

# MhouseKit GDS



English

For the automation of a sectional or overhead door.



**Installation instructions and warnings**

## Information

This manual may be reproduced provided no part of it is omitted or modified. No part of this manual may be translated into other languages without the prior authorisation and subsequent examination by MHOUSE.

MHOUSE disclaims responsibility for any damage resulting from the improper use of the products;

MHOUSE, in order to improve its products, reserves the right to modify their technical characteristics at any time without prior notice. In any case, the manufacturer guarantees their functionality and fitness for the intended purposes.

For any information please contact:



MHOUSE S.r.l.

via Pezza Alta, 13, ZI 31046 Oderzo

Tel: 0422 202109

Fax: 0422 852582

email: info@mhouse.biz

http: www.mhouse.biz

## Contents

<b>1 Warnings</b>	<b>3</b>	<b>6 Testing</b>	<b>11</b>
<b>2 Product description</b>	<b>4</b>	<b>7 Maintenance</b>	<b>12</b>
2.1 Applications	4	7.1 Disposal	12
2.2 Description of the automation	4	<b>8 Troubleshooting</b>	<b>12</b>
2.3 Description of devices	4	<b>9 Radio receiver description</b>	<b>13</b>
2.3.1 TX 4 Radio Transmitter	4	10 Installing the aerial	13
<b>3 Installation</b>	<b>5</b>	11 Memorising a remote control	14
3.1 Preliminary checks	5	12 "Remote" Memorisation	14
3.1.1 Operating limits	6	13 Deleting all the Devices	15
3.1.2 Tools and Materials	6	<b>14 Technical characteristics</b>	<b>15</b>
3.2.1 Connection to the Electrical Mains	7	<b>15 Annexes</b>	<b>16</b>
3.3 Installation of the Various Devices	7	15.1 Annex 1: CE Declaration of Conformity of GDS Components	17
3.3.1 Mounting the GDS gearmotor	7	15.2 Annex 2: CE Declaration of Conformity of automated sectional or overhead door	19
3.4 Electrical connections	8	15.3 Annex 3: Operating guide	21
3.4.1 Wiring diagram	8	15.3.1 Safety Regulations	21
3.4.2 Description of the connections	8	15.3.2 Control of the door	21
3.4.3 Notes on connections	9	15.3.3 Maintenance Operations to Be Performed by the User	22
3.4.4 Phototest	9	15.3.4 Replacing the Remote Control Battery	22
3.4.5 Power Supply Connection	9		
3.4.6 Checking the connections	9		
<b>4 Programmable functions</b>	<b>10</b>		
4.1 Pre-set functions	10		
<b>5 Programming</b>	<b>10</b>		
5.1 Programming pauses	10		
5.2 Programming current sensitivity	11		
5.3 Programming the photo-test mode	11		

# 1 Warnings

- If this is the first time that you install a GDS sectional or overhead door automation system we recommend that you dedicate some of your time to reading this manual. You should read it before you start installing the system, so you don't have to rush to finish the work.

Keep all the components of the GDS system handy so that you can read, check and verify all the information contained in this manual. However, do not carry out the adjustment and memorisation stages otherwise, during the actual installation of the products, you will have to deal with settings that differ from the original factory ones.

- When reading this manual, pay special attention to the sections marked by the following symbol:



these sections are particularly important for safety.

- Store this manual safely for future use.
- This manual, as well as the design and manufacture of the devices that make up GDS, comply fully with the standards and regulations in force.
- Considering the hazards that may exist during the installation and operation of GDS, it is necessary that also the installation be carried out in strict compliance with current legislation, standards and regulations, particularly:
  - **This manual contains important information regarding personal safety; before you start installing the components, it is important that you read and understand all the information contained herein. Do not proceed with the installation if you have doubts of any sort; if necessary, refer to the MHOUSE customer service department for clarifications.**
  - **Before you start with the installation, make sure that each single GDS device is suitable for the intended automation purposes; pay special attention to the data provided in chapter 6 "Technical Characteristics". If even a single device is not suitable for the intended application, do not proceed with the installation.**
  - **Before you start with the installation, check whether additional devices or materials are needed to complete the automation with GDS based on the specific application requirements.**

- **The GDS automation system must not be used until the automation has been commissioned.**

- **The GDS automation system cannot be considered as a suitable intrusion protection system. If you require efficient protection you need to integrate GDS with other devices.**

- **The packing materials of GDS must be disposed of in compliance with local regulations.**

- **Do not make modifications to any components unless provided for in this manual. This type of operations will only cause malfunctions. MHOUSE disclaims any liability for damage resulting from modified products.**

- **Components must never be immersed in water or other liquids. During installation, do not allow liquids to penetrate inside the gearmotor and other open devices.**

- **In the event that liquid substances have penetrated inside the automation devices, immediately disconnect the power supply and contact the MHOUSE customer service department. The use of GDS in these conditions can be dangerous.**

- **Keep all components of GDS away from heat sources and open flames; these could damage the components and cause malfunctions, fire or dangerous situations.**

- **Connect the gearmotor only to a power supply line equipped with safety grounding system.**

- **All operations requiring the opening of the protection shell of any GDS device must be performed with the gearmotor disconnected from the power supply; if the disconnection device is not identifiable, post the following sign on it: "WARNING: MAINTENANCE WORK IN PROGRESS".**

- **In the event that any automatic switches are tripped or fuses blown, you must identify the fault and eliminate it before resetting the switches or replacing fuses.**

- **If a fault occurs that cannot be solved using the information provided in this manual, refer to the MHOUSE customer service department.**

## 2 Product description

### 2.1 Applications

GDS is a set of components designed for the automation of sectional or overhead doors in residential applications.

GDS operates with electric power. In the event of a power failure, the gearmotor can be released using a suitable cord in order to move the door manually.

**Any applications other than those described above or under different conditions from those specified in this manual are forbidden.**

### 2.2 Description of the automation

To clarify a few terms and aspects of a sectional or overhead door automation system. In Figure 1 we provide an example of a typical GDS application:

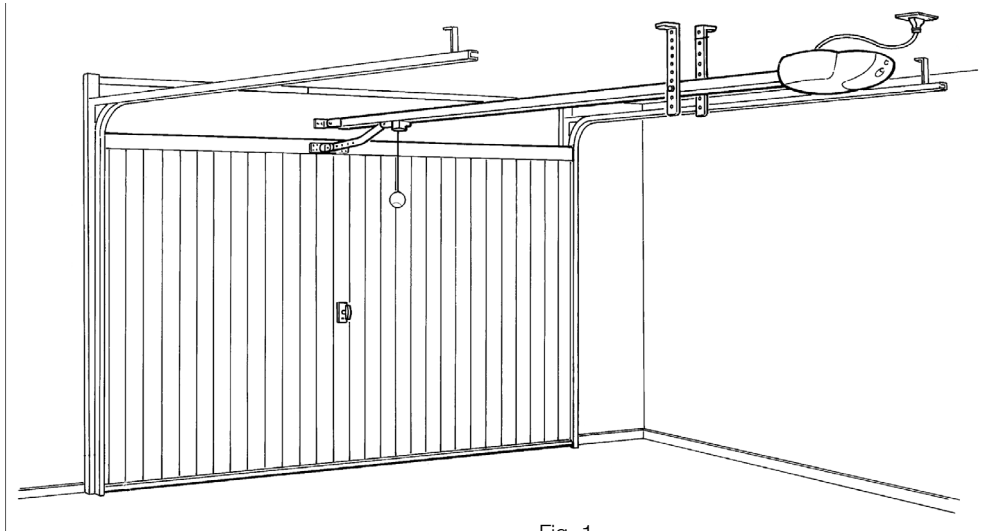


Fig. 1

### 2.3 Description of devices

GDS consists of the devices shown in figure 2; make immediately sure that they correspond to the contents of the package and verify the integrity of the devices.

Note: to adapt GDS to local regulations, the contents of the package may vary; an exact list of the contents is shown on the outside of the package under the "Mhousekit GDS contains" heading.

Component and accessories list:

- A)** 1 GDS electromechanical gearmotor with incorporated control unit.
- B)** 1 3-metre guide with pre-assembled chain.
- C)** 4 coupling profiles
- D)** 2 ceiling-mounted brackets
- E)** Miscellaneous small parts: screws, washers, etc.
- F)** 1 TX4 radio transmitter.

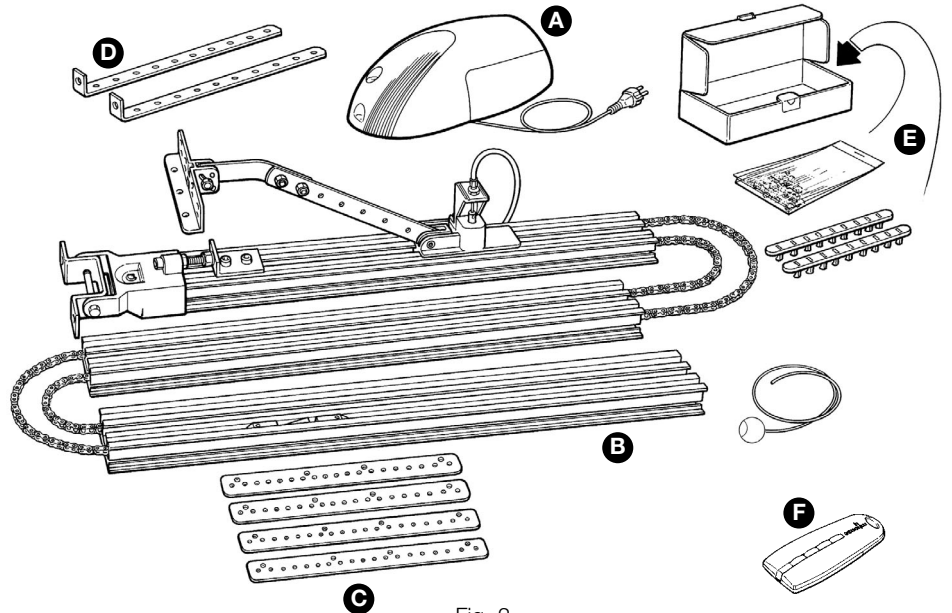


Fig. 2

#### 2.3.1 TX 4 Radio Transmitter

The radio transmitters are used for the remote control of the door opening and closing manoeuvres. They feature four buttons that can all be used for the 4 types of command to a single automation unit, or to control up to 4 different automation units.

The transmission of the command is confirmed by the LED [A]; an eyelet [B] allows them to be hung on a keyring.

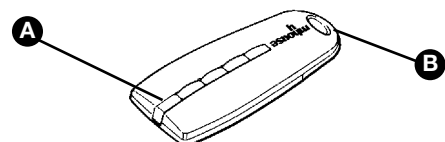


Fig. 3

## 3 Installation

The installation must be carried out by qualified and skilled personnel in compliance with the directions provided in this chapter 1 "WARNINGS".

### 3.1 Preliminary checks

GDS must not be used to power a door that is not efficient and safe. It cannot solve defects resulting from incorrect installation or poor maintenance of the door.

Before proceeding with the installation you must:

- Make sure that the weight and dimensions of the door fall within the specified operating limits (see paragraph 3.1.1). If they do not, GDS cannot be used.
- Make sure that the structure of the door is suitable for automation and in compliance with regulations in force.
- Make sure that there are no points of greater friction in the opening or closing travel of the door.
- Make sure that the mechanical structure of the door is sturdy enough and that there is no risk of derailing out of the guide.
- Make sure that the door is well balanced: it must not move by itself when it is placed in any position.
- Make sure that the location where the gearmotor is installed is compatible with the overall dimensions of the gearmotor and that it allows the release manoeuvre to be carried out easily and safely.
- Pay attention in particular to the methods for securing the head of the guide and the brackets to the ceiling. The head of the guide will have to bear all the strain of opening and closing the door; the ceiling-mounted brackets will have to bear all the weight of GDS. In both cases, the wear and deformations that may occur in time must be taken into consideration.
- Make sure that the minimum and maximum clearances specified in fig. 4 are observed.

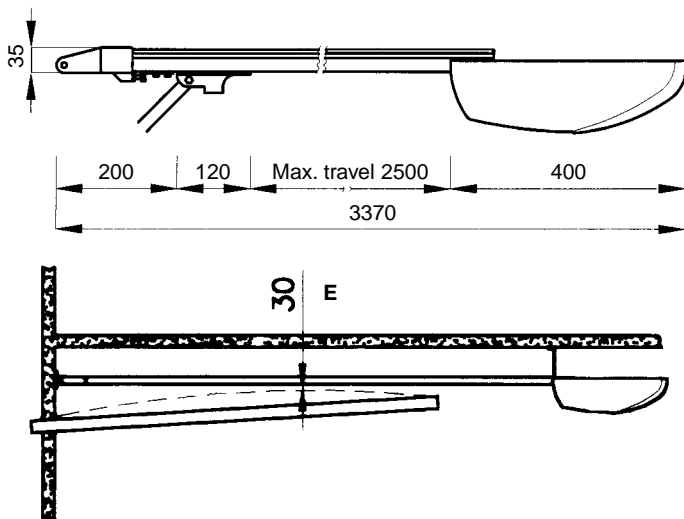


Fig. 4

- The gearmotor should be mounted so that it coincides with the centre of the door, or is slightly off-centre, e.g. in order to mount the OSCILLATING ARM next to the handle (Figure 7).
- Make sure that, in the position corresponding to the door, or slightly to the side, (see positions "A" and "B") the conditions are suitable for mounting the head of the guide; in particular, the material should be sufficiently sturdy and compact. Make sure that GDS can be mounted on the ceiling along position "C" using the mounting brackets.

If the door to be automated is an overhead type with springs or counterweights, it will be necessary to install an OSCILLATING ARM, which must be mounted next to the handle (Figure 8).

- If the door to be automated is an overhead type, make sure that distance [E] in Figure 4, i.e. the minimum distance between the upper side of the guide and the maximum point reached by the upper edge of the door, is no shorter than 30 mm, otherwise GDS cannot be installed.

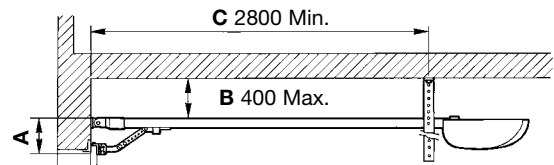


Fig. 5

If the door closes a room that has no other means of access, we recommend installation of the EXTERNAL RELEASE KIT (figure 6), otherwise a simple power failure will prevent access to the room

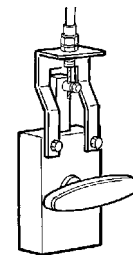


Fig. 6

Note: the oscillating arm and external release kit are supplied with the related assembly instructions.

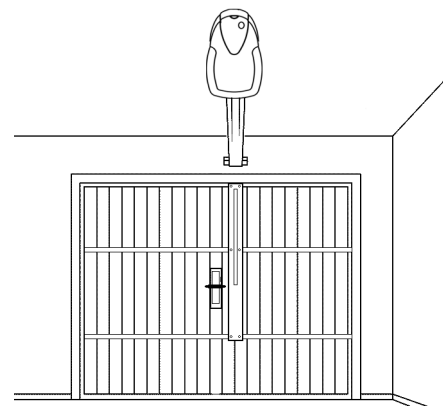


Fig. 7

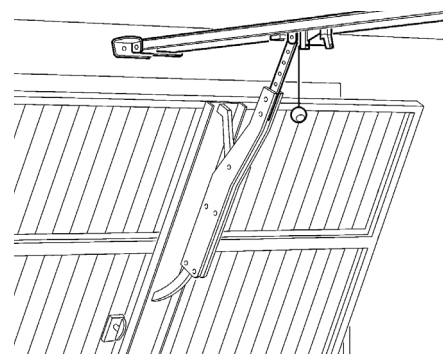


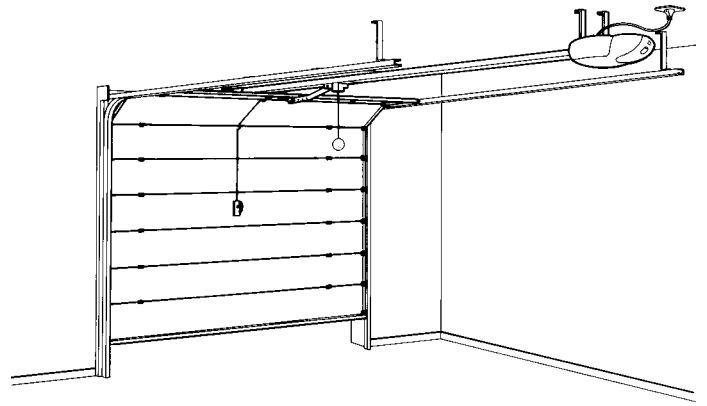
Fig. 8

### 3.1.1 Operating limits

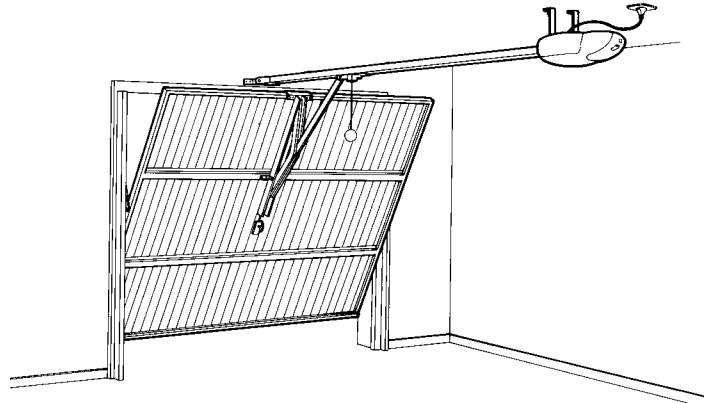
Chapter 15 “Technical Characteristics” provides the fundamental data needed to determine whether all the GDS components are suitable for the intended application.

In general GDS is suitable for the automation of sectional and overhead doors for residential applications having the following maximum dimensions:

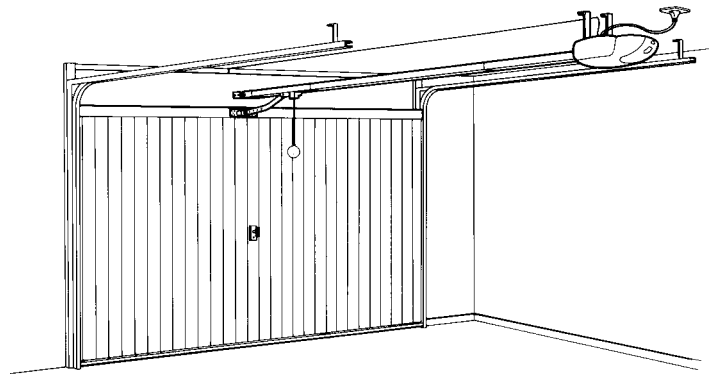
Sectional door (H max = 2400mm)



Overhead door with counterweights (H max = 2400mm)



Overhead door with springs (H max = 2400mm)



### 3.1.2 Tools and Materials

**Make sure you have all the tools and materials needed to install the system; make sure that they are in good condition and serviceable according to current safety standards. See examples in figure 12.**

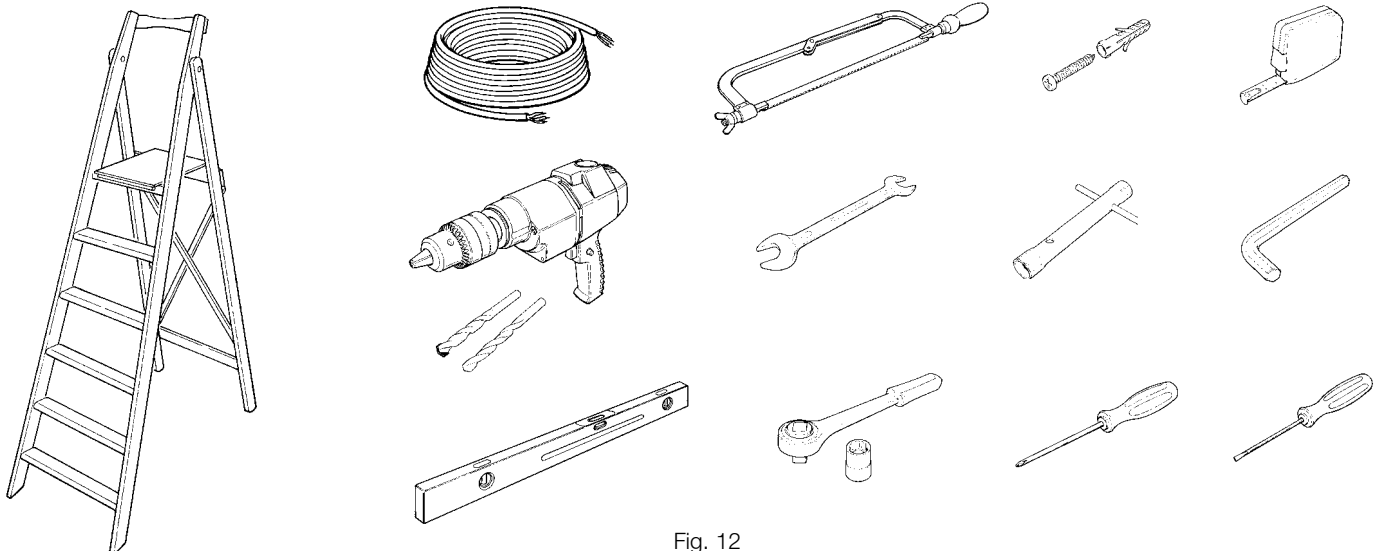


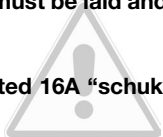
Fig. 12

### 3.2.1 Connection to the Electrical Mains

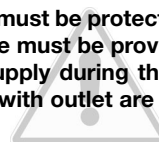
Although the connection of GDS to the electrical mains is beyond the scope of this manual, we wish to remind you that:

- The power supply line must be laid and connected by a qualified professional electrician.

- Have a suitably protected 16A "schuko" outlet installed, where you can plug in GDS.



- The power supply line must be protected from short circuits and ground leakage; a device must be provided to enable the disconnection of the power supply during the installation and maintenance of GDS (the plug with outlet are suitable for this purpose).



## 3.3 Installation of the Various Devices

### 3.3.1 Mounting the GDS gearmotor

Place the chain support in the guide (Fig. 13):

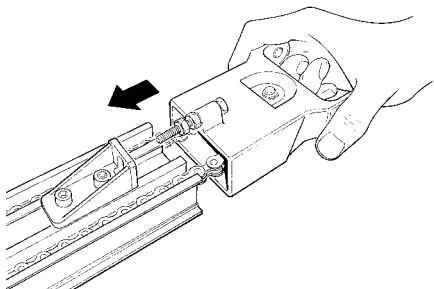


Fig. 13

1 Place the screws in the slit as shown (Fig. 14).

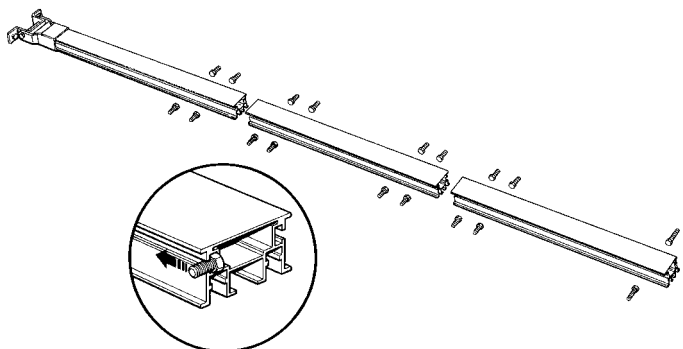


Fig. 14

2 Join the profiles by means of the perforated joining rods. Do not screw nuts A too tightly, as this may cause the profile to warp, and initially prevent the chain from sliding smoothly.

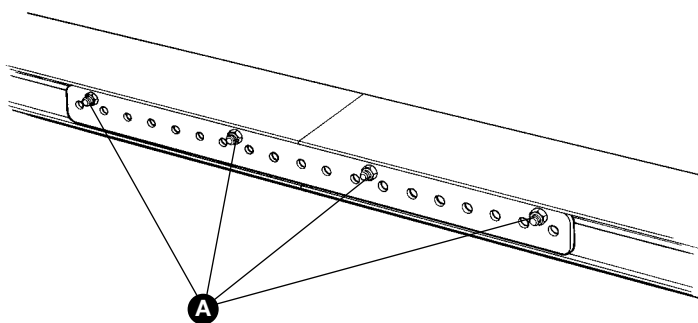


Fig. 15

3 Move chain support B sideways and connect it to the chain with screw C. Move support B back about half way along the sections (Fig. 16).

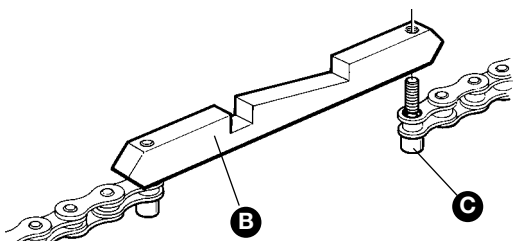


Fig. 16

4 Slot the section in the GDS and move the chain beyond the motor's pinion; then tighten screws D of collar E. Tighten the chain slightly then secure the joint screws permanently. Lubricate the chain well to ensure smooth GDS operation (Fig. 17).

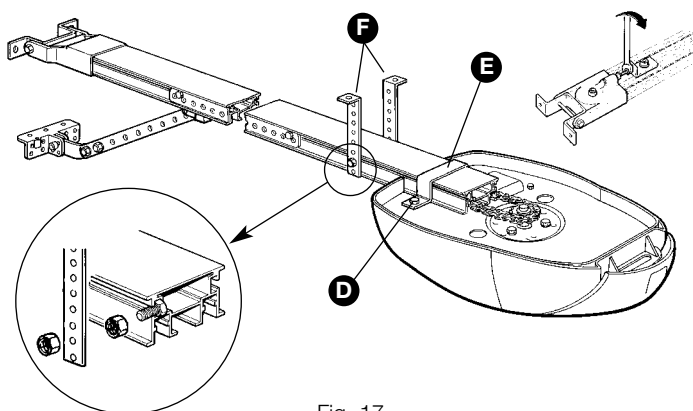


Fig. 17

5 Fix GDS to the door frame or to the wall with rivets and anchors (Fig. 18) maintaining a distance of 30 mm from the door's maximum travel. Check the drilling measurements. Insert and secure the support brackets (F) and fasten the GDS to the ceiling (Fig. 20). Cut away any excess on the brackets.

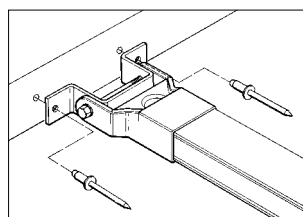


Fig. 18

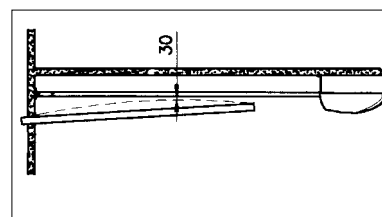


Fig. 19

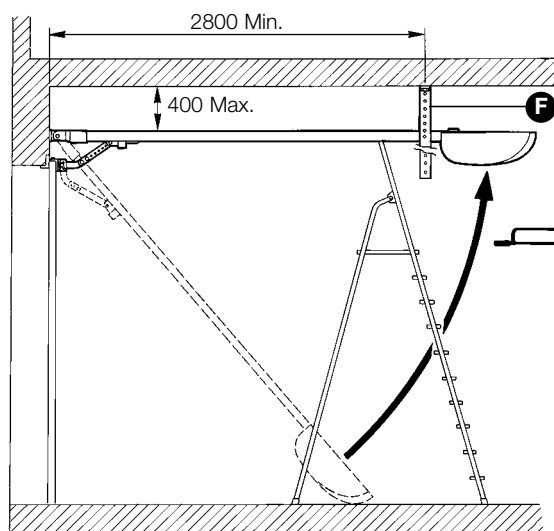


Fig. 20

### 6 POSITIONING THE LIMIT STOP SLIDES

To fix the slides follow the instructions described in chapter 3.4.6 "Checking the connections".

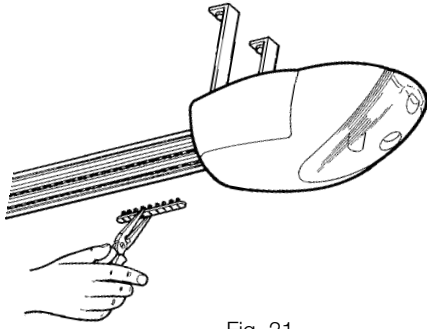


Fig. 21

### IMPORTANT

After the sliding elements have been positioned the closing manoeuvre has to be adjusted. To obtain a millimetric adjustment, adjust the driving rod (Fig. 22) with a 10 mm spanner, loosening the bolts and adjusting travel by means of the 2 slots, after which firmly tighten the bolts.

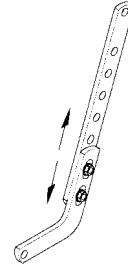


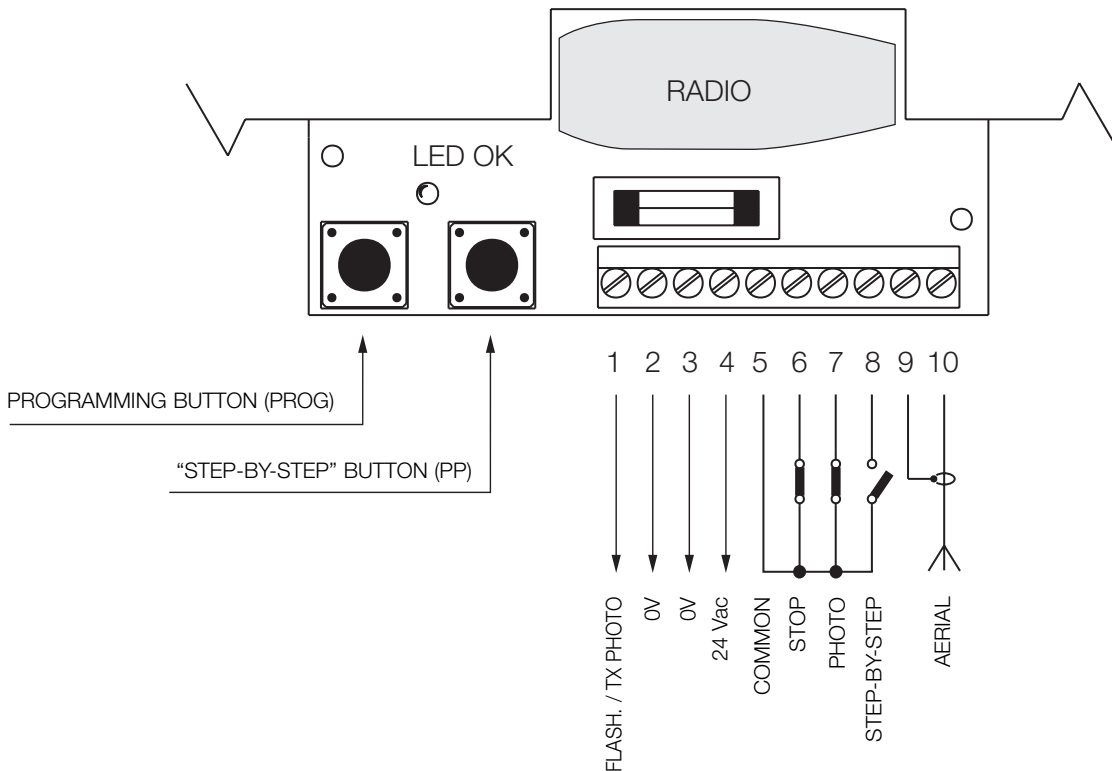
Fig. 22

## 3.4 Electrical connections

**To protect the fitter and avoid damaging the components while electrical connections are being made or the radio receiver is being connected, under no circumstances may the unit be electrically powered.**

- If the inputs of the NC (Normally Closed) contacts are not used they should be jumped with the "24 V Common" terminal (except for the photocell inputs; for information please see the "Photo-test" function).
- If there is more than one NC contact for the same input, they must be connected in "series".
- If the inputs of the NO (Normally Open) contacts are not used they should be left free.
- If there is more than one NO contact for the same input, they must be connected in "Parallel".
- The contacts must be mechanical and potential-free; no stage connections are allowed, such as those defined as "PNP", "NPN", "Open Collector", etc.

### 3.4.1 Wiring diagram



### 3.4.2 Description of the connections

A brief description of the possible control unit output connections follows.

Terminals	Functions	Description
1-2	FLASH./TX Photo	Auxiliary output (24 Vac). The 24 Vac flashing light (alternate current – maximum lamp power 25W) and the photocell transmitter if the "Photo-test" function is programmed can be connected to this output (see Fig. 23)
3-4	24 Vac	24 Vac output (alternate current) for powering services (Photocells, Radio, etc.) max. 200mA
5-6	STOP	Input with "Stop" function (emergency, shutdown or extreme safety). It is normally closed.
5-7	Photo	Input for safety devices (photocell, pneumatic edges). It is normally closed.
5-8	STEP-BY-STEP	Input for cycle function control ("Open-Stop-Close-Stop"), the "Step-by-Step" button activates this input (Fig. 24)
9-10	Aerial	Input for the optional radio receiver aerial.



### 3.4.3 Notes on connections

Most connections are extremely simple, many of them are direct connections to a single user or contact.

The following figures show examples of how to connect external devices.

Fig. 22: Connecting the flashing light and photocells with "Phototest" deactivated

Fig. 23: Connecting the flashing light and photocells with "Phototest" activated

Fig. 24: Connecting the key selector switch

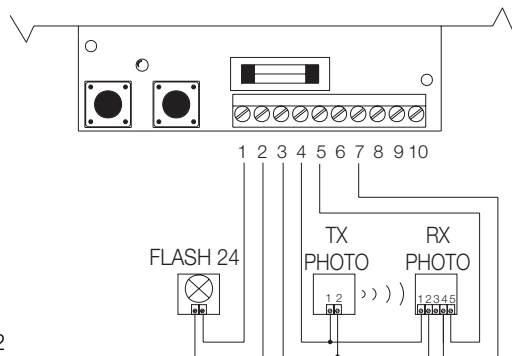


Fig. 22

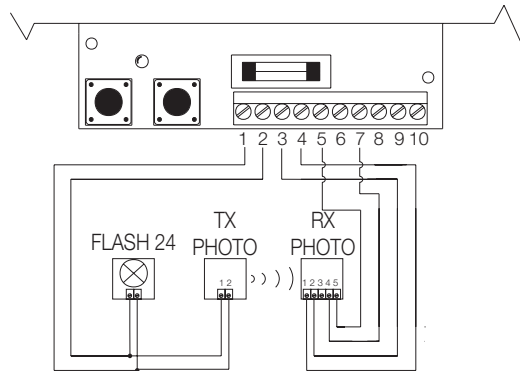


Fig. 23

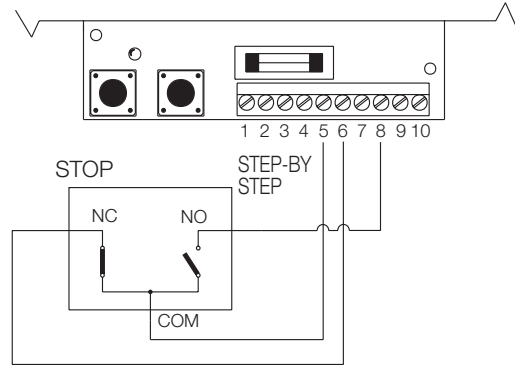


Fig. 24

### 3.4.4 Phototest

The control unit GDS features the "Photo-test" function. This is an excellent solution as regards the reliability of safety devices and puts the control unit + safety device assembly into "category 2" as per UNI EN 954-1 standard (ed. 12/1998).

Whenever a manoeuvre is begun, the relative safety devices are checked and only if everything is in order will the manoeuvre start.

All this is only possible if a special configuration of the safety device connections is used; in practice, the "TX" photocell transmitters are powered separately from the "RX" receivers (for connections see figure 23).

**Note:** when "Photo-test" is active, the photocell transmitter is only powered during the manoeuvre.

### 3.4.5 Power Supply Connection

**The connection of the GDS to the mains must be made by a qualified electrician.**



To carry out tests, insert the plug of GDS in a power outlet; if necessary, use an extension cord.

### 3.4.6 Checking the connections

**The next operations involve work being done on live circuits, some parts have mains voltage running through them and are therefore EXTREMELY DANGEROUS!**

**Pay the greatest of attention to what you are doing and NEVER WORK ALONE!**

After making connections, the whole system must be checked.

- Power the control unit and check that the OK Led flashes rapidly for a few seconds.
- Check that there is a voltage of 24Vac on terminals 3-4, 3-6, 3-7 and that there is a voltage of 0Vac on terminals 3-8; if this is not the case, unplug the unit immediately and carefully check the connections and the voltage input.
- After the initial rapid flashing, the OK Led shows the control unit is working correctly by flashing regularly at 1 second intervals. When there is a variation in the inputs, the OK Led flashes rapidly twice to show that the input has been recognised. When the photocells detect an obstacle, the OK Led flashes rapidly twice, as it also does when the "Stop" input is deactivated.
- Carry out a test with the door disconnected from the motor; perform a brief opening and closing cycle and press the "Step-by-step" button to check the mechanical parts are in working order. (The first manoeuvre made after the unit is powered is always "Open"). At the end of the cycle, reconnect the door to the drive trolley.

- Then position the limit stop slides as shown in Fig. 25.

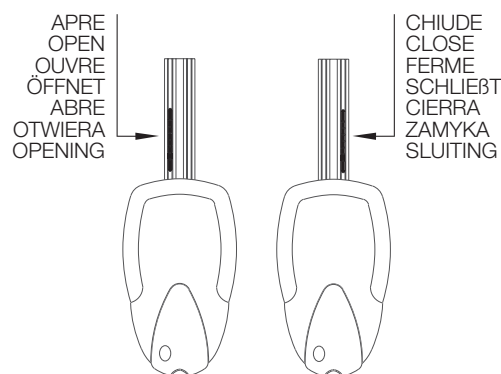


Fig. 25

Press the "Step-by-step" button and check that the door moves in the opening direction. Press the "Step-by-step" button when the door is 1 cm from the opening point, thereby stopping the manoeuvre; then insert the "Open" travel stop slide on the edge of the cover. Press the "Step-by-step" button again and check that the door moves in the closing direction. Press the "Step-by-step" button when the door is 1 cm from the closing point, thereby stopping the manoeuvre; then insert the "Close" travel stop slide on the edge of the cover.

## 4 Programmable functions

The unit features two buttons used to programme various operating modes so as to make the system more suitable to use needs and safer in various conditions of use.

The control unit has two operating modes: semiautomatic and automatic.

### “Semiautomatic” Mode:

In this mode, a command impulse on the “Step-by-step” input makes alternative opening and closing manoeuvres according to the “Open-Stop-Close-Stop” sequence.

### “Automatic” Mode:

In this mode, after an open manoeuvre, a programmed pause takes place (by setting the pause time) after which the closing manoeuvre is carried out.

### Current Sensitivity:

The control unit features a system measuring the current absorbed by the motor and uses this to detect obstacles. Given that the absorbed current depends on variable conditions (weight of door, various kinds of friction, gusts of wind, voltage variations, etc.) the cut-in threshold can be changed. There are five levels: no. 1 is the lowest (minimum power), no. 5 is the highest (maximum power). Initially it is set at level 3, which should be the optimum one for most installations.

**The “current sensitivity” function, suitably adjusted (together with other vital features) allows the system to comply with recent European standards, EN 12453 and EN 12445, which require techniques or devices to be used to limit force and danger when automatic gates and doors are moved.**

## 4.1 Pre-set functions

The control unit GDS features some programmable functions (see chapter 5) that are initially pre-set in a typical configuration which satisfies most automatic systems:

- Function : “Semiautomatic”
- Phototest : deactivated
- Current sensitivity : n° 3 average

These functions can be changed at any time by carrying out a suitable programming procedure.

## 5 Programming

All the functions described in the “Programmable functions” chapter can be selected by means of a programming phase which terminates by memorising the choices made. The control unit therefore has a memory which stores the functions and parameters relative to the automation process.

Press “Step-by-step” and PROG on the board to enter the programming mode.

**The motor must not be running in this mode.**

## 5.1 Programming pauses

This parameter allows the “automatic” or “semiautomatic” mode to be selected; the “pause”, in fact, is the length of time the control unit waits after an opening manoeuvre before activating the automatic closing cycle.

To set the “automatic” mode, memorise the required “pause” ranging between 5 and 250 seconds.

To set the “semiautomatic” mode, memorise a “pause” lasting less than 5 seconds.







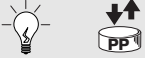

Table “A1”	Activate the “semiautomatic” mode	Example
1.	Press the PROG button and hold it down	
2.	Wait for the OK Led to remain permanently on	
3.	Release PROG before the courtesy light finishes flashing 5 times	 <5

Table “A2”	Activate the “automatic” mode (pause between 5s and 250 s)	Example
1.	Press the PROG button and hold it down	
2.	Release PROG when the courtesy light has flashed the numbers of times equal to the required pause. The “Pause” must be over 5 seconds, that is, 5 flashes	 >5

## 5.2 Programming current sensitivity

Programming this parameter will allow you to select the current sensitivity, i.e. the maximum power that the motor can develop.

You can program one of the five levels available: 1=minimum, 2=low, 3=medium, 4=high, 5=maximum.




Table "A3"	Programming current sensitivity	Example
	<b>The selected level corresponds to the number of flashes made by the courtesy light. One flash corresponds to level no. 1 (minimum) while five flashes correspond to level no. 5 (maximum)</b>	
1.	Press and hold down the PROG button and wait for the courtesy light to start flashing.	
2.	When the desired flashing occurs, press the PP button as well	
3.	Release the PP and PROG buttons	

To check which level has been programmed: disconnect the power supply to the control unit; press and hold down the PROG button; reconnect the power supply and then release the PROG button. The selected level corresponds to the number of flashes made by the courtesy light.

## 5.3 Programming the photo-test mode

To activate the "Photo-test" mode, make the connections described in paragraph 2.3.3 "Notes on Connections" (see Fig. 23), and not the connections shown in Fig. 22.

Table "A4"	Activating "Photo-test"	Example
1.	Press the PROG button and hold it down	
2.	When the Ok Led remains permanently on; press STEP-BY-STEP; the courtesy light switches on	
3.	Release the PROG button	

Table "A5"	Deactivating "Photo-test"	Example
1.	Press the PROG button and hold it down	
2.	When the Ok Led remains permanently on, the courtesy light switches on Press STEP-BY-STEP button; the courtesy light switches off	
3.	Release the PROG button	

Check whether the "Photo-test" mode is activated or deactivated: power the control unit and check how long the OK Led flashes,

- If it flashes rapidly for 2 seconds, "Photo-test" is deactivated;
- If it flashes rapidly for 4 seconds, "Photo-test" is activated.

## 6 Testing

**The automation system must be tested by qualified and expert staff who must establish what tests to perform according to the relative risk.**

Testing is the most important part of the whole installation phase. Each single component, e.g. motors, photocells and other safety devices, the radio receiver and the emergency stop can require a specific test phase; please follow the procedures shown in the respective instructions manuals.

To test the control unit carry out the following procedure (the sequence refers to the GDS control unit with pre-set functions).

- After powering the control unit, check that the OK Led flashes at 1 second intervals. If this does not occur, turn power off immediately and check the fuse.
- Check the proper operation of all the safety devices (emergency stop, photocells, pneumatic edges, etc.). Whenever a device cuts in, the OK Led flashes rapidly twice to signal that the event has been acquired.
- Now it is possible to carry out a complete cycle of the actuator. Press the "Step-by-step" button again and check that the leaf stops automatically at the travel stop. Press the "Step-by-step" button again and check that the leaf stops automatically at the opposite travel stop.

Carry out several manoeuvres to make sure that there are no points of excessive friction and defects in the assembly or adjustments of the gear motor limit stops. While the closing manoeuvre is being performed, the board automatically memorises the time taken. After a complete cycle of manoeuvres (open and close touching both travel stops) the control unit decelerates movement during the last 3 seconds of the closing phase.

- n Now check the safety devices cut in correctly. The ones connected to the "Photo" input have no effect during opening manoeuvre but they will invert movement during the closing manoeuvre. The devices connected to the "Stop" input work during both the opening and closing manoeuvres and stop movement in each case.

In the closing manoeuvre, the control unit reduces speed and noise during the final phase. The point at which the reduction in speed takes place is automatically calculated according to the duration of the previous manoeuvres; for this reason it is necessary to carry out a few complete manoeuvres until the speed reduction point is established (at least ten manoeuvres should be carried out to establish the exact point in which the speed reduces).

## 7 Maintenance

As the control unit is electronic, it needs no particular maintenance. Periodically check, however, at least twice a year, that the whole system is in perfect working order as indicated in the Testing chapter.

### 7.1 Disposal

This product is made of various types of materials, some of which can be recycled: aluminium, plastic, electric cables; while others must be disposed of (boards and electronic components). Enquire about the recycling or disposal systems available in compliance regulations locally in force.

**Some electronic components may contain polluting substances; do not pollute the environment.**

## 8 Troubleshooting

This section will help fitters to solve some of the most common problems that may arise during installation.

### The OK Led doesn't light up.

- Make sure that the power cord is properly plugged into the mains outlet.
- Check that there is 24Vac between terminals 3 and 4 of the terminal board.
- Check that the fuse is in working order. If it has blown, replace it with 2A rapid fuse.

### The manoeuvre does not start.

- Check that the "Stop" input is active, that is, voltage between terminals 3 and 6 on the terminal board is equal to approx. 24Vac. If voltage does not correspond, check that the connection to the "Stop" input is made with a device featuring a Normally Closed contact.
- Check that the photocells are connected to the "Photo" input as shown in **Fig. 22**, if the "Photo-test" is deactivated, or as shown in **Fig. 23**, if "Photo-test" is activated.
- Check that the voltage between terminals 3 and 7 on the terminal board is equal to approx. 24Vac when the photocells cut in. If the voltage does not correspond, check the photocells work correctly by following the relative instructions.

### The manoeuvre does not stop when the "Stop" input cuts in.

- Check if the connection to the "Stop" input is made with a normally closed contact, as indicated in the "Electrical diagram" in paragraph 3.4.1. If it is connected correctly, check that the OK Led flashes rapidly twice when the contact is open.

### The manoeuvre starts but it is immediately followed by a reverse run

- The level of current sensitivity selected is too low to raise the door. Select a higher level of force as described in paragraph 5.2 "Programming current sensitivity".

### When the manoeuvre begins, the courtesy light switches on but then it switches off immediately and the manoeuvre does not continue.

- The "Photo-test" mode is activated and the "Photo-test" was unsuccessful. Check that the photocells are connected as shown in **Fig. 23**. If the connection is correct, check the photocells work correctly by following the relative instructions.

### The flashing light doesn't work.

- Check that voltage between terminals 1 and 2 on the terminal board is equal to approx. 24Vac during the manoeuvre. If the voltage corresponds, the problem is caused by the flashing light that must be checked by following the relative instructions.



## 9 Radio receiver description

The GDS control unit already features a radio receiver for “rolling code” transmitters belonging to the TX4 series produced by Nice. The special thing about this series is that the recognition code is different for each transmitter (it also changes every time it is used).

Therefore, in order to recognise a determined transmitter, the recognition code must be memorised.

This operation must be repeated for each transmitter required to communicate with the GDS control unit.

*Up to a maximum of 256 transmitters can be memorised in the receiver. It is not possible to delete only one radio transmitter. With this operation all the memorised transmitters are deleted.*

During the transmitter code memorisation phase, one of these options may be checked:

**Type I.** Each transmitter button activates the corresponding output in the receiver, that is, button 1 activates output 1, button 2 activates output 2, and so on. In this case there is a single memorisation phase for each transmitter; during this phase, it doesn't matter which button is pressed and just one memory sector is occupied.

**Type II.** Each transmitter button can be associated with a particular output in the receiver, e.g. button 1 activates output 3, button 2 activates output 1, and so on. In this case, the transmitter must be memorised, pressing the required button, for each output to activate.

Naturally, each button can activate just one output while the same output can be activated by more than one button.

One memory section is occupied for each button.

*The GDS control unit only uses the first of the 4 receiver channels, in particular, output No. 1 is connected to the “Step-by-step” output; outputs 2-3-4 are not used.*

## 10 Installing the aerial

The receiver requires an aerial tuned to 433.92MHz to work properly; without an aerial the range is limited to just a few meters. The aerial must be installed as high as possible; if there are metal or reinforced concrete structures nearby you can install the aerial on the top. If the cable supplied with the aerial is too short, use a coaxial cable with 50-Ohm impedance (e.g. low dispersion RG58); the cable must be no longer than 10 m. Connect the central core of the cable to terminal 10 and the earth braid to terminal 9.

If the aerial is installed in a place that is not connected to earth (masonry structures), the braid's terminal can be earthed to provide a larger range of action. The earth point must, of course, be local and of good quality. If an aerial tuned to 433.92MHz cannot be installed, you can get quite good results using the length of wire supplied with the receiver as aerial, laying it flat and connecting it to terminal 10.

# 11 Memorising a remote control

**When the memorisation phase is activated, any transmitter correctly recognised within the reception range of the radio is memorised. Consider this aspect with care and remove the aerial if necessary to reduce the capacity of the receiver.**

The procedures for memorising remote controls must be performed within a certain time limit; please make sure you read and understand the whole procedure before starting.  
To carry out the following procedure, use the button on the radio receiver box, and the respective Led to the left of the button.

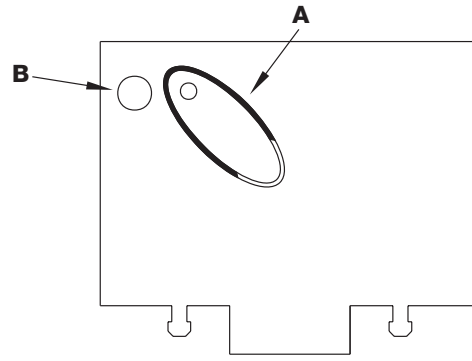


Table "B1"	Memorisation mode I (each button activates the corresponding output in the receiver)	Example
1.	Press and hold down the receiver button for at least 3 seconds	3s
2.	When the LED lights up, release the button	
3.	Within 10 seconds press and hold down button 1 of the transmitter to be memorised (for approx. 2 seconds)	2s
<b>Note:</b> If the memorisation procedure is successful, the LED on the receiver will flash 3 times. If there are other transmitters to memorise, repeat step 3 within another 10 seconds. The memorisation phase finishes if no new codes are received for 10 seconds.		x3

Table "B2"	Memorisation mode II (each button can be associated with a particular output) <b>GDS can only use output no. 1. Do not use the other outputs, therefore</b>	Example
1.	Press and release the button on the receiver	
2.	Make sure that the LED flashes once.	
3.	Within 10 seconds press and hold down the relative button of the transmitter to be memorised (for approx. 2 seconds)	2s
<b>Note:</b> If the memorisation procedure is successful, the LED on the receiver will flash 3 times. If there are other transmitters to memorise, repeat step 3 within another 10 seconds. The memorisation phase finishes if no new codes are received for 10 seconds.		x3

# 12 "Remote" Memorisation








It is possible to memorise a new transmitter in the receiver memory without using the keypad. You need to have an "OLD" pre-memorised operational remote control. The new transmitter will "inherit" the characteristics of the previously memorised one. If the old radio transmitter was memorised in Mode 1, the new one will also be memorised in Mode 1. In this case, during the memorisation stage you can press any key on the two transmitters. If, on the other hand, the old transmitter was memorised in Mode II, the new one will also be memorised in Mode II: you must press the button on the old transmitter which corresponds to the desired command, and the button on the new transmitter to which you wish to associate that command.

Read all the instructions and then carry out the operations one after the other without interruptions. Now, with the two remote controls, NEW, the one whose code number we want to enter, and OLD, the previously memorised one, position yourself in the range of action of the radio controls (within their maximum range) and carry out the steps shown in the table.

Table "B3"	Remote memorising	Example
1.	Press the button on the NEW radio transmitter and hold it down for at least 5s, then release it.	x5s
2.	Press the button on the OLD radio transmitter 3 times slowly.	1s  1s  1s
3.	Press the button on the NEW radio transmitter once slowly, then release.	x1
<b>Note:</b> If there are other transmitters to be memorised, repeat all the steps above for each new transmitter.		

# 13 Deleting all the Devices

All the memorised codes can be deleted as follows:

Table "B4"	Deleting all the Radio Transmitters	Example
1.	Press the button on the receiver and hold it down	
2.	Wait until the LED lights up, then wait until it goes off, then wait until it has flashed 3 times	   x3
3.	Release the button precisely upon the third flash.	  3°
<b>Note:</b> If the procedure is successful, after a few moments the LED will flash 5 times.		 x5

# 14 Technical characteristics

GDS is produced by NICE S.p.a. (TV) I, MHOUSE S.r.l. is an affiliate of the Nice S.p.a group.

Nice S.p.a., in order to improve its products, reserves the right to modify their technical characteristics at any time without prior notice. In any case, the manufacturer guarantees their functionality and fitness for the intended purposes.

Note: all technical specifications refer to a temperature of 20°C.

## GDS gearmotor for sectional and overhead doors.

Type	Electromechanical gearmotor for automated sectional and overhead doors with incorporated control unit complete with radio receiver for "TX4" transmitters.
Adopted technology	24Vdc motor, helical teeth reduction gear, drive guide with chain and mechanical release A transformer located in the motor but separated from the control unit reduces the mains voltage to the 24Vdc rating used throughout the automation system
Power supply	230Vac/50Hz
Current	0,65A
Absorbed power	0,15m/s
Speed	0.10m/s in "Slow" speed mode; 0.18m/s in "Fast" speed mode
Max. thrust	650N
Traction	700N
Flashing Light Output	24 Vac (fixed voltage output), 25 W light bulb
Service supply output	24Vac, maximum current 200mA
Maximum duration of a manoeuvre	60 seconds
Pause Time	Programmable from 5 to 250 seconds
Courtesy light time	60 seconds
COURTESY LIGHT	24V/25W E14 SOCKET
Operating temperature	-20°C ÷ +50°C
Working cycle	30%
Motor weight	12Kg

## TX4 Transmitters

Type	Radio transmitter for remote control of automatic sectional and overhead doors
Adopted technology	AM OOK coded modulation of radio carrier
Frequency	433.92 Mhz
Coding	Rolling code with 64 Bit code (18 billion million combinations)
Buttons	4, each button can be used for the different controls of the same control unit or to control different control units.
Irradiated power	approx. 0.0001W
Power supply	6V +20% -40% with two CR2016 type lithium batteries
Battery life	3 years, estimated on the basis of 10 commands/day, each lasting 1s at 20°C (at low temperatures the efficiency of the batteries decreases)
Operating ambient temperature	-20 ÷ 50°C
Use in acid, saline or potentially explosive atmosphere	No
Protection class	IP40 (suitable for use indoors or in protected environments)
Dimensions and weight	72 x 31 h 11mm / 18g

## R1 Radio receiver

Receiving frequency	433.92MHz
Input impedance	52ohm
Sensitivity	better than 0,5 µV
Decoding	Rolling code with 52 Bit code (4.5 billion million combinations)
Operating temperature	-10 °C ÷ +50 °C

## 15 Annexes

The following annexes are designed to help you prepare the technical documentation.

### 15.1 Annex 1: CE Declaration of Conformity of GDS Components

CE Declaration of Conformity of GDS components; this statement must be attached to the technical documentation.

### 15.2 Annex 2: CE Declaration of Conformity of automated sectional or overhead door

CE Declaration of Conformity to be filled in and delivered to the owner of the power operated sectional or overhead door.

### 15.3 Annex 3: Operating guide

Brief guide to be used as an example for drafting the operating guide to be delivered to the owner of the power operated gate.



# CE Declaration of Conformity

according to Directive 98/37/CE, Annexe II, part B (CE declaration of conformity by manufacturer)  
GDS is produced by NICE S.p.a. (TV) I, MHOUSE S.r.l. is an affiliate of the Nice S.p.a group.

Number: 185/GDS/GB      Date: 13/02/2004      Revision: 00

The undersigned: Lauro Buoro declares that the following products

Manufacturer's name:      NICE s.p.a.  
Address:                      Via Pezza Alta 13, 31046 Z.I. Rustignè –ODERZO- ITALY  
Model:                         GDS; TX4

Comply with the essential provisions of the following European Directives:

Reference	Title
98/37/EC (EX 89/392/EEC)	98/37/EC (EX 89/392/EEC)DIRECTIVE 98/37/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of June 22, 1998, for the harmonisation of the legislations of member States regarding machines
73/23/CEE	DIRECTIVE 73/23/EEC OF THE COUNCIL of February 19, 1973 for the harmonisation of the legislations of member States regarding electrical equipment designed to be used within certain voltage limits
89/336/EEC	DIRECTIVE 89/336/EEC OF THE COUNCIL of May 3, 1989, for the harmonisation of the legislations of member States regarding electromagnetic compatibility
1999/5/EC	DIRECTIVE 1999/5/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of March 9, 1999 concerning radio equipment and telecommunications terminal equipment and mutual recognition of their conformity

Satisfies the essential requirements of the following Directives:

Reference	Issue date	Title
UNI EN 12445	8/2002	Industrial, commercial and garage doors and gates. Safety in use of power operated doors – Measuring methods
UNI EN 12453	8/2002	Industrial, commercial and garage doors and gates. Safety in use of power operated doors – Requirements
ETSI EN301489-3	11/2001	Electromagnetic Compatibility and Radio spectrum Matters (ERM) Electro Magnetic Compatibility (EMC) standard for radio equipment and services
EN300220-3	2000	Radio equipment and system (RES) – Short-range devices – Technical characteristics and Test methods for radio equipments to be used with frequencies between 25 MHz and 1000 MHz and a max. power level of 500 mW.
CEI EN60950	10/2001	Information technology equipment. Security

The undersigned declares moreover that the components described above may not be put into service before the machine in which they are incorporated has been identified and declared to comply with the provisions of Directive 98/37/EC.

ODERZO, 13/02/2004

Lauro Buoro  
(Managing director)





# Declaration of Conformity

According to Directive 98/37/EEC, ANNEXE II, part A (CE declaration of conformity for machines)

The undersigned / Company:

\_\_\_\_\_   
*(name or business name of person who has put the power operated sectional or overhead door into service)*

\_\_\_\_\_   
*(address)*

Declares under his/her sole responsibility that:

Automation : power operated sectional or overhead door

Serial number : \_\_\_\_\_

Year of manufacture : \_\_\_\_\_

Location (address) : \_\_\_\_\_

**Satisfies the essential requirements of the following Directives:**

- 98/37/CE Machine Directive
- 89/336/CEE Electromagnetic Compatibility Directive
- 73/23/CEE Low Voltage Directive
- 99/5/CE "R&TTE" Directive

And the provisions of the following harmonised standards:

- EN 12445 Industrial, commercial and garage doors and gates. Safety in use of power operated doors – Test methods"
- EN 12453 Industrial, commercial and garage doors and gates. Safety in use of power operated doors – Requirements"

Name \_\_\_\_\_ Signature \_\_\_\_\_

Date \_\_\_\_\_ Location \_\_\_\_\_



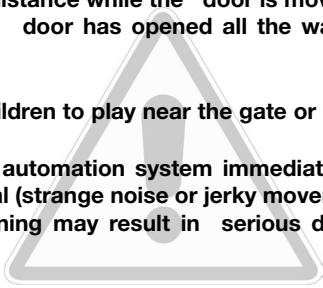


## 15.3 Annex 3: Operating guide

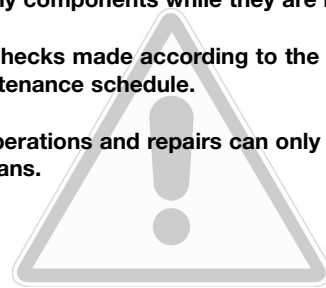
This guide should be stored in an accessible location and made available to all users of the automation.

### 15.3.1 Safety Regulations

- **Keep at a safe distance while the door is moving; do not pass through until the door has opened all the way and stopped moving.**
- **Do not allow children to play near the gate or with its controls.**
- **Stop using the automation system immediately if you notice anything abnormal (strange noise or jerky movements); failure to observe this warning may result in serious danger and accidents.**



- **Do not touch any components while they are moving.**
- **Have periodic checks made according to the instructions provided in the maintenance schedule.**
- **Maintenance operations and repairs can only be performed by qualified technicians.**



### 15.3.2 Control of the door

#### With radio transmitter

The radio transmitter is ready for use and the four buttons have the following functions:

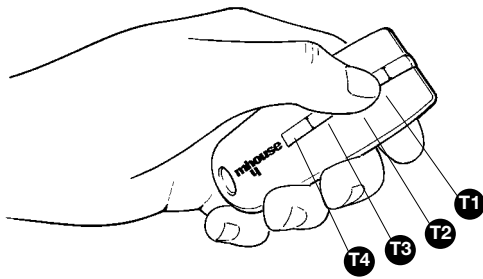


Fig. 26

Function(*)	
T1 button	
T2 button	
T3 button	
T4 button	

#### With pushbutton (incorporated)

The movement of the door can be controlled by operating the button [A]

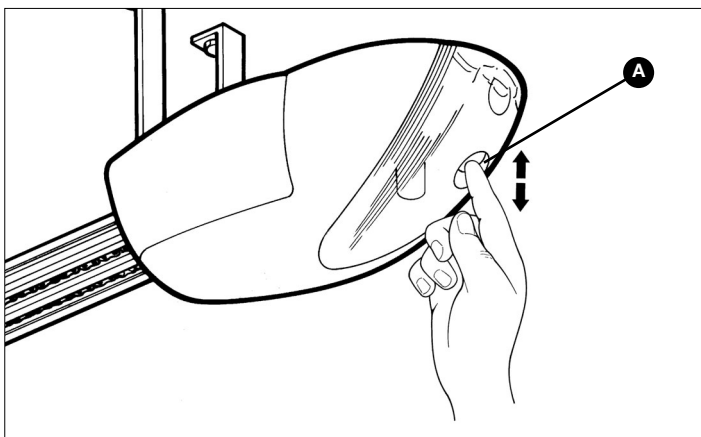


Fig. 27

#### Control with safety devices out of order

If the safety devices are out of order or malfunctioning, it is still possible to control the door.

1 Operate the gate control. If the safety devices enable the operation, the door will open normally, otherwise: actuate the control again within 3 seconds and keep it actuated.

2 After approximately 2s the door will start moving in the "man present" mode, i.e. so long as the control is maintained the door will keep moving; as soon as the control is released the door will stop.

If the safety devices are out of order the automation must be repaired as soon as possible.

### Gearmotor release

The gearmotor is equipped with a mechanical system which allows the door to be opened and closed manually (i.e. as if GDS were not present).

The manual operation must be resorted to in case of power failures or system malfunctions.

- 1 Pull the release cord until you hear the carriage being released.
- 2 At this point you can move the door manually
- 3 To restore the functionality of the automation system, move the door back in position until you hear the carriage being engaged.

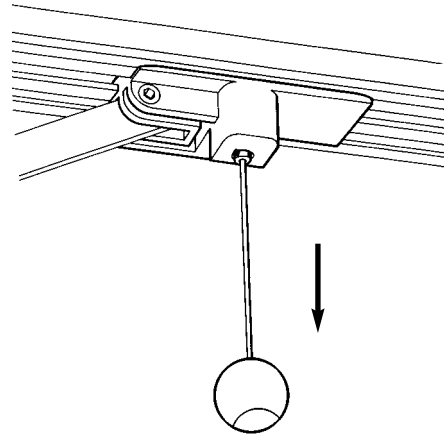


Fig. 28

### 15.3.3 Maintenance Operations to Be Performed by the User

The only recommended maintenance operations that the user can perform periodically concern the cleaning of the photocell glasses and the removal of leaves and debris that may impede the automation.

• Use a slightly damp cloth (not wet) to clean the surface of the devices. Do not use any substances containing alcohol, benzene, diluents or other flammable substances. The use of these substances could damage the devices, start fires or generate electric shocks.

• **Disconnect the power supply to the automation before you proceed to remove leaves and debris, to prevent anyone from activating the door.**

### 15.3.4 Replacing the Remote Control Battery

If the range of the remote control is significantly diminished and the light emitted by the LED is feeble, the remote control battery is probably exhausted. The remote control houses two CR2016 type lithium batteries. To replace them proceed as follows:

- 1 Open the bottom by pulling it.

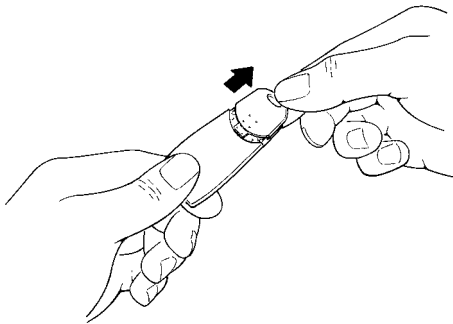


Fig. 29

- 2 Insert a small pointed tool in the slit and prise the batteries out..

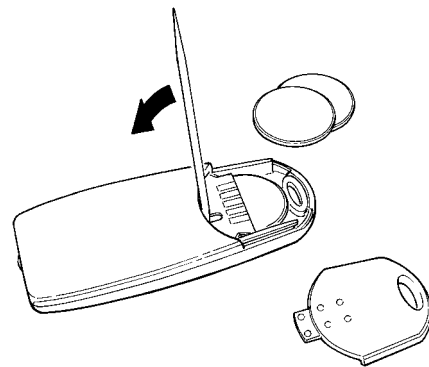


Fig. 30

- 3 Insert the new battery, observing the polarity (the "+" symbol towards the bottom).

- 4 Close the bottom until it clicks.

**The batteries contain polluting substances: do not dispose of them together with other waste but use the methods established by local regulations.**



**Mhouse**

Via Pezza Alta, 13 - Z.I. Rustignè

31046 Oderzo TV Italia

Tel. +39 0422 20 21 09

Fax +39 0422 85 25 82

info@mhouse.biz

**www.mhouse.biz**

