

## 24V DC MOTORISED OPENER FOR SWING GATES

<b>SECTION</b>	<b>TABLE OF CONTENTS</b>	<b>PAGE</b>
<b>1</b>	<b>Introduction</b>	<b>2</b>
<b>2</b>	<b>Warnings</b>	<b>4</b>
<b>3</b>	<b>Technical Specifications</b>	<b>5</b>
<b>4</b>	<b>Positioning</b>	<b>6</b>
<b>5</b>	<b>Wiring Diagram</b>	<b>7</b>
<b>6</b>	<b>Standard Installation Kit</b>	<b>8</b>
<b>7</b>	<b>Installation Instructions</b>	<b>9</b>
<b>7.1</b>	Planting posts	<b>9</b>
<b>7.2</b>	Mounting Motors and Brackets	<b>10,11</b>
<b>7.3</b>	Setting Limit Switches	<b>12</b>
<b>7.4</b>	Auto Close Function	<b>12</b>
<b>7.5</b>	Reversing the Electrical Motor Direction	<b>13</b>
<b>7.6</b>	Other Connections	<b>14</b>
<b>7.7</b>	Pedestrian Opening Facility	<b>15</b>
<b>7.8</b>	Selecting the Double or Single Swing Option	<b>15</b>
<b>7.9</b>	Programming a Gemini Code Hopping transmitter (remote)	<b>16</b>
<b>8</b>	<b>Troubleshooting Guide</b>	<b>17,18,19</b>
<b>9</b>	<b>Maintenance</b>	<b>20</b>
<b>9.1</b>	Replacing the Remote Control Battery	<b>20</b>
<b>10</b>	<b>Standard Guarantee</b>	<b>21</b>
<b>11</b>	<b>Service Record</b>	<b>22</b>
<b>12</b>	<b>Warranty Registration Form</b>	<b>23</b>

### Contact us:

- DMI Engineering, PO Box 36816, Menlo Park, 0102
- 406 Asetileen Street, Silvertondale, Pretoria
- Tel: 012 804 1537, Fax: 012 804 1794
- E-mail: [sales@gemini-gates.co.za](mailto:sales@gemini-gates.co.za)
- Website: [www.gemini-gates.co.za](http://www.gemini-gates.co.za)



## **24V DC MOTORISED OPENER FOR SWING GATES**

### **SECTION 1: INTRODUCTION**

**It is worthwhile reading these instructions carefully and heeding the instructions given.**

#### **IT WILL SAVE YOU TIME, TROUBLE AND MONEY**

This instruction book has been written to assist the owner in the correct installation, operating and maintenance procedures of your **GEMINI** to ensure continued reliability and a long life.

Before leaving the factory, each unit is thoroughly inspected and functionally tested. Although the unit has a factory guarantee, **DMI ENGINEERING** has done everything possible to ensure that your **GEMINI** is safe and reliable. The manufacturer cannot be held responsible for poor workmanship during installation.

Electrical connections and repairs must be carried out by qualified artisans to ensure that all the legal requirements for your local area are complied with.

Please heed all **WARNINGS** in this book for the safety of your children, animals and yourself.



## **SECTION 1: INTRODUCTION (CONTINUED)**

Thank you for choosing GEMINI Motorised Opening System for Swing Gates. Be assured that your system was driven by safety as the design criteria.

By following the basic principles of installation as explained in this manual, your GEMINI automation system will provide you with many years of trouble free service.

The **GEMINI** system is of rugged design and manufacture. It is built for reliability and safety. It consists of a master and/or slave motor, which drives arms to open or close the swing gate.

The **GEMINI** 24V DC Swing gate system is a self-contained unit, which comprises of a 24V DC electrical motor and batteries. The electrical motor and associated components are mounted in a rust resistant base. The base is secured to the pedestal, which in turn is cemented into a concrete base. The complete unit is enclosed with a weather resistant lid.

The electronic control card in conjunction with the limit switches makes provision for several unique features such as remote controlled gate opening, , pedestrian opening facility, obstruction {"impact"}) sensing, adjustable "auto close" facility, infra-red obstruction sensing facility (optional), courtesy light facility, and normal push button operation.

## **SECTION 2: WARNINGS**

### **IMPORTANT SAFETY INSTRUCTIONS:**

- **NEVER WORK ON THE SYSTEM WITH THE ELECTRICAL POWER ON.**
- **NEVER ALLOW PERSONS OR ANIMALS TO STAND ON THE GATE WHILE THE GATE IS IN MOTION.**
- **KEEP HANDS CLEAR OF THE OPERATING ARMS WHILE THE MOTOR IS IN OPERATION.**
- **DO NOT ALLOW ANYONE TO PUT THEIR HAND THROUGH THE GATE TRELLIS WHILE GATE IS MOVING OR ABOUT TO BE ACTIVATED.**
- **TEST ALL OPERATING SYSTEMS ON A REGULAR BASIS, ESPECIALLY THOSE RELATED TO THE SAFETY FEATURES I.E. OBSTRUCTION SENSING AND IR BEAMS**
- **DO NOT ALLOW CHILDREN TO PLAY WITH THE CONTROLS.**
- **KEEP REMOTE CONTROLS AWAY FROM CHILDREN.**
- **IT IS MANDATORY TO INSTALL INFRA RED BEAMS OR SIMILAR SAFETY DEVICES IN SUCH A MANNER AS TO PREVENT OPERATION OF THE SYSTEM WHEN THERE IS A CHANCE OF THE GATES COLLIDING WITH A VEHICLE OR PERSON OR ANIMALS.**

### **CAUTION:**

**Under NO circumstances must the main electrical supply be wired directly from a power source. As a safety precaution, an ON/OFF switch must be incorporated into the electrical circuit, normally within 1 meter from the unit.**

#### **Electrical power supply:**

220V Mains is supplied to the power supply unit (PSU). The 27V supplied by the PSU is connected to the harness.

#### **Ground (earth) connection:**

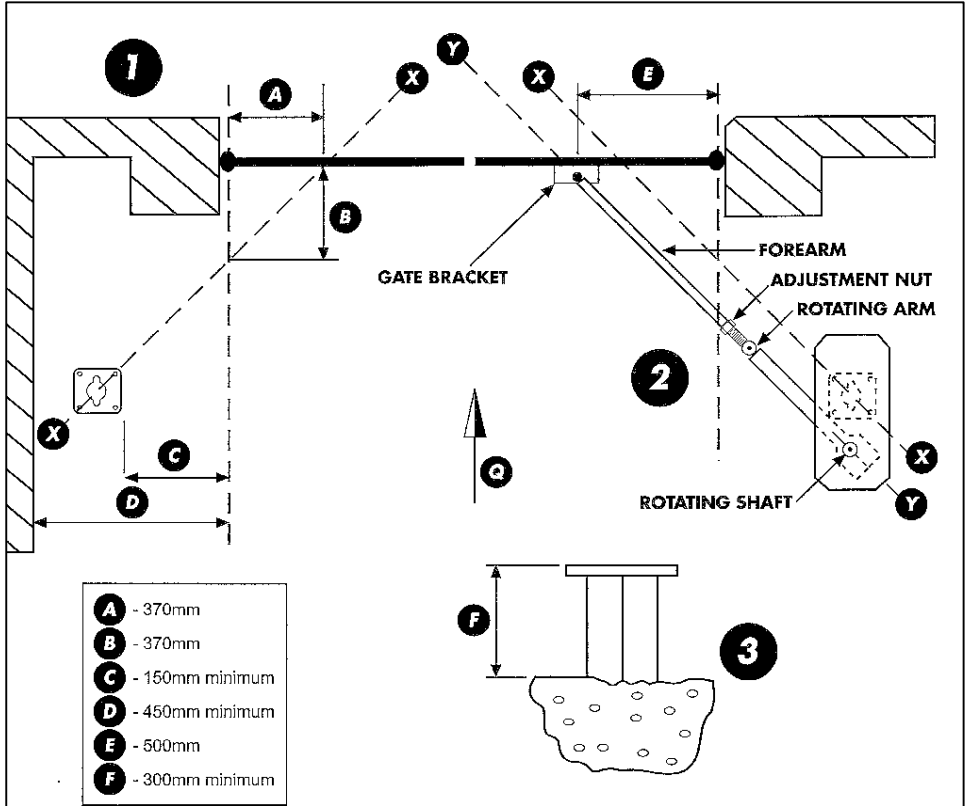
Connect the ground (earth) wire on the base plate.

### **SECTION 3: TECHNICAL SPECIFICATIONS**

Motor:	24V DC
Gate speed:	10 sec / 90°
Limit switches :	Independent in both directions
Activation:	Remote control, N/O
Weight:	± 26 kg
Electric load current:	2 Amps
Duty cycle:	65%
Other features:	<ul style="list-style-type: none"><li>- Battery driven in case of power failure</li><li>- Pedestrian facility</li><li>- Manual override in case of malfunction</li><li>- Electric lock facility</li><li>- Courtesy light facility</li><li>- Auto close function</li></ul>

## SECTION 4: POSITIONING

### **MOTOR POSITION RELATIVE TO GATES**



**Figure 1**

**SECTION 5: WIRING DIAGRAM**

**WIRING DIAGRAM FOR GEMINI DOUBLE SWING MOTORS**  
**(For single swing application ignore slave motor connections and ensure correct settings on PCB)**

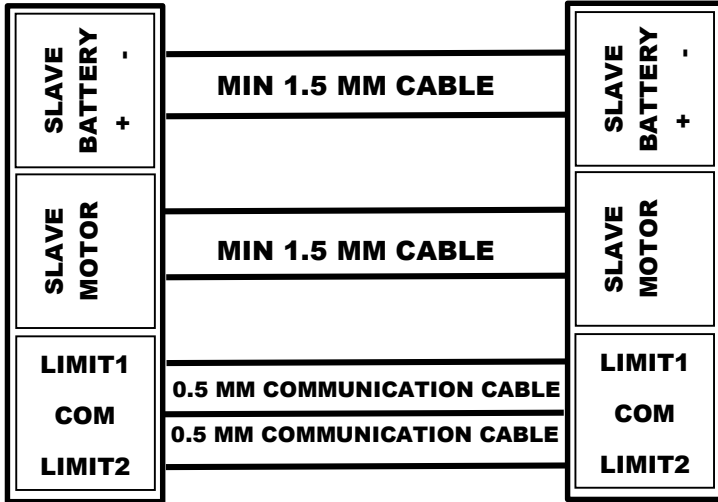
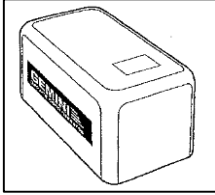


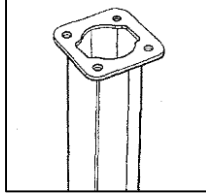
Figure 2

## SECTION 6: STANDARD INSTALLATION KIT

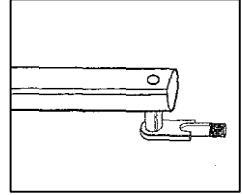
**YOUR GEMINI GATE OPENING KIT FOR SINGLE GATE APPLICATION COMPRISES OF THE FOLLOWING:**



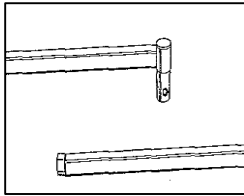
1



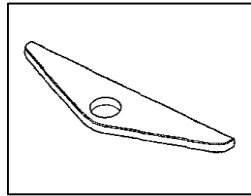
2



3



4



5

1. Motor carrier box
2. Post with mounting flange
3. Crank Arm
4. Connecting Arm with Adjustment Nut
5. Gate Bracket

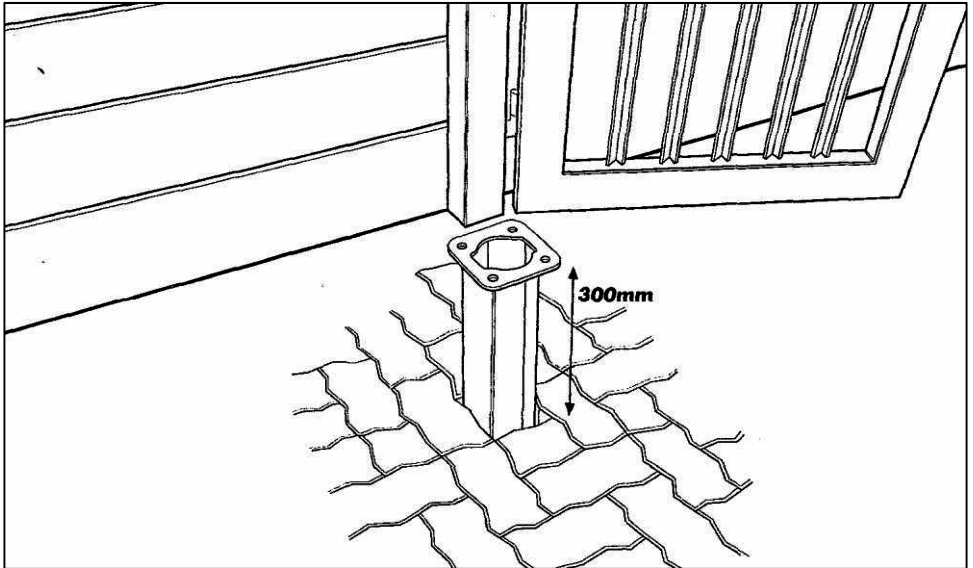


**SECTION 7: INSTALLATION INSTRUCTIONS**

**7.1 PLANTING POSTS**

**Refer to Figure 1 on Page 6**

The posts can be planted anywhere on the dotted line X – X shown in Figure 1, provided “C” does not become less than 150mm. Note that the posts are positioned so that the diagonal of the mounting flange corresponds with the line X – X to ensure the correct alignment of the motors when mounted. Also note that the height of the mounting flange above ground level should be at least 300mm. See below figure 3.



**Figure 3**

**SECTION 7: INSTALLATION INSTRUCTIONS (CONTINUED)**

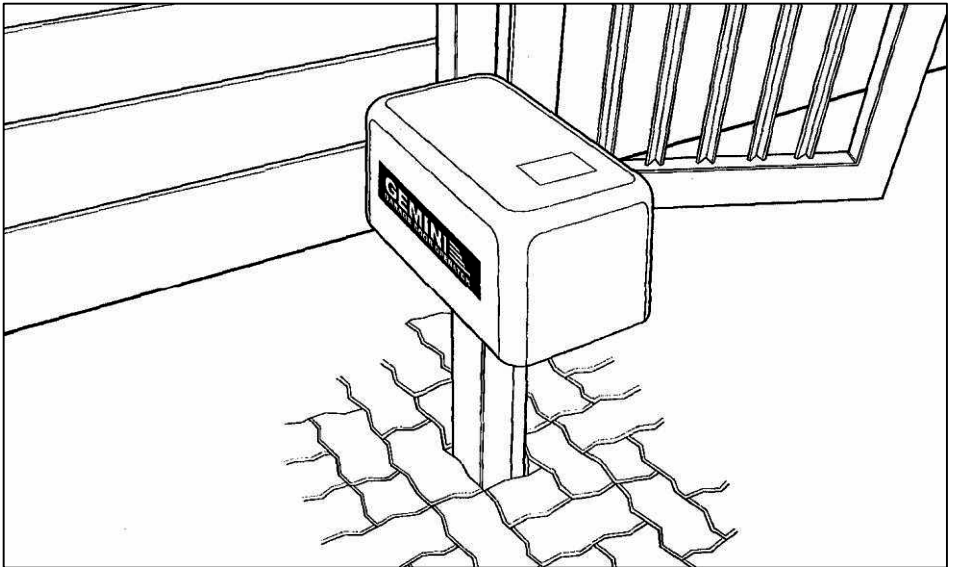
**7.2 MOUNTING MOTORS AND BRACKETS**

**Refer to Figure 1 on Page 6 Illustration 2**

The master motor can be mounted on either side of the gate. Complete all electrical connections and get the motors operational as per the wiring diagram. Do not connect the gate. See below Figure 4.

Activate the motors to rotate to the closed position. Mount the gate brackets onto the gate. See following page Figure 5.

As the crank arms are not locked onto rotating shaft at this stage, rotate them until they point to the gate bracket and measure the distance from the hole in the gate bracket to the end of the crank arm. See following page Figure 5.



**Figure 4**

## SECTION 7: INSTALLATION INSTRUCTIONS (CONTINUED)

### 7.2 MOUNTING MOTORS AND BRACKETS Continued

#### Refer to Figure 1 on Page 6

Rotate the arm by 180° or to maximum open position. When the gate is opened to 90° or to the required open position, the distance between the hole in the gate bracket and the end of the crank arm should still be the same, as when in the "CLOSED" position. If not, shift the gate bracket and re-measure. See below Figure 5.

Once the ideal positions have been located, cut the connecting arm and weld onto adjusting nut. Weld gate bracket onto the gate and hook the connecting arm into the hole in the gate bracket. See below Figure 5.

The crank arm can now be locked by means of a 10mm Hexagonal key or other suitable means. See below Figure 5.

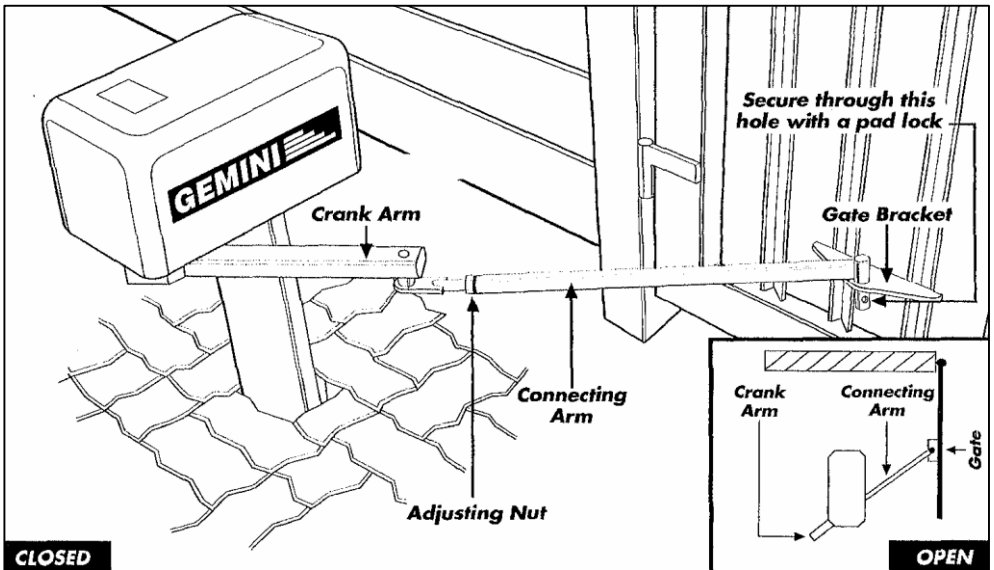


Figure 5

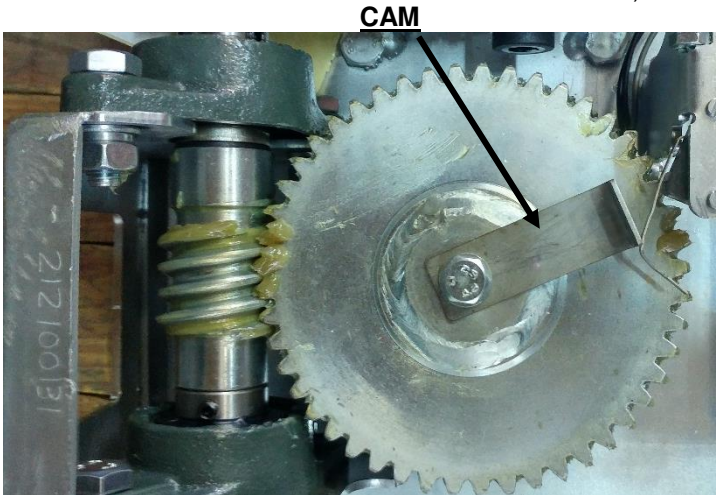
**SECTION 7: INSTALLATION INSTRUCTIONS (CONTINUED)**

**7.3 SETTING LIMIT SWITCHES**

**Refer to Figure 6 below**

The close limit switch is not adjustable, but if all the previous stages have been followed to mount the connecting arm, it will not be necessary to adjust the close limit switch.

The open limit switch is adjusted by rotating the **cam** on the worm wheel (flip the control board on the master motor for access to the worm wheel).



**Figure 6**

**7.4 AUTO CLOSE FUNCTION**

The facility can be utilised by selecting dipswitches on the PC Board representing different time delays. Only select the switches marked “AUTO CLOSE”

## SECTION 7: INSTALLATION INSTRUCTIONS (CONTINUED)

### 7.5 REVERSING THE ELECTRICAL MOTOR DIRECTION

Refer to Figure 7 below

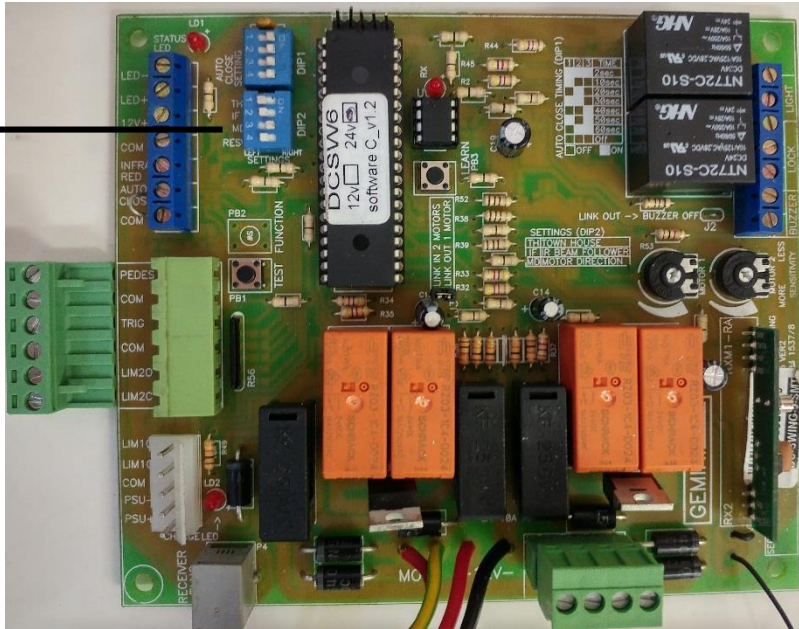


Figure 7

The electrical motor direction default is set by positioning the motor direction (MD) dip switch on the electronic control card either to the left or right.

When the gate is initially activated (during installation) and the gate direction is incorrect, the gate direction dip switch must be moved to the opposite side.

## **SECTION 7: INSTALLATION INSTRUCTIONS (CONTINUED)**

### **7.6 OTHER CONNECTIONS**

<b>220V light</b>	Connect the blue terminal block on the PCB marked LIGHT. The light will be activated when the gate is opened and switches off $\pm 3$ minutes after the gate has closed. The relay on the control board serves as a switch and will not supply any power.
<b>Pedestrian facility</b>	Connect push button to the green plug marked <b>COM</b> and <b>PED</b> marked on PCB
<b>Push button</b>	Connect to green plug marked <b>COM</b> and <b>TRIG</b> on PCB
<b>Infra-red sensor</b>	Connect to green plug marked <b>COM</b> and <b>INFRA-RED</b> marked on PCB
<b>Loop Detector</b>	Connect to green plug marked <b>COM</b> and <b>TRIG</b> on PCB
<b>Additional receiver</b>	Plug in on electronic control card marked <b>RECEIVER PLUG</b>
<b>Buzzer</b>	Connect to the terminal block marked: <b>-BUZZER+</b>
<b>Lock</b>	Relay on board to activate this function. Connect To the terminal blocks marked <b>LOCK</b>

**CAUTION: Ensure that all the legal requirements for your area are complied with.**

## **SECTION 7: INSTALLATION INSTRUCTIONS (CONTINUED)**

### **7.7 PEDESTRIAN OPENING FACILITY**

The Pedestrian Opening Facility can be utilised to give pedestrians access to the premises. The facility allows the gate to open and remain open for ten (10) seconds before automatically closing.

In the double swing gate application, the pedestrian facility will only open the master gate motor and automatically close after ten (10) seconds.

### **7.8 SELECTING THE DOUBLE OR SINGLE SWING OPTION (See figure 7)**

**Link IN (2 Motors)** Select this option when a master and slave motor are used (two gates)

**Link OUT (1 Motor)** Select this function when only a master motor is used (single gate)

## **SECTION 7: INSTALLATION INSTRUCTIONS (CONTINUED)**

### **PROGRAMMING A GEMINI CODE HOPPING TRANSMITTER (REMOTE)**

**Important: The transmitters and on board receiver supplied with this motor have already been programmed. Only additional transmitters and receivers need to be programmed.**

If a non-Gemini remote control is used, program the control as per the supplier's instruction.

To learn the transmitters (Remotes) (Maximum of 15):

1. Press and release learn button on the PCB
2. Red RX LED will flash for one second once
3. Push desired transmitter/remote button to be learnt at least arm's length away
4. Red RX LED will flash once to confirm learning
5. Repeat steps 1– 4 until all transmitters/remotes are learnt
6. Maximum transmitters per on board receiver 15
7. Operate transmitters as required
8. To erase all transmitters/remotes, press and hold down the learn button for 8 seconds.





## **TROUBLE SHOOTING GUIDE**

Should a problem occur, consult the following table first before calling your local **GEMINI** agent.

### **WARNING:**

**DURING SOME OF THE FOLLOWING CHECKS / TESTS, IT WILL BE NECESSARY TO WORK ON THE UNIT WHILE THE ELECTRICAL POWER IS SWITCHED ON (LIVE), THEREFORE UTMOST CARE MUST BE TAKEN TO PREVENT ELECTRICAL SHOCKS.**

**IN THE FOLLOWING TROUBLE SHOOTING GUIDE THERE ARE PROBLEMS, POSSIBLE CAUSES AND REMEDIES TO ENABLE QUICK IDENTIFICATION AND LOCATION OF FAULTS. CARE HAS BEEN TAKEN IN THIS GUIDE TO INCLUDE ALL LIKELY MALFUNCTIONS THAT COULD OCCUR.**

**TROUBLE SHOOTING GUIDE (CONTINUED)**

**PROBLEMS DURING THE INSTALLATION / OPERATING PHASE**

<b>PROBLEM</b>	<b>POSSIBLE CAUSE</b>	<b>REMEDY AND/OR TEST</b>
Electrical motor does not turn on	<ul style="list-style-type: none"> <li>a. Is the main power switched on?</li> <li>b. Is battery connected?</li> <li>c. Is the electrical power correctly connected?</li> </ul>	<ul style="list-style-type: none"> <li>a. Switch the power ON</li> <li>b. Charge battery</li> <li>c. Check and rectify as necessary</li> </ul>
Motor operates by actuating the push button, but not with the remote control	<ul style="list-style-type: none"> <li>a. Is the remote learnt correctly?</li> <li>b. Remote control battery flat</li> <li>c. Remote control defective</li> </ul>	<ul style="list-style-type: none"> <li>a. Check, and if necessary, relearn remote</li> <li>b. Replace battery</li> <li>c. Replace remote control</li> </ul>
Motor activates with the remote control but not with the push button	<ul style="list-style-type: none"> <li>a. Faulty wiring to the push button</li> <li>b. Push button faulty</li> </ul>	<ul style="list-style-type: none"> <li>a. Disconnect the push button wiring from the GEMINI and bridge the COMMON and TRIG connections at the connector block. If motor operates, the wiring is faulty and must be repaired</li> <li>b. Disconnect push button wiring at the push button. Momentarily bridge the wires at the push button. If the motor operates, the push button is faulty and must be repaired or replaced</li> </ul>

**TROUBLE SHOOTING GUIDE (CONTINUED)**

Gate motor direction incorrect	a. Incorrect setting	a. Refer to “Reversing Electrical motor direction” and use alternative positioning of the jumper
Motor opens the gate for a short distance only, then closes again	a. Obstruction in the way of the gate	a. Discuss the problem with your local <b>GEMINI</b> agent b. Remove obstruction
Gate opens and closes by itself	a. Faulty push button wiring b. Faulty remote control receiver c. Somebody in your area’s remote is learnt on your PCB	a. Check and rectify as necessary b. Replace the remote control receiver c. Erase and relearn your remotes
Receiver reception insufficient	a. Transmitter battery flat b. Receiver range is obstructed	a. Replace battery b. Place in different position
Gate moves with difficulty	a. Check hinges	a. Lubricate or replace hinges

## **MAINTENANCE**

The **GEMINI** swing gate opener system is practically a maintenance free unit and needs very little attention.

On a 6-monthly basis, it is advisable to remove the protection lid grease the main gear and blow off all accumulated dust and dirt from the unit with low pressure compressed air.

### **9.1 REPLACING THE REMOTE CONTROL BATTERY**

Using a small flat screwdriver, remove the rear cover from the remote control unit.

Remove the battery from its holder.

Check that the holder and contact points are clean (signs of corrosion, etc.).

Fit a new battery, noting the position of the (+) and (-) end of the battery. The (-) end of the battery faces towards the spring connection.



## **STANDARD GUARANTEE**

**GEMINI AUTOMATION SYSTEMS** manufactured by DMI Engineering are warranted against defects in material and faulty workmanship for 24 months from the date of purchase.

This warranty applies only to products purchased new from DMI Engineering or its authorised dealers. This warranty does not apply to products which have been subjected to lightning, flood damage or any other freak occurrence of nature, abused, modified or repaired by someone other than DMI Engineering or its authorised dealers.

- A) No batteries are included in the warranty
- B) Electronic components have a 12 month warranty

If a GEMINI automation product proves defective in material or workmanship within the warranty period, please return it to any authorised dealer or DMI Engineering, transportation to and from DMI Engineering prepaid, enclosing your name and address, adequate proof of date of purchase and a short description of the defect. DMI Engineering, at its discretion will repair or replace the defective product free of charge. Repairs or replacements are warranted as described above for the remainder of the original warranty period. DMI Engineering's sole liability and your exclusive remedy under this warranty is limited to repair or replacement of the defective product.

The foregoing warranty is exclusive and in lieu of all other warranties or conditions, written or verbal, expressed or implied all of which are hereby disclaimed. There shall be no liability, for incidental, consequential, or special damages, or any other damages, costs or expenses, excepting only the cost or expense of the replacement or repair.

Use only authorised parts and/or accessories. Any damage or malfunction caused by the use of unauthorised parts is not covered by the warranty.

No warranty is applicable on products not registered with DMI Engineering within the prescribed time and on the correct form.



**SERVICE RECORD**

**FOR YOUR RECORDS**

**GEMINI MODEL 24V DC SYSTEM**

Installation Date.....Dealer Name.....

Tel No: (    ).....Installer's Name.....

Unit Serial No.....

Door size: Height.....mm, Width.....mm, Mass: ±.....kg

Remote Control Type: .....

**UNIT SERVICE RECORD**

<b>Date</b>	<b>Fault</b>	<b>Parts required</b>	<b>Invoice No.</b>	<b>Serviced by</b>	<b>Job No.</b>



**WARRANTY REGISTRATION FORM**

Name of user.....

Date.....

Postal address:.....

.....Code:.....

Telephone No: (     ) .....

Fax No: (     ).....

Date of installation.....

Serial No of Unit.....

Are you satisfied with the service provided by your dealer / installer: YES / NO

Comments:.....

.....

**FOR OFFICE USE ONLY**

Date received:.....

File No:.....

**Please cut out and  
forward this Warranty  
Registration to:  
The Manufacturer  
PO Box 36816  
Menlo Park  
0102**