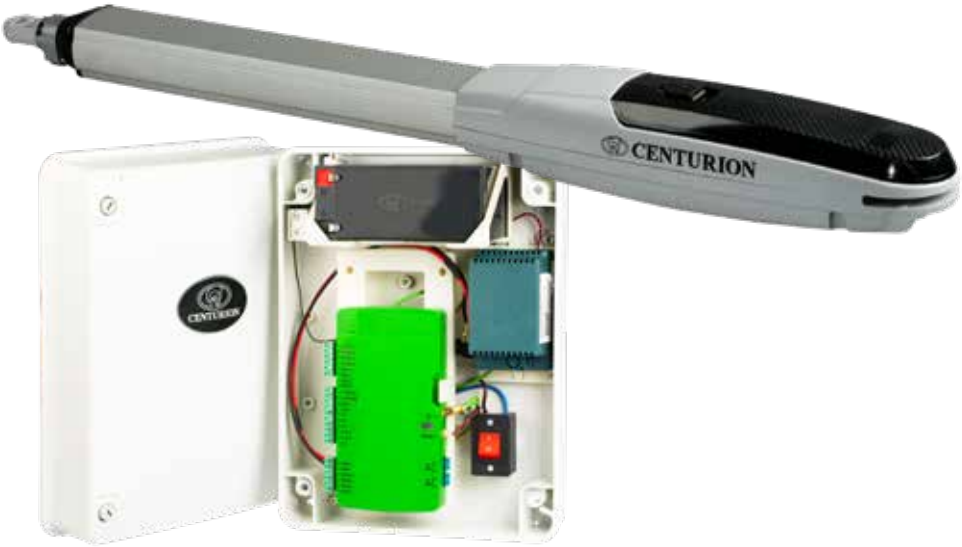
V-SERIES SMART INSTALLATION MANUAL



V-SERIES SMART

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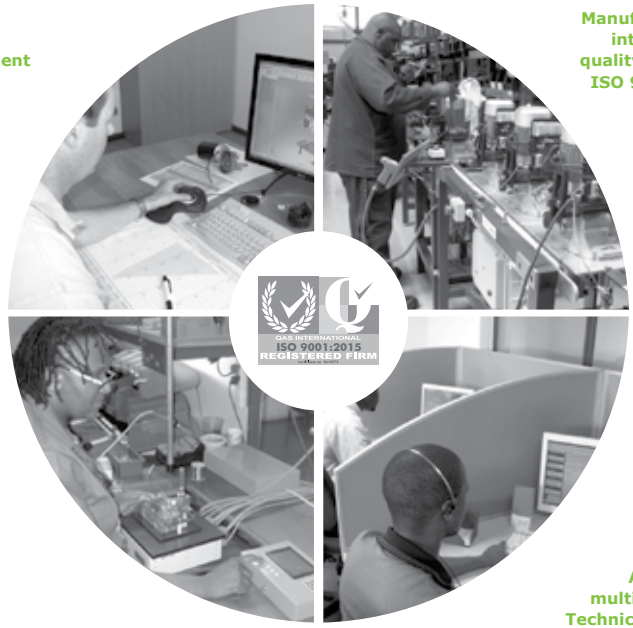
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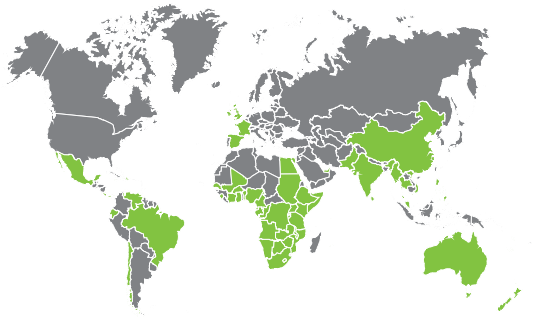
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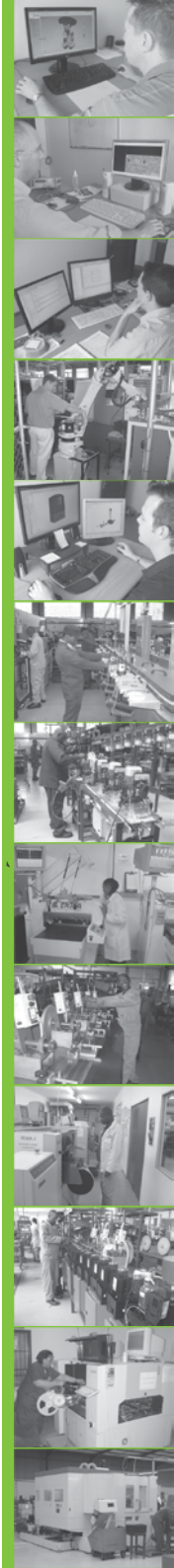
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Icons used in this manual



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.

1. INTRODUCTION

The **V-SERIES SMART** linear swing gate motor, available in three models with actuation strokes of 300mm, 400mm and 500mm, respectively, has been designed to automate a wide variety of swing gates, from single or double light-domestic 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 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.

This guide covers the mechanical installation of your new **V-SERIES SMART** swing gate operator.



V-SERIES SMART swing gate operators can be installed on both inward- and outward-opening swing gates. Please see the relevant sections for each type of installation, paying attention to any site preparation that needs to be made before the operators are installed.

Advanced features of the Vx SMART logic controller include:

- Interactive graphic user interface via a smartphone application
- Automated setup of gate endpoints (limits)
- Independently-adjustable motor speed in both opening and closing directions
- Fail-safe collision detection and auto-reverse (adjustable sensitivity)
- Smooth, adjustable start/stop (ramp-up/ramp-down)
- Multiple operational modes
- Selectable, adjustable Autoclose
- Pedestrian (partial) opening
- Positive Close Mode
- Supports up to three sets of Photon SMART Safety beams
- Independent safety inputs for opening and closing beams (wired)
- Automatic beam test for both opening and closing beams (wired)
- Advanced lightning/surge protection
- Onboard NOVA code-hopping radio receiver with full channel-mapping capability (1500 MyCentsys Remote users[1)]

1. Multiple buttons per remote can be used.

1.1. Important Safety Information



ATTENTION!

To ensure the safety of people and possessions, it is important that you read all of 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 installing 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 it is in view and you 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 gases or fumes is a serious danger to safety
- Before attempting any work on the system, turn off 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 hydraulic 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 attempt to recharge the batteries with power supply units other than that supplied with the product, or manufactured by Centurion Systems (Pty) Ltd

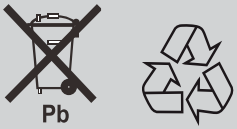
- Make sure that the earthing system is correctly constructed and that all metal parts of the system are suitably earthed
- Safety devices must be fitted to the installation to guard against mechanical movement risks such as crushing, dragging and shearing
- Always fit the warning signs visibly to the 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 over the User Guide/Warnings to the user
- The installer must 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 packing materials, worn-out batteries, etc., according to local regulations
- Always check the obstruction detection system, and safety devices for correct operation
- Neither Centurion Systems (Pty) Ltd, nor its subsidiaries, accepts 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

Never run the operator directly from the battery! Doing so will cause damage to the operator.
Only run the operator from the Vx SMART Controller.

1.2. Safe Disposal of Batteries

ATTENTION!

- **Do not incinerate**
- **Do not short the battery terminals**
- **Do not charge in a gas tight container**
- **Do not open**
- **Recharge after use**
- **Flush with water at once if contact is made with electrolyte (acid)**





1.3. Lightning Protection

The electronic controller utilises the same proven surge protection philosophy that is used in all our 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 and/or earth spike located next to the operator.



In order to ensure that the surge protection is effective, it is essential that the unit is properly earthed.

2. SPECIFICATIONS

2.1. Physical Dimensions

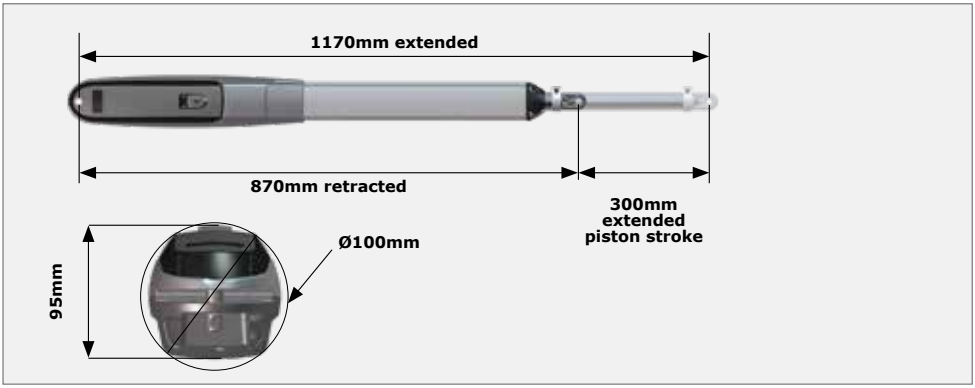


FIGURE 1. V-SERIES 300 SMART OVERALL DIMENSIONS

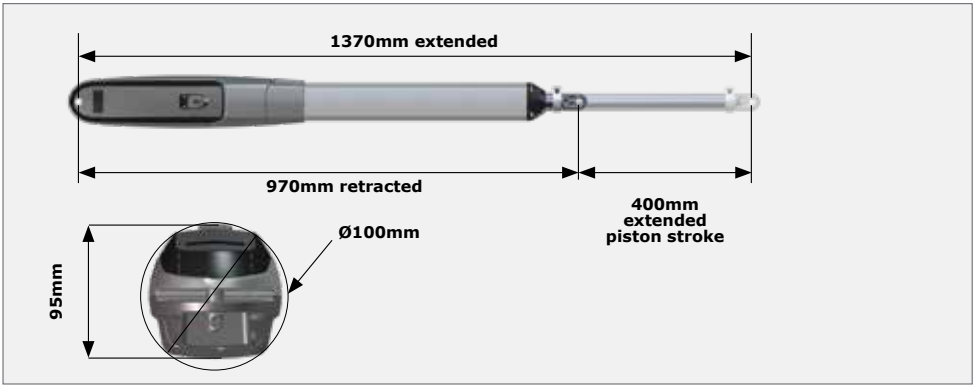


FIGURE 2. V-SERIES 400 SMART OVERALL DIMENSIONS

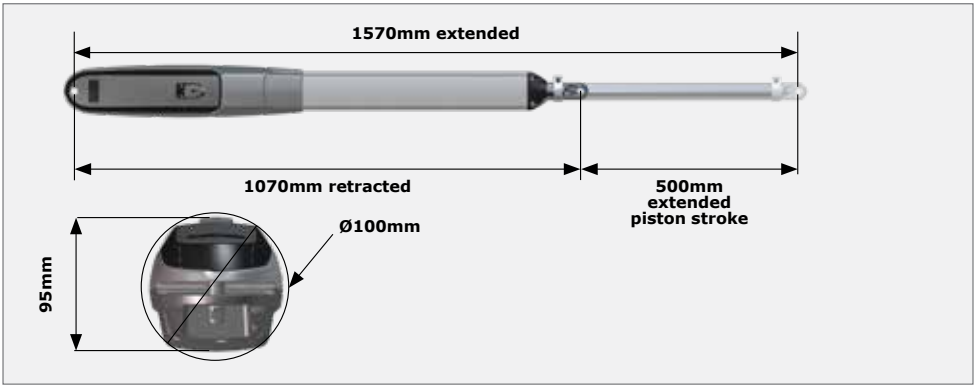


FIGURE 3. V-SERIES 500 SMART OVERALL DIMENSIONS

2.2. Technical Specifications

2.2.1. Main Operator

	V-SERIES 300 SMART	V-SERIES 400 SMART	V-SERIES 500 SMART
Input voltage	90V - 240V AC ± 10%, 50/60Hz		
Motor voltage	12V DC		
Motor power supply	Battery-driven (standard capacity - 7.2Ah)[1]		
Battery charger[2]	1.8A @ 13.8V		
Current consumption (Mains)	170mA		
Current consumption (Motor rated at load)	15A - maximum		
Operator push force - maximum	250kgf		
Operator stroke	300mm	400mm	500mm
Piston extention / retraction speed	28mm/sec (variable)		
Typical gate opening time[3]	11.3 sec	14.3 sec	17.8 sec
Manual override	Key release[4]		
Maximum number of operations per day	250		
Duty cycle - Mains present[5] [6]	50%		
Operations in standby with 7.2Ah battery[7]			
Half day	70		
Full day	58		
Collision sensing	Electronic		
Operating temperature range	-15°C to +50°C		
Mass of unit packed (excluding battery)			
Single kit[8]	8kg	8.5kg	9kg
Double kit[9]	13kg	14kg	15kg

TABLE 1

1. Can increase battery capacity for longer standby times.
2. Can operate off a solar supply, consult your reseller for assistance.
3. Assumes a full stroke of operator is used.
4. Each operator comes with a unique set of keys.
5. Based on 25°C ambient temperature and unit not in direct sunlight.
6. Based on an operator push force of less than 50% of rated.
7. Based on double kit excluding Infrared Safety Beams.
8. Single kit contains one operator and Wall Box.
9. Double kit contains two operators and one Wall Box.

2.2.2. SMART Controller

Maximum motor current per channel	15A (fused)
Maximum input voltage	14.4V DC
Standby current draw	51mA[2]
Maximum solenoid current draw	3A DC / AC (10 Seconds)[1]
Maximum auxillary output current	3A (Resettable Electronic Fuse)
Collision detection	Current sense and optical
Position and trajectory control	Optical
Temperature range	-20°C to +60°C
Onboard receiver type	Code-hopping multichannel
Receiver code storage capacity	1500 transmitters
Receiver frequency	433MHZ

TABLE 2

1. Limited by charger, ensure that load does not prevent battery from fully charging. Continuous current draw should ideally be less than 500mA but must not exceed 1A.
2. Operators connected, no ancillaries fitted

2.2.3. Power Supply

Nominal input voltage	90V - 240V AC ±10% @ 50/60Hz
AC current draw (maximum)	170mA
Temperature range	-20°C to +60°C
Battery charger output current (dependant on PSU input voltage)	90V AC input: 1.2A @ 13.8V 240V AC input: 1.8A @ 13.8V

TABLE 3

2.3. Allowable Gate Masses

Ensure that the gate leaf meets Wind Load Specifications.

Maximum allowable gate mass for the **V-SERIES 300 SMART** operator

Gate Swing Angle	Up to 1.5m	Up to 2m	Up to 2.5m	Up to 3m[1]
90°	350kg	350kg	335kg	230kg
100°	350kg	350kg	335kg	230kg

TABLE 4

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

Maximum allowable gate mass for the **V-SERIES 400 SMART** operator

Gate Swing Angle	Up to 1.5m	Up to 2m	Up to 2.5m	Up to 3m[1]	Up to 3.5m[1]	Up to 4m[1]
90°	500kg	500kg	500kg	360kg	260kg	200kg
100°	500kg	500kg	388kg	160kg	190kg	150kg
110°	500kg	306kg	198kg	130kg		
120°	180kg	100kg	65kg	**Not recommended**		

TABLE 5

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

Maximum allowable gate mass for the **V-SERIES 500 SMART** operator

Gate Swing Angle	Up to 1.5m	Up to 2m	Up to 2.5m	Up to 3m[1]	Up to 3.5m[1]	Up to 4m[1]
90°	750kg	750kg	750kg	550kg	410kg	310kg
100°	750kg	750kg	600kg	420kg	310kg	230kg
110°	750kg	500kg	320kg	220kg		
120°	310kg	170kg	110kg	**Not recommended**		

TABLE 6

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

2.4. Wind loads

Wind speeds for which operator will still operate the gate.
(**V-SERIES 300 SMART, V-SERIES 400 SMART** or **V-SERIES 500 SMART** operators)
For a 25% covered gate: (Palisades, etc.) x 1.8 metre high

V-SERIES 300 SMART MAXIMUM OPENING SPEED						
Gate length	1.5m	2m	2.5m	3m	3.5m	4m
Gate height	1.8m	1.8m	1.8m	1.8m	N/A	N/A
Allowable wind speed 25% clad(km/h)[1]	105	78	62	52	N/A	N/A
Allowable wind speed 100% clad (km/h)[1]	52	39	31	26	N/A	N/A

TABLE 7

1. No wind opening time is equivalent to 12seconds
   Gate opening and closingtimes will increase as wind speed increase

V-SERIES 400 SMART MAXIMUM OPENING SPEED						
Gate length	1.5m	2m	2.5m	3m	3.5m	4m
Gate height	1.8m	1.8m	1.8m	1.8m	1.8m	1.8m
Allowable wind speed 25% clad(km/h)[1]	122	91	72	60	52	46
Allowable wind speed 100% clad (km/h)[1]	61	45	36	30	26	23

TABLE 8

1. No wind opening time is equivalent to 12seconds
   Gate opening and closingtimes will increase as wind speed increase

V-SERIES 500 SMART MAXIMUM OPENING SPEED						
Gate length	1.5m	2m	2.5m	3m	3.5m	4m
Gate height	1.8m	1.8m	1.8m	1.8m	1.8m	1.8m
Allowable wind speed 25% clad(km/h)[1]	134	100	79	67	58	51
Allowable wind speed 100% clad (km/h)[1]	67	50	39	33	29	25

TABLE 9

1. No wind opening time is equivalent to 12seconds
   Gate opening and closingtimes will increase as wind speed increase

3. PRODUCT IDENTIFICATION

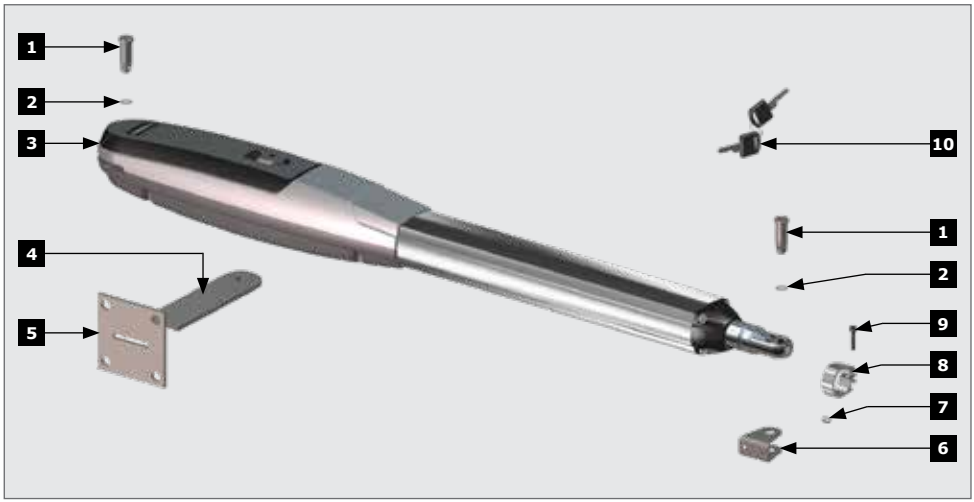


FIGURE 4. PRODUCT IDENTIFICATION - MAIN KIT

1. Gate Bracket Pin
2. 14mm Snap Ring
3. **V-SERIES SMART** Gate Operator
4. Wall Bracket
5. Wall Bracket Mounting Plate
6. Gate Bracket
7. M5 Barrel Nut
8. Origin Clamp
9. Stainless steel cap screw M5 x 25
10. Gate Operator Keys[1]

1. Keys are specific to each operator - key number must be recorded.

3.1. Vx SMART Wall Box

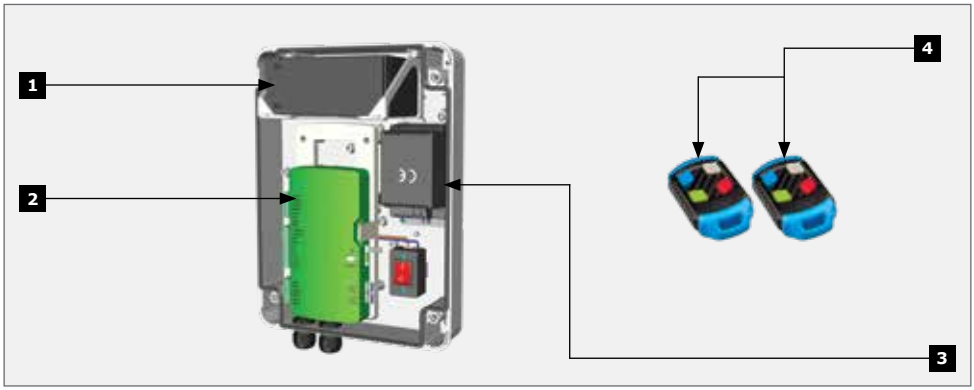


FIGURE 5. V-SERIES WALL BOX INCLUDING CHARGER AND CONTROLLER

1. 12V 7.2Ah Battery[1]
2. **Vx SMART Series** Controller
3. Charger
4. Code-hopping remote controls

1. Batteries can be of a larger capacity for longer power failure autonomy and are not included in the kit; Consult your local authorised dealer for assistance.

4. REQUIRED TOOLS AND EQUIPMENT



FIGURE 6. REQUIRED TOOLS AND EQUIPMENT

5. INSTALLATION PREPARATION

5.1. 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 Figure 7).

If the swing gate leaf is longer than 3 metres, ensure that an electric lock can be fitted.

For security reasons, never fit an operator on the outside of the gate, where the public has access to it (refer to the instructions for an Outward-opening swing gate).



Never run an operator directly off the 12V battery.

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, wind loading and application is within the operator specifications
- 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;
- Once installed, there is sufficient clearance between moving parts during operation of the gate to reduce the risk of personal injury and/or entrapment
- It is recommended that Pushbuttons and Keyswitches, if fitted, be positioned in such a way that the gate is in line of sight of the user

5.2. Determine Gate Opening Angle

Use this procedure to accurately determine the gate opening angle:

5.2.1. Step 1

Close the gate and measure a distance of one metre from the centreline of the gate hinge.

Make a mark on the ground.

5.2.2. Step 2

Open the gate and measure along the gate a distance of one metre from the centreline of the gate hinge.

Make a mark on the ground.

Measure the distance on the ground between the two marks (Z).

Using this Z-Value, read off the gate opening angle from the Table below.

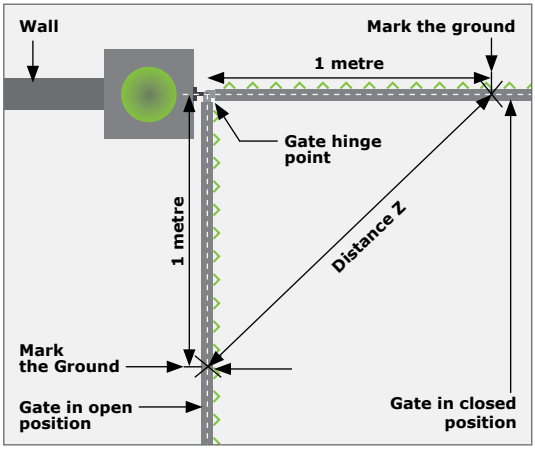


FIGURE 7

5.2.3. Step 3

Gate opening angle based on Z-Value

From	To	Use gate swing angle of
1414mm	1521mm	90°-99°
1532mm	1638mm	100°-110°

TABLE 10

5.3. Key Terms Used in this Section

5.3.1. Pillar maximum

The maximum allowable distance measured from the centre of the gate hinge to the edge of the pillar.

5.3.2. Wall minimum

This value denotes the minimum amount of space needed to install the operator and is measured from the side wall to the gate when the gate is in the open position.

5.4. Side Wall Limitation - Inward-Opening

Figure 9 shows the side wall limitations for an **inward-opening gate**. The **V-SERIES 300 SMART**, **V-SERIES 400 SMART** and **V-SERIES 500 SMART** require a minimum of 200mm between the gate hinge point and the side wall. For installations with "A" value close to the 200mm limit, use the table in Section 9.2 to choose the right limit. It must be 145mm or less for operator to fit.

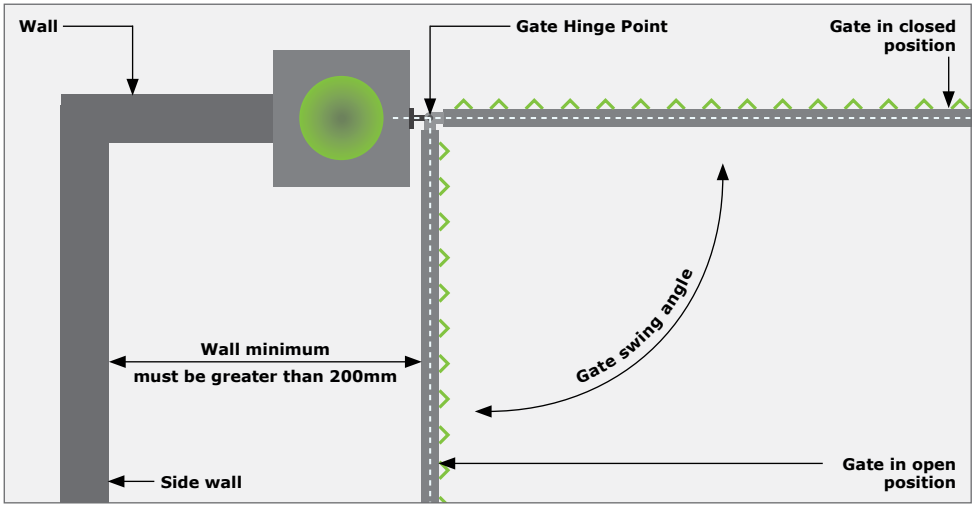


FIGURE 8. SIDE WALL LIMITATION FOR INWARD-OPENING GATE

5.5. Pillar Hinge Depth Limitation - 90° Inward-Opening

Figure 9 shows the pillar hinge depth limitation for a **90° Inward-opening gate**. An operator must be installed in accordance with these limitations to ensure that it does not interfere with the operation of the gate during movement. The hinge depth of the gate on the pillar, needs to be checked against the pillar maximum values in Table 9 to determine if the installation is possible. If the hinge depth of the gate is excessive, the gate may have to be relocated on the pillar to achieve the required pillar maximum values. This does not apply to gates opening more than 90° as the gate would need to swing beyond 90° without colliding with the pillar.

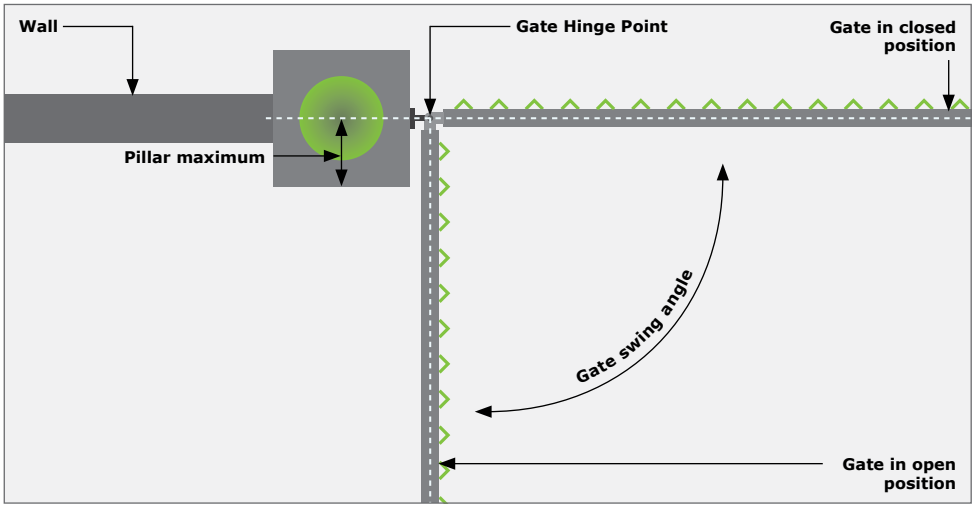


FIGURE 9. PILLAR HINGE DEPTH LIMITATION FOR 90° INWARD-OPENING GATE

Operator	Pillar Maximum	Swing Gate Angle
V-SERIES 300 SMART	90mm	90°
V-SERIES 300 SMART	75mm	100°
V-SERIES 400 SMART	165mm	90°
V-SERIES 500 SMART	245mm	90°

TABLE 11

5.6. Mounting the Wall Bracket

The following recommended methods may be used to install the operator.

5.6.1. Through-wall

Applications:

- Pre-fabricated walling
- For heavy gates operating frequently

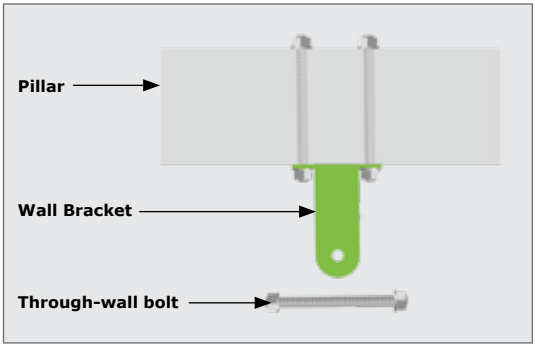


FIGURE 10

5.6.2. Chemical anchors

Applications:

- Masonry pillars
- Frequent use

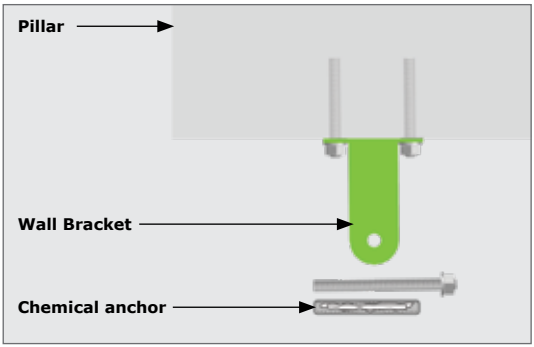


FIGURE 11

5.6.3. Welding

Application:

- Steel pillars

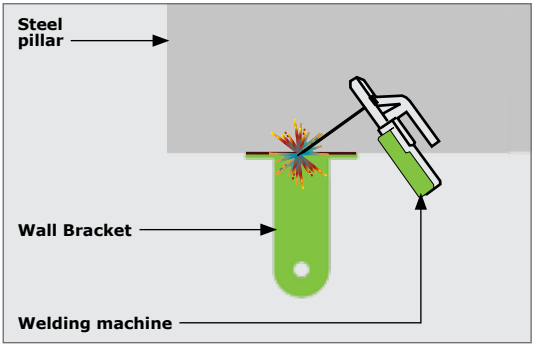


FIGURE 12

5.6.4. Sleeve anchors

Applications:

- Lighter gates
- Domestic

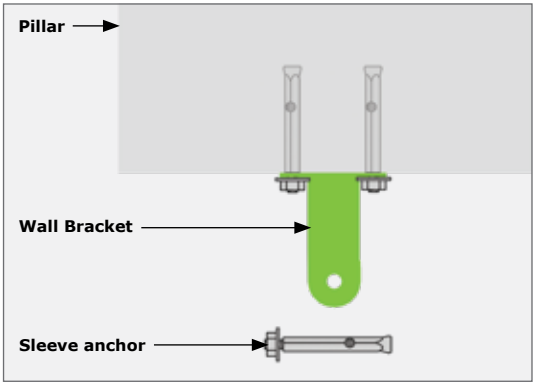


FIGURE 13

5.6.5. Rawl bolts

Applications:

- Lighter gates
- Domestic

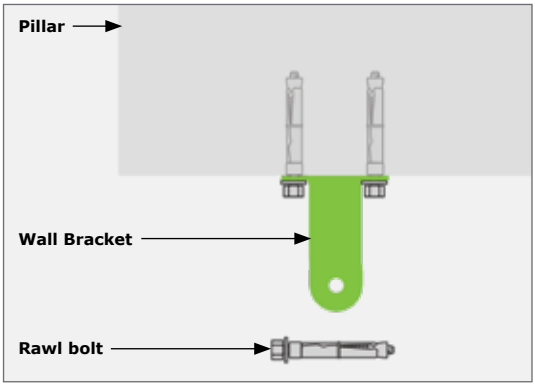


FIGURE 14

5.7. Mounting the Gate Bracket

5.7.1. Welding

Applications:

- Domestic
- Medium gates
- Frequent use

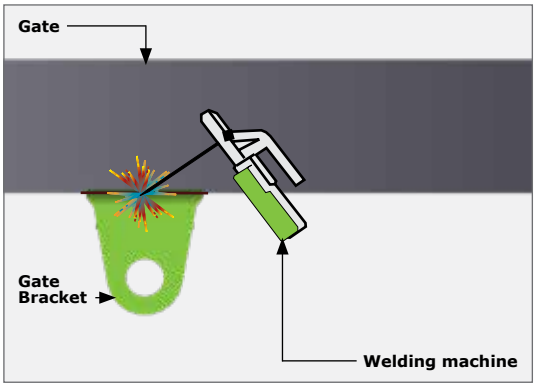


FIGURE 15

5.7.2. Through-bolts

(high-tensile)

Applications:

- Domestic
- Light gates
- Infrequent use

TEK screws and mild steel bolts are not recommended.

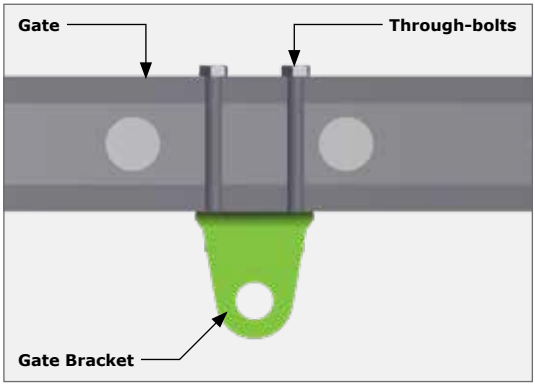


FIGURE 16

5.8 Cabling Requirements

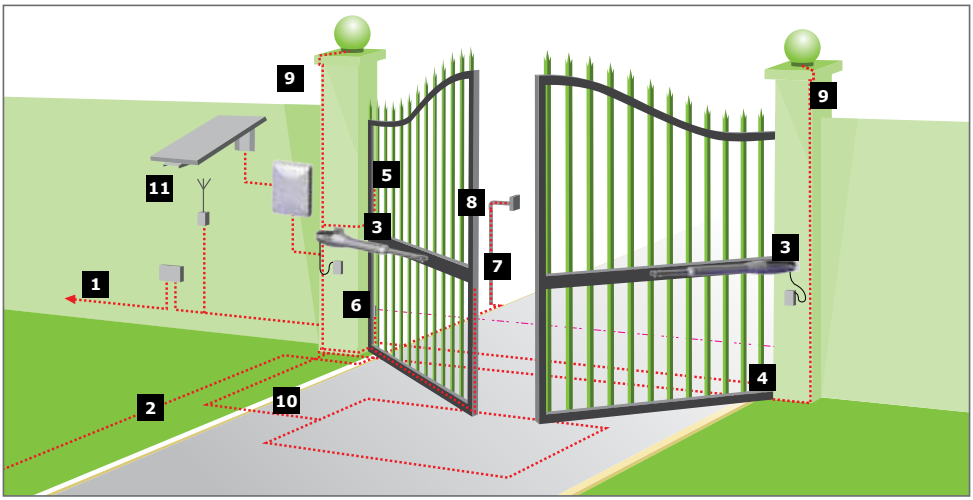


FIGURE 17. CABLING REQUIREMENTS

Legend

1. 90V - 240V AC Mains cable via Mains isolator[1] switch (3 core LNE 0,5mm²)[2], or low-voltage 16V AC battery charger supply[3] (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 1.5mm² + 4 core 0,22mm² multi-stranded)[4].
4. Optional radio receiver cable (3 core 0,5mm² multi-stranded, optional)[5].
5. Optional Pedestrian Keyswitch (2 core 0,5mm² multi-stranded) or optional keypad (3 core 0,5mm² multi-stranded).
6. Optional, but recommended 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)[6].
11. Optional solar panel (2 core 1.5mm² Cabtyre or G.P. in Conduit).

1. Mains isolator supplied with **Vx SMART** Wall Box.
2. Increase cable thickness if Pillar Lights are to be installed.
3. Screened cable is always recommended to provide better protection against lightning - earth one end of screening.
4. Please use **V-SERIES SMART** cabling. Order reference: CABLEVEC68 (10M maximum from Vx-Series controller to operator).
5. For optimum range an external receiver can be mounted on the wall.
6. 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: i5, Photon or Photon SMART

5.9. Critical Installation Checklist

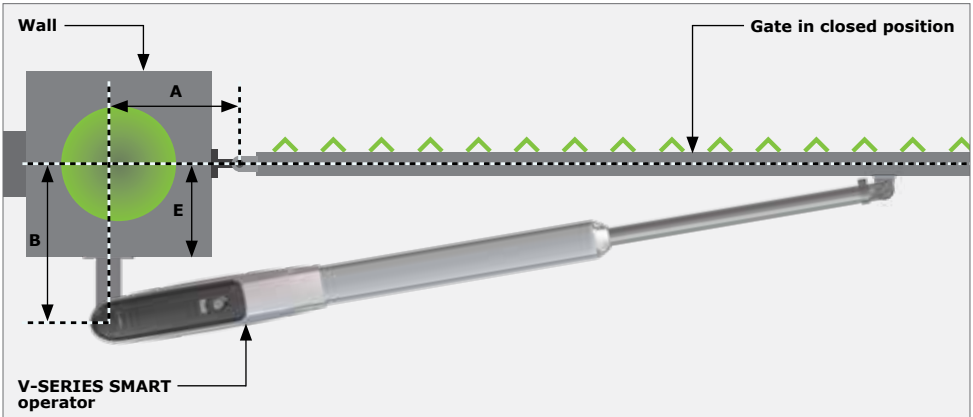
The following is a list of critical requirements that must be adhered to in order to ensure reliable operation of your **V-SERIES SMART** operator(s):

- Ensure that the Wall Bracket is securely anchored
- Use the operator's maximum stroke
- Only use the **V-SERIES SMART** cable for the installation
- Leave a 350mm long loop in the operator cable as per Figure 41
- Fit an Electronic Gate Lock if the leaf width is greater than 3 metres
- Ensure that the opening and closing angles conform to the installation guidelines
- Ensure that your gate and operator(s) are equipped to deal with Wind Loading (refer to Section 2.4. - "Wind Loads")

6. OPERATOR INSTALLATION - INWARD-OPENING

6.1. New Site Installations

Figure 18 illustrates the values corresponding to the **Inward-Opening** Gate Installation Tables.



The length of the wall bracket should equal **B** minus **E**. When looking at the example above, the wall bracket should measure **240mm (B) - 160mm (E) = 80mm** (wall bracket length)

FIGURE 18. BRACKET POSITION - INWARD-OPENING GATE

Ensure that the gate mass does not exceed the specifications on Section 2.3. "Allowable Gate Massed".

6.2. Key terms used in this section

6.2.1. E-Value[1]

The distance from the centre of the gate hinge to the edge of the pillar[1].

6.2.2. A-Value[2]

The horizontal distance from the Wall Bracket/pivot pin to the center of the gate hinge[1].

6.2.3. B-Value[2]

The vertical distance from the Wall Bracket/pivot pin to the center of the gate hinge[1].

1. Refer to Figure 18 above.
2. Seen from top of pillar.

Step 1

Measure the E-Value and ensure that it does not exceed the values shown in Table 11. Using Table 13 - Table 14 for the **V-SERIES 300 SMART**, Table 15 - Table 18 for the **V-SERIES 500 SMART**, or Table 19 - Table 22 for the **V-SERIES 500 SMART**. along with the E-Value limitation, choose the relevant A & B values for the installation that are as close as possible to the optimum installation position as possible.

Example: 90° Inward-Opening gate (V-SERIES 400 SMART):

By looking at the E-Values in Table 15, there are two valid options for a 160mm E-Value, these are shown in Table 12.

E-Value Depth of gate hinge to pillar	A-Value	B-Value
<165mm	145mm	240mm
<175mm	130mm	250mm

TABLE 12

V-SERIES 300 SMART Inward-Opening Gate Geometry Tables:

90° Inward-Opening Gate

E-Value Depth of gate hinge to pillar	A-Value	B-Value
<60mm	165mm	130mm
<70mm	155mm	140mm
<80mm	145mm	150mm
<90mm[1]	**130mm[1]**	**160mm[1]**

TABLE 13

1. Optimum Installation

100° Inward-Opening Gate

E-Value Depth of gate hinge to pillar	A-Value	B-Value
<55mm	150mm	120mm
<65mm	140mm	130mm
<75mm[1]	**130mm[1]**	**140mm[1]**

1. Optimum Installation

TABLE 14

V-SERIES 400 SMART Inward-Opening Gate Geometry Tables:

90° Inward-Opening Gate

E-Value Depth of gate hinge to pillar	A-Value	B-Value
<120mm	195mm	200mm
<130mm	180mm	210mm
<140mm[1]	**170mm[1]**	**220mm[1]**
<150mm	160mm	230mm
<165mm	145mm	240mm
<175mm	130mm	250mm

TABLE 15

100° Inward-Opening Gate

E-Value Depth of gate hinge to pillar	A-Value	B-Value
<85mm	205mm	160mm
<95mm	195mm	170mm
<105mm[1]	**185mm[1]**	**180mm[1]**
<115mm	175mm	190mm
<125mm	165mm	200mm

TABLE 16

110° Inward-Opening Gate

E-Value Depth of gate hinge to pillar	A-Value	B-Value
<50mm	211mm	120mm
<60mm	203mm	130mm
<70mm	195mm	140mm
<75mm[1]	**191mm[1]**	**145mm[1]**

TABLE 17

120° Inward-Opening Gate

E-Value Depth of gate hinge to pillar	A-Value	B-Value
<25mm	212mm	90mm
<30mm[1]	**205mm[1]**	**100mm[1]**

TABLE 18

1. Optimum Installation.

V-SERIES 500 SMART Inward-Opening Gate Geometry Tables:

90° Inward-Opening Gate

E-Value Depth of gate hinge to pillar	A-Value	B-Value
<140mm	275mm	230mm
<150mm	260mm	240mm
<160mm	250mm	250mm
<170mm	235mm	260mm
<180mm	220mm	270mm
<190mm[1]	**205mm[1]**	**280mm[1]**
<200mm	195mm	290mm
<215mm	180mm	300mm
<225mm	170mm	310mm
<235mm	155mm	320mm
<245mm	140mm	330mm

TABLE 19

100° Inward-Opening Gate

E-Value Depth of gate hinge to pillar	A-Value	B-Value
<120mm	260mm	200mm
<130mm	245mm	210mm
<140mm	235mm	220mm
<150mm[1]	**225mm[1]**	**230mm[1]**
<160mm	215mm	240mm
<170mm	205mm	250mm
<180mm	195mm	260mm

TABLE 20

110° Inward-Opening Gate

E-Value Depth of gate hinge to pillar	A-Value	B-Value
<85mm	260mm	160mm
<90mm	250mm	170mm
<100mm	240mm	180mm
<110mm[1]	**235mm[1]**	**190mm[1]**
<120mm	225mm	200mm

TABLE 21

120° Inward-Opening Gate

E-Value Depth of gate hinge to pillar	A-Value	B-Value
<40mm	270mm	110mm
<50mm	263mm	120mm
<55mm	257mm	130mm
<65mm	250mm	140mm
<75mm[1]	**243mm[1]**	**150mm[1]**

TABLE 22

1. Optimum Installation.

Determine a suitable height for the Wall Bracket.

Ensure that this mounting height will allow the Gate Bracket to be securely mounted to the Gate Leaf.

Take care to make sure the operator is mounted level.

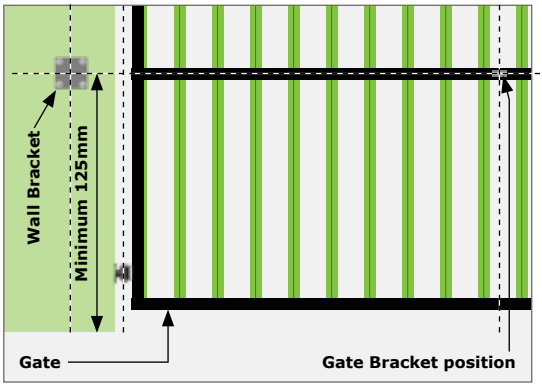


FIGURE 19. WALL BRACKET HEIGHT

Mark the calculated length required on the Wall Bracket taking the B-Value, E-Value and Pillar shape into account as per Figure 19 above.

Cut off excess length.

Insert the Wall Bracket into the mounting plate.

Weld the brackets together.

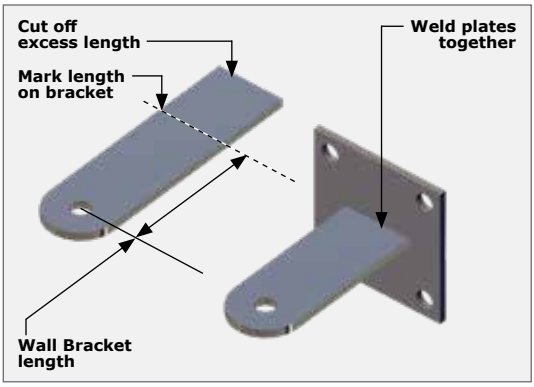


FIGURE 20. CUT AND WELD WALL BRACKET

Mount the Wall Bracket according to the A- and B-Values obtained on pages 25 and 26.

It is critical that the Wall Bracket is securely mounted.

See section 5 - "Site preparation".

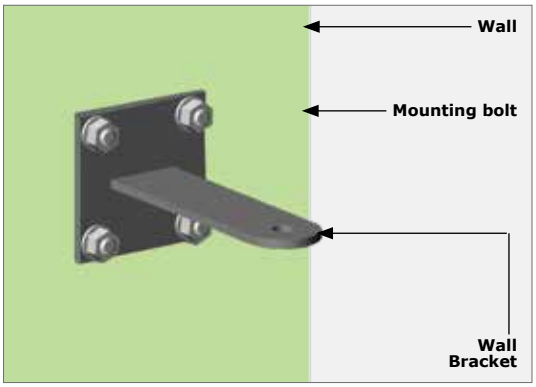


FIGURE 21

Fit the Gate Bracket to the **V-SERIES SMART** operator and secure it with a snap ring.

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

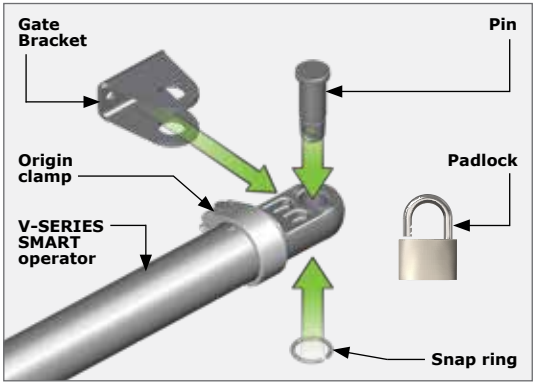


FIGURE 22

Fit the motor end of the operator to the Wall Bracket.

Support the operator to prevent damage.

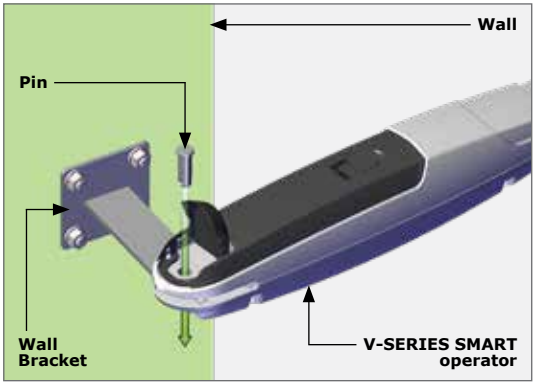


FIGURE 23

Manually rotate the piston to the fully extended position, and then retract it by half to one full turn.

With the gate in the closed position, use a G-clamp or spot weld the Gate Bracket in position to temporarily hold the Gate Bracket in place.

The G-clamp should only be used to secure the Gate Bracket in place, and should never be used as a means of securing the operator piston arm as this could result in damage.

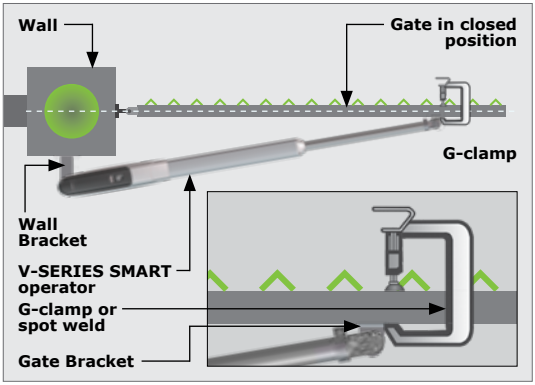


FIGURE 24

Manually release the operator using the key provided with the kit, and swing the gate to the desired open position.

Slide the origin clamp along the piston tube, right up to the end to the operator.

Secure origin clamp in place, and tighten properly with an Allen Key.

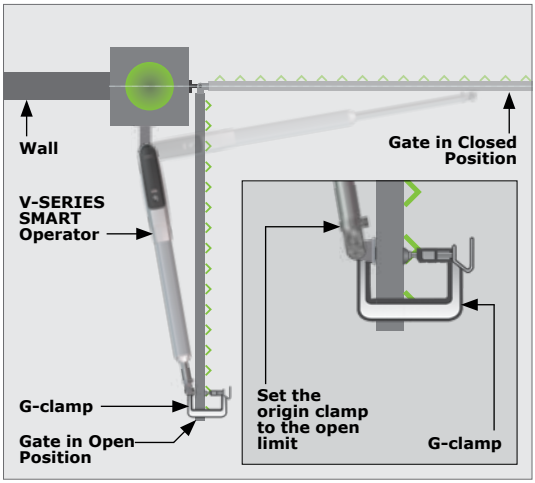


FIGURE 25

If the gate opening angle is sufficient and the operator is utilising the majority of its stroke, then secure the Gate Bracket using the most appropriate means.

Remove the operator before welding, if welding is required.

If this is not the case or the operator does not have enough stroke for the gate to open fully, re-check the A- and B-Values on pages 25 and 26.

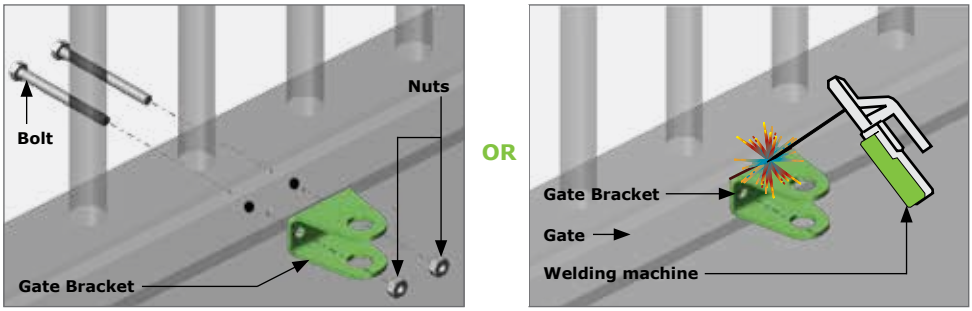


FIGURE 26

Attach warning labels to the inside and outside of the gate as shown.

The Mechanical part of the installation is now complete.

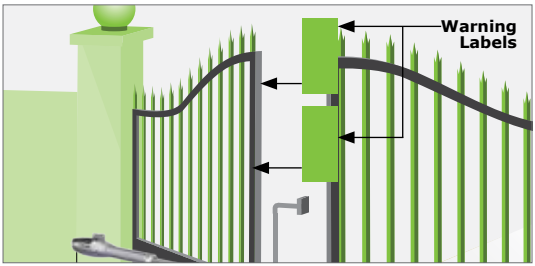


FIGURE 27

7. OPERATOR INSTALLATION - OUTWARD-OPENING

7.1. New Site Installations

Depending on the gate opening angle determined in Section 6.2 refer to Figures 28 to 30 for the correct installation geometry.

In most cases it will be necessary to make up a suitable extension bracket in which to mount the operator's Wall Bracket.

Ensure that the gate mass does not exceed the specifications on Section 2.3. "Allowable Gate Mass".

V-SERIES 300 SMART Outward-Opening Gate:

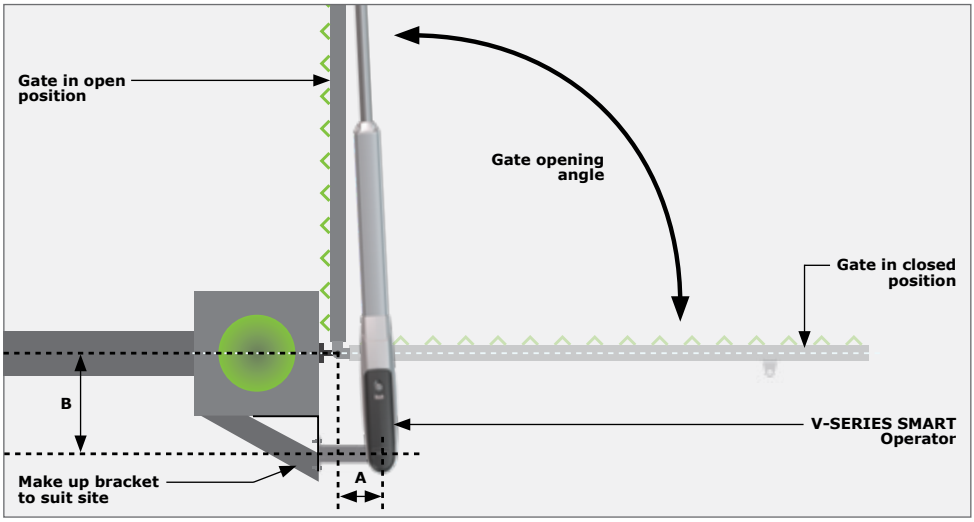


FIGURE 28. BRACKET POSITION - OUTWARD-OPENING GATE

V-SERIES 300 SMART Outward-Opening Gate Geometry Tables:

Gate Opening Angle	A-Value	B-Value
90°	135mm	160mm
100°	140mm	130mm

TABLE 23

V-SERIES 400 SMART Outward-Opening Gate:

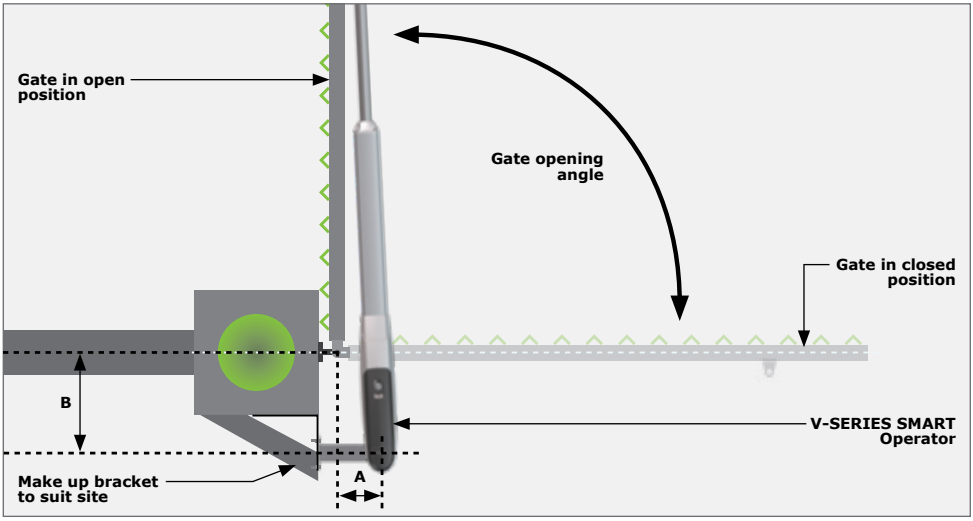


FIGURE 29. BRACKET POSITION - OUTWARD-OPENING GATE

V-SERIES 400 SMART Outward-Opening Gate Geometry Tables:

Gate Opening Angle	A-Value	B-Value
90°	220mm	170mm
100°	210mm	150mm
110°	200mm	130mm
120°	185mm	135mm

TABLE 24

V-SERIES 500 SMART Outward-Opening Gate:

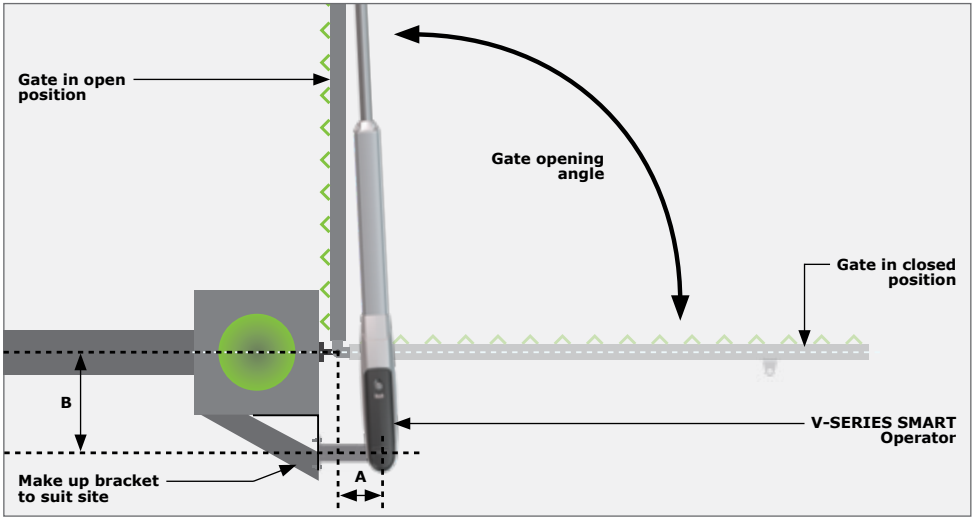


FIGURE 30. BRACKET POSITION - OUTWARD-OPENING GATE

V-SERIES 500 SMART Outward-Opening Gate Geometry Tables:

Gate Opening Angle	A-Value	B-Value
90°	280mm	210mm
100°	265mm	180mm
110°	260mm	150mm
120°	248mm	140mm

TABLE 25

Determine a suitable height for the Wall Bracket.

Ensure that this mounting height will allow the Gate Bracket to be securely mounted to the Gate Leaf.

Take care to make sure the operator is mounted level.

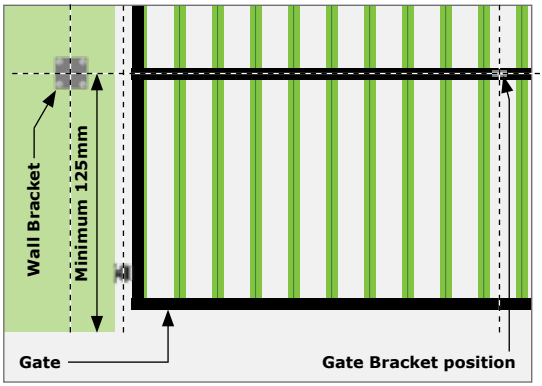


FIGURE 31. WALL BRACKET HEIGHT

Mark the calculated length on the Wall Bracket.

Cut off excess length.

Insert the Wall Bracket into the mounting plate.

Weld the brackets together.

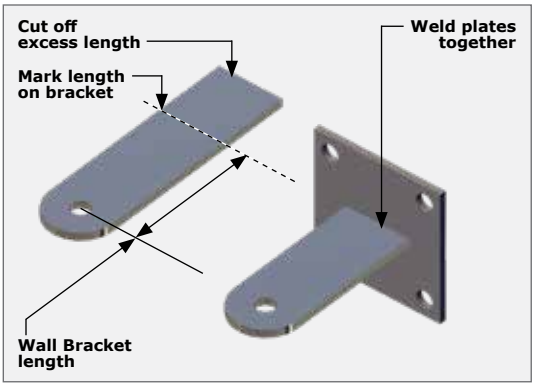


FIGURE 32. CUT AND WELD WALL BRACKET

Mount the Wall Bracket according to the A- and B-Values obtained in Tables 19 or 20.

It is critical that the Wall Bracket is securely mounted and is adequately rigid.

See page 18 for site considerations.

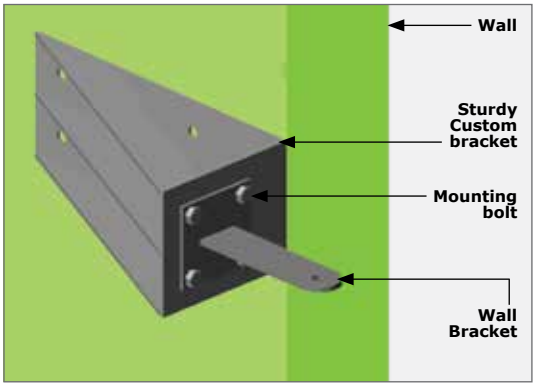


FIGURE 33

Fit the Gate Bracket to the **V-SERIES SMART** operator and secure it with a snap ring.

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

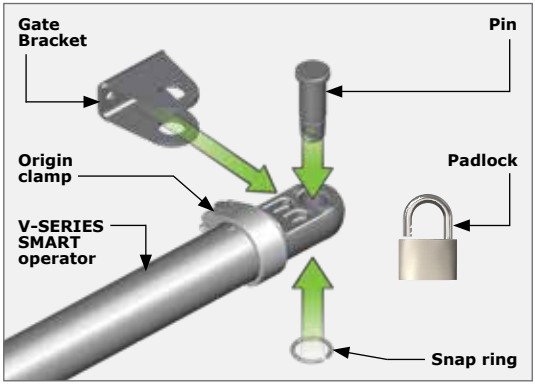


FIGURE 34

Fit the motor end of the operator to the Wall Bracket.

Support the operator to prevent damage.

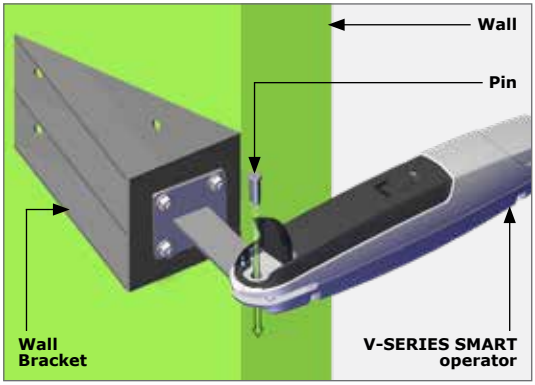


FIGURE 35

Manually rotate the piston to the fully-retracted position, and then extend it by half to one full turn.

With the gate in the closed position, use a G-clamp or spot weld the Gate Bracket in position to temporarily hold the Gate Bracket in place.

The G-clamp should only be used to secure the Gate Bracket in place, and should never be used as a means of securing the operator piston arm as this could result in damage.

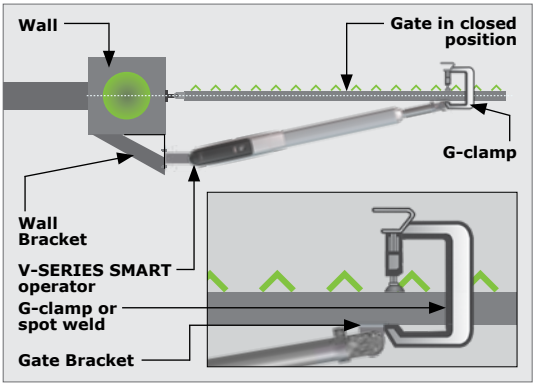


FIGURE 36

Manually release the operator using the key provided with the kit, and swing the gate to the desired open position.

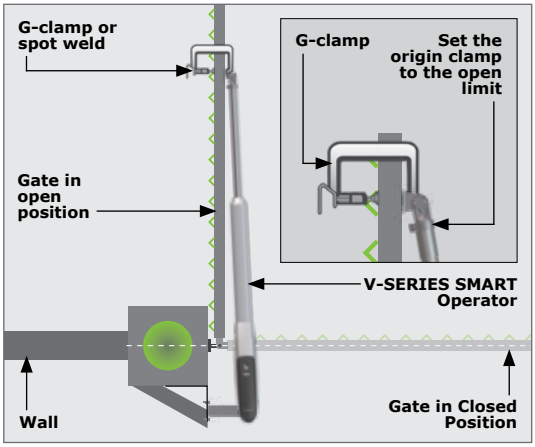


FIGURE 37

If the gate opening angle is sufficient and the operator is utilising the majority of its stroke, then secure the Gate Bracket using the most appropriate means.

Remove the operator before welding, if welding is required.

If this is not the case or the operator does not have enough stroke for the gate to open fully, re-check the A- and B-Values in Tables 19 or 20.

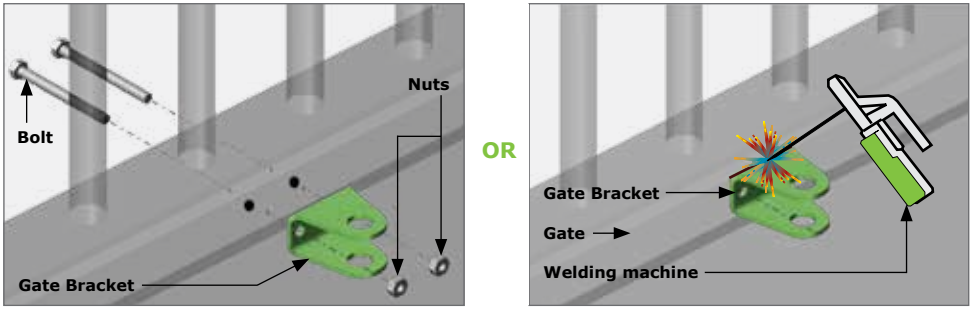


FIGURE 38

Attach warning labels to the inside and outside of the gate as shown.

The Mechanical part of the installation is now complete.

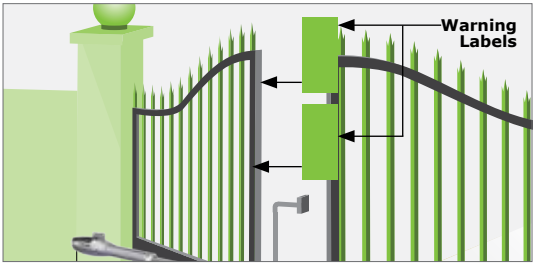


FIGURE 39

8. ELECTRICAL SETUP

ATTENTION!

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.

8.1. Secure Vx SMART Wall Box to Wall

Secure the **Vx SMART** Wall Box to the wall using the most appropriate means.

Be sure to position the Wall Box so as not to cause any hazards during and after the installation. Preferably mount the Wall 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

Mount the Vx SMART Wall Box preferably at a comfortable working height

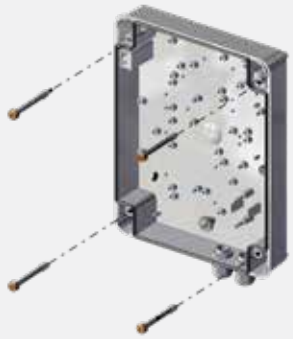


FIGURE 40

8.2. Wiring

When wiring each operator back to the **Vx SMART** Wall Box, 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 **Vx SMART** Wall Box.

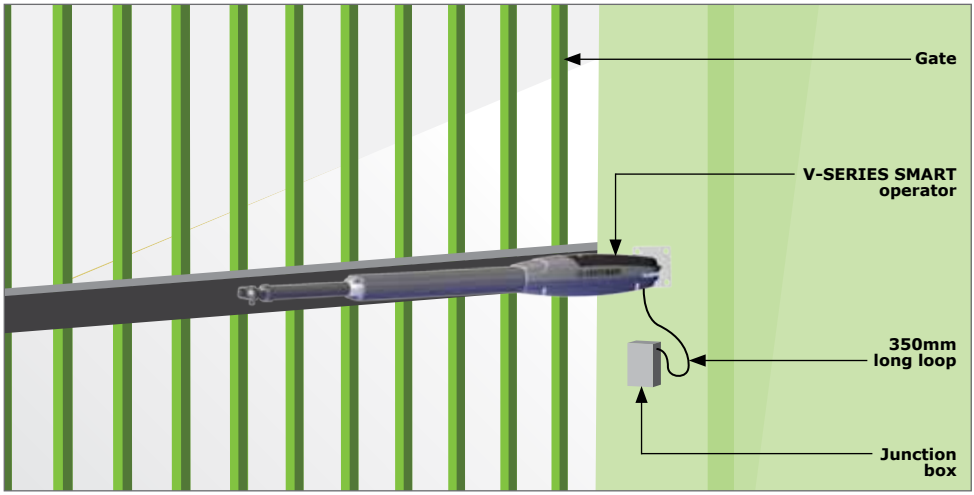


FIGURE 41

- **It is essential that the cable is tied off in such a way that a 350mm long loop is formed between where the cable exits the back of the operators, and either the mounting bracket or Wall Box, in order to minimise flexing of the cable**
- **If a sharp bend is introduced to the cable, or a loop that is less than 350mm in length is used, the resulting cable fatigue, or excessive tension on the cable, may cause the operators to behave erratically or to stop operating altogether**

Connect the charger and battery correctly.

Ensure the Battery polarity is correct!

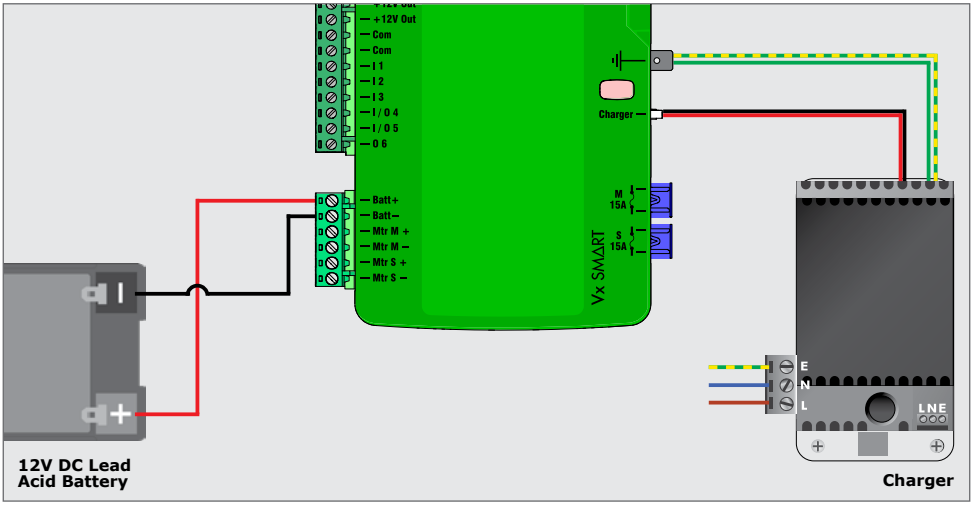


FIGURE 42

8.2.1. Wiring Diagram Symbols

The Wiring diagrams depicted on the following pages show the wiring of the **V-SERIES SMART** Master and Slave Motors to the **Vx SMART Controller**, as well as the wiring of the most commonly used ancillary devices to the **Vx SMART Controller**.

Where applicable, an icon has also been provided to indicate whether the connection should be Normally-Open or Normally-Closed.

The icons used as well as their denotive meanings are given in the following section.

To ease the installation, the gate motor wiring should be wired as per the images below.

This ensures that on the first run of the motor in limits setup mode,

- the gate will always run open for an inward-opening gate
- the gate will always run closed for an outward-opening gate

In both cases this will ensure that the piston retracts on the initial movement of the gate.

8.2.2. Wiring the Master Operator

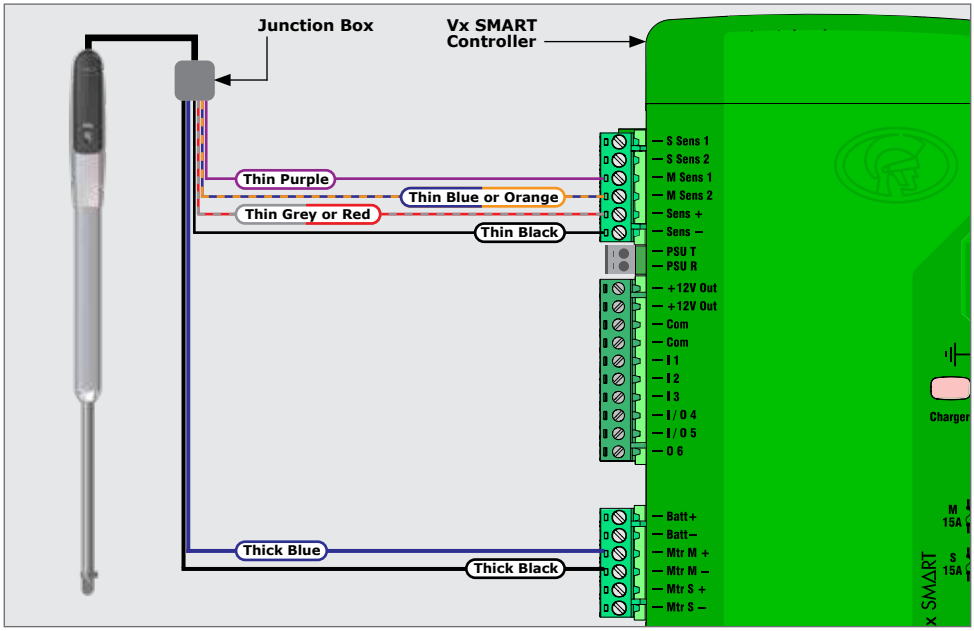


FIGURE 43

8.2.3. Wiring the Slave Operator

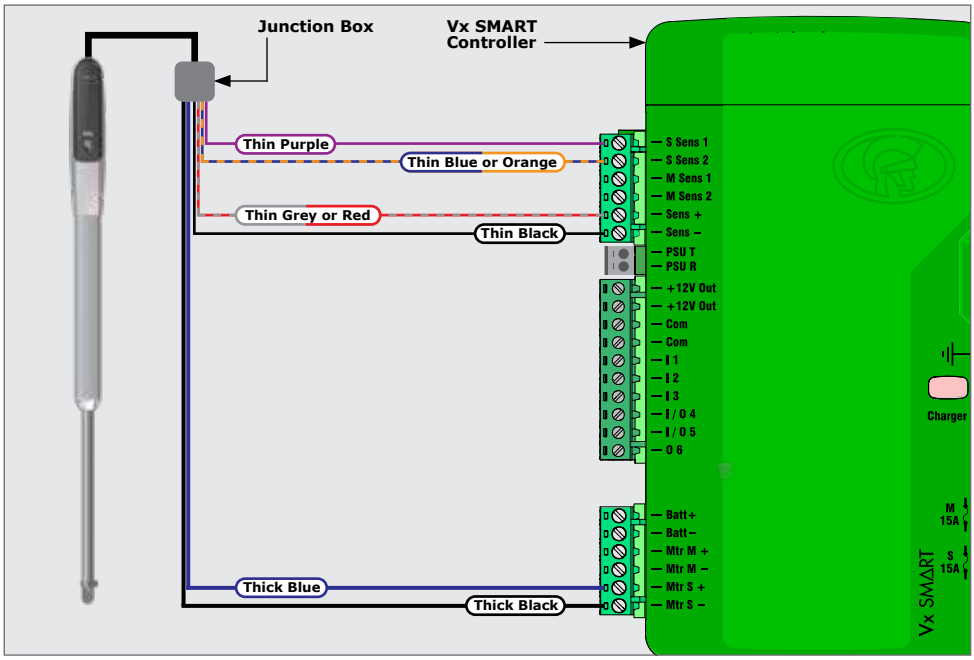


FIGURE 44

8.2.4. Wired Closing Safety Beams (i5)

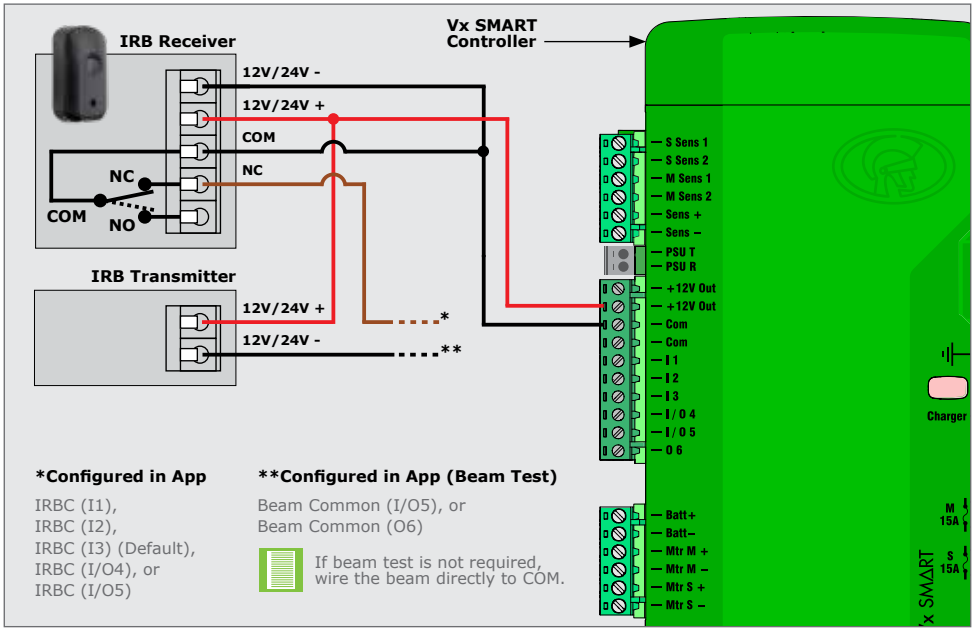


FIGURE 45

8.2.5. Double-Wired Closing Safety Beams (i5)

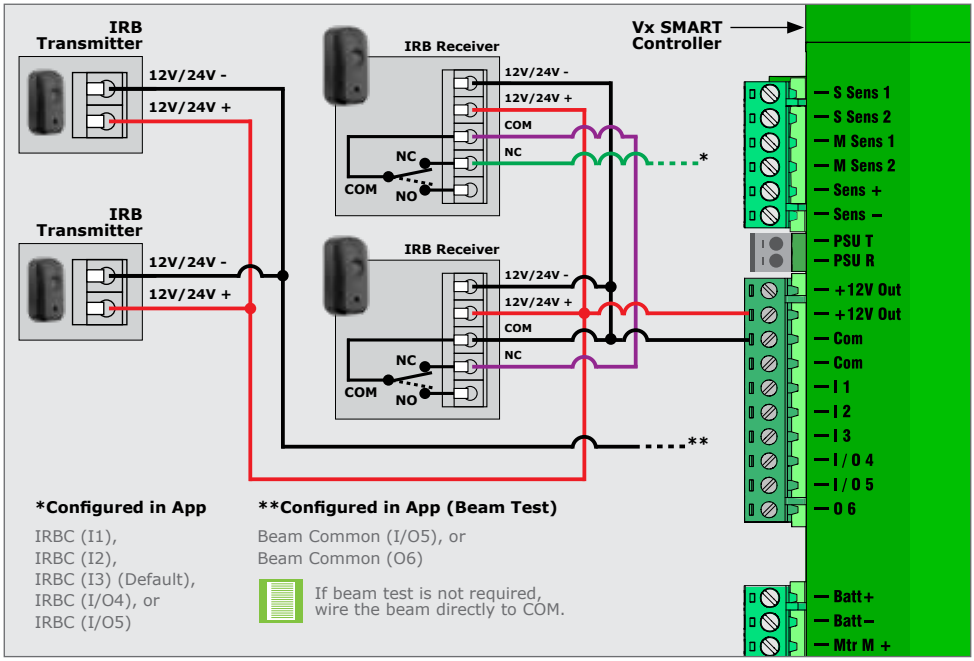


FIGURE 46

8.2.6. Wired Opening Safety Beams (i5)

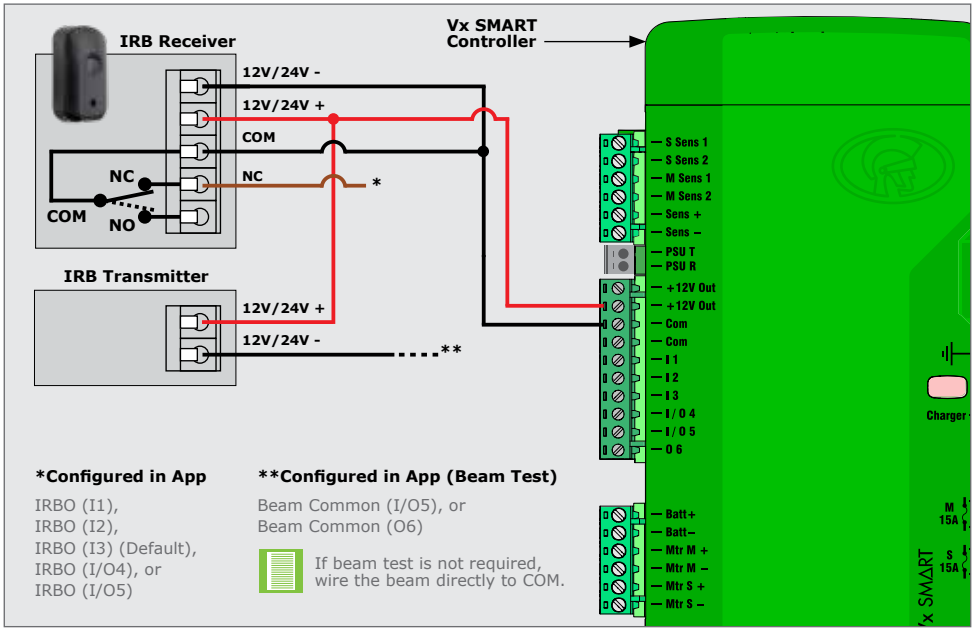


FIGURE 47

8.2.7. Wired Closing Safety Beams (Photon)

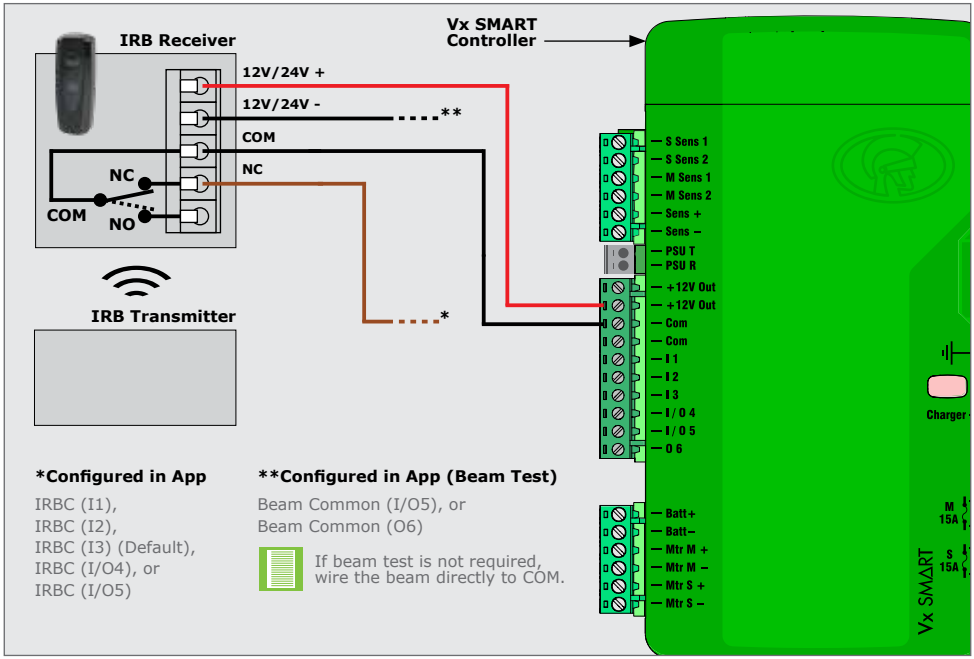
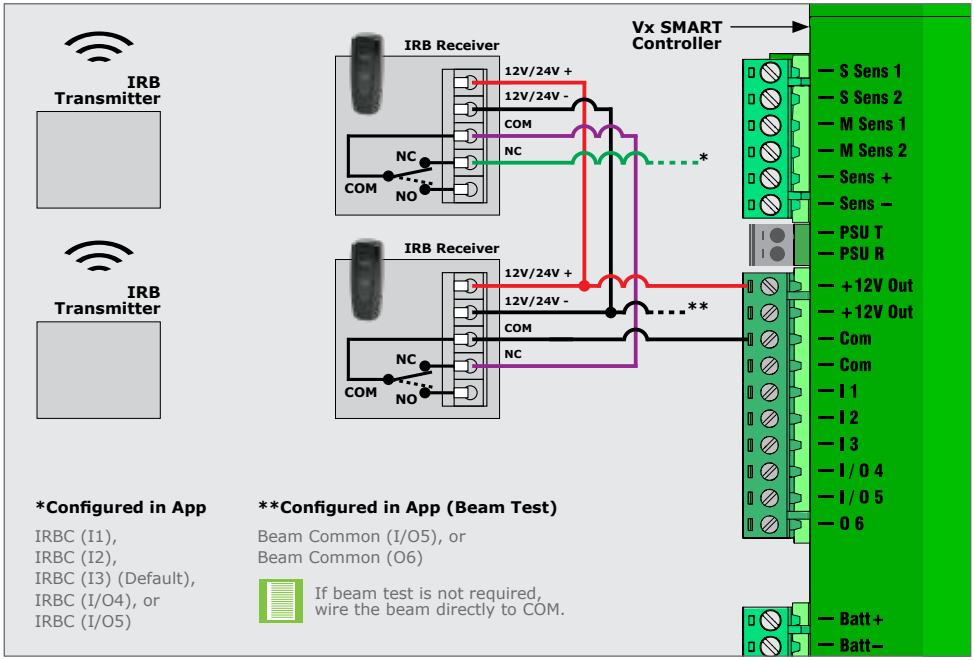


FIGURE 48

8.2.8. Double-Wired Closing Safety Beams (Photon)



***Configured in App**

IRBC (I1),
IRBC (I2),
IRBC (I3) (Default),
IRBC (I/O4), or
IRBC (I/O5)

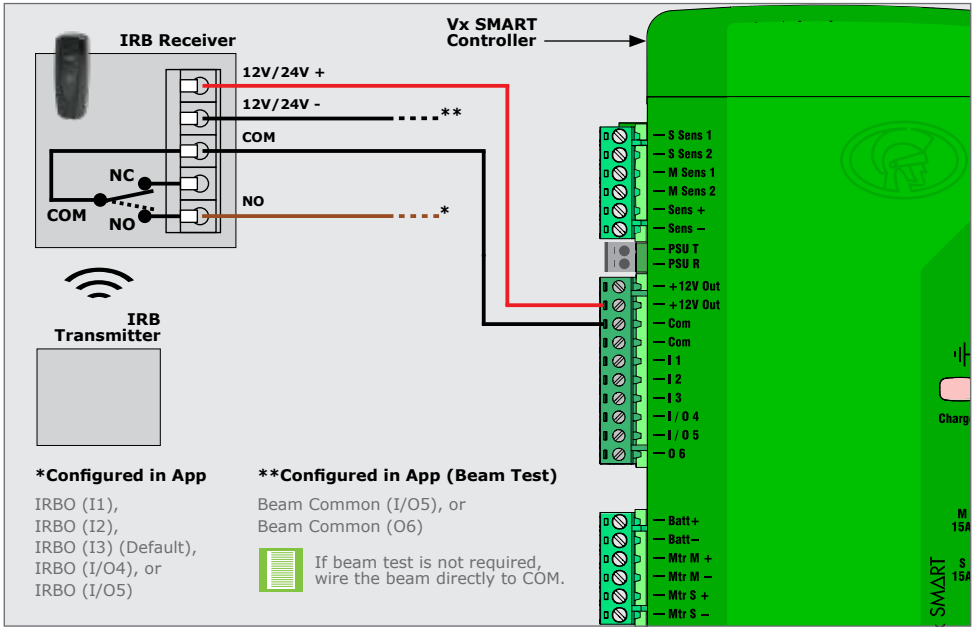
****Configured in App (Beam Test)**

Beam Common (I/O5), or
Beam Common (O6)

If beam test is not required, wire the beam directly to COM.

FIGURE 49

8.2.9. Wired Opening Safety Beams (Photon)



***Configured in App**

IRBO (I1),
IRBO (I2),
IRBO (I3) (Default),
IRBO (I/O4), or
IRBO (I/O5)

****Configured in App (Beam Test)**

Beam Common (I/O5), or
Beam Common (O6)

If beam test is not required, wire the beam directly to COM.

FIGURE 50

8.2.10. Photon SMART Wireless Safety Beams

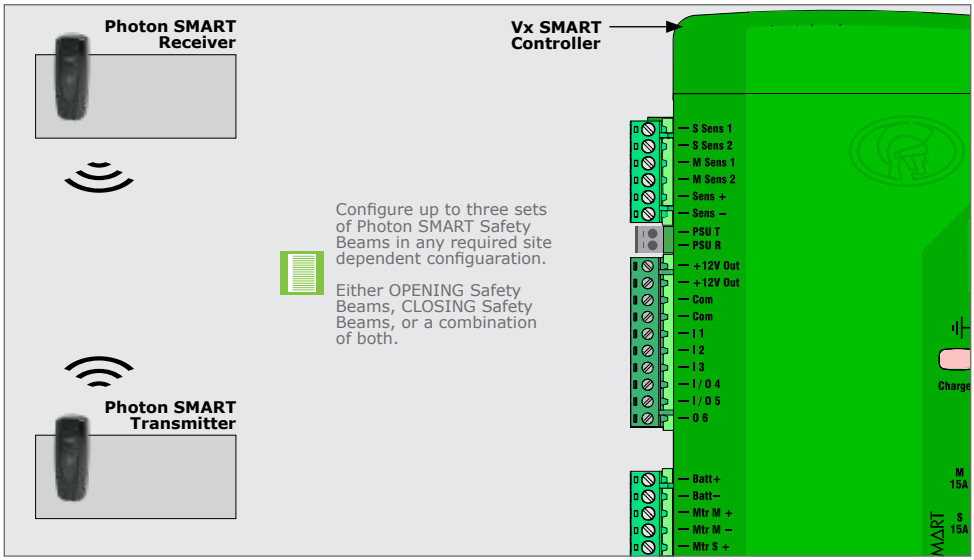


FIGURE 51

8.2.11. GLX900 Electronic Lock

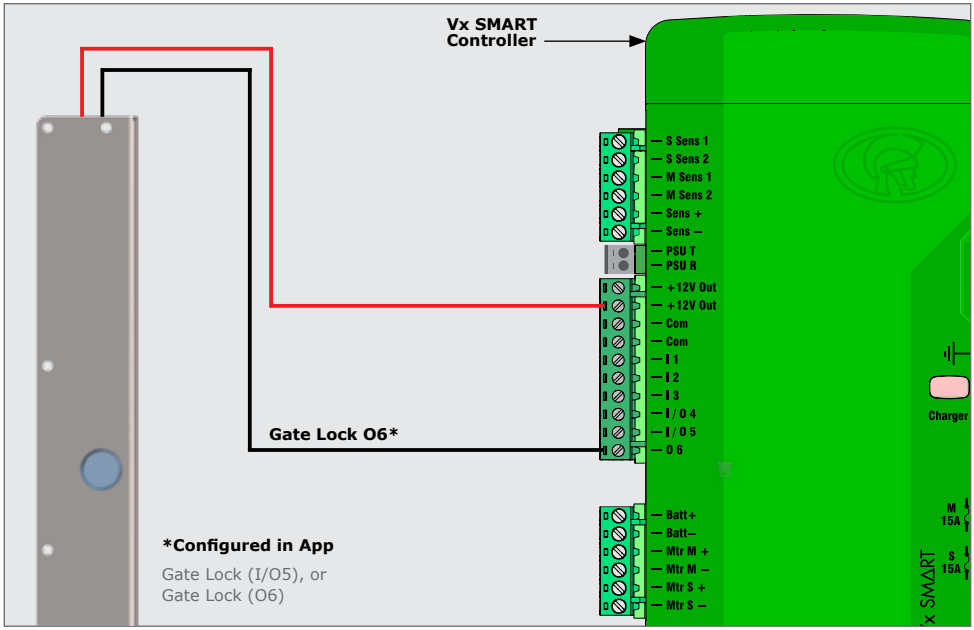


FIGURE 52

8.2.12. Wiring for MagLock to Vx SMART Controller

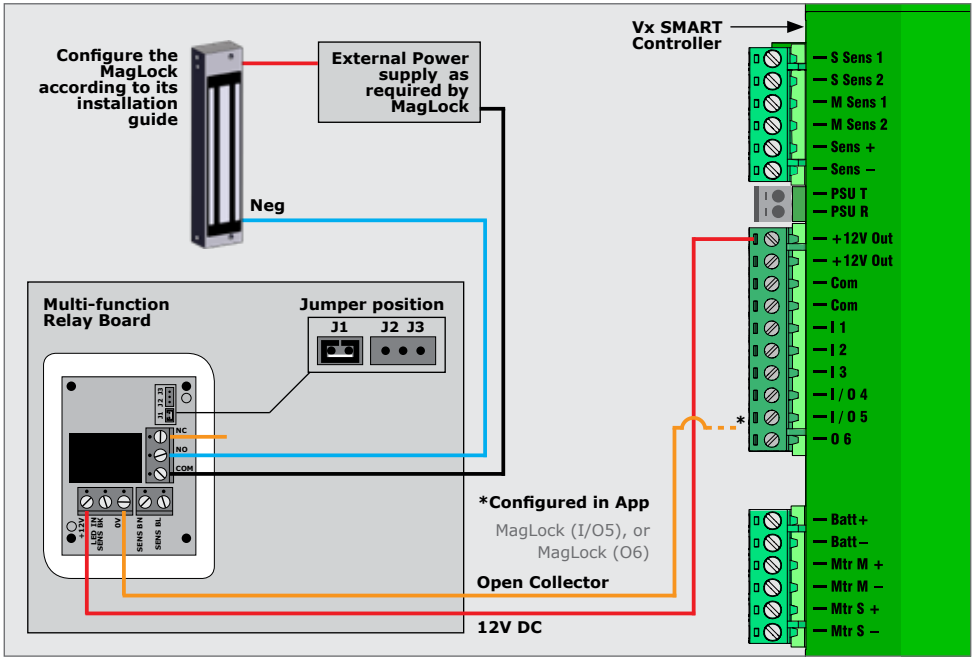


FIGURE 53

When using a Maglock on either I/O5 or O6, it is essential to use an interposing relay to energise and de-energise the Maglock.

For proper Maglock operation, the Maglock must fully demagnetise. The **Vx SMART** Controller's built-in protection for Strike Locks, prevents the Maglock from demagnetising correctly.

8.2.13. Status LED

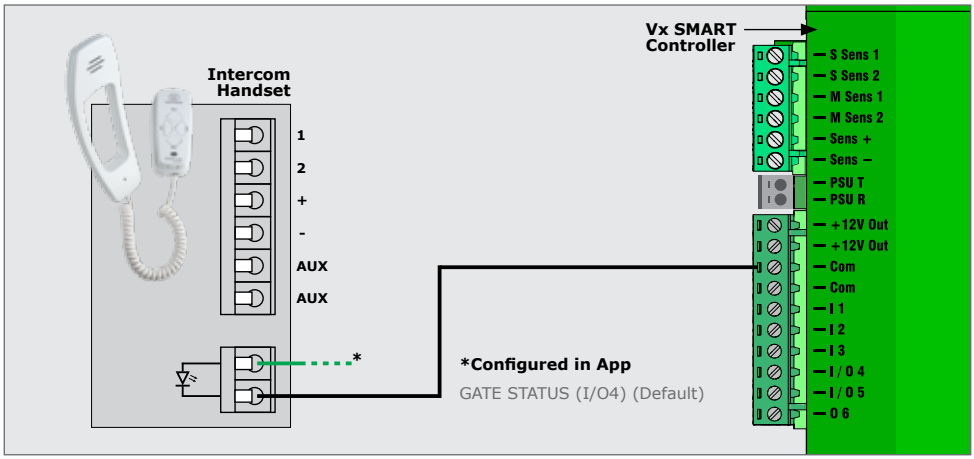
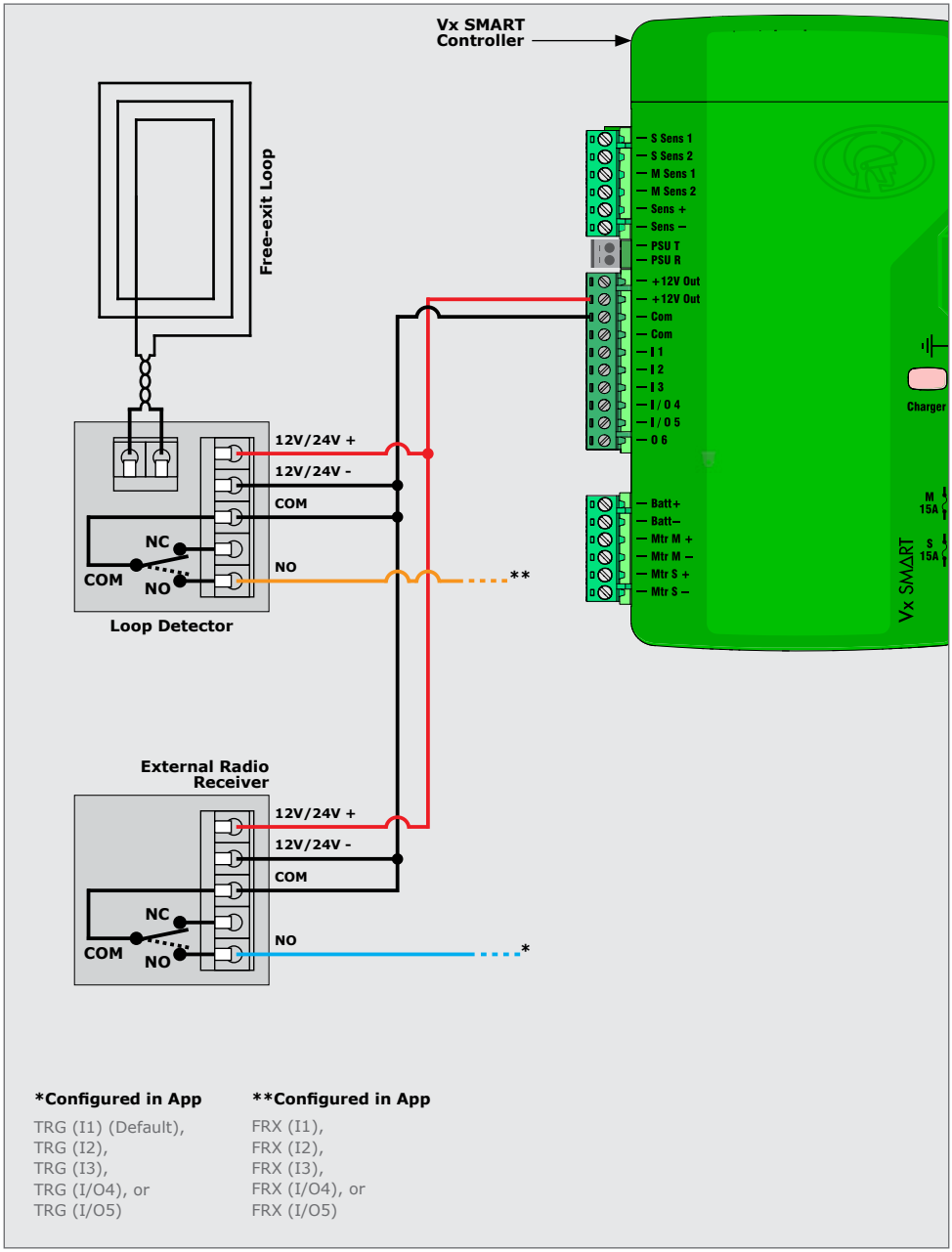


FIGURE 54

8.2.14. External Radio Receiver & Loop Detector



*Configured in App	**Configured in App
TRG (I1) (Default),	FRX (I1),
TRG (I2),	FRX (I2),
TRG (I3),	FRX (I3),
TRG (I/O4), or	FRX (I/O4), or
TRG (I/O5)	FRX (I/O5)

FIGURE 55

8.2.15. Holiday Lockout Keyswitch/Keypad

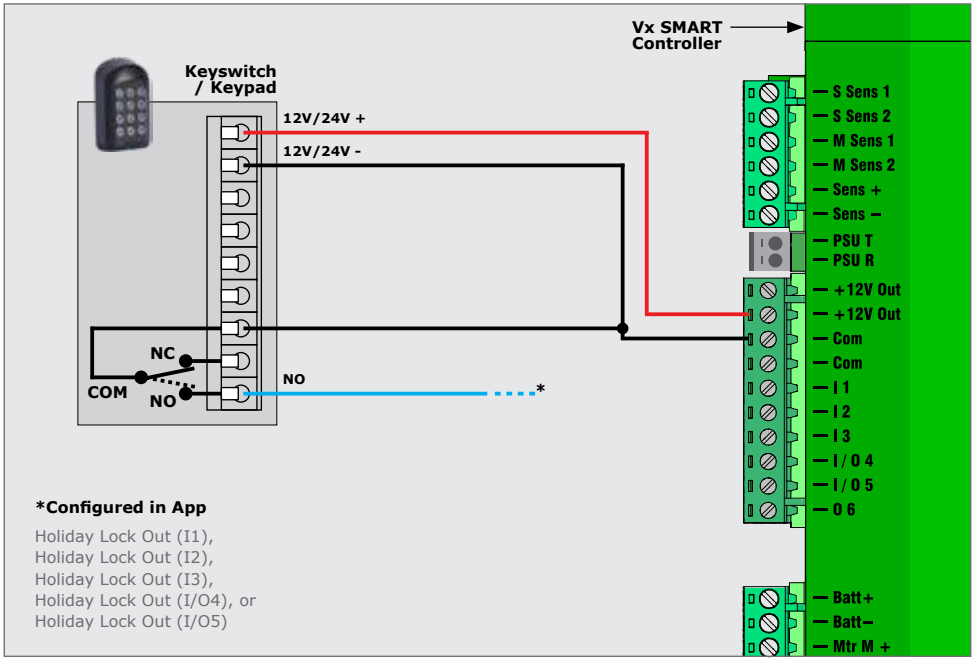


FIGURE 56

8.2.16. Pedestrian Keyswitch

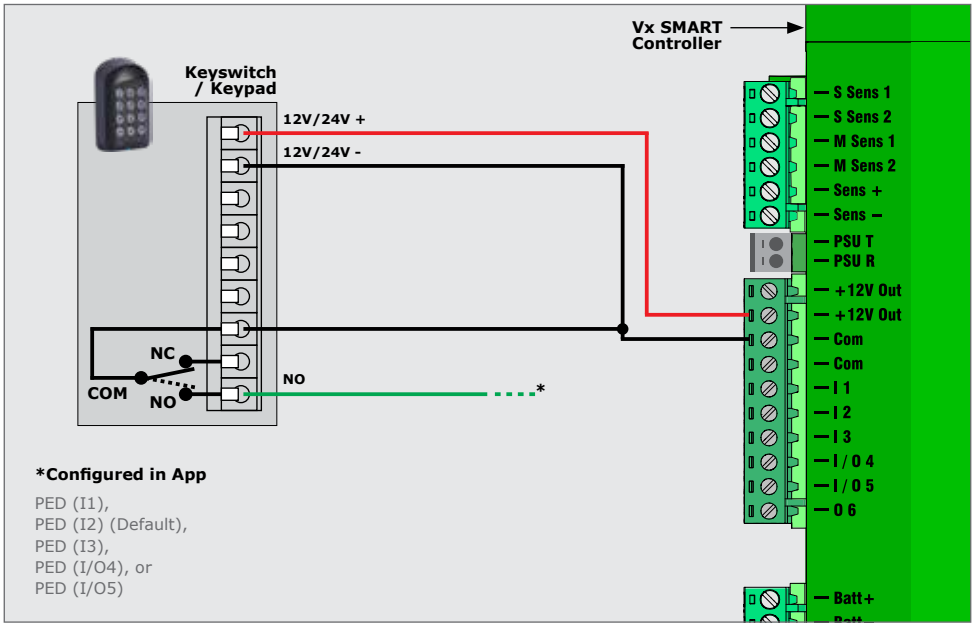


FIGURE 57

8.2.17. G-ULTRA to Vx SMART Controller

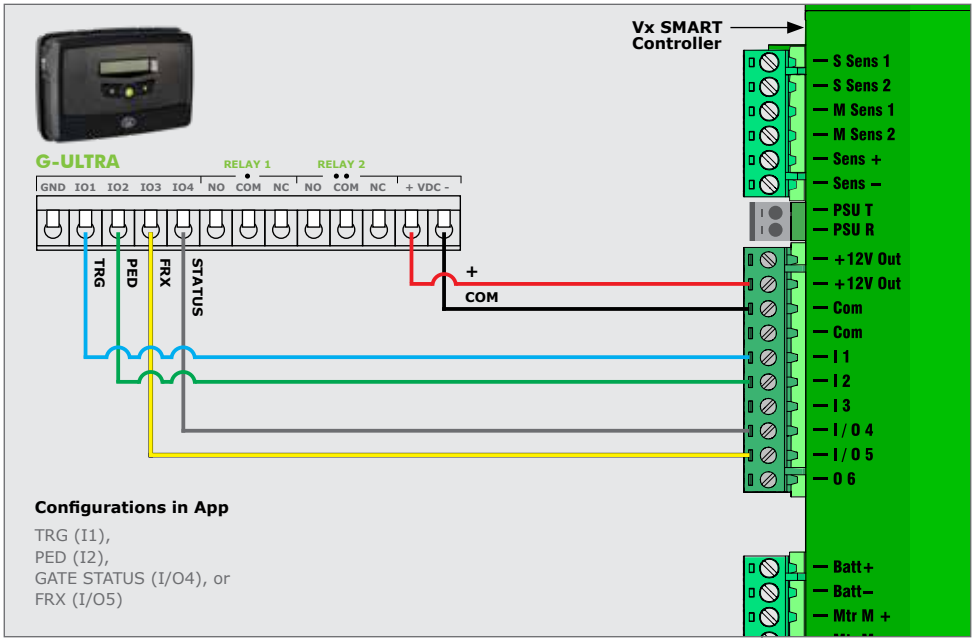


FIGURE 58

8.2.18. Solar Panel

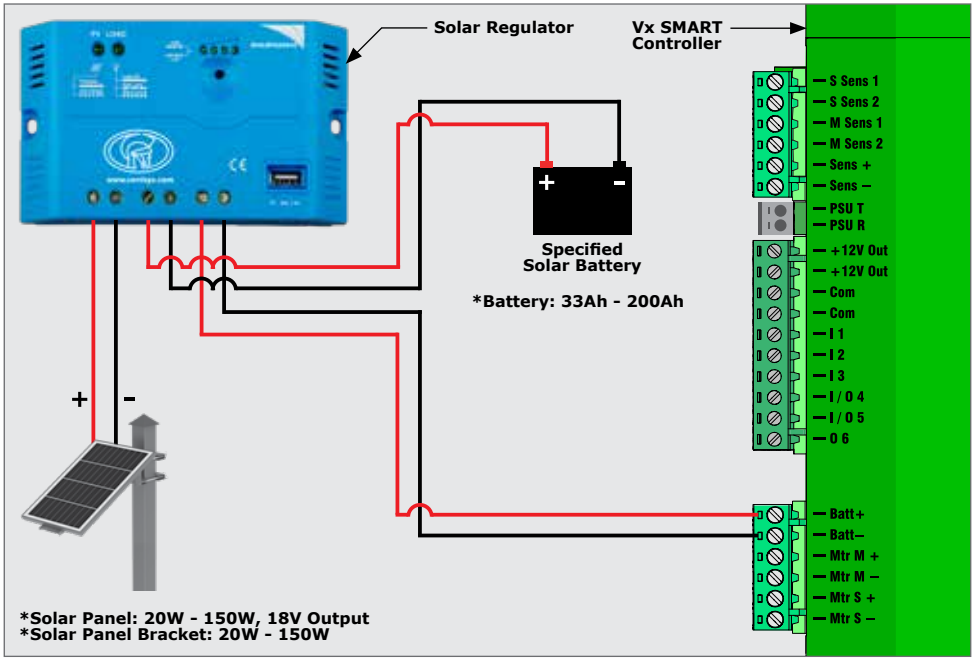


FIGURE 59

8.2.19. Pillar Light Pushbutton - Normally-Open

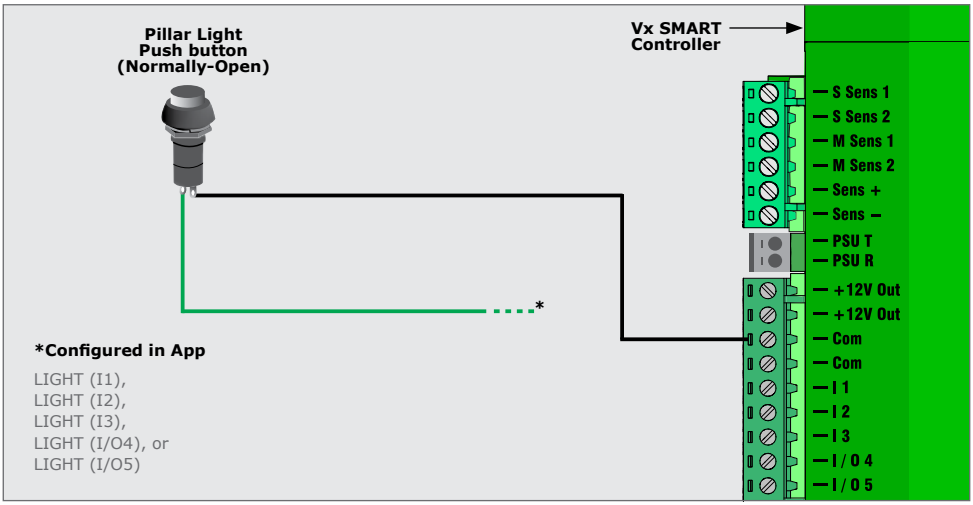


FIGURE 60

8.2.20. Pillar Light Wiring

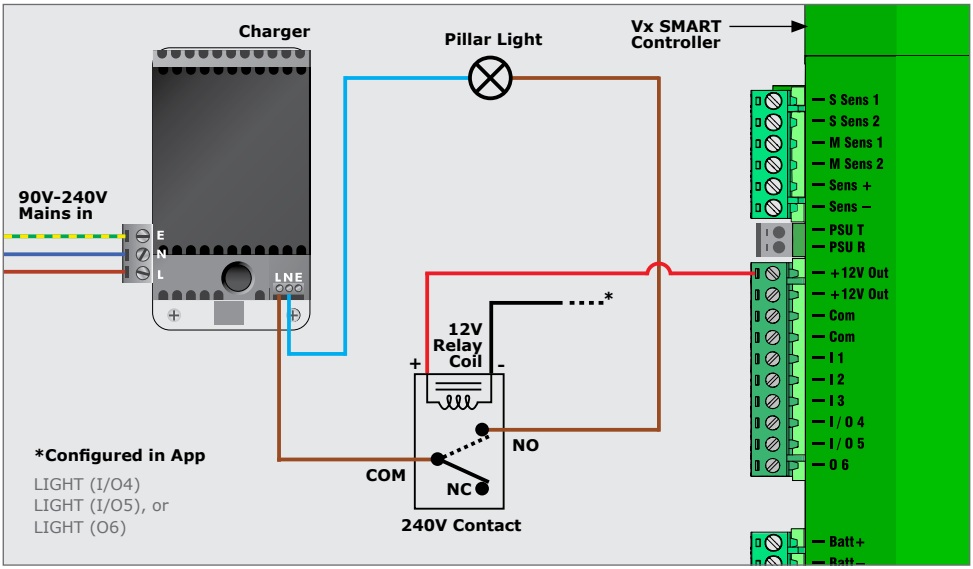


FIGURE 61

8.2.21. 12V Siren to Vx SMART Controller

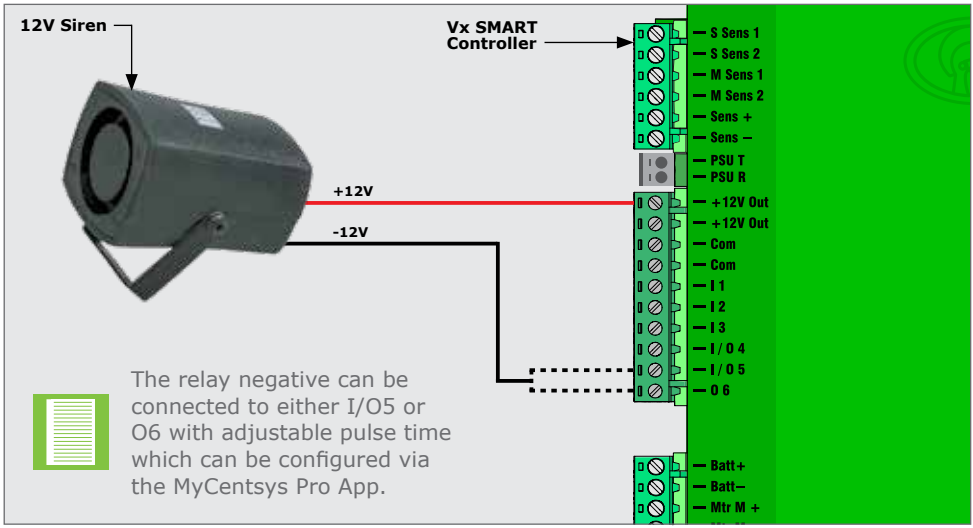


FIGURE 62

8.3. Fuse Protection

	Type	Rating
Main Control Card	Serviceable	2 x 15A
Aux. Supply	Resettable Fuse	
Charger (Mains Supply)	Non-serviceable	3A slow-blow

TABLE 26

8.4. Commissioning the System

1. Scan the QR Code in Figure 63.
2. Select the App Store applicable to the operating system being used, either Apple App Store, Android Google Play Store or the Huawei App Gallery.
3. Download and install the application.

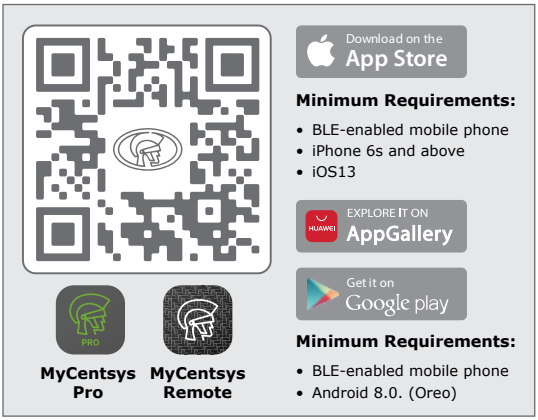


FIGURE 63

Alternatively, go directly to the app store of the operating system being used, and search for the app "**MyCentsys Pro**". Download and install the application onto the smartphone.

1. Once installed, open the application.
2. From the list of operators, select the operator that is applicable to this installation.
3. Connect to the relevant operator.
4. Use the app by following the prompts to configure the **V-SERIES SMART**.

8.4.1. MyCentsys Remote Application

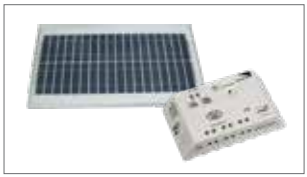
Introducing an intuitive and user-friendly commanding hub for all SMART and ULTRA devices. MyCentsys Remote puts the ultimate in control and flexibility at your fingertips, delivering an all-in-one, fully-customisable experience for your compatible access automation solutions. Download MyCentsys Remote free by scanning the QR code.

1. Scan the QR Code in Figure 63.
2. Select the App Store applicable to the operating system being used, either Apple App Store, Android Google Play Store or the Huawei App Gallery.
3. Download and install the application.

Alternatively, go directly to the app store of the operating system being used, and search for the app "**MyCentsys Remote**". Download and install the application onto the smartphone.

1. Once installed, launch the application.
2. Register with the relevant details.
3. Select the "+ SMART".
4. From the list of operators, select the operator that is applicable to this installation.
5. Wait for the device added message after tapping on the selected operator.
6. Select the operator on the home screen to view all available triggers and device status.

9. Product Ancillaries



Solar Supply Solution
Alternative means of powering the system - consult your CENTURION dealer



Photon SMART Safety Beams
Fully-wireless infrared beams. Always recommended on any SMART automated installation



Pedestrian keyswitch
Basic key-operated switch for allowing access for pedestrians



G-ULTRA
The ultimate GSM solution for monitoring and activating the operator via your mobile phone



G-SPEAK ULTRA
Answer your intercom from anywhere for maximum security and convenience - powered by 4G technology



Gate Station
Communication hub for the G-SPEAK ULTRA GSM intercom



SMARTGUARD or SMARTGUARDair Keypad
Cost-effective and versatile wired and wireless keypad, allowing access to users with a customised code



FLUX SA Loop Detector
Allows free-exit of vehicles from the property - requires ground loop to be fitted



12V-24V SMART Siren
A top-notch security companion, designed to seamlessly integrate with your existing SMART gate and garage door operators



Intercom Handset
Allows visitors to communicate with people inside in order to gain access to the property



Controller Wallbox
A fully weatherproof wall-mounted enclosure for the operator's controller electronics

10. INSTALLATION HANDOVER

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 they know 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
- DO NOT CROSS THE PATH OF A MOVING GATE. Always keep people, pets and objects away from a moving 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
- Avoid close proximity with moving parts where fingers, hands or clothing could be pinched and caught
- Secure all easily-accessible 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 to ensure 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 documented herein. Any other uses not included herein, could compromise the operating condition 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.**

11. WARRANTY INFORMATION



You can register your product(s) online at www.centsys.com, which will assist you in keeping a record of your date of purchase or installation, serial numbers, etc.

All of our products are manufactured with extreme care, thoroughly inspected and tested.

The goods supplied by us shall be subject to the provisions of sections 55 to 57 of the Consumer Protection Act (68/2008) except where the provisions of the warranty contained in our product documentation are more favourable to the purchaser.
Subject to the warranty contained in our product documentation, if applicable, our products are warranted for a period of twenty-four months after delivery.
However, it is expressly noted that batteries carry a six month warranty due to the nature of these products being such that they are subject to possible misuse. Please note that warranties will be honoured on a carry-in basis; in other words, the product in question must be taken in to one of our branches, or to the authorised reseller that the product was purchased from, for assessment and, if necessary, repair. For equipment not of our manufacture, the warranty as supplied by the original manufacturer will apply if such warranty is more favourable to the purchaser than the relevant provisions of the Consumer Protection Act (Act 68/2008 of South Africa), or any other applicable law as so required in different countries in which the product was sold.
Such warranty is valid only once full payment has been received for such goods.

Australian customers:

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure

Any warranty may be voidable on any equipment which:

1. Has not been installed in accordance with the installation instructions provided.
2. Has been subject to misuse or which has been used for any purpose other than that designed for by the manufacturers.
3. Has damage caused as a result of handling during transit, atmospheric conditions (including lightning), corrosion of metal parts, insect infestation, power surges or other forces outside of the control of the manufacturer.
4. Has been repaired by any workshop and / or person NOT previously authorised by the manufacturer.
5. Has been repaired with components not previously tested, passed or authorised by Centurion Systems (Pty) Ltd, South Africa or one of its subsidiary companies.

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