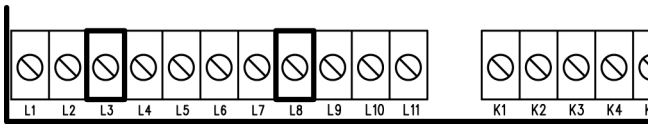
Step mode
Subsequent Start command cause, in order:

→ opening → stop → closure → stop →

"Inversion" mode
Start during opening causes closure.
Start during closure causes opening.
Start with the gate open always results in closure;
The only case where this does not occur immediately is when automatic closure is enabled and start while opening is not accepted: in this specific case, start makes the pause time count start from zero, after which the gate will be re-closed.

In both modes it is possible to disable the Start command during gate opening by means of dip-switch 3.

Connect the start input control device cables between terminals **L3** and **L8** on the control unit.

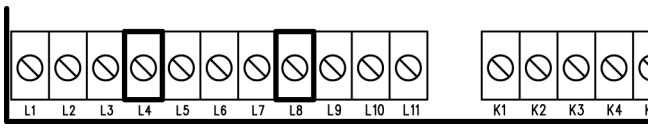


PEDESTRIAN START

With the gate closed, the pedestrian start command causes partial opening (approx. half way) of the gate leaf connected to motor 1. Subsequent pedestrian start commands will function according to step logic.

During a pedestrian cycle, the start command results in the complete opening of both gate leaves.

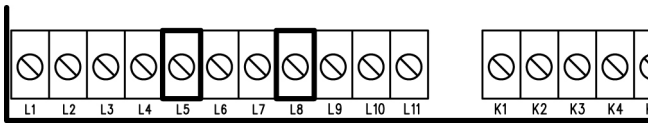
Connect the pedestrian start input control device cables between terminals **L4** and **L8** on the control unit.



STOP

The STOP input is intended for devices with the switch normally closed.
The STOP command causes the immediate stop of the gate.
A subsequent START command activates the gate in the opposite direction of movement.
If the STOP command is given during opening or pause, then there will be no subsequent automatic re-closure.

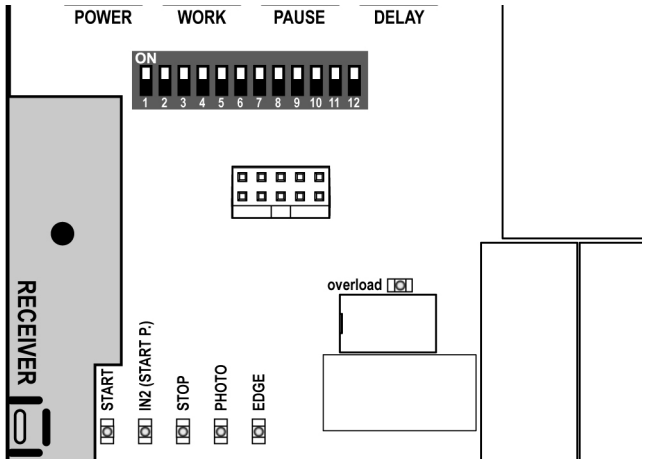
Connect the stop input control device cables between terminals **L5** and **L8** on the control unit.



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.



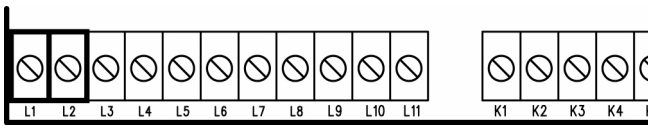
The MR1 receiver module has 4 channels, each with an associated command on the **City7** control unit:

- CHANNEL 1 → START
- CHANNEL 2 → PEDESTRIAN START
- CHANNEL 3 → STOP
- CHANNEL 4 → COURTESY LIGHTS

⚠ **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**.



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	Pre-flashing	ON	Disabled	The blinker is switched on when the motors are started
		OFF	Enabled	The blinker is switched on for 2 seconds before the motors are started
2	Automatic closure	ON	Enabled	The gate is closed automatically after the period of time set by the PAUSE trimmer
		OFF	Disabled	On completion of the opening step, the gate remains open. It is necessary to instruct closure with another START command
3	Start opening	ON	Not accepted	Any START command issued during opening is ignored
		OFF	Accepted	Any START command issued during opening is accepted
4	Operational logic	ON	Inversion	Start during opening causes closure. Start during closure causes opening.
		OFF	Step	Commands subsequent to starting cause, in order: open → stop → close → stop...
5	Slow down	ON	Enabled	At the end of each opening and closing step, the motors slow down in order to avoid noisy closure and bouncing.
		OFF	Disabled	
6	Start off	ON	Disabled	At the start of each opening and closing step, the motors are started at maximum power
		OFF	Enabled	
7	Anti-slip	ON	Disabled	The time used for opening or closure will always be the value set by the WORK trimmer, even if the previous operation has been interrupted before the expiry of such time.
		OFF	Enabled	When an opening (or closing) operation is interrupted before expiry of the set time (for example due to the intervention of one of the safety devices or due to a start command), the duration of the subsequent closing (or opening) operation will not be that set by the WORK trimmer, but will be equal to the time effectively elapsed, plus a short supplemental time in order to compensate for the inertia of the gate.
8	Photocell	ON	Always active	Intervention of the photocell during opening or closing causes the gate to stop. When the photocell restores, the gate re-opens completely.
		OFF	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.
9	Photocell test	ON	Enabled	The control unit performs a photocell operational test before starting each opening or closing operation. If the photocells are not operating correctly, the gate does not begin to move and the light flashes for approx. 8 seconds. **PLEASE NOTE: connect the photocell TX correctly**
		OFF	Disabled	
10	Safety edge type	ON	Conductive rubber edge	Select this option if using conductive rubber edges with nominal resistance of 8K2.
		OFF	Standard or optical edge	Select this option if using standard edges with switch normally closed or optical edges.
11	Safety edge	ON	Always active	Intervention of the edge during opening or closing causes inversion of the direction of movement in order to free the body that caused the edge to intervene. The gate will be stopped after approx. 3 seconds.
		OFF	NOT active during opening:	Intervention of the edge during opening is ignored. Intervention of the edge during closing causes the gate to be re-opened completely.
12	Safety edge test	ON	Enabled	The control unit performs an operational test on the edges before starting each opening or closing operation. If the edges are not operating correctly, the gate does not begin to move and the light flashes for approx. 8 seconds. **DO NOT enable testing if conductive rubber edges are used or standard edges are used without a suitable control unit for controlling function.**
		OFF	Disabled	

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.