WIL

CE

Control unit

EN - Instructions and warnings for installation and use

IT - Istruzioni ed avvertenze per l'installazione e l'uso

FR - Instructions et avertissements pour l'installation et l'utilisation

ES - Instrucciones y advertencias para la instalación y el uso

DE - Installierungs-und Gebrauchsanleitungen und Hinweise

PL - Instrukcje i ostrzeżenia do instalacji i użytkowania

NL - Aanwijzingen en aanbevelingen voor installatie en gebruik

RU - Инструкции и важная информация для технических специалистов

Nice

EN

Index: **page**

1) Warnings

This manual contains important information regarding safety. Before starting installation of the components, it is important that you read all the information contained herein. Store this manual safely for future use.
Due to the dangers which may arise during both the installation and use, installation must be carried out in full observance of the laws, provisions and rules currently in force to ensure maximum safety.
This chapter provides details of general warnings. Other more specific warnings are detailed in Chapters “3.2 Preliminary Checks” and “6 Testing and Commissioning”.

⚠According to the most recent European legislation, the automation of doors or gates is governed by the provisions listed in Directive 98/37/CE (Machine Directive) and, more specifically the standards: EN 13241-1 (harmonised standard); EN 12445; EN 12453 and EN 12635, which enables the declaration of machine conformity to the machine directive.

Visit “www.niceforyou.com” for further information and guidelines for risk analysis and how to draw up the Technical Documentation. This manual has been especially written for use by qualified fitters. Except for the enclosed specification “Instructions and Warnings for Users” to be removed by the installer, none of the information provided in this manual can be considered as being of interest to the end users!

- Any use or operation not explicitly provided for in these instructions is not permitted. Improper use may cause damage and personal injury.
- A risk analysis must be carried out before starting installation, including a the list of essential safety requisites provided for in Enclosure I of the Machine Directive, indicating the relative solutions employed. N.B. Risk analysis is one of the documents included in the “Technical Documentation” for this automation.
- Check whether additional devices are needed to complete the automation based on the specific application requirements and dangers present. The following risks must be considered: impact, crushing, shearing, dragging, etc. as well as other general dangers.
- Do not modify any components unless such action is specified in this manual. Operations of this type are likely to lead to malfunctions. NICE disclaims any liability for damage resulting from modified products.
- During installation and use, ensure that solid objects or liquids do not penetrate the control unit or other open devices. If necessary, contact the NICE customer service department; use in these conditions can be dangerous.
- The automation system must not be used until it has been commissioned as described in chapter 6 “Testing and commissioning”.
- The packaging materials must be disposed of in compliance with local regulations.
- If a fault occurs that cannot be solved using the information provided in this manual, contact the NICE customer service department.
- In the event that any automatic switches are tripped or fuses blown, attempt to identify and eliminate the relative fault.
- Disconnect all the power supply circuits before accessing the terminals inside the cover. If the disconnection device is not identifiable, affix the following sign: “WARNING: MAINTENANCE WORK IN PROGRESS”.

Special warnings concerning the suitable use of this product in relation to the 98/37CE “Machine Directive” (ex 89/392/CEE):

- This product is issued on the market as a “machine component” and is therefore manufactured to be integrated in a machine or assembled with other machines in order to create “a machine”, in accordance with the directive 98/37/EC, exclusively in combination with other components and in the manner described in the present instructions manual. As specified in the directive 98/37CE the use of this product is not admitted until the manufacturer of the machine on which this product is mounted has identified and declared it as conforming to the directive 98/37/CE.

Special warnings concerning suitable use of this product in relation to the 73/23/EEC “Low Voltage” Directive and subsequent amendments 93/68/CEE:

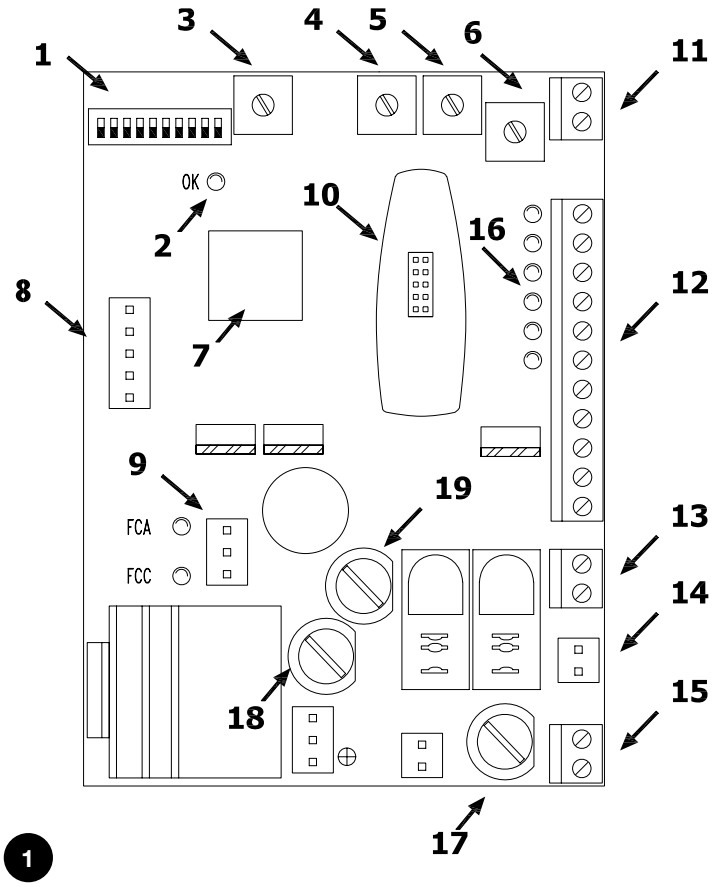
- This product complies with the provisions envisaged by the “Low Voltage” Directive if used in the configurations foreseen in this instruction manual and in combination with the articles present in the Nice S.p.a. product catalogue. If the product is not used in the specified configurations or is used with other products that have not been foreseen, the requirements may not be guaranteed; use of the product is prohibited in these conditions until compliance with the requirements foreseen by the directive has been verified by installers.

Special warnings concerning suitable use of this product in relation to the 89/336/EEC “Electromagnetic Compatibility” Directive and subsequent amendments 92/31/EEC and 93/68/EEC:

- This product has undergone tests regarding electromagnetic compatibility in the most critical of use conditions, in the configurations foreseen in this instruction manual and in combination with articles present in the Nice S.p.A. product catalogue. Electromagnetic compatibility may not be guaranteed if used in configurations or with other products that have not been foreseen; use of the product is prohibited in these conditions until compliance with the requirements foreseen by the directive has been verified by installers.

2) Product description and applications

The electronic card is suitable for controlling road boom gates models "**WIL 4**" and "**WIL 6**" with 24 V d.c. motors.
The actuator has a limit switch with a speed control system that makes it possible to reach the travel limits by means of a slowing down phase. In addition, the effort the motor is subject to during movement is promptly detected as well as any obstacles that may be in the path and in such an even direction is reversed.
It can be controlled "manually", "semiautomatically" or "automatically". There are also certain functions like "Reclose immediately after Photocell" or "Reclose always", "Flashing also in pause" as well as other operating functions such as "Gradual Start-up" and "Slowing down" (a standard feature) plus a sensitive "Brake" that only comes into play if movement has to be stopped hastily.



1

1 Function selection dip-switch
2 OK led
3 "I" Trimmer STOP_AMPERE
4 "TP" Trimmer PAUSE TIME
5 "FL" Trimmer WORK FORCE
6 "FR" Trimmer DECELERATION FORCE
7 Microprocessor
8 CHARGE board connector
9 Limit switch connector
10 RADIO connector
11 Radio input connector
12 Input/output terminal board
13 Flashing light output terminal board
14 Motor output connector
15 Power supply terminal board
16 Input status indicator led
17 Fuse (3.15 A if 230 Vac) or (5 A if 120 Vac)
18 Fuse 8 A
19 Fuse 1 A

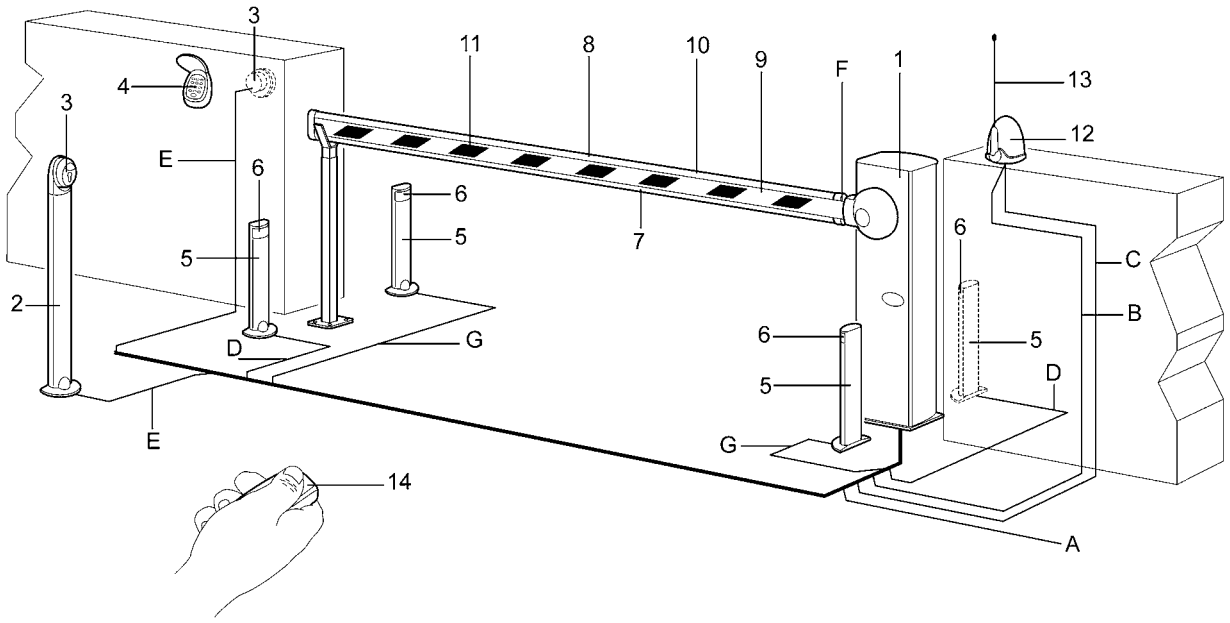
The task of the OK LED (**7**) is to signal the correct functioning of the internal logic; it must flash at 1 second intervals and indicates that the internal microprocessor is working and waiting for commands. Whenever there is a variation in the state of the inputs or of the function dip-switches (**1**), a double, quick flashing is generated even if the effects of the variation are not immediate.
When the unit is powered, the luminous indicators (**16**) on the inputs turn on if that particular input is active and if there is a control voltage of 24 Vcc. As a rule, the LEDs on the safety device inputs STOP, PHOTOCELL and PHOTOCELL 2 and those on the limit switches are always on while those on the STEP-BY-STEP, OPEN and CLOSE are normally off.

During movement, the current absorbed by the motor is measured; when it exceeds a certain limit (adjustable with the trimmer) the safety system is activated which causes movement to stop with the aid of the brake (removing the residual part of accumulated kinetic energy); then, if one of the automatic functioning modes is active, a movement in the opposite direction starts. To increase the level of safety still further, if the STOP_AMPERE system comes into play three consecutive times without ever reaching any of the natural ends of the movement, a final STOP is carried out.

2.1) Operating limits

Chapter 9 “Technical Characteristics” provides the only data needed to determine whether the products are suitable for the intended application.

2.2) Typical system



2

1. WIL Barrier
2. Selector post
3. Key-operated selector switch
4. Radio keypad
5. Photocell post
6. pair of PHOTO photocells
7. Luminous indicator
8. Luminous indicator
9. Closing rod
10. Sensitive edge on PHOTO 1
11. Adhesive warning strip
12. flashing light
13. RADIO aerial
14. Radio transmitter

NOTE: This diagram only shows a possible application of the unit and should be considered merely as an example. Only an in-depth analysis of the risks of the “Machine” gate and a proper evaluation of the end user requirements will be able to establish how many and which elements must be installed.

2.3) List of cables

The typical system shown in figure 2 also states the cables required for connection of the various devices, the specifications of which are provided in table 1.

⚠ The cables used must be suitable for the type of installation; for example, an H03VV-F type cable is recommended for indoor applications, while H07RN-F is suitable for outdoor applications.

Table 1: List of cables

Connection	Cable type	Maximum admissible length
A: Electrical power line	N°1 cable 3x1,5mm²	30m (note 1)
B: Flashing light	N°1 cavo 2x0,5mm²	20m
C: Aerial	N°1 shielded cable type RG58	20m (less than 5m recommended)
D: Photocells	N°1 cable 2x0,25mm² (Tx)	30m
	N°1 cable 4x0,25mm² (Rx)	30m
E: Key-operated selector switch	N°1 cable 4x0,25mm²	30m
F: Sensitive edge	N°1 cable 2x0,25mm²	30m
G: Photocells	N°1 cable 2x0,25mm²	30m
	N°1 cable 4x0,25mm²	30m

Note 1: power supply cable longer than 30 m may be used provided it has a larger gauge, e.g. 3x2,5mm², and that a safety earthing system is provided near the automation unit.

3) Installation

⚠ **The installation must be carried out by qualified personnel in compliance with current legislation, standards and regulations, and the directions provided in this manual.**

3.1) Preliminary checks

Before proceeding with the installation:

- Check that all the materials are in excellent condition, suitable for use and compliant with current standards.
- Ensure that the mounting positions of the various devices are protected from impact and that the mounting surfaces are sufficiently sturdy.
- Install cable or pipe leads only at the bottom of the unit; for no reason whatsoever must the side and top walls be perforated. The cables must only enter the unit from the bottom!
- Components must never be immersed in water or other liquids.
- Keep away from heat sources and open flames; in acid, saline or potentially explosive atmosphere; this could damage and cause malfunctions or hazardous situations.
- Only connect the control unit to a power supply line equipped with a safety grounding system.
- The power supply line must be protected by suitable magnetothermal and differential switches.
- A disconnection device must be inserted in the power supply line from the electrical mains (the distance between the contacts must be at least 3.5 mm with an overvoltage category of III) or equivalent system, for example an outlet and relative plug. If the disconnection device for the power supply is not mounted near the automation, it must have a locking system to prevent unintentional, unauthorised connection.

3.2) Diagram of the connections

Installation of the barrier and relative control elements (key selector or push button panel) and safety (emergency stop, photoelectric cells, sensitive edges and flashing light) elements have been installed, you can now do the wiring, following the instructions given below.

⚠ To safeguard the operator and avoid damaging the components while you are wiring, whether it is low voltage (230 -120Vac) or extra low voltage (24 V) or if you are plugging in the various cards:
The unit must, under no circumstances, be electrically powered.

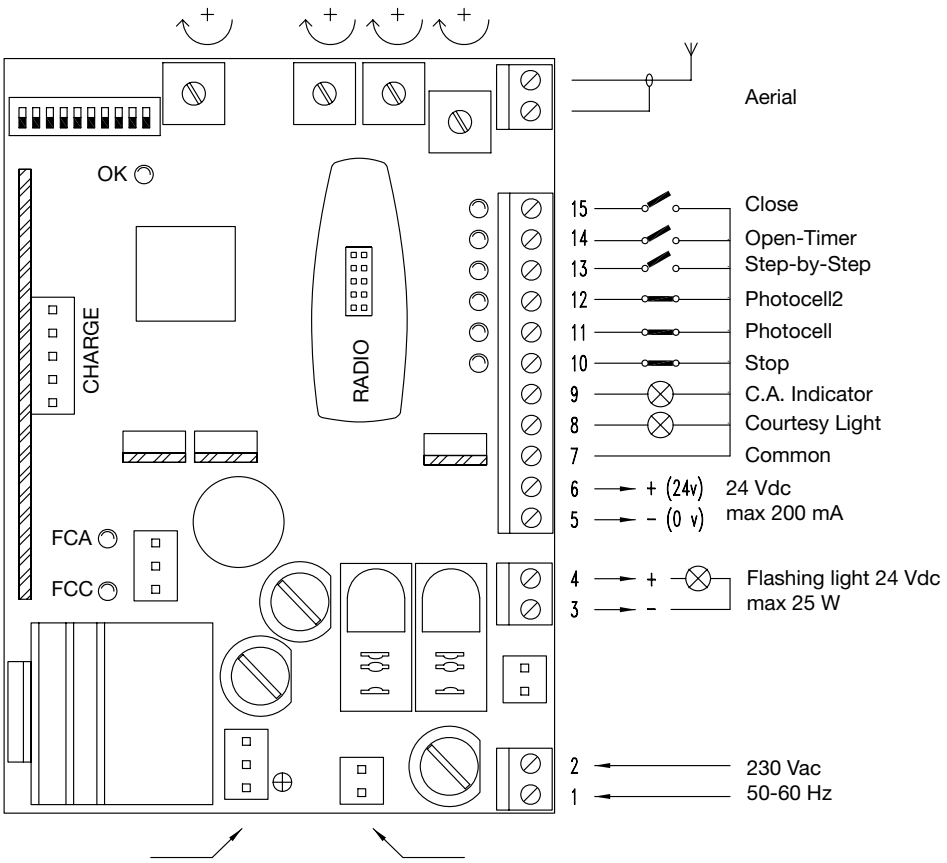
We also wish to remind you that if the inputs of the NC (Normally Closed) contacts are not used they should be jumpered; if there is more than one then they should be placed in SERIES with one another; if the inputs of the NO (Normally Open) contacts are not used they should be left free and if there is more than one then they should be placed in PARALLEL with one another. The contacts must be of the mechanical type and free from any potential; no connections are allowed like those defined as “PNP”, “NPN”, “Open Collector” etc., etc.

Carry out the necessary connections, following the diagram in Fig. 4 and the following description of the connections.

⚠ Remember that there are specific standards that must be complied with both as regards the safety of the electrical systems and as regards automatic gates.

3.3) Description of the connections

Here is a brief description of the possible connections of the unit to the outside:



3

1-2 : 230 V a.c. = 230 V a.c. 50/60 Hz
3-4 : Flashing light = Output for connection to the 24 V d.c. flashing light, maximum lamp power: 25 W
5-6 : 24 V d.c. = 24 V d.c. output for supplying accessories (Photocell, Radio, etc.) maximum 200 mA
7 : Common = Common for all inputs (terminal 6 can also be used as the Common)
8 : Courtesy Light = 24 V d.c. output for the courtesy light, maximum output power 10 W
9 : C.A. Indicator = Input with STOP function (Emergency, shutdown or extreme safety)
10 : Stop = Input for safety devices (Photocells, pneumatic edges)
11 : Photocell = Input for safety devices with triggering in the opening phase (Photocells, pneumatic edges)
12 : Photocell2 = Input for safety devices with triggering
13 : Step-by-Step = Input for cyclic functioning (OPEN STOP CLOSE STOP)
14 : Open-Timer = Input for opening (which can be timer controlled)
15 : Close = Input for closing
: Aerial = Input for the radio receiver aerial

The remaining connections are done in the factory but for the sake of completeness here is the list:

TRANS.PRIM. = Primary of the power transformer
TRANS.SECOND. = Secondary of the power transformer
MOTOR = Output for 24 V d.c. motor connection

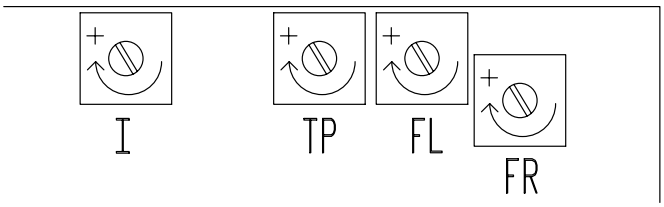
There are an additional two slots for optional cards:

RADIO = Slot for Nice radio receivers
CHARGE = Slot for battery charge card

4) Adjustments

FL Adjustment of the WORK FORCE trimmer enables control of the barrier speed

FR Adjustment of the DECELERATION FORCE trimmer enables setting of the required thrust to ensure correct operation in the deceleration phase so that the rod reaches the stop points as “smoothly” as possible without jolting; the perfect setting of the balancing spring is fundamental of course.



NOTE: Adjustment of the (FL) and (FR) trimmers alters the speed of the barrier as this is connected with FORCE.
A decrease in FORCE causes a decrease in speed.

I Lastly adjust the trimmer STOP_AMPERE so the obstacle detecting system, based on an ammetric friction system, is activated as soon as an appropriate opposite action is applied to the bar. The ammetric friction system comes into play in both directions.

TP If you have chosen the automatic functioning mode (dip-switch No. 2 ON), the end of the opening manoeuvre is followed by a “pause” time at the end of which a closing manoeuvre follows automatically. The time stays open can be adjusted with the PAUSE TIME trimmer for the length of time you want, without any limits. An automatic closing manoeuvre and the relative pause time are activated also in the semiautomatic functioning mode when, in closing, the triggering of a safety device will cause the gate to reverse direction

4.1) Functioning modes

In the manual functioning mode the OPEN input allows movement up to the opening point; the CLOSE input allows movement up to the closing point; STEP-BY-STEP allows alternative opening and closing manoeuvres; as soon as the command in input stops, movement stops. In the opening phase movement stops when the maximum opening point is reached or if there is no consent from PHOTOCELL 2; to the contrary, in the closing phase movement will stop at the maximum closed point or if there is no consent from the PHOTOCELL. If STOP is triggered it will cause movement to stop immediately both in the opening and closing manoeuvres. Once movement has stopped the command in input has to be stopped before any new movements can be rective).
In either of the automatic functioning modes (semiautomatic-automatic and closes always) a command on the OPEN input will cause an opening manoeuvre; if the command remains (TIMER) once the bar is open, the bar remains “frozen” in an infinite pause; only when the command stops will the bar be able to close. Command pulses on the CLOSE input will cause a closing manoeuvre; if the command remains the bar will stay locked in the closed position until the command ceases and only then can it be reopened. A pulse on STEP-BY-STEP causes alternative opening and closing.
A second pulse on the STEP-BY-STEP or on the same input that started the movement, will cause a Stop.
Whether in the opening or closing phase, if STOP triggers it will cause movement to stop immediately.
In an opening manoeuvre, triggering of the PHOTOCELL has no effect while PHOTOCELL 2 will cause reversal of movement; in a closing manoeuvre, triggering of the PHOTOCELL causes movement to reverse followed by a new pause and lastly reclosing.
If at the beginning of an opening movement, the PHOTOCELL input does not give consent, the request to open is cancelled.
If the automatic functioning mode is being used, there will be a pause time subsequent to an opening manoeuvre and followed by a closing manoeuvre. If, during the pause the PHOTOCELL triggers, the timer will be reset with a new time; if, on the other hand, a STOP comes into play during the pause, the reclosing function will be cancelled and there will be a STOP condition.

5) Programming

The unit comprises a set of microswitches used to operate various functions so as to render the system more suitable to user needs and safer in the different ways of usage. All functions are activated by placing the dip-switch in the “ON” position while they will not be activated if the corresponding dip-switches are “OFF”; some functions do not have an immediate effect and only have sense in certain conditions like.

⚠ ATTENTION: some of the programmable functions are linked to safety aspects, very carefully evaluate the effects of a function and see which function gives the greatest possible level of safety.
When servicing a system, before you modify a programmable function, ascertain the reason why, during installation, certain choices were made and then verify if, with the new programming, safety will be impaired.

5.1) Programmable functions

Switches 1-2:	Off Off	= “Manual” movement (Man Present)
	On Off	= “Semiautomatic” movement
	Off On	= “Automatic” movement (Automatic Closing)
	On On	= “Automatic+Always Closes” movement
Switch 3:	On	= Condominium functioning mode
Switch 4:	On	= Cancels STOP in the Step-by-Step cycle
Switch 5:	On	= Preflashing
Switch 6:	On	= Flashing also in Pause
Switch 7:	On	= Recloses straight after Photocell (only if on Automatic)
Switch 8:	On	= Safety (Photocell) also in opening
Switch 9:	On	= Bar open indicator becomes traffic light in the “one-way” mode
Switch 10:	On	= Functioning in the “Traffic light in both directions” mode

5.2) Description of the functions

Switches 1-2: Off Off = “Manual” movement (Man Present)
On Off = “Semiautomatic” movement
Off On = “Automatic” movement (Automatic Closing)
On On = “Automatic+Always Closes” movement”

When in the “Manual” functioning mode, movement will only be carried out while the command is being given (button pressed).
In the “Semiautomatic” mode just one command pulse is needed and the complete manoeuvre will be carried out until it is either fully open or fully closed. In the “Automatic” functioning mode one command pulse will cause an opening manoeuvre to be carried out followed by a pause and then a closing manoeuvre.
The “Always Closes” function works if, subsequent to a temporary power cut, the bar is still open; in this case, a closing manoeuvre is started automatically preceded by 5 seconds of preflashing.

Switch 3: On = Condominium function
In the Condominium functioning mode, once an opening manoeuvre has started, for instance with a Step-by-Step pulse, it cannot be interrupted by any other command pulses until it has finished.
During a closing manoeuvre, a new command pulse will stop the bar and immediately reverse the direction, opening the bar.

Switch 4: Cancels STOP in the Step-by-Step cycle
The Step-by-Step cycle is normally: OPEN-STOP-CLOSE-STOP; in this functioning mode the Step-by-Step cycle becomes:
OPEN-CLOSE-OPEN so the bar can never stop midway, but only when completely open or completely closed.

Switch 5: On = Preflashing
The flashing light starts prior to each movement; after 5 seconds (2 seconds if on manual) movement starts.

Switch 6: On = Flashing also in Pause
The flashing light is normally activated only during the opening and closing manoeuvres; with this function the flashing light remains active also during the Pause Time to signal the “closing soon” condition.

Switch 7: On = Recloses straight after Photocell (only if on Automatic: Sw 2 = ON)
With this function the bar can be kept open only for the length of time needed for transit; in fact, it will close automatically always 5 seconds after the last object has passed by the “Photocell”, irrespective of the programmed Pause Time.

Switch 8: On = Safety (Photocell) also in opening
As a rule the safety “Photocell” only works in the closing cycle; if switch 8 is “ON” the triggering of the safety device will cause the bar to stop even in the opening phase; if on Semiautomatic or Automatic, movement will start again, in opening, immediately after the last object has passed by the Photocell.

Switch 9: Bar open indicator becomes traffic light in the “one-way” mode
As an alternative to the Gate Open indicator, the output can be reprogrammed so that it performs the function of a “one-way” traffic light; this means the output is off when the bar is closed or closing, and on when the bar is opening or is opened. In this way, an indication can be fixed to the exit like: Green = Transit free.

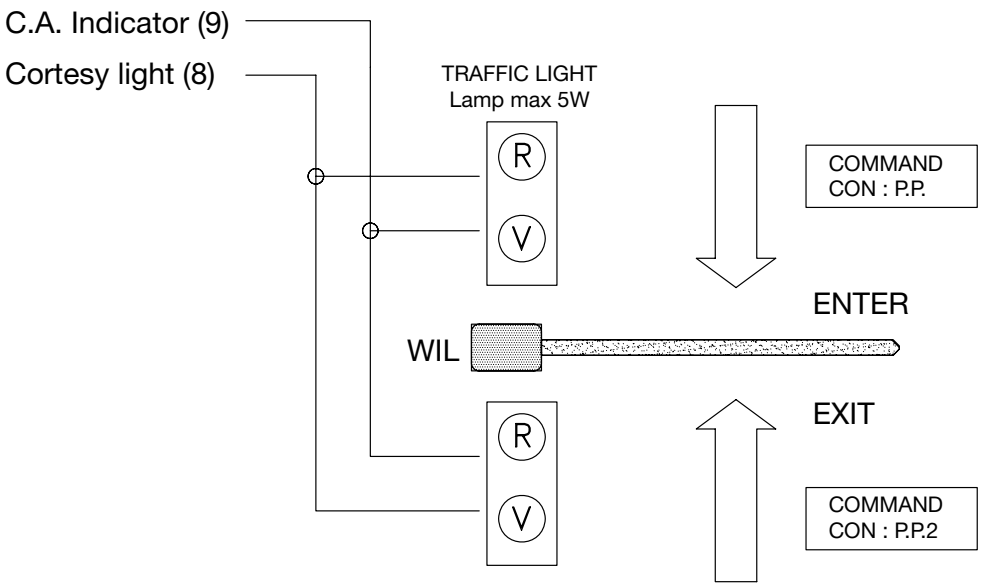
Switch 10: Functioning in the “Traffic light in both directions” mode
Several changes occur in the control unit when the “Traffic light in both directions” function is activated when Switch 10 is ON:
OPEN becomes STEP-BY-STEP 2, while the two outputs, Courtesy Light and Bar Open Indicator become a Green Light in both directions. Due to the specific nature of this function we are giving a separate description.

Traffic light in both directions:
The function of the traffic light in both directions is mainly to control the flow of traffic in both directions as they go across the controlled road barrier. A different command is placed for opening in both directions: P.P. for entering and P.P.2 (Open) for leaving; two traffic lights are installed with the indications Red and Green, connected to the Bar Open Indicator and Courtesy Light outputs.

The two outputs are usually off and so are the two traffic lights; when a command is given with P.P. to enter, movement is started and the Bar Open Indicator output is activated: this means there will be a green light to enter and a red light to leave.
But should the command be given with the P.P.2, the Courtesy Light output will be activated and there will be a green light to leave and a red light to enter. The light will stay on for the entire opening manoeuvre and for the subsequent pause time; during the closing manoeuvre both the green and red lights will be activated (the result being yellow) to indicate there is no longer any transit priority (see table).

Red	Green	Meaning:
OFF	OFF	Bar closed, no passage in either direction
OFF	ON	Bar open, free transit
ON	OFF	Bar open, transit occupied
ON	ON	Bar closing and transit not controlled

The two Bar Open Indicator and Courtesy Light outputs can directly control small 24 V d.c. lamps for a total of 10 W. If stronger lamps have to be used, use the relays piloted by the unit outputs that control, in turn, the traffic lights.



6) Testing

⚠ This is the most important stage in the automation system installation procedure in order to ensure maximum safety levels. Testing can also be adopted as a method of periodically checking that all the various devices in the system are functioning correctly.

Testing of the entire system must be performed by qualified and experienced personnel who must establish which tests to conduct on the basis of the risks involved, and verify the compliance of the system with applicable regulations, legislation and standards, in particular with all the provisions of EN standard 12445 which establishes the test methods for automation systems for gates.
We recommend working in the manual mode with all the functions deactivated (dip-switches OFF); in all cases, when you are working in the manual mode and you release the control key the motor will stop immediately.

Each component of the system, e.g. safety edges, photocells, emergency stop, etc. requires a specific testing phase, we therefore recommend observing the procedures shown in the relative instruction manuals.

Ensure that the instructions outlined in this manual and in particular in chapter 1 “WARNINGS” have been observed in full.

A) Check that the bar is well balanced, adjusting the balancing spring if necessary.
Release the boom gate using the special spanner and check that the bar can move without any effort for the whole length of travel.

B) Power the unit and check that voltage between terminals 1-2 and 1-3 is 230 / 120 Vac and 24 V a.c. between terminals 21-22.

As soon as the unit is powered the indicator lights (LEDs) on the active inputs should light up; in addition, the “OK” LED should start flashing almost immediately afterwards at regular intervals. If none of this happens, switch power off and check connections more carefully.

- The task of the “OK” LED, in the centre of the card, is to signal the state of the internal logic: regular flashing at 1 second intervals means the internal microprocessor is working and waiting for commands. On the other hand, when the same microprocessor recognises a variation in the state of an input (be it a command input or function dip-switch), a double, quick flashing is generated even if the effects of the variation are not immediate. Extra fast flashing for 3 seconds means that the unit has just been powered

and is carrying out a test of the internal parts; lastly an irregular, non constant flashing means that the test was unsuccessful and, consequently, there is a failure.

C) Now check that the LEDs of inputs with NC type contacts are on (all the safety devices active) and that the LEDs of inputs with NO type contacts are off (no command present); if this does not happen check connections and effectiveness of the various devices.

D) Check that all the safety devices on the plant are working properly (emergency stop, photoelectric cells, pneumatic edges, etc.); each time they trigger the corresponding STOP, PHOTOCELL or PHOTOCELL 1 should turn off.

- This is one of the most important checks and must be done with great care, in actual fact the "active" safety of the gate machine depends on the correct functioning of the safety devices. If the flashing light is an excellent instrument for signalling the state of danger and the torque limiting devices are an excellent means to minimise damages, only a correct installation of the safety devices will make it possible to block the automatism before it can cause any damage.

E) Now is the time to check whether movement occurs in the right direction, that is, to see whether movement set on the unit corresponds to that of the gates.
This check is of paramount importance, if the direction is wrong in some cases (in the semiautomatic functioning mode for instance), the gate might appear to be working properly; in fact, the OPEN cycle is similar to the CLOSE cycle but with one basic difference, the safety devices are ignored in the closing manoeuvre which is normally the most dangerous, and they will trigger in the opening manoeuvre causing the gate to reclose up against the obstacle with disastrous results!

Lock the boom gate with the bar at a 45° angle so it can move freely in both directions. Now give a brief command pulse on the OPEN input and if the bar does not move in the opening direction proceed as follows:

1) Turn the electricity off to the boom gate
2) Unplug the "MOTOR" connector and replug it after it has been turned 180°
3) Unplug the "LIMIT SWITCH" connector and replug it after it has been turned 180°

Repeat the procedure described above in point E to see if rotation direction is right.

Note:
when direction is reversed then all the three procedures described above have to be carried out. In particular, if, for example, you turn the "MOTOR" connector but not the "LIMIT SWITCH" connector it will cause an error in the slowing down system. In such a case, the motor is controlled, for instance, in the opening phase but the FCA limit switch is never reached and consequently the bar reaches the opening point with maximum force; the ammetric detecting system then comes into play reversing direction in a new manoeuvre which is also wrong.

F) Having checked all connections and motor rotation direction, it is possible to try a complete movement, we recommend that you always work in the manual mode with all functions deactivated. If you use the Step-by-Step as the command input, the first movement (after turning on) should be an opening one.

By means of the command inputs, move the bar up to the opening point; about 20° from the stopping point the FCA limit switch should trigger, activating the "slowing down" phase which makes the bar reach the set point at a slower speed. Now carry out a closing phase until the closing point is reached; in this case too, the FCC limit switch should trigger, activating the slowing down phase 20° before movement stops. Now test triggering of the safety devices: PHOTOCELL in opening has no effect while in the closing phase it causes the bar to stop; PHOTOCELL 2 has no effect in the closing phase while in the opening phase it causes the bar to stop. The devices connected to the STOP input act both in the opening and in the closing phases, causing the bar to stop.

G) The hazardous situations caused by the movement have been safeguarded by limiting the force of impact, the impact force must be measured according to EN Standard 12445. If the control of the "motor force" is used to assist the system for the reduction of the impact force, try to find the adjustment to obtain optimal results.

There is a trimmer on the card to establish the triggering threshold of this the friction; is has to be adjusted so that it comes into action as soon as a light pressure is applied to the bar in the direction opposite to the way it is moving.
To overcome the initial movement phase that always needs greater motor power, the STOP_AMPERE friction system is excluded from the motor start up phase; to evaluate the effect of the adjustment on the trimmer, you ought to wait until the movement has started and the bar has reached standard speed.
Keep in mind that, always for a question of safety, if the friction comes into play three consecutive times, movement is stopped without any reversal. If the automatic functioning mode is selected at the end of the opening manoeuvre, there is a "pause time" after which a closing manoeuvre is automatically launched. Pause time is adjusted with the trimmer PAUSE TIME. Pause time is also activated in the semiautomatic functioning mode when, in the closing phase, the triggering of a safety device or the STOP_AMPERE friction, causes a reversal in the opening manoeuvre.

6.1) Commissioning

Commissioning can take place only after all the testing phases of the control unit and the other devices have been completed successfully. It is not permissible to execute partial commissioning or to enable use of the system in makeshift conditions.

1. Prepare and store for at least 10 years the technical documentation for the automation, which must include at least the following: assembly drawing of the automation, wiring diagram, analysis of hazards and solutions adopted, manufacturer's declaration of conformity of all the devices installed (for WIL use the annexed CE declaration of conformity); copy of the instruction manual and maintenance schedule of the automation.

2. Affix a dataplate on the gate providing at least the following data: type of automation, name and address of manufacturer (person responsible for the "commissioning"), serial number, year of manufacture and "CE" marking.

3. Permanently fix a label or plate in the vicinity of the automation, stating the procedures for release and manual manoeuvres.

4. Prepare the declaration of conformity of the automation system and deliver it to the owner.

5. Prepare the "Instructions and warnings for the use of the automation system" and deliver it to the owner.

6. Prepare the maintenance schedule of the automation system and deliver it to the owner (this must provide all directions regarding the maintenance of the single automation devices).

7. Before commissioning the automation system inform the owner in writing regarding residual risks and hazards (e.g. in the "Instructions and warnings for the use of the automation system").

7) Maintenance and Disposal

⚠ **This charter provides information about how to draw up a maintenance schedule, and the disposal.**

7.1) Maintenance

The automation must undergo maintenance work on a regular basis, in order to guarantee prolonged lifetime.

The maintenance operations must be performed in strict compliance with the safety directions provided in this manual and according to the applicable legislation and standards.

If other devices are present, follow the directions provided in the corresponding maintenance schedule differents from WIL.

1. Is requires scheduled maintenance work every 6 months or 10,000 manoeuvres (max.) after previous maintenance.

2. Disconnect all power supplies.

3. Check for any deterioration of the components which form the automation, paying particular attention to erosion or oxidation of the structural parts. Replace any parts which are below the required standard.

4. Connect the electric power sources up again, and carry out the testing and checks stated in Paragraph "6 Testing".

7.2) Disposal

As in the case of installation, at the end of the product lifetime, disposal procedures must be carried out by qualified personnel.

This product comprises various types of materials, some of which can be recycled while others must be disposed of. Check information on the recycling and disposal procedures according to local legislation for this product category.

⚠ **Some parts of the product may contain pollutant or hazardous substances; if disposed of into the environment these may constitute a serious risk of damage to the environment and public health.**

As indicated by the symbol in figure never dispose of this product in domestic waste. Apply "classified waste collection" procedures for disposal in accordance with local regulations or return the product to the retailer when purchasing a new model.

Local regulations may envisage serious fines in the event of illegal disposal of this product.

8) Accessories

"RADIO" CARD:

The control unit features a connector for plugging in an SM radio card , which activates the inputs and allows the control unit to be remote-controlled through a transmitter.

output 1 STEP-BY-STEP
output 2 Stop
output 3 Open
output 4 Close

"CHARGE" CARD also battery powered:

The road boom gate "Wil" is equipped with a power transformer that can withstand the energy required by both the motor and electronic card so it can all be powered directly by the mains.

If you want the system to work even when there is a power cut then you have to add a suitable battery and relative battery charger card. The battery must be installed in its own compartment outside the plastic box that protects the gearmotor card and connected to two terminals on the battery charger card; the latter must be connected to the connector on the unit.

Consult the Nice S.p.a. product catalogue for the complete and updated list of accessories.

9) Technical characteristics

With the aim of improving products, Nice S.p.a reserves the right to modify technical characteristics at any time without notice, while maintaining the same functionalities and intended use.
All technical characteristics stated refer to an ambient temperature of 20°C (±5°C).

Power WIL4 – WIL6	230 Vac ±10%, 50 - 60 Hz
Power WIL4/V1 – WIL6/V1	120 Vac ± 10%, 50 - 60 Hz
Battery power	21-28 V d.c. (> 6Ah capacity)
Max. current accessories, 24 V d.c.	200 mA
Max. power flashing light	25 W (24 V d.c.)
Max. power Courtesy Light	10 W (24 V d.c.)
Max. power Open Bar indicator	10 W [24 V d.c.]
Maximum frequency of operating cycles	unlimited
Maximum time of continuous operation	unlimited
Pause time	from 3 to 120 seconds
Courtesy light time	60 seconds
Operating temperature	-20 to 70° C
Size	280 x 220 x 110 mm
Weight	3,7 kg
Protection level	IP55 (container undamaged)