SLIDE GATE OPERATORS:
- COMPACT 500
- SPRINT
- CONDO
- CONDO AC/DC

SWING GATE OPERATORS:
- DURASWING

GARAGE DOOR OPERATORS:
- LAZER SECTIONAL
- LAZER ROLL UP
- LAZER VERTICAL ROLL UP

TRANSMITTER & RECEIVERS:
- DURATRONIC 2; 3; 4 & 6 BUTTON REMOTES
- DURATRONIC ON-BOARD & EXTERNAL RECEIVERS

SAFETY BEAMS:
- DURAOPTICS (WIRED)
- DURAOPTICS (DUAL CHANNEL, WIRELESS TRANSMITTER)

VEHICLE DETECTION LOOP:
- DURALOOP

WIRELESS PROTECTION SYSTEM
- WIPS
- WIPS PRO

www.dace.co.za ● info@duraproducts.co.za

www.dace.co.za ● info@duraproducts.co.za
DACE, being the innovators they are, have come up with a World First, the **Digital Business Card**

Gone are the days when you gave your client your business card and knew they would either lose it or throw it away. Come the day when your services were urgently required or they wished to refer you to friends, they couldn’t remember your company details and were forced to refer to the yellow pages or the internet. Now the job that was rightfully yours has been given to someone else.

That was then! Now you simply get your details loaded onto your Digital Business Card by your supplier. Having completed an installation of a COMPACT 500; SPRINT; CONDO; CONDO AC/DC or any of the LAZER Garage Door Operators, plug your Digital Business Card into the PC Board and, VOILÀ, in 5 seconds your details are stored safely on the operator’s LCD screen, always promoting your company and ensuring repeat business.

Your supplier will download your details onto the Digital Business Card via their computer using DACE software.

**DON’T LOSE YOUR DIGITAL BUSINESS CARD!**

Keep it with you at all times and after each installation of a DACE product (excluding DuraSwing), simply load your details onto the PC Board and let it keep working for you. Never fear, should your details change, merely take your Digital Business Card to your supplier and get your new details loaded over your old ones. A smart and affordable alternative to your old printed business card.
Congratulations on your purchase of a D.A.C.E gate operator. 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 (Wired) & DuraOptics (Dual Channel, Wireless Transmitter)
- Remotes and receivers: DuraTronic
- Slide gate operators: SPRINT; CONDO & CONDO AC/DC, COMPACT 500
- Vehicle detection loop: DuraLoop

It is recommended that an experienced gate installer is used to install your gate operator. If you intend installing this operator yourself please read this manual carefully before any installation begins. D.A.C.E has taken all reasonable steps to ensure that the gate operator is safe to install and use. However it must be remembered that a gate is a heavy piece of moving equipment and may cause serious damage or injury if the gate strikes an object or person. The gate operator has built in collision sensing electronics. Having struck an object the gate will stop and reopen, however this does mean that the gate will physically strike the object before it stops. It is therefore strongly recommended that DuraOptics infrared safety beams are installed to reduce the risk of the gate striking an object.

Note: The installation of beams does not guarantee against the gate striking an object.

Ensure the following items are checked before any installation is done:

- The rail is level – the gate must not move on its own at any stage.
- The wheels are turning freely and are not jammed.
- The gate is not bent or bowed in any way.
- The rail has sufficient end stops so that the gate can never run off the end of the rail.
- The portal is constructed in such a way that the gate can not fall over.
- The rollers are turning freely and are not jammed.
- The anti lift device is sufficient in order to stop the gate from being lifted off the rail.
- The gate mass or start-up force does not exceed the maximum as stated in the specifications.
- The gate does not jam in the catch bracket when closing or opening.
- Extreme care should be taken when automating a gate that is constructed out of any solid type of material such as wood, as wind resistance can cause over current problems.
- The gate must not exceed the maximum number of operations stated in the specifications.

If any of the above points are not satisfactory do not install the operator until all the points are rectified. Remember that if a gate causes damage or injury due to faulty installation then the installer of the equipment will be held liable.

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 230V/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 230V/AC be run using Communication cable, Ripcord or Cabtyre.
• Ensure that all electrical power is switched off before any electrical connections are made.
• Do not open, tamper or modify any of the electrical components of this equipment in any way.
• Do not attempt to repair the equipment, this should only be done by a qualified D.A.C.E. technician.
• 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 operator.
• Although these operators have built-in collision sensing, substantial damage may still occur. For this reason DuraOptics safety beams should be used on all installations.
• Do not allow children to play near or with any gate, gate operator 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 cannot be held responsible for any gates bumping the ends stops when a gate on a slope is automated.
• It must be noted that an automatic gate is a heavy piece of equipment and injury, even death, may occur due to incorrect installation or operation of the equipment. There are a number of areas that may cause entrapment which could lead to injury.
• Do not operate the gate unless within direct sight.

Shaded areas show the possible entrapment areas of an automated gate.

RECOMMENDED TOOLS

- Drilling machine
- Steel & masonry drill bits
- 8mm / 13mm / 17mm Spanners
- Assorted screwdrivers
- 13 / 17mm Socket
- Spirit level
- Spade
- Pick
- Multimeter
- Tape measure
- Wire cutters
- Angle grinder
- Hacksaw
- Hammer

24 MONTH 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 purchase.
• 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 become void if any of the following apply in any way:
  1. Incorrect installation of the equipment.
  2. Any physical conditions exceed the D.A.C.E specifications.
  3. Incorrect wiring of the equipment.
  4. Any circumstances out of the control of D.A.C.E such as lightning, flooding, power-surge, fire, corrosion & insect infestation.

~ NOTE: the transformer is not guaranteed due to power fluctuations.

~ Any warranty claim must be inspected and tested by a D.A.C.E. representative before any further claim is entered into.
### TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Application:</th>
<th>COMPACT 500</th>
<th>SPRINT</th>
<th>CONDO</th>
<th>CONDO AC/DC</th>
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<td>Single Dwelling Only</td>
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<tr>
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<td>32(L) x 24(W) x 36(H) cm</td>
<td>32(L) x 24(W) x 36(H) cm</td>
<td>32(L) x 24(W) x 36(H) cm</td>
</tr>
</tbody>
</table>

### GENERAL INFORMATION

- **Auto-close**: allows the gate to close automatically after a selected period of time. If Auto-close is selected, **DuraOptics** Infrared Safety Beams should be fitted.
- **Multi-user mode**: used in town house situation, allows the gate to open and will not accept any other trigger while opening, thus preventing accidental closure on a vehicle/person.
- **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 operator. (The **CONDO AC/DC** operator can operate without a battery). The mains power supply is used to charge the battery only. In the case of a mains power failure, the battery will continue to operate the operator until it runs flat. This should be for ± two days under normal conditions. The LCD will show “MAINS FAIL” if the mains power has failed and “LOW BATT” if the battery is going flat.
- **Battery Back-up**: the **CONDO AC/DC** uses mains power to drive the operator, 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. **DuraOptics** (DOPT01) beams should always be used when auto-close is selected.
- **Transformer**: the transformer reduces the 230V mains power to 16 VAC.
- **Charger module**: the on-board charger receives 16 VAC from the transformer and then delivers a trickle charge to maintain ± 13.4 VDC charge to the battery.
- **Main PC board**: this is the printed circuit board that contains all the electronic components that operate the operator.
- **Remote/Transmitter**: this is usually a handheld device which transmits a radio signal to the receiver to trigger the gate (**DuraTronic** TM002, TM003, TM004, TM006).
- **Receiver**: the receiver triggers the operator after receiving a radio signal from the transmitter.
- **Test button**: this is a button on the main PC Board that can be used to activate the operator. This is usually used during the programming of the operator.
- **Rack**: this is a length of toothed gear mounted on the gate.
- **Pinion gear**: this is the gear on the operator that meshes with the rack gear on the gate to move the gate.
- **Foundation plate**: this is the steel plate that is mounted to a concrete plinth in the ground. The operator is mounted onto the foundation plate using the three mounting bolts.
- **Thumbwheel**: this allows the operator to be put into Manual Override mode so that the gate can be pushed open/closed by hand.
- **Free exit vehicle loop detector**: this allows the gate to automatically open when a vehicle drives over a loop in the driveway.
- **B.A.C. mode**: “Beams Auto Close”. This allows the gate to close as soon as a vehicle passes through the Infrared Safety Beams. This prevents the gate going to the fully open position unnecessarily and remaining open awaiting the Auto-Close function to close the gate.
- **Theft deterrent bracket**: Deters the tampering or theft of an operator.
- **Collision sensing/over current**: When the gate is moving and it strikes an object, the software will sense the obstruction due to the higher current draw, this will prompt the operator to stop. If the over current is detected while the gate is closing, then the gate will stop and reopen at slow speed. If the over current is detected while the gate is opening, the gate will stop and remain still. The gate will close on the next trigger that it receives or after the auto-close time has expired. It should be noted that D.A.C.E. recommends the use of **DuraOptics** safety beams on all installations to minimise the chance of the gate closing while there is an object in its path.
GENERAL INFORMATION cont.

- **End stop:** a physical stopper preventing the gate from running off the end of the rail and causing injury or damage.
- **Intercom:** equipment that allows communication between the gate and the house.
- **LCD Screen:** indicates information regarding the operator status.
- **Manual override:** allows the gate to be moved manually.
- **Party-mode:** allows the gate to remain open even when auto-close is selected.
- **Positive close:** This means that the gate will close up against the end stop / gate post leaving no gap between the gate and the stop. This ensures that any potential electrical contacts of an electric fence make a solid connection when the gate is closed.

**GENERAL SITE LAYOUT**

1. End stop - minimum 70mm high
2. Anti-lift device / rollers
3. Rail
4. Gate operator
5. Magnet (optional)
6. Rack
7. Goose neck with intercom gate station
8. Catch bracket
9. DuraOptics Infrared Safety Beams
10. 80mm wheels
11. Conduit carrying electrical cables (*max. 16volts only*)
12. Pillar courtesy lights

**MULTI-USER MODE**

To set multi-user mode, place number 5 dipswitch in the ON position.

**NOTE!!!** If Multi-user is selected, an auto-close time must also be selected. If an auto-close time is not selected, the gate will immediately close after opening.

**PROGRAM REMOTES FOR FULL & PEDESTRIAN OPENING**

The latest version of the DACE control board is fitted with a 2 channel receiver. This means that one button on the remote can open the gate fully for vehicle access and another button on the same remote or separate remote can open the gate partially for pedestrian access.

*The current version control board (RED) is fitted with a red antenna while the older version (RED), which only has a single channel receiver, is fitted with a green antenna.*

The on-board receiver can store a maximum of 18 remotes or up to 36 remote buttons.

**Step 1:** Insert Learn jumper over pins marked **TX-L** and do NOT remove the jumper.
**Step 2:** For full opening press a remote button the LED will flash once.
**Step 3:** For Pedestrian opening press any other button on the same remote, the LED will flash twice.
**Step 4:** Continue the above steps to add additional remotes to a maximum of 18 remotes.
**Step 5:** Remove jumper.

**PROGRAM REMOTES FOR FULL OPENING ONLY**

**Step 1:** Insert Learn jumper over pins marked **TX-L** and do NOT remove the jumper.
**Step 2:** For full opening press a remote button, the LED will flash once.
**Step 3:** Continue the above steps to add additional remotes for full opening to a maximum of 18 remotes.
**Step 4:** Remove jumper.

**PROGRAM REMOTES FOR PEDESTRIAN OPENING ONLY**

**Step 1:** Insert Learn jumper over pins marked **TX-L** and do NOT remove the jumper.
**Step 2:** For PEDESTRIAN opening press a remote button for 8 seconds until the LED flashes twice.
**Step 3:** Release button.
**Step 4:** Continue the above steps to add additional remotes for pedestrian opening to a maximum of 18 remotes.
**Step 5:** Remove jumper.

**ERASING ALL REMOTES PROGRAMMED TO THE ON-BOARD RECEIVER**

**NOTE:** Procedure for erasing remotes from on-board receiver with **red** antenna only.
**Step 1:** Place the jumper over the pins marked **TX-E** and count 10 flashes.
**Step 2:** LED will flash rapidly for one second indicating that all remotes have been erased.
**Step 3:** Remove the jumper.
DIPSWITCH SETTINGS

**Autoeclose** is an option that allows the gate to close automatically after a chosen time delay, this delay can be from 10 to 70 seconds. Autoeclose is selected by using the dipswitches on the main PC Board.

Dipswitch numbers 6,7 and 8 are the autoeclose time select switches. The times are as follows.

- **6 off ; 7 off; 8 off** = no auto-close
- **6 on; 7 off; 8 off** = 10 seconds
- **6 off; 7 on; 8 off** = 20 seconds
- **6 off; 7 off; 8 on** = 40 seconds
- **6 on; 7 on; 8 on** = 70 seconds

Any combination can be used to select the desired autoeclose time.

It is strongly recommended that DuraOptics safety beams are used when Auto-Close is selected as this reduces the chance of the gate closing on an object and causing injury or damage.

**Program Mode**

Refer to page 17 & 18 for program sequence.

**Infrared Safety Beams**

Number 2 dipswitch is used to activate the safety beams. If no safety beams are used, number 2 dipswitch must be in the **ON** position. If safety beams are connected, number 2 dipswitch must be set to the **OFF** position. NOTE if number 2 dipswitch is **OFF** and there are no beams connected, the gate will not close.

**Beams Auto-Close**

This allows the gate to close as soon as a vehicle passes through the Infrared Safety Beams. This prevents the gate going to the fully open position unnecessarily and remaining open awaiting the Auto-Close function to close the gate.

**Auto-Close**

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.

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- **6 off; 7 on; 8 off** = 20 seconds
- **6 off; 7 off; 8 on** = 40 seconds
- **6 on; 7 on; 8 on** = 70 seconds

Any combination can be used to select the desired auto-close time.

**Operator Layout**

A. Conduit entry holes.
B. 4 Holes for bolting the plate to the concrete plinth.
C. Jacking bolts to secure the operator to the plate and for height adjustment.
SITE INFORMATION

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

- The operator should be installed above flood level to avoid any water damage to the operator.
- To avoid the operator from malfunctioning the rail should be level and above ground level. This will help to keep debris out of the path of the wheels. Any debris lying on the rail may cause the gate to jam or the PC Board to blow a fuse.
- The gate must not move on its own when left in any position along the rail, if this does occur, the rail must be leveled before the gate is automated.
- Keep all trees, branches, bushes and other growth clear of the gate. Failure to do this may lead to the gate jamming.

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 gate problems if not checked.

Ensure that the end stops are secure. Min. height 70mm.

Recommended 80mm dia. wheels.

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

CONNECTING A SOLAR PANEL

A REGULATOR IS NOT REQUIRED WHEN CONNECTING A SOLAR PANEL

SOLAR PANEL
(min 20 Watts)

An external regulator is NOT required when connecting a solar panel. Ensure that the panel does NOT exceed the min and max specifications.

Solar Panel Specifications:
- Min output voltage 16.5 VDC
- Max output voltage 21 VDC
  (an output voltage below 16.5 VDC will not charge the internal battery).

Very Important:
if connecting a Solar Panel be sure to order a Solar Charger (PCB054) as it does not come standard with the Gate Operator Kit.

DIPSWITCH SETTINGS
1 – Not Used For Swing Sets
2 – On to Day Activate
3 – Day Auto Close
4 – Bonus Auto Close
5 – Multi Close
6 – 10 Seconds Close
7 – 20 Seconds Close
8 – 40 Seconds Close

Auto Close times can be varied from 0 to 70 seconds by selecting different auto-close switches.

NOTE:
Loop and EAC (P1/EAC) inputs are not active for swing installations. If Loop installation connect to TRBG input.
A vehicle detection loop is used to automatically open the gates when a vehicle approaches (most commonly in the exit direction). The following instructions are for a DuraLoop Vehicle Detector. Note that whatever product is used it is important to follow the manufacturers installation instructions as these may differ from one product to another. It is extremely important that the loop is placed in the driveway far enough from the gate so that the vehicle does not collide with the gate.

**Connector block on main PC Board**

- **GND**
- **TRIG**
- **PED**
- **LOOP**
- **INF**
- **LED/STAT**
- **12/24V**

**PLEASE NOTE:** LOOP input is used for slide operators ONLY!!

Twisted feeder cable to driveway

**DIGITAL BUSINESS CARD (D.B.C)**

The Digital Business Card (D.B.C) enables the installer to load his company details onto the operator LCD. These details will constantly display on the LCD so that the installer can be called when technical assistance is required or a service is due.

For the installer to load his company details the following steps must be followed:

**Step 1:** Acquire a D.B.C.
**Step 2:** Installer details to be loaded onto D.B.C by dealer, merchant or agent of D.A.C.E products.
**Step 3:** Keep D.B.C at all times for future installations.
**Step 4:** When installation is complete remove all power from the operator (this includes mains power).
**Step 5:** Insert D.B.C on pins labelled DIGITAL B/CARD.
**Step 6:** Apply power to main PC Board.
**Step 7:** Remove D.B.C.

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

The gate must not jam in the catch bracket when opening or closing as this may cause the operator to over current or the fuse to blow.

**MAX. GATE MASS, START UP FORCE & RUNNING FORCE**

It is important to check the start up force of the gate before the operator 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.

<table>
<thead>
<tr>
<th>OPERATOR</th>
<th>MAX. GATE MASS</th>
<th>MAX. START UP FORCE</th>
<th>MAX. RUNNING FORCE</th>
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<tbody>
<tr>
<td>COMPACT 500</td>
<td>500kg</td>
<td>22kgF</td>
<td>15kgF</td>
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<tr>
<td>SPRINT</td>
<td>500kg</td>
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<td>18kgF</td>
</tr>
<tr>
<td>CONDO</td>
<td>600kg</td>
<td>30kgF</td>
<td>18kgF</td>
</tr>
<tr>
<td>CONDO AC/DC</td>
<td>600kg</td>
<td>30kgF</td>
<td>18kgF</td>
</tr>
</tbody>
</table>

The D.A.C.E warranty will be void if the gate mass, start up force or running force exceeds the specifications as per the table above.
**REMOVING THE LID**

*COMPACT 500 OPERATORS*

To remove the lid unscrew the two screws at the sides.

*SPRINT/CONDO OPERATORS*

**STEP 1**
Open the access door.

**STEP 2**
Pull out the pin (the pin will move about 5 mm). The lid can now be removed.

**PLACING THE OPERATOR IN MANUAL OVERRIDE**

*Step 1:* Unlock and open the access door (as in step 1 above).

*Step 2:* To prevent the gate from knocking the end stops after reactivating the gate later, be sure to take note of the current position of the gate before proceeding to step 3.

*Step 3:* Turn the thumbwheel clockwise until the gate is free to move.

---

**CONNECTING AN EXTERNAL RECEIVER**

*COMPACT 500 OPERATORS*

When connecting any auxiliary equipment to the PC Board ensure that all power is removed from the PC Board.

A DuraTronic external receiver can be connected to the PC Board. This will be necessary if there are more than 15 remotes to be used or if the range of the on-board receiver is not sufficient. The DuraTronic external receiver can hold 128 remotes. The DuraTronic receiver should be mounted outside the operator housing for increased range.

To program remotes to the receiver:
1. Press and hold the button on the remote.
2. Place the jumper over the two TX LEARN pins for 1 second.
3. Remove the jumper.
4. Release the button on the remote.
Repeat the above steps for each remote to be programmed.

**PEDESTRIAN OPERATION:** Remotes can be programmed to the 2 channel on-board receiver to operate the gate in pedestrian mode. A separate receiver, keyswitch or keypad can also be connected to operate the gate in the pedestrian mode. The connection is done in the same manner as the diagram above with the exception of the TRIG connection. Instead of TRIG to N/O it must be PED on the main PC Board to N/O. In pedestrian mode the gate will open partially and then close automatically after 6 seconds.
An external status LED can be connected to the main PC Board. This LED will indicate the status of the gate. The LED can be fitted to the intercom or any other convenient place.

**CONNECTOR BLOCK ON MAIN PC BOARD**

<table>
<thead>
<tr>
<th>GND</th>
<th>TRIG</th>
<th>PED</th>
<th>LOOP</th>
<th>INF</th>
<th>LED/STAT</th>
<th>12/24V</th>
</tr>
</thead>
</table>

5mm leaded LED

**WIRING INFRARED SAFETY BEAMS (DuraOptics)**

Covers must be in place when beams are active. Ensure that the correct cover is placed onto each beam after setup otherwise failure to do so may result in faulty operation of the beams. Ensure that number 2 dipswitch is set “OFF” after connecting the beams.

**Step 4:** Before putting the gate back into operational mode, place the gate back in the position it was in step 2.

**Step 5:** Turn the thumbwheel anti-clockwise to re-engage the operator. Move the gate until you hear a click.

**Step 6:** The gate must always be operated at least three times after it has been placed back into operational mode. This is called Calibration Mode as it recalibrates the gates end stoppers.

**PC BOARD LAYOUT**

The PC Board is a sensitive piece of electronic equipment and should be handled with care.
- Never connect or remove wires on a PC Board while there is power on the board as this may lead to damage.
- Never touch the board with any metal object.
- Never allow the board to get water on it as this may lead to short circuiting and corrosion and will lead to the board malfunctioning.
- No insecticide or other sprays should be used on a PC Board.
- Do not attempt to repair the PC Board. Any repairs must be carried out by an authorized agent.
- Do not apply 230volts to the board (16 VAC and 12 VDC only).
- Never reverse the polarity of the battery wires as this will lead to extensive damage.

**Note:** although the installation of infrared safety beams does reduce the risk of the gate striking an object while closing it does not guarantee against it.
The charger circuit on the PC Board has a rectifier which converts AC voltage to DC voltage, this will generate some heat on the rectifier heat sink. Care should be taken that no wires touch the heat sink as this may cause the plastic insulation of the wire to melt and may lead to a short circuit.

**ELECTRICAL WIRING (SPRINT; CONDO & COMPACT 500 OPERATORS ONLY)**

- Ensure that ALL power is switched off or isolated before any connections are made.
- The transformer must be plugged into a normal plug socket in the house. 16 VAC is then run directly to the PC board 16V AC connection (does not apply to CONDO AC/DC).
- Do not open or tamper with the transformer as this may cause electrical shock (this will also void any warranty).
- The Earth wire on the PC Board must be connected from the E on the transformer. Alternatively the Earth wire must be connected to an earth spike buried in the ground.
- The cable should be run in a 500mm deep trench in a water proof conduit and must be terminated inside the operator.
- The conduit should have no sharp bends in it as this may cause problems in the future if the cable needs to be pulled out and replaced.
- There must be no joins in the cable underground.
- Do not use Communication cable as this will void any warranty and is illegal.
- Do not run 230V in the same conduit a 16 VAC.

**SETTING PARTY MODE (AUTO-CLOSE OVERRIDE)**

This function is normally used when the gate is required to stay open but Auto-close function is active.
- To set the party mode, push and hold the gate’s trigger button (this can be the on-board test button, the remote button or the gate trigger button from the intercom) until the gate starts to open. Release the trigger. The gate will now stay open until it is reset into normal operating mode.
- To reset the gate into normal operating mode, push the gate’s trigger button twice within three seconds. The gate will now operate as normal.

**SETTING OVERCURRENT SENSITIVITY**

The PC Board is designed to detect overcurrents. This means that if the gate hits an object or is obstructed it will see an increase in the electrical current and the gates will stop driving. The results of the detected overcurrent will be different depending on what the gate is doing at the time of the overcurrent.
- If the gate is closing and an overcurrent is detected the gate will stop and then re-open.
- If the gate is opening and an overcurrent is detected, the gate will stop and will not move until it receives another trigger; the auto-close time is reached or the obstruction has been removed.

*Setting the overcurrent sensitivity:*

The sensitivity can be adjusted dependent on gate’s requirements. It must be noted that if the sensitivity is set too low, the gate will drive harder when an obstruction is encountered increasing the risk of injury or damage to a vehicle/object. Before adjusting the sensitivity check that the gate is operating correctly i.e. dirt, branches or garden growth hindering operation etc.

There are two pots found on the PC Board. One pot is to set the open sensitivity and the other is to set the close sensitivity.
- To decrease sensitivity (usually because a heavier gate is being automated or due to wear and tear over time) use a small flathead screwdriver and turn the pot clockwise. The adjustment should be done in very small increments, until the desired sensitivity is achieved. Use extreme caution when setting the pots as this can cause severe injury or damage if the sensitivity is set too low.
- To increase sensitivity (usually because a very light gate is being automated) turn the pot anticlockwise. Take care not to set the pot too sensitive as this may cause the gate to overcurrent too easily due to other external forces such as wind, small pebbles, leaves, sand etc.
**LED INDICATIONS ON MAIN PC BOARD**

**STATUS LED**
- **ON:** gate open or in motion.
- **OFF:** mains power off
- **FLASHING:** this LED will flash once every 2 seconds when the gate is closed and the mains power is on.

**OPEN LED**
- **ON:** gate open.

**CLOSED LED**
- **ON:** gate closed.

**12V LED**
- **ON:** 12V output fuse ok.
- **OFF:** 12V output fault.

**INF LED**
- **ON:** infrared beams circuit is ok.
- **OFF:** beams obstructed or faulty

**TRIG LED**
- **ON:** permanent on indicates trigger fault
- **OFF:** normal

**PED LED**
- **ON:** permanent on indicates pedestrian trigger fault
- **OFF:** normal

**LOOP LED**
- **ON:** vehicle parked on ground loop
- **OFF:** normal

**REV**
- **ON:** vehicle parked on ground loop
- **OFF:** normal

**LOW BATT**
- **ON:** vehicle parked on ground loop
- **OFF:** normal

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

The AC/DC operator has a switcher unit that changes from mains power supply to battery back up supply if the mains power fails. The battery will continue to operate the operator and will switch back to mains power when the mains power returns.

The following section explains the wiring for the CONDO AC/DC operator. This operator is designed to be used in installations where the traffic volume is higher than normal. Caution must be taken when wiring the operator as it requires 230V running to the operator. Wiring this operator must be done in accordance with the local E.C.A. regulations. The wiring should be done by a registered electrician. Extreme caution must be used when wiring the 230V as electrical shock can occur.

*Note! Do not run other cables in the same conduit as the 230V cable.*

**WIRING THE AC/DC SWITCHER UNIT**

- **Recommended 500mm**
- **Max. distance 1.5m**

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**LED LAYOUT**

- **CHARGE**
- **TRIG**
- **PED**
- **LOOP**
- **INF**
- **LED/STAT**
- **12/24V**
- **OPEN**
- **CLOSED**
- **REV**
- **LOW BATT**

---

**CAUTION !!**

**HIGH VOLTAGE**
ANCORING THE OPERATOR

It is very important that the operator is mounted on a firm foundation that cannot 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 200 mm deep. The foundation plate supplied with the operator 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 operator is mounted onto the plate.

1. Dig a hole about 300 mm
2. Place concrete plinth here
3. Foundation plate
4. Trim the conduit and the cable to the correct length before placing the operator onto the foundation plate.

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

<table>
<thead>
<tr>
<th>MESSAGE</th>
<th>MEANING / ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOW BATTERY</td>
<td>THIS MESSAGE WILL SHOW AFTER INITIAL START UP, IF THE LOW BATTERY MESSAGE REMAINS AFTER THE OPERATOR IS TRIGGERED, CHECK BATTERY VOLTAGE / CHECK CHARGER VOLTAGE</td>
</tr>
<tr>
<td>MAINS FAIL</td>
<td>CHECK THE MAINS POWER / CHECK TRANSFORMER / CHECK CHARGER.</td>
</tr>
<tr>
<td>GATE CLOSED</td>
<td>THE GATE IS IN THE CLOSED POSITION.</td>
</tr>
<tr>
<td>GATE OPEN</td>
<td>THE GATE IS IN THE OPEN POSITION.</td>
</tr>
<tr>
<td>OBSTRUCTION</td>
<td>THE GATE HAS SENSED AN OBSTRUCTION. CHECK THE WHEELS / ROLLERS / RACK / BRACKETS / FUSES / FORCE SETTING POTS.</td>
</tr>
<tr>
<td>NO REV PULSES</td>
<td>FAULTY REV COUNTER, PC BOARD MOUNTING MAY BE LOOSE, REV COUNTER MAGNET HOLDER IS BROKEN.</td>
</tr>
<tr>
<td>AUTO-CLOSE ACTIVE</td>
<td>THE GATE IS SET TO AUTO CLOSE.</td>
</tr>
<tr>
<td>PARTY MODE</td>
<td>THE GATE IS IN AUTO-CLOSE OVERRIDE .</td>
</tr>
<tr>
<td>PRESS BUTTON</td>
<td>THE GATE IS IN PROGRAM MODE.</td>
</tr>
<tr>
<td>BEAMS BLOCKED</td>
<td>THE INFRARED SAFETY BEAMS ARE BLOCKED / FAULTY / THE BEAMS DIPSWITCH IS OFF.</td>
</tr>
<tr>
<td>PROGRAM CLOSING</td>
<td>THE GATE IS CLOSING WHILE PROGRAMMING.</td>
</tr>
<tr>
<td>BEAMS AC MODE</td>
<td>THE BEAMS AUTO CLOSE MODE IS ACTIVE</td>
</tr>
<tr>
<td>PROGRAM OPENING</td>
<td>THE GATE IS OPENING WHILE PROGRAMMING.</td>
</tr>
<tr>
<td>PUT SW 1 OFF</td>
<td>THE PROGRAM IS COMPLETE.</td>
</tr>
<tr>
<td>MARKER OK</td>
<td>INDICATES WHEN THE MAGNET ON THE GATE IS SENSED BY THE MARKER.</td>
</tr>
<tr>
<td>SERVICE DUE</td>
<td>THE OPERATOR REQUIRE A SERVICE.</td>
</tr>
</tbody>
</table>
LCD SCREEN

The LCD is an easy to use screen that gives the owner / installer information regarding programming and operator status. Whenever the operator 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 operator 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.

<table>
<thead>
<tr>
<th>Message</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call technician</td>
<td>The operator needs to be checked by an installer.</td>
</tr>
<tr>
<td>Power on</td>
<td>The operator is ready to use.</td>
</tr>
<tr>
<td>Low battery</td>
<td>The battery needs to be replaced.</td>
</tr>
<tr>
<td>Ramp down</td>
<td>The gate is in the process of closing.</td>
</tr>
<tr>
<td>Open</td>
<td>The gate is fully open.</td>
</tr>
<tr>
<td>Close</td>
<td>The gate is fully closed.</td>
</tr>
<tr>
<td>Fault</td>
<td>A fault has occurred in the operator.</td>
</tr>
</tbody>
</table>

PROGRAMMING THE OPERATOR

To program the operator follow the steps below.
1. Remove all power from the main PC Board.
2. Manually open the gate 1m - 1.5m (this will be the pedestrian opening distance).
3. Engage the gearbox.
4. Switch dipswitch 1 on.
5. Apply battery power only. The Open, Close and Status LEDs will flash rapidly.
6. Press “TEST” button.
7. The gate MUST drive to the CLOSED end stopper and then drive to the OPEN end stopper (the LEDs will remain flashing).
8. Switch dipswitch 1 off.

Programming is now complete.

In step 5, the gate must close first. If the gate opens first, then the motor wires must be reversed. This will change the operator direction. (See Setting the motor direction)

- Do not allow the infrared beams to be interrupted during the programming procedure.
- Before pressing the Test Button in step 6, ensure the gate is clear of any obstacles.
- Remove all power before connecting auxiliary equipment.

SECURING THE OPERATOR TO THE FOUNDATION PLATE

When anchoring the operator, it is important to ensure that the following points are checked:
- The electrical cable is in place.
- The concrete is fully set.
- The operator foundation mountings are secure and can not move or become loose.
- The operator should be set level and parallel to the gate.
- The operator must be set above the flood level or if this is not possible, a flood proof wall should be constructed around the operator.

ADJUST LENGTH OF THE RAMP DOWN

There is a default ramp down and four additional ramp down lengths available on software versions V2.31 onwards. The AUTOCLOSE DIP Switches are used to program a ramp down that is suitable for your application.

- Remove power completely.
- Switch DIP Switch No.1 on.
- Press the TEST Button continuously (do not let it go).
- Apply battery power.
- While holding the TEST button switch DIP switch 6 or 7 or 8 on (No.6 being shortest) (do NOT select more than one switch at a time)
- Release the test button.
- The ramp down is now set.
- Power down completely and switch no. 1 dipswitch off.
- **Switch DIP switches 6 to 8 off if Auto-close is not required.**

**Note:** If the ramp down is not suitable for your application repeat the procedure from the top.

To revert back to the default ramp down setting repeat the above procedure leaving DIP Switches 6 to 8 off.

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- Before pressing the Test Button in step 6, ensure the gate is clear of any obstacles.
- Remove all power before connecting auxiliary equipment.
MOUNTING THE RACK

The rack is attached to the gate by means of self-drilling TEK screws. These TEK screws have a built-in drill bit at the tip of the screw. The rack meshes with the pinion gear on the operator, 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 meshes too tightly or too loosely will cause problems with the operation of the gate.

**Step 1:** Ensure that the operator 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 operator, 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 operator, drop the operator 2 mm, 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 operator while running and also check that the rack covers at least three quarters of the pinion at all times when viewed from above.

FILLING THE GEARBOX OIL (CONDO & CONDO AC/DC only)

**Very Important:** Gearbox must be filled with the supplied oil before commissioning the operator.

Fill the gearbox as shown below. The entire bottle (70ml) needs to be emptied into the gearbox. The gearbox oil level needs to be topped up periodically. Remove the oil level screw and add oil until the oil just starts to run out of the hole. Replace the screw!!!

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

SETTING THE MOTOR DIRECTION

When programming the operator the gate must always move to the closed position first. If the operator opens first, reverse the motor direction by swapping the blue/black motors wire inputs into the main control board.

MOUNTING THE MAGNET

Measure 700 mm from the centre of the pinion gear towards the closed end of the gate. If it is not possible to mount the magnet at 700 mm, this distance may be increased slightly. **DO NOT INVERT THE MAGNET.** If the magnet is moved for any reason after the operator has been programmed, then the motor will have to be re-programmed.

The gap between the operator cover and the magnet, when the magnet passes the motor, must not exceed 3 mm. 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 3 mm, place washers behind the magnet until the correct gap is achieved.

Ensure that the magnet is fixed to the rack 45 mm from the edge of the base to the centre of the magnet.