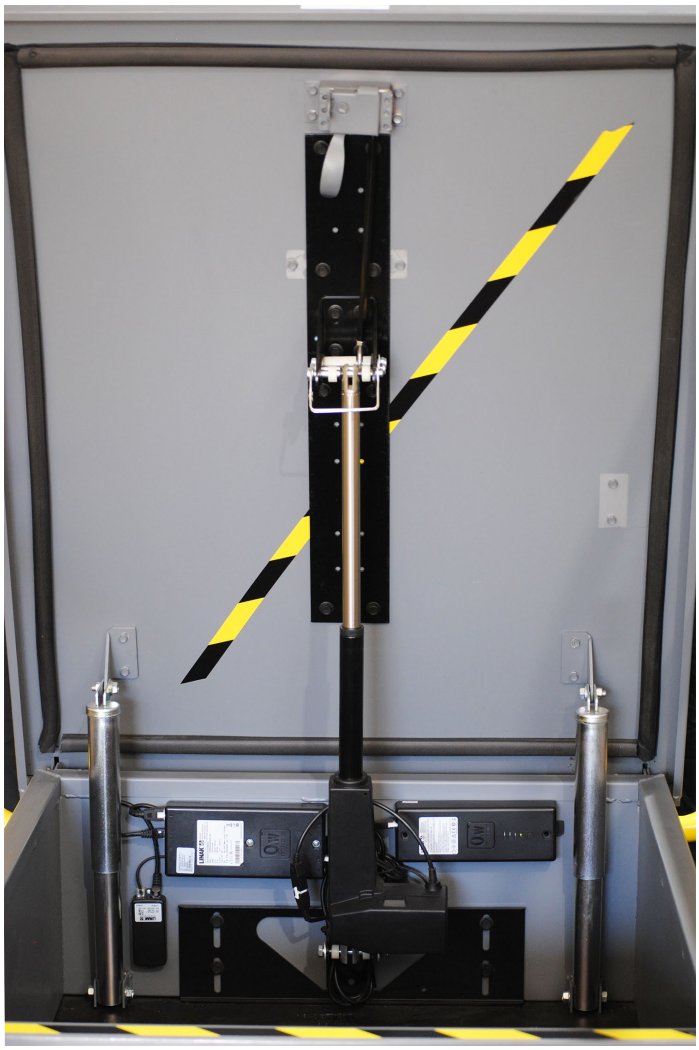
SafePro™

ROOFTOP FALL PROTECTION

Automatic Roof Hatch Opener



Installation Guide

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TOOLS

REQUIRED

(These tools are required to complete the installation)

Cordless Drill

1/8” 1/4”
Drill Bits

1/8” Pin
Punch

#2
Philips Bit

Rachet

Sharpie

Hammer

SAE Wrench Set

Tape Measure

SAE Socket Set

RECOMMENDED

(These tools will make your installation easier and quicker)

Automatic
Punch

5/16 -18
Tap

Ratcheting
Wrench Set

ELECTRONIC PARTS

Controller

110V Power Cord

Battery Cable

(If you ordered a 110V unit, 1 cable is included. With optional battery backup or Solar Powered unit, 2 are included)

Actuator

Actuator Cable

Wireless Receiver & Remote

Indoor Keypad

Keypad Box

Keypad Cable

Data Cable(2)

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ACCESSORIES

24V DC Battery

24V DC Solar Panel

Solar Panel
Plug

Outdoor Keypad

Solar Panel &
Outdoor Keypad Bracket

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HARDWARE PARTS

Rocker Bracket(1)

Back Bracket(1)

Door Plate(1)

3 Hole Plate(2)

Latch Bracket(1)

3/8 - 16 3” Bolt(4)

Nylon Spacer(9)

Thin Locknut(4)

5/16 - 18 Body Bolt(18)

Cotter Pin(1)

Turnbuckle(1)

Push-on Locknut(1)

#10 x 2” Self Drilling Screw(4)

Washer(8)

#6 x 3/4” Self Drilling Screw(4)

Clevis Pin(1)

3” Locking Pin(1)

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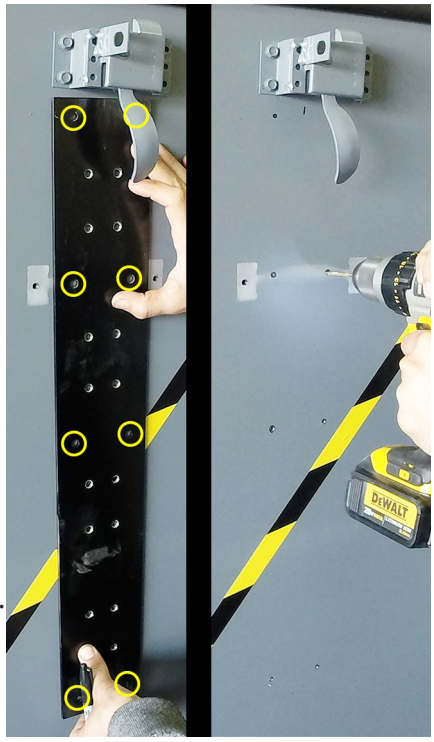
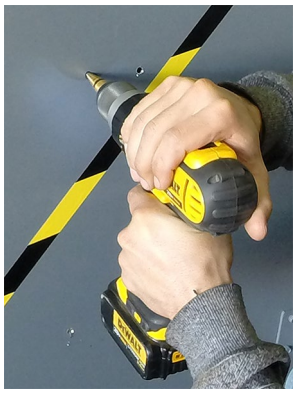
INSTALLATION STEP 1

DOOR PLATE

1. Find the center point of your latch and mark a vertical line just below it. If there is a handle below the latch, you will need to remove it.

2. Line your door plate with the center mark under the latch, and hold it about 1/4" below the latch. Mark the 8 outer holes with a sharpie. If you have a punch, punch the 8 marks in the center. Pre-drill the marks with the 1/8" drill bit making sure you stay centered in the marks.





3. Re-drill the existing holes with your 1/4" drill bit, or if you have a 5/16 18 tap, use the bit that came with your 5/16 - 18 tap.

4. Mount door plate with the included 5/16 - 18 body bolts. If you tapped the holes, you can start them with your hand. If not, you will need to use a drill and a 1/2" socket to get the bolts in place. Do not over-tighten the bolts. It is always a good practice to tighten by hand.

5. Next you will drill the holes for the rocker bracket. The location is determined by the size of the hatch lid from the hinge side to the latch side. The illustration to the left shows which set of holes to use for each lid size. Once the correct hole set is determined, drill/tap the holes the same as the other 8 door plate hole you previously drilled.

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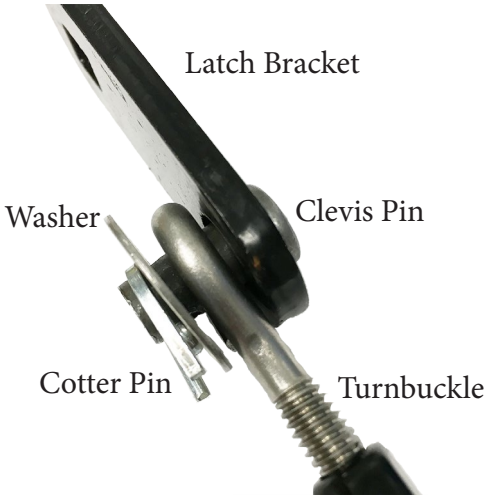
INSTALLATION STEP 2

ROCKER BRACKET & TURNBUCKLE

The following installation instructions are for latches of the same type as pictured to the right. For additional latch types, see the next page.

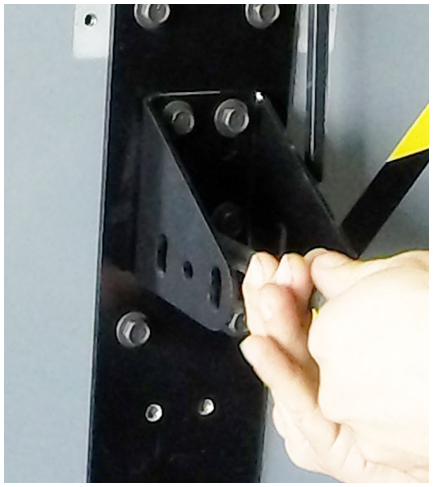
1. Remove the latch assembly.



2. Prepare turnbuckle/latch bracket assembly. Use needle nose pliers to bend cotter pin around the clevis pin.

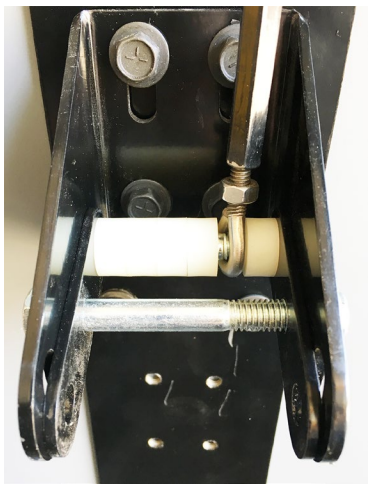
3. Slide square hole over the latch rod like above with the clevis pin flat side facing the hatch lid.

4. Re-Install the latch assembly making sure the latch bracket is pointed to the right side. You should now be able to pull down on the turnbuckle and move the latch tongue.



5. Install Rocker Bracket, **flat side down**, using four 5/16 - 18 body bolts in the four holes previously drilled. Be sure you are using the correct holes according to your lid size(length).

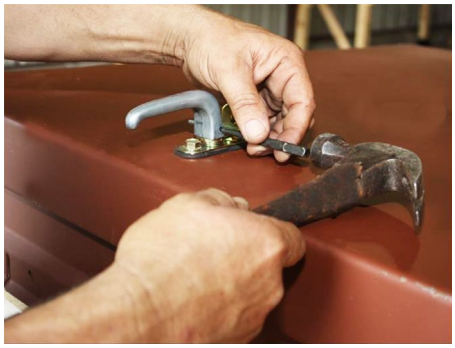
6. Using a 3/8” x 3” bolt, 2 washers and the lock nut, install the two 3 Hole Plates by inserting the bolt through the center holes of the rocker bracket, and the center holes of the two 3 Hole Plates, with the Plates located between the rocker bracket ears as seen above.



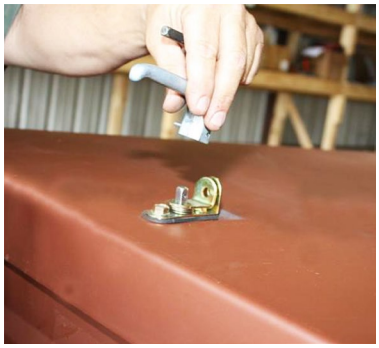
7. Connect the Turnbuckle to the Rocker Bracket using a 3/8” x 3” bolt, 2 washers, lock nut, and 5 nylon spacers. There should be 4 spacers to the left, and one to the right of the turnbuckle as seen to the left. The washers are on the outsides of the Rocker Bracket. The bolt should be just tight enought that the washers can still move freely.

ALTERNATE LATCH TYPES

Different roof hatch manufacturers use different latches. Below are 2 more examples of latches you may encounter in the field.



While removing the handle, make sure the hatch lid is open. Using your 1/8" punch and hammer, knock out the retaining pin located at the base of the handle shaft.

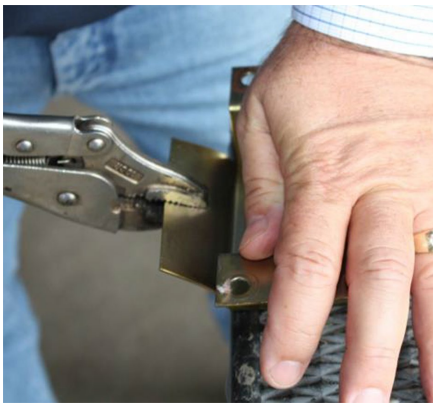


Once the pin has been removed you can pull the handle off of the hatch.

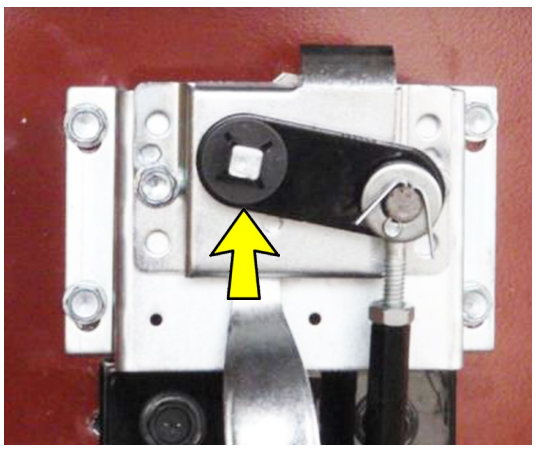
Continue to remove the entire latch assembly.

In order to gain access through the bottom of the latch, the bottom

You can use an angle grinder to remove the bottom wall.



If you do not have an angle grinder, you can use pliers to bend the wall up and down until it breaks off. This works just fine.



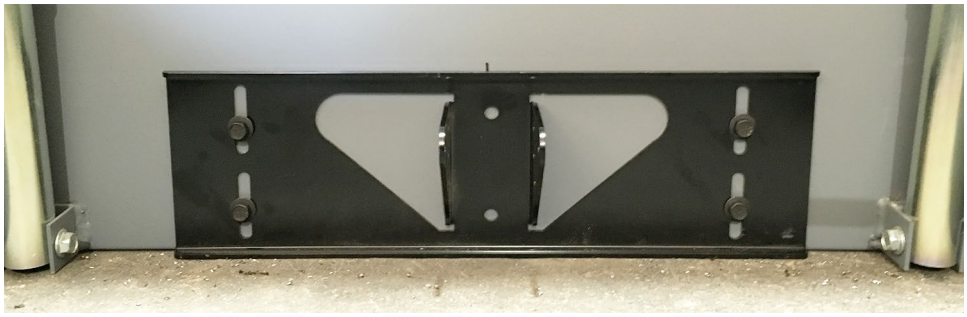
With the latch type to the left, there is no need to remove the latch assembly. The handle rod protrudes from the assemble allowing you to use the included Latch Rod Lock Nut. Once your Turnbuckle Assembly is ready, slide the square hole of the Latch Bracket over the protruding rod. Press the Latch Rod Lock Nut onto the protruding rod. This will lock the Turnbuckle assembly in place. Once this is complete, you can move on.

INSTALLATION STEP 3(A)

BACK BRACKET
FLAT BACKED HATCHES

1. Line up the center of the back bracket with the center of the Door Plate.

2. Line up the bottom of the back bracket even with the bottom of the hatch. With the ears flat side up, mark the four outer holes at the center of the slots. Do not mark the center holes at this time. With your 1/4" drill bit, drill the four outer holes. If you have the 5/16 - 18 tap, use the drill bit that was included with the tap, then tap the holes. Insert the four 5/16 - 18 body bolts into the drilled/tapped holes and do not tighten all the way at this time. This is to allow proper adjustment of the bracket at a later time. This will be shown later in this guide.



3. When complete, it should like the above illustration, with the flat side of the ears facing up The two center holes will be used later, once the bracket is properly adjusted, to lock the bracket in place. Once you have the four outer bolts in, line up the bottom of the bracket with the bottom of the hatch, and hand tighten the four bolts. This will allow you to test the placement with the Actuator attached, without the bracket moving.

INSTALLATION STEP 3(B)

BACK BRACKET
SHELF BACKED HATCHES

Some Hatches are not flat across the back wall. With hatches like this, you must install the provided Extender Kit.

The Extender Kit consists of (2)4 hole plates, (4) 3/8 - 16 x 1/2" Round Head Slotted bolts, and (4)3/8 - 16 Nuts.

Following the same angle as the ears of the Back Bracket, install the 4 Hole Plates as seen above. You should have one hole protruding from the end of the Back Bracket ears.

Line up the bottom of the back bracket even with the bottom of the hatch. With the ears flat side down, mark the four outer holes at the center of the slots. Do not mark the center holes at this time. With your 1/4" drill bit, drill the four outer holes. If you have the 5/16 - 18 tap, use the drill bit that was included with the tap, then tap the holes. Insert the four 5/16 - 18 body bolts into the drilled/tapped holes and do not tighten all the way at this time. This is to allow proper adjustment of the bracket at a later time. This will be shown later in this guide.

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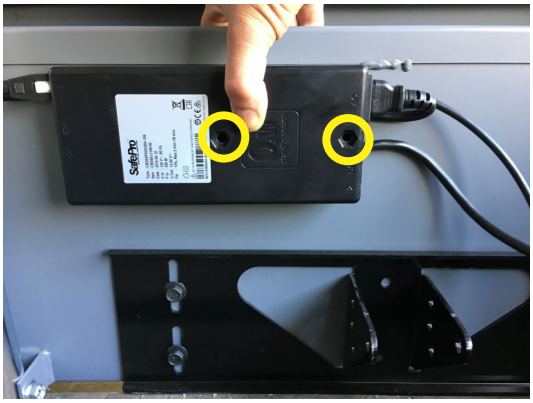
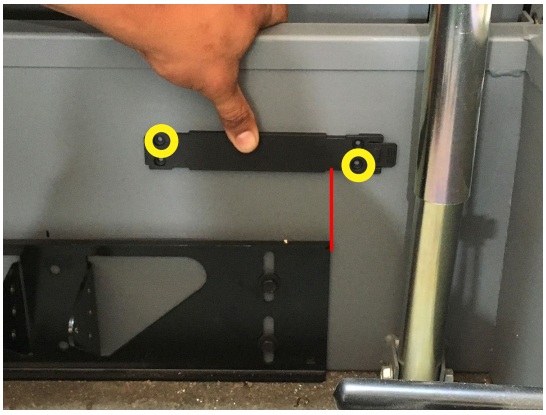
INSTALLATION STEP 4

ELECTRONICS

1. Plug the Actuator Cable into the port labled “1” and route the cable through the channel on the back side of the controller. Plug the AC Power Cable into the port labeled “AC”(solar powered units will not have an AC cable). Route the cable through the strain relief channel on the back of the Controller. Be sure they stay in place as you mount the Controller.

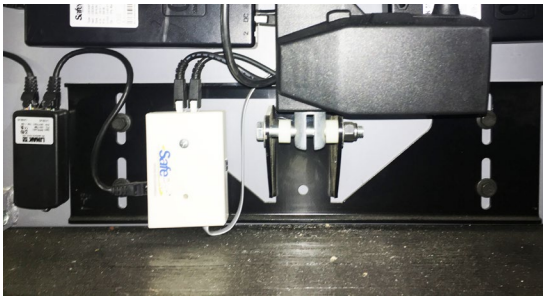


2. Position Controller with right edge even with the left side of the bottom bracket ear as shown above. Use the 2 included #10 x 2” self drilling screws to attach the Controller. **DO NOT OVERTIGHTEN.**



3. Position the battery bracket about 4” below the top edge of the hatch. With the release tab on the right side, line up the right notch on the bracket with the right side of the back bracket as shown above. Use two of the included #6 x 3/4” self drilling screws to securely mount the battery bracket.

4. With the battery bracket installed, put the battery onto the bracket and slide it to the right to lock into place. This easy slide and lock battery makes replacing the battery a simple procedure in the future.



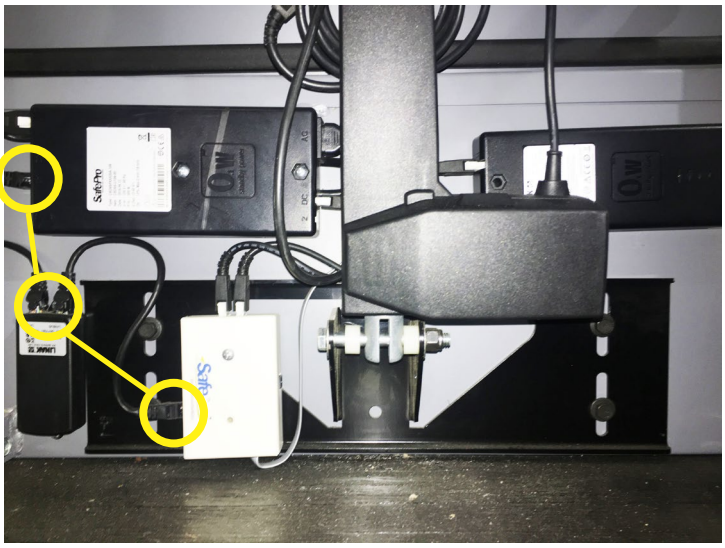
5. Position Keypad Box Under the right side of the controller You will mount it vertically, with the top hole centered in the upper left corner of the cut out in the back bracket. You will Use the included #10 x 2” self drilling screws to mount. **Do Not Tighten the mounting screw at this time**. Leave loose for adjustment.

INSTALLATION STEP 5

ELECTRICAL CONNECTIONS

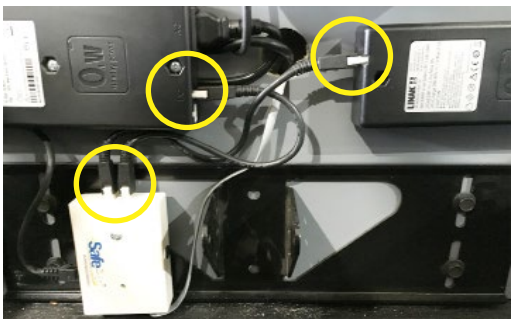
1. Position Wireless Receiver on the left side of the back bracket, even with the top of the bracket as shown above. Use the two #6 x 3/4" self drilling screws to securely mount the receiver.

(2) 18" Data Cables



Keypad Box Data Connector
(Either connector is OK to use)

2. Using the provided Data Cables, plug the first one in to the Controller Data Jack labled A1. Connect the other end to the left jack on the Wireless Receiver. Connect the other cable from the right jack on the Wireless Receiver to one of the Data jacks on the Keypad Box. Either jack is ok to use. Connection should look like above picture.



3. Using the two provided power cables, connect the first one from the Controller DC port labeled "DC" to the one of the power ports on the Keypad Box. Connect the second power cable from the other power port on the Keypad Box to the Battery DC port labled +/- . If you do not have a battery, you will only have one power cable.

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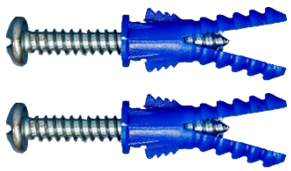
INSTALLATION STEP 6(A)

INDOOR KEYPAD

Plug the provided Data Cable from the Data Connector on the right side of the Keypad Box to the bottom of the Keypad. The Keypad will beep for one minute after power is applied. This is normal. The Keypad comes pre-programmed with an access code of ***0000#***. In order to re-program the Keypad follow the Programming Instructions to the right.

The Keypad will need to be mounted. Depending on the location, you will need some type of drywall anchors, concrete anchors, and the associated screws. Use a #8 or #6 screw for mounting. 2 concrete anchors and #8 screws are included in the hardware kit.



The Indoor Keypad can be programmed to the users preffered access code as seen below:

PROGRAMMING

NOTE: Wait 1 minute after power-up cycle, for beeping to stop.

1) Set Keypad into programming mode with Factory set Master Code - 1 2 3 4

1 2 3 4 * * ---- 2 beeps, Keypad is in program mode.

2) Change the Factory Master Code to Owners Master Code

Note: Master Code is for programming only

0 1 - (your 4 digit pin) - #

You will hear 2 beeps to confirm entry

3) Set "User Pin" to operate Output / Hatch Open Command

1 0 - 2 - 002 - (your 4 digit pin) - #

You will hear 2 beeps to confirm entry

Note: 0 0 2 is for user number 2. Up to 999 user pins can be stored in Keypad.

4) Exit Programming Mode

* *

You will hear 2 beeps to confirm entry

5) To Operate Hatch

(your 4 digit pin) # --- Up/Down Active for 30 seconds. Press and **HOLD** the UP or Down button to open or close the hatch.

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INSTALLATION STEP 6(B)

OUTDOOR KEYPAD

Inside the Outdoor Weatherproof Keypad, you will find the same RJ12 connector inside. It is pre-wired for a quick plug and go install. Once keypad is mounted on rail with provided Keypad Bracket, route wire through the railing

The Outdoor Keypad is installed using the provided mounting bracket, 2 3/8 x 1/2" Cap Screws and nuts, and 2 #14 x 3/4" Tek Screws. When attaching the keypad to the bracket, be sure the cap screw heads are inside the keypad housing. The 2 Tek screws are used to attach the bracket to the railing. Normal positioning would the the back end, left or right side of the railing.

The Outdoor Keypad can be programmed to the users preffered access code as seen below:

PROGRAMMING

NOTE: Wait 1 minute after power-up cycle, for beeping to stop.

1) Set Keypad into programming mode with the Factory set Master Code - 1 2 3 4
   1 2 3 4 * * ---- 2 beeps, Keypad is in program mode.

2) Change the Factory Master Code to Owners Master Code
   Note: Master Code is for programming only
   0 1 - (your 4 digit pin) - #
   You will hear 2 beeps to confirm entry

3) Set "User Pin" to operate Output / Door Open Command
   1 0 - 2 - 002 - (your 4 digit pin) 1 - #
   Note: Your 4 digit pin is your code. The following 1 is for the Open Command.
   0 0 2 is for user number 2. Up to 999 user pins can be stored in the Keypad.

4) Set "User Pin" to operate Output / Door Close Command
   2 0 - 2 - 002 - (your 4 digit pin) 3 - #
   Note: Your 4 digit pin is your code. The following 3 is for the Close Command.

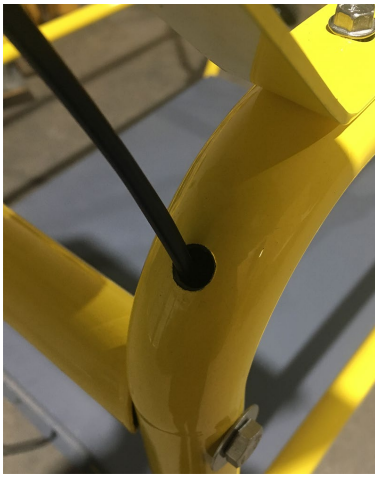
5) Exit Programming Mode
   * * ---2 beeps

6) To Operate Door
   (your 4 digit pin) 1 # ---Door Opens
   (your 4 digit pin) 3 # ---Door Closes

INSTALLATION STEP 7(IF PURCHASED)

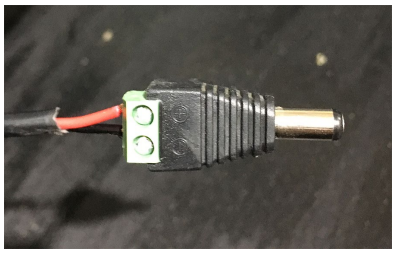
SOLAR PANEL

If you purchased a solar powered unit you will need to mount the solar panel on the railing at a position with the panel facing due south. If you do not have our railing, a single solar panel post is available. The solar panel can be mounted as seen to the left, or inverted on any side of the back legs of the railing. The solar panel is mounted using the included #14 Tek Screws, (2) 3/8"x1/2" Bolts and Nuts, and the included Solar Panel Bracket.



Drill a 1/4" hole in the railing for the Solar Panel Wire to go through. Route the wire through the rail and out of the foot. You will have to take off the rail end cap and drill a 1/4" hole in it as well.

Route the wire over the back of the hatch wall.



Included in the hardware bag is a DC plug with 2 terminals labeled + and - . The red wire from the Solar Panel will go into the + terminal, the Black into the - terminal.

Plug the DC connector into the DC jack located on the Keypad Box.

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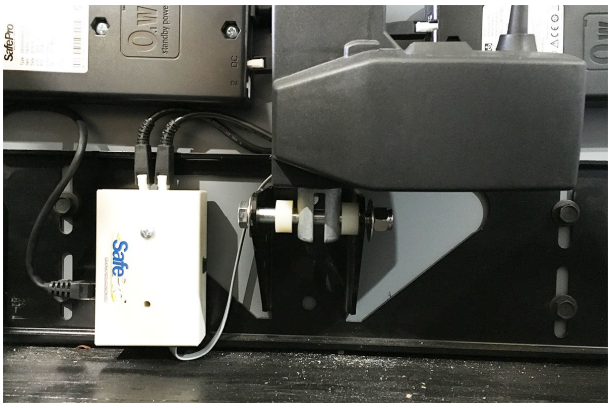
INSTALLATION STEP 8

ACTUATOR

1. Using the included 3/8" x 3" Locking Pin, and 2 nylon spacers, connect the actuator to the rocker bracket as shown above, with 1 nylon spacer on each side of the actuator rod.



2. Using the included 3/8" x 3" Bolt, 2 washers, nylon lock nut, and 2 nylon spacers, connect the bottom of the actuator with the motor facing to the right as shown above. 1 nylon spacer on each side of the actuator.

3. Now that the Actuator is in place, plug in the end of the Actuator Cable to the pig-tail coming out of the Actuator.

VERY IMPORTANT!!!!

Once the Actuator is installed, the first thing you must do is remove the hatch lid holding arm. If you attempt to operate the Hatch Opener with the arm in place, damage will occur to the hatch itself, or the Automatic Roof Hatch Opener.

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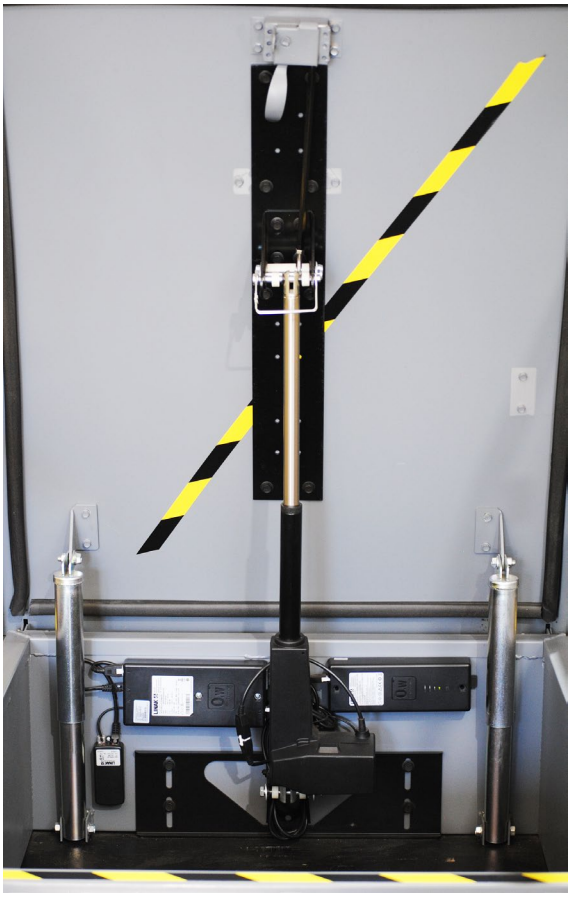
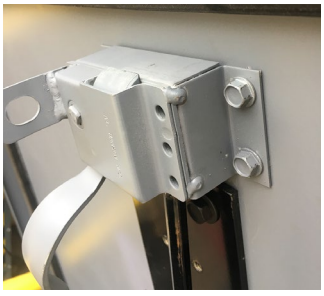
ADJUSTMENTS

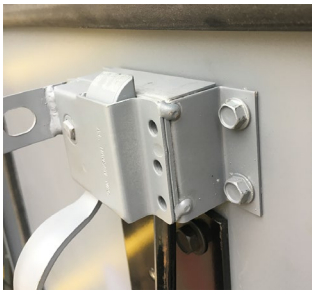


Now that everything is in place and all the electronics are connected, it is time to make your adjustments and test the system. The first time you operate the Automatic Roof Hatch Opener, you will need to tighten the Rocker Bracket and the Back Bracket.

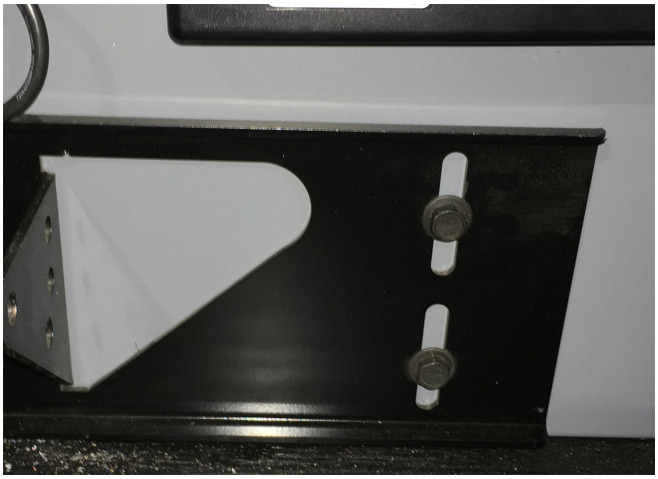
Center the Rocker Bracket so that the Bolts are in the middle of the Slide Cutouts, and tighten the 4 bolts to secure it in place. Tighten the Turnbuckle to remove the slack. It is a good idea to tighten is so that when you pull the hatch lid towards you, the tongue of the latch pulls in enough that is is even with the top of the latch body. This will prevent the hatch lid from binding upon first operation.

Pulled Towards You





Pushed Away From You

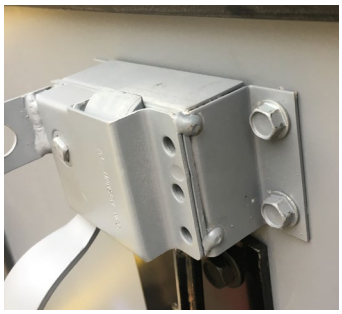


Align the bottom of the Back Bracket with the bottom of the hatch, and tighten the 4 outer bolts. Use your 1/2" socket and ratchet to tighten. *(CAUTION!! DO NOT OVER-TIGHTEN. You must be especially careful on aluminum hatches, as they will strip out easier than steel hatches if you over tighten the bolts.)*

ADJUSTMENTS

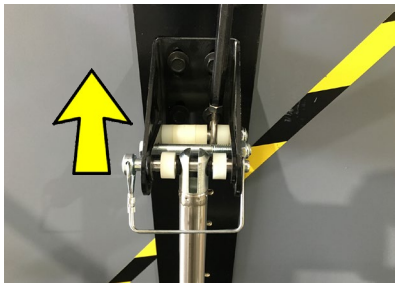
1. Upon first operation, it is a good idea to watch the lid from the inside so you can see how much travel the Actuator has left. If the lid still has a gap when the actuator is fully retracted, you will need to adjust the rocker bracket first. Use the included Wireless Remote to operate the hatch.

NOTE: If the Actuator only moves one way(up/down) you must continue the cycle in that direction. The system must see the limit switch in that direction to enable proper operation.



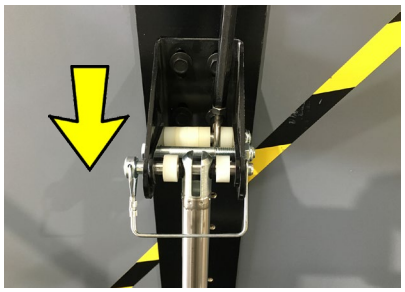
When making adjustments to the Rocker Bracket, the latch position will change. Be sure after adjusting the Rocker Bracket, you re-adust the Turnbuckle to ensure the latch tongue retracts completely when pulling the hatch lid towards you. Final Turnbuckle adjustments will be made once the Rocker Bracket and Back Bracket adjustments are complete.

2(a). If the hatch lid does not close all the way, you will need to adjust the rocker bracket and move it up.



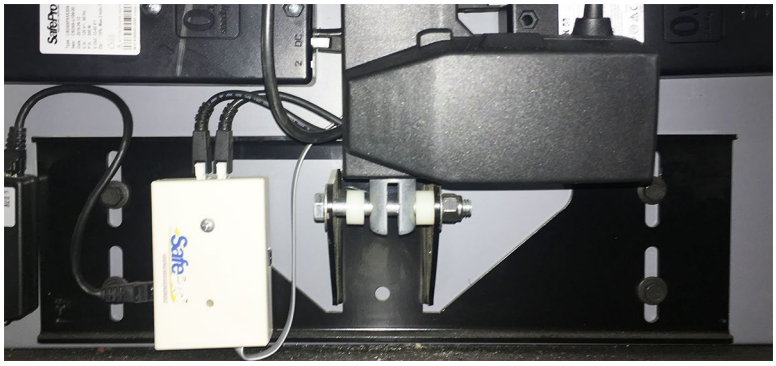
2(a). Loosen the four bolts holding the Rocker Bracket and slide it up. Moving the Rocker Bracket up will cause the hatch lid to close more. Once it is adjusted, re-tighten the 4 bolts to secure the Rocker Bracket in place.

2(b). If the hatch lid closes all the way, and the actuator is not fully retracted, you will need to adjust the Rocker Bracket and move it down.

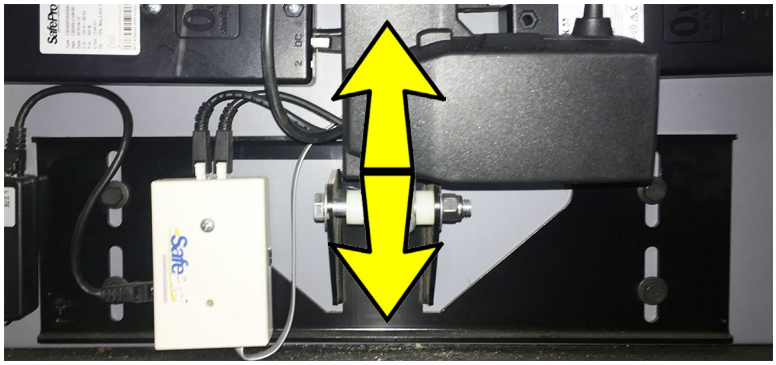


2(b). Loosen the four bolts holding the Rocker Bracket and slide it down. Moving the Rocker Bracket down will cause the hatch lid to close less. Once it is adjusted, re-tighten the 4 bolts to secure the Rocker Bracket in place.

ADJUSTMENTS

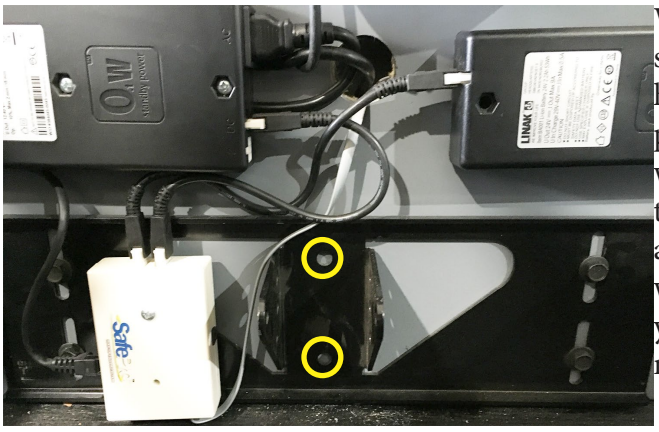


If after adjusting the Rocker Bracket the hatch lid still does not close all the way, or still closes too much, you will need to adjust the Back Bracket. Return the Rocker Bracket to it's original position, with the bolts centered in the slots. Tighten the 4 bolts. Make sure the Turnbucle is adjusted so the latch tongue is flush with the top of the latch body when pulling the hatch lid towards you.



Loosen the 4 outer bolts on the Back Bracket. Moving the Back Bracket UP will cause the hatch lid to close less, or create more gap. Moving the Back Bracket DOWN will cause the hatch lid to close more, or eliminate the gap. Move the Back Bracket up/down 1/2", tighten the 4 bolts, and operate the hatch to test the position.

Once you have moved the Back Bracket up/down 1/2" and tightened the bolts, operate the hatch with the remote again. If you still have a small gap, or it is still closing too much you can now adjust the Rocker Bracket UP/DOWN again to get the hatch lid where it needs to be. Alternate between the Back Bracket, and the Rocker Bracket for proper adjustment of the hatch lid.



When the hatch lid is properly adjusted, you should not see any light entering through the hatch seal. Once it is at this point, you can now put the 2 center bolts in the Back Bracket. You will have to remove the bottom Actuator bolt to do this. Be careful when removing the bolt, as the lid is now free, and can close without warning. Once the 2 center bolts are in place, you can now re-connect the Actuator and move on to adjusting the turnbuckle.

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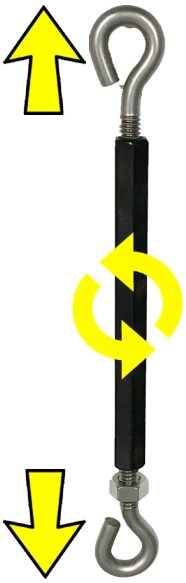
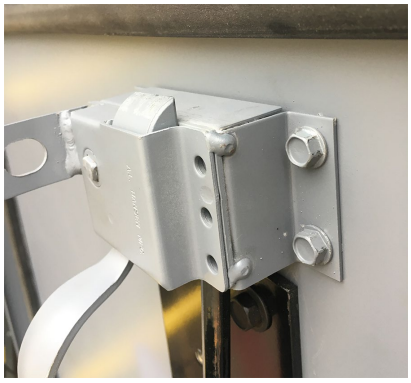
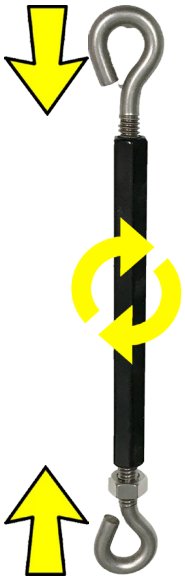
TURNBUCKLE ADJUSTMENTS

Loosen the Turnbuckle to allow the latch tongue to stick out about 1/4". Lightly pull on the hatch lid and make sure the latch tongue retracts, and then push the lid away from you and make sure the latch tongue extends. Once you are certain that the latch tongue moves freely, you can now operate the Automatic Roof Hatch Opener. From inside the hatch, use the remote and close the hatch lid. When it closes all the way you should hear the latch tongue click if it catches. If you do not hear a click, look at the tongue and verify that the hatch is closing enough for it to latch. If the tongue is not sticking out far enough to catch, loosen the Turnbuckle more to extend the latch tongue more. When opening the hatch lid, the Actuator will begin to extend and then it will pull the Turnbuckle to release the latch. If upon opening the lid, the latch does not release, tighten the Turnbuckle to retract the latch tongue more. Try to open it again. Repeat this process until the Turnbuckle is properly adjusted. The hatch lid will pop when you open it because the springs are also putting pressure on it. This is normal and happens on every hatch.

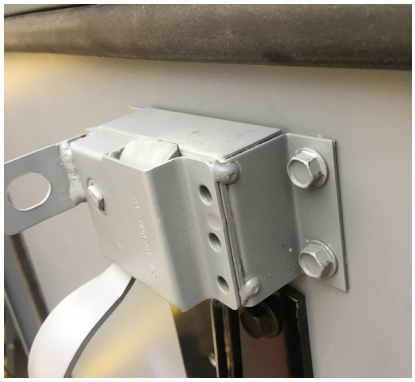


Twisting the Turnbuckle in this direction will increase the overall length, making the latch tongue stick out further.





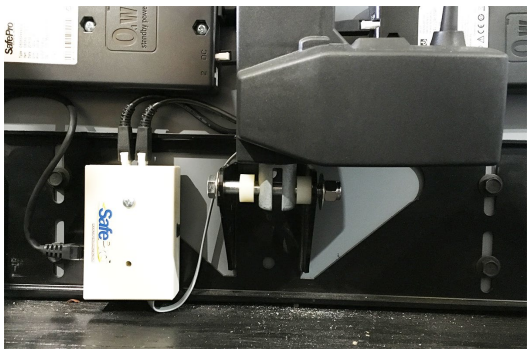
Twisting the Turnbuckle in this direction will decrease the overall length, making the latch tongue stick out less.



COMPLETION

Now that everthing is properly adjusted, you need to go back through and tighten all the nuts/bolts.

Make sure the 4 Rocker Bracket body bolts are tight. Check the two 3" bolts. They should be tightened to the point where there is no gap, but the washers can still move freely. This will ensure smooth operation of the turnbuckle assembly. If these 2 bolts are too tight, the turnbuckle will not move.

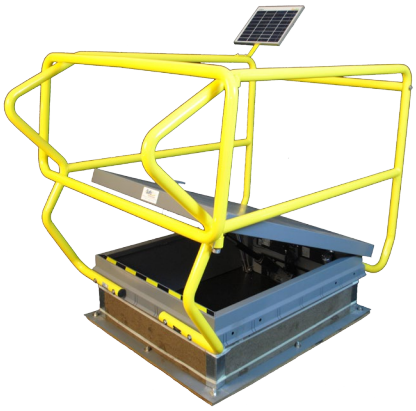


Tighten the bottom 3" bolt tightly. This bolt can be tightened enough that the bolt and the washers do not move. Check the 6 body bolts on the back plate and make sure they are all hand tight. Be sure not to overtighten these bolts, as they can strip easily on certain hatch types.

Check the locking nut on the turnbuckle. This nut should be tightened securely against the black hex-rod to keep the turnbuckle adjustment in place. If this is not tightened, the turnbuckle can move during use. If this happens, the tongue will not release, causing the hatch to bind when opening.

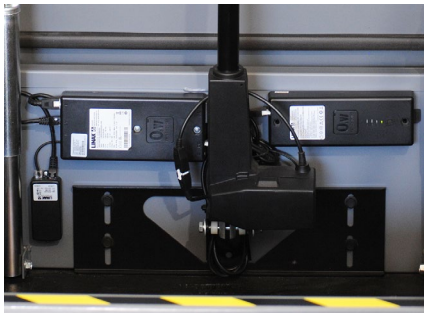
INSTALL COMPLETE!!

TROUBLESHOOTING



The hatch will only move up/down.

Upon first operation the hatch may only move one way. Continue moving the hatch that way to complete the cycle. The Controller needs to see the limit switch in order to complete the cycle. Once the Actuator completes the cycle, you will be able to operate the hatch in the opposite direction.



The hatch doesnt move at all.

If you get no movement at all, first check all of your electrical connections. Make sure the plugs are securely snapped in correctly, and make sure the actuator and data cable are inserted into the correct ports. If it is a solar powered unit, press the battery status button located on the front of the battery. This will show you the charge level of the battery. If the battery is too low, you will not see any bars light up. In this case, the battery must charge before the hatch will operate properly. If you have a 110V unit, make sure there is power at the plug.

The hatch only works with the remote or keypad.

If the hatch will operate with the keypad only, the remote might need to be synced with the wireless receiver. To do this, see the next page. If the hatch only operates with the remote, check the connections on the keypad. If you have power on the keypad, and you see a green light when you enter your code, you may need to open the keypad up and make sure there are no loose wires.

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MAINTAINENCE

The SafePro Automatic Roof Hatch Opener requires very little maintainence. Follow the schedule below to ensure problem free operation of your new A.R.H.O.

MONTHLY

1. Do a physical inspection on the entire ARHO system. Make sure all parts are moving freely. Make sure the latch release properly and does not contrain the opening of the hatch. Look for any loose wires that may be snagged while operating the hatch, or entering/exiting the hatch.
1. If you have a solar powered unit, check the solar panel to make sure the glass is not broken, and that it is clean of dirt and debris. This will ensure maximum charging for your battery.

SEMI-ANNUALY

1. Check the charging status of your batteryby pressing the status indicator button located on the front of the battery. If you notice that it is only charging to 75% or less, your battery is not operating at maximum capacity and needs replacement soon. A replacement battery is available from SafePro.
2. Check/Grease the rocker bracket and latch with a spray lithium grease, or silicone based spray. This will ensure smooth opening/closing of the hatch.
3. Make sure the Turnbuckle lock nut is securely against the Turnbuckle Rod. If the locknut moves, the Turnbuckle can re-adjust itself and cause the latch to not release. This can cause the hatch to bind causing damage to the ARHO system, or the roof hatch.