
CTR57

MANUALE D'ISTRUZIONI
INSTRUCTIONS MANUAL
MANUEL D'EMPLOI

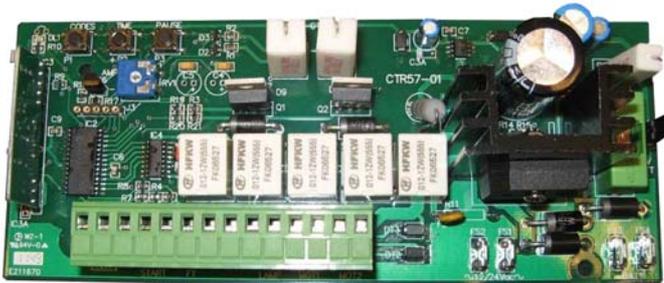


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A) – Scope of the device

The electronic board controls one or two low voltage motors that operate at 12Vdc or 24Vdc for the automation of a single or two-wing gate.

B) – Limits to use

Caution : Before operating the electronic unit make sure the following operations have been carried out.

Note 1 – Read carefully the whole technical documentation supplied.

Note 2 – The electronic unit must be installed by qualified personnel only. The installation engineer must have the necessary technical and professional qualification.

Note 3 – The mains power supply connected to the unit must be 230Vac +/- 10%.

Note 4 – The neutral (N) pole of the mains power supply must be unipotential to the ground.

Note 5 – All security norms for the installation of electric and electronic devices must be respected.

Note 6 – The mains power must be supplied with an efficient differential switch tested and calibrated in conformity with the applicable rules.

Note 7 – Before installing the electronic unit check the motors to which it will be connected. When the motors are connected to a suitable battery the torque they apply to the gate must respect the applicable rules and, in any case, it must be such that in case of collision no damage will be caused to persons, animals or objects.

Note 8 – The unit must be applied for the intended use only (see point A). All other use is to be considered improper and dangerous.

Note 9 – Before acceding to the electronic unit's box for any intervention check that the mains power has been cut off.

Note 10 – Do not access the unit with wet/damp hand or feet.

Note 11 – Do not expose the unit to weather (rain, snow, etc.)

Note 12 – Do not allow any children or unqualified persons to touch the unit.

Note 13 – The electronic unit must be placed in the box supplied.

Note 14 – The electronic board must be installed in a well aired place far from any objects or elements that can cause fire.

Note 15 – The ordinary maintenance of electronic unit must be executed by qualified personnel every 6 months.

Caution: Failure to respect the above listed norms can cause damage to persons, animals or objects. The manufacturer can in no way be held responsible for such damage.

C) – Installation

- 1) Unscrew the screws of the cover and lift the cover. Check that the electronic unit is in good order. In case of doubt do not install the unit and ask for the intervention of qualified personnel. The container's accessories (screws, round seal, cable glands) must not be left within the reach of children since they are a potential danger.
- 2) Check that the electronic unit is properly fixed to its box. If not, tighten all screws or provide the missing screws.
- 3) Place the unit near the gate so that the system connection wires' length is reduced to the minimum.
Caution: For the unit's correct operation the wires connected to it must not be longer than 10 metres.
- 4) For increased weather protection we recommend to place the unit under a roof or, even better, in an enclosure having two side walls. Wherever possible, it is advisable to install the unit at a minimum 1,5 mt level above the ground to keep it out of the reach of children.
- 5) Before proceeding to assembly place the container so that the side fitted with the cable glands is directed towards the ground.
Caution: Do not assemble the container on wood surfaces.
- 6) Lift the mobile portion of the connector and proceed to connect the unit wires as described in the following chapters.
Caution : The motors, battery and blinker connection wires must have a 2,5 mm² minimum size.

D) - Operation

1) Definitions of Controls

Start

Input connected to a push-button placed outside the unit. It is employed to request the gate's opening or closure (for both wings). This input is usually connected to a key push-button.

2) Definitions of Safety devices

Photo-cell

Input connected to an optical barrier. It detects and signal the passage of persons or vehicles in the area crossed by the gate or in the nearby area.

3) Definitions of Outputs

Blinker

Lamp's on/off control. The lamp functions as a warning and optical signaller of potential danger for the gate's motion.

Motor 1

Output for the opening/closure control of the motor which drives the first gate wing during the closing phase.

Motor 2

Output for the opening/closure control of the motor which drives the gate wing delayed during the closing phase.

4) Definitions of Power Supply Inputs/Outputs

AC IN (FS1 - FS2)

12Vac or 20Vac input for the electronic board power supply.

OUT 12Vdc

Power supply output for the photo-cell and/or any other accessory devices.

BATT IN (FS3 - FS4)

Input for a 12Vdc or 24Vdc backup battery connection, it depends on the power supply in use.

Attention: Set up the jumper JP1 in the right position in order to avoid damages of the equipment and/or battery.

5) Definitions of Accessory inputs**Aerial**

Input for the connection of a radio aerial.

6) Definitions of Optical Signals**DL1 – Programming led (red)**

It is lit together with the blinker, in the programming phase and during the gate's motion.

It signals the closing limit switch state for Motor 2. The led goes off when the closing limit switch is operated.

7) Definitions of Trimmer**RV1 – Slow-down speed**

It defines the gate's speed during the slow-down phase.

8) Definitions of Jumper**Jumper JP1 - Battery charger**

In position 1-2 it enables a 12Vdc battery charger. In position 2-3 it enables a 24Vdc battery charger.

JP1 - Battery charger

9) Definitions of Programming Keys

P1 - Allows to insert/cancel the remote control codes in the memory

P2 - Allows to set the motors' work time

P3 - Allows to set the pause time

10) Definitions of Protection Fuses

F1 – Battery fuse (10A - Fast)

It disconnects the backup battery from the electronic card in case of short-circuit or electric current consumption anomalies.

F2 - Services resettable fuse (0,5A - Slow)

It protects the electronic unit in case of short circuits or over-currents on photo-cells or any other accessory devices connected to the card.

11) Technical features

Power supply

The electric power is supplied to the electronic card and the motors by means of an electric transformer fitted with a protection fuse. The appliance may be connected to an optional backup battery for the automation system to work in case of absence of Mains power supply.

Battery can be 12Vdc / 7Ah or 24Vdc / 4 Ah, it depends on the power supply in use.

Radioreceiver

The electronic unit contains a two-channel radio receiver allowing remote control of the gate by means of the radio transmitter. The radio receiver channel 1 acts as **Start** control and channel 2 acts as **Pedestrian start**. Pedestrian start control can be supplied only by remote control and it is employed to request the opening or closure of one wing only (M2), see the chapter "Remote control codes self-learning". The radio receiver operates with a self-learning logic and can store up to 50 different codes from the remote controls. Each code may be addressed on the desired channel (start or pedestrian start). The memory contents is preserved in absence of power supply. The memory contents may be erased (total cancellation).

Work time

The motors' work time is controlled by two independent digital timers. If any command interrupts the wing's travel before its end, the Timer stops and the elapsed time is stored in memory. Therefore the unit can determine, with a fair approximation, the partial working time necessary to the wing to end its travel. For the automation system to work properly the work time value to be set (see the chapter "work times setting") must be slightly (approx. 5 sec.) above the wing's real work time. In this way the motor will stop even if the **AMPEROMETRIC STOP** control has not operated. We recommend to adjust the work time so that the wing starts to slow down at min. 50 cm. from the end of its travel. The stop of the wing depends by the current consumed by the motor (Torque). During the normal speed phase, when the motor's current reaches the self-learned value, the gate stops (both wings) in opening and then it reverses its motion for approx. 2 sec., while during the closure phase, the gate stops and reverses its motion after approx. 1,5 sec. After the electric power is supplied to the electronic card (at installation), or after one absence of power supply, when the Start push-button is pressed for the first time the gate performs an opening cycle.

Warning : In case of absence of power supply the position of the shutters will be lost (Timers reset).

Blinker

The electronic card supplies an on/off control (flashing light) to the lamp. The logic of the blinking allows displaying the gate's operating.

Quick flashing light : it signals the opening phase

Slow flashing light : it signals the closing phase

Fixed light : it signals that the gate is blocked in wait that the obstacle that covers the photocell to be removed.

The device supplies an on/off control (flashing light) to the lamp for approx. 1 sec. before the motors start (**pre-alarm**).

M1 delay at opening

The unit causes a fixed delay of approx. 2 seconds between the first wing's (M2) and the second wing's (M1) start during the gate's opening phase.

This delay is imposed irrespective of the position from which the gate starts to open.

n case of absence of power supply, with the backup Battery connected to the card, the blinker flashes every 4 sec. (in opening and closing cycle).

12) Operation modes**Introduction**

The electronic unit contains a micro-processor to control the gate's operation modes. These are the four main operation phases:

- Phase preceding the gate's motion
- Gate's fast motion phase
- Gate's slow motion phase
- Gate's pause phase (open gate)

The unit can function in three modes:

Step by step – This mode is enabled by setting the Pause time to “0” , see the chapter “Pause time setting”

Automatic – This mode is enabled by setting the Pause time by means of **P3** and **P2** keys , see the chapter “Pause time setting”

Condominium– This mode is enabled by setting the Pause time by means of **P3** and **P3** keys , see the chapter “Pause time setting”

Notice: The operation logic setting, the work time programming and the pause time programming must be carried out only if the cycle is concluded or before it starts (with closed gate).

The opening and closure cycles are enabled by a **Start** or **Pedestrian start** control.

Important : Whatever logic has been selected, the first Start command after the power is supplied to the electronic card will always cause the start of an opening cycle.

“Step-by-step” mode

After the power is supplied to the electronic card the first start command determines an opening cycle. During the slow-down phase, at the end of the two work times have operated for both motors, the gate stops. The operating cycle is completed (blinker off) and the system waits for a new start command to determine the closing cycle. If a start command is supplied when the end of travel has not been reached yet the gate stops. A new start command will cause the reversal of the motion.

“Automatic” mode

After the power is supplied to the electronic card the first start command determines an opening cycle. During the slow-down phase, at the end of the two work times have operated for both motors, the gate stops. The pause period starts (blinker off). At the end of the pause period the gate closes automatically. The operating cycle is complete only when the closing motion has ended. If a start command is supplied before the end of travel is reached the gate stops. A new start command will cause the gate to reverse its motion. If a start command is supplied during the pause period the operating cycle is interrupted and the gate does not close automatically. A further start command will determine a closing cycle.

“Condominium” mode

After the power is supplied to the electronic card the first start command determines an opening cycle. During the slow-down phase, at the end of the two work times have operated for both motors, the gate stops. The pause period starts (blinker off). At the end of the pause period the gate closes automatically. The operating cycle is complete only when the closing motion has ended. If a start command is supplied while the gate opens, the command will have no effect. If a start command is supplied while the gate closes, the gate will stop and reverse its motion after approx. 1.5 sec. If a start command is supplied during the pause period, the period will be reset and the automatic closure will start later.

Important : If the gate opening is controlled by a clock the “condominium” mode must be enabled.

Single-wing gate

The electronic card automatically detect the presence of a single-wing gate. In such way only the M2 motor works, and the shutter must be connected to it. The operating modes described above remain unchanged. The **Start** control on the terminal board **J1** will act only on the M2 motor.

Photo-cell : This device has effect only during the closure phase or in the pause period. If an obstacle covers the photo-cell during the closure phase , the gate stops and reverses its motion after approx. 1,5 sec. If an obstacle covers the photo-cell during the pause period this last one is reset and the automatic closure is therefore delayed.

Pedestrian start: The pedestrian start command operates in the same way as the other start command, but in this case only the (M2) wing will be opened or closed. The pedestrian start command has no effect during a start cycle and up to the end of the closing phase (closed gate). During a pedestrian start cycle the start command is always active and causes the start of an opening cycle for both wings.

13) Electrical and mechanical specifications

Dimensions and weight (with plastic box) : 186 x 283 x 112 mm - 2,3 Kg

Power supply transformer : 230/12-20Vac - 100VA

Battery-charger capacity : 0,5A max

Optional battery capacity : 12V-7Ah or 24V-4Ah

Blinker power supply : 12V or 24V - 15W max

Relays contacts capacity : 15A max

Motor power supply : 12Vdc or 24Vdc - 100W max (total)

Accessories power supply : 12Vdc - 3 W max

Operating temperature range : 0 to + 60 °C (internal)

Motors' work time : programmable, 1 to 120 sec.

Pause time : programmable, 1 to 120 sec.

2nd wing closing delay : programmable, 0 to 120 sec.

Amperometric Stop : Automatic

Caution : The unit must be not switched on if the connected loads or the power supply exceed the a.m. limits. Failure to observe this precaution can result in damage to persons, animals or objects for which the manufacturer cannot be held responsible.

14) Electric connections

3 electric connectors are fitted to the card :

1) **J1** 14-pole removable terminal board for the connection of the power devices, commands and safety devices

2) **FS1,FS2** nr. 2 Faston terminal for the connection of the power supply transformer

3) **FS3,FS4** nr. 2 Faston terminal for the connection of a Backup battery. **Warning**: respect the polarities of the battery (see chapter 25).

Terminal board J1

Terminal1 - Aerial cable connection (signal)

Terminal2 - Aerial cable connection (shield)

Terminal3 - Start push-button's normally open electric contact

Terminal4 - Start push-button's normally open electric contact (Common)

Terminal5 - Photo-cell's normally closed electric contact

Terminal6 - Photo-cell's normally closed electric contact (Common)

Terminal7 - Power supply positive for photo-cell or other devices

Terminal8 - Power supply negative for photo-cell or other devices (common)

Terminal9 - Power supply for blinker

Terminal10 - Power supply for blinker

Terminal11 - Motor M1 power supply

Terminal12 - Motor M1 power supply

Terminal13 - Motor M2 power supply

Terminal14 - Motor M2 power supply

E) MAINTENANCE

Warning : The maintenance of the device must be effected only and exclusively by a specialized technician authorized from the Manufacturer. Any operation of maintenance or control of the device must be effected in absence of power supply.

Ordinary maintenance: Every time that it is necessary and however every 6 months is recommended to verify the device operation.

Extraordinary maintenance: In case of failure, remove the device and send it for repair to the manufacturer laboratory or to authorized laboratory.

The Manufacturer is not responsible for missing observance of rules above described.

F) CONFORMITY DECLARATION

Description of the device : **Electronic board for the control of 1 or 2 low voltage 12/24Vdc motors for the automation of a swing gate**

Model : **CTR57**

Rules applied : **EN 61000-6-3, EN 61000-6-1, EN 301489-1, EN 301489-3, EN 300220-2, EN 300220-1, EN 60950-1**

Test laboratory : **NEMKO SPA**

Outcome : **Positive**

The manufacturer declares that the above listed products comply to the norms provided for by directives 2004/108/EC and 2006/95/EC.

Date , 04-01-2012

G) Programming the board

Attention : before proceeding with the programming of the card, it is necessary that all the inputs are connected correctly (see chapters D1 and D2).

Remote control codes self-learning

Press the **P1** key once to insert a “**Start**” code; press the **P1** key twice to insert a “**Pedestrian Start**” code. Each time the push-button is pressed, the led **DL1** flashes in acknowledgement. Subsequent pressures of the **P1** key must be spaced by 1 sec. minimum periods. When the led is lit with a fixed light transmit the code to be learn by means of the remote control.

Erasing all stored codes

Keep pressed the **P1** key until the led **DL1** goes off (about 10 seconds).

Automatic Setting of the work times

Make sure the gate is completely opened. If not, position it manually. Position the trimmer **RV1** to half race and then press once the key **P2**. After a few seconds the gate will perform a series of operations which will allow the equipment to automatically learn the work times.

The programming procedure for the single-wing gates is the same one.

Attention : during the operations of the work times auto-learning all the safety devices are ignored.

Manual Setting of the work times

2-wings gate

Make sure the gate is completely closed. If not, position it manually. Press push-button **P2** until the led **DL1** goes off (about 10 seconds). After a few seconds the gate starts opening at a reduced speed. During this phase adjust the speed by means of the trimmer **RV1** to obtain the desired slow-down. Wait for that both the shutters bump against the mechanical stop. After 2 seconds from the complete opening, push the **P2** key again and wait for the led **DL1** and the blinker to go on with a fixed light. Then push the **P2** key repeatedly (6 times) to program the following operations :

- 1) motor M1 start
- 2) motor M2 start (delayed)
- 3) motor M1 slow-down start
- 4) motor M2 slow-down start
- 5) motor M1 stop (after 5 seconds from the end of the run)
- 6) motor M2 stop (after 5 seconds from the end of the run) - end of programming

Single-wing gate

Make sure the gate is completely closed. If not, position it manually. Press push-button **P2** until the led **DL1** goes off (about 10 seconds). After a few seconds the gate starts opening at a reduced speed. During this phase adjust the speed by means of the trimmer **RV1** to obtain the desired slow-down. Wait for that the shutter bump against the mechanical stop. After 2 seconds from the complete opening, push the **P2** key again and wait for the led **DL1** and the blinker to go on with a fixed light. Then push the **P2** key repeatedly (3 times) to program the following operations :

- 1) motor M2 start
- 2) motor M2 slow-down start
- 3) motor M2 stop (after 5 seconds from the end of the run) - end of programming

Attention : during the work times programming all the safety devices are ignored.

Setting the pause time

“Automatic” mode

Keep pressed the **P3** key until the led **DL1** goes on. Let the desired pause time pass, then press push-button **P2**. **DL1** led will go off.

“Condominium” mode

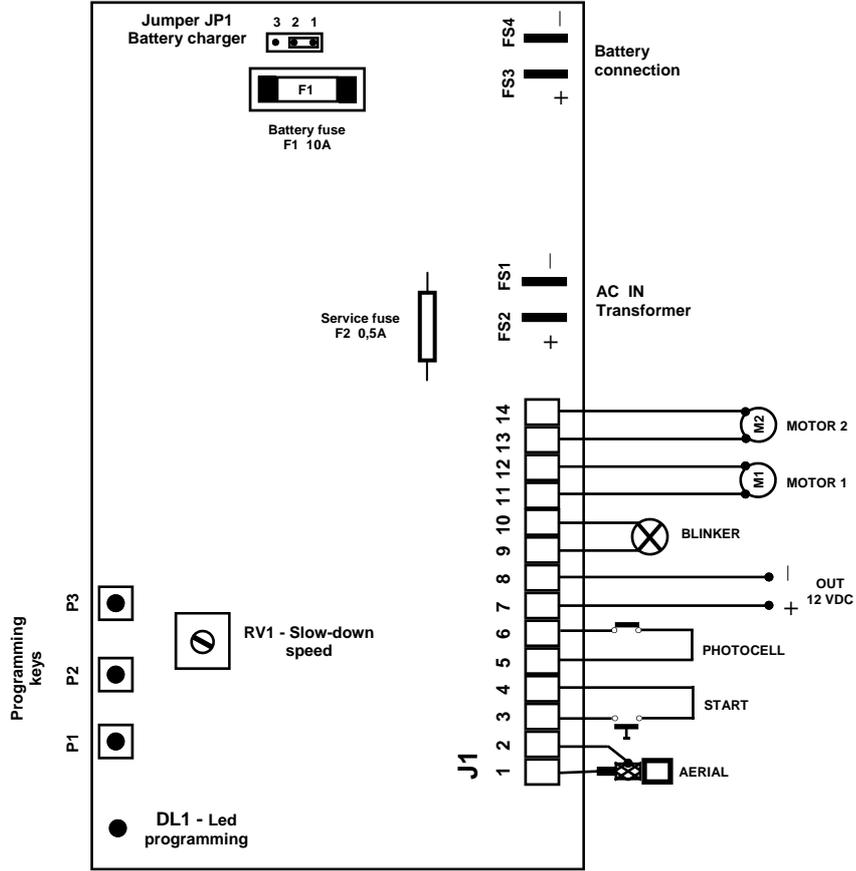
Keep pressed the **P3** key until the led **DL1** goes on. Let the desired pause time pass, then press push-button **P3** again. **DL1** led will go off.

Erasing of the pause time (“Step-by-step” mode)

Keep pressed the **P3** key until the led **DL1** goes off (about 10 seconds).

CTR57

General diagram



CE

