Company Profile

CENTURION SYSTEMS (Pty) Ltd reserves the right to make changes to the products described in this manual without notice and without obligation of CENTURION SYSTEMS (Pty) Ltd to notify any persons of any such revisions or changes. Additionally, CENTURION SYSTEMS (Pty) Ltd makes no representations or warranties with respect to this manual.

No part of this document may be copied, stored in a retrieval system or transmitted in any form or by any means electronic, mechanical, optical or photographic, without the express prior written consent of CENTURION SYSTEMS (Pty) Ltd.
Contents

Mechanical Setup  page 1
Electrical Setup  page 2
Commissioning and Handover  page 2

IMPORTANT SAFETY INSTRUCTIONS  page 3

1. Declaration of Conformity  page 5
2. General Description  page 6
   • Lightning Protection  page 7
3. Icons Used in this Manual  page 7
4. Specifications  page 8
   • Physical Dimensions  page 8
   • Technical Specifications  page 9
   • Control Card  page 10
   • Power Supply  page 10
   • Power Supply, Control Box and Control Card Assembly  page 10
   • Allowable Gate Mass  page 11
5. Product Identification  page 12
6. Required Tools and Equipment  page 14
7. Preparation of Site  page 15
   • General Considerations for the Installation  page 15
   • Strength of the Pillar  page 16
   • Strength of the Gate and Gate Bracket  page 19
   • Mechano Kit Installation Options  page 20
   • High-Security Kit Installation Options  page 21
8. Cabling Requirements  page 22
9. Critical Installation Checklist  page 23
10. Operator Installation  page 24
    • Determine the Gate Bracket Position  page 25
    • Fasten Gate Bracket to Gate  page 27
    • Adjust Origin Clamp  page 28
    • Inward Swing Gate Setup  page 29
    • Outward Swing Gate Setup  page 32
11. Determine Gate Swing Angle  page 35
12. Allowable Wind Load  page 36
13. Electrical Setup
   - Secure Control Box to Wall
   - Connecting all Wiring
   - Setting the Limits

14. Wiring Diagram for Closing Safety Beams

15. Wiring Diagram for Opening Safety Beams

16. Wiring Diagram for External Radio Receiver and Loop Detector

17. Wiring Diagram for Other Inputs

18. Wiring Diagram for Master Motor (MTRM)

19. Wiring Diagram for Slave Motor (MTRS)

20. Charger and Pillar Light Connections

21. Solar Panel Wiring

22. Setting up Additional Features

23. Menu Navigation Map

24. Controller Features

25. Factory Defaults Schedule

26. Description of Terminal Functions

27. Diagnostics
   - Diagnostic LEDs
   - Gate Status LED Indication
   - LCD Display
   - Buzzer Feedback

28. Installation Handover
These quick steps are for the experienced installer who needs a checklist to get a standard installation up and running in the minimum of time.

Detailed installation features and functions are referred to later in this manual.

1. Gather required tools and equipment  Page 14
2. Heed necessary site considerations  Page 15
3. Check cabling requirements  Page 22
4. Mount the wall bracket  Page 25
5. Install motor and link to gate  Page 25
6. Mount controller enclosure and connect all wiring  Page 37
7. Fit mechanical endstops  Page 38
Electrical Setup

- Connect all wiring
- Run setup routine

Page 40

Commissioning and Handover

- Commission system

Page 62

- Carry out professional handover to client

Page 74
ATTENTION

To ensure the safety of people, it is important that you read all the following instructions. Incorrect installation or incorrect use of the product could cause serious harm to people.

The installer, being either professional or DIY, is the last person on the site who can ensure that the operator is safely installed, and that the whole system can be operated safely.

Warnings for the installer

CAREFULLY READ AND FOLLOW ALL INSTRUCTIONS before beginning to install the product.

- All installation, repair, and service work to this product must be carried out by a suitably qualified person
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety
- Do not activate your gate unless you can see it and can determine that its area of travel is clear of people, pets, or other obstructions
- **NO ONE MAY CROSS THE PATH OF A MOVING GATE.** Always keep people and objects away from the gate and its area of travel
- **NEVER LET CHILDREN OPERATE OR PLAY WITH THE GATE CONTROLS**
- Secure all easily-accessed gate opener controls in order to prevent unauthorised use of the gate
- Do not in any way modify the components of the automated system
- Do not install the equipment in an explosive atmosphere: the presence of flammable gasses or fumes is a serious danger to safety
- Before attempting any work on the system, cut electrical power to the operator and disconnect the batteries
- The mains power supply of the automated system must be fitted with an all-pole switch with contact opening distance of 3mm or greater. Use of a 5A thermal breaker with all-pole circuit break is recommended
• Make sure that an earth leakage circuit breaker with a threshold of 30mA is fitted upstream of the system
• Never short-circuit the battery and do not try to recharge the batteries with power supply units other than that supplied with the product, or by CENTURION
• Make sure that the earthing system is correctly constructed, and that all metal parts of the system are suitably earthed
• Safety devices must be fitted to the installation to guard against mechanical movement risks such as crushing, dragging and shearing
• It is recommended that at least one warning indicator light be fitted to every system
• Always fit the warning signs visibly to the inside and outside of the gate
• The installer must explain and demonstrate the manual operation of the gate in case of an emergency, and must hand the User Guide/Warnings over to the user
• Explain these safety instructions to all persons authorised to use this gate, and be sure that they understand the hazards associated with automated gates
• Do not leave packing materials (plastic, polystyrene, etc.) within reach of children as such materials are potential sources of danger
• Dispose of all waste products like packaging materials, worn-out batteries, etc., according to local regulations
• Always check the obstruction detection system, and safety devices for correct operation
• CENTURION does not accept any liability caused by improper use of the product, or for use other than that for which the automated system was intended
• This product was designed and built strictly for the use indicated in this documentation. Any other use, not expressly indicated here, could compromise the service life/operation of the product and/or be a source of danger
• Everything not expressly specified in these instructions is not permitted
1. Declaration of Conformity

Manufacturer
Centurion Systems (Pty) Ltd
Unit 13 Production Park
Intersection of Newmarket Road and Epsom Avenue
North Riding
Gauteng
South Africa

Declares that the product
Product name: VECTOR2 Swing gate operator
Product options: All variants

Conforms with the following specifications
Safety: SANS 60335-1:2007
       IEC 60335-1:2006

Emissions: CISPR 22 CLASS B: Radiated emissions – 30MHz to 1000MHz
           CISPR 22 CLASS B: Conducted emissions – 150 KHz to 30MHz

Immunity: IEC 61000-4-2 – Electrostatic discharge
          IEC 61000-4-3 – Radiated immunity – 80MHz to 1000MHz
          IEC 61000-4-4 – Electrical fast transients/burst
          IEC 61000-4-5 – Surge immunity test
          IEC 61000-4-6 – Conducted immunity – 150KHz to 80MHz
          IEC 61000-4-8 – Power frequency magnetic field
          IEC 61000-4-11– Voltage dips and interruption

Standard to which conformity is declared
IEC 60335-1:2006 Safety
IEC 61000-6-3 Emissions
IEC 61000-6-1 Immunity

Signed at North Riding, South Africa on June 21, 2010

Ian Rozowsky
Research & Development Director
The **VECTOR2** operator has been designed to safely and cost-effectively automate a wide variety of swing gates, from single light-domestic swing gates to heavy industrial double swing gates.

The fail-safe and fully redundant Position and Collision Detection system has been designed and tested to set the standard in safety of operation and to provide an unparalleled level of reliability and durability in operation.

The gate Travel Limits are managed by a sealed double-redundant opto-electronic system that has been designed not only to ensure ultra-reliable operation, but also to ensure precise position and trajectory control. This enables very accurate and reliable collision detection to ensure safe operation even under trying conditions.

The **VECTOR2** control card has been designed to be easy and intuitive to use, with helpful instructions on the status of the operation being given both during and after the installation. It also has a built-in diagnostic procedure that can verify every aspect of the control card onsite.

Some of the advanced features offered by the **VECTOR2** controller are:

- Fully automated single-button Limit Setup for single and double swing gates
- Full graphics LCD display provides an intuitive user interface with built-in diagnostics to speed up and simplify the installation process
- Separate safety inputs for infrared beams on both the closing and opening directions of the gate
- Advanced closed-loop speed control to maintain safe and reliable operation on inclined gates under windy conditions
- Fully configurable gate Run Profiles
- Selectable and adjustable Autoclose with pushbutton override
- Pedestrian (Partial) opening with automatic closure
- Free-exit input
- Positive Close Mode
- Multiple Modes of Operation
- Solenoid lock drive output up to 2A
- Holiday Lockout
- A status LED output to indicate the gate status remotely
- Pillar Light control
- Leaf delay is selectable for either gate leaf
- Onboard CENTURION receiver with selective adding and deleting of remotes
Lightning Protection

The VECTOR2 electronic controller utilises the same proven surge protection philosophy that is used in all CENTURION products. While this does not guarantee that the unit will not be damaged in the event of a lightning strike or power surge, it greatly reduces the likelihood of such damage occurring. The earth return for the surge protection is provided via the mains power supply earth. In order to ensure that the surge protection is effective, it is essential that the unit is properly earthed.

3. Icons Used in this Manual

This icon indicates tips and other information that could be useful during the installation.

This icon denotes variations and other aspects that should be considered during installation.

This icon indicates warning, caution or attention! Please take special note of critical aspects that MUST be adhered to in order to prevent injury.
4. Specifications

Physical Dimensions

Model V400

1400mm extended
1000mm retracted
400mm stroke
95mm

Model V500

1600mm extended
1100mm retracted
500mm stroke
95mm

All dimensions shown in millimeters

FIGURE 1. V400 OVERALL DIMENSIONS

FIGURE 2. V500 OVERALL DIMENSIONS
### Technical Specifications

<table>
<thead>
<tr>
<th></th>
<th>VECTOR2 400</th>
<th>VECTOR2 500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input voltage</td>
<td>90V*/220V - 240V AC ± 10%, 50Hz</td>
<td></td>
</tr>
<tr>
<td>Motor voltage</td>
<td>12V DC</td>
<td></td>
</tr>
<tr>
<td>Motor power supply</td>
<td>Battery-driven (standard capacity - 7Ah)†</td>
<td></td>
</tr>
<tr>
<td>Battery charger*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domestic</td>
<td>CP84E - 800mA @ 13.8V</td>
<td></td>
</tr>
<tr>
<td>Light-industrial†</td>
<td>CP84SM - 2A @13.8V</td>
<td></td>
</tr>
<tr>
<td>Current consumption (mains)</td>
<td>60mA/*/170mA</td>
<td></td>
</tr>
<tr>
<td>Current consumption (motor at rated load)</td>
<td>15A - maximum</td>
<td></td>
</tr>
<tr>
<td>Operator push force - maximum</td>
<td>250kgf</td>
<td></td>
</tr>
<tr>
<td>Operator stroke</td>
<td>400mm</td>
<td>500mm</td>
</tr>
<tr>
<td>Piston extension/retraction speed</td>
<td>27mm/sec</td>
<td></td>
</tr>
<tr>
<td>Typical gate opening time*</td>
<td>&lt;14 sec</td>
<td>&lt;17 sec</td>
</tr>
<tr>
<td>Manual override</td>
<td>Key release</td>
<td></td>
</tr>
<tr>
<td>Maximum number of operations per day</td>
<td>100*/250†</td>
<td></td>
</tr>
<tr>
<td>Duty cycle - mains present**</td>
<td>25%/50%†</td>
<td></td>
</tr>
<tr>
<td>Operations in standby with 7Ah battery‡</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Half day</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>Full day</td>
<td>58</td>
<td></td>
</tr>
<tr>
<td>Collision sensing</td>
<td>Electronic</td>
<td></td>
</tr>
<tr>
<td>Controller solenoid output rating</td>
<td>2A DC</td>
<td></td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>-15°C to +50°C</td>
<td></td>
</tr>
<tr>
<td>Onboard receiver type</td>
<td>CENTURION code-hopping multichannel</td>
<td></td>
</tr>
<tr>
<td>Receiver code storage capacity</td>
<td>64 transmitter buttons</td>
<td></td>
</tr>
<tr>
<td>Receiver frequency</td>
<td>433MHz</td>
<td></td>
</tr>
<tr>
<td>Mass of unit packed (excluding battery)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single kit</td>
<td>8.5kg</td>
<td>9kg</td>
</tr>
<tr>
<td>Double kit</td>
<td>14kg</td>
<td>15kg</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP54</td>
<td></td>
</tr>
</tbody>
</table>

* Applies to CP84SM light-industrial unit only  
† Can increase battery capacity for longer standby times  
‡ Can operate off a solar supply, consult Centurion Systems (Pty) Ltd for assistance  
§ Domestic  
‖ Light-industrial  
* Assumes full stroke of operator is used  
*** Based on 25°C ambient temperature and unit not in direct sunlight  
** Based on an operator push force of less than 50% of rated  
†† Based on double kit excluding Infrared Safety Beams  
‡‡ Assumes a 90° opening gate and optimum mounting position
## Control Card

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum motor current per channel</td>
<td>15A (fused)</td>
</tr>
<tr>
<td>Maximum input voltage</td>
<td>14.4V DC</td>
</tr>
<tr>
<td>Standby current draw</td>
<td>48mA</td>
</tr>
<tr>
<td>Maximum solenoid current draw</td>
<td>2A DC</td>
</tr>
<tr>
<td>Maximum auxiliary output current</td>
<td>3A (PTC)</td>
</tr>
<tr>
<td>Collision detection</td>
<td>Current sense and redundant optical</td>
</tr>
<tr>
<td>Position and trajectory</td>
<td>Redundant optical</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-20°C to +60°C</td>
</tr>
</tbody>
</table>

## Power Supply

<table>
<thead>
<tr>
<th>Feature</th>
<th>7Ah, 12V, CP84E (Domestic)</th>
<th>7Ah, 12V, CP84SM2A (Light-industrial)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal input voltage</td>
<td>220V-240V AC ±10% @ 50Hz</td>
<td>90V-240V AC ±10% @ 50Hz</td>
</tr>
<tr>
<td>AC current draw (maximum)</td>
<td>60mA</td>
<td>170mA</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-20°C to +60°C</td>
<td>-20°C to +60°C</td>
</tr>
<tr>
<td>Battery charger amperage output</td>
<td>0.8A @ 13.8V</td>
<td>90V AC</td>
</tr>
<tr>
<td>(dependant on PSU input voltage)</td>
<td></td>
<td>Input: 1.2A @ 13.8V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>240V AC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Input: 2.2A @ 13.8V</td>
</tr>
</tbody>
</table>

## Power Supply, Control Box and Control Card Assembly

<table>
<thead>
<tr>
<th>Feature</th>
<th>7Ah, 12V, CP84E (Domestic)</th>
<th>7Ah, 12V, CP84SM2A (Light-industrial)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boxed shipping weight (excluding batteries):</td>
<td>2.7kg</td>
<td>2.6kg</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP55</td>
<td>IP55</td>
</tr>
</tbody>
</table>
# Allowable Gate Mass

### Maximum allowable gate mass for the V400 operator:

<table>
<thead>
<tr>
<th>Gate swing angle</th>
<th>Up to 1.5 metres</th>
<th>Up to 2 metres</th>
<th>Up to 2.5 metres</th>
<th>Up to 3 metres (#1)</th>
<th>Up to 3.5 metres (#1)</th>
<th>Up to 4 metres (#1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>90°</td>
<td>500kg</td>
<td>500kg</td>
<td>500kg</td>
<td>360kg</td>
<td>260kg</td>
<td>200kg</td>
</tr>
<tr>
<td>100°</td>
<td>500kg</td>
<td>500kg</td>
<td>388kg</td>
<td>160kg</td>
<td>190kg</td>
<td>150kg</td>
</tr>
<tr>
<td>110°</td>
<td>500kg</td>
<td>306kg</td>
<td>198kg</td>
<td>130kg</td>
<td></td>
<td>Not recommended</td>
</tr>
<tr>
<td>120°</td>
<td>180kg</td>
<td>100kg</td>
<td>65kg</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#1 - An electric lock must be fitted to secure gate in closed position

### Maximum allowable gate mass for the V500 operator:

<table>
<thead>
<tr>
<th>Gate swing angle</th>
<th>Up to 1.5 metres</th>
<th>Up to 2 metres</th>
<th>Up to 2.5 metres</th>
<th>Up to 3 metres (#1)</th>
<th>Up to 3.5 metres (#1)</th>
<th>Up to 4 metres (#1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>90°</td>
<td>750kg</td>
<td>750kg</td>
<td>750kg</td>
<td>550kg</td>
<td>410kg</td>
<td>310kg</td>
</tr>
<tr>
<td>100°</td>
<td>750kg</td>
<td>750kg</td>
<td>600kg</td>
<td>420kg</td>
<td>310kg</td>
<td>230kg</td>
</tr>
<tr>
<td>110°</td>
<td>750kg</td>
<td>500kg</td>
<td>320kg</td>
<td>220kg</td>
<td></td>
<td>Not recommended</td>
</tr>
<tr>
<td>120°</td>
<td>310kg</td>
<td>170kg</td>
<td>110kg</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#1 - An electric lock must be fitted to secure gate in closed position
5. Product Identification

1. Wall bracket (standard)
2. Wall bracket pin
3. **VECTOR2** gate operator (complete assembly)
4. 12mm snap ring
5. Gate warning decal
6. Gate operator keys
   ✤ Keys are specific to each operator - key number must be recorded

7. Gate bracket pin
8. Gate bracket
9. Stainless steel cap screw M6 x 25
10. Origin body
11. Stainless steel M6 nut
12. 14mm snap ring

---

**FIGURE 3A. PRODUCT IDENTIFICATION**

---

**FIGURE 3B. CONTROL BOX INCLUDING CHARGER AND CONTROLLER**

1. 12V 7.2Ah Battery (user supplied - not part of kit)
2. **VECTOR2** controller with built-in receiver
3. Charger
4. CENTURION remote controls
5. User Guide
7. Control Box
1. **VECTOR2** Wall Adaptor Kit packing leaflet
2. M10 hexagon nuts
3. Wall adaptor plate
4. M10 x 20 countersunk screw

**FIGURE 3C. WALL ADAPTOR KIT**

1. **VECTOR2** High-security Kit packing leaflet
2. Padlocks
3. Wall bracket (high-security)

**FIGURE 3D. HIGH-SECURITY KIT**

1. **VECTOR2** securing plate (short)
2. **VECTOR2** Mechano Kit packing leaflet
3. M10 x 35 bolt
4. M10 x 35 bolt
5. **VECTOR2** securing plate (long)

**FIGURE 3E. MECHANO KIT**

1. **VECTOR2** Gate Adaptor Kit packing leaflet
2. M6 x 16 countersunk cap screw
3. Gate bracket spreader plate
4. M6 hexagon nuts

**FIGURE 3F. GATE ADAPTOR KIT**
6. Required Tools and Equipment

- Spanners 17mm, 15mm preferably socket set
- Crimping tool and Pin lugs
- Masonry bits 12mm, 10mm for wall mount brackets 6.5mm/10.5mm steel bits
- G-clamps x 2
- Allen key 5mm
- Measuring tape
- Welding machine (including consumables and safety equipment)
- Marking pen/chalk
- Safety equipment (goggles, gloves etc.)
- Electric drilling machine
- Screwdrivers 6mm Phillips 3.5mm Flat
- Pliers
- Screwdrivers 6mm Phillips 3.5mm Flat
- Pliers
- Hammer
- Electric drilling machine
- Connector block
- Hole saw 20mm
- Pin punch 6mm
- Pin punch 6mm
- Measuring tape
- Measuring tape
- Measuring tape
- Angle grinder
- Hacksaw
- Extension cord
- Soldering iron
- Screwdrivers 6mm Phillips 3.5mm Flat
7. Preparation of Site

General Considerations for the Installation

- Always recommend the fitment of additional safety equipment such as safety edges and Safety Beams, for additional protection against entrapment or other mechanical risks.
- Check that no pipes or electrical cables are in the way of the intended installation.
- Check that enough space is available for the gate operator with the gate in the required open position (see Figures 4 and 5).
- Check the strength of the mounting pillar and fit a Wall Adaptor Kit where needed.
- If the swing gate leaf is longer than 2.5 metres, ensure that a lock can be fitted.
- Never fit the operator on the outside of the gate, where the public has access to it (follow the instructions for an outward opening swing gate, if required).
- For greater security consider fitting the optional High-security Kit.

Install the gate operator only if:

- It will not pose a hazard to the public.
- There is sufficient clearance to a roadway and/or public thoroughfares.
- The installation will meet all municipal and/or local authority requirements once completed.
- The gate mass, leaf width, allowable wind loading and application is within the operator specifications (refer to the specification tables).
- The gate is in good working order, meaning:
  - that it swings freely;
  - does not move on its own if left in any position;
  - each gate leaf is strong and rigid;
  - it can be installed to have sufficient clearance between moving parts when opening and closing to reduce the risk of personal injury and entrapment.
  - pushbuttons or keyswitches, when required, can be positioned so that the gate is in line of sight.

Gate opening 90° or less

<table>
<thead>
<tr>
<th>Operator</th>
<th>Wall (minimum)</th>
<th>Pillar (maximum)</th>
</tr>
</thead>
<tbody>
<tr>
<td>V400</td>
<td>150mm</td>
<td>250mm</td>
</tr>
<tr>
<td>V500</td>
<td>150mm</td>
<td>335mm</td>
</tr>
</tbody>
</table>
For reliable operation it is important to ensure that the way the operator is secured to the wall takes into account the strength of the pillar, the size of the gate, and how frequently the gate will be used:

**Strength of the Pillar**

For reliable operation it is important to ensure that the way the operator is secured to the wall takes into account the strength of the pillar, the size of the gate, and how frequently the gate will be used:

### Gate opening 110°

<table>
<thead>
<tr>
<th>Operator</th>
<th>Wall (minimum)</th>
<th>Pillar (maximum)</th>
</tr>
</thead>
<tbody>
<tr>
<td>V400</td>
<td>150mm</td>
<td>145mm</td>
</tr>
<tr>
<td>V500</td>
<td>150mm</td>
<td>210mm</td>
</tr>
</tbody>
</table>

* Tables are based on gates shorter than 2.5 metres
  - For gates 2.5 metres to 3.0 metres long, reduce the maximum pillar thickness by 20mm
  - For gates 3.0 metres to 3.5 metres long, reduce the maximum pillar thickness by 40mm
  - For gates 3.5 metres to 4.0 metres long, reduce the maximum pillar thickness by 60mm

* The typical minimum wall clearance required to fit the operator

* The maximum allowable pillar thickness on which to fit the operator

**High-security Kit together with a Wall Adaptor Kit**

This mounting is highly recommended for all light-industrial gates, or for heavy gates of any length.

Alternatively it should be considered for use on pillars of low or unknown strength.
**High-security Kit**
This mounting works well for heavy gates shorter than about two metres in single household domestic applications. Alternatively it should be considered for use on pillars of low or unknown strength.

**Standard bracket**
This mounting method is typically used on light- to medium-weight domestic gates that are about 1.5 metres long, and that are mounted on pillars of average strength.

The means used to secure the bracket to the pillar is as important as the bracket itself.

**Through wall**
Applications:
- Pre-fabricated walling
- For heavy gates operating frequently

**Chemical anchors**
Applications:
- Masonry pillars
- Frequent use
Welding
Applications:
- Lighter gates
- Domestic

Sleeve anchors
Applications:
- Lighter gates
- Domestic

RAWL bolts
Applications:
- Very light
- Domestic
**Strength of the Gate and Gate Bracket**

The Gate Adaptor Kit both strengthens the connection to the gate, and also allows for more flexibility when mounting the bracket to the gate:

**Welding Gate Adaptor Kit**
Applications:
- Light-industrial
- Heavy gates
- Frequent use

**Through-bolts Gate Adaptor Kit**
Applications:
- Light-industrial
- Heavy gates
- Frequent use

**Welding**
Applications:
- Domestic
- Medium gates
- Frequent use

**Through-bolts (high-tensile)**
Applications:
- Domestic
- Light gates
- Infrequent use

TEK screws and mild steel bolts are not recommended.
Mechano Kit Installation Options

This kit is useful when fitting VECTOR2 to existing installations, and also makes adjustments easier when doing new installations.

**FIGURE 19. INSTALLATION WHEN THE PILLAR IS WIDE**

**FIGURE 20. INSTALLATION WHEN THE PILLAR IS ON AN IRREGULAR SURFACE**

**FIGURE 21. INSTALLATION ON A PALISADE FENCE**

**FIGURE 22. INSTALLATION ON AN ANGLED WALL**
High-Security Kit Installation Options

FIGURE 23. INSTALLATION WHEN THE PILLAR IS WIDE

FIGURE 24. INSTALLATION WHEN THE PILLAR IS ON AN IRREGULAR SURFACE

FIGURE 25. INSTALLATION ON A PALISADE FENCE

FIGURE 26. INSTALLATION ON AN ANGLED WALL
8. Cabling Requirements

Legend

1. 90V/220V - 240V AC mains cable via mains isolator switch (3 core LNE 0.5mm²), or low-voltage 16V AC battery charger supply (2 core 1.5mm²).

2. Intercom cable (n1 + 6 core) to house.

3. Master motor (MTR M) or Slave motor (MTR S) cable (minimum, 2 core 2mm² + 4 core 0.5mm² multi-stranded) see note.*

4. Optional radio receiver cable (3 core 0.5mm² multi-stranded, optional)★.

5. Optional Pedestrian Keyswitch (2 core 0.5mm² multi-stranded) or optional keypad (3 core 0.5mm² multi-stranded).

6. Optional infrared Safety Beams (3 core 0.5mm² multi-stranded or 4 core 0.5mm² for CE compliance.).

7. Optional intercom cable (n2+2 core 0.5mm² multi-stranded) to gate station.

8. Optional electric lock (2 core 0.5mm²).

9. Optional Pillar Light cable (3 core, size according to power regulations).

10. Optional ground loop for free-exit (1 core 0.5mm² multi-stranded - silicone-coated)♀.

* Applicable to CP84SM charger only
★ Mains isolator must be fitted less than 1 metre from controller
★ Increase cable thickness if Pillar Lights are to be installed
★ Screened cable is always recommended to provide better protection against lightning - earth one end of screening
♀ Domestic charger only
♀ For optimum range an external receiver can be mounted on the wall
♀ CENTURION has custom VECTOR2 cable available. Order reference: CABLEVEC68. Consult manufacturer of loop detector for specific details

- All cables must be routed in conduit unless underground cable is being used
- Mains isolator must be less than one metre from the operator
- Safety Beams are always recommended
9. Critical Installation Checklist

The following is a list of critical requirements that must be adhered to in order to ensure reliable operation of your VECTOR2 operators:

- Ensure that the wall bracket is securely anchored
- Make sure that the actuator’s maximum stroke is being utilised
- Only use VECTOR cable for the installation
- Leave a 350mm loop in the cable (refer to page 37)
- Fit an electromechanical or an electromagnetic gate lock if the leaf width is greater than three metres
- Ensure that the opening and closing angles conform to the installation guidelines
- Ensure that your gate and operators are equipped to deal with wind loading (refer to the table on page 36)
- Ensure that fixed mechanical endstops are fitted in the fully open position for outward swinging gates
10. Operator Installation

1. Determine the gate opening angle and direction of operator (inward or outward).

   Alternatively the swing angle can be determined more accurately with the process detailed on page 35.

2. Determine a suitable height for the wall bracket.

   The gate bracket must fit to a sturdy point on the gate.

   Consider using the optional Gate Adaptor Kit.

   Take care to make sure the operator is mounted level.

3. Determine where to put the bracket according to A and B values in the tables on pages 30, 31, 33 and 34.
4. Secure the bracket to the wall with the most appropriate means.

It is critical that the wall bracket is securely mounted.

See page 15 for site considerations.

**Determine the Gate Bracket Position**

Start with the operator fully retracted.

Turn out the actuator tube one or two turns.

5. Fit the gate bracket to the operator.
6. Fit the motor end of the operator to the wall bracket.

7. Open the gate fully and temporarily clamp the gate bracket to the gate.
   
   The gate bracket must fit to a sturdy point on the gate.
   
   Consider using the optional Gate Adaptor Kit. See page 13.

8. Unlock the operator and swing the gate into the closed position.

9. Remove the pin and the operator from the bracket, check that there is at least one or two turns of the actuator before it is fully extended.
If it becomes obvious that the operator does not have enough stroke, reduce either the A or B distances by moving the wall bracket. A and B are illustrated in Figure 30 in page 24.

Be sure not to make the A and B values less than allowed for in the installation tables on page 30 and 31.

In general:
- Large B distances give good security and good closing push force
- Small A and small B will increase the speed

**Fasten Gate Bracket to Gate**

10. Secure the gate bracket using the most appropriate means.

![FIGURE 37](image)

It is critical that the gate bracket is securely mounted.

See page 16 for site considerations.

11. Fit the operator, wall bracket pins and snap

As an additional security item, add a padlock, as well as the snap ring.
12. Fit the operator, additional security gate bracket pins and snap rings.

As additional security to the snap ring, fit a padlock and the optional padlock shield.

**Adjust Origin Clamp**

13. Unlock the operator and open the gate to the desired fully open position.
14. Slide the origin clamp along the actuator tube, right up to the operator. Secure in place with an Allen key and tighten properly.

15. Attach warning decals to the gate as shown.
Inward Swing Gate Setup

For gates opening 90° or less as A and B are shown.

**For best security** (but slower operation) install with large B value.

**For fast operation** (but less security) install with small A and small B values.

Ensure that the gate does not exceed the gate mass specifications on page 11.

For gates opening more than 90° as A and B are shown.
For V400 (400mm operator)

![Diagram showing 1400mm extended and 1000mm retracted]

**Recommended positions**
(Only for a 2.5 metre gate or shorter)

<table>
<thead>
<tr>
<th>Gate swing angle</th>
<th>A Value</th>
<th>B Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>90° or less</td>
<td>160</td>
<td>200</td>
</tr>
<tr>
<td>100°</td>
<td>120</td>
<td>180</td>
</tr>
<tr>
<td>110°</td>
<td>120</td>
<td>130</td>
</tr>
<tr>
<td>120°</td>
<td>110</td>
<td>110</td>
</tr>
</tbody>
</table>

**Alternative positions**

<table>
<thead>
<tr>
<th>Gate swing angle</th>
<th>A+B should not exceed</th>
<th>A and B must each be greater</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Up to 1.5 metres</td>
<td>Up to 2 metres</td>
</tr>
<tr>
<td></td>
<td>Up to 2.5 metres</td>
<td>Up to 3 metres</td>
</tr>
<tr>
<td></td>
<td>Up to 3.5 metres</td>
<td>Up to 4 metres</td>
</tr>
<tr>
<td>60° - 90° or less</td>
<td>380mm</td>
<td>110mm 110mm</td>
</tr>
<tr>
<td>100°</td>
<td>310mm</td>
<td>110mm 110mm</td>
</tr>
<tr>
<td>110°</td>
<td>265mm</td>
<td>110mm 110mm</td>
</tr>
<tr>
<td>120°</td>
<td>220mm</td>
<td>110mm 110mm</td>
</tr>
</tbody>
</table>

110mm for A or B would ensure a 10mm clearance between the operator and gate if the gate is 50mm thick.
For V500 (500mm operator)

**Recommended positions**
(Only for a 2.5 metre gate or shorter)

<table>
<thead>
<tr>
<th>Gate swing angle</th>
<th>A Value</th>
<th>B Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>90° or less</td>
<td>205</td>
<td>250</td>
</tr>
<tr>
<td>100°</td>
<td>165</td>
<td>215</td>
</tr>
<tr>
<td>110°</td>
<td>144</td>
<td>180</td>
</tr>
<tr>
<td>120°</td>
<td>115</td>
<td>150</td>
</tr>
</tbody>
</table>

**Alternative positions**

<table>
<thead>
<tr>
<th>Gate swing angle</th>
<th>A+B should not exceed</th>
<th>A and B must each be greater</th>
</tr>
</thead>
<tbody>
<tr>
<td>60° - 90° or less</td>
<td>460mm</td>
<td>Up to 1.5 metres</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Up to 2 metres</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Up to 2.5 metres</td>
</tr>
<tr>
<td>100°</td>
<td>400mm</td>
<td>Up to 3 metres</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Up to 3.5 metres</td>
</tr>
<tr>
<td>110°</td>
<td>340mm</td>
<td>Up to 4 metres</td>
</tr>
<tr>
<td>120°</td>
<td>285mm</td>
<td>Not recommended</td>
</tr>
</tbody>
</table>

110mm for A or B would ensure a 10mm clearance between the operator and gate if the gate is 50mm thick.
Outward Swing Gate Setup

For gates opening 90° or less as A and B are as shown.

For best security (but slower operation) install with large B value

For fast operation (but less security) install with small A and small B values

Ensure that the gate does not exceed the gate mass specifications on page 11.

For gates opening more than 90° as A and B are shown.

Outward opening swing gates must have physical endstops fitted in the open position.
For V400 (400mm operator) outward

![Diagram of gate opening angles and recommended positions.]

**Recommended positions**
(Only for a 2.5 metre gate or shorter)

<table>
<thead>
<tr>
<th>Gate swing angle</th>
<th>A Value</th>
<th>B Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>90° or less</td>
<td>173</td>
<td>191</td>
</tr>
<tr>
<td>100°</td>
<td>145</td>
<td>160</td>
</tr>
<tr>
<td>110°</td>
<td>120</td>
<td>130</td>
</tr>
<tr>
<td>120°</td>
<td>106</td>
<td>114</td>
</tr>
</tbody>
</table>

**Alternative positions**

<table>
<thead>
<tr>
<th>Gate swing angle</th>
<th>A+B should not exceed</th>
<th>A and B must each be greater Up to 1.5 metres</th>
<th>Up to 2 metres</th>
<th>Up to 2.5 metres</th>
<th>Up to 3 metres</th>
<th>Up to 3.5 metres</th>
<th>Up to 4 metres</th>
</tr>
</thead>
<tbody>
<tr>
<td>60° - 90° or less</td>
<td>365mm</td>
<td>110mm</td>
<td>110mm</td>
<td>110mm</td>
<td>120mm</td>
<td>140mm</td>
<td>160mm</td>
</tr>
<tr>
<td>100°</td>
<td>310mm</td>
<td>110mm</td>
<td>110mm</td>
<td>110mm</td>
<td>120mm</td>
<td>140mm</td>
<td>160mm</td>
</tr>
<tr>
<td>110°</td>
<td>265mm</td>
<td>110mm</td>
<td>110mm</td>
<td>110mm</td>
<td>120mm</td>
<td>140mm</td>
<td>160mm</td>
</tr>
<tr>
<td>120°</td>
<td>220mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

110mm for A or B would ensure a 10mm clearance between the operator and gate if the gate is 50mm thick.
For V500 (500mm operator) outward

1600mm extended

1100mm retracted

FIGURE 55

Recommended positions
(Only for a 2.5 metre gate or shorter)

<table>
<thead>
<tr>
<th>Gate swing angle</th>
<th>A Value</th>
<th>B Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>90° or less</td>
<td>222</td>
<td>246</td>
</tr>
<tr>
<td>100°</td>
<td>185</td>
<td>205</td>
</tr>
<tr>
<td>110°</td>
<td>155</td>
<td>170</td>
</tr>
<tr>
<td>120°</td>
<td>128</td>
<td>139</td>
</tr>
</tbody>
</table>

Alternative positions

<table>
<thead>
<tr>
<th>Gate swing angle</th>
<th>A+B should not exceed</th>
<th>A and B must each be greater</th>
</tr>
</thead>
<tbody>
<tr>
<td>60° - 90° or less</td>
<td>455mm</td>
<td>Up to 1.5 metres 110mm 110mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Up to 2 metres 110mm 110mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Up to 2.5 metres 110mm 110mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Up to 3 metres 120mm 140mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Up to 3.5 metres 140mm 160mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Up to 4 metres 160mm 160mm</td>
</tr>
<tr>
<td>100°</td>
<td>390mm</td>
<td>110mm 110mm 110mm 120mm 140mm</td>
</tr>
<tr>
<td>110°</td>
<td>330mm</td>
<td>110mm 110mm 110mm 120mm 140mm</td>
</tr>
<tr>
<td>120°</td>
<td>275mm</td>
<td>110mm 110mm 110mm Not recommended</td>
</tr>
</tbody>
</table>

110mm for A or B would ensure a 10mm clearance between the operator and gate if the gate is 50mm thick.
11. Determine Gate Swing Angle

Use this procedure to accurately determine the gate opening angle:

Step 1

1. Close the gate and measure a distance of one metre from the centreline of the gate hinge.
2. Make a mark on the ground.

Step 2

3. Open the gate and measure along the gate a distance of one metre from the centreline of the gate hinge.
4. Make a mark on the ground.
5. Measure the distance on the ground between the two marks (Z).
6. Using this Z value, read off the gate opening angle from the table below.

Step 3

Gate opening angle

<table>
<thead>
<tr>
<th>Value Z from</th>
<th>To</th>
<th>Use gate swing angle of</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 000mm</td>
<td>1 075mm</td>
<td>60°</td>
</tr>
<tr>
<td>1 075mm</td>
<td>1 218mm</td>
<td>70°</td>
</tr>
<tr>
<td>1 218mm</td>
<td>1 351mm</td>
<td>80°</td>
</tr>
<tr>
<td>1 351mm</td>
<td>1 475mm</td>
<td>90°</td>
</tr>
<tr>
<td>1 474mm</td>
<td>1 587mm</td>
<td>100°</td>
</tr>
<tr>
<td>1 587mm</td>
<td>1 687mm</td>
<td>110°</td>
</tr>
<tr>
<td>1 687mm</td>
<td>1 732mm</td>
<td>120°</td>
</tr>
</tbody>
</table>
12. Allowable Wind Load

Wind speeds for which operator will still operate the gate (for V400 or V500 operators)

<table>
<thead>
<tr>
<th>Value of A or B dimension once installed*</th>
<th>Gate lengths:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Up to 1.5 metres</td>
</tr>
<tr>
<td>100mm</td>
<td>94km/h</td>
</tr>
<tr>
<td>140mm</td>
<td>119km/h</td>
</tr>
<tr>
<td>180mm</td>
<td>138km/h</td>
</tr>
<tr>
<td>220mm</td>
<td>156km/h</td>
</tr>
<tr>
<td>260mm</td>
<td>171km/h</td>
</tr>
<tr>
<td>300mm</td>
<td>186km/h</td>
</tr>
<tr>
<td>340mm</td>
<td>199km/h</td>
</tr>
</tbody>
</table>

* See page 24 or 25 for installation details
★ An electric lock must be fitted

Wind speeds for which operator will still operate the gate (for V400 or V500 operators)

<table>
<thead>
<tr>
<th>Value of A or B dimension once installed*</th>
<th>Gate lengths:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Up to 1.5 metres</td>
</tr>
<tr>
<td>100mm</td>
<td>47km/h</td>
</tr>
<tr>
<td>140mm</td>
<td>59km/h</td>
</tr>
<tr>
<td>180mm</td>
<td>69km/h</td>
</tr>
<tr>
<td>220mm</td>
<td>78km/h</td>
</tr>
<tr>
<td>260mm</td>
<td>86km/h</td>
</tr>
<tr>
<td>300mm</td>
<td>93km/h</td>
</tr>
<tr>
<td>340mm</td>
<td>100km/h</td>
</tr>
</tbody>
</table>

* See page 24 or 25 for installation details
★ An electric lock must be fitted
13. Electrical Setup

1. Always check that the circuit breaker in the electrical panel is in the OFF position, and that all high-voltage circuits (more than 42.4V) are completely isolated from the mains supply before doing any work.

2. Ensure that all low-voltage systems (less than 42.4V) are suitably protected from damage, by disconnecting all sources of power such as chargers and batteries before doing any work.

3. All electrical work must be carried out according to the requirements of all applicable local electrical codes. (It is recommended that a licensed electrical contractor perform such work)

Secure Control Box to Wall

1. Secure the Control Box to the wall using the most appropriate means.

   Be sure to position the Control Box so as not to cause any hazards during and after the installation

   Preferably mount the Control Box:
   • out of direct sunlight
   • at a comfortable working height
   • away from garden sprinklers, etc.
   • to allow easy access even when the gate is open

Connect all Wiring

2. Connect all the cables as required to the control card. See pages 40, 41, 42 and 43.

3. When wiring each operator back to the controller housing, it is recommended to mount a small junction box adjacent to each operator. Terminate the cable provided on the operator into this junction box and then route a new cable from the junction box to the controller housing.

It is essential that the installer tie off the harness in such a way so as to allow for a 350mm loop between the cable exit at the back of the operator and either the mounting bracket or junction box, to minimise the flexing of the harness. If a sharp bend is introduced to the cable harness, or a loop that is less than 350mm in diameter, the resulting
cable fatigue, or excessive tension on the cable, may cause the actuators to behave erratically or to stop operating altogether.

4. Check that the charger and battery are connected to the controller.

![Ensure that the battery polarity is correct.]

5. Switch on the mains supply (via isolator).

6. Ensure that both the controller and charger are effectively earthed for improved lightning protection.

**Setting the Limits**

7. Check that the origin has been correctly set (see page 25).

8A. For an outward opening gate, ensure that the gate is in the fully-open position and the operator locked.

8B. If the gate opens inward, the limit setup procedure must be started with the gate in the fully-closed position. Check that the operator is locked.

9. If powering up the system ex-factory, it will request for the Operating Profile (Operating Standard) to be set. Select from the list the Profile that will suit the specific region. With this set, the system will automatically proceed to the Limit Setup Menu. Follow the onscreen instructions to complete the setup procedure.

   If powering up with the Profile set but no limits set, the system will automatically proceed to the Limit Setup Menu. Follow the onscreen instructions to complete the setup procedure.

   If powering up at any stage after that, push and hold the Setup button ( ) for three seconds.
• Select the ‘Limits’ menu by pressing the enter button ( ). Follow the onscreen instructions to complete the setup procedure.

• When prompted to select the operator, always ensure that ‘VECTOR’ is selected.
14. Wiring Diagram for Closing Safety Beams

FIGURE 66. WIRING OF SAFETY DEVICE
15. Wiring Diagram for Opening Safety Beams

FIGURE 67. WIRING OF SAFETY DEVICE
Refer to diagram only if external receiver is being used and not the onboard receiver; disable onboard receiver - Menu 11
17. Wiring Diagram for Other Inputs

- Holiday Lockout keyswitch/keypad (normally-closed)
- Pedestrian keyswitch/keypad (normally-open)
- Pillar Light pushbutton (normally-open)
- Status LED

FIGURE 69. WIRING OF OTHER INPUTS
18. Wiring Diagram for Master Motor (MTRM)

FIGURE 70. WIRING OF THE MASTER MOTOR
19. Wiring Diagram for Slave Motor (MTRS)

FIGURE 71. WIRING OF THE SLAVE MOTOR

- Thin purple
- Thin blue / orange
- Thin red / grey
- Thin black

- Thick blue
- Thick black

Slave Motor (MTR S)
20. Charger and Pillar Light Connections

Fuse protection

The following protection fuses are provided on the system:

<table>
<thead>
<tr>
<th>Item</th>
<th>Type</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main controller</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor Circuit - fuse per channel</td>
<td>Automotive Fuse (25 x 7)</td>
<td>15A</td>
</tr>
<tr>
<td>Light circuit</td>
<td>5 x 20mm</td>
<td>3A Fast Blow</td>
</tr>
<tr>
<td>Auxiliary supply</td>
<td>Electronic fuse*- not replaceable</td>
<td>3A</td>
</tr>
<tr>
<td><strong>Charger</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mains Input</td>
<td>5 x 20mm</td>
<td>250mA Fast Blow</td>
</tr>
</tbody>
</table>

*To reset: Power off controller for at least one minute and re-apply power
FIGURE 73. WIRING DIAGRAM FOR A SOLAR PANEL TO GATE MOTOR
22. Setting up Additional Features

Figure 69 provides the full menu of features that can be set up on the system. An explanation of each feature is provided in the section ‘Controller Features’.

When setting up the VECTOR2 system via the LCD display, all the steps that have to be followed are clearly provided via the display. It is only necessary to note the following:

1. To get into Setup Mode, press the button for three seconds and follow the instructions provided from there.

2. The buttons provided on the controller for navigating the system are not marked because at each step during the Setup, the function given to each button is provided on the display.

3. When not in Setup Mode, i.e. Normal Mode, the button is used as a test button for operating the system. The up/down buttons are not used unless the diagnostic screens have been selected to appear in Normal Mode, in which case these buttons allow switching from one screen to the next.

For each feature a Factory Default setting has been programmed into the controller. Referred to as an Operating Standard, these defaults have been determined to suit the requirements of the specific region where the installation is being carried out. It is only necessary to change a feature where the default does not suit the installation. When selecting any feature in the menu, details of the current setting stored in the controller are displayed.

Refer to Table 1 on page 63 for the Schedule of Factory Defaults for each feature.
23. Menu Navigation Map

1. Setting limits
   1.1. Setup wizard

2. Safety
   2.1. MTRM Collision Force
       2.1.1. MTRM Opening Collision Force
       2.1.2. MTRM Closing Collision Force
   2.2. MTRS Collision Force
       2.2.1. MTRS Opening Collision Force
       2.2.2. MTRS Closing Collision Force
   2.3. Collision Count

3. Autoclose
   3.1. Autoclose Status
   3.2. Autoclose Timer
   3.3. Autoclose Override
   3.4. Autoclose Advanced options
       3.4.1. Autoclose fully open
       3.4.2. Autoclose partly open
       3.4.3. Autoclose partly closed

4. Modes of Operation
   4.1. Operating Mode
       4.1.1. Standard Mode
       4.1.2. Condominium Mode
       4.1.3. Reversing Mode

5. Run profile
   5.1. Positive Close
       5.1.1. Positive Close Status
       5.1.2. Positive Close Type
           5.1.2.1. Short Stop
           5.1.2.2. MTRM Only
           5.1.2.3. MTRS Only
           5.1.2.4. MTRM and MTRS
       5.1.3. Positive Close Short Stop Value
       5.1.4. Positive Close Push Force
5.2 Leaf delay
5.2 Pre-open delay
5.3 Pre-close delay
5.4 Opening speed
5.5 Closing speed
5.6 Ramp-up distance
5.7 Ramp-down distance
5.8 TRG stop distance
5.9 IRB stop distance
5.10 Crawl distance
5.11 Torque limit

2.1.1. Leaf Delay Status
2.2.1. Leaf Delay Value

6. IR Beams
6.1 PIRAC control
6.1.1 PIRAC status
6.1.2 Stop on open
6.1.2.1 Stop on open status
6.1.2.2 Stopping distance
6.1.2.1.1 Stop on open status
6.1.2.2.1 Stopping distance
6.2 IR beam test
6.2.1 Status
6.2.2 Test beam
6.3 IRBO=IRBC on closing
6.4 IR beam Alarms
6.4.1 Ambush Alarm
6.4.1.1 Ambush Alarm status
6.4.1.2 Broken IRB time
6.4.2 Break-in Alarm status
6.4.3 Alarm output

7. Pedestrian
7.1 Pedestrian Open Position
7.2 Pedestrian Autoclose time
7.3 Pedestrian pre-open delay
7.4 Pedestrian pre-close delay

8. Gate lock
8.1 Lock Enabled Status
8.2 Lock Type
8.3 Release Time
8.4 Pre-Release Time
8.5 Lock Location
8.6 Lock Drive (AC/DC)
9. Courtesy Light
9.1. Courtesy Light timer
9.2. Light Profile

10. General settings
10.1. Operator
10.2. Operating Profile
10.3. Reset Options
10.4. Diagnostic screen
10.5. Round test button

11. Remote Controls
11.1. Add remotes
11.2. Delete remotes
11.3. Edit remote button
11.4. Autolearn remotes
11.5. Tx menu locked
11.6. Onboard receiver enable/disable

Press button of valid remote control (if menu locked)
24. Controller Features

Menu 2 - Safety (Collision Force)

1. Collision Force

If the gate is obstructed, the internal collision circuitry will activate.

The response of the system to a collision will vary, depending on the Profile selected (Operating Standard, e.g. ZA). Responses can vary from the gate stopping, to the gate reversing. The Collision Force can be set from minimum to maximum in five discrete steps.

A sixth step will disable collision sensing entirely, allowing maximum force to be achieved. Under this condition, the motor will continue running until it stalls, at which point a collision will be detected.

This level should only be used if additional safety measures are taken (e.g. Infrared Safety Beams, etc.). Collision Force can be set independently per direction of travel.

2. Collision Count

A counter monitors the number of collisions that the gate experiences before it reaches the fully closed position. If the value exceeds the value set in the Multiple Collision Counter the controller shuts down until the next valid trigger is received. As an indication, the status LED will flash four times every two seconds. The Multiple Collision fault indication will continue to flash indefinitely or until a valid trigger has been received.

Menu 3 - Autoclose

1. Autoclose status

When turned on, the Autoclose feature has the function of automatically closing the gate after a preset Autoclose time. The Autoclose feature is automatically turned on when the controller is set for Condominium Mode.

2. Autoclose time

The Autoclose time can be set anywhere from 1 to 255 seconds.

3. Autoclose Override

It is possible for the user to temporarily turn off Autoclose when the Mode of Operation is Standard or Reversing. To activate Autoclose Override, the Trg input must be activated and maintained for a period longer than the time set for the Autoclose Override Time.

The gate response will be to start opening on the Trg trigger, and then to stop as soon as the Autoclose Override feature is activated. On clearing of the Trg input, the gate will continue opening until fully open. The Autoclose feature is now off and the gate will remain open indefinitely.

The next signal received on Trg will clear the Autoclose Override feature, close the gate, and set the Autoclose feature back to normal.

4. Autoclose Advanced Options

The conditions under which the gate will automatically close can be set within the Advanced Autoclose options menu:
4.1. **Autoclose on open** - automatically close the gate if it has reached the fully open position

4.2. **Autoclose on partly open** - automatically close the gate if it is stopped while opening, but before reaching the fully opened position.

4.3. **Autoclose on partly closed** - automatically close the gate if it is stopped while closing, but before reaching the fully closed position.

More than one advanced option can be selected.

---

**Menu 4 - Modes of Operation**

It is possible to select the following Modes of Operation: **Standard**, **Condominium**, and **Reversing Mode**.

All modes are triggered by closing a normally-open contact between the Trg input terminal and the Com terminal.

1. **Standard Mode**

   When stationary, a trigger impulse on Trg will cause the gate to either open or close. On a moving gate, a trigger impulse on Trg will stop the gate. The next impulse on Trg will cause the gate to reverse its direction of travel, i.e. the action is **start-stop-reverse**.

2. **Condominium Mode**

   A trigger impulse on Trg will open the gate under all conditions. If it were closing, it would stop and reverse to open. In this Mode of Operation, the only way to close the gate is with the **Autoclose** feature, which is automatically activated when **Condominium Mode** is selected.

3. **Reversing Mode**

   A trigger impulse on Trg will reverse the direction of a moving gate. If it were closing, it would stop and immediately begin opening. If it were opening, it would stop and immediately begin closing.

---

**Menu 5 - Run Profile**

1. **Positive Close Mode (PCM)**

   Setting **Positive Close Mode** to ON will allow the gate to drive up hard to the closed endstop without causing the collision circuitry to operate. This feature operates only during the last few millimetres of gate travel in Closing Mode.

2. **Positive close type**

   PCM can be applied to one of the following:
   - Short Stop (further explanation follows)
   - Master Motor (MTRM)
   - Slave Motor (MTRS)
   - Both Master and Slave Motors
3. **Short Stop**

PCM applied to one gate is ideal for securely locking two gates to each other without having to fit endstops. Typically, a 'mechanical' lip is fitted to one gate which will push up against the other gate and via PCM keep pushing until the gates are mechanically locked. To ensure that the gates do not close past their desired end point, the Slave Gate against which the Master gate with the mechanical lip pushes, can be preset to stop slightly short of its closed position. This is referred to as the 'Short Stop' distance. If the 'Short Stop' distance is correctly set, the Master Gate will engage with the Slave Gate sufficiently before the closed position and via the PCM, push the two gates into the fully closed position, but not past it.

4. **Short Stop value**

The Short Stop distance can be set between 1mm and 40mm of piston stroke.

5. **PCM push force**

The amount of force applied by the actuator when in PCM can be set as a value from 1 to 15.

6. **Leaf Delay**

Leaf Delay is used in cases where one gate leaf must move before the other. The most common need for this arises when a mechanical 'lip' is fitted to one of the gates. In a double leaf installation, a Leaf Delay can be set whereby the MTRM Motor will open before the MTRS Motor and the MTRS Motor will close before the MTRM Motor.

7. **Leaf Delay value**

The Leaf Delay is based on piston position, and can be adjusted from 3mm to 250mm of piston travel.

8. **Pre-open Delay**

Allows a delay between a valid trigger signal being received and the gate commencing movement in the opening direction. A Warning Light can be set to activate during this delay. (Refer to Pre-flash Modes of the feature 'Pillar Light', for more details.) This setting applies to both motors.
9. **Pre-close Delay**
   Allows a delay between a valid trigger signal being received and the gate commencing movement in the closing direction. The delay will also occur if the gate is set to close automatically. A Warning Light can be set to activate during this delay. (Refer to Pre-flash Modes of the feature ‘Pillar Light’, for more details). This setting applies to both operators.

10. **Opening Speed**
   Sets the maximum piston opening speed in millimeters per second. This setting applies to both operators.

11. **Closing Speed**
   Sets the maximum piston closing speed in millimeters per second. This setting applies to both operators.

12. **Ramp-up Distance**
   Sets the Ramp-up Distance in millimeters of travel of the piston when starting. This setting applies to both operators.

13. **Ramp-down Distance**
   Sets the Ramp-down Distance in millimeters of travel of the piston when stopping. This setting applies to both operators.

14. **Crawl Distance**
   Sets the final Crawl Distance in millimeters of travel of the piston when reaching an endpoint. This setting applies to both operators.

15. **Push Force Limit**
   Sets the maximum push force delivered by the operators. The maximum setting is a value of 15 and the minimum is four. This is useful in cases where limited push force is required. This setting applies to both operators.

---

**Menu 6 - IR beams**

In a swing gate installation, in order to provide protection to a person or vehicle moving through the entrance, it is necessary to have two sets of Safety Beams, one across the driveway where the gates are closed and another where the gates are open. Both sets of Safety Beams must be set as Closing Safety Beams, preventing the gate from closing and stopping the gates if they have started to close. However, across the line of the driveway up to where the gates open, it is also recommended to have another set of Safety Beams to prevent the gate from opening if they are closed and stop if they are opening.

![Figure 79](image-url)
Two independent normally-closed inputs are provided for Opening and Closing Safety Beams.

An interrupted closing beam will prevent the gates from closing and stop and reverse the gates back to the open position if already opening. Vice-versa for an opening beam.

Additional beam functionality is provided:

1. **PIRAC Autoclose**

   The **Passive-Infrared Autoclose** feature allows the gate to close automatically, as soon as a vehicle or pedestrian has passed through the closing beam. This security feature ensures that the gate stays open for the minimum amount of time possible.

   If the **Autoclose** feature has been enabled, the system will react in the following way:
   - When the gate is triggered to open and nothing moves through or interrupts the closing beam, the gate will open fully and stay open for the period of time determined by the **Autoclose TIMER**
   - However, if the closing beam is interrupted at any stage, while the gate is opening or open, the gate will close immediately after the closing beam is cleared

   If the **Autoclose** feature has not been enabled then the gate will remain open indefinitely. To close the gate the closing beam must be interrupted or the trigger button must be pressed.

2. **Safe Output Status**

   Automatically tests the Safety Beams before each gate cycle. (E.g. as required by CE and UL325)

   In order for this feature to work, the power supply negative of the beam transmitter must be wired to the Safe Com terminal of the controller.

   - The time taken for the gate to open again after it has come to a stop is approximately three seconds

   **Example:**
   - **Autoclose Override** time set to five seconds: Total time to temporarily disable the PIRAC feature is approximately eight seconds

     \(5s + 3s = 8 \text{ seconds}\)
3. **IR Beam Test** (only compatible with i5 Safety Beams; not compatible with wireless Safety Beams).

Automatically tests the Safety Beams before each gate cycle. (E.g. as required by CE.)

In order for this feature to work, the power supply negative of the beam transmitter must be wired to the Safe Com terminal of the controller.

4. **IRBO=IRBC**

Configures the opening beam to act as a closing beam while the gates are closing. This allows one set of Safety Beams to be used across the line of the driveway up to where the gates open.

5. **IR Beam Alarms**

While the gate is fully closed, this feature allows the following alarms:

A. **Ambush Alarm**

Activates an alarm if either the Opening or Closing Beams have been continuously interrupted for a pre-defined time. The alarm will remain activated while the beams are interrupted. For example, if a would-be intruder covers the Safety Beams so that when the gate is opened, the gate will stay open, the system will detect this beam override taking place and set off an alarm.

B. **IR Beam Broken Time**

The time that the Beams must be interrupted before the alarm is activated.

C. **Break-in Alarm**

Activates an alarm if the Closing Beam on the outside of the property is interrupted. The alarm remains activated while the Beams are broken, and for a period of 30 seconds thereafter. This time is fixed.

If this alarm is used, it is recommended that TWO parallel Closing Beams are used to reduce the chance of false triggering.
D. Alarm output
The system can be configured to operate one of the following outputs provided on the controller:

- **Onboard buzzer** - emits a continuous tone
- **Pillar / Courtesy Light contact** (potential-free normally-open contact, fuse-protected - 5A)
- **Aux IO** (this is an open collector drive, maximum current draw 3A, not fuse-protected)
- **Safety beam common** (this is an open collector drive, maximum current draw 3A, not fuse-protected)
- **Status LED output** (operate up to three LEDs in parallel or interface with the CP78 MULTI-LED driver card)

Menu 7 - Pedestrian Opening
This feature is associated with the PED input on the controller. When activating this input, the system will open the gate to the Pedestrian Open position, and then automatically close after the Pedestrian Autoclose time lapses. If the PED connection to Com is maintained, then the gate will remain open, and when the connection is broken, it will close after the Pedestrian Autoclose time has expired.

The time taken for the gate to open to pedestrian is dependent on the pedestrian Pre-open Delay and the time required for the gate to close from the pedestrian position is dependent on the Pedestrian Pre-close Delay.

1. **Pedestrian Open Position**
   Sets the maximum opening of the pedestrian gate in metres, in one centimetre steps.

2. **Pedestrian Autoclose Time**
   Sets the Autoclose time in seconds after a Pedestrian Opening. This time can be set from zero seconds to four minutes in one second steps.

3. **Pedestrian Pre-open Delay**
   Sets the time delay between the pedestrian input being activated, and the gate actually opening. This enhances safety in cases where the pedestrian has to reach through the gate in order to activate the pedestrian input. A Warning Light would typically be active during this delay. This delay can be set from zero seconds to four minutes in one second steps.

4. **Pedestrian Pre-close Delay**
   Sets the time delay between the Pedestrian Autoclose timer expiring, and the gate actually closing. A Warning Light would typically be active during this delay. This delay can be set from zero seconds to four minutes in one second steps.

* The Warning Light is any light wired to the Pillar Light contacts, as described in Menu 9.
Menu 8 - Gate Lock

A solenoid strike lock or magnetic lock can be connected to the control card, allowing the gate to be locked when closed, open or both.

1. Lock enable status
   Turns the lock functionality on or off.

2. Lock type
   Allows selection of either a solenoid strike lock, or a magnetic lock. A solenoid strike unlocks when power is applied, while a magnetic lock unlocks when power is removed.

3. Release time
   Sets the Time-period (in seconds) for which the lock remains released after the gate has started moving.

   A. Pre-Release time
      Sets the Time-period (in 0.1 second increments) for which the lock releases BEFORE the gate has started moving. This is useful in cases where premature gate movement prevents the lock from releasing.

   B. Lock location
      Specifies whether the gate is locked while closed, open or both.

   C. Lock drive
      Specifies if the lock is to be powered by an AC or DC voltage. Selecting AC will power the lock with a 50Hz square wave.

Menu 9 - Courtesy/Pillar Light

This feature is associated with the Light connections on the controller. Refer to Section 16 of the manual for details on how to connect a Pillar or security Light to the controller.

The Pillar Light circuit has multiple functions:

- It operates as a Courtesy Light and switches on for a selectable time period every time the gate is activated
- The Courtesy Light can also be turned on for the same time period by momentarily connecting the Aux 12V terminal to the Com terminal via a pushbutton
- The Courtesy Light can also be turned on permanently by connecting the Aux 12V terminal to the Com terminal via a pushbutton, for three seconds. A short pulse thereafter will switch the lights off. The status LED will flash once every two seconds to indicate that the Courtesy Light is on permanently. The abovementioned facility can also be achieved via a remote learned to the system and mapped to the Courtesy Light function from within the remotes menu

The gate will not open when using the Aux 12V trigger input.

- When the PED input is triggered, the Courtesy Light flashes for an adjustable pre-flash time (1 to 255 seconds), before the pedestrian gate opens
1. **Courtesy Light time**  
   The time that the Courtesy Light will remain activated can be set from four seconds to ten hours in one second increments.

2. **Light profile**  
   The Courtesy Light can be selected to operate according to one of the following:
   
   A. **Courtesy Light** as explained earlier  
   B. **Pre-flashing Mode**
   
   - If Pre-flashing Mode A, B or C is selected, the behaviour of the Courtesy Light will be as follows:
     - **Mode A** will turn on the Courtesy Light only while the gate is moving  
     - **Mode B** will flash theCourtesy Light during the Pre-opening and Pre-closing Delays, as well as while the gate is moving  
     - **Mode C** will turn on the Courtesy Light during the Pre-opening and Pre-closing Delays, as well as while the gate is moving
   
   - In these Pre-flashing Modes, the timed Courtesy Light functionality is not available

---

**Menu 10 - General Features**

1. **Operator**
   This menu item allows the user to set the type of **V-Series** operator currently being used with the controller. Always ensure that **VECTOR** is selected.

   When not in Setup Mode, i.e. Normal Mode, the currently-enabled operator will be displayed in the bottom left-hand corner of the LCD screen, with VC indicating **VECTOR**.

2. **Operating Standard**
   Regional Operating Standards can be set. Applying this setting will automatically configure the controller settings to conform to the specific region’s standard. (E.g. UL325 or CE.)

3. **Reset Options**
   The controller settings can be reset through the Reset Options menu. Various reset options are available:
   
   A. **Factory Defaults** - All settings will be restored to the default values dictated by the Operating Standard/Profile that is currently selected. All remote controls and gate limits will not be affected.
   
   B. **Delete All Remotes** - Delete all the remotes stored in the system; no settings affected.
   
   C. **Reset All** - Clears and defaults the system completely. The unit will be reset to the Factory Default settings in addition to clearing all remotes and time-periods.

4. **Diagnostic Screen**
   Allows a diagnostic screen to be displayed. This can be useful when troubleshooting, but requires some technical knowledge.

5. **Round Test Button**
   Allows the round test button on the controller to be disabled, in cases where higher security is required.
Menu 11 - Remote Controls

The controller is capable of learning up to 64 CENTURION code-hopping remote controls. Each remote control can have up to four buttons. Each remote control learned into the system is assigned a unique remote control ID.

- It is possible to artificially increase the number of buttons of a multi-button remote control by using a two-button combination
- One of the buttons is used as a Shift Button to allow the other buttons to be used again in combination with this button. In other words, the user will press and hold the Shift Button, before pressing one of the other buttons to create a new button
- The Shift Button cannot be used as a button on its own, it must always be used in combination with the other buttons

Benefits of the Shift Button system:

- Use of the Shift Button system allows a three-button remote control to gain an extra button and operate four functions and likewise a four-button remote control gains two extra buttons and can operate six functions
- Another benefit of using the Shift Button system is that it requires both hands to operate the two-button combination. This prevents the user from accidentally enabling sensitive functions such as Holiday Lockout on the controller
- Each remote control learned into the system is assigned a unique remote control ID

1. Press Valid Button
   If the Remote Controls Menu has been locked as discussed later, only by pressing a button of a remote control learned into the system, can the Remote Controls Menu be accessed.

2. Add Remote
   Any button can be set to control the Trigger, Pedestrian, Free-exit, Holiday Lockout or Courtesy Light Control (Aux) inputs. When adding remote controls, it is recommended that a record be kept of the ID number allocated by the system to each respective remote control and the person to whom the remote control is given. This is necessary should selective deletion be required at a later stage.

3. Delete Remote
   Remote controls can be deleted at any stage according to one of the following methods:

   A. Delete Remote by ID
      Each remote control can be deleted individually according to its unique ID. To facilitate this, a record of the ID and the person to whom the ID has been assigned must have been made at the time of learning the remote control into the system. The remote control is not required for this operation.
B. **Delete Remote Button**
The operation of a button of a particular remote control can be cleared. For example, it allows the Holiday Lockout function set on one remote button of a remote control to be cleared, without affecting the other operations that the same remote control performs. The remote control is required for this operation.

C. **Delete Remote by Button**
Use this procedure to remove the remote control from the system. All button functionality will be removed. The remote control is required for this operation.

D. **Delete All Remotes**
Clears the entire memory. All remote controls will be removed.

4. **Edit Remote Button**
Change the function on one button to perform another function. For example, button one’s function is to open the gate completely. To change this, use **edit remote button**, select PED, and button one of the same remote will now only open the gate to the pedestrian setting.

5. **Remote Control Menu locked**
Allows the **Remote Controls Menu** to be locked, preventing the unauthorised addition of new remote controls to the system. Once enabled, the **Remote Controls Menu** can only be accessed by pressing a valid remote control button.
# 25. Factory Defaults Schedule

## South African Standard Profile - ZA

<table>
<thead>
<tr>
<th>Parameter Description</th>
<th>Unit</th>
<th>Minimum</th>
<th>Default</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autoclose Enabled</td>
<td>Yes/No</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autoclose from Fully Open</td>
<td>Yes/No</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autoclose from Partly Open</td>
<td>Yes/No</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autoclose from Partly Closed</td>
<td>Yes/No</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autoclose Time</td>
<td>Minutes/seconds</td>
<td>0:15</td>
<td></td>
<td>04:00*</td>
</tr>
<tr>
<td>Autoclose Override Time</td>
<td>Seconds</td>
<td>3</td>
<td></td>
<td>15*</td>
</tr>
<tr>
<td>Mode of Operation</td>
<td>S, R, C</td>
<td>Standard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor M Opening Force</td>
<td>Level</td>
<td>3</td>
<td>Max (6)</td>
<td></td>
</tr>
<tr>
<td>Motor M Closing Force</td>
<td>Level</td>
<td>3</td>
<td>Max (6)</td>
<td></td>
</tr>
<tr>
<td>Motor S Opening Force</td>
<td>Level</td>
<td>3</td>
<td>Max (6)</td>
<td></td>
</tr>
<tr>
<td>Motor S Closing Force</td>
<td>Level</td>
<td>3</td>
<td>Max (6)</td>
<td></td>
</tr>
<tr>
<td>Max. No. Collisions</td>
<td>Collisions</td>
<td>4</td>
<td></td>
<td>255</td>
</tr>
<tr>
<td>Collision Alarm Output</td>
<td>B, C, P, S, L*</td>
<td>Buzzer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCM Enabled</td>
<td>Yes/No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>PCM Type</td>
<td>M, S, M &amp; S, SS*</td>
<td>Master Only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCM Short Stop Distance</td>
<td>Millimeters</td>
<td>5</td>
<td></td>
<td>40</td>
</tr>
<tr>
<td>PCM Force</td>
<td>% (A)</td>
<td>3</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Leaf Delay Enabled</td>
<td>Yes/No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Leaf Delay</td>
<td>Millimeters</td>
<td>10*</td>
<td></td>
<td>250*</td>
</tr>
<tr>
<td>Opening Speed</td>
<td>Minutes/seconds</td>
<td>10</td>
<td></td>
<td>Max</td>
</tr>
<tr>
<td>Closing Speed</td>
<td>Minutes/seconds</td>
<td>10</td>
<td></td>
<td>Max</td>
</tr>
<tr>
<td>Ramp-up Distance</td>
<td>Millimeters</td>
<td>20</td>
<td></td>
<td>400</td>
</tr>
<tr>
<td>Ramp-down Distance</td>
<td>Millimeters</td>
<td>20</td>
<td></td>
<td>400</td>
</tr>
<tr>
<td>Crawl Distance</td>
<td>Millimeters</td>
<td>5</td>
<td></td>
<td>400</td>
</tr>
<tr>
<td>Torque Limit</td>
<td>Amps</td>
<td>4</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Pre-Open Delay Time</td>
<td>Seconds</td>
<td>0</td>
<td></td>
<td>196</td>
</tr>
<tr>
<td>Pre-Close Delay Time</td>
<td>Seconds</td>
<td>0</td>
<td></td>
<td>196</td>
</tr>
</tbody>
</table>

* Settings are fixed across standards
+ S, R, C (Modes of Operation) - Standard, Reversing, Condominium
* B, C, P, S, L (Collision Alarm Output) - Buzzer, Courtesy Light, Safe Common, Solenoid, LED
☆ M, S, SS (PCM Type) - Master, Slave, Short Stop
## South African Standard Profile - ZA (continued)

<table>
<thead>
<tr>
<th>Parameter Description</th>
<th>Unit</th>
<th>Minimum</th>
<th>Default</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>PED Open Distance</td>
<td>% (Fully Open)</td>
<td>10</td>
<td>30</td>
<td>100</td>
</tr>
<tr>
<td>PED Autoclose Time</td>
<td>Seconds</td>
<td>0</td>
<td>5</td>
<td>240</td>
</tr>
<tr>
<td>PED Pre-Open Delay Time</td>
<td>Seconds</td>
<td>0</td>
<td>2</td>
<td>240</td>
</tr>
<tr>
<td>PED Pre-Close Delay Time</td>
<td>Seconds</td>
<td>0</td>
<td>0</td>
<td>240</td>
</tr>
<tr>
<td>Gate Lock Enabled</td>
<td>Yes/No</td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Gate Lock Type</td>
<td>Magnetic/Striker</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gate Lock Pre-Release Time</td>
<td>Seconds</td>
<td>0.1*</td>
<td>0.024.0*</td>
<td>24.0*</td>
</tr>
<tr>
<td>Gate Lock Release Time</td>
<td>Seconds</td>
<td>0.1*</td>
<td>1.0*</td>
<td>24.0*</td>
</tr>
<tr>
<td>Gate Lock Location</td>
<td>C, O, C &amp; O</td>
<td></td>
<td>Close Only</td>
<td></td>
</tr>
<tr>
<td>Gate Lock Drive Type</td>
<td>AC, DC</td>
<td>0:00:04*</td>
<td>AC</td>
<td>9:59:59*</td>
</tr>
<tr>
<td>Courtesy Light Time</td>
<td>H:mm:ss*</td>
<td>0:02:00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Courtesy Light Profile</td>
<td>Crt, A, B, C</td>
<td>No</td>
<td>Courtesy</td>
<td>Yes</td>
</tr>
<tr>
<td>PIRAC Enabled</td>
<td>Yes/No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>SAF Common Enabled</td>
<td>Yes/No</td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>SAF Common Tests which Beams</td>
<td>C, O, C &amp; O</td>
<td>No</td>
<td>IRBC Only</td>
<td>Yes</td>
</tr>
<tr>
<td>IRBO acts as IRBC</td>
<td>Yes/No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>IRB Ambush Alarm Enabled</td>
<td>Yes/No</td>
<td>1</td>
<td>Yes</td>
<td>225</td>
</tr>
<tr>
<td>IRB Ambush Alarm Hold-Off Time</td>
<td>Minutes</td>
<td>No</td>
<td>1</td>
<td>Yes</td>
</tr>
<tr>
<td>IRB Break-In Alarm Enabled</td>
<td>Yes/No</td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>IRB Alarms Output</td>
<td>B, C, P, S, L</td>
<td></td>
<td>Buzzer</td>
<td></td>
</tr>
<tr>
<td>Diagnostic Screen Enabled</td>
<td>Yes/No</td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Test Pushbutton Enabled</td>
<td>Yes/No</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Remote Menu Locked</td>
<td>Yes/No</td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>IRBO Starts Wireless*</td>
<td>Yes/No</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>IRBC Starts Wireless*</td>
<td>Yes/No</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>LCK Starts Wireless*</td>
<td>Yes/No</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Operator</td>
<td>VC, VX, VN</td>
<td></td>
<td>VC</td>
<td></td>
</tr>
</tbody>
</table>

* Settings are fixed across standards
CY C, O (Gate Lock Location) - Closed, open
CY H, mm, s (Courtesy Light Time) - Hours, minutes, seconds
CY Crt, A, B, C (Courtesy Light Profile) - Courtesy, Profile A, Profile B, Profile C
CY C, O (SAF COM tests which beams) - Closing, opening
CY B, C, P, S, L (IR Alarms Output) - Buzzer, Courtesy Light, Safe Common, Solenoid, LED
CY Settings are not configurable via the GUI
## CE Standard Profile

<table>
<thead>
<tr>
<th>Parameter Description</th>
<th>Unit</th>
<th>Minimum</th>
<th>Default</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autoclose Enabled</td>
<td>Yes/No</td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Autoclose From Fully Open</td>
<td>Yes/No</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Autoclose From Partly Open</td>
<td>Yes/No</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Autoclose From Partly Closed</td>
<td>Yes/No</td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Autoclose Time</td>
<td>Minutes/seconds</td>
<td>00:00*</td>
<td>00:15</td>
<td>04:00*</td>
</tr>
<tr>
<td>Autoclose Override Time</td>
<td>Seconds</td>
<td>2*</td>
<td>3</td>
<td>15*</td>
</tr>
<tr>
<td>Mode Of Operation</td>
<td>Seconds</td>
<td>3</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Motor M Opening Force</td>
<td>Level</td>
<td>1</td>
<td>3</td>
<td>Max (6)</td>
</tr>
<tr>
<td>Motor M Closing Force</td>
<td>Level</td>
<td>1</td>
<td>3</td>
<td>Max (6)</td>
</tr>
<tr>
<td>Motor S Opening Force</td>
<td>Level</td>
<td>1</td>
<td>3</td>
<td>Max (6)</td>
</tr>
<tr>
<td>Motor S Closing Force</td>
<td>Level</td>
<td>1</td>
<td>3</td>
<td>Max (6)</td>
</tr>
<tr>
<td>Max. No. Collisions</td>
<td>Collisions</td>
<td>1</td>
<td>4</td>
<td>255</td>
</tr>
<tr>
<td>Collision Alarm Output</td>
<td>B, C, P, S, L*</td>
<td>Buzzer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCM Enabled</td>
<td>Yes/No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>PCM Type</td>
<td>M, S, M &amp; S, SS*</td>
<td>Master Only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCM Short Stop Distance</td>
<td>Millimeters</td>
<td>1</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td>PCM Force</td>
<td>% (A)</td>
<td>1</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Leaf Delay Enabled</td>
<td>Yes/No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Leaf Delay</td>
<td>Millimeters</td>
<td>3*</td>
<td>10*</td>
<td>250*</td>
</tr>
<tr>
<td>Opening Speed</td>
<td>Minutes/seconds</td>
<td>10</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Closing Speed</td>
<td>Minutes/seconds</td>
<td>10</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Ramp-up Distance</td>
<td>Millimeters</td>
<td>20</td>
<td>30</td>
<td>400</td>
</tr>
<tr>
<td>Ramp-down Distance</td>
<td>Millimeters</td>
<td>20</td>
<td>30</td>
<td>400</td>
</tr>
<tr>
<td>Crawl Distance</td>
<td>Millimeters</td>
<td>5</td>
<td>5</td>
<td>400</td>
</tr>
<tr>
<td>Torque Limit</td>
<td>Amps</td>
<td>4</td>
<td>11</td>
<td>15</td>
</tr>
<tr>
<td>Pre-Open Delay Time</td>
<td>Seconds</td>
<td>0</td>
<td>0</td>
<td>196</td>
</tr>
<tr>
<td>Pre-Close Delay Time</td>
<td>Seconds</td>
<td>0</td>
<td>0</td>
<td>196</td>
</tr>
</tbody>
</table>

* Settings are fixed across standards
+ S, R, C (Modes of Operation) - Standard, Reversing, Condominium
★ B, C, P, S, L (Collision Alarm Output) - Buzzer, Courtesy Light, Safe Common, Solenoid, LED
☆ M, S, SS (PCM Type) - Master, Slave, Short Stop
### CE Standard Profile (continued)

<table>
<thead>
<tr>
<th>Parameter Description</th>
<th>Unit</th>
<th>Minimum</th>
<th>Default</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>PED Open Distance</td>
<td>% (Fully Open)</td>
<td>10</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>PED Autoclose Time</td>
<td>Seconds</td>
<td>0</td>
<td>5</td>
<td>240</td>
</tr>
<tr>
<td>PED Pre-Open Delay Time</td>
<td>Seconds</td>
<td>0</td>
<td>2</td>
<td>240</td>
</tr>
<tr>
<td>PED Pre-Close Delay Time</td>
<td>Seconds</td>
<td>0</td>
<td>0</td>
<td>240</td>
</tr>
<tr>
<td>Gate Lock Enabled</td>
<td>Yes/No</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gate Lock Type</td>
<td>Magnetic/Striker</td>
<td>Maglock</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gate Lock Pre-Release Time</td>
<td>Seconds</td>
<td>0.0*</td>
<td>0.0</td>
<td>24.0*</td>
</tr>
<tr>
<td>Gate Lock Release Time</td>
<td>Seconds</td>
<td>0.1*</td>
<td>1.0</td>
<td>24.0*</td>
</tr>
<tr>
<td>Gate Lock Location</td>
<td>C, O, C &amp; O</td>
<td>Close Only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gate Lock Drive Type</td>
<td>AC, DC</td>
<td>DC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Courtesy Light Time</td>
<td>H:mm:ss</td>
<td>0:00:04</td>
<td>00:02:00</td>
<td>9:59:59</td>
</tr>
<tr>
<td>Courtesy Light Profile</td>
<td>Crt, A, B, C</td>
<td>PFA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PIRAC Enabled</td>
<td>Yes/No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>SAF Common Enabled</td>
<td>Yes/No</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>SAF Common Tests which Beams</td>
<td>C, O, C &amp; O</td>
<td>No</td>
<td>IRBC Only</td>
<td>Yes</td>
</tr>
<tr>
<td>IRBO acts as IRBC</td>
<td>Yes/No</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>IRB Ambush Alarm Enabled</td>
<td>Yes/No</td>
<td>1</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>IRB Ambush Alarm Hold-off Time</td>
<td>Minutes</td>
<td>No</td>
<td>1</td>
<td>255</td>
</tr>
<tr>
<td>IRB Break-In Alarm Enabled</td>
<td>Yes/No</td>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>IRB Alarms Output</td>
<td>B, C, P, S, L</td>
<td>Buzzer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnostic Screen Enabled</td>
<td>Yes/No</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test Pushbutton Enabled</td>
<td>Yes/No</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remote Menu Locked</td>
<td>Yes/No</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IRBO Starts Wireless*</td>
<td>Yes/No</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IRBC Starts Wireless*</td>
<td>Yes/No</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LCK Starts Wireless*</td>
<td>Yes/No</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operator</td>
<td>VC, VX, VN</td>
<td>VC</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Settings are fixed across standards
* C, O (Gate Lock Location) - Closed, open
* H, mm, s (Courtesy Light Time) - Hours, minutes, seconds
* H, mm, s (Gate Lock Release Time) - Hours, minutes, seconds
* Crt, A, B, C (Courtesy Light Profile) - Courtesy, Profile A, Profile B, Profile C
* C, O (SAF COM tests which beams) - Closing, opening
* B, C, P, S, L (IR Alarms Output) - Buzzer, Courtesy Light, Safe Common, Solenoid, LED
* Settings are not configurable via the GUI
## UL325 Standard Profile

<table>
<thead>
<tr>
<th>Parameter Description</th>
<th>Unit</th>
<th>Minimum</th>
<th>Default</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autoclose Enabled</td>
<td>Yes/No</td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Autoclose From Fully Open</td>
<td>Yes/No</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Autoclose From Partly Open</td>
<td>Yes/No</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Autoclose From Partly Closed</td>
<td>Yes/No</td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Autoclose Time</td>
<td>Minutes/seconds</td>
<td>00:00*</td>
<td>00:15</td>
<td>04:00*</td>
</tr>
<tr>
<td>Autoclose Override Time</td>
<td>Seconds</td>
<td>2*</td>
<td>3</td>
<td>15*</td>
</tr>
<tr>
<td>Mode Of Operation</td>
<td>S, R, C †</td>
<td></td>
<td>Standard</td>
<td></td>
</tr>
<tr>
<td>Motor M Opening Force</td>
<td>Level</td>
<td>1</td>
<td>3</td>
<td>Max (6)</td>
</tr>
<tr>
<td>Motor M Closing Force</td>
<td>Level</td>
<td>1</td>
<td>3</td>
<td>Max (6)</td>
</tr>
<tr>
<td>Motor S Opening Force</td>
<td>Level</td>
<td>1</td>
<td>3</td>
<td>Max (6)</td>
</tr>
<tr>
<td>Motor S Closing Force</td>
<td>Level</td>
<td>1</td>
<td>3</td>
<td>Max (6)</td>
</tr>
<tr>
<td>Max. No. Collisions</td>
<td>Collisions</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Collision Alarm Output</td>
<td>B, C, P, S, L *</td>
<td></td>
<td>Buzzer</td>
<td></td>
</tr>
<tr>
<td>PCM Enabled</td>
<td>Yes/No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>PCM Type</td>
<td>M, S, M &amp; S, SS *</td>
<td></td>
<td>Master Only</td>
<td></td>
</tr>
<tr>
<td>PCM Stop Short Distance</td>
<td>Millimeters</td>
<td>1</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td>PCM Force</td>
<td>% (A)</td>
<td>1</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Leaf Delay Enabled</td>
<td>Yes/No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Leaf Delay</td>
<td>Millimeters</td>
<td>3*</td>
<td>10*</td>
<td>250*</td>
</tr>
<tr>
<td>Opening Speed</td>
<td>Minutes/seconds</td>
<td>10</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Closing Speed</td>
<td>Minutes/seconds</td>
<td>10</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Ramp-up Distance</td>
<td>Minutes/seconds</td>
<td>20</td>
<td>30</td>
<td>400</td>
</tr>
<tr>
<td>Ramp-down Distance</td>
<td>Minutes/seconds</td>
<td>20</td>
<td>30</td>
<td>400</td>
</tr>
<tr>
<td>Crawl Distance</td>
<td>Millimeters</td>
<td>5</td>
<td>5</td>
<td>400</td>
</tr>
<tr>
<td>Torque Limit</td>
<td>Amps</td>
<td>4</td>
<td>11</td>
<td>15</td>
</tr>
<tr>
<td>Pre-Open Delay Time</td>
<td>Seconds</td>
<td>0</td>
<td>0</td>
<td>196</td>
</tr>
<tr>
<td>Pre-Close Delay Time</td>
<td>Seconds</td>
<td>0</td>
<td>0</td>
<td>196</td>
</tr>
</tbody>
</table>

* Settings are fixed across standards
† S, R, C (Modes of Operation) - Standard, Reversing, Condominium
* B, C, P, S, L (Collision Alarm Output) - Buzzer, Courtesy Light, Safe Common, Solenoid, LED
* M, S, SS (PCM Type) - Master, Slave, Short Stop
<table>
<thead>
<tr>
<th>Parameter Description</th>
<th>Unit</th>
<th>Minimum</th>
<th>Default</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>PED Open Distance</td>
<td>% (Fully Open)</td>
<td>10</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>PED Autoclose Time</td>
<td>Seconds</td>
<td>0</td>
<td>5</td>
<td>240</td>
</tr>
<tr>
<td>PED Pre-Open Delay Time</td>
<td>Seconds</td>
<td>0</td>
<td>2</td>
<td>240</td>
</tr>
<tr>
<td>PED Pre-Close Delay Time</td>
<td>Seconds</td>
<td>0</td>
<td>0</td>
<td>240</td>
</tr>
<tr>
<td>Gate Lock Enabled</td>
<td>Yes/No</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gate Lock Type</td>
<td>Magnetic/Striker</td>
<td>Maglock</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gate Lock Pre-Release Time</td>
<td>Seconds</td>
<td>0.0*</td>
<td>0.0</td>
<td>24.0*</td>
</tr>
<tr>
<td>Gate Lock Release Time</td>
<td>Seconds</td>
<td>0.1*</td>
<td>1.0</td>
<td>24.0*</td>
</tr>
<tr>
<td>Gate Lock Location</td>
<td>C, O, C &amp; O</td>
<td>Close Only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gate Lock Drive Type</td>
<td>AC, DC</td>
<td>DC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Courtesy Light Time</td>
<td>H:mm:ss*</td>
<td>0:00:04*</td>
<td>0:02:00</td>
<td>9:59:59*</td>
</tr>
<tr>
<td>PIRAC Enabled</td>
<td>Yes/No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>SAF Common Enabled</td>
<td>Yes/No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>SAF Common Tests which Beams</td>
<td>C, O, C &amp; O</td>
<td>IRBC Only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IRBO acts as IRBC</td>
<td>Yes/No</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IRB Ambush Alarm Enabled</td>
<td>Yes/No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>IRB Ambush Alarm Holdoff Time</td>
<td>Minutes</td>
<td>1</td>
<td>1</td>
<td>255</td>
</tr>
<tr>
<td>IRB Break-In Alarm Enabled</td>
<td>Yes/No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>IRB Alarms Output</td>
<td>B, C, P, S, L</td>
<td>Buzzer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnostic Screen Enabled</td>
<td>Yes/No</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test Pushbutton Enabled</td>
<td>Yes/No</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remote Menu Locked</td>
<td>Yes/No</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Helix Mode Disabled*</td>
<td>Yes/No</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IRBO Starts Wireless*</td>
<td>Yes/No</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IRBC Starts Wireless*</td>
<td>Yes/No</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LCK Starts Wireless*</td>
<td>Yes/No</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operator</td>
<td>VC, VX, VN</td>
<td>VC</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Settings are fixed across standards
* C, O (Gate Lock Location) - Closed, open
* H, mm, s (Courtesy Light Time) - Hours, minutes, seconds
* H:mm:ss (Courtesy Light Time) - Hours, minutes, seconds
* Crt, A, B, C (Courtesy Light Profile) - Courtesy, Profile A, Profile B, Profile C
* C, O (SAF COM tests which beams) - Closing, opening
* B, C, P, S, L (IR Alarms Output) - Buzzer, Courtesy Light, Safe Common, Solenoid, LED
* Settings are not configurable via the GUI
| **S Sens1** | Slave Motor (MTR S). Connects to the thin **PURPLE** wire of the Slave Motor. |
| **S Sens2** | Slave Motor (MTR S). Connects to the thin **BLUE** or **ORANGE** wire of the Slave Motor. |
| **M Sens1** | Master Motor (MTR M). Connects to the thin **PURPLE** wire of the Master Motor. |
| **M Sens2** | Master Motor (MTR M). Connects to the thin **BLUE** or **ORANGE** wire of the Master Motor. |
| **Sens +** | Operator sensor power connection. A 5V output for connecting to the thin **RED** sensor wire on both the MTR M and MTR S operators. |
| **Sens -** | Operator sensor power connection. A 0V output for connecting to the thin **BLACK** or **GREY** sensor wire on both the MTR M and MTR S operators. |
| **Safe CLS** | Closing edge safety input. (A normally-closed potential-free input.) As long as a connection between this input and Com is maintained the controller will behave normally. When this connection is broken it will prevent the gate from closing if it is stationary, and will stop and reverse the gate if it is closing. This input has no effect if the gate is opening. If the Safe CLS function is not required a link must be fitted between Safe CLS and Com for the controller to operate normally. 

*When setting up the controller for the first time or after a full reset back to the Factory Default has been performed, the system will electronically override the Safety Inputs and allow the system to function without the links. However if safeties are connected to either or both inputs, thereafter there must be a normally-closed circuit maintained for the system to operate correctly. I.e. if Safety Beams are fitted and then removed, the circuit which is affected must be replaced with a wire link to create a normally-closed circuit.* |
| **Safe OPN** | Opening edge safety input. (A normally-closed potential-free input.) For as long as a connection between this input and Com is maintained the controller will behave normally. When this connection is broken it will prevent the gate from opening if it is stationary, and will stop and reverse the gate if it is opening. This input has no effect if the gate is closing. 

If the Safe Open and reverse functions are not required a link must be fitted between safe Open and Com for the controller to operate normally. 

*When setting up the controller for the first time or after a full reset back to the Factory Default has been performed, the system will electronically override the Safety Inputs and allow the system to function without the links. However if safeties are connected to either or both inputs, thereafter there must be a normally-closed circuit maintained for the system to operate correctly. I.e. if Safety Beams are fitted and then removed, the circuit which is affected must be replaced with a wire link to create a normally-closed circuit.* |
| **LCK/STP** | Holiday Lockout or gate stop input. (A normally-closed potential-free input.) For as long as a connection between this input and Com is maintained the controller will behave normally. But, when this connection to Com is broken all inputs are inhibited, and if the gate is moving it will stop. 

If the LCK function is not required a link must be fitted between LCK and Com. |
| **TRG** | Trigger input. (A normally-open potential-free input.) Momentarily connecting this input to Com will cause the gate to open or close depending on the operating mode selected. For more information see the Autoclose feature and Modes of Operation. |
| **PED** | Pedestrian Opening input. (A normally-open potential-free input.) Momentarily connecting this input to Com will cause one gate to open to the Pedestrian open position. For more information refer to the Pedestrian feature. |
| **FRX** | Free-exit input. (A normally-open potential-free input.) Momentarily connecting this input to Com will cause a gate which is closed, or closing, to open or re-open. If the gate is open, or opening, the signal has no effect other than to reset the Autoclose Timer (if selected.) Free-exit (FRX) never initiates a closing cycle. The only way to close a gate, if only the FRX input is used, is to activate the Autoclose feature on the controller. |
| **LIT** | LIT Activates the Pillar Light output. (A normally-open potential-free input.) Momentarily connecting this input to Com will cause the LIGHT relay to energise for a period of time as set in the Courtesy Light Timer menu. If the connection is made for a period exceeding 3 seconds the Pillar Light Relay will latch and remain latched indefinitely until a new momentary connection to Com is given. |
| **LED** | External gate status indicator. (A low-current output signal.) An output terminal which provides a low-current drive (approx. 4.5V DC, 20mA) to a LED which can be used to indicate the gate status remotely. If more than three LEDs are required it is necessary to fit the CP78 MULTI-LED driver card. For more details on the feedback about the status of the gate provided by the Status LED refer to page 72. |
| **Com** | The Common termination point. All trigger signals etc. have their return path to one of the Com terminals. |
| **Aux 12V** | Auxiliary power connection. Provides a +12V DC supply for auxiliary equipment such as a radio receiver, Safety Beams, etc. It is linked directly to the battery positive via a 3A resettable fuse. |
| **Safe Com** | Used for switching the power supply to the safety beam. If automatic beam testing is required, the negative power supply connection of the beam transmitter must be wired to this point. |
| **Sol** | Solenoid strike or magnetic lock. A solenoid strike lock or magnetic lock can be connected between 12V and Sol. Note that the maximum current draw allowed for the lock is 2A. Should the solenoid lock or magnetic lock exceed this current rating it is necessary to use an interposing relay. Particularly with magnetic locks, ensure that the steady state current draw calculated over a 24 hour period and added to this, the quiescent current draw of the controller, other peripherals and the usage of the motors, does not exceed the current delivered by the charger. If necessary, fit a separate supply to power the lock using an interposing relay connected to the Sol input. |
**Light**

Pillar Light connection. These two terminals provide a normally-open potential-free contact which is generally used to switch on a Pillar Light (Courtesy Light). This contact is fuse-protected – refer to page 46 for fuse specifications.

| **Batt +** | Positive battery connection. (Battery terminal normally indicated as + or RED) |
| **Batt -** | Negative battery connection. (Battery terminal normally indicated as - or BLACK) |
| **MTR M+** | Master Motor power connection. (Thick BLUE wire) |
| **MTR M-** | Master Motor power connection. (Thick BLACK wire) |
| **MTR S+** | Slave Motor power connection. (Thick BLUE wire) |
| **MTR S-** | Slave Motor power connection. (Thick BLACK wire) |
27. Diagnostics

Diagnostic LEDs

The controller is fitted with diagnostic lights (LEDs) that assist with the setup and maintenance of the gate.

Figure 82 below provides the description and purpose of the indicator lights also indicating the location on the controller.

<table>
<thead>
<tr>
<th>LED</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safe CLS (Safety Closing Beam)</td>
<td>On when the closing beam is not activated&lt;br&gt;Off when closing safeties obstructed</td>
</tr>
<tr>
<td>Safe OPN (Safety Opening Beam)</td>
<td>On when the opening beam is not activated&lt;br&gt;Off when opening safeties obstructed</td>
</tr>
<tr>
<td>LCK/STP</td>
<td>On when system ready to operate&lt;br&gt;Off when system locked</td>
</tr>
<tr>
<td>TRG</td>
<td>On when the trigger signal is present&lt;br&gt;Off when no signal</td>
</tr>
<tr>
<td>PED</td>
<td>On when the pedestrian signal is present&lt;br&gt;Off when no signal</td>
</tr>
<tr>
<td>FRX</td>
<td>On when a free-exit signal is present&lt;br&gt;Off when no signal</td>
</tr>
<tr>
<td>LIT</td>
<td>On when signal present&lt;br&gt;Off when no signal</td>
</tr>
<tr>
<td>LED</td>
<td>On when gate open&lt;br&gt;Off when gate closed</td>
</tr>
</tbody>
</table>

Gate Status LED Indication

<table>
<thead>
<tr>
<th>LED</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slow regular flash</td>
<td>Gate is opening</td>
</tr>
<tr>
<td>Fast regular flash</td>
<td>Gate is closing</td>
</tr>
<tr>
<td>One flash every two seconds</td>
<td>Courtesy Light latched on</td>
</tr>
<tr>
<td>Two flashes every two seconds</td>
<td>Mains Failure</td>
</tr>
<tr>
<td>Three flashes every two seconds</td>
<td>Battery-low</td>
</tr>
<tr>
<td>Four flashes every two seconds</td>
<td>Collision Shutdown</td>
</tr>
<tr>
<td>Four flashes every two seconds</td>
<td>Multiple Collisions have occurred</td>
</tr>
</tbody>
</table>
LCD Display

The LCD display shows useful information regarding the status of the system.

1. **Battery icon**
   Indicates the state of charge of the battery:
   - Four solid bars = full capacity
   - Two solid bars = 50% capacity
   - No solid bars, with the icon flashing = battery empty

2. **Mains icon**
   Displays the presence/absence of mains voltage:
   - Plug solid = mains present and battery charging
   - Plug hollow and flashing = No mains present and battery not charging

3. **Autoclose information**
   - Displays the state of the Autoclose function
   - Displays off if Autoclose is not selected
   - OVR if Autoclose is overridden, and the remaining Autoclose time if Autoclose is active
   - POVR indicates that the PIRAC option is overridden

4. **Pillar Light information**
   - Displays the remaining light time if Courtesy Light Mode is selected
   - Pre-flashing Mode is displayed if Pre-flash is selected
   - LIT will be indicated if the Pillar Light has been turned on permanently

5. **Onboard receiver information**
   Displays the current input being activated by the onboard receiver

6. **Status information**
   Displays useful information regarding the status of the gate
The **VECTOR2** controller is equipped with an onboard buzzer which is used for various features and functions on the controller. One of the functions it provides is audible diagnostic feedback as detailed:

<table>
<thead>
<tr>
<th>Inhibitor name</th>
<th>Priority</th>
<th>Number of beeps</th>
<th>Fault type</th>
<th>Gate continues to operate</th>
<th>User can correct error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Break-in Alarm</td>
<td>1</td>
<td>Continuous tone for 30 seconds</td>
<td>Alarm</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Ambush Alarm</td>
<td>2</td>
<td>Continuous tone until IRBs are cleared</td>
<td>Alarm</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Battery-low</td>
<td>3</td>
<td>3 beeps periodically for 30 seconds</td>
<td>Power system fault</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Multiple Collision</td>
<td>4</td>
<td>Periodic until condition is cleared by user (500/500ms)</td>
<td>Collision</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Auxiliary Overload</td>
<td>5</td>
<td>5 beeps periodically for 30 seconds</td>
<td>Hardware</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Holiday Lockout</td>
<td>6</td>
<td>1 beep periodically for 30 seconds</td>
<td>User</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Emergency Stop</td>
<td>7</td>
<td>1 beep periodically for 30 seconds</td>
<td>User</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Time-barring</td>
<td>8</td>
<td>1 beep periodically for 5 seconds</td>
<td>User</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>No Limits set</td>
<td>9</td>
<td>3 short beeps for 5 seconds</td>
<td>Lost</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Mains Failure</td>
<td>10</td>
<td>2 beeps periodically for 30 seconds</td>
<td>Power system fault</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Beams broken (any)</td>
<td>11</td>
<td>1 beep periodically for 30 seconds</td>
<td>User</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Safety Beams Failure</td>
<td>12</td>
<td>5 beeps periodically for 30 seconds</td>
<td>Hardware</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>DOSS disconnected</td>
<td>13</td>
<td>5 beeps periodically for 30 seconds</td>
<td>Hardware</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Fuse Blown</td>
<td>14</td>
<td>5 beeps periodically for 30 seconds</td>
<td>Hardware</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Motor Disconnected</td>
<td>15</td>
<td>5 beeps periodically for 30 seconds</td>
<td>Hardware</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Bridge Damaged</td>
<td>16</td>
<td>5 beeps periodically for 30 seconds</td>
<td>Hardware</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Gate Stalled</td>
<td>17</td>
<td>4 beeps periodically for 10 seconds</td>
<td>Collision</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*↑ Gate will close fully and then shut down for two minutes*
Once the installation has been successfully completed and tested, it is important for the installer to explain the operation and safety requirements of the system.

NEVER ASSUME THE USER KNOWS HOW TO SAFELY OPERATE AN AUTOMATED GATE!

Even if the user has used one before, it does not mean he knows how to SAFELY operate it. Make sure that the user fully understands the following safety requirements before finally handing over the site.

The following needs to be understood by the user:
- How to operate the manual release mechanism. *(Show them how by demonstration)*
- How the obstruction detection and all other safety features work. *(Show them how by demonstration)*
- All the features and benefits of the operator, i.e. Beams, etc.
- All the safety considerations associated with operating an automated gate. The user should be able to pass this knowledge on to all other users of the automated system and must be made aware of this responsibility.

- Do not activate the gate operator unless you can see it and can determine that its area of travel is clear of people, pets, or other obstructions
- NO ONE MAY CROSS THE PATH OF A MOVING GATE. Always keep people and objects away from the gate and its area of travel
- NEVER LET CHILDREN OPERATE OR PLAY WITH THE GATE CONTROLS, and do not allow children or pets near the gate area
- Be careful with moving parts and avoid close proximity to areas where fingers or hands could be pinched
- Secure all easily-accessed gate operator controls in order to prevent unauthorised use of the gate
- Keep the automated gate system properly maintained, and ensure that all working areas are free of debris and other objects that could affect the gate operation and safety
- On a monthly basis, check the obstruction detection system and safety devices for correct operation
- All repair and service work to this product must be done by a suitably qualified person

This product was designed and built strictly for the use indicated in this documentation. Any other use, not expressly indicated here, could compromise the good condition/operation of the product and/or be a source of danger!

Centurion Systems (Pty) Ltd does not accept any liability caused by improper use of the product, or for use other than that for which the automated system was designed.

Ensure that the customer is in possession of the User Guide and that you have completed the installation details in the back of the User Guide.
Subscribe to the newsletter: www.CentSys.com/Subcribe

facebook.com/CenturionSystems

YouTube.com/CenturionSystems

Sharecall 0860-CENTURION (0860 236 887)
Head Office: +27 11 699 2400

Sharecall Technical Support 0861 003 123 or
+27 11 699 2481
from 07h00 to 18h00 (GMT+2)

(Sharecall numbers applicable when dialed from within South Africa only)