AmesburyTruth™
Engineered Solutions. Trusted Results.

Sentry 3 ™

# WINDOW OR LIGHT SKYLIGHT MOTORIZATION SYSTEM INSTALLATION INSTRUCTIONS


700 West Bridge Street, Owatonna, MN 55060 | techserv@quanex.com | 1-800-324-4487
Form 90473RA

**Danger: To help prevent severe personal injury or death:**

- Read and understand instructions completely before beginning installation.
- Wiring must be installed by a qualified electrician according to local and National Electrical Codes (N.E.C.)
- Disconnect main power before beginning installation! Verify that power is OFF at the main breaker or fuse panel by testing with a voltage meter that you know is working correctly.
- Connect power **only** after motor connections and settings are verified.
- This equipment does not provide a method to shut off power, and should be connected to a dedicated breaker or fused power circuit capable of providing 1 amp at 120 VAC of power per window unit.
- The screen interlock MUST be correctly installed and is a required part of the power window system. It is intended to help prevent injury that could result from reaching into the window area during operation. The correct installation of the screen interlock is the responsibility of the installer. (The screen interlock is not required on windows and skylights installed more than 8 feet above the floor.)
- Do not allow children to operate the wall push buttons or phone app/control device.

**Additional Safety Guidelines**

- When connecting the Sentry 3 system to accessories, read the installation instructions supplied with each accessory before beginning installation.
- The Sentry 3 system must **not** be used on windows intended to meet egress codes.
- The Sentry 3 system is intended for indoor use only, with screens in place.
- Save ALL instructions. Additional copies can be downloaded from our web site at: amesburytruth.com/products/windows/skylights
- Installer – please be sure to give ALL instructions to the homeowner once installation is complete.

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*Did you find what you're looking for? The AmesburyTruth Hardware website is a great resource for the latest product and installation information. It's available at* ***www.AmesburyTruth.com***

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# PREPARATION

## What You Should Know Before Starting

**Supply Voltage Note:** The supply voltage range for the Sentry 3 power window system is very flexible to accommodate a range of supply voltages. The input (supply) voltage range is 100 to 130 VAC at a frequency range of 50 to 60 Hz. For practical purposes, the supply voltage referenced in this document is 120 volts at 60 Hz commonly used in the United States.

**Operating Environment:** The control unit must be located in a dry environment which includes protection from condensation. The operating temperature range must be maintained between 140º F (60º C) to -5º F (-20º C).

**Be sure the motor system will fit in your application:** The Sentry 3 power window system is intended to fit onto casement, awning, and skylight hardware manufactured by AmesburyTruth only. In many cases you will be able to identify our hardware by our logo somewhere on the hardware. When in doubt, the best way to tell is if the spline adapter fits onto the operator stem in place of the crank handle – see Motor Installation step 2.

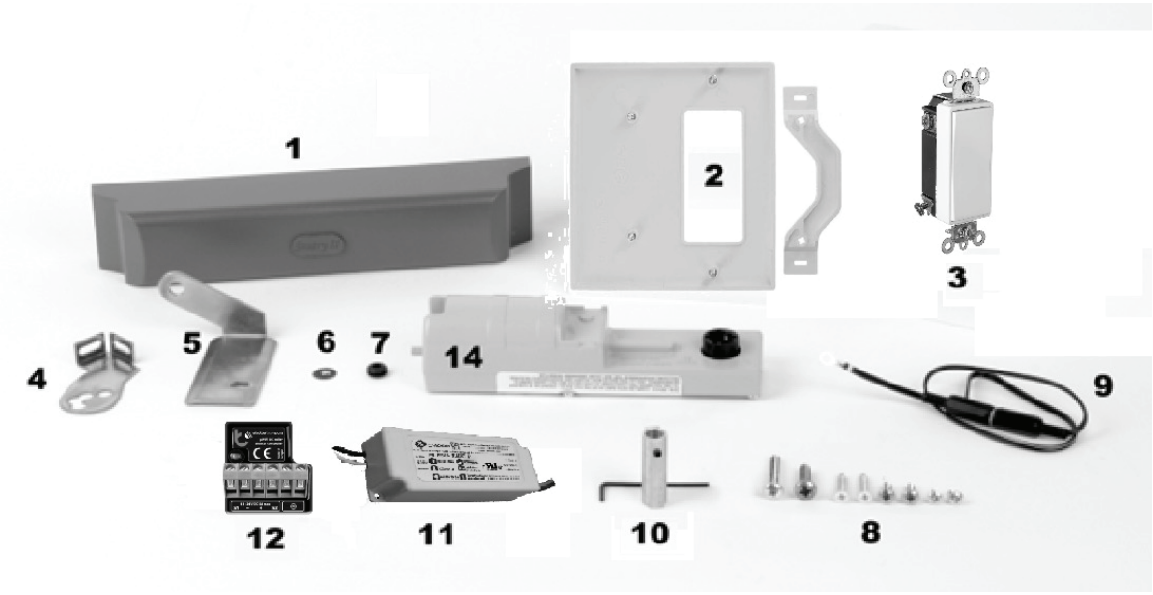
The Sentry 3 power window will not work in the following applications:

- Fitted to any type of jalousie window
- Fitted to any type of door
- Fitted to any type of cable controlled window system - Such as those manufactured by Clearline or Ultra-Flex
- Fitted to any type of in-swing window
- Fitted to any type of manual skylight hardware manufactured by Velux or Roto

**Any use of the Sentry 3 power window system not approved by AmesburyTruth Hardware is at the user's own risk.**

**Be sure the motor system is compatible with your application:** It is important to understand that the design parameters of the Sentry 3 power window system are predicated on a properly functioning manual window system. This includes the rotary operators **and** hinges installed on the window. It is the responsibility of the window manufacturer and/or the window specifier to ensure the window size and weight fall within the specifications of the manual hardware system installed on the window. If the window size and/or weight fall outside of the hardware specifications, the motor system may not function properly. If the window carries an AAMA (American Architectural Manufacturers Association) label chances are the window system meets all hardware requirements. However, if the window does not carry an AAMA label you may want to contact the window manufacturer to verify the windows have been manufactured within the hardware manufacturer's specifications - especially if the window size is unusually large and/or of unusual proportions.

# GETTING STARTED




| Parts list | Part number |
|---|---|
| 1. Motor Cover | (sold separately) |
| 2. Control unit cover plate & bridge | 2031788 |
| 3. Decora Style rocker wall switch | 2031787 |
| 4. Mounting bracket – Window * | |
| 5. Mounting bracket – Skylight ** | Parts 4 thru 10 are in |
| 6. Push on fastener | hardware pack 2032104 |
| 7. Isolation grommet | |
| 8. Screws | |
| 9. Screen interlock | |
| 10. Spline Adapter & wrench | |
| 11. Power Supply 110VAC to 24VDC | 2031786 |
| 12. Motor Controller | 2031744 |
| 13. Motor Installation instructions (not pictured) | 2032102 |
| 14. Motor Unit | 2109987 |

* Window bracket may look slightly different.
** Skylight bracket is not included with all kits.

**Note:**
- DC Marvel skylight motors are sold separately
- No wire is included. See wiring diagram on page 16 for wire requirements.
- To replace broken parts, please go to AmesburyTruth.com

# GETTING STARTED

## Planning

***Important:*** *If you are not the homeowner, it is important to contact the homeowner and discuss how they want to control a group of windows and/or skylights. It may be very difficult to change the installation to meet the homeowner's desires once installation is complete.*

**Please consider:**

- If installing more than one power window system, each motorized window **must** have its own control unit. If there are multiple windows and/or skylights installed and it is desired to have a single control point for all windows and skylights, the phone app WiFi control will give you this option.
- The control unit will give convenient wall mounted control only for the window connected to it. If the wall mounted control is not intended to be the primary means of control you may want to consider mounting it in a remote, out-of-the-way location.
- All Sentry 3 control units are WiFi enabled. This allows you the convenience of adding an optional rain sensor at any time.
- If you are installing the motor system onto a window that has manual locks be sure the locks are unlocked manually before attempting to open.
- The Sentry 3 power window system does not have manual override in case of a power outage. If it is important to be able to close the windows without power, consider installing a battery back-up system.
- **Rain Sensor -** A rain sensor is sold separately. If you choose to install the rain sensor option, only one rain sensor is needed if utilizing WiFi connection – otherwise one rain sensor would be needed per control unit if hardwiring directly to the control unit (via switch input). Consult main wiring diagram for wiring requirements if used.
- Each control unit requires .6 amp of power at 120 VAC.
- Plan your wiring routes carefully. Low voltage wires must not be run parallel to high voltage wires. Be sure to use shielded, twisted pair wiring in electrically noisy environments.

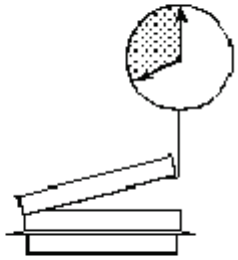
# SET UP

## Inspect Windows

The windows and/or skylights must operate correctly and smoothly. Lubrication or cleaning of hardware may be required. This motor system will not operate correctly if the manual hardware is not functioning properly.

**Important Skylight Information:**

- When installing the Sentry 3 motor on a skylight, the skylight lid must weigh less than 40 lbs at the chain. A hand crank should be used to verify the skylight operates smoothly.
- When installing on a skylight, the motor system will only fit the angle drive model manufactured by AmesburyTruth shown in step 3. Verify the skylight operator you have looks like the one shown in step 3.
- DC Marvel Skylight motors (sold separately) are capable of 45 lbs per chain with a maximum lid weight of 180 lbs with 2 motors.



**Skylight lid must weigh less than 40lb (18 kg) at the chain**

**BATTERY BACKUP**

Battery backup should be used to supply emergency power when operation of the power window system must be maintained in the event of a power outage. (**Please note:** A battery back-up is not required to provide memory back-up for the Sentry 3 system.)

AmesburyTruth recommends the use of a UPS (uninterruptible power supply) as a battery backup. They are widely available through a variety of retail and commercial outlets and are primarily used to supply emergency backup for computer equipment. (AmesburyTruth is not a supplier of battery back-up systems.)

To determine the proper VA rating for a UPS, take 50 watts and multiply by the number of windows and/or skylights to be backed up by a given UPS. Below is a list of the manufacturers who produce uninterruptible power supplies which we have approved as compatible with our power window systems.

**Powerware**
Forum III
8609 Six Forks Road
Raleigh, NC 27615
(800) 554-3448
(919) 872-3020
www.powerware.com

**American Power Conversion**
132 Fairgrounds Road
West Kingston, RI 02892
(800) 788-2208
(401) 789-5735
www.apcc.com

**Tripp Lite**
1111 West 35th Street
Chicago, IL 60609
(773) 869-1111
www.tripplite.com

**Minuteman (brand)**
1455 LeMay Drive
Carrollton, TX 75007
(800) 238-7272
(972) 446-7363
www.minuteman-ups.com

# INSTALLATION

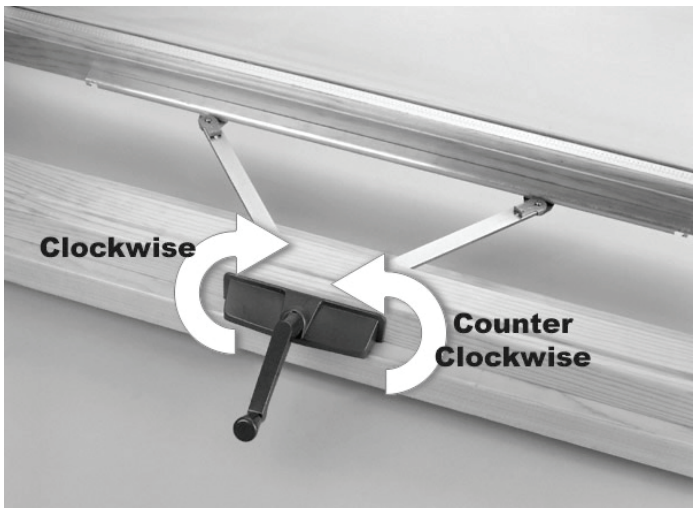
## Motor Installation

**Note:** Window operators are usually mounted to the bottom sill of the window. Occasionally the operator will be mounted on the side jamb of an awning or casement window and also occasionally to the head of a hopper window. These are all acceptable applications provided the window opens and closes smoothly throughout its full range of motion. Be sure the motor system is mounted securely to the window in these applications.

## 1. Test Hand Crank

**a. Determine the direction of hand crank rotation to open the window** as either Clockwise or Counter Clockwise (when facing the window operator).

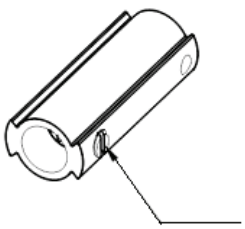
**b. Circle the direction to OPEN below.** (This information will be needed for proper system setup in Step 5.):




## 2. Install Adapter

Before installing the spline adapter determine how the adapter should be applied to the type of window operator that you have.

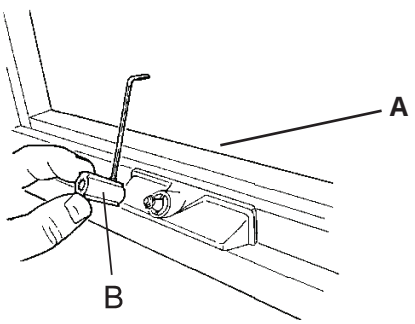
If your window operator is similar to the picture shown below (some operators may have the worm on the other side of the operator case) please switch the set screw to the hole at the opposite end of the adapter before installing on the operator shaft. For all other operators, apply the adapter as it was shipped to you.



If the operator looks similar to the one shown on the left please move the set screw from the hole that it was installed in for shipping to the open hole at the opposite end of the adapter

After installing the spline adapter (B) onto operator shaft, tighten set screw with wrench (A).

**NOTE:** *Be sure the set screw is fully seated into the operator shaft groove.*



## 3. Choose Wire Location

**Plan wire exit location on window for**

- **Operator motor**

See Figure 3a below for casement and awning windows and Figure 3b for skylights

**Note:** *Be sure the window width will accommodate the motor width. See Figures 3c & 3d below for finished dimensions.*

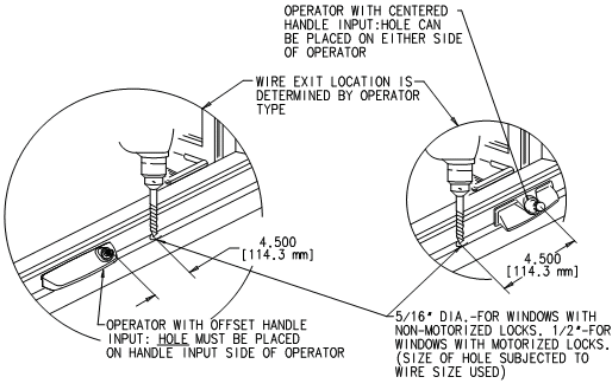



**Figure 3a**

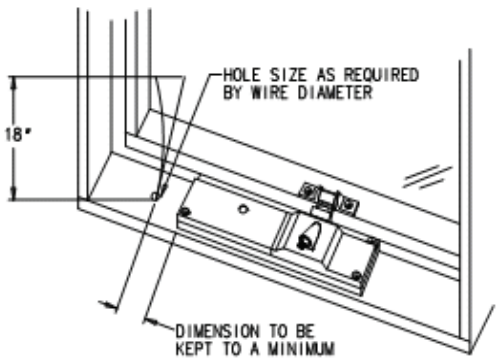



**Figure 3b**

**Note:** The placement information above are guidelines only. In some cases it is better to do a trial fit of the motor onto the operator. Hold the motor square and check both sides while looking for interference between the motor housing and operator housing.

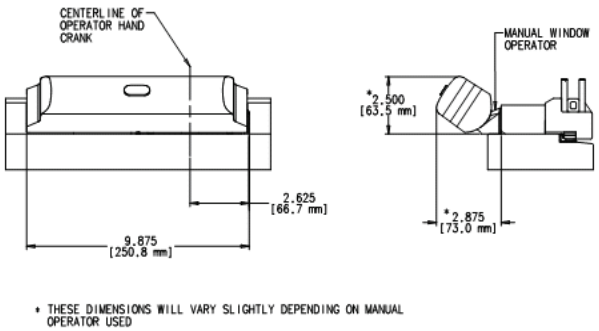



**Figure 3c**

Finished dimensions of motor system applied to a casement or awning window. Modification of the motor cover may be necessary for closest fit to the window sill.

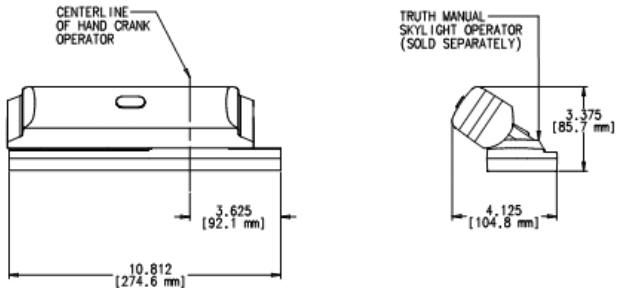


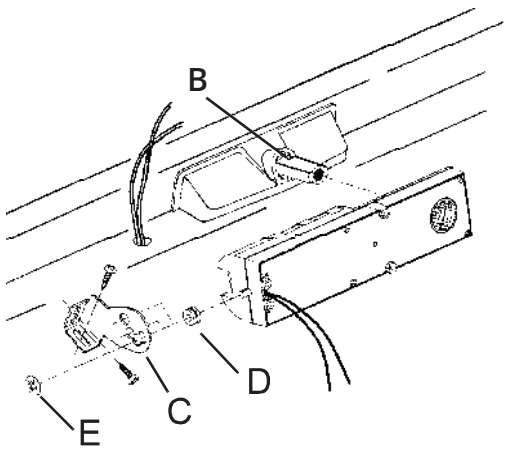

**Figure 3d**

Finished dimensions of the WLS motor system applied to a skylight window

## 4. Mount the Motor

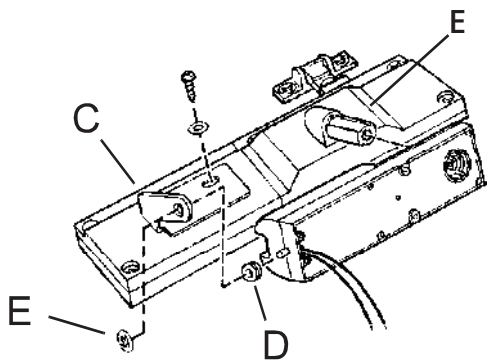
a. **Slide motor over spline adapter (B).**
b. **Insert the isolation grommet (D) into the mounting bracket where it best lines up with the motor mount post.**
   **Note:** *If a number of mounting positions are provided by the bracket, use the one which provides the best alignment with the window frame.*
c. **Secure motor with bracket (C).**
   **Note:** *In window applications two screws should be used when mounting the bracket (C) to wood or plastic window frames.*
d. **Slide the push-on fastener (E) over the motor post to secure the motor to the bracket and window casing.**
   **Warning:** *The push-on fastener is required for safety. Failure to install the fastener (E) can cause the motor to become detached and fall from window.*

**Window Mount**




*Sheet metal screws: (2) #8 x 5/8" Ph PH*

**Skylight Mount**

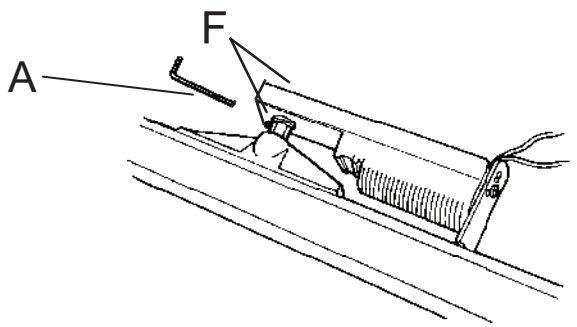



*Machine screw : (1) #12-24 x 1" Ph PH*

## 5. Align and Tighten Collar

**Align motor to window and tighten set screw in black plastic alignment collar (F) with wrench (A).**

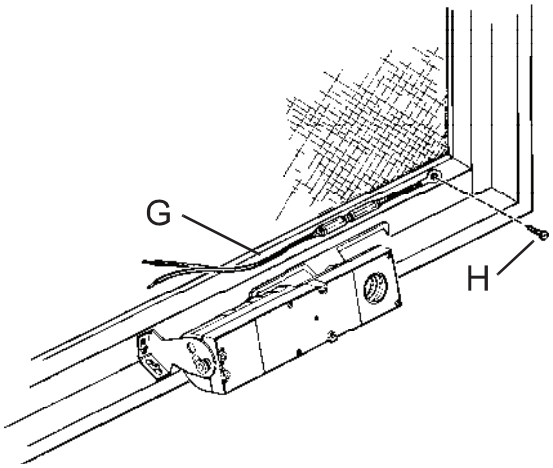
**Warning:** *Do not over tighten. Damage will occur to alignment collar if it is tightened excessively.*



### 6. Install Screen Interlock

**Install screen interlock (G) to the face of the screen frame as shown using the supplied pan head screw (H).**

**WARNING:** *The screen interlock must be installed on windows or skylights less than 8 ft from the floor. It is intended to prevent personal injury and/or window damage during operation*

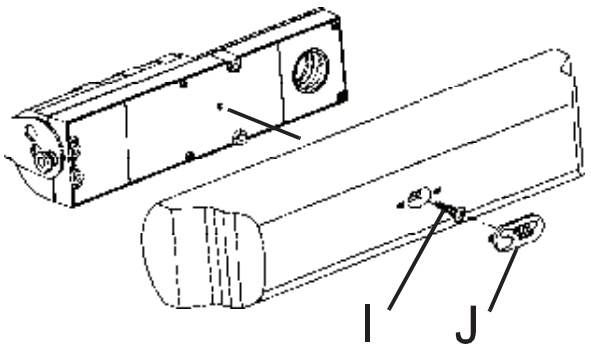



*Self threading machine screw: #6-32 x 3/8" Ph PH*

### 7. Secure Wires and *Install Cover

a. **Connect motor wires per wire diagram (see page 16) and secure with tape.**
b. **Install the motor cover using the #6 X 3/8 PH screw (¬I) found under cover button (J).**
c. **Modification of the cover maybe necessary to reduce the gap near the window sill.**

*** WARNING:** *Use of a longer screw (K) will damage the motor and void the warranty Use only the screw provided for the motor cover (#6-32 X 3/8 Phillips pan head machine screw).*




# INSTALLATION

## Controller Installation

### 1. Prepare Wall for Control Unit

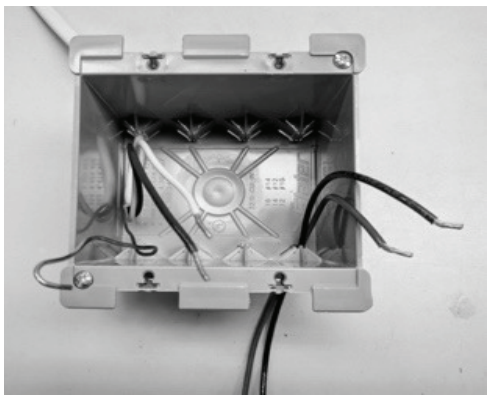
**Note: A control unit is required for each motorized window.** *Connecting two or more window motors to one control unit will overload and damage the control unit and void the warranty. Multiple windows can be controlled from a single control point via the phone/device app.*

**STEP 1**
**Install standard Double gang wall box**

The controller package consists of a Decora style low voltage rocker switch, the controller unit and the separate power supply unit. All components fit into a standard double gang wall box.

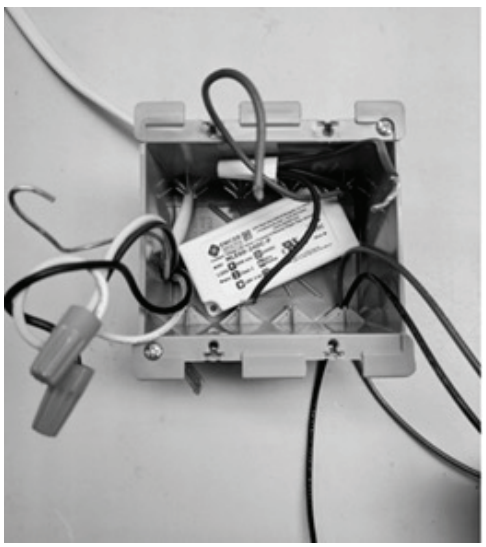
**STEP 2**
**Route and install wires**

- Route low voltage wires from motor location (including any accessory wires, such as rain sensor etc...) into control switch opening. It is recommended that low voltage wires are no larger than 16 AWG. **(See main wiring diagram on page 16 for complete wiring specifications.)** Route appropriate high voltage wire and select an inlet on control box which works with the selected orientation. Use appropriate strain relief. Pull 120 VAC wiring into control box through strain relief.



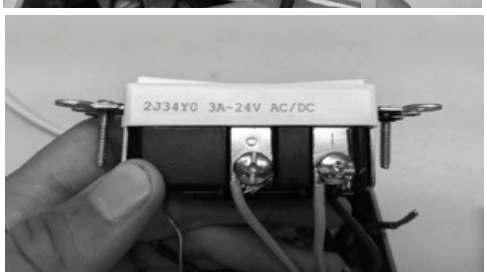
**STEP 3**
**Connect 24V power supply**

- Connect house wiring (black and white, 120 VAC) to black and white power supply wires.
- Apply a provided double-sided tape to the back of the power supply pack.
- Press power supply pack into the back wall of the double gang box.



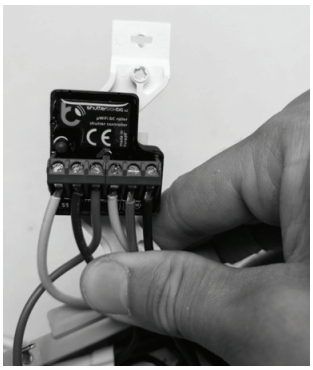
**STEP 4**
**Install wall switch**

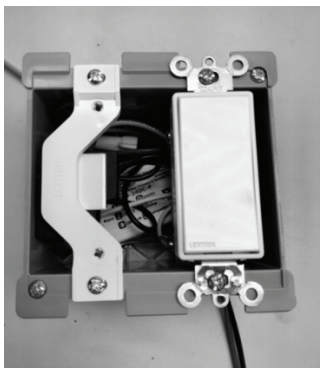
- Connect wall switch per the wire diagram shown in **Figure 4** on Page 16.
- Install wall switch into the right side of the double gang wall box.



**STEP 5**
**Install motor controller pack**

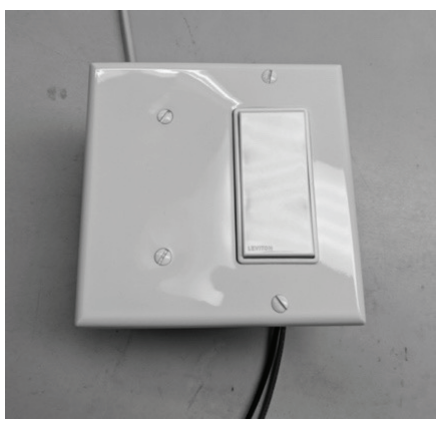
- Connect the motor controller pack per the wire diagram shown in **Figure 4**, below.
- Apply supplied double-sided tape to the back of the motor controller pack.
- Apply the controller pack to the back of the switch bridge (provided with the switch face plate) using the double-sided tape.
- Install the motor controller with the bridge into the left hand opening in the double gang box using the 2 unpainted screws provided with the switch cover plate.





**STEP 6**
**Install wall switch cover plate**

- Using the remaining 4 supplied screws (with painted heads), install the switch cover plate over the double gang box (shorter screws used on the switch-side of the switch cover plate).

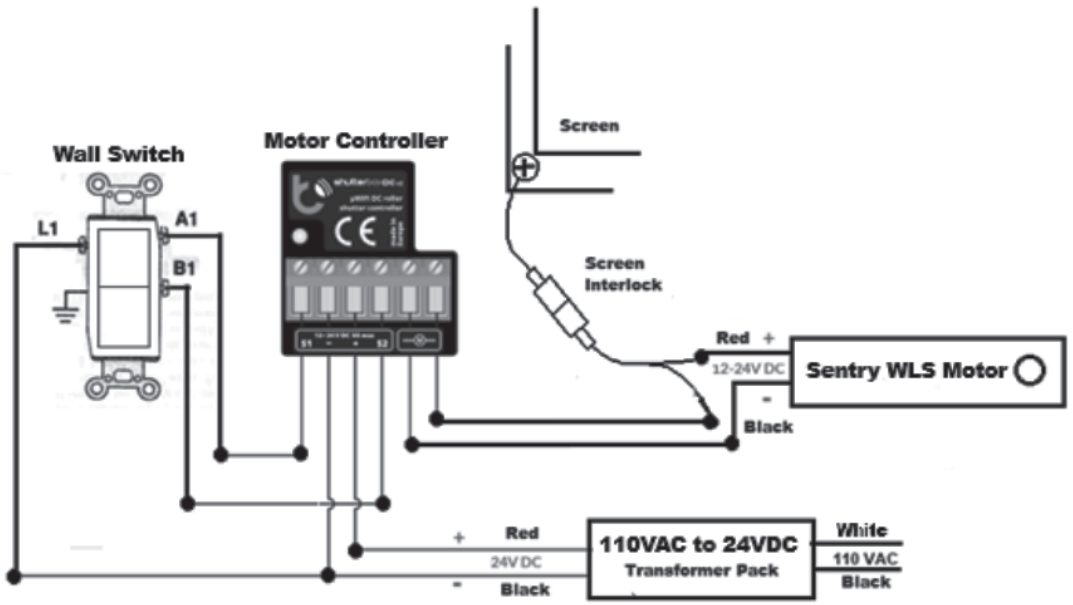


**Danger:** *Power supplied to high voltage (120 VAC) wiring should be disconnected at main breaker panel or through other means during installation. This motor control will need 1 amp of current at 120 VAC.*

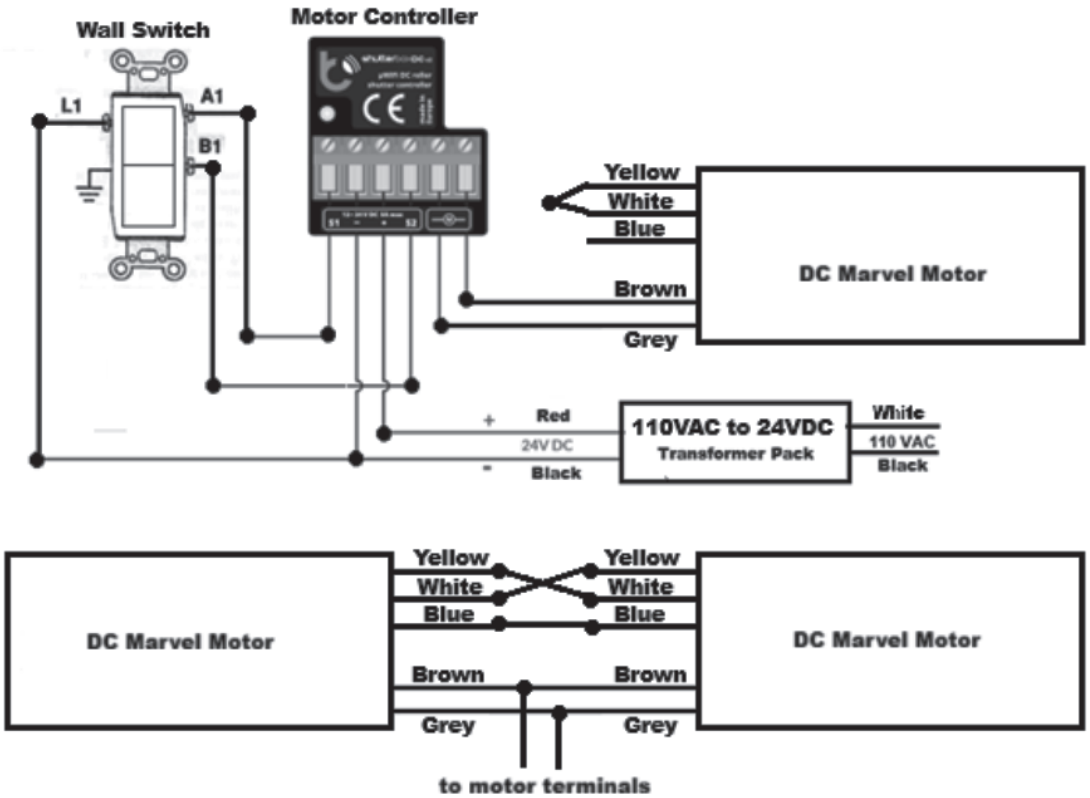
**Note:**

- Installation must meet local and national electrical codes.
- Refer to main wiring diagram for wire size and type requirements.
- Plan your wiring routes carefully. Low voltage wires must not be run parallel to high voltage wires.

Figure 4 – Main Wiring Diagram for Sentry WLS Motor




Single or Double DC Marvel motors



## 2. Download Motor Controller App & Connect Controller

Download Phone App from links below.

wBox APP

wBox APP

wBox APP

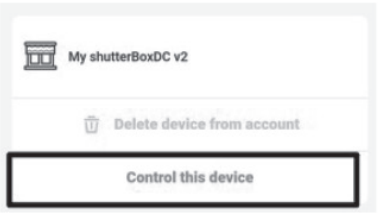
Follow installation and WiFi connection instructions to connect to the controller via the Phone/Device App (link is shown below).

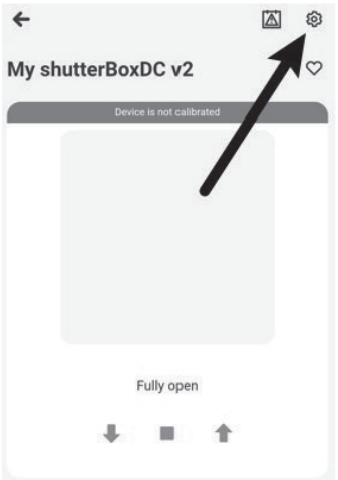
BleBox controllers - manuals / instructions / user guides / schematics:
https:/blebox.eu/en/manuals/ ➡ Open and Follow Quick Start Guide

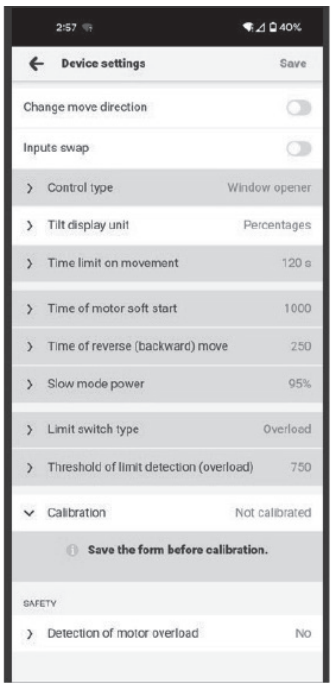
## 3. Set Motor Performance Criteria in App

For additional details, visit: https:/blebox.eu/en/products/shutterboxdc/

- Once connected to the controller, open the app and select “Control this Device”. Then, open the “Device Settings” ( ⚙ ) area and adjust the settings per the Recommended Base Settings in the following chart (starting on page 18).



# INSTALLATION

## Controller Installation

| Setting | WLS | Short Marvel | Comments |
|---|---|---|---|
| Status LED | As Desired (recommend leaving on) | | Determines whether LED on control unit flashes (will be hidden in electrical box) |
| Change Move Direction | As Needed | | Changes direction of motor if app inputs (and visuals) need to be reversed |
| Inputs Swap | As Needed | | Changes direction of motor if wall switch inputs need to be reversed |
| Control Type | Window Opener | | Displays additional, application-specific settings and dictates animation shown on control screens |
| Tilt Display Unit | Percentages | | The unit of measure used in displaying the position of the window **(after successful calibration).** Do not use Degrees, which assumes a predefined (and non-adjustable) full open angle (incorrect for either application). |
| Time Limit on Movement | 120 s | 90 s | Time (s) motor is allowed to operate following a command. Prevents motor burn-out, if it stalls (Especially important if increasing Threshold of Limit Detection setting). Must be set above anticipated time of operation (WLS opens casement to 90° in ~90 sec; Marvel opens in ~ 60sec). |

<table>
<tr><th>Setting</th><th>WLS</th><th colspan="2">Short Marvel</th><th>Comments</th></tr>
<tr><td rowspan="2">Time of Motor Soft Start</td><td rowspan="2">2000 ms</td><td>Single</td><td>Dual</td><td rowspan="2">Time (ms) motor is allowed to ramp up to full power. Increase if stalling on motor startup. Decrease to improve responsiveness.</td></tr>
<tr><td>2000 ms</td><td>3000 ms</td></tr>
<tr><td>Time of Reverse (backward) Move</td><td>~500 – 1000 ms above Soft Start time (looking for 45° - 90° of backdrive rotation)</td><td colspan="2">0<br><br>No locking system; Motor Unit(s) hold sash closed</td><td>Time (ms) after reaching end limit that motor reverses (relieves internal stress on operator at end limits to improve longevity). Only applicable on WLS, since window applications generally have separate locking systems to hold sash closed.</td></tr>
<tr><td>Slow Power Mode</td><td colspan="3">65 – 75%</td><td>Setting increases motor accuracy by reduction of power (Setting pertains to motorized blinds and has relatively little impact in a window/skylight application)</td></tr>
<tr><td>Limit Switch Type</td><td colspan="3">Overload</td><td>Overload detects end limit when electrical current exceeds set limit</td></tr>
</table>

<table>
<tr><th>Setting</th><th>WLS</th><th colspan="4">Short Marvel</th><th>Comments</th></tr>
<tr><td rowspan="3">Threshold of Limit Detection (overload)</td><td rowspan="3">1800 mA</td><td>Sash Wt. @ Chain (lbs)</td><td><25 lbs</td><td>25 – 45 lbs</td><td>45 – 90 lbs</td><td rowspan="3">Amperage limit (mA) at which controller stops motor(s). Increase if motor is stalling out within operating range, or if not closing as firmly as desired (increase may delay confirmation of reaching end limit – see Time Limit setting). Decrease to improve longevity of operating hardware, improve end limit detection, and limit force required to stop operation (entrapment).</td></tr>
<tr><td>Single</td><td>1800 mA</td><td>2200 mA</td><td>Dual Req’d</td></tr>
<tr><td>Dual</td><td>2000 mA</td><td>2300 mA</td><td>2700 mA</td></tr>
<tr><td>Calibration</td><td colspan="4">Perform “Automatic Calibration” after settings are saved</td><td>Allows for partial opening and saving favorite positions. Note: Make sure window is unlocked prior to calibration.</td></tr>
<tr><td>Detection of Motor Overload</td><td colspan="4">No</td><td>N/A for “Overload” end limit (set Threshold of Limit Detection lower, if entrapping forces are excessive)</td></tr>
<tr><td colspan="6">These settings are intended to be a generic starting point that should allow for reliable usage in most applications. These can be adjusted as needed or desired. Please see Troubleshooting section if motor is not functioning as intended</td></tr>
</table>

# OPERATION

## Normal Operation

**Note:** If the window has manual locks the window must be unlocked before motorized operation.

**Note:** It is recommended for the end user to access the "How to Use" tutorial from the sidebar menu in the app ( ), which will walk through some of the features that can be utilized within the app – and where they are located.

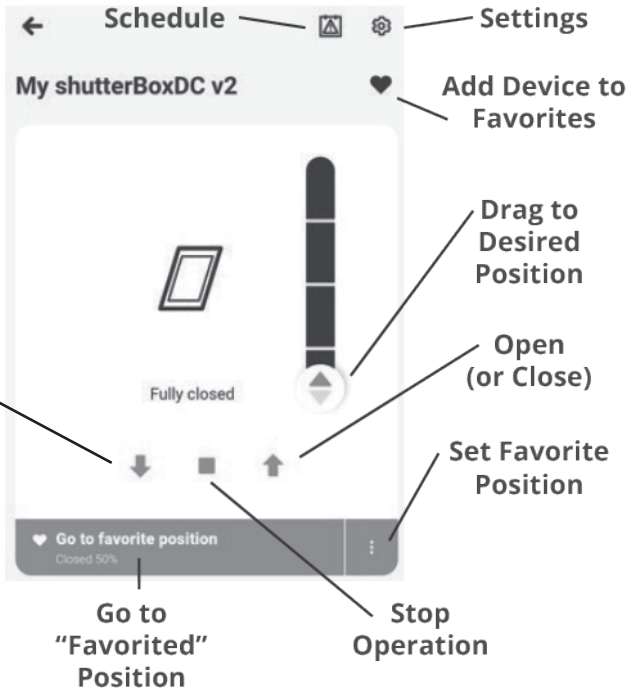
**Note:** The BleBox (wBox) App is a third-party app. Information in this manual regarding app functionality/ appearance is subject to change. Visit the website blebox.eu/en/manuals/ for most up-to-date information/ manuals on app usage.

**Buttons located on wall switch**


**Note:** Press and release for full-open/close; Press and hold for partial- open/close.

**Note:** Open and Closed directions can be swapped in the settings for both the wall switch and the app controller (see Recommended Base Settings).

**Buttons located in phone app**




**To Open:**

- Press and release "Open" on either the wall switch or the app controller to fully open the window.

**To Close:**

- Press "Close" on either the wall switch or the app controller to fully close the window.

**To stop the window in an intermediate position:**

- During operation press any open/close button (wall switch or in the app) to stop the motor. Alternatively, the stop button in the app can be used. The window can be opened/closed to a specific location through the app by either dragging the slider to the desired location, or by tapping the "Go to Favorite Position" button.

**Position Indicator:**
- If correctly calibrated, the app will display a visual representation and a numeric readout of the relative position of the window.

**Grouping Multiple Windows Together:**
- In the app, multiple controllers can be grouped and controlled at one time.
- Must be set up and connected to WiFi network.
- Tap the “Groups” button at the bottom of the home screen and select “Create First Group”, or the plus symbol (+) if adding an additional group.
- Once named, select the window units you wish to group together and save (units can be added and removed at any time).
- The group can now be set to Open, Close, Stop, or Set a Position (Slider or Favorite).
- Alternatively, the “Scenes” button can be used to create custom commands for groups of windows.


# OPTIONAL ACCESSORIES

## Rain Sensor (Sold Separately)

The sensor will detect that it is raining when “beading” moisture is present on the surface of the rain sensor grid. The rain sensor can either be wired directly to the switch inputs (triggering a close command when raining), or over WiFi through the app. When connected through the app, a rain event can be set to trigger a command to close specific windows (one sensor can command multiple controllers). Once the panel is dry, normal operation is resumed.

Connect Rain Sensor as directed by the instructions included with the Rain Sensor (QR Code). If connecting over WiFi, the rain sensor will also need to be programmed to trigger the closing of windows on desired controllers, per the same instructions.

**Rain Sensor Guidelines:**
- Install the sensor with “grid” exposed to outside elements where the rain has a clear, unobstructed path to the rain sensor. Consider prevailing winds.
- Use wire included with sensor; Extending or cutting and splicing the wire may impact sensitivity.
- The sensor can be mounted outside (maximum sensitivity) or inside vent edge (minimum maintenance)
- Maintenance; Regular cleaning of sensor panel with a mild cleaning agent is recommended. Dirt or debris can cause the vent to stay closed even when rain is not present.

**Warning:**
*When used on skylights, do not route rain sensor wire through the chain port, damage to wire will be a likely result.*

# TROUBLE SHOOTING

**Note:**
Additional Technical assistance can be found by contacting: techserv@quanex.com | 1-800-324-4487

| ISSUE | | SOLUTION |
|---|---|---|
| **GENERAL ISSUES** | | |
| Motor Does Not Fit the Operator | | 1. Verify that the operator was manufactured by AmesburyTruth |
| Motor is Not Straight on my Window | | 1. Check to be sure the correct mounting hole is used in the mounting bracket. (See step 4 on pages 10-11) |
| Open/Closed Directions are Reversed... | In the App | 1. In Device Settings (in the BleBox app), toggle the "Change Move Direction" setting **[reattempt operation]**<br>- If "On", turn "Off" – and vice versa<br>2. Check the Wall Switch<br>- May need to toggle this setting, too |
| | For the Wall Switch ONLY | 1. In Device Settings (in the BleBox app), toggle the "Inputs Swap" setting **[reattempt operation]**<br>- If "On", turn "Off" – and vice versa |

# TROUBLE SHOOTING

| ISSUE | | SOLUTION |
|---|---|---|
| Motor Stalls... | At Startup | 1. Verify lock is not engaged<br>2. Verify unit is receiving power<br>- Verify screen interlock is connected<br>- If controlling via app, verify controller is connected to app<br>- Connect directly to controller unit's WiFi connection<br>3. Check if directions are swapped (try closing, instead of opening or vice versa)<br>- Inputs can be swapped in Device Settings (both for app control and manual switch) – see above<br>4. Compare Device Settings to the "Base Settings" table **[reset settings and reattempt operation]**<br>5. Increase "Time of Motor Soft Start" **[reattempt operation]**<br>6. Increase "Threshold of Limit Detection" **[reattempt operation]**<br>7. If corrected by step 6: Attempt to minimize the current needed and inspect window for evidence of binding/rubbing (unusual noise, scrapes, powder) **[Recalibrate]**<br>- If evidence of binding/rubbing: consider correcting hardware alignment or contact window manufacturer<br>**8. (Only if comfortable),** SHUT OFF POWER AT BREAKER, remove wall plate, and verify good electrical connections per diagrams/pictures shown in manual *See note in below section for Marvel units*<br>8. If unsuccessful, contact technical support |

# TROUBLE SHOOTING

| ISSUE | | SOLUTION |
|---|---|---|
| | During Operation (before reaching desired position) | 1. Check for, and clear any obstructions **(if closing**, make sure locks are NOT engaged)<br>2. Verify unit did not lose power and/or connection to the app (if using app to control)<br>- Verify screen interlock is connected<br>3. Attempt recalibration<br>- If calibration stalls out, continue to step 4<br>4. Compare Device Settings to the "Base Settings" table **[reset settings and reattempt operation]**<br>5. Increase "Time of Motor Soft Start" **[reattempt operation]**<br>6. Increase "Threshold of Limit Detection" **[reattempt operation]**<br>7. If corrected by step 6: Attempt to minimize the current needed and inspect window for evidence of binding/rubbing (unusual noise, scrapes, powder) **[Recalibrate]**<br>- If evidence of binding/rubbing: consider correcting hardware alignment or contact window manufacturer<br>- If sash sticks to the weatherstripping when initially opening (some paints and varnishes will stick to weatherstripping), apply a thin film of automotive finish wax to the finished window surface<br>**8. (Only if comfortable)**, SHUT OFF POWER AT BREAKER, remove wall plate, and verify good electrical connections per diagrams/pictures shown in manual<br>9. If unsuccessful, contact technical support |

# TROUBLE SHOOTING

| ISSUE | SOLUTION |
|---|---|
| Sash Does Not Close Sufficiently for Proper Lock Engagement (CASEMENT/AWNING APPLICATION)<br><br>OR<br><br>Sash is "Too Loose" in Closed Position (SKYLIGHT APPLICATION) | 1. Follow the above procedure for **"Motor Stalls...During Operation"**<br>- Prior to Step 3, Set "Time of Reverse (backward) Move" to zero (0) ms<br>2. If Sentry unit is mounted on a casement window and the issue was solved via reduction of the "Time of Reverse Move" setting, attempt to maximize this setting **[recalibrate when satisfied with operation]**<br>-In Casement/Awning applications, setting sufficient backdrive time is important to ensuring longevity of the hardware |
| Sash Closes Too Tightly (or Opens Too Forcefully) | 1. Increase "Time of Reverse (backward) Move" in the Device Settings<br>- In Casement/Awning applications, setting sufficient backdrive time is important to ensuring longevity of the hardware<br>2. If initial closing is too tight (prior to backdrive), attempt to reduce "Threshold of Limit Detection (overload)" **[recalibrate]**<br>- Note that reducing the Threshold Limit setting may affect the ability of the window to operate (may require several attempts to find a desirable balance between low closing force and reliable operation. |
| Noticeable Delay in Motor Start | 1. In Device Settings, decrease "Time of Motor Soft Start" to a non-zero number **[recalibrate]**<br>- Note: This setting may be critical to reliable operation – particularly in applications with heavy sash weights<br>- A noticeable delay may be required in your application<br>2. Over time, and with heavy-use (particularly in Casement/ Awning applications), wear to the operator can lead to extra play in the system – resulting in a delay<br>- New operator hardware may be required in such cases<br>- Such wear can be reduced by use of the "Time of Reverse (backward) Move" setting |

# TROUBLE SHOOTING

| ISSUE | SOLUTION |
|---|---|
| Wall Switch Does Not Work (no response to switch inputs in either direction) | 1. Follow Steps 1 – 8 for "Motor Stalls…At Startup"<br>2. If Switch is **still** unresponsive, the switch may be defective<br>- With POWER TURNED OFF AT BREAKER, disconnect and remove the switch from the box. Test for continuity in both directions using multimeter: place one lead on "L1" contact and the other on "A"; operate switch to test for continuity – repeat with leads on "L1" and "B" **[replace Switch, if fails continuity test]**<br>- Note: The Switch should be designed for low voltage; high voltage switches cannot be guaranteed to operate reliably over the life of the product<br>3. If Switch passes continuity test, the Controller may be defective **[replace as needed]**<br>4. Contact technical support, as needed |
| Calibration Unsuccessful | 1. Attempt manual operation fully-opened, then fully-closed.<br>2. If sash stops before reaching either position, then see **"Motor Stalls…During Operation"** section.<br>3. If sash successfully reaches both positions without issue, restart both app and Device (at Breaker) **[reattempt calibration]**<br>4. If unsuccessful **[contact technical support]** |
| Chain "Whips", Binds, or Makes "Bad Noises" (SKYLIGHT ONLY) | 1. Most likely cause is misalignment of the bracket connecting the chain to the sash **[attempt realignment or contact window manufacturer]**<br>2. To Realign:<br>- Extend chain as little as possible to allow access to bracket screws and block open sash (wood blocks generally work well)<br>- Disconnect bracket and remove screws<br>- Using extended chain as a guide and making note of which side rub marks are located – reposition bracket and mark location for new holes<br>- Drill appropriate pilot holes and reattach bracket in new location<br>- Reattach chain and test operation<br>3. Could also be due to Worn-out/Failed operators **[replace as needed]** |

# TROUBLE SHOOTING

| ISSUE | SOLUTION |
|---|---|
| Display Indicates Sash is “Moving” after it Achieves Fully-Opened/Closed | 1. If Threshold is set too high (higher than the stall current of the motor, the controller will not recognize that the motor is stalled out and will continue to provide power (and not recognize that the end limit has been reached) **[reduce “Threshold of Limit Detection” in “Settings”** ( ⚙ ) **> “Device Settings”]**<br>- Use “Base Settings” table in this manual as a guide<br>- In Casement/Awning applications, if the end limit is not reached, the controller will not know to backdrive and will put undue wear on the operator over time<br>- If it is deemed necessary to have an excessively high Threshold Limit (ie: due to excessive sash weight), then it is imperative that a time limit be set to shut off the motor automatically (otherwise it will burn out prematurely)<br>1. Test and **[recalibrate]** |
| **MARVEL-SPECIFIC ISSUES** | |
| Chains Are Uneven in Dual Motor Application | 1. Block sash open (wood blocks generally work well) wide enough to access brackets<br>2. Remove bracket pins and fully retract chains<br>3. Re-extend and reattach **[test operation]**<br>4. If one chain always stops sooner than the other (in either direction) and steps 1-3 do not seem to correct this – the operators may need to be reset **[contact technical support]** |

# TROUBLE SHOOTING

| ISSUE | SOLUTION |
|---|---|
| Chain Does Not Fully Extend | 1. Marvel unit chains should extend ~9"; If less, attempt steps 1 – 8 for **"Motor Stalls…During Operation"**<br>2. If unsuccessful, motor unit may need to be reset **[contact technical support]** |
| Motor Stalls…At Startup | 1. ("General Issues" Step 8 Addendum): Marvel units contain additional internal circuitry to allow for synchronization of two motors – if the yellow, white, and blue wires are not connected as shown in the earlier diagrams (including single unit setups) – the motor **will not** function **[ensure these are securely connected, per the diagrams]** |
| Display Indicates Sash is "Moving" after it Achieves Fully-Opened/Closed | 1. Larger Sash Sizes (particularly paired Marvel units) may require higher "Threshold of Limit Detection" settings to operate reliably at startup; At these higher limits, the internal controls within the Marvel units may stall sooner (at fully-opened/closed) than the external controller. This results in the controller still displaying that the sash is "moving". Due to this, it is important to have a reasonable "Time Limit on Movement". **[Ensure Time Limit is set correctly; see Base Settings Table for suggestions]** |

# TROUBLE SHOOTING

| PHONE (wBox) APP ISSUES | |
|---|---|
| **The BleBox (wBox) App is a third-party app with its own support. If you are having issues that cannot be resolved in this section, then see the help page "Settings" ( ) > "Details, Updates and Help" and follow the directed link for assistance. Additionally, see the "How to Use" option on the sidebar of the app for more insights into how to make use of the app and Devices.** | |
| **ISSUE** | **SOLUTION** |
| Device (Shutterbox/RainSensor) Does Not Appear on App | 1. Ensure Device is receiving power<br>- If Device was previously connected to your WiFi network, ensure WiFi router is functioning normally<br>2. Connect Directly to Device's WiFi<br>3. Re-open app<br>- Device should now appear<br>4. (If not already) Add Device to Account<br>- Creating an account is not necessary, but it is recommended<br>5. Select "Control this Device" and Open "Settings" ( > "Connection"<br>6. (If not already) Configure Device to connect to your WiFi network |
| App Will Not Connect to Device | 1. Ensure Device is receiving power<br>2. If you have not previously connected with the device via the app, you will need to connect directly via the Device's WiFi network for first time setup (see above)<br>3. If the Device has not yet been connected to your WiFi network, you can only connect directly, via the Device's WiFi network – once connected, the Device can be configured to your WiFi network (see above)<br>4. You will need to be signed in to a BleBox account (and the Device will need to be configured to a WiFi network & connected to the internet) to control the Device from a WiFi network other than the configured network |
| Cannot Access Device Settings | 1. Device Settings can only be accessed when you are:<br>a. Connected directly to the Device via its own unique WiFi network<br>b. Connected to the WiFi network that the Device had been configured to<br>2. You cannot access Device Settings remotely from a different (unconfigured) network |

# TROUBLE SHOOTING

| ISSUE | SOLUTION |
|---|---|
| App Commands Unresponsive | 1. Ensure that the Device is displaying properly<br>2. Ensure that the Device you are attempting to physically control is the same Device you are seeing/controlling in the app<br>3. Check your WiFi connection<br>- Attempt to connect directly to the Device's WiFi signal<br>4. Restart app and/or Device (at Breaker) **[reattempt connection and command]**<br>5. Update Firmware on the Device via "Settings" ( ⚙ ) > "Details, Updates and Help" **[restart and reattempt]**<br>6. Attempt command with wall switch<br>7. If wall switch is unresponsive, then follow steps in **"Motor Stalls...At Startup"** section. OTHERWISE, if wall switch is responsive, then it is possible that the controller may be defective. |
| The Position Slider and Favorites Does Not Show Up (Only Open/Close Buttons) | 1. Device must be calibrated prior to allowing use of the slider and favorite positions<br>- Calibration can be accessed via "Settings" ( ⚙ ) > "Device Settings" |
| Percentage Open/Closed Displayed Does Not Reflect Reality | 1. Attempt a fully-open to fully-closed cycle **[recheck]**<br>2. Recalibrate via "Settings" ( ⚙ ) > "Device Settings" |
| App Visual Is Not a Window or Skylight | 1. Go to "Settings" ( ⚙ ) > "Device Settings" and set the "Control Type" to "Window Opener"2. Verify all the other Device Settings per the Recommended Base Settings **[recalibrate]**<br>2. Go to "Settings" ( ⚙ ) > "Name and Icon" **[select your preferred icon]** |