
# CTR58

## INSTRUCTION MANUAL

## A) – Scope of the device

The electronic board controls a motor that operate at 12Vdc or 24Vdc for the automation of a sliding 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 motor to which it will be connected. When the motor is connected to a suitable battery the torque it 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 motor, battery and blinker connection wires must have a 2,5 $mm^2$ 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. 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.

**Photostop**

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.

**Opening Limit Switch (FA)**

Input connected to a switch placed outside the unit. The switch operates when the gate has completed its opening phase.

**Closing Limit Switch (FC)**

Input connected to a switch placed outside the unit. The switch operates when the gate has completed its closing phase.

### 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**

Output for the opening/closure control of the motor which drives the gate.

## 4) Definitions of Power Supply Inputs/Outputs

**AC IN (FS1 - FS2):** 12Vac or 24Vac input for the electronic board power supply.

**OUT 12Vdc (clamps 11-12):** 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 (clamps 1-2):** Input for the connection of a radio aerial.

## 6) Definitions of Optical Signals

**DL1 – Programming led (red):** t is lit together with the blinker, in the programming phase and during the gate's motion.
**DL2 – Led Opening Limit Switch (yellow):** The led goes off when the opening limit switch is operated or when it isn't connected.
**DL3 – Led Closing Limit Switch (yellow):** The led goes off when the closing limit switch is operated or when it isn't connected.
**DL4 – Led Photostop (yellow):** The led goes off when the photoelectric cell is covered or when it isn't connected.
**DL5 – Led Photocell (yellow):** The led goes off when the photocell is covered or when it isn't connected.

## 7) Definitions of Trimmer

**RV1 – Slow-down speed:** It defines the gate's speed during the slow-down phase. It can be adjusted in every moment. Turning clockwise increases speed.

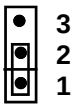
## 8) Definitions of Jumper

**Jumper JP1 - Battery charger**

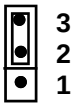
In position 1-2 it enables a 12Vdc battery charger. In position 2-3 it enables a 24Vdc battery charger.

**JP1 - Battery charger**

12Vdc




24Vdc




**WARNING: MAKE SURE THAT THE VOLTAGE IS CORRECT TO AVOID DAMAGES TO THE DEVICE !**

## 9) Definitions of Programming Keys

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

**P2 -** Allows to set the motor's 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 (Rolling code)**

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 partial opening of the gate, see the chapter "Remote control codes self-learning". The radio receiver operates with a self-learning logic and can store up to 50 codes. 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 motor's work time is controlled by a digital timer. 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. 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 absorbed by the motor (Torque). During the normal speed phase, when the motor's current reaches the self-learned value, due to an obstacle, the gate stops. In opening it reverses its motion for approx. 2 sec., while during the closure phase , the gate reverses its motion for all the stroke. 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 gate will be lost (Timer 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
A flash every three seconds: it signals the opening and closing phase in absence of power supply 230Vac.
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 motor's start (**pre-alarm**).

## 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 work time or after the Limit switch (FA) has operated, 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 work time or after the Limit switch (FA) has operated, 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 work time or after the Limit switch (FA) has operated, 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.**

**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.

**Photostop :** If an obstacle covers the photo-stop during the gate's motion (opening or closure), or during the period preceding the operating cycle's start, then the gate is temporarily stopped, until the obstacle is not removed. The blinker will light with a fixed light to signal the irregular condition. When the obstacle is removed and the photo-stop is freed, an opening cycle will start. This does not apply when a start command determines the closing phase in step-by-step mode at the end of an opening cycle. If an obstacle covers the photo-stop 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 it causes the gate's partial opening (approx. 80 cm). 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 a complete opening cycle of the gate.

## 13) Electrical and mechanical specifications

**Dimensions and weight (with plastic box)** : 186 x 283 x 112 mm - 2,3 Kg
**Power supply transformer** : 230/12-24Vac - 100VA
**Battery-charger capacity** : 0,1A max
**Optional battery capacity** : 12V–7Ah or 24V-4Ah
**Blinker power supply** : 12V or 24V - 15W max
**Relays contacts capacity** : 30A max
**Motor power supply** : 12Vdc or 24Vdc - 90W 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.
**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** 16-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 (see page 25) and the voltage (see JP1)

### Terminal board J1

**Terminal1 -** Aerial cable connection (signal)
**Terminal2 -** Aerial cable connection (shield)
**Terminal3 -** Start push-button's normally open electric contact
**Terminal4 -** Common
**Terminal5 -** Motor opening Limit-switch normally closed electric contact
**Terminal6 -** Motor closing Limit-switch normally closed electric contact
**Terminal7 -** Common
**Terminal8 -** Photo-stop's normally closed electric contact
**Terminal9 -** Photo-cell's normally closed electric contact
**Terminal10 -** Common
**Terminal11 -** Positive power supply for photo-cell and/or other devices
**Terminal12 -** Negative power supply for photo-cell and/or other devices
**Terminal13-** Power supply for blinker
**Terminal14 -** Power supply for blinker
**Terminal15 -** Motor power supply
**Terminal16 -** Motor 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 a low voltage 12/24Vdc motor for the automation of a sliding gate** |
| Model : | **CTR58** |
| 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). Attention: with the gate positioned at the half of run, the first command after a power off always determines an opening. If not, reverse the connection of the motor on the terminal board (J1).**

**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).

**PROGRAMMING THE WORKS TIMES**

***IMPORTANT:*** *for a correct current reading, the electric limit-switches must act close to the mechanical stoppers of the gate (within 10 cm).* ***If far, disconnect the limit-switches*** *and to proceed as described below. Once completed the programming phase, connect the electric limit-switches again.*

**1) Automatic setting**

Make sure the gate is completely opened. If not, position it manually. Rotate the trimmer **RV1** at the minimum in counter-clockwise sense 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.

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

**2) Manual setting**

Make sure the gate is completely closed. Press push-button **P2** until the gate is completely opened (approx. 10 sec.). In this phase the gate moves at slow-down speed. During this phase adjust the speed by means of the trimmer **RV1** to obtain the desired slow-down. After 3 seconds from the complete opening of the gate, push the **P2** key repeatedly in the following way:

DL1 and Blinker go ON (press P2 if the Limit-switches are not connected)
1) Start motor
2) Start slow-down motor
3) Stop motor (press P2 if the Limit-switches are not connected)

Attention: the program assigns automatically the position of the beginning of the slow-down in opening.
**The slow-down speed** can be regulated in every moment by means of the trimmer **RV1**.

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

## Logic of operation

The logic of operation is determined by the sequence of pressures of the keys **P2** and **P3**, contextually to the setting of a possible pause time.

### Step by step mode (no pause time)

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

### Automatic mode (with pause time)

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 (with pause time)

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.

# FAR STORING

The control unit has a function called "**Far Storing**". It's a special function that allows the insertion of new remote controls without the need to operate manually on the receiver. The function "**Far Storing**" works only with **SMARTY** remotes (in rolling-code mode), **ROLLY** and all the **Leb**'s rolling-code remotes, even out of production. The procedure is very simple, the only precaution to be observed is to perform operations into the operating range of the receiver. To operate in "**Far Storing**", proceed as follows:

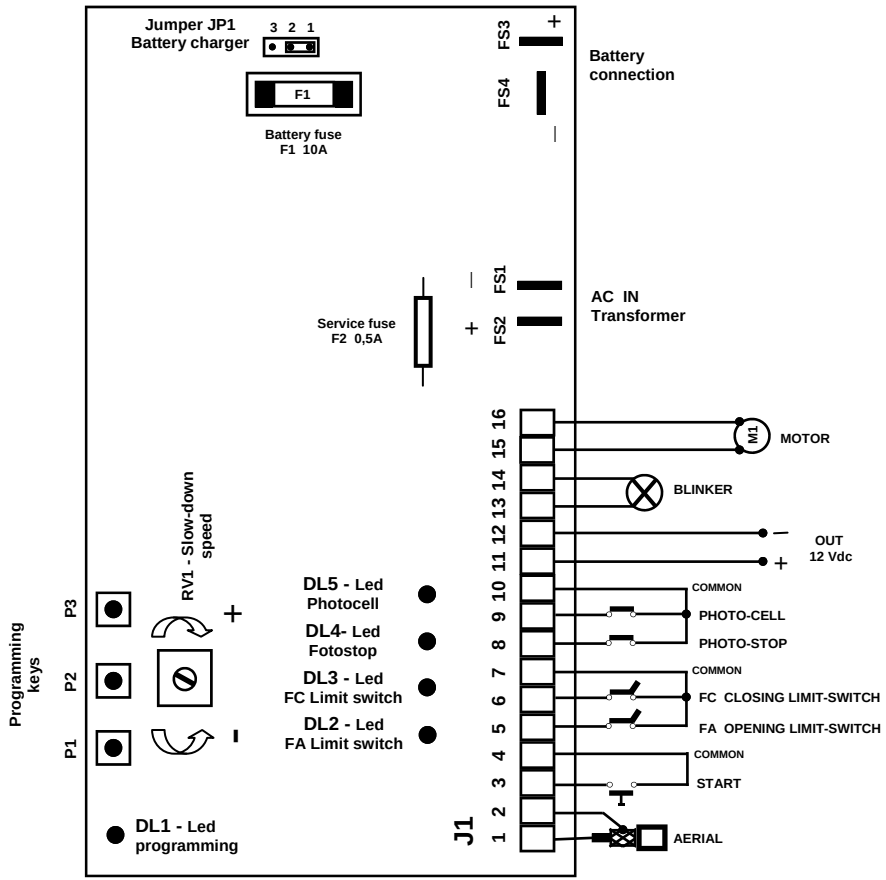
1 - On the new remote to be memorised, press the desired button for about 6 seconds until the Led switches off (on the remote);

2 - On a remote already memorised, press for 2 seconds the button relating to the device that must be controlled by the new remote control (the blinker switches on with fixed light);

3 - On the new remote to be memorised, press the key already pressed to the point 1 for at least 1 second, the blinker switches off and the new remote has been memorised.

# CTR58

## General diagram




Attention: with the gate positioned at the half of run, the first command after a power off always determines an opening. if not, reverse the connection of the motor's terminals (15-16 on J1).

# I) QUICK START GUIDE

## INSTALLATION STEP BY STEP - FAST OPERATION

Once carried out the connections, go ahead with the following procedure:

1. Make sure that the operator is connected to the **terminals 15-16 of the terminal board J1**.
2. Connect the Mains power 230Vac to the device;
3. Insert at least 1 remote control (see pag. 23);
4. **Checking the polarity of the motor**: Manually unblock the operator and place the gate at the half of the run. Block the operator. Press the key of the remote control in order to send a Start command. **The first command after a power off always determines an opening. if not, reverse the connection of the motor on the terminals 15-16 of the terminal board J1;**
5. Check that the limit switch cams are positioned in such a way as to comply with the following table:

| *Position of the gate* | *Led state* | |
|---|---|---|
| | *DL2* | *DL3* |
| Closed | ON | off |
| Opened | off | ON |
| In the middle | ON | ON |

6. If the gate don't move, **check the connections of the safety devices** and, if necessary, **provide to shunt all the NC (normally closed) inputs**, and try again;
7. It is possible to choose the manual or automatic programming, applying one of the following procedures:

   ***AUTOMATIC PROGRAMMING***

   a. Unblock the operator and place the gate at the complete opening. Block the operator and adjust the Trimmer **RV1** at the minimum in counter-clockwise sense.
   b. Press 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.
   c. End of programming

   ***MANUAL PROGRAMMING***

   a. Unblock the operator and place the gate at the complete closing. Block the operator.
   b. See the instructions at page 24 "MANUAL SETTING" up to the end of programming.

8. Set up the logic of operation (step by step, automatic or condominium), pause time and slow down speed (RV1) as indicated in this manual at page 25.

CE