

Sun-Power XP Series Intelligent Gate Controller

INSTALLATION - OWNERS MANUAL



**Please do not commence installation
until you have read this instruction booklet**

Sun-Power Auto Gates

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DEAR INSTALLER / OWNER

Congratulations on your purchase of the Australian Made **Sun-Power XP Series** Automatic gate operator. The **XP** operator is a breeze to install. It has been researched, designed and manufactured to be a reliable operator with almost non-existent maintenance required. To save you time and make installation easier the **XP** has a pre-wired control circuit board and placed under the steel weatherproof cover together with the motor/gears etc. This means that you do not have to spend time wiring up to a separate control box.

Circuitry for most options is already included. You simply have to connect up the external devices with no extra boxes or cables required. The design features in the **XP Auto Gate Operator** will save you hours on site keeping the installation neat and tidy. Apart from the physical attributes the control circuit has some powerful operating features. These can be adjusted on-site without modification to suit a range of situations.

This manual should answer most of your questions regarding the installation and operating of the **XP Gate operator**. If further information is required, please contact us.

Note the **XP Gate operator** can be purchased as a single gate operator (Primary) which comes complete with the Logic Control Circuit Board and can be installed on either the left- or right-hand side. The dual set includes the above as well as a Secondary (Slave) operator that does not have the Logic Control.

Introduction

The Sun-Power XP Automatic Gate Operator is an electronically controlled Automatic gate operator for swing gates. The **XP** has a range of features that are built in and some options available and can be used in a variety of situations.

Solar Power / **240Volt AC** / **12 Volt DC**

- Inward or Outward swinging gates
- Restricted side room applications
- Single Gate or pair of Gates
- 90° to 130° opening

A powerful control system gives the flexibility to change some important characteristics of the operation which include

- Automatic Close / Signal to Close
- Sensitivity to obstacles
- Multi-User function

The control system Operates with a wide range of devices also allows for the addition of the following:

- Electric locks
- Photoelectric cells (12V DC)
- 'Palgate' & 'Omgate' for Mobile phone operation

For all its sophistication the **XP** gate operator is extremely reliable and its robust construction ensures a long trouble-free life.

Please ensure you read these instructions carefully and any other instructions supplied then simply follow the step by step instructions.

ESSENTIAL INFORMATION

PROTECT YOUR WARRANTY Do's & Don'ts

If you do not understand these instructions, or you have any doubts, it is most important that you contact us before you apply any power from any source to the unit or you may void your warranty.

The **XP Gate Operators** are suitable for gates that are correctly hinged and operate smoothly and evenly both before and after the **XP gate operator** is fitted. The **XP gate operator** will drive a variety of gate styles sizes and weights. Keep in mind that a clad gate is 'A Big Sail'

IMPORTANT

DO NOT connect to any 240-volt power, solar panel or battery if you do not understand any of the instructions. DO NOT connect the RED spade terminal to the battery until you are ready to set the limit switches.

The **RED** spade terminal is supplied disabled from the battery (Not connected to the battery)

Figure 8 Cable to Slave Motor must be protected in conduit,

Damage to this cable could result in moisture entering, this will prevent the operator from working correctly

All power (240 volt/battery/solar panel) MUST be disconnected before moving Logic Controller (circuit board) to change battery.

**Do not expose any circuit/control board or any electronic circuitry to any
MOISTURE RAIN LUBRICANTS INSECTIDE SPRAY**

Installation: Standard Installation (PULL)

A “Standard installation” is one where the gate(s) open by swinging INWARDS towards the motor housing. The gate hinge should be no more than 200mm from the rear of the pier/post. Sideroom of 350mm is required to accommodate the swing of the arms. If there is restricted sideroom please refer to that section

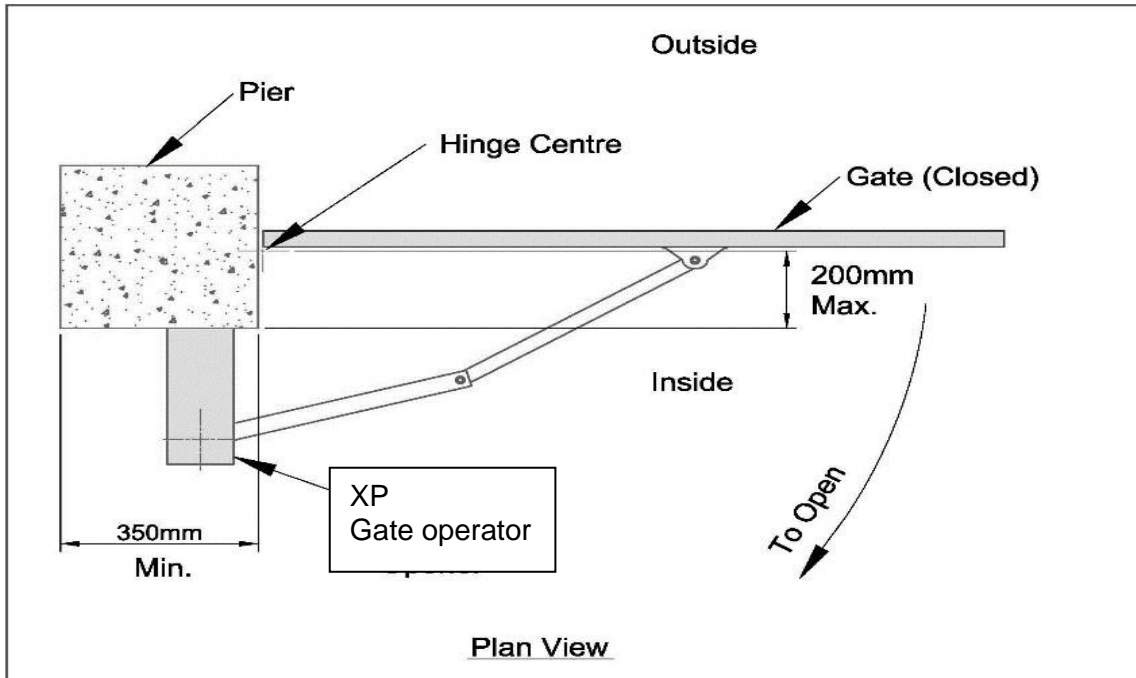


Figure 1: Standard installation.

Installation Procedure:

1. Ensure that the gates swing freely and that all existing latches/pad-bolts/chains etc are disabled or removed from the gate & gate posts
2. When using a 240v unit, the Master operator (the one containing the circuit board) should be fitted to the gate post nearest the power supply. Remove the cover(s) from the operator to access the slotted fixing holes in the rear of the chassis. Bend the tabs out and bend them back against the rear of the chassis, in this position they act as a spacer allowing the clearance for the cover(s). **NOTE** do not remove these tabs—just bend them out and fold them back unless you are using the OPTIONAL mounting plate.
3. Position each unit on the gate post(s) approximately 50mm from the edge of the pier/post. The vertical position is found by locating the gate bracket. The gate bracket is best placed where there is adequate fixing on the gate and the movement of the arms is unrestricted (See Figure 2). The gate operator may now be bolted in place.

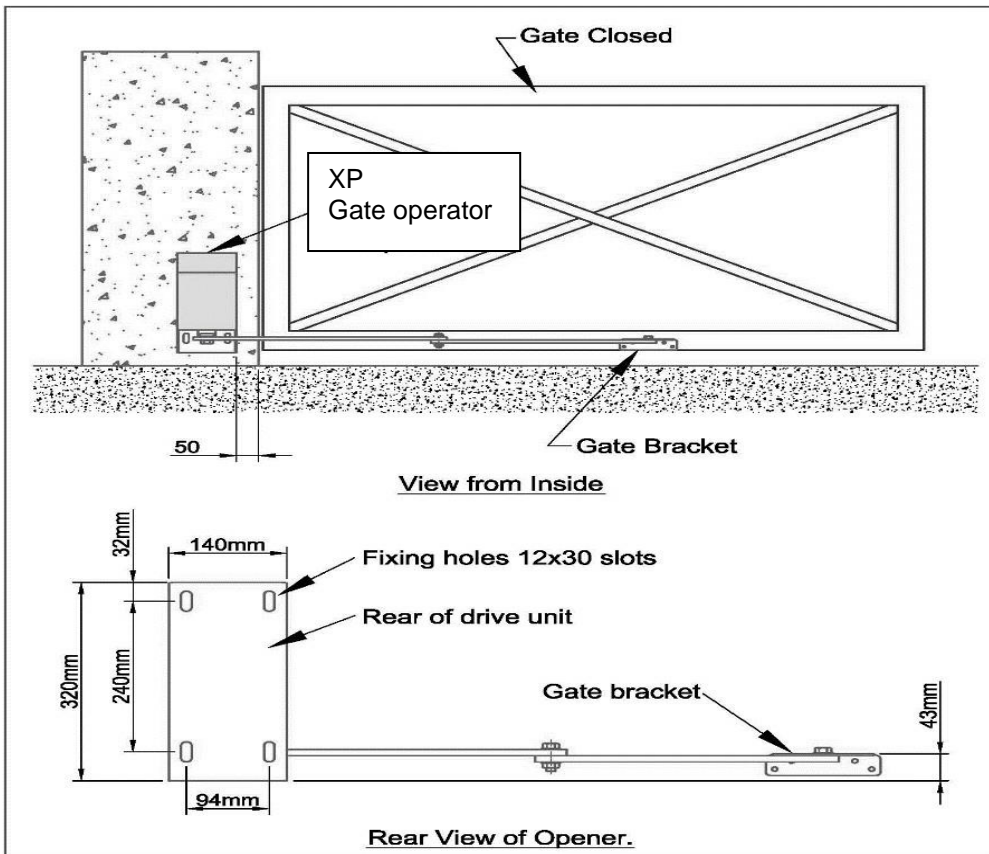


Figure 2: Position of operator.

4. If you have a pair of Gates, connect the SLAVE to the MASTER unit with Fig.8 2 core Flex/Cable (Max load 8 Amp at 12 Volts).

Note: This cable is supplied in Dual Gate Kits

DO NOT alter any pre-wiring except Brown & Blue.

Altering pre-wiring (except motor polarity Brown & Blue) will compromise your warranty.

The **XP** operators are set in the factory for a “standard installation” with the MASTER placed on the left-hand side (inside looking out). If the master has to be located on the right then the motor wires need to be reversed. To accomplish this, locate the connection blocks for each motor on the Circuit Board. Swap the **BROWN** and **BLUE** wires for Motor 1 and 2

(See figure 3 “Master-Slave connections)

Figure 3 Connections

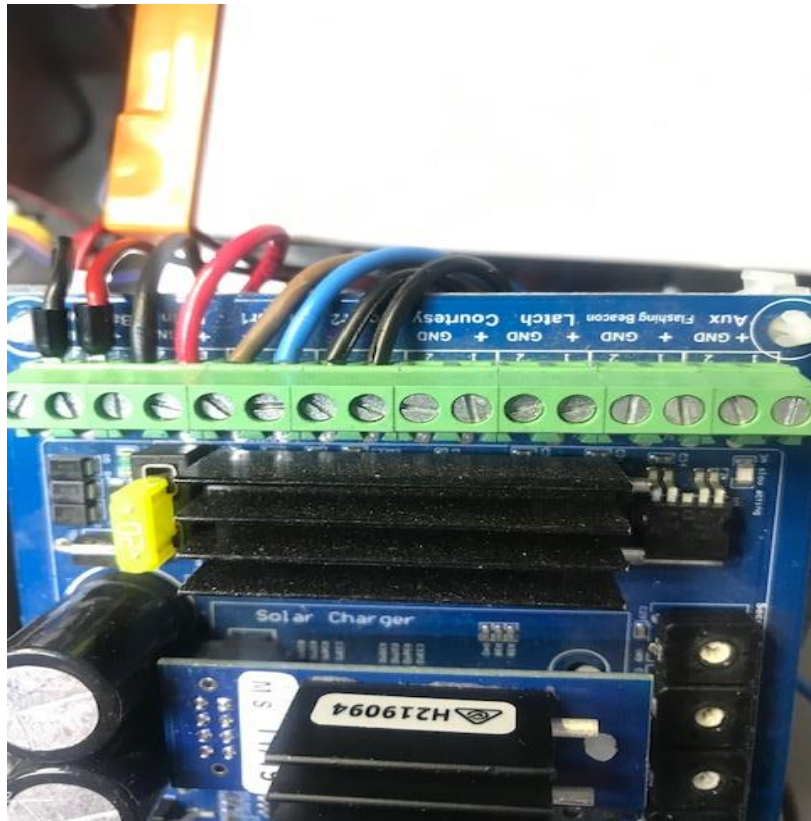
Cables

1 & 2 Black & Red
From Battery

3 & 4
Black & Red
From Solar Input
or T/Former
If 240/12v

Brown & Blue
Output to Motor 1

Black & Black
Output to Motor 2
[Slave]



5. The gate bracket should be positioned so the arms are ALMOST in a straight line when the gates are closed (see figure 4). To check the location of the gate brackets first disengage the Main arm from the drive shaft (using the spanner provided unscrew the bolt until the arm swings freely) then clamp the gate bracket in position. Open and close the gate to ensure the gate bracket is appropriately located.

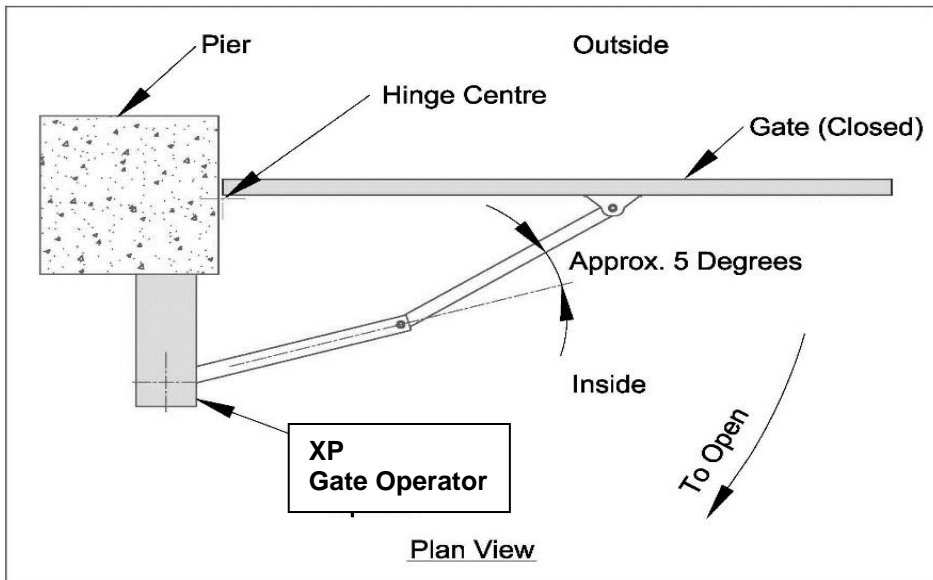


Figure 4: Standard installation.

6. Connect power (12-volt 24 volt or solar) to the primary operator and connect the battery. The limit switches may now be adjusted (see figure 5) Each of the
7. Master and Slave operators has its own pair of cams, one to set the open position and one to set the closed position. **Firstly, mark the position of each cam as a reference point before you loosen the screw holding the cams.** Operate the LI-2B operator with the transmitter and note which cam controls opening and which operates the closing motion (the cam activates a limit switch to turn off the motor).

Reposition each cam and operate the **XP** again. Repeat until the gates open and close to the required positions.

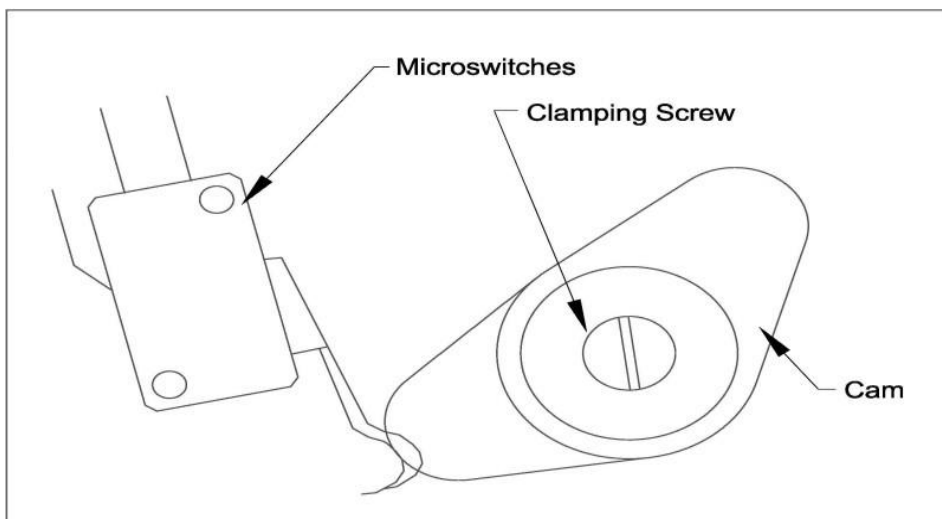


Figure 5: Limit switches

Side Mount Installation

The **XP Gate Operator** may be mounted sideways, with the long side against the pier/post for extra flexibility. This feature is very useful for situations where (refer to figure 6)

The gate must swing further than 90 degrees. The gate swings outwards and it is positioned at least 400mm forward of the back of the pier/post

See also section on out swing installation

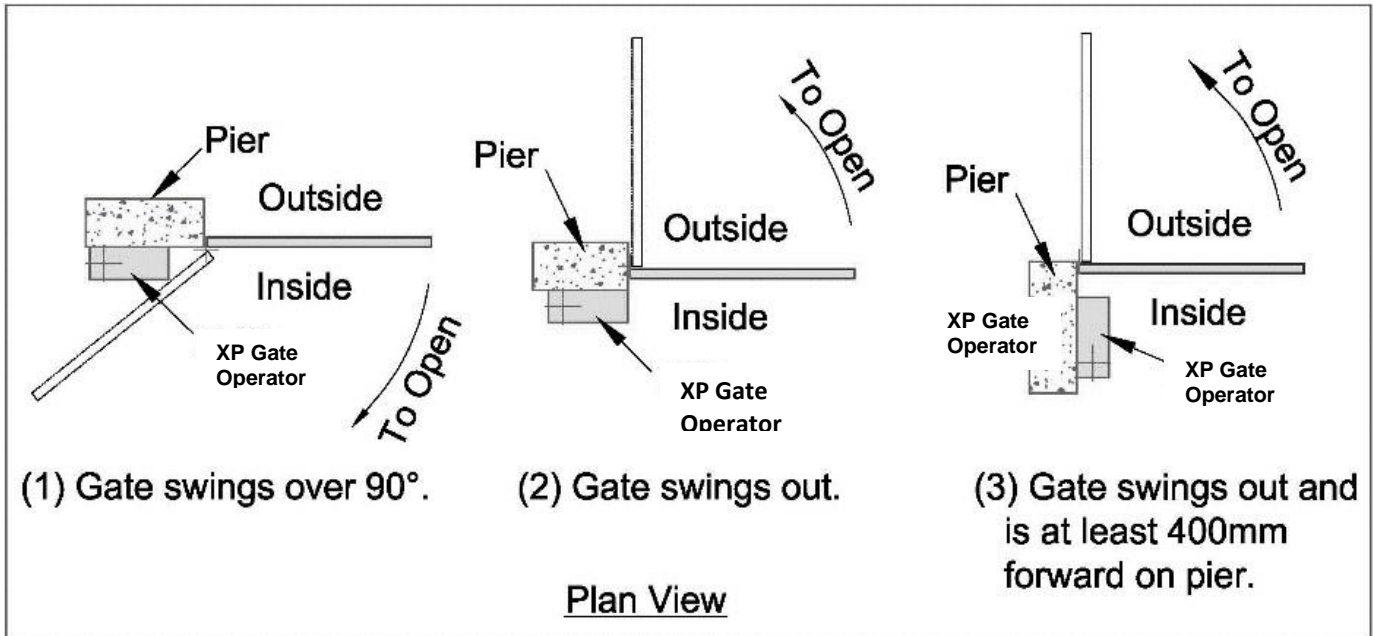


Figure 6: Side mount installations.

Each **XP** operator should be fitted to the pier/post with its output

Shaft close to the gate hinge. With this in mind, the standard installation instructions may now be followed. Special covers are supplied to suit this type of installation.

Restricted Side Room Installations

This term is applied to the situation where the movement of the standard arms cannot be accommodated within the side room available. In most situations this problem can be overcome by cutting down the secondary arm (the link joining the gate to the primary arm).

This new length can be approximated by the following procedure:

1. Move the primary arm to a position suitable for the closed gate, remembering that in the closed position, the primary **and** Secondary arms must stop short of a straight-line alignment (see figure 7)

NOTE

Do not remove these tabs—just bend them out and fold them back to allow space for cover to slide on to the chassis. There is no need to bend them back if you are using the OPTIONAL mounting plate.

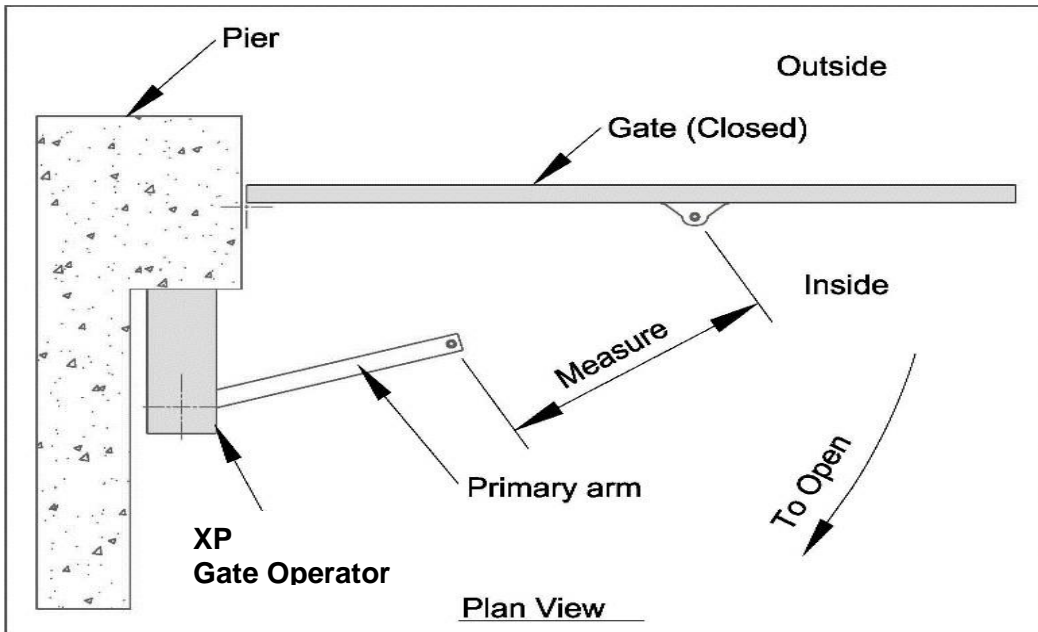


Figure 7: Measure length of secondary arm.

2. Mark a point on the gate suitable for the gate bracket. Holding the gate bracket in position, measure the distance between the hole centres on the gate bracket and primary arm. Move the primary arm to its maximum open position. Open the gate and measure the distance again (See figure 8). If the length has changed then the gate bracket must be re-positioned and the same process repeated until the dimensions remain the same for both positions. **Be careful that the secondary arm does not conflict with the drive shaft of the primary arm.**

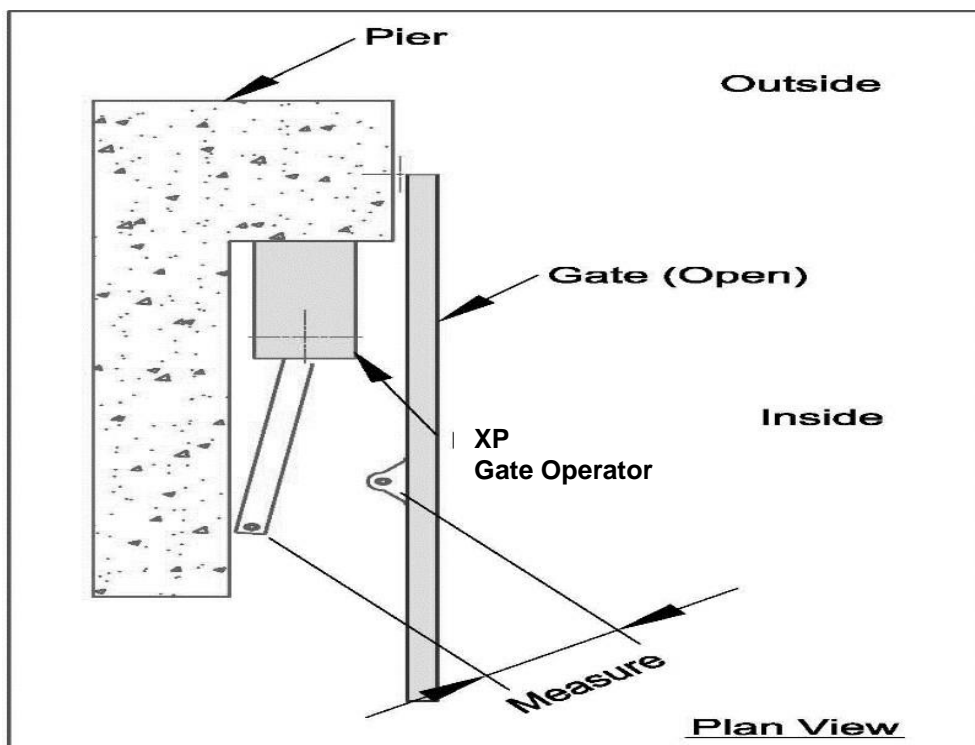


Figure 8: Re-measure length of secondary arm.

Once the dimensions are consistent a new hole can be drilled in the secondary arm and the arm trimmed to suit. The gate bracket and secondary arm should now be fitted.

Out-Swing Installation (PUSH)

In this type of installation, the gate swings outward, away from the **XP** operator to the open position.

Several factors must be considered to determine the most suitable arm length. These include

- The Drive through width required
- The Placement of the Gate Operator
- The location of the Gate on the post/pier

Possible measurements include width between piers/posts, size of piers/posts, single or double gates, position of hinges on piers/posts etc.

Note: the polarity of the motor connections may need to be reversed for out-swing installation.

RESET. This button needs to be pushed after changing dip switches



DIP SWITCHES The dip switches are used to switch between the modes:

1	OFF		ON	Auto Close
2	OFF		ON	Auto Close with Security Close
3	MAG N.C		ELE N.O	Electronic Lock (on) / Magnetic Lock (on)
4	OFF		ON	Pedestrian Auto Close

Electronic Lock NO/NC Dip switch is used to choose between electronic lock **NO [Normally Open]** Magnet Lock or **NC [Normally Closed]**

Pedestrian Auto Close: A DIP switch will select whether the leaf will stay open even if the system is in auto or security close modes. **Only Dipswitch [1] & Auto close are ON**



Security Delay	Auto Delay	Courtesy Time	Motor 1 Delay	Flash Time	Motor 1 Current	Motor 2 Current	Motor 1 Speed	Motor 2 Speed
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TRIMPOTS

Motor 1 – Speed Potentiometer will set the maximum speed for motor 1

Motor 2 – Speed Potentiometer will set the maximum speed for motor 2

Motor 1 – Max Current Potentiometer will set the maximum current for motor 1, used to detect obstruction

Motor 2 – Max Current Potentiometer will set the maximum current for motor 2, used to detect obstruction

Flashing Time Potentiometer will set the time before auto/security close activation for the flashing light to be activated

Motor 1 – Close Potentiometer will set the time delay for motor 1 to close from activation

Auto Close Potentiometer will set the time delay for door to close in auto mode. This will also act as the timeout in security close mode

Security Close Potentiometer will set the time delay for door to close in security mode

Courtesy Light Potentiometer will set the activation time for the courtesy light to remain on

Standard Operation

On input from either Remote control / Push button/Mobile Phone/ Keypad one gate begins to open. The lock output is also activated for 3 seconds. If you have a pair of Gates then after 2 seconds the second gate begins to open.

Gates will fully open unless they meet an obstruction in which case the gate(s) will stop and wait for further signal. If closing Gate(s) meet an obstruction they will reverse to the open position.

Auto Close Mode

Gates will automatically close after selected delay

Security Close Mode (Multi User)

This function is for when the **XP** Gate operator is installed for multi-users (eg flats, apartments etc). In this mode the gate operator will ignore close signals and continue to open

Pedestrian mode

Select this mode for limited Pedestrian opening

Settings

Overloads – the overloads are pre-set to maximum sensitivity (eg slight pressure will cause the operator to STOP if it is opening or STOP & OPEN if it is closing. Note if these functions are reversed (the gate STOPS when closing and STOPS and REVERSES when opening then the polarity of the motor

There is ONE overload for each gate as indicated on the main circuit board (Refer Figure 9). To reduce the sensitivity on the main circuit board, turn the overload dials in the **anti-clockwise** direction. **BE CAREFUL** large reductions in sensitivity may allow the gate(s) to exert excessive pressure on people or vehicles trapped in the path of the gate(s).

Motor 1 Delay – Turning the dials/trimpots anti-clockwise gives the minimum delay. Turning the dials/trimpots clockwise will give the maximum delay.

Auto Close – the operator control board is supplied with a dip-switch installed on the Board. This allows the gate to automatically close after a specific period. This period is adjustable (refer figure 9).

- Turn “auto delay” dial (trimpot) clockwise to increase the hold open time delay before gate closes automatically
- Turn/dial trimpot anti-clockwise to shorten the hold open time delay before gate closes automatically

Push-button / Key-Pad etc– Wireless Keypads & Hardwired Keypads are available from **Sun-Power** to operate the **XPoperator**. Input should be in the form of a **MOMENTARY CLOSED CIRCUIT**.

WARNING! Voltage must not be applied to these terminals. Damage to the circuitry will result if voltage is applied. Devices that send a Voltage Pulse (as some intercoms do) must be connected to the circuit board through a relay.



**INPUT CABLES
FOR WIRED
PUSH BUTTON**

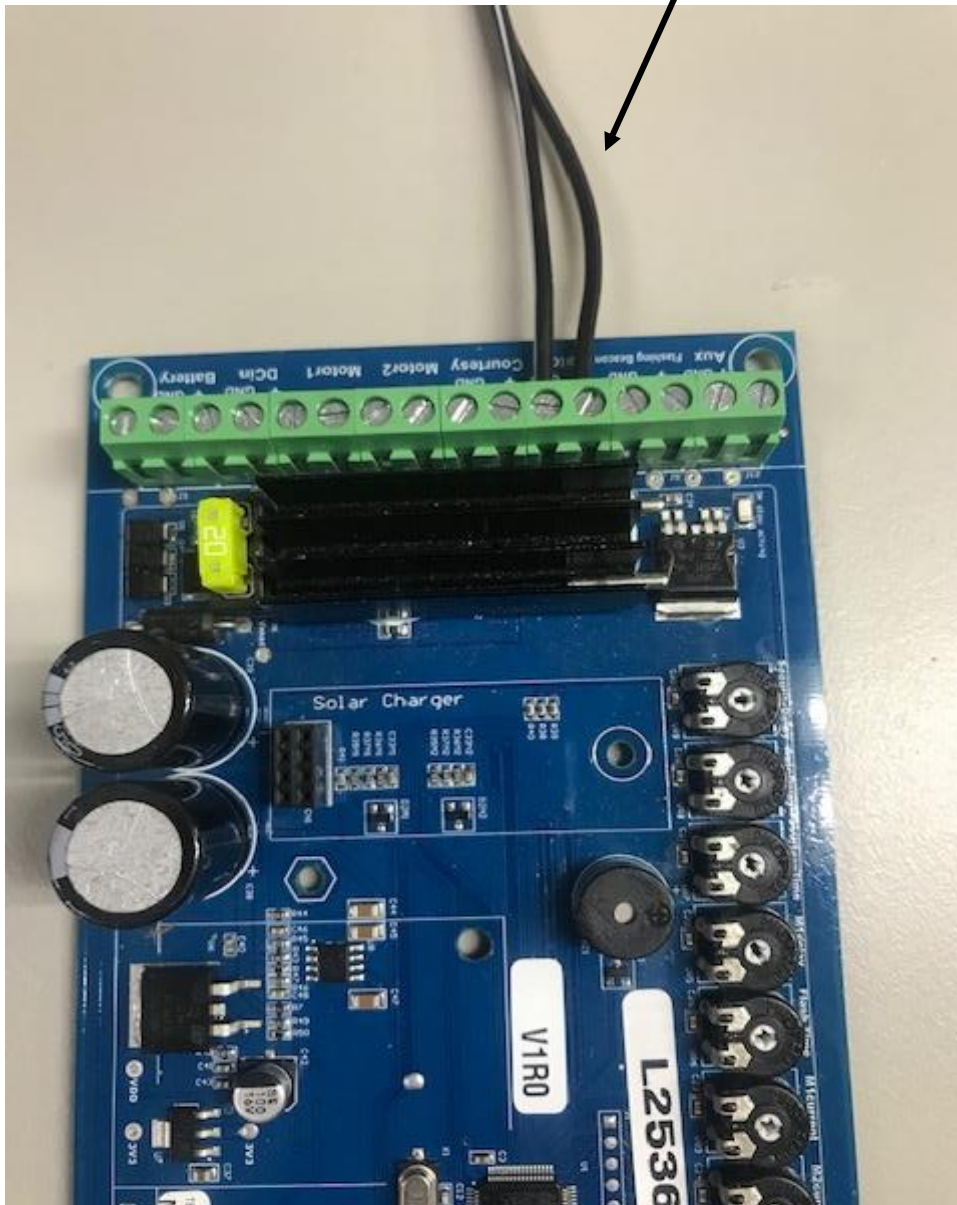
**WIRE BRIDGE
WHEN NO SAFETY PE BEAM**

Photo-electric safety cell [Optional] [12-volt operators only] – An appropriate photo electric safety cell (**PE**) may be fitted to detect obstructions in the path of the gate(s). The **PE** will check for obstructions during the closing cycle only. If an obstruction is encountered the gate(s) will reverse to the open position. If the gate is set in the automatic close mode the gate(s) will remain open until the obstruction is cleared.

Wires from the **PE** should be attached to the appropriate connection block (see figure 9)
Note: extra power consumption will occur when using Photoelectric Cells so extra size Panel and battery will be required when gate(s) are operating on solar power only.

Electric Lock / Mag Lock- Connection for an electric lock/latch (EL) are provided on the circuit board. (see figure 9). This connection block will supply 12 Volts to energise the lock at the beginning of the opening and closing cycles.

OUTPUT to LATCH - LOCK



Solar Wiring

DO NOT connect solar panel until all other settings and adjustments have been completed.

Step 1. Locate the two-way terminal connection block on top plate near motor. This will have **Red (positive)** and **Black (negative)** wires. Connect solar panel direct to it.

Connect
SOLAR PANEL

Red to Red

Black to Black



IMPORTANT

As a connected solar panel delivers a charge, the solar panel must be covered or Disconnected when any work or wiring is being done on the control board (other than when adjusting trim pots or limit switches)

Step 2

Locate **RED** wire with spade terminal (which will be disabled from Positive on Battery). Connect this wire and you are ready to set your limits.

Negative **BLACK** wire is already connected

Locate Positive Wire (**RED**)

Connect **RED** wire to **+** on battery

Note:

XP gate operator kits (solar, 240 volt and 12 volt) are supplied complete with a 9 Amp hour battery. This battery should be checked regularly.

TROUBLESHOOTING

Poor range with the radio transmitter (Tx).

Tx10 Standard transmitters are factory tested to 200 metres.

Range will vary at different locations

Gate Operator Kit includes a 433Mhz Antenna + Radio Receiver (Rx).

Poor range may occur for several reasons. The first two things to check are:

- The Battery in the Tx [Transmitter/Remote Control]
- Antenna installation and wiring

Note: Livestock have a habit of chewing cables add protection as necessary

Other causes may be interference from other Radio Sources such as

- Electric fences
- Baby monitors
- Other local transmitters

Here the best solution is to remove the external source. If this is not possible the problem may sometimes be solved by using special frequency transmitters and a matching Radio receiver (Rx).

These are options that must specifically be ordered.

Other faults may be due to incorrect settings. Refer to the “settings” section of this manual to ensure the settings are correct.

SOME OPTIONS



[RX500 Standalone Radio Receiver. Ideal for fitting to most Roller & Panel lift doors to allow use of Tx10 Remote Control on BOTH Gate & Garage Door \\$105.00 each](#)
[Note: Input power supply must be 12/24v DC](#)



**PALGATE SG-30-3GA-WR
Remote Mobile
Phone Access
SIM Card required**

**PALGATE
SG-30-4GA-WR-
T21Combination
Mobile & Remote
Control Access Remotes
SIM Card fees will apply**

**Ext. Range
antenna available**



**PALGATE
'Bluetooth'
SG B10 LITE
ACCESS CONTROL**

Programming Transmitters

Important: The Radio receiver, Remote Controls and Digital KeyPad are generally pre-programmed. Instructions below are for re-programming if necessary.

Remote Control (TX10)



1. Press & immediately release the '**LEARN**' button **On Radio receiver module** (red light will turn on)
- 2) Now Immediately Press preferred button on remote (e.g. 'A' or '1') and hold for 2 Seconds or until gate begins to drive.
N.B. Sequence needs to be fairly quick.

Design & colour of remote controls may alter.



SPXPPB-RAD-2
Wireless Push
button
with 2 position key
switch.
Button active -
Button inactive

Push Buttons
program the same
way as Remote
Controls

DK50 Wireless Keypad For domestic use ONLY



Keypad batteries are fitted with an isolation strip – please remove this strip before using.

- 1) Enter pin code in to keypad (factory default = 1234).
- 2) Press & release '**LEARN**' button (red light will turn on)
- 3) Press & hold **# Key** on keypad until gate motor responds.

N.B. Sequence needs to be fairly quick.

TO CHANGE KEYPAD's PIN CODE:

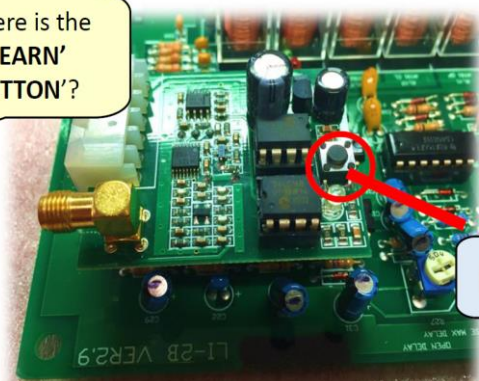
Use existing code
(e.g. 1234 by factory default).

- 1) Punch in the current code.
- 2) Then press the * key.
- 3) Enter the new code.
- 4) Press the * key again.
- 5) Enter the new code again.
- 6) Press the # key.

When buzzer sounds for 1 second, the change is complete.

**Sequence example:
1234*8552*8552#**

Where is the
'LEARN'
BUTTON'?



Here

Programming your Transmitters: Troubleshooting Remotes and Keypads/ FAQ

I tried changing the pin code on my wireless DK50 keypad. Now I can't remember the new code!

Easily remedied! To reset back to factory default (1234), disconnect the keypad's battery for 15 seconds.

Press and hold the * and # keys together. Keeping them held, reconnect the battery. A 1-second buzzer will sound to confirm the reset. If you get a 3-second beep, you're doing it wrong.

I tried to program a new remote control and/or keypad to the receiver and now NONE of my remote controls work!

Another mistake that is easily remedied! When you tried to program your new transmitter, you possibly held the Learn button down for too long. If held for 6 – 8 seconds (or longer), the receiver will delete all previously programmed transmitters (remotes & keypads etc). This is a security feature that is useful when an employee leaves but takes their access remote with them. In deleting all codes, you have accidentally accessed a function normally reserved for technicians only. Simply re-program your remotes and this time only press the programming button until **RED** light comes on. The Learn sequence needs to be done *quickly*.

I press the button on my remote and the little light on it isn't coming on. My gate won't open either!

Sounds like a flat battery in your remote! Time for a new one. Your local hardware store should have the right battery to suit your remote.

I press the buttons on my keypad but it's not making any beeps like it used to. What do I do?!

Sounds like a flat battery! Time for a new one! Your local hardware store should be able to provide you with replacement batteries.

There's a green LED lighting up on my keypad. Normally it's red. What does that mean?

That's the early-warning light to let you know that your battery is almost completely flat.

We had someone do some work on our fence last week and now my remote control and keypad do not work.

Electric fences can interfere with communication between your transmitters and the receiver module inside your motor. Have you got your aerial connected to your receiver? Is it mounted properly?

Details & Freight Dimensions Sun-Power XP Series Auto Gate Operators

Chassis & Case 245mm High x 140mm Wide x 335mm Deep

Primary arm. Pivot centres 540 mm Secondary arm. Pivot centres 545mm

Sizes & Weights of various Kits:

XP 100 Single 240v Kit

1 Ctn. 360mm x 325mm x 150mm + 1 Bundle 700 x 75 x 75mm 21 Kg

XP 100/300 Double 240v Kit

2 Ctns. 360mm x 325mm x 150mm + 1 Bundle 700 x 75 x 75mm 38 Kg

XP 200 Single Solar Kit

1 Ctn. 360mm x 325mm x 150mm + 1 Ctn 610 x 415 x 170mm 25 Kg

XP 200/300 Solar Double Kit

2 Ctns. 360mm x 325mm x 150mm + 1 Ctn 610 x 415 x 170mm 40 Kg

XP 300 Slave Operator with Arm assembly & gate bracket

1 Ctn. 360mm x 325mm x 150mm

+ 1 Bundle [Arm] 700 x 75 x 75mm 22Kg

Warranty

Sun-Power XP Series Auto Gate Operators are warranted as follows...

Electronics: 1 Year Mechanical: 2 Years

All warranties implied or otherwise are "Back to Base"

ie;

Products under claim to be returned for warranty assessment/and or repair at buyer's expense. Sun-Power [SP] warrants to replace or repair individual components at their discretion, this may require client shipping component[s] [for Sun-Power to assess], at client's cost.

Record of Purchase: Date: ____/____/____

Purchased From: _____ Inv. No. _____

Product Purchased: _____

Serial No. _____

Notes: _____

[Type here]

