

# ELECTRONIC CONTROL UNIT MC1



Single-phase electronic control unit for the automation of sliding gates with incorporated radio receiver.

## TECHNICAL DATA:

- Power supply : 230 V ac 50-60Hz 1100W max.
- Flashing beacon output : 230 V ac 500 W max.
- Motor output : 230 V ac 500 W max.
- Auxiliary power output : 24 V a/c 3 W max.
- Stop limit and low voltage commands : 24 V cc
- Working temperature : -10 ÷ 55 °C
- Radio receiver : 433,92 MHz
- Op. transmitters : 12-18 Bit or Rolling Code
- Max stored TX codes : 215 (CODE + CODE PED)
- Box dimensions : 110x121x47 mm.
- Container : ABS V-0 (IP54).

## TERMINAL BOARD CONNECTIONS:

### CN1:

- 1 : 230 V a/c line input (Phase).
- 2 : 230 V a/c line input (Neutral).
- 3 : 230 V a/c flashing line input (Neutral).
- 4 : 230 V a/c flashing line input (Phase).
- 5 : Opening motor output.
- 6 : Common motor output.
- 7 : Closing motor output.

### CN2:

- 1 : Service power supply output 24 V a/c 3 W.
- 2 : Service power supply output 24 V a/c 3 W.
- 3 : Open-close command button input (NA).
- 4 : Common GND input.
- 5 : Safety device input (NC).
- 6 : Opening stop limit input (NC).
- 7 : Common GND input.
- 8 : Closing stop limit input (NC).
- 9 : Earth antenna input.
- 10: Antenna hot pole input.

## FUNCTIONAL DATA:

### Step-by-Step Operation:

Using both the radio control (CODE LED illuminated) and the low voltage push-button station (PUL) to control the gate, the following operation is obtained:

the first impulse opens the gate until the motor timer reaches zero or until the opening stop limit is reached, the second impulse closes the shutter; if an impulse arrives before the opening stop limit is reached, the control unit **stops** motion during both opening and closing. A further command restarts motion in the opposite direction.

### Automatic closing:

The control unit can close the gate automatically without sending additional commands.

The selection of this operation mode is described in the Pause Time programming mode.

### Pedestrian Passage:

If selected (PED CODE LED illuminated), using the pedestrian radio control to control the gate, the following operation is obtained: the first press is a command for the gate to open for 10 seconds, then the control unit pauses for 10 seconds and the gate closes again.

### Safety device:

The control unit enables power supply and connection for photoelectric cells and pneumatic buffers (NC).

No action is taken into account during the opening stage and causes inverted motor action during the closing stage. If not used, this input must be bridged.

### Initial pick-up and Motor Power Adjustment:

The electronic control unit is equipped with initial pick-up and motor power adjustment functions that are fully managed by the microprocessor.

The initial pick-up function is used to help the motor in its initial activation stage, powering it at the maximum level for 2 seconds, even if the motor power adjustment function is enabled.

The motor power adjustment function is used to ensure the correct motion of the gate, blocking it in case of obstruction without causing harm to individuals or their property.

### Deceleration:

The motor deceleration function is used to avoid the gates moving at high speed towards the end of the opening and closing stages.

Deceleration can be programmed for the desired points (before the gates are totally open or closed) during Motor Timer programming.

### Flashing Beacon Operation:

The control unit is equipped with output for a 230 V a/c flashing beacon. The flashing beacon is only activated when the motor is running.

### Operation with TIMER:

The control unit may be connected to a timer instead of using the open-close command button (PUL).

Example: at 8:00 a.m. the timer closes the contact and the control unit opens the gate; at 6:00 p.m. the timer opens the contact and the control unit closes the gate. Between 8:00 a.m. and 6:00 p.m. at the end of the opening phase, the control unit disables the flashing beacon, the automatic closing stage and the radio controls.

## PROGRAMMING:

**SEL key:** selects the type of function to be stored; selection is indicated by a flashing LED.

By pressing the key repeatedly, you can select the desired function. The selection remains active for 10 seconds (indicated by the flashing LED); after 10 seconds, the control unit returns to its original status.

**SET key:** programmes the information according to the type of function selected previously using the SEL key.

**IMPORTANT:** The function of the SET key can be replaced with the radio control, if programmed previously (CODE LED on).

## MAIN MENU

The control unit is supplied by the manufacturer with the option of selecting a number of principal functions.

----- MAIN MENU -----		
LED Reference	LED Off	LED On
1) CODE	No code	Code inserted
2) CODE PED.	No code	Code inserted
3) INB.CMD.AP	Disabled	Enabled
4) LAMP/CORT.	Flashing	Courtesy light
5) T. MOT.	Programmed time 30 sec.	Programmed time
6) T. PAUSA.	No automatic closure	Automatic closure

### 1) CODE: (Radio control code)

The control unit can store up to 215 radio controls with different fixed or rolling codes.

### Programming.

To programme the transmission code, proceed as follows: use the SEL key when the CODE LED is flashing and send the

desired code with the relevant radio control; programming has been completed when the CODE LED remains lit constantly. *If you have stored 215 codes and you repeat the programming operation, all the programming LEDs will start flashing to indicate that no more codes can be stored.*

**Deleting the codes.**

To delete all transmission codes stored in the memory, proceed as follows: press the SEL key and the CODE LED will start flashing, then press the SET key: the CODE LED will switch off and the procedure is complete.

**Warning that radio control is already stored or not storable:**

The control unit can store up to 215 radio controls with different fixed or rolling codes. If the user attempts to perform the programming procedure for a radio control which is already stored in the memory or is not storable, the CODE LED will begin to flash rapidly for a few moments to indicate that this procedure cannot be performed; the unit then returns to the programming stage once again.

**2) CODE PED:** (Pedestrian radio control code).

The programming and deleting procedure is the same as the one illustrated above, but instead referring to the PEDONALE CODE LED.

**3) INB. CMD. AP:** (command inhibition during opening and pause time, if entered)

The command inhibition function during opening and pause time, if entered, is used when automation includes the loop detector. During opening or pause time the control unit ignores the commands given by the loop detector at every passage.

The control unit is supplied with the default setting of the command inhibition function during opening and pause time not enabled. To enable the function proceed as follows: use the SEL key to navigate to INB.CMD.AP when the relevant LED is flashing, then press the SET key: the INB.CMD.AP LED lights up and remains constant. Repeat the operation to restore the previous configuration.

**4) LAMP/CORT:** (Flashing beacon or courtesy light selection)

The control unit has an output of 230 V a/c 500 W for connection to a flashing beacon or courtesy light.

The control unit is supplied by the manufacturer with the flashing beacon function enabled (even when the unit is paused). To enable the flashing beacon function proceed as follows: use the SEL button to navigate to LAMP/CORT. when the corresponding LED is flashing, then press the SET button: the LAMP/CORT. LED lights up and remains constant.

Repeat the operation to restore the default configuration.

To enable the courtesy light, repeat the operation above, by pressing the SEL button twice (LAMP/CORT LED flashes rapidly) instead of once. Repeat the operation to restore the default configuration.

**Flashing beacon function while the unit is paused:**

The 230 V a/c output will activate every time automation takes place, for the duration of the motor timer. If the Pause Time is stored, the 230 V a/c output will also be active during the Pause.

**Flashing Beacon Operation:** The 230 V a/c output will activate every time automation takes place, for the duration of the motor timer.

**Courtesy Light Operation:** The 230 V a/c output will activate for 3 minutes every time an opening command is given.

**5) MOTOR TIME and DECELERATION:** (Programming a motor operation time of max. 4 minutes)

The control unit is supplied by the manufacturer with a default motor operation time of 30 seconds, without deceleration.

To modify the motor operation time, proceed as follows when the gate is closed: use the SEL key to navigate to T. MOT. when the corresponding LED is flashing, then press the SET key briefly and the Motor will begin its opening cycle; when the initial point of deceleration is reached press the SET key again

and the motor will decelerate until the desired position is reached. Press the SET key to complete the opening cycle. The T. MOT. LED will start flashing rapidly; now repeat the programming operation relating to the motor timer and deceleration for the closing cycle. To deactivate the deceleration function during programming, once the opening and closing cycle is completed, press the SET key twice in succession instead of just once.

*During programming the radio control key on the control unit can be used instead of the SET key, if stored previously.*

**6) T. PAUSA:** (Programming the aut. closing time - 4 min. max.)

The control unit is supplied by the manufacturer without an automatic closing procedure. To enable the automatic closing function proceed as follows: use the SEL key to navigate to T. PAUSA when the corresponding LED is flashing, then press the SET key and wait for the required pause time, then press the SET key again briefly; the automatic closing time is stored and the T. PAUSA LED remains lit constantly.

To restore the initial configuration (without automatic closing) navigate to T.PAUSA when the corresponding LED is flashing then press the SET key twice within 2 seconds; the LED switches off and the operation is complete.

*During programming the radio control key on the control unit can be used instead of the SET key, if stored previously.*

**EXTENDED MENU 1**

The control unit is supplied by the manufacturer with only the option of directly selecting the functions listed in the main menu.

To enable the functions listed in extended menu 1, proceed as follows: press the SET button and hold for 5 seconds; the T. MOT. and T. PAUSA LEDs will flash alternately and the user has 30 seconds within which to select the functions of extended menu 1 using the SEL and SET buttons. When this time has elapsed the control unit returns to the main menu.

----- EXTENDED MENU 1 -----		
LED Reference	LED Off	LED On
A) CODE	Remote PGM = OFF	Remote PGM = ON
B) CODE PED.	Step-by-Step	Automatic Operation
C) INB.CMD.A	Pressure Maintenance = OFF	Press. Mainten. = ON
D) LAMP/CORT	Electronic Brake= OFF	Electronic Brake = ON
E) T. MOT.	Flashing beacon ON/OFF	
F) T. PAUSA.	Flashing beacon ON/OFF	

**A) CODE**

**(Remote programming of radio control):**

The control unit allows the transmission code to be programmed by remote, without using the SEL key.

To programme the transmission code from remote proceed as follows: send the radio control code continuously for more than 10 seconds and the control unit will enter the programming mode as described above for the CODE LED in the main menu.

The control unit is supplied by the manufacturer with remote programming of the transmission code not enabled; to enable the function proceed as follows: check that the extended menu 1 is enabled (the T. MOT. and T. PAUSA LEDs start flashing alternately), use the SEL key to navigate to the CODE when the corresponding LED is flashing and press the SET key: the CODE is enabled and programming is complete. Repeat the operation to restore the previous configuration.

**B) PED. CODE. (Step-by-Step / Automatic Operation):**

The control unit is supplied by the manufacturer with the Automatic operation function disabled. To enable the function proceed as follows: check that the extended menu 1 is enabled (the T. MOT. and T. PAUSA LEDs start flashing alternately), use the SEL key to navigate to PED. CODE

when the corresponding LED is flashing and press the SET key: the PED. CODE LED lights up and programming is complete.

By using both the radio control and the low voltage push-button station to control the shutter, the following operation may be obtained: the first press opens the shutter until the programmed motor time elapses while the second press closes it; if a button is pressed before the programmed motor time has elapsed, the control unit **inverts** the motion, whether during the opening or closing process. Repeat the operation to restore the previous configuration.

**C) INB. CMD. AP (Maintaining Hydraulic Motor Pressure):**

The control unit is supplied by the manufacturer with the hydraulic motor pressure maintenance disabled. To enable the function proceed as follows: check that the extended menu 1 is enabled (the T. MOT. and T. PAUSA LEDs start flashing alternatively), use the SEL key to navigate to INB. CMD. AP. when the corresponding LED is flashing and press the SET key: the INB. CMD. AP. LED lights up and programming is complete. In this way the control unit will send a closing command to the motor every 2 hours for 2 seconds. Repeat the operation to restore the previous configuration.

**D) LAMP/CORT (Electronic Brake):**

The control unit is supplied by the manufacturer with the electronic brake function disabled. To enable the function proceed as follows: check that the extended menu 1 is enabled (the T. MOT. and T. PAUSA LEDs start flashing alternatively), use the SEL key to navigate to LAMP/CORT. when the corresponding LED is flashing and press the SET key: the LAMP/CORT. switches on and programming is complete. The control unit reduces the forward motion of the gate due to inertia in the presence of a stop or inversion command. Repeat the operation to restore the previous configuration.

The control unit is supplied by the manufacturer with the Soft Start operation mode disabled. To enable the function proceed as follows: check that extended menu 2 is enabled (T. MOT. and T. PAUSA LEDs flash simultaneously), use the “SEL” button to navigate to the CODE PED LED when flashing and press the “SET” button: the CODE PED LED remains permanently lit and programming is complete. This means that at every start of movement, the control unit will govern the way the motor starts, bringing the power in gradually, from minimum to maximum in the first 2 seconds of operation. Repeat the operation to restore the previous configuration.

**C) INB. CMD. AP (User present during closure operation) :**

The control unit is supplied by the manufacturer with the user present during closure function disabled. To enable the function proceed as follows: make sure that extended menu 2 is enabled (the T. MOT. and T. PAUSA LEDs flash simultaneously), use the SEL button to navigate to INB. CMD. AP. when the corresponding LED is flashing and press the SET button: the INB. CMD. AP. switches on and programming is complete. The control unit will now operate in User Present mode during the closure phase. Repeat the operation to restore the previous configuration.

**D) LAMP/CORT (Selecting Input PUL = PUL / D.S. ):**

The control unit is supplied by the manufacturer with Input PUL = PUL, i.e. with the operation mode for the normal connection of the command button (NO). If you wish to define Input PUL = D.S., i.e. with the operating mode for the connection of a safety device (NC) (intervention during the opening stage causes the opening gate to stop immediately, followed directly by a brief inversion of the direction of travel), proceed as follows: check that extended menu 2 is enabled (T. MOT. and T. PAUSA LEDs start flashing simultaneously), press the SEL button until the LAMP/CORT LED flashes and press the SET button: the LAMP/CORT LED remains permanently lit and programming is complete.

**Warning: connect any safety device only after programming Input PUL = D.S. If necessary, it is possible to restore the previous configuration, taking care to disconnect the safety device first.**

**RESET:**

To restore the default configuration, press the SEL and SET keys simultaneously, all **RED** LEDs will light up and then switch off.

**DIAGNOSTICS:**

**Command input test:**

The control unit is fitted with an LED for every low voltage command input so that the status may be monitored immediately.

Operation principle: LED on = input closed, LED off = input open.

**EXTENDED MENU 2**

The control unit is supplied by the manufacturer with only the option of directly selecting the functions listed in the main menu.

To enable the functions listed in extended menu 2, proceed as follows: access extended menu 1 (as described in the relevant paragraph), then press the SET button again and hold for 5 seconds; the T. MOT. and T. PAUSA LEDs will flash simultaneously and the user has 30 seconds within which to select the functions of extended menu 2 using the SEL and SET buttons. When this time has elapsed the control unit returns to the main menu.

EXTENDED MENU 2		
LED status	LED off	LED on
A) CODE	1 sec. inversion time	0.5 sec. inversion time
3) PED. CODE	Soft Start = OFF	Soft Start = ON
C) INB.CMD.AP	User present CH = OFF	User present CH = ON
D) LAMP/CORT	Input PUL = PUL	Input PUL = D.S.
E) T. MOT.	Simultaneous flashing beacon ON/OFF	
F) T. PAUSA.	Simultaneous flashing beacon ON/OFF	

**A) CODE (Inversion Time Selection 1 s / 0.5 s ):**

The control unit is supplied by the manufacturer with the time taken to invert the rotation movement of the motor set at about 1 second; to increase the inversion speed to about 0.5 second, proceed as follows: check that extended menu 2 is enabled (T. MOT. and T. PAUSA LEDs start flashing simultaneously), use the “SEL” button to navigate to the CODE LED when flashing and press the “SET” button: the CODE LED remains permanently lit and programming is complete. Repeat the operation to restore the previous configuration.

**B) PED. CODE ( Soft Start ) :**

## **NOTES FOR THE INSTALLER**

The control unit was designed for installation with other components (motor, gate, safety devices) in order to form a finished product (machine) in compliance with the Machines Directive.

The safety of the final installation site and adherence to all current legislation is the responsibility of the individual assembling the various parts to construct a complete closure device.

### **We advise that you also take note of the following recommendations:**

- Before shutter automation, it is necessary to check the product is in good condition and that it complies with EN 12604 and the Machines Directive.
- The wiring of external electrical components must comply with EN 60204-1 as amended in section 5.2.7 of EN 12453. Power supply leads and connection cables must be secured through the use of cable clamps, which are supplied with the product.
- The motor reducer used to move the shutter must comply with section 5.2.7. of EN 12453.
- If present, the keypad for manual control must be mounted in such a way that the user is not placed in a dangerous situation, in compliance with point 5.2.8 of EN 12453.
- The control unit is not equipped with a 230 V a/c electric line sectioning device. The installer is responsible for installing a sectioning device in the system. An omnipolar switch with overheating category III must be installed. The sectioning device must be positioned so that it is protected against accidental closure, in compliance with section 5.2.9 of standard EN 12453.
- In compliance with section 5.4.2 of EN 12453 it is recommended that motor reducers fitted with an electromechanical unlocking device are used, so that the shutter can be moved manually if necessary.
- In compliance with section 5.4.3 of EN 12453, electromechanical unlocking systems or similar devices should be used as these enable the shutter to stop safely at its stop limit.
- Power supply and motor connection cables which are suitable for use in conjunction with the pg9 cable clamps provided must have an external diameter with a measurement between 4.5 and 7 mm. The internal conductor wires must have a nominal cross-section of 0.75 mm<sup>2</sup>. If a channel is not used, we recommend that cables in H05RR-F material are used.
- Once installation is complete, all the checks listed in EN 12453 – EN 12445 must be performed so as to ensure that closure occurs in compliance with all stipulations.
- For the radio receiver to operate correctly when two or more control units are used, we recommend that you install the devices at least 3 metres away from each other.

- The device should not be used by children or by individuals with reduced physical or psychological abilities unless supervision is provided or instruction given on how to operate it.

- Do not let children play with the device; keep radio controls out of their reach.

- CAUTION: Keep this instruction manual in a safe place and adhere to the important safety instructions contained within it. Non-adherence to these instructions may lead to property damage and serious accidents.

- Examine the system frequently to check for any signs of damage. Do not use the device if it needs to be repaired.

### **Warning**

All operations which require the casing to be opened (such as wire connection, programming, etc.) must be carried out during installation, by skilled staff only.

For any other procedure which requires the casing to be opened again (programming, repairs or site modifications), please contact the technical assistance service.

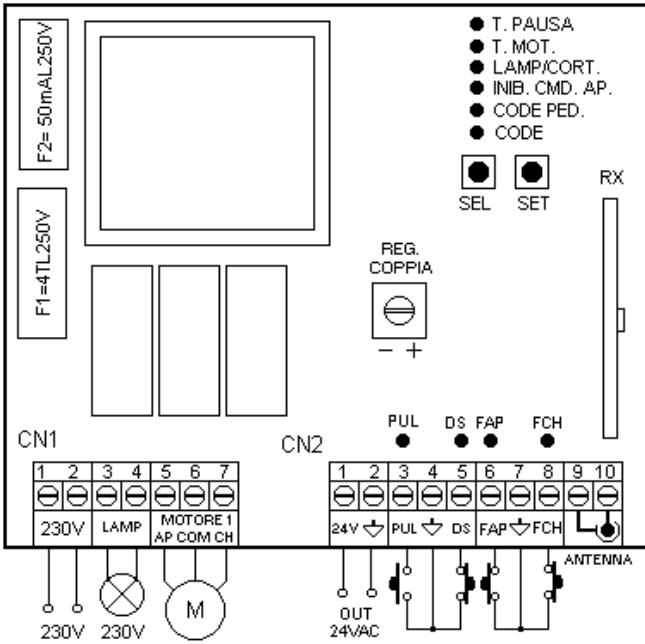
**FOR THE USER - IMPORTANT**



Stateurop hereby declares that the below product:

**Electronic Control Unit:  
MC1**

comply with the requirements of Directives  
R&TTE 99/5/EC, EMC 2004/108/EC, LVD 2006/95/EC.



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