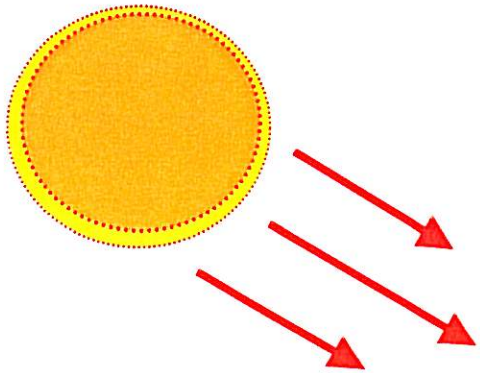
SUN – POWER Auto Gates:

Sun – Power reserves the right to make changes without notice so discrepancies may occur due to upgrades



SUN–POWER Auto Gates

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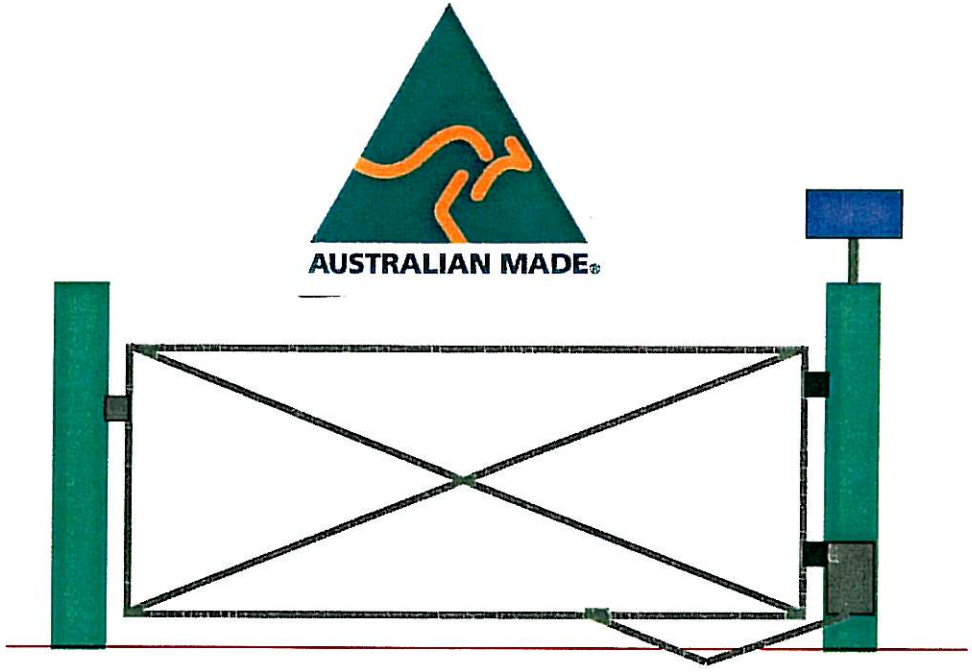
SUN-POWER

Australian made
Automatic Gate Operators

[a div. Of Progressive Controls P/L abn 99 085 262 862]



XP Series Solar - Electric – 12v
Intelligent Auto Gate Operator & Controller
Installation/Owners Manual

Please read & follow carefully

Please keep this Instruction Booklet for future use

Contents:

Dear Installer/Owner

This is your lucky day. Your SUN-POWER XP Series INTELLIGENT Automatic Gate Operator has been designed and built to make installation simple and maintenance almost Non - existent.

To save you time we have placed the Control circuit under the cover with 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. No extra boxes or cables are required.

These design features in the SUN-POWER XP Series Gate Operators will save you hours on site and the installation will be neat & tidy.

Apart from its 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 operation of the SUN-POWER XP Gate Operator.
If further information is required, please contact us.

Note:
Primary [Master] Operator has Logic Control Board
Secondary [Slave] Operator does NOT have Logic control
Primary Operator can be installed on LH or RH

Introduction:

The SUN-POWER XP INTELLIGENT Automatic Gate Operator is an electronically controlled gate operator for swing gates. A range of features are built in to the XP and some options are also available.

The XP can be used in a variety of situations.

- 240V AC -- 12V AC/DC -- SOLAR Power
- Restricted Side Room
- Single Gate or Pair of Gates
- Where a Gate is require to swing beyond 90 Degrees

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

- Automatic close
- Sensitivity to obstacles

The control system also allows for the addition of the following options.

- Operations of a wide range of devices
- Electric Lock
- Photoelectric cells

For all its sophistication the SUN-POWER XP Series are extremely reliable and it's rugged construction ensures a long trouble free life.

This SUN-POWER XP Auto gate Operator has undergone rigorous factory load testing and has been passed as ready for site installation.

Please ensure that you read these instructions fully and any other instructions supplied, then simply follow Instructions step by step.

XP series Swing gate operators are suitable for gates that are correctly hinged and operate smoothly and evenly both before and after the XP series Auto gate Operator is fitted.
XP Series Swing Gate Operators are suitable for and guaranteed when the following conditions are met.

" The XP Series Gate drive systems will drive a variety of gate Styles, Sizes & Weights.
Suitability is dependant on the quality of hinging and the ongoing force required at ONE Metre from the hinge center-point to open and close the gate,
15 Kg is the acceptable maximum for gates opening IN [PULL] and 7.5 Kg for gates opening OUT [PUSH]"

DO NOT connect to any 240V Power, Solar Panel or Battery if you do not understand any of the instructions, or have any doubts, then please ring us on 6280 4783 or fax or Email us re your concerns before you apply power to the unit or you may void your warranty

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. [i.e. Not connected to the Battery]

Important: All Power [240v/Battery/Solar Panel] MUST be disconnected before moving Logic Controller [Circuit board] to change Battery.

• Correct use of a SURFACE Insecticide Spray* is advised to deter insects from causing damage to the electronics.

*To avoid loss of warranty - DO NOT SPRAY OR ALLOW ANY LIQUIDS ONTO ANY ELECTRONIC CIRCUITRY.

Installation:

Standard Installation.

A "Standard Installation" is one where the gate[s] open by swings INWARD toward the Motor Housing.

The gate hinge should be no more than 200mm from the rear of the Pier/Post. Side room of 350mm is required to accommodate the swing of the arms.
[See fig 1]

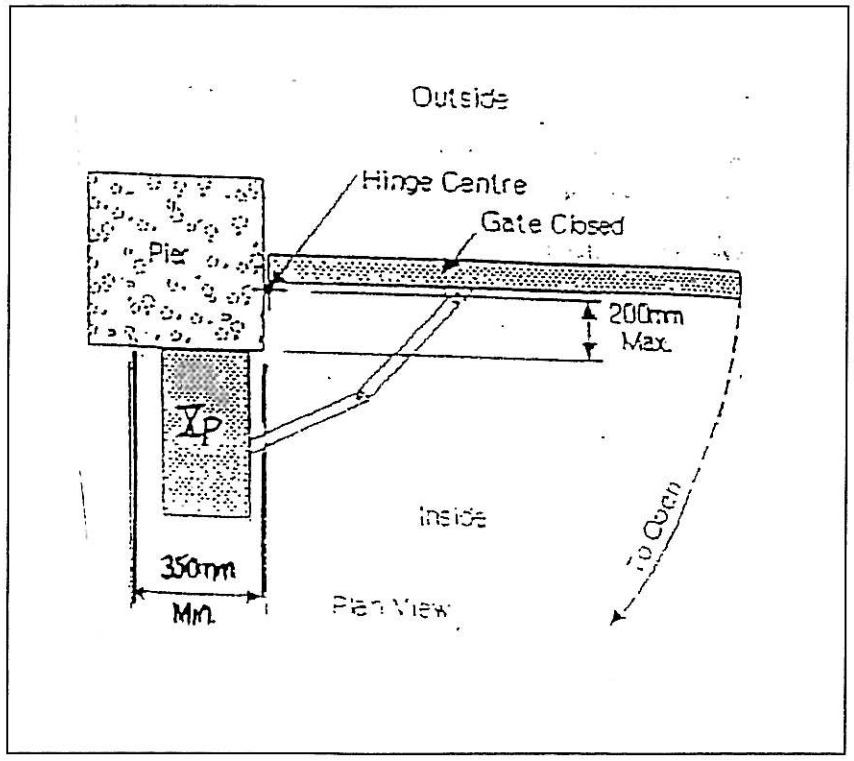


Figure 1: Standard Installation

Installation procedure:

1.
Ensure that the gates swing freely and that all existing latches/padbolts/Chains etc are disabled or removed from the gate & Gate posts

2.
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 XP Operators to access the slotted fixing holes cut 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 a spacers allowing clearance for the cover[s]

NOTE:
[Do not remove these tabs – just bend them out and fold them to the back] [Unless you are using our XP-MP Mounting Plate]

3.
Position each unit on the gate posts[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 movement of the arms is unrestricted [See Fig. 2]

The XP Operator[s] may now be bolted in place.

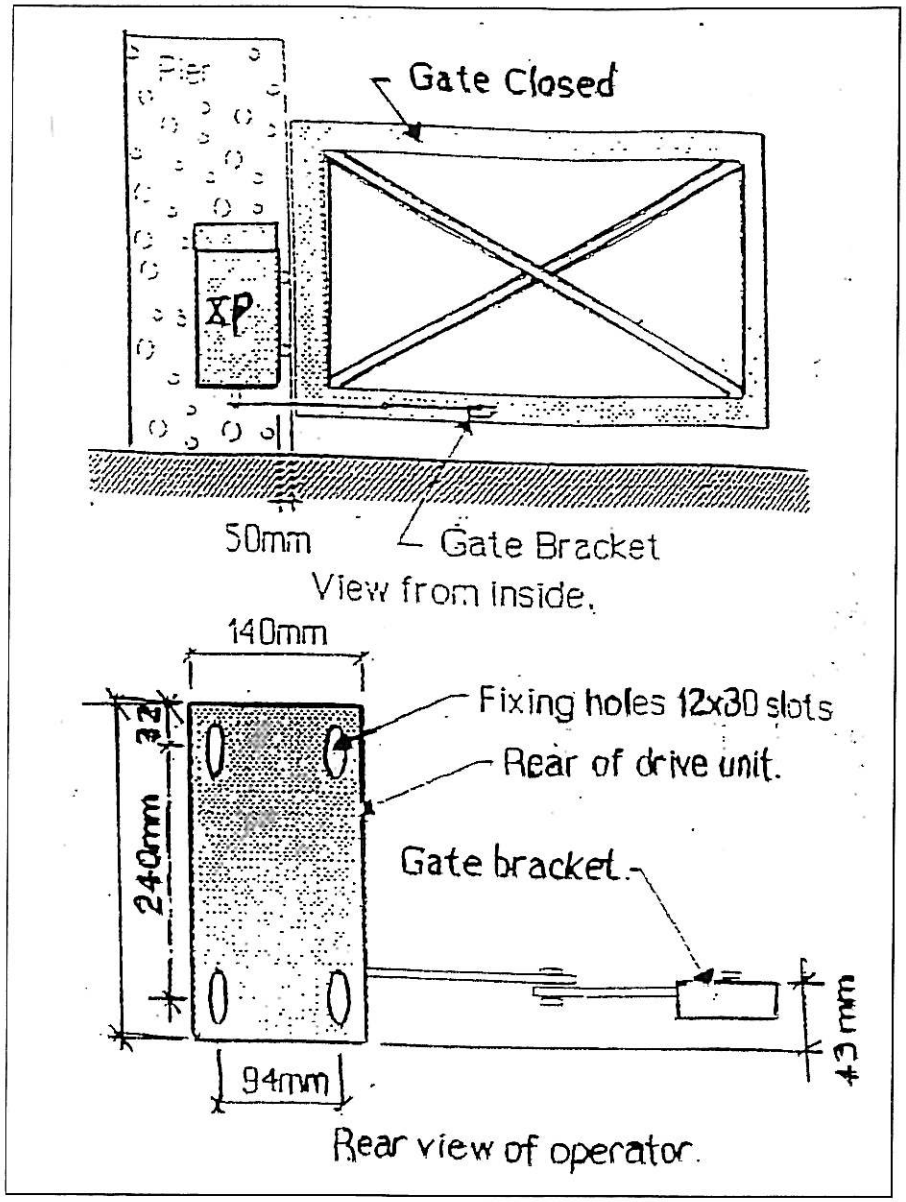


Figure 2: Position of Operator [s]

4.

If you have a Pair of Gates then.....

Connect the Slave to the Master Unit with 2 Core Flex/Cable

[Max load 8 Amp at 12 Volts] See Fig. 3

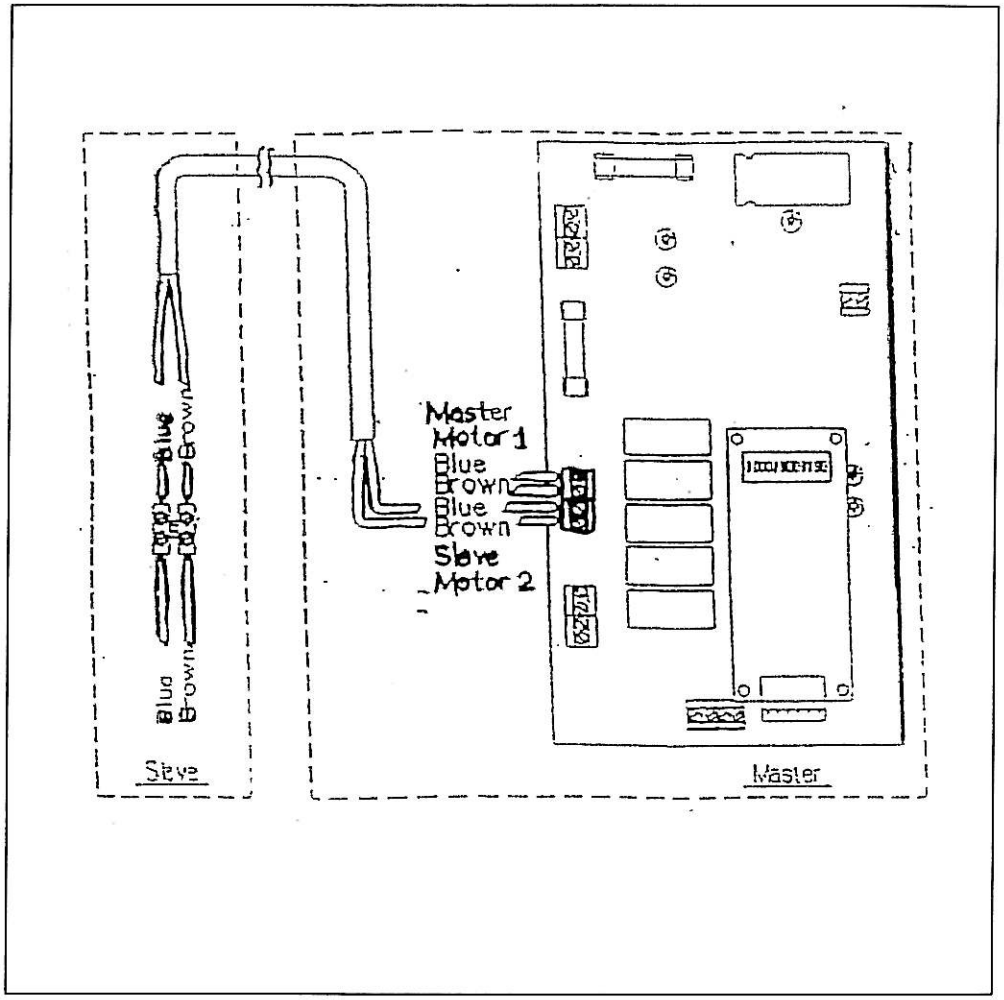


Figure 3: Master to Slave connections

The XP Operators are set in the factory for a "Standard Installation" with the Master placed on the LEFT HAND SIDE [From the 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 & BLUE wires for Motor 1 & Motor 2 [See Figure 3].

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.

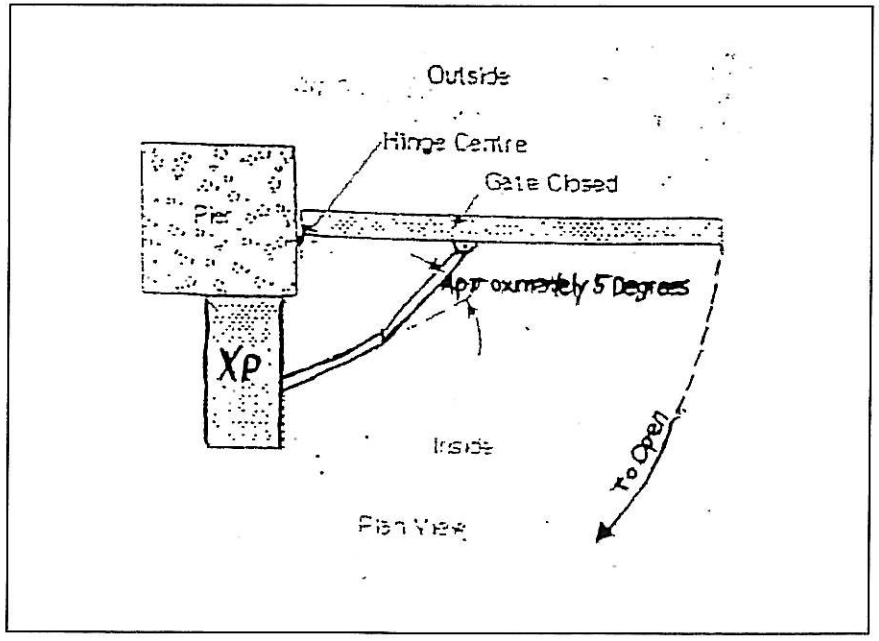


Figure 4: Arm position when gate is closed

6.
Connect power to the Primary Operator

7.
The Limit Switches may now be adjusted [See figure 5.]
Each of the Master and Slave Operators has its own pair of cams, one to set the open position & one to set the closed position. Loosen the screw holding the Cams. Operate the XP Operator with the transmitter & note which cam controls the opening & which Cam operates the closing motion.
[The Cam lobe activates a Limit Switch to turn off the Motor]
Reposition each Cam and operate the XP again. Repeat until the Gates open & close to the required positions.

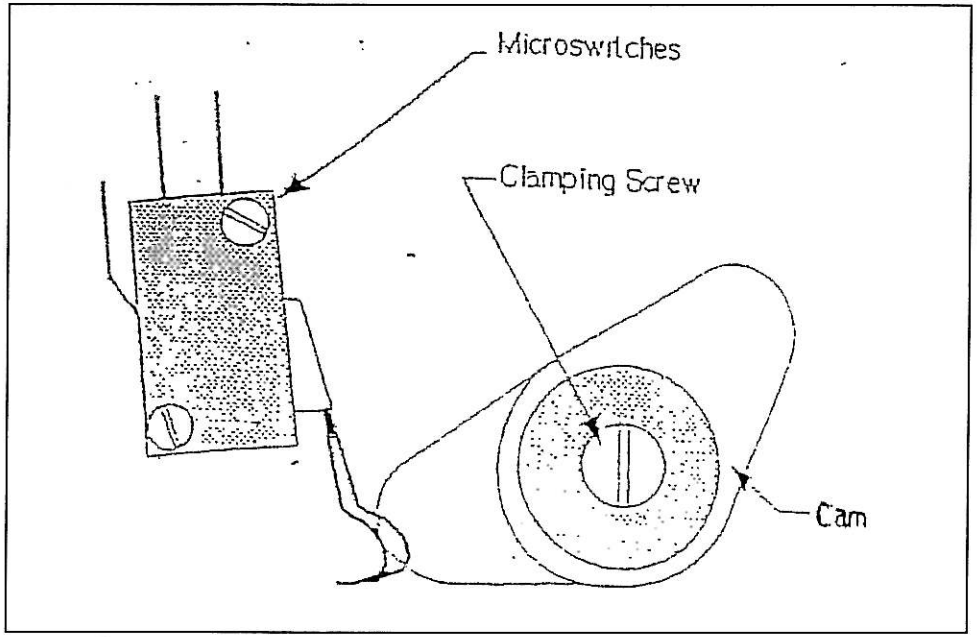


Figure 5: Limit Switches.

Side Mount Installation:

The XP 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 outward.
- The Gate swing outward & it is positioned at least 400mm forward of the back of the Pier/Post

Note: See also section on Out swing Installation.

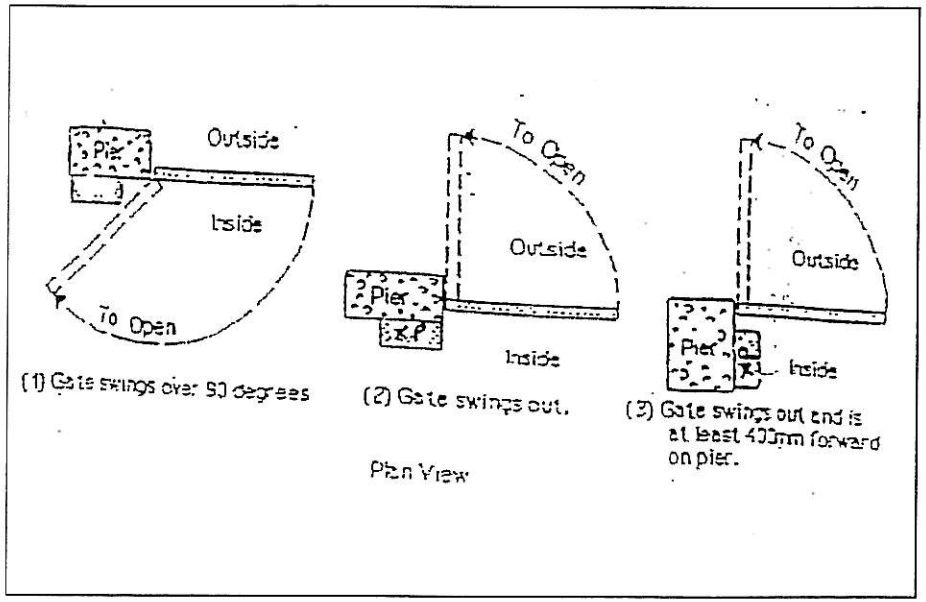


Figure 6: Side Mount Installation.
Each XP Operator should be fitted to the Pier/Post with its output shaft close to the gate hinge.
With this in mind the "Standard Installation" instructions may now be followed.

Special covers are supplied for SIDE MOUNT installation.

Restricted Side Room Installation:

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.

i. Move the Primary Arm to a position suitable for the closed gate.
Remembering that in the closed position the Primary & Secondary arms must stop short of a straight line alignment

[See figure 7]

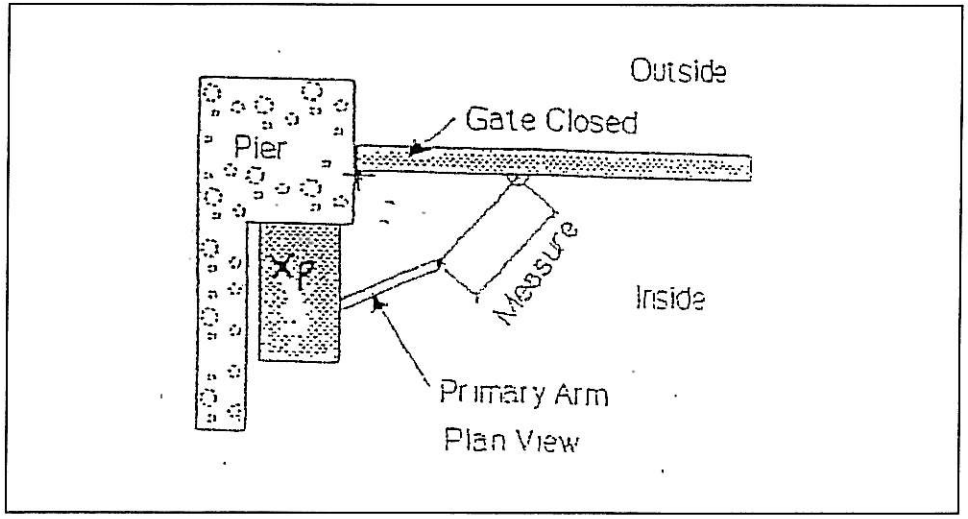


Figure 7: Measure Length of Secondary Arm

ii. Mark a point on the gate suitable for the gate bracket. Holding the gate bracket in position, measure the distance between the hole centers on the gate bracket & Primary arm.

iii. Now move the primary arm to its maximum open position. Open the gate & measure the distance again [See figure 8]. If the length has changed then the gate bracket must be repositioned & the same process repeated until the dimension remains the same for both positions.

Be careful that the Secondary arm does not conflict with the drive shaft of the Primary arm.

Note: This Page has no instructions

Some OPTIONS available from Sun-Power

PB-1.	Standard Weather resistant Push Button & 10 metres cable
PB-2.	Standard weather resistant push button with 2 Position key switch [On/Off] & 10 metres cable
PB-3.	Standard weather resistant push button with 3 position keyswitch [On/Off/Hold-open] & 10 metres cable
PB-RAD 1.	Standard weather resistant RADIO push button
PB-RAD 2.	Standard weather resistant RADIO push button with 2 position Key switch. On/Off
KS-2.	2 Position key switch
KS3.	3 Position key switch
XP-MP.	XP Mounting plate with studs
XP-EL.	Electric Locking Device

Also...
Photoelectric Safety Cells

Card Access Systems

Magnetic Locks

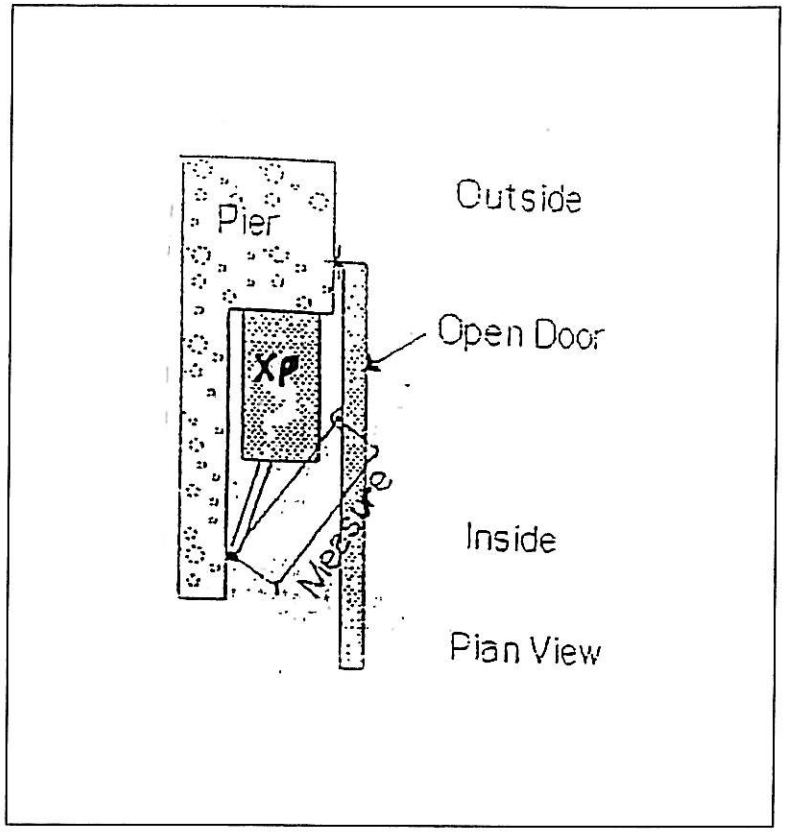


Figure 8: Re- Measure Length of Secondary arm

iv Once the dimension is consistent a new hole can be drilled in the Secondary arm & the arm trimmed to suit. The gate bracket & secondary arm Should now be fitted.

Out – Swing Installation:

In this type of installation the gate swing outward or away from the XP Operator to the open position.
[See figure 6/2, 6/3]

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

- The drive through width required
- The Placement of the XP Gate Operator
- The location of the gate on the Post/Pier

Direct support is available from SUN-POWER in these situations.

For assistance [if required] please provide a drawing [Mud map] of your situation showing all possible measurements.

Width between Piers/Posts

Size of Piers/Posts

Single or Double Gates

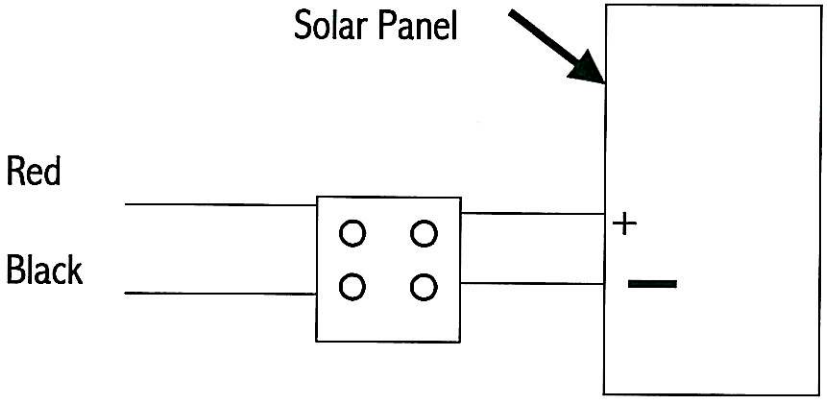
Position of hinges on Piers/Posts

Note: The polarity of the Motor connections may need to be reversed for Out – swing operation. See overloads section.

Solar wiring detail

Step 1.
Locate 2 Way terminal connection block on Top Plate near Motor

This will have Red & Black Wire, Connect SOLAR-PANEL Direct to it.

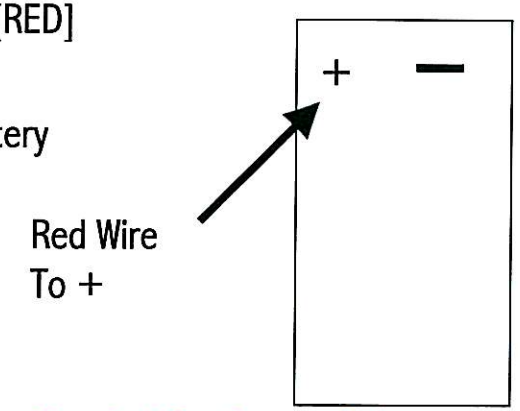


Important:
A connected SOLAR PANEL is always delivering a 12v Charge.
SOLAR PANEL must be covered or disconnected when any work or wiring, other that POT or Limits switch adjustments, is being done on the Control Board

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 Wire is already connected
Locate Positive Wire [RED]

Connect to + on Battery



Important:
Always Disconnect Battery Terminal [and cover Solar Panel] when any work or wiring, other than POT or Limit switch adjustments are being carried out on the Control Board

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Settings:

Auto Close

The Operator Control Board is supplied with a "JUMPER" installed on a 3 PIN Block. This allows the gate to automatically close after a specific period.
This period is adjustable.
[Refer to Figure 9]

i Turn 'Auto Close delay' dial [Trimpot] Anti-clockwise to increase the hold-open time delay before gate closes automatically

ii Turn dial/trimpot Clockwise to shorten the hold-open time delay before gate closes automatically

This "JUMPER" fits onto any two of three "PINS"

- If fitted on "PINS" 1 & 2 the gate is set to close Automatically.
- If fitted on "PINS" 2 & 3 the gate will require a signal to close
- If there is NO "JUMPER" or it is lost the Gate will close automatically

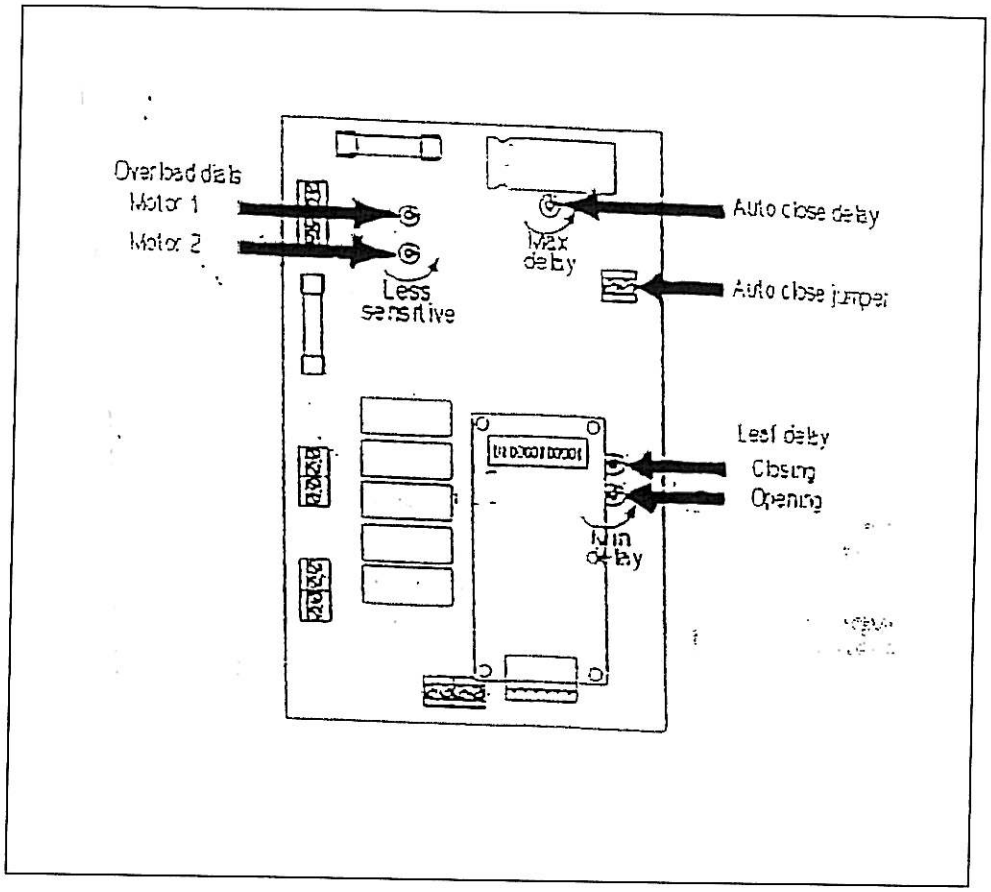

Figure 9: Settings.

Overloads:

The overloads [See Figure 9] are preset to maximum sensitivity, i.e.; slight pressure will cause the Operator to STOP if it is Opening or STOP & Close if it is closing.

Note: If these functions are reversed, i.e.: the gate STOPS when Closing & STOPS & Automatically REVERSES when Opening, then the polarity of the Motor connections MUST be Reversed, and the Limit Switch Cams adjusted.

There is ONE overload for each gate, as indicated on the Main Circuit Board. 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]

On Board version 2.3 Or later there is a "TRAVEL TIMER" A Yellow L.E.D Dial/Trimpot. This should be set to approximately 5 to 10 seconds after full operation after gate[s] reach full travel on Limit Switches in OPEN 7 CLOSED position.

Travel time can be adjusted by turning Dial/Trimpot Anti-clockwise to extend travel time and vice-versa.

Green L.E.D - OPEN Position [Located above relay 4]

RED L.E.D -- CLOSE Position

Anti – Clash Leaf Delay for Pairs of Gates.

To avoid jamming there is a time delay between the movement of each gate. This delay may be independently adjusted for the Opening sequence & the Closing sequence.

Dial "R 24" changes the Closing delay & "R 27" changes the Opening delay.

In situations where the Master Operator is on the RIGHT HAND side looking out, the "R 24" sets the Opening delay & "R 27" sets the Closing delay.

Turning the Dials/Trimpots Anti-Clockwise give the Minimum delay.

Options:

Push Button [PB] Push Button with Key switch
Radio Push Button Key Pad [KP] [See Figure 10]

A variety of Hard-wired input devices can be used to operate the XP Operator. 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.

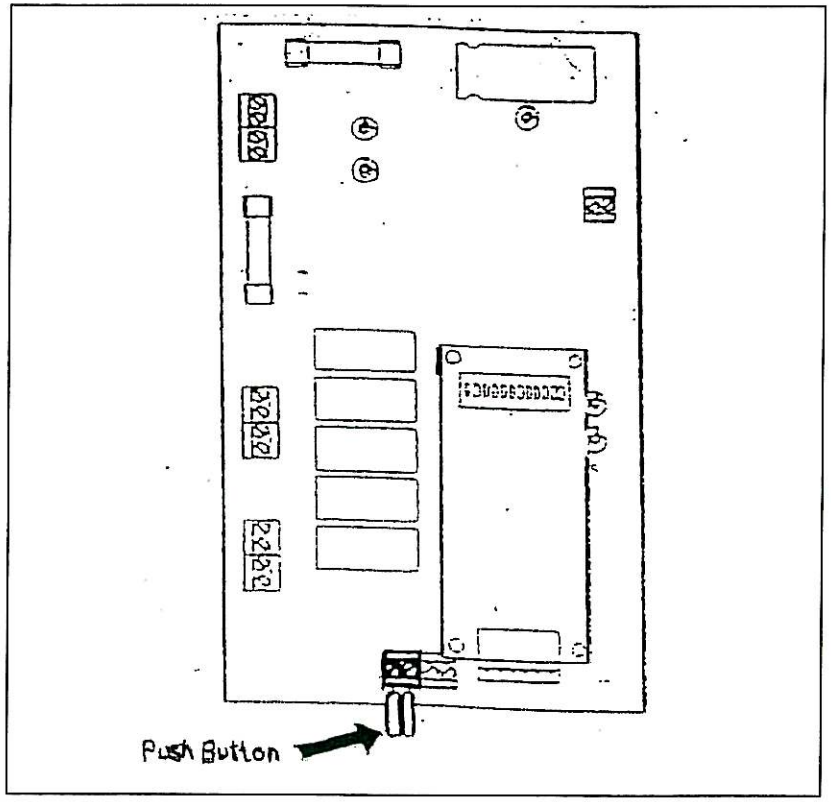

Figure 10: Push Button/Key Pad Connection

Electric Lock:

Connections for an Electric Lock/Latch [EL] are provided on the Circuit Board [See Figure 11]
This connection block will supply 12 Volts to energise the Lock at the beginning of the Opening & Closing cycles.

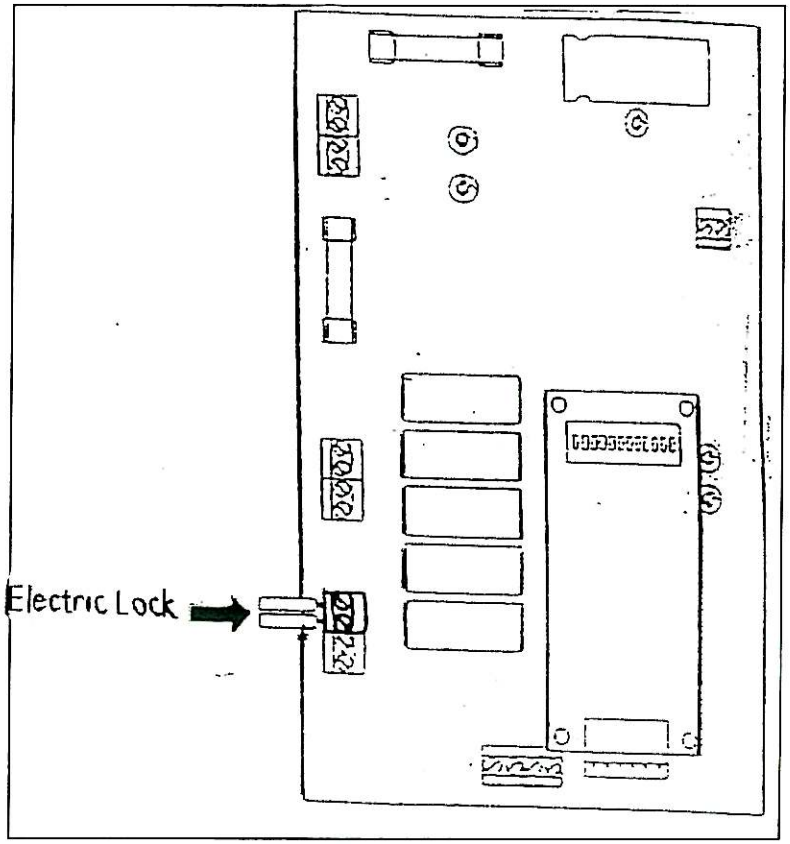

Figure 11: Electric Lock [EL] Connection

Photoelectric Safety Cell:

A Photoelectric 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 Photocell should be attached to the appropriate connection block.
[See Figure 12]

Note: Extra Power consumption will occur when using Photoelectric Cells, so extra Panel[s] & Battery[s] will be required when gate[s] are operating on SOLAR power only.

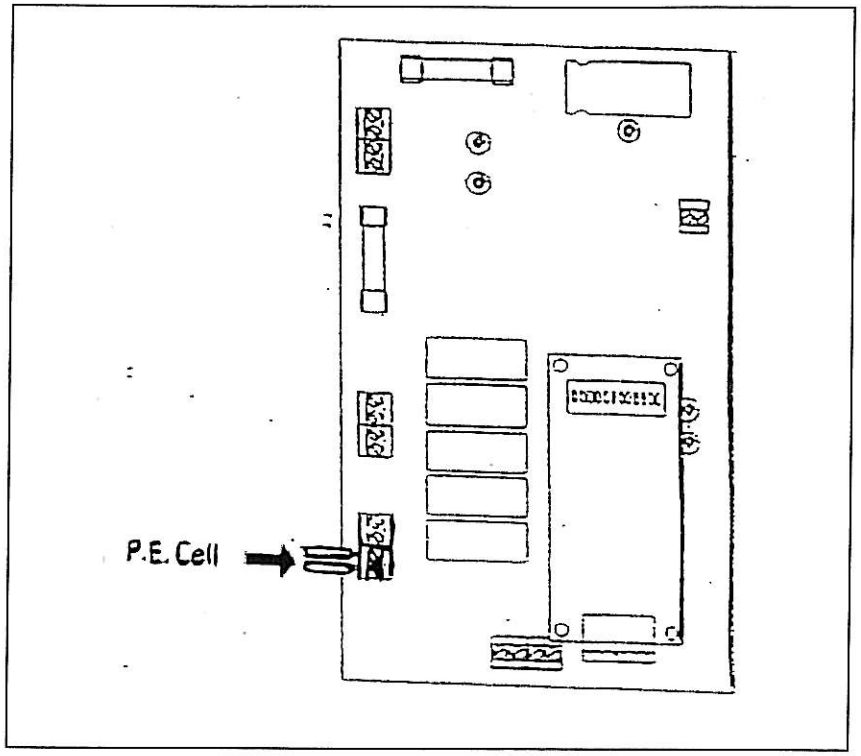

Figure 12: Photoelectric Cell Connections

Trouble Shooting:

Poor Range with the Radio Transmitter [Tx].

This may occur for several reasons.
The first thing to check is the Battery in the Tx.

Another cause is 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 must be specially ordered.

Other Faults.

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

Connecting the 433 Mhz Antenna:

1. Do NOT connect Antenna to Main Circuit Board

The Antenna is to be connected to the appropriate 2 terminal ports on the Radio Receiver [Rx] Circuit Board
[This Rx Circuit board measures approx 100mm x 50 mm]

Generally speaking the Radio Receiver [Rx] is installed as follows

a. Radio Receiver No. 251 or 252 - This would be mounted.....

[I] In the 240V Mains power Version –
Directly adjacent to the Limit Cams

[ii] In the SOLAR Version -
Between the Gears and the Battery

b. Other Radio Receiver # Rx 2

In both the 240v & SOLAR models an Rx 2 would be Piggy backed on the face of the Main Circuit Board

In all Operators [with Radio Receiver] there will be a short piece of cable connected into ONE of the TWO Antenna ports. Note the position of this cable!!!

Remove the short piece of cable and connect center core of the Antenna cable into the same port and the Outer Shield of Antenna Cable into the other port.

Note: Different Radio Receivers may be used from time to time. Changes may occur without notice.

Specifications & Dimensions
Case: 245mm High x 140mm Wide x 335mm Deep
Primary arm: Pivot centers 550 mm
Secondary arm: Pivot Centres 570mm

Weight:

Primary Operator Inc Battery	21 Kg
Secondary Operator	17 Kg