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INTRODUCTION AND RECOMMENDATIONS

Congratulations on your purchase of a D.A.C.E gate motor. D.A.C.E has proven to be a leader in the automation field and strives to manufacture high quality products using the latest technology available. D.A.C.E. is constantly working on upgrading their products to bring you, the customer, a product of the highest quality. Other products manufactured by D.A.C.E. include:-

- Swing gate operators - DuraSwing
- Infra-red safety beams - DuraOptics
- Remotes and receivers - DuraTronic
- Slide gate operators - SOLO; CONDO & CONDO AC/DC
- Vehicle detection loop - DuraLoop

It is recommended that an experienced gate installer is used to install your gate motor. If you intend to install this motor yourself, please read this manual carefully before any installation begins.

It is strongly recommended that ***DuraOptics*** safety beams are used on all installations, as this reduces the risk of the gate closing on a pedestrian or vehicle.

It is also recommended that a theft deterrent bracket is installed to deter any tampering with the motor.

NOTE : D.A.C.E. supplies an on-board receiver with every motor. D.A.C.E. cannot guarantee the range of the receiver due to interference or obstacles in the path of the receiver. Should more range be required, it is recommended that an external DuraTronic receiver be used.
This automatic gate operator is ***NOT*** a security device. It is designed to make access to a premises undemanding.

WARRANTY

D.A.C.E. offers a Factory Warranty on this equipment. The following terms and conditions apply to ALL warranty claims.
D.A.C.E. warrants the ***ORIGINAL*** purchaser, at the point of sale, that the product is in good working order and is free from any defect.
ANY warranty claim ***must*** be accompanied by the ***original*** invoice.
The original purchaser is responsible for checking that the equipment is free from any visible defect before it leaves the point of sale.
The warranty period is ***24 months*** from date of ***MANUFACTURE***.
The warranty is a ***"walk in "*** warranty. ***No*** warranty claim will be entered into ***"on site".***
The equipment must be returned to the factory with the original invoice for any repair or replacement. The ***transport*** cost is for the end ***users account***.
If the equipment was purchased at a dealer, merchant or agent of D.A.C.E. the claim must be directed to said merchant, dealer etc.
The warranty will ***not cover*** any of the following circumstances in any way.

- **Incorrect installation of the equipment.**
- **Incorrect wiring of the equipment.**
- **Lightning, flooding, power-surge, fire, insect infestation or any form of abnormal use of the equipment**.

NOTE: the ***transformer is not guaranteed*** in any manner, due to power fluctuations.
Any warranty claim must be inspected and tested by a D.A.C.E. agent before any further claim is entered into.

LEGAL REQUIREMENTS AND WARNINGS FOR INSTALLING THIS EQUIPMENT

- It is recommended that your local E.C.A. (Electrical Contractors Association) is contacted in order to obtain the legal wiring regulations pertaining to the area.
- Electrical Shock may occur while installing this equipment.
- Injury or death by electrocution may lead to law suits against the installer/homeowner.
- If you intend to run 220V/AC directly from the Mains supply (house supply) to the transformer, the wiring should be done by a qualified/registered electrician. This is a legal requirement and failure to do so may lead to non-compliance of property or law suits against the property owner in the event of an accident.
- It is a legal requirement to run all cabling in conduit. The power supply must be run in a separate conduit to ANY other cables.
- Mains supply may only be run in a guarded cable. Under no circumstances may 220V/AC be run using Communication cable, Ripcord or Cabtyre.
- D.A.C.E will not be held liable for any accident / incident resulting in damage, injury or death ensuing from the installation of the automatic gate motor.
- Although the SOLO,CONDO & CONDO AC\DC operators have built-in collision sensing, substantial damage may still occur. For this reason safety beams should be used on all installations.
- Do not allow children to play near or with any gate, gate motor or remote control.
- It is the responsibility of the installer to ensure that the gate is in good working condition before automating the gate.
- D.A.C.E will not be held responsible for any gates bumping the ends stops when a gate is automated on a slide.

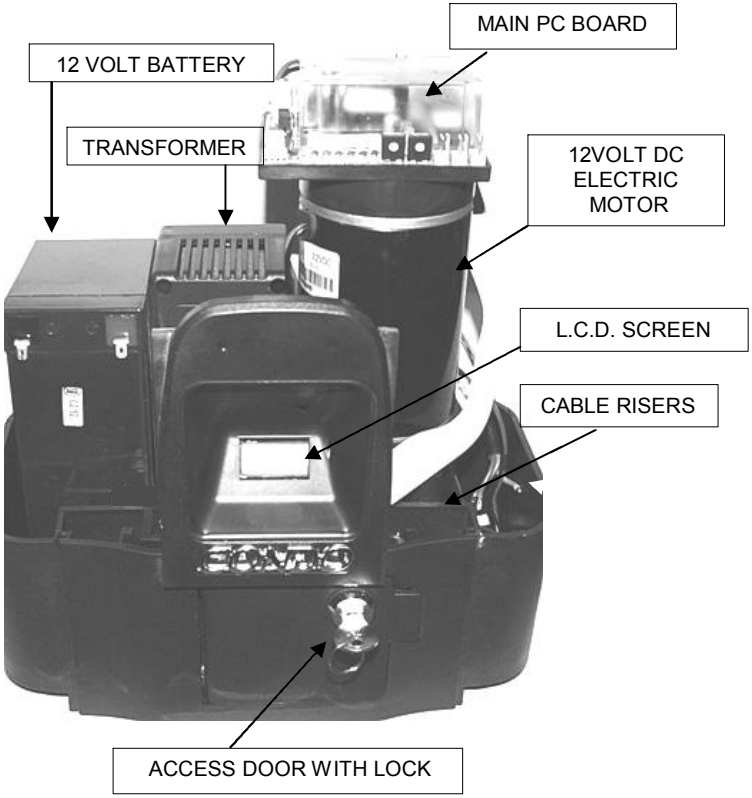
RECOMMENDED TOOLS

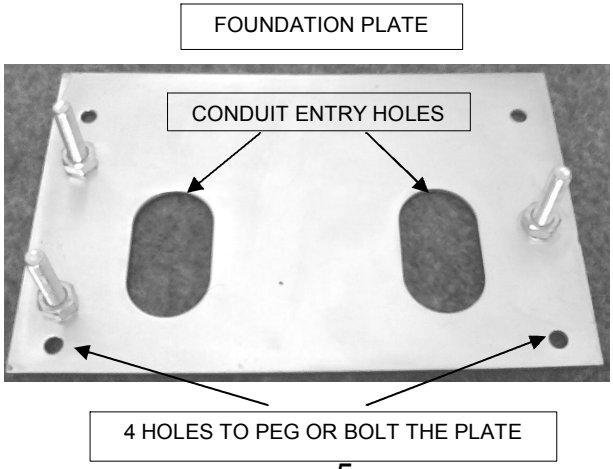
- Assorted screw drivers – phillips and flat
- 17mm spanner
- 17mm socket
- Tape measure
- Spade
- Pick
- Spirit level
- Drilling machine
- Steel drill bits
- Masonry drill bits
- Hammer
- Multi Meter
- Side cutters

TERMS AND DEFINITIONS

- **Auto-close**: allows the gate to close automatically after a selected time period.
- **Multi-user mode**: this is a setting used in town house situations where there are multiple triggers. This setting will avoid the motor getting multiple triggers at the same time.
- **Pedestrian access**: allows only partial opening of the gate and will auto-close after 6 seconds.
- **Anti-lift device**: stops the gate being lifted off the rail.
- **Battery**: the battery is used to drive the motor. (The CONDO AC/DC motor can operate without a battery)
- **Battery Back-up**: the CONDO AC/DC uses mains power to drive the motor, and the battery is used in the case of mains power failure.
- **Safety Beams**: These reduce the risk of the gate closing on a vehicle. Beams should always be used when auto-close is selected.
- **Transformer**: the transformer reduces the mains power (220 VAC) to 16 VAC. **NOTE!** The cable to be used from the transformer to the main PC board must be a minimum of 1.5mm cable. DO NOT use communications cable.
- **Charger module**: the on-board charger receives 16 VAC from the transformer and then delivers a trickle charge to maintain ± 13.8 VDC charge to the battery.
- **Main PC board**: this is the printed circuit board that contains all the electronic components that operate the motor. **NOTE!** Always remove the power from the PC board before connecting any out-put wires.
- **Remote/Transmitter**: this is usually a hand held product which transmits a radio signal to the receiver.
- **Receiver**: the receiver triggers the motor after receiving a radio signal from the transmitter. **NOTE!** If the range is not sufficient using the on-board receiver, an external receiver can be used.
- **Test button**: this is a button on the main PC board that can be used to activate the motor. This is usually used during the programming of the motor.
- **Rack**: this is a length of toothed gear mounted on the gate.
- **Pinion gear**: this is the gear that meshes with the rack in order to drive the gate. **NOTE!** This is a serviceable part.
- **Foundation plate**: this is the steel plate that is mounted to a concrete plinth in the ground. The motor is mounted onto the foundation plate using the three mounting bolts.
- **Thumbwheel**: this allows the motor to be put into Manual Override mode so that the gate can be operated manually by hand.
- **Free exit vehicle loop detector**: this is an optional extra that will allow the gate to automatically open when a vehicle drives over a loop in the driveway.
- **P.I.R.A.C. mode**: “Passive Infra-Red Auto-Close”. This allows the gate to close as soon as a vehicle passes through the Infra-Red safety beams. *** Pending***
- **Theft deterrent bracket**: Deters anybody from opening the motor or trying to lift the lid.

MOTOR LAY-OUT

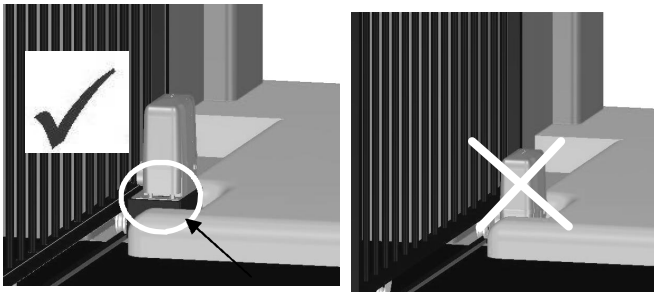




SITE EVALUATION

The site should be evaluated before the installation begins. The following items should be checked:

- Flood level: the motor should be above flood level to avoid any damage to the motor.
- The rail must be level and should be above ground level, this will assist with keeping debris out of the path of the wheels. Any debris lying on the rail may cause the motor to over current.



Mount the motor above the flood level or a flood proof wall must be built in order to prevent water from entering the motor

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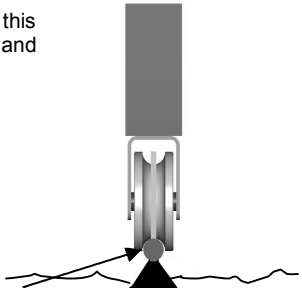
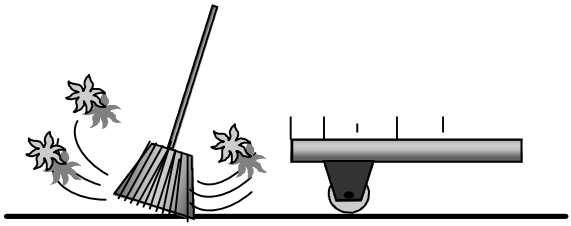
It is important to ensure that the rail is above the ground level, as this reduces the chance of stones and other debris blocking the track and jamming the wheels of the gate.

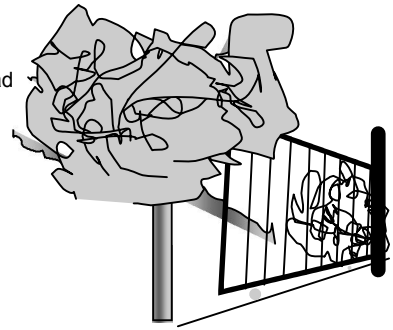


The rail should be above ground level



Ensure that the rail is kept clear of all debris,

Keep all trees, bushes and other growth clear of the gate. Failure to do this may lead to the gate jamming.



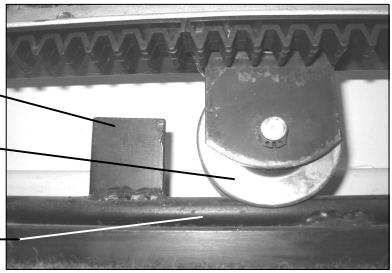
GATE EVALUATION

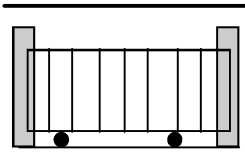
It is extremely important to evaluate the gate that is to be automated before any automation is done. The following points must be checked. All of the points mentioned below are common causes of problems if not checked.

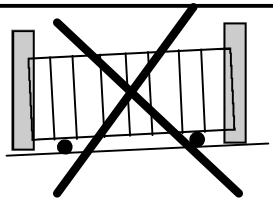
Ensure that the end stops are secure. It is recommended that steel plates of a minimum 70mm high are used as stops.

Ensure that the wheels are turning freely.

It is recommended that 16mm round bar is used to assist with the smooth operation of the gate

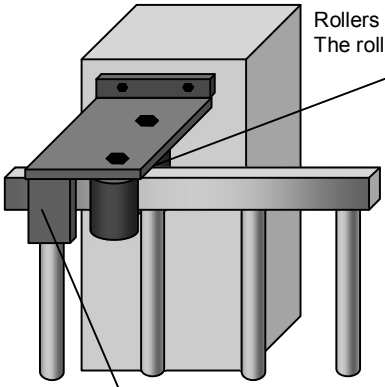






Ensure that the gate is level!

The gate must not move on its own when left in any position on the rail. **D.A.C.E will not be held responsible for any gates bumping the ends stops when a gate is automated on a slide!**

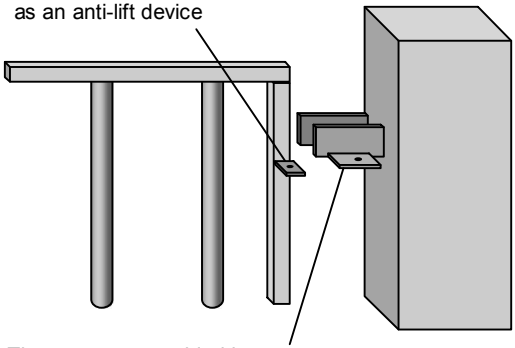


Rollers must roll freely.
The roller mounting can be used as an anti-lift device.

All precautions must be taken to ensure that the gate cannot run free of the rollers.

A device can be fabricated and fitted to prevent this.

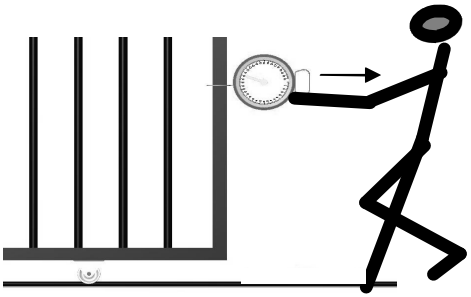
The catch bracket can also be used as an anti-lift device



The gate must not bind in any way on the bracket when opening or closing. Binding can cause a fuse to blow.

START UP FORCE

It is important to check the start-up force of the gate before the motor is installed. Place the gate in the fully closed position. Using a fishing scale, pull the gate open and check the kilogram force required to start the gate rolling. This is the start-up force.
At no stage while moving the gate must the reading exceed the force shown in the table below.



Start up force table

SOLO - max. start up force of 10kg

CONDO - max. start up force of 15kg

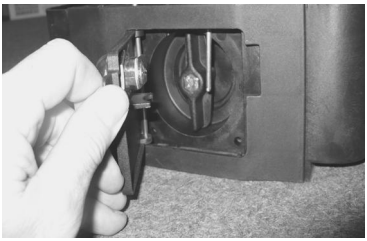
CONDO AC/DC - max. start up force of 15kg

NOTE. A good standard household gate of ± 100kg should have a start up force of 1,5 kg—2,5 kg

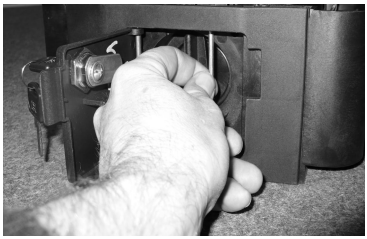
REMOVING THE LID AND PLACING THE MOTOR IN MANUAL OVER-RIDE

REMOVING THE LID

Step 1
Open the access door

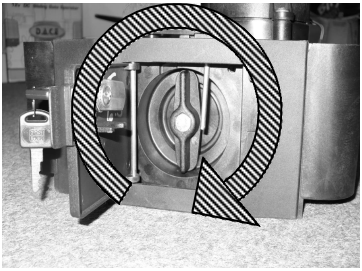


Step 2
Pull the pin out, the pin will move about 5 mm

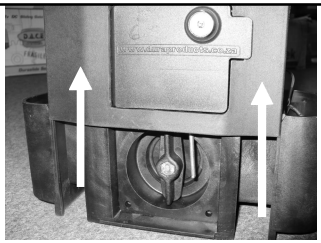


PLACING MOTOR INTO MANUAL OVER-RIDE

Open the door as in step 1 above. Turn the thumb-wheel CLOCKWISE until the gate moves freely.

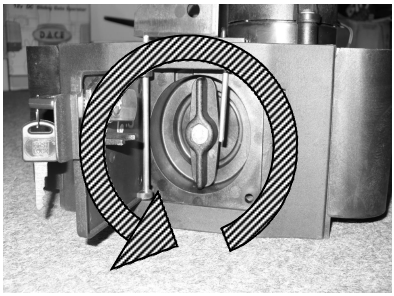


The front cover can be removed for ease of operation, as shown bellow.



PLACING THE MOTOR IN NORMAL OPERATION MODE

Turn the thumb-wheel ANTI-CLOCKWISE. Move the gate by hand until it locks into place.



ELECTRICAL WIRING (SOLO & CONDO)

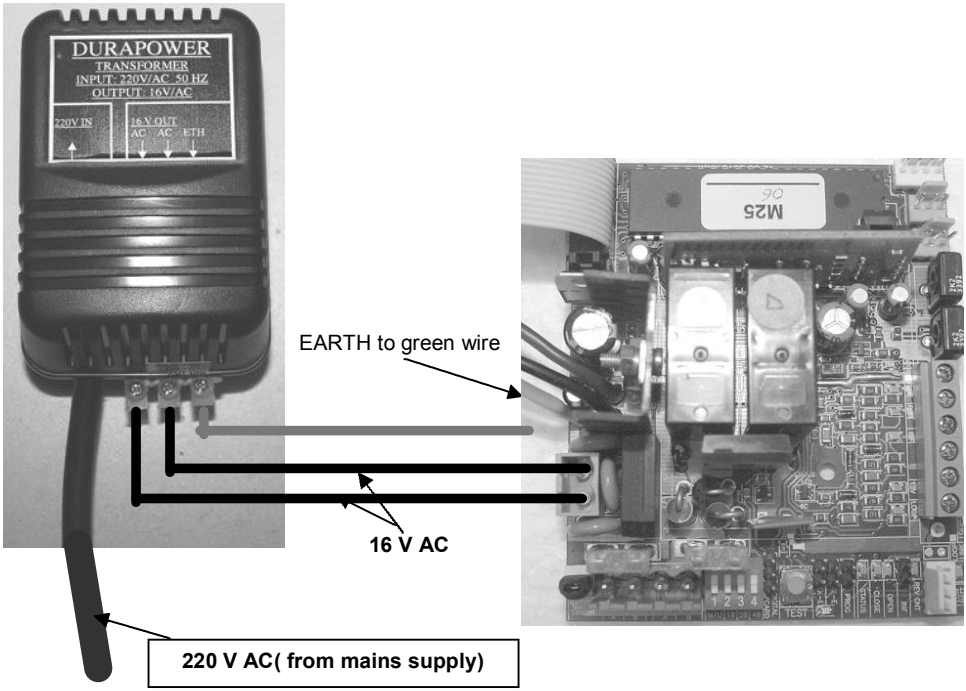
The following section explains how the wiring should be done for the CONDO and SOLO motors only. For the wiring of the CONDO AC/DC motor please see “AC/DC Wiring” (pg 11).
Consult your local EC for correct wiring regulations.

- The transformer must be plugged into a normal plug socket in the house. 16 Volts AC is then run directly to the PC board 16V AC connection. The distance between the transformer and the motor should not exceed 50 meters.
- Take care that the wires are connected the correct way. AC TO AC and EARTH TO EARTH
- The cable should be run in a 300 mm deep trench in a water proof conduit and must be terminated inside the motor.
- There must be no joins in the cable underground.
- The cable should be a three core 1.5mm cable. **DO NOT USE COMMUNICATION CABLE AS THIS WILL VOID ANY WARRANTY AND IS ILLEGAL.**

WIRING DIAGRAM FROM TRANSFORMER TO CHARGER (SOLO & CONDO)

NOTE: the transformer must not be opened in any way as this may cause electrical shock

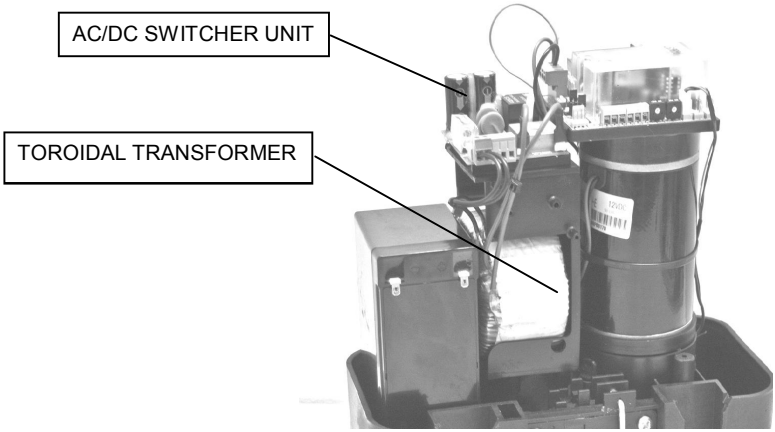
Connect from the transformer 16Volts AC to the **16v AC** on the main PC board.
Connect from the ETH (earth) on the transformer to the **GREEN** wire on the main PC board

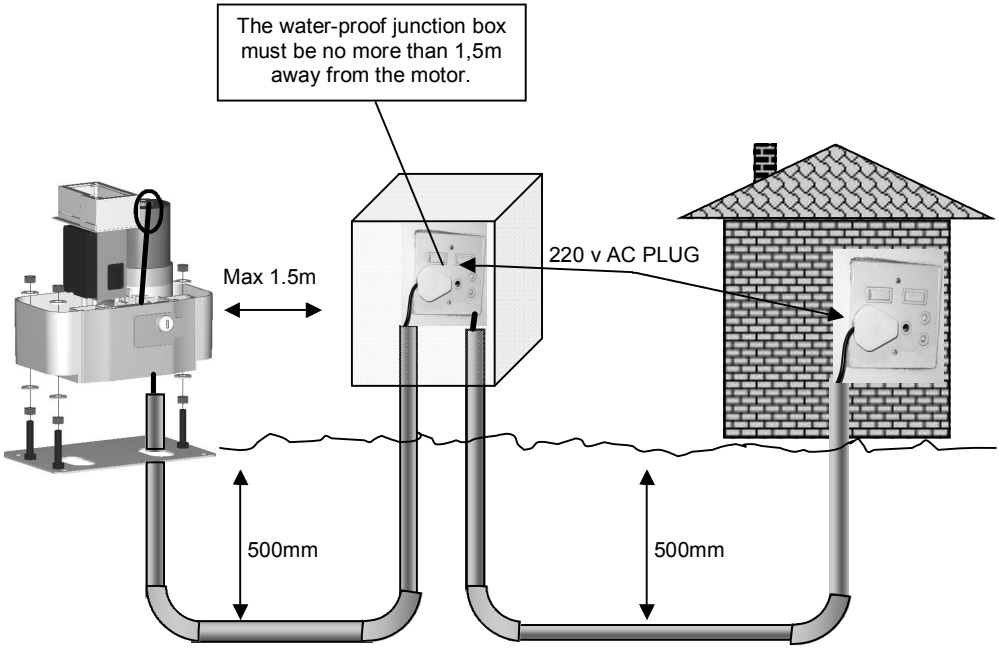


AC/DC WIRING. (CONDO AC/DC ONLY)

The following section explains the wiring for the CONDO AC/DC motor. This motor is designed to be used in townhouse type installations or where the traffic volume is above normal. Caution must be taken when wiring the motor as this uses 220v A/C . Wiring this motor must be done in accordance with the local ECA.

Note! Do not run other cables in the same conduit as the mains power cable.





AC/DC SWITCHER SA109. USED ON AC/DC MOTOR **ONLY**
!!!!!!!! CAUTION !!!!!! HIGH VOLTAGE

16 VOLT AC
SECONDARY TRANSFORMER
RED WIRES

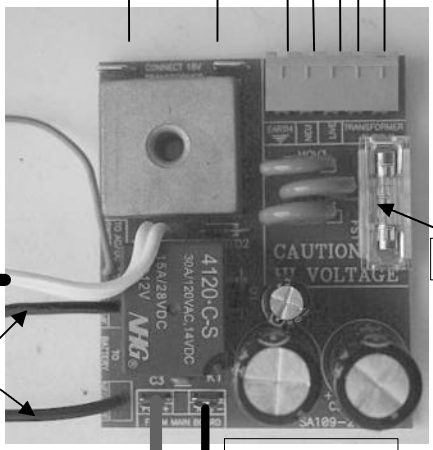
DANGER !!!!!
220 VOLT AC INPUT
From mains supply.
Remove in case of emergency

EARTH

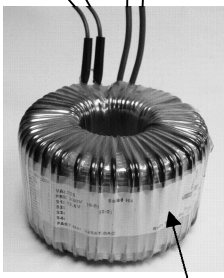
LIVE

NEUTRAL

DANGER!!!!!
220 VOLT AC
Primary transformer
wires



Fuse

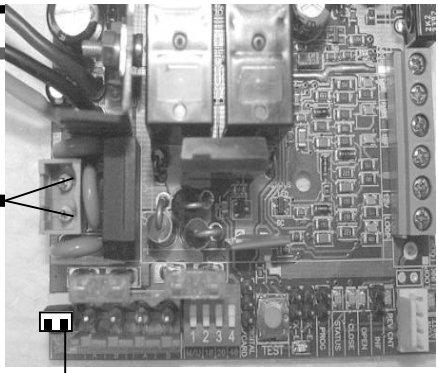


To battery

TRANSFORMER

BLACK WIRE

RED WIRE

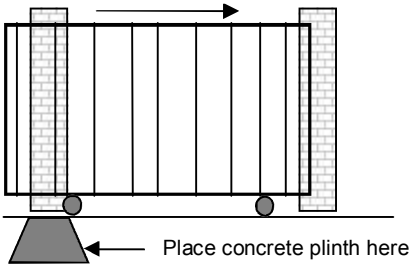


ORANGE
WIRE

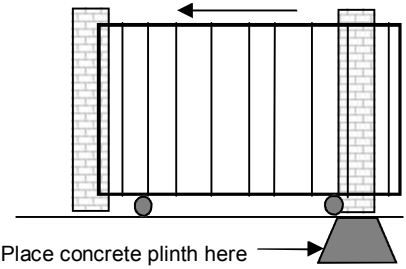
ANCHORING THE MOTOR

It is very important that the motor is mounted on a firm foundation that can not move or become loose over time. The foundation should be constructed from concrete. The size of the plinth should be about 300 by 300 mm square and about 200mm deep. The foundation plate supplied with the motor must be securely mounted to the concrete using coach screws and plugs. The foundation plate can also be welded to the gate rail if need be. The concrete should be allowed sufficient time to set before the motor is mounted onto the plate.

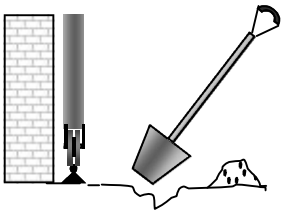
GATE CLOSING TO THE RIGHT



GATE CLOSING TO THE LEFT

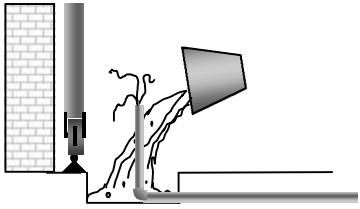


1



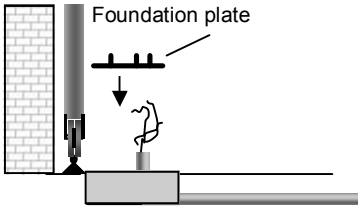
Dig a hole about 300mm

2



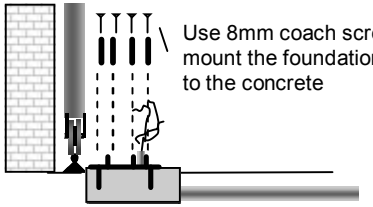
Place the conduit in the correct position before filling the hole with concrete. Flexible conduit may also be used.

3

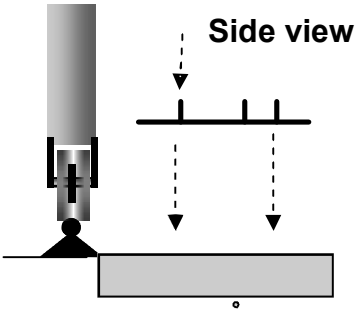


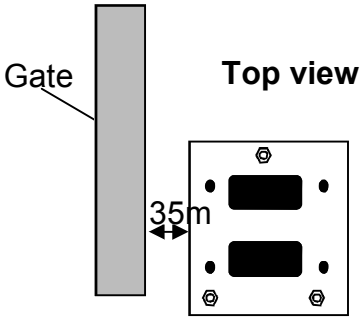
Allow concrete to set and then place the foundation plate onto the concrete plinth

4



Trim the conduit and the cable to the correct length before placing the motor onto the foundation plate.

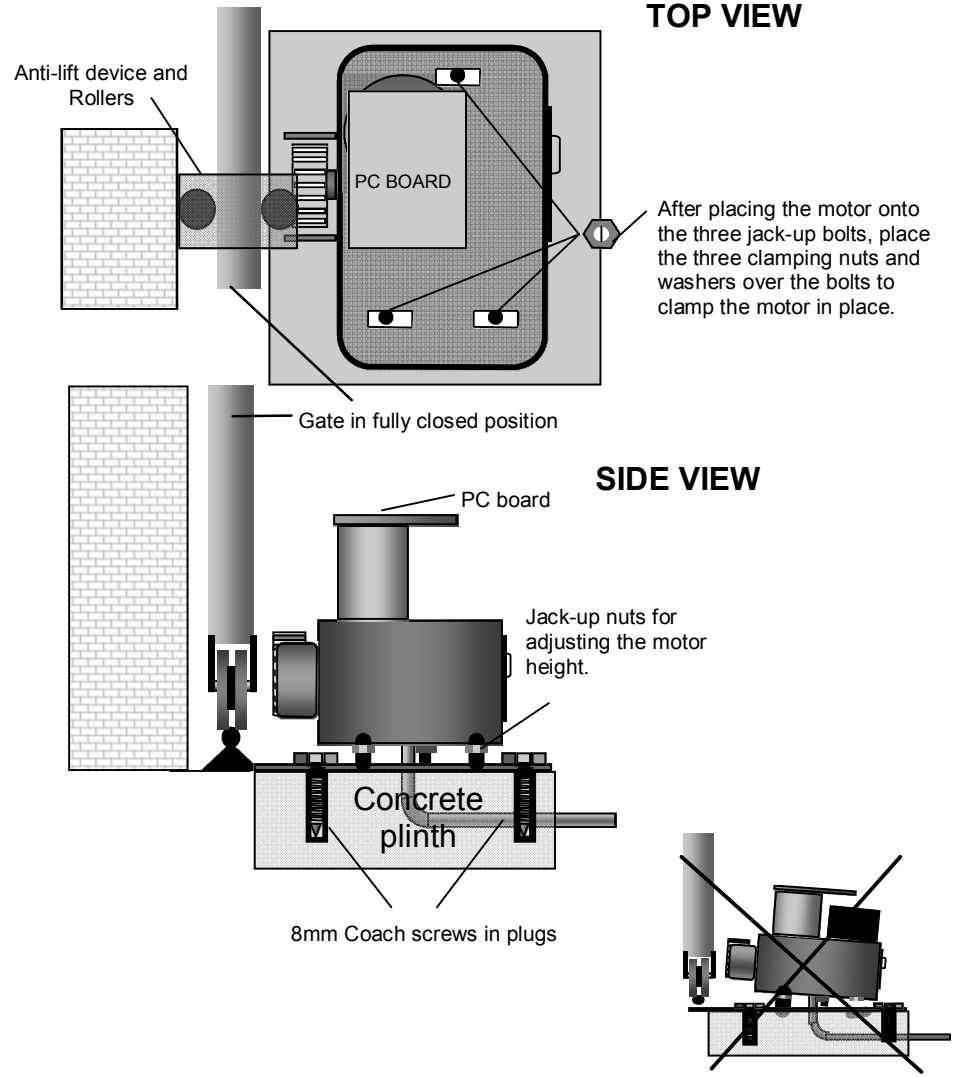




SECURING THE MOTOR TO THE FOUNDATION PLATE

When anchoring the motor it is important to ensure that the following points are checked.

- The electrical cable is in position.
- The concrete is fully set.
- The motor foundation mountings are secure and can not move or become loose.
- The motor should be set level and parallel to the gate.
- The motor must be set above the flood level or if this is not possible, a flood proof wall should be constructed around the motor.



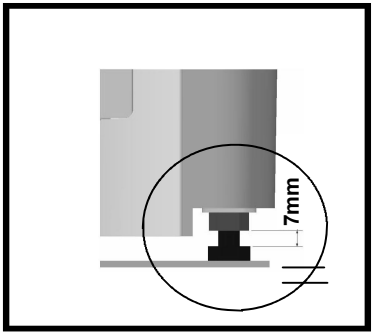
ENSURE THAT THE MOTOR IS MOUNTED LEVEL

MOUNTING THE RACK

The rack is a length of steel that has nylon teeth attached to it. The rack is attached to the gate by means of TEK screws. The rack meshes with the pinion gear on the motor which then drives the gate.
It is very important that the rack is mounted securely and that the rack meshes with the pinion gear for the full length of the gate . Any section of rack that is too tight or too loose will cause problems with the operation of the gate.

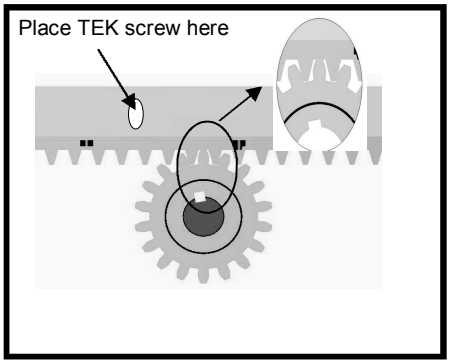
Step 1: ensure that the motor is at least **7 mm above the ground level** and that the gate is in the closed position. **Fig A**
Step 2: place a piece of the rack on the pinion of the motor, ensuring that the teeth of the rack and the pinion mesh correctly.
Step 3: now fasten the rack to the gate using the TEK screws. The TEK screw should be placed in the centre of the slot in the rack so as to allow for adjustment later. **FIG B**
Step 4: push the gate towards the open position continuing to secure the rack to the full length of the gate. Ensure that the rack is securely meshed with the pinion at all times during this operation. Repeat step 4 until the full length of rack is attached to the gate.
Step 5: using the jack-up bolts under the motor, **drop the motor 2mm**, this allows a slight gap between the teeth of the rack and the pinion so as to prevent any binding or tight spots on the rack. **FIG C**
Step 6: push the gate all the way open and closed to check that the rack is meshing with the pinion for the complete length of the gate.
Check that the rack is not touching the motor while running and also check that the rack covers at least three quarters of the pinion at all times when viewed from above.

A



Start with 7 mm space

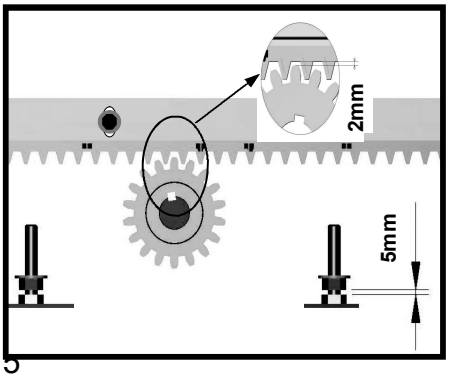
B



Place the TEK screws as shown bellow for the complete length of rack.

IT IS RECOMMENDED THAT THE RACK IS MOUNTED AS SHOWN AND NOT INVERTED , AS THIS MAY CAUSE OBSTRUCTION SENSING PROBLEMS

C

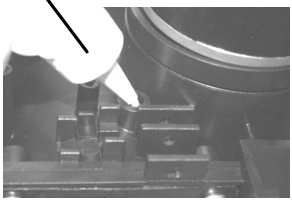


Drop motor by 2 mm when rack is secured to gate.

FILLING THE GEARBOX OIL

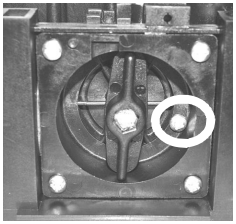
VERY IMPORTANT: GEARBOX MUST BE FILLED WITH THE SUPPLIED OIL *BEFORE* THE MOTOR IS OPERATED!

Fill the gearbox as shown bellow. The entire bottle needs to be emptied into the gearbox.

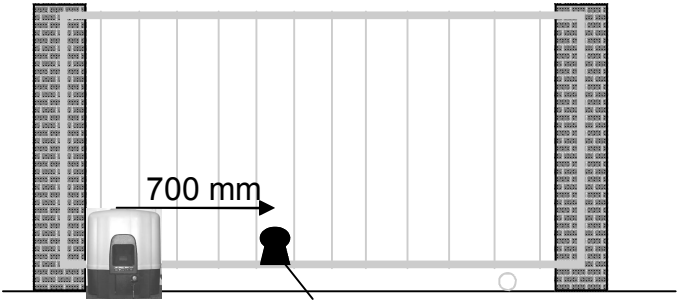


Use S.A.E.75W/90 oil to refill the gearbox

The gearbox oil level needs to be checked periodically. To check the oil level, remove the oil level screw . Oil should be added until the oil just starts to run out of the hole.

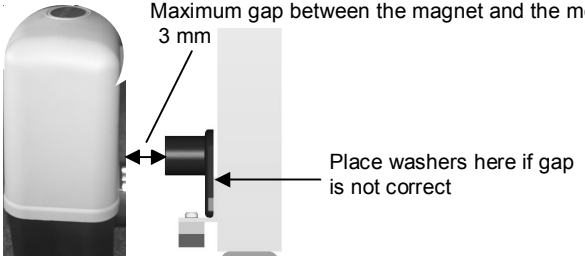


MOUNTING THE MAGNET



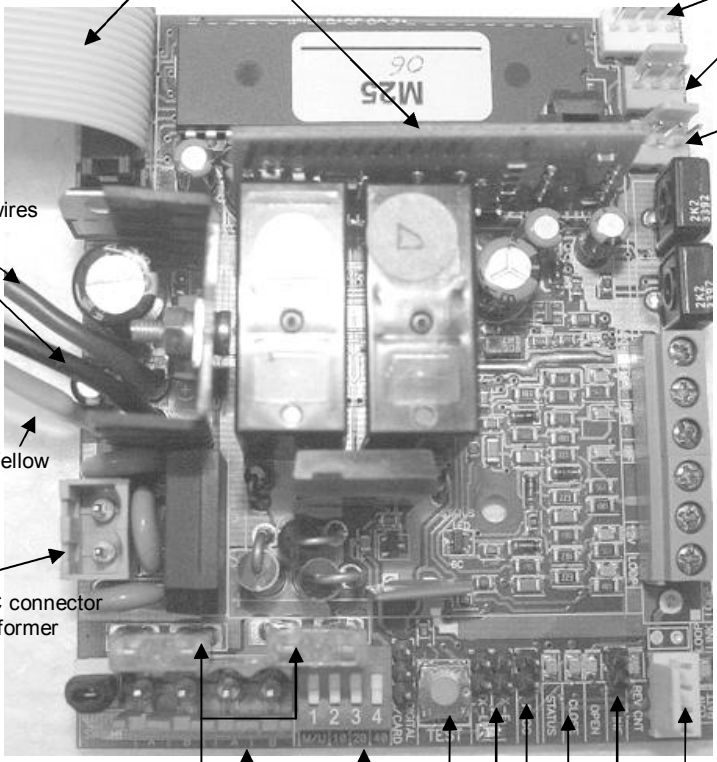
As shown above, with the gate in the ***closed position***, the magnet must be mounted 700 mm from the centre of the motor.
If it is not possible to mount the magnet at 700mm, this distance may be extended very slightly. The magnet must not be inverted. If the magnet is moved for any reason after the motor has been programmed, then the motor will have to be re-programmed.

The gap between the motor and the magnet, when the magnet passes the motor, must not exceed 3mm. To check this, manually move the gate until the magnet is directly over the pinion gear then measure between the magnet and the motor lid. If the gap is more than 3mm, place washers behind the magnet until the correct gap is achieved



MAIN P.C.BOARD LAY-OUT

This PC board is a very sensitive piece of equipment and must be handled with extreme care. The electronic components that are found on the board are sensitive to static electricity and should not be handled or tampered with unless by an authorized D.A.C.E. agent. It is safe to connect electrical wiring to the wiring connectors on the board, but this must be done according to the instructions in this manual. It is very important to remember to disconnect ALL power before connecting or disconnecting any wiring.



LCD screen connector

On board receiver

Light/Lock connector

Rev Counter connector

Marker connector

Current Sensing pots

Battery wires

Auxiliary connectors

Earth wire Green & Yellow

16 Volt AC connector from transformer

20 amp motor fuse x 2

LED extension connector

Infra Red jumper

Open/Close/Status LED

Program jumper

Learn / Erase remote jumpers

Test button

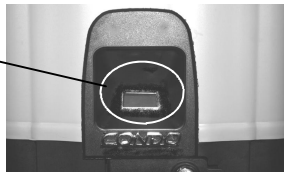
Dipswitches

Motor wire connectors

LCD SCREEN

The LCD is an easy to use screen that gives the owner / installer information regarding programming and motor status. Whenever the motor is programmed or a fault occurs, refer to the screen for diagnostic assistance. In certain cases the screen will give a message that reads “Call Technician’ this means that the motor needs to be checked by an installer. The messages on the screen are generally self explanatory. However the following table gives a description of the messages and their meaning.

LCD SCREEN



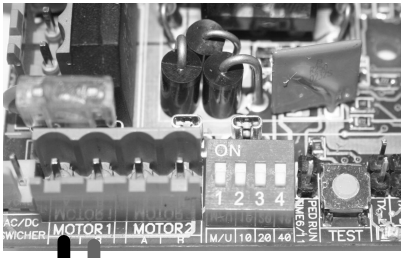
Some of the messages below have been shortened to show the main message. Certain messages will also show the action needed.

MESSAGE	MEANING / ACTION
LOW BATTERY	THIS MESSAGE WILL SHOW AFTER INITIAL START UP, IF THE LOW BATTERY MESSAGE REMAINS AFTER THE MOTOR IS TRIGGERED :- CHECK BATTERY VOLTAGE / CHECK CHARGER VOLTAGE
MAINS FAIL	CHECK THE MAINS POWER / CHECK TRANSFORMER / CHECK CHARGER.
GATE CLOSED	THE GATE IS IN THE CLOSED POSITION.
GATE OPEN	THE GATE IS IN THE OPEN POSITION.
OBSTRUCTION	THE GATE HAS SENSED AN OBSTRUCTION. CHECK THE WHEELS / ROLLERS/ RACK/ BRACKETS/ FUSES/ FORCE SETTING POTS.
NO REV PULSES	FAULTY REV COUNTER, PC BOARD MOUNTING MAY BE LOOSE, MAGNET HOLDER BROKEN.
AUTO-CLOSE ACTIVE	THE GATE IS SET TO AUTO CLOSE.
PARTY MODE	THE GATE IS IN AUTO-CLOSE OVERRIDE .
PROGRAM MODE	THE GATE IS IN PROGRAM MODE.
BEAMS BLOCKED	THE INFRA-RED SAFETY BEAMS ARE BLOCKED / FAULTY/ THE BEAMS LINK HAS BEEN REMOVED.
PROGRAMMING CLOSE POSTION	THE GATE IS CLOSING WHILE PROGRAMMING.
MARKER OK	THIS MESSAGE WILL SHOW WHEN THE MAGNET PASSES THE MARKER. THIS INDICATES THAT THE MARKER IS IN WORKING ORDER.
PROGRAMMING OPEN POSITION	THE GATE IS OPENING WHILE PROGRAMMING.
PROGRAM COMPLETED REMOVE LINK	THE PROGRAM IS COMPLETE. REMOVE THE PROGRAM LINK.
SERVICE DUE	THE MOTOR REQUIRES A SERVICE.

SETTING THE MOTOR DIRECTION

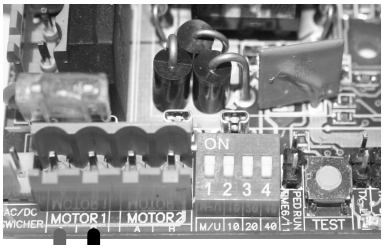
The following diagrams show the correct wiring of the electric motor to the main PC board. The motor wires are found extending from the motor, there are two wires, one wire is blue the other wire is black.

GATE CLOSING TO THE LEFT

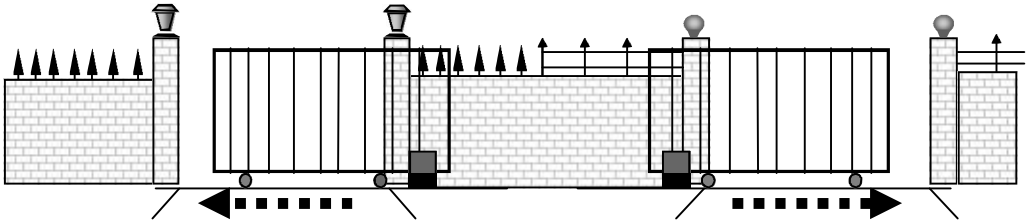


BLACK WIRE BLUE WIRE

GATE CLOSING TO THE RIGHT



BLUE WIRE BLACK WIRE



It is important to set the motor direction, as this will influence the programming of the motor and the security of the motor. The motor is set to automatically close whenever the power is applied and the test button is pressed for the first time. If the gate runs open when the test button is pressed during programming it means that the motor wires are incorrect. The motor wires are the two wires that extend from the electric motor and are connected to the main PC board.
The other reason that the setting of the motor direction is important, is that the motor will automatically drive to the closed position after a prolonged power failure (if the gate is in the open position). Setting the correct motor direction will, in this situation, prevent the gate from suddenly opening and remaining in the open position.

PROGRAMMING THE MOTOR

The motor must be programmed in order that the gate operate correctly. Once programming is complete, the program is held in the memory on the microchip and there is no need to re-program the motor after the initial program.
It is important to note that the following points should be checked before the gate is programmed.

- Gear box is filled with the gearbox oil.
- Motor is level.
- Rack is secure to the gate and engaged with the pinion gear.
- The gate has adequate end stops. (***DO NOT*** automate a gate without end stops)
- The gate must run freely and not jam at ***ANY*** point in its travel.
- The magnet is mounted correctly.

TO PROGRAM THE MOTOR:

Ensure that **all power** is removed from the board.

The LCD screen is designed to assist with the programming of the motor.

Step 1: manually open the gate 1m -1.5m. This will become the pedestrian opening distance.

Step 2: engage the motor with the gate using the thumb wheel.

Step 3: insert the program jumper (link) over the two pins on the PC board labeled PROG.

Step 4: apply the battery power. The three LED's will flash rapidly. And the LCD will say -

" PROGRAM MODE - PRESS TEST BUTTON"

Step 5: apply the 16v AC from the transformer.

Step 6: press the TEST button on the PC board. The gate will automatically do the following:

a) **Close** slowly until the end stop is struck

b) **Open** slowly until the end stop is struck.

Step 7: after closing it will automatically re-open. Remove the jumper (link) from the PROG motor pins.

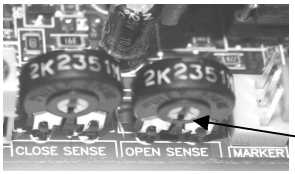
The motor is now fully programmed and ready for normal use.

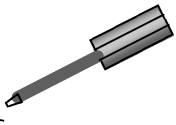
In **Step 6** the gate must close after triggering the motor. If the gate opens instead it indicates that the **motor wires** need to be reversed. This will change the motor direction. {See Setting the motor direction}

Do not connect any auxiliary wires to the board until the motor is fully programmed.

SETTING THE OVER-CURRENT

It is recommended that the current sensing is left as set in the factory. Increasing the current sensing may cause serious injury or damage in the case of the gate striking a person or object.
Over-current is the amount of force that the motor delivers before stopping when an object is struck. The amount of force is controlled by the two potentiometers (pots) found on the main PC board.
To increase the amount of force - turn the pots clockwise. To decrease the amount of force - turn the pots counter clockwise. **NOTE! the current sensing is set in the factory and should only be changed if absolutely necessary.**





Using a small flat screwdriver turn the pots to increase or decrease the current sensing of the motor

PROGRAMMING REMOTES ONTO THE ON-BOARD RECEIVER

To program remotes to the on-board receiver complete the following steps. It is recommended that the remotes are numbered in order of programming. This will assist with erasing any lost or stolen remotes at a later stage
Step 1: place the jumper over the two pins on the PC board called TX L.
Step 2: press the button on the remote that is to be programmed in.
Step 3: repeat step 2 until all the remotes have been programmed in.
Step 4: once all remotes have been programmed remove jumper from the TX L pins.

ERASING ALL REMOTES

Step 1: place the jumper over the two pins called TX E
Step 2: count 4 flashes of the GREEN LED on the main PC board
Step 3: remove the jumper
Step 4: replace the jumper and count two flashes
Step 5: remove the jumper.
Step 6: replace the jumper and count four flashes
Step 7: remove the jumper
The led will flash rapidly to indicate that the remotes have been erased from the receiver.

ERASING A SINGLE REMOTE

In order to erase a single remote from the receiver, the remotes need to be numbered in order of programming. This means that each remote must be given a number before being programmed into the receiver. If this has been done then it is possible to erase a single remote. The preceding remote will erase the remote after it. For example remote number 6 will erase remote number 7 etc.
Step 1: place the jumper over the two TX E pins.
Step 2: press the button of the remote that is preceding the remote which is now to be erased.
Step 3: remove the jumper.
Note: The next remote to be programmed will take the place of the erased remote.

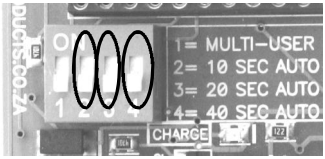
SETTING AUTO-CLOSE TIME (OPTIONAL)

Auto-close is an option that allows the gate to close automatically after a chosen time delay. This delay can be from 10 to 70 seconds. Auto-close is selected by using the dipswitches on the main PC board. Only dipswitch numbers 2,3 and 4 are the auto-close time select switches. The times are as follows:-

2 off 3 off 4 off = no auto close.
2 on 3 off 4 off = 10 seconds
2 off 3 on 4 off = 20 seconds
2 off 3 off 4 on = 40 seconds
2 on 3 on 4 on = 70 seconds

NOTE: It is strongly recommended that DuraOptics Safety Beams are used when auto-close is selected as this reduces the chances of the gate closing on an object and causing injury or damage.

Dipswitches 2 , 3 and 4 are used to select auto-close times



SETTING PARTY MODE (AUTO-CLOSE OVERIDE)

Party mode is the auto-close override mode. This means that the gate will remain open and ignore the auto-close time.

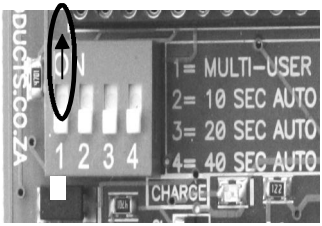
To set party mode:
Press and hold the remote button down. The gate will open immediately. Continue holding down for 15 seconds until the LCD displays PARTY MODE.

To reset the gate to normal operation:
Press the remote button twice within two seconds.
The gate will start to close. The gate is now in normal mode again and will use the Auto-close function.

SETTING MULTI-USER MODE (OPTIONAL)

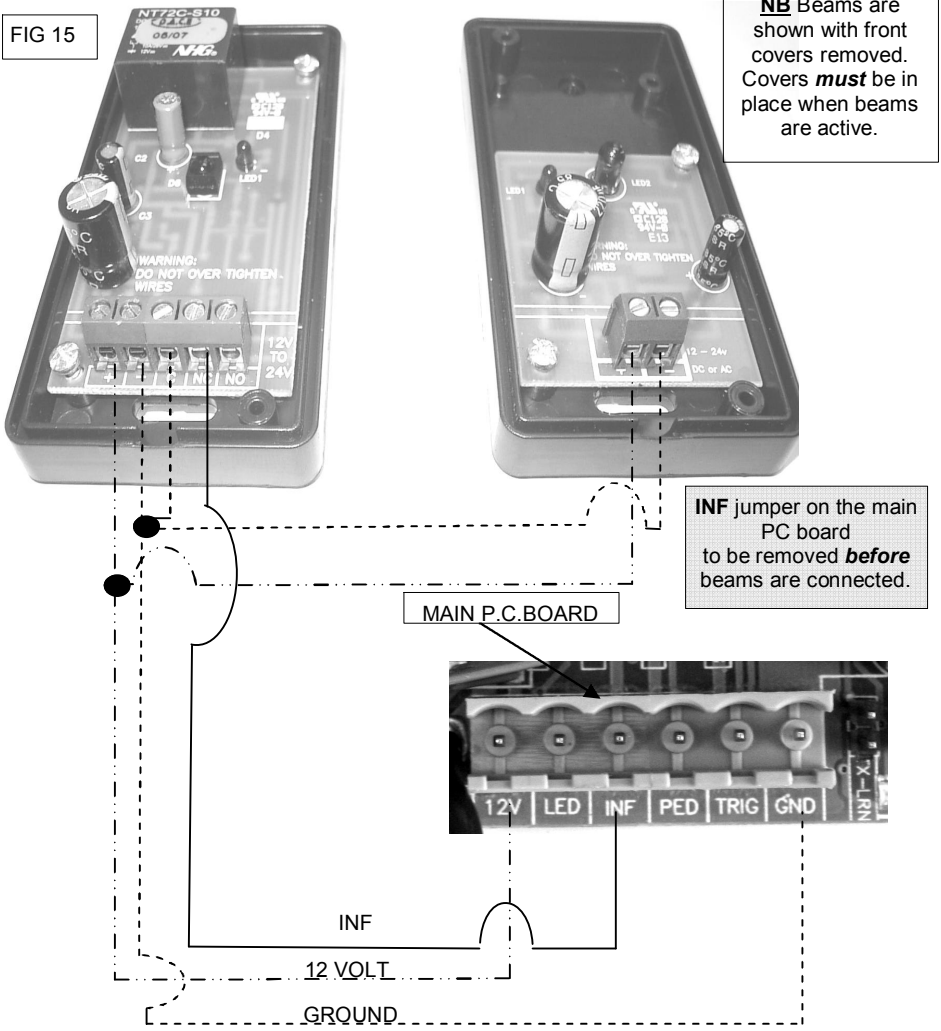
Multi-user mode is used in heavy traffic areas where there is a possibility that a number of triggers will be received by the motor at one time. E.g. office block or town house complex. When multi-user mode is set, the motor will accept the first trigger and ignore any other trigger thereafter, this reduces the chance of the gate closing on an object. Although the SOLO motor is designed to be used in a domestic application only, this function is available.
To set multi-user mode, place number 1 dipswitch in the ON position.
To disengage multi-user mode, place number 1 dipswitch in the OFF position.

Number 1dipswitch is used to select multi-user mode. Multi-user mode can only be used when Auto-close has been set.



CONNECTING INFRA-RED BEAMS (OPTIONAL)

FIG 15



NB Beams are shown with front covers removed. Covers ***must*** be in place when beams are active.

INF jumper on the main PC board to be removed ***before*** beams are connected.

It is strongly recommended that ***ALL*** gate motor installations have infra-red beams connected as this is a safety feature and will prevent the gate hitting a vehicle or pedestrian.
The wiring is done as shown above. It is important to check the following when installing beams.
The **NC** (normally closed) connector is used on the beam. This is wired to the **INF** out-put on the main PC board.
The INF jumper on the main PC board must be removed before the beams are fitted.
To de-activate the beams, place the INF jumper over both pins. This will render the beams in-active and will allow the gate to close regardless of any obstruction in front of the beams.
NOTE: D.A.C.E. will not be held liable for any damage to property or injury due to malfunction of safety beams.

CONNECTING AN INTERCOM (OPTIONAL)

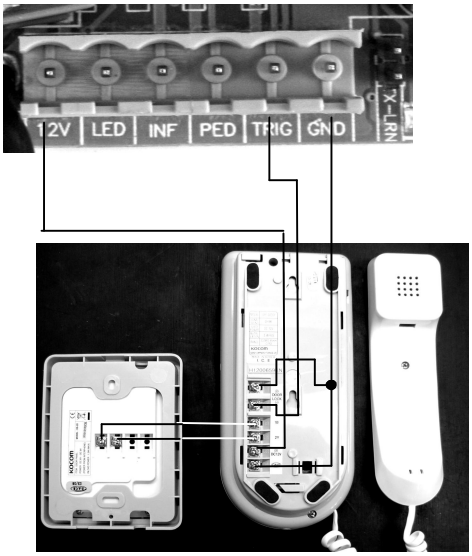
There are many different types of intercoms available on the market.
The wiring of these intercoms will vary, but the general wiring is the same. The three main types of intercom are as follows:-

1. **220 volt**: this type normally plugs into the house mains power supply, (220 volt supply) and then four wires are run from the handset (inside the house) to the gate station (outside at the gate) and the motor (trigger).
2. **12 volt**: this type normally gets its power from the motor (12 v/dc). This means that a minimum of six wires are needed to run from the handset - two to the gate station and four to the motor.
3. **6 volt**.: this type is battery operated, normally using 4 AAA type batteries for power. Only four wires are needed to run from the handset - two to the gate station and two to the motor (trigger)

The mounting of the intercom is the same with each type. The handset is placed inside the house / office and the gate station is placed at the point of entry, this is normally the gate. The gate station is normally mounted by means of a “gooseneck”

It is important to note that the Communication cable MUST be run in conduit.
DO NOT run Communication cable in the same conduit as any 220 v cable.

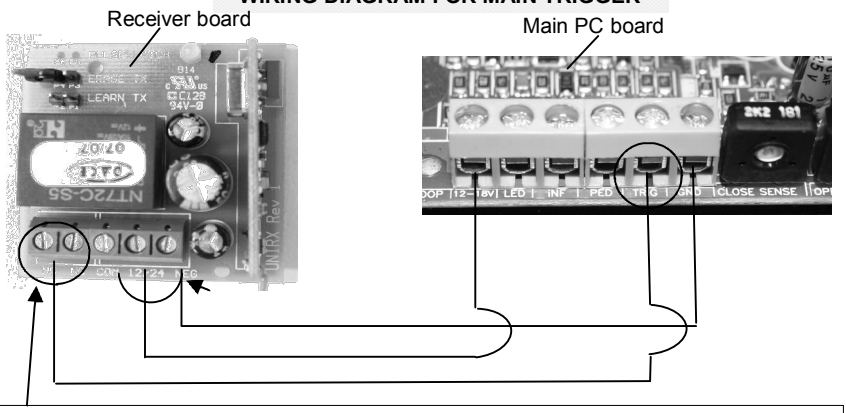
This diagram shows a typical 12 volt one to one intercom system. Other brands may vary in the layout of the connector screws.



CONNECTING AN EXTERNAL RECEIVER (OPTIONAL)

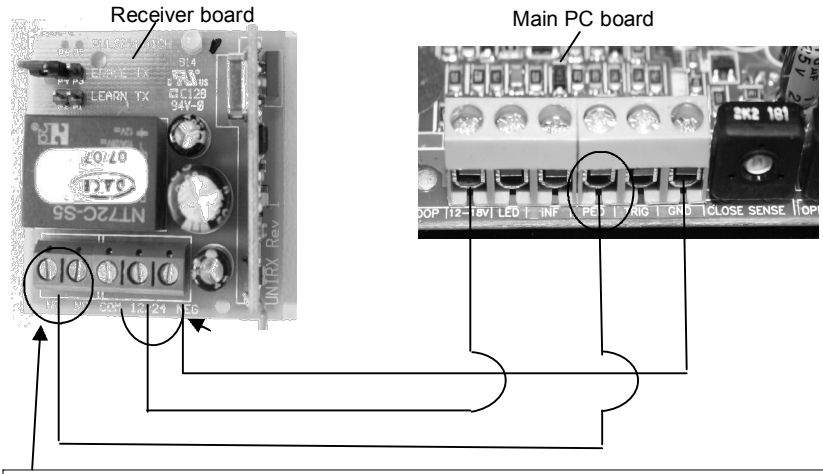
Although the SOLO & CONDO motors have an on-board receiver, range can not be guaranteed due to external influences which may reduce range. In the event of the on-board receiver not having enough range or a pedestrian opening being required over and above the normal operation, then an external receiver can be added. This receiver should be placed about two meters above the motor. The external receiver is wired as shown bellow.

WIRING DIAGRAM FOR MAIN TRIGGER



NB: the **normally open (NO)** connector is wired to the **TRIG**. This will trigger the gate

WIRING DIAGRAM FOR PEDESTRIAN TRIGGER

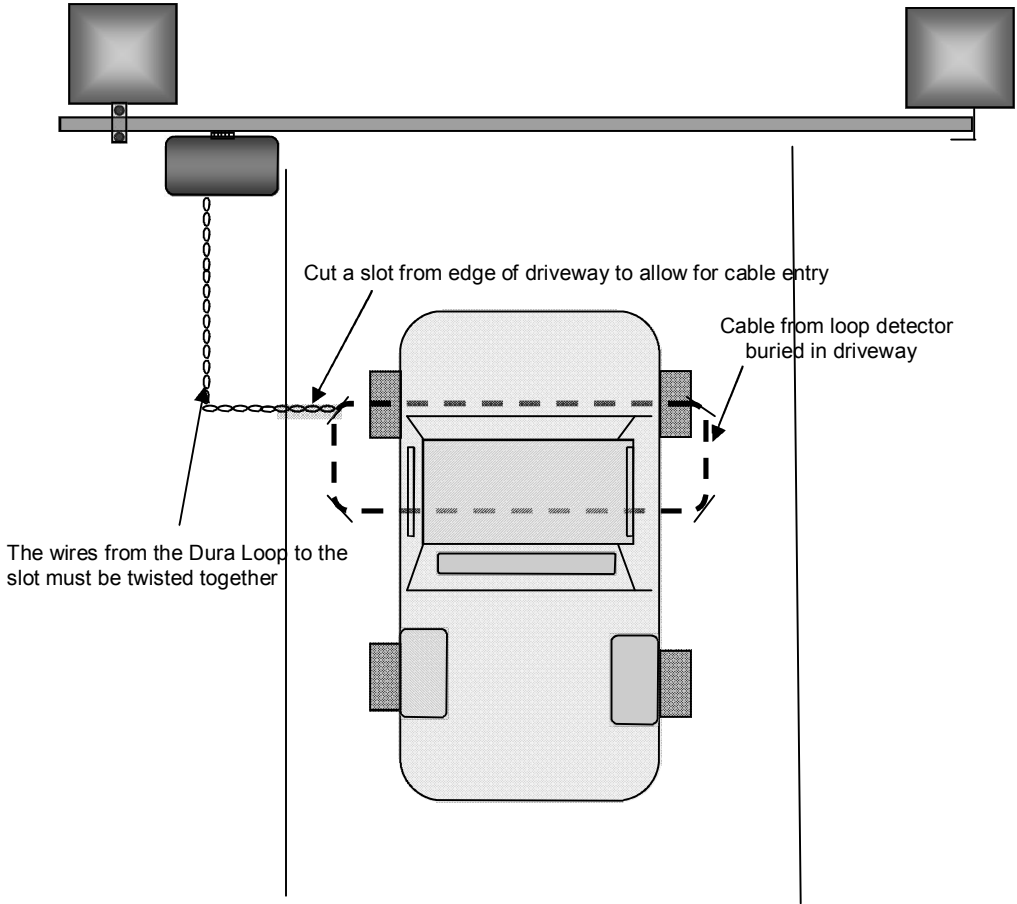


NB: the **normally open (NO)** connector is wired to the **PED**. This will trigger the gate to partially open for pedestrian access only. The gate will auto-close after 5 seconds.

CONNECTING A VEHICLE LOOP DETECTOR (Optional)

A loop detector is a triggering device that can be placed under the ground inside the premises. The loop will trigger the gate open when a vehicle drives over it. It is recommended that the DuraLoop detector is used with your D.A.C.E motor.
A slot must be cut into the driveway and then the loop is laid inside the slot. The slot should be about 40mm deep. A slot must be dug from the edge of the driveway to the loop slot in order to allow the cable to be run to the motor PC board .
A line should be painted on the driveway to indicate the loop position in order for the vehicles to drive over the correct position. A sign should also be displayed on the gate to inform any person about the loop and that the gate will automatically open when the loop is activated by a vehicle.

NOTE: Multi-user mode AND auto-close must be selected when a loop is used.



Warning use a loop detector as a trigger only. Do not use as a safety device. Use beams in conjunction with the loop at all times

TECHNICAL SPECS

	SOLO	CONDO	CONDO AC/DC
Application:	Single Dwelling Only	Town House	Town House
Maximum number of openings:			
for a gate <200kg	40	120	120
for a gate <300kg	20	50	50
for a gate <500kg	10	10	10
Maximum Gate Mass:	500kg	500kg	500kg
Maximum Gate Size:	6m	11m	11m
Collision Sensing:	Electronic	Electronic	Electronic
Duty Cycle:	20% ***	20% ***	100% ***
Motor Voltage:	12 Volt	12 Volt	12 Volt
Motor Power:	120 watts	120 watts	120 watts
Opening Time:	18m/min	18m/min	20m/min
Supply Voltage at Gate:	16V AC	16V AC	220V AC
On board receiver:	Yes	Yes	Yes
Packaged motor weight (excl. rack & battery):	9.1kg	10.3kg	10.3kg
Packaged motor dimensions (excl. rack & battery):	32(L) x 24(W) x 36(H) cm	32(L) x 24(W) x 36(H) cm	32(L) x 24(W) x 36(H) cm

*** AT A MAXIMUM RUNNING FORCE OF 10 KG