ENGINUITY™ Automation Installation Instructions

Window Application, Surface Mount

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UL & FCC Compliance

UL Compliance (US English)

UL conformity requires the following in respect to the input AC power and the Enginuity™ controller system:

1. A 120VAC receptacle shall be positioned within 6ft(1.83m) of the intended Enginuity™ installation location.
2. The supplied AC power cord shall be routed in such a manner as to prevent it to becoming entangled in the window/door, moving parts of the system, or the operator.
3. The AC power cord shall not be routed through doorways, windows openings, walls, ceilings, floors, or the like.
4. The AC power cord shall not be secured to the building structure nor concealed behind walls, and the like.
5. If the input AC power cord is replaced, it must meet or exceed the supplied power cord's ratings shown:

18AWG(0.824mm), 300V, 2/C, 60ºC, Length: 6ft(1.83m)
UL Listed for the US and Canada.

UL Compliance (Canada French)

UL Conformité

La conformité UL exige ce qui suit en ce qui concerne la puissance AC d'entrée et le système de commande Enginuity™:

1. Un récipient de 120VAC doit être placé à moins de 6pi(1,83 m) de l'emplacement prévu pour l'installation Enginuity™.
2. Le cordon d'alimentation fourni doivent être disposées de manière à l'empêcher de s'emmêler dans la fenêtre/porte, les pièces mobiles du système, ou de l'exploitant.
3. Le cordon D'alimentation ca ne doit pas être acheminé par des portes, des ouvertures de fenêtres, des murs, des plafonds, des planchers ou autres.
4. Le cordon d'alimentation ne doit pas être fixé à la structure du bâtiment, ni dissimulé derrière des murs, et la comme.
5. Si l'entrée cordon d'alimentation est remplacé, il doit satisfaire ou dépasser le cordon d'alimentation fourni est nominales indiquées:

18AWG(0.824 mm), 300V, 2/C, 60ºC, Longueur: 6ft(1.83 m)
UL listée pour les États-Unis et le Canada

Supplier's Declaration of Conformity
47 CFR § 2.1077 Compliance Information

Unique Identifier: 28J0110xxxxxxxx Enginuity™ Controller System

Responsible Party – U.S. Contact Information:

Caldwell Manufacturing Company North America, LLC.
2605 Manitou Rd
Rochester, NY 14692
cservice@caldwellmfgco.com

FCC Compliance Statement: This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Safety Tips

Safety is number one priority here at Caldwell. Please be cautious of your surroundings during installation and use tools the proper way.

Electrical Safety:

Whenever you work with power tools or on electrical circuits, there is a risk of electrical hazards, especially electrical shock. We recommend that all workers pay special attention to electrical hazards while installing this system. Coming in contact with an electrical voltage can cause current to flow through the body, resulting in electrical shock and burns. Serious injury or even death may occur.

Note: Incorrect installation can lead to injury. Read and follow instructions contained in this manual carefully.

Safety Tips:

- Do not wear rings, watches or any loose clothing when installing or servicing the automation system.
- **Safety glasses** must be worn at all times
- Window system must be installed correctly before any automation is installed
- Watch for nails, sharp edges/corners, splintered wood, and uneven surfaces

Recommended Safety Equipment:

- Safety Glasses
- Heavy Duty Gloves
- Hard Toe Shoes
- Knee Pads
- First Aid Kit

Safety First!

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Pre-Installation Checklist

Prior to installing the automation system <u>verify</u> the following:

✓ Does the window open AND close smoothly and easily?
  Make sure the window moves freely over its entire length of travel (this may be as little as 4").

✓ Is the window frame in good condition and allows smooth window travel?
  Make sure the jambs are clear of construction debris.

✓ Is the window level?
  Make sure the frame does not sag or rise excessively.

✓ Is the window plumb?
  Verify the window is square "sash to sash" AND "sash to frame".

✓ Ensure that a 110V, 60Hz, 15A circuit is located at the controller.
  A dedicated circuit is recommended, but not required.

STOP **If the above are not correct, have the installation corrected!**

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Tool List

- Power Drill

- Drill Bit Kit

- Screw Driver

- Tape Measure

- Allen Wrench Set

- Pencil/Pen/Marker

- 1" Paddle/Spade Bit

Part Identification

Upper Mounting Bracket

Lower Mounting Bracket

Window Connection Bracket

Enginuity™ Actuator with Actuator Bracket (shown in black)

Enginuity™ Controller

Power Supply

Cable from Drive Unit to Controller

900MHz Wireless Remote (Optional)

Wired Capacitive Wall Switch

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Pre-Installation Checks

Before beginning, some things need to be checked to ensure a smooth installation.

Ensure that a 110V, 60Hz, 15A (dedicated is preferred) circuit is within 6ft of the Power Supply.
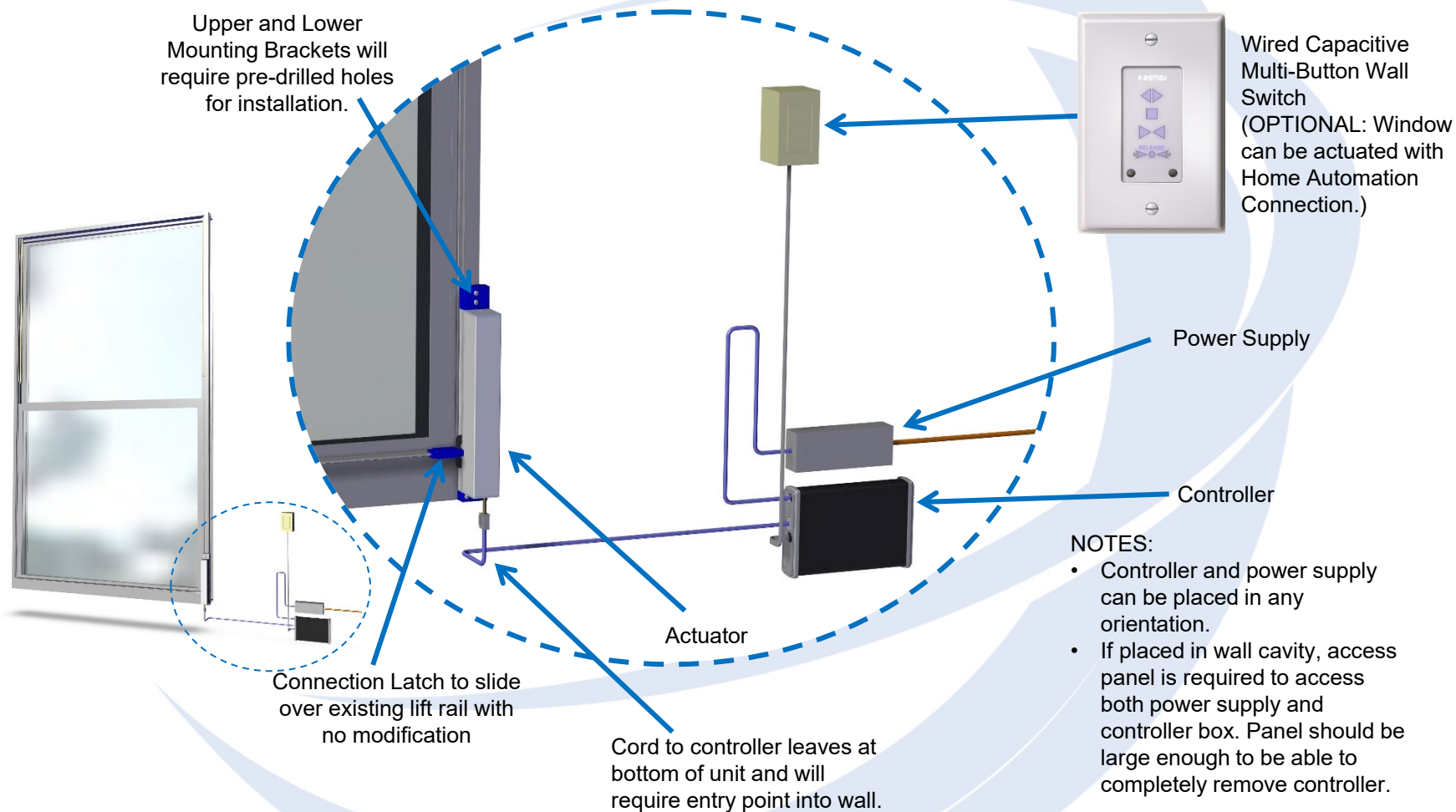
Pre-installation check:

- Window Movement - Make sure that the window moves freely over its entire length of travel, and that it is square sash to sash and sash to frame. If any problems are detected, contact the window installer or job superintendent to correct them.
  Note: The application shown has stops to ensure only 4" opening on the sash to be automated.

Do not plug any components in to power until instructed.

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Standard Component Placement

When determining component locations, consider the visual impact on the end customer, ease of installation, and future serviceability. Figure below shows the typical location of components.

Colors are shown for clarity and reference.

Upper and Lower Mounting Brackets will require pre-drilled holes for installation.

Wired Capacitive Multi-Button Wall Switch (OPTIONAL: Window can be actuated with Home Automation Connection.)

Power Supply

Controller

Actuator

Connection Latch to slide over existing lift rail with no modification

Cord to controller leaves at bottom of unit and will require entry point into wall.

NOTES:
- Controller and power supply can be placed in any orientation.
- If placed in wall cavity, access panel is required to access both power supply and controller box. Panel should be large enough to be able to completely remove controller.

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Installation Process

- Hold the Enginuity™ Actuator up to the Lower Right Corner of the Window. Ensure that the Window is able to Tilt past the Enginuity™ Actuator.
  Note: The sash side of Enginuity™ Actuator should not overlap the window sash. If it does, move the Enginuity™ Actuator further away from the sash.

- Mark and Pre-Drill 2 Screw Holes for each bracket.
  Note: Lower mounting bracket has 3 holes. Only 2 screws are required for installation: the middle hole & the hole that is on the sash side, as shown.

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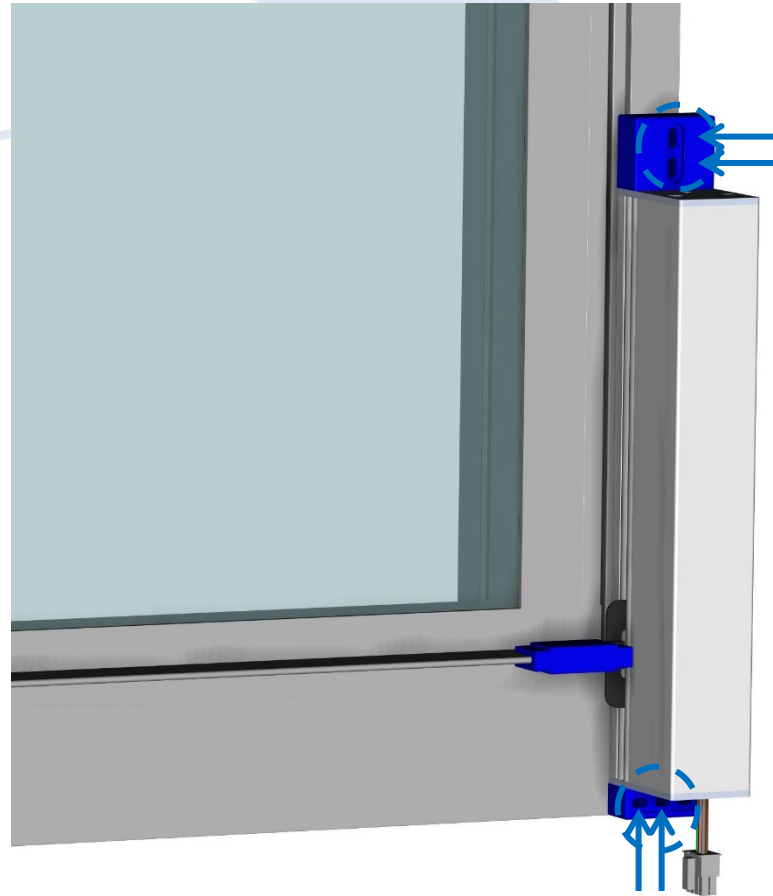
Installation Process

- Slide the Window Connection Latch further on the Lift Rail

- Remove the Enginuity™ Actuator & Upper Mounting Bracket Off the Lower Mounting Bracket

- Screw the Lower Mounting Bracket Into Pre-Drilled Holes

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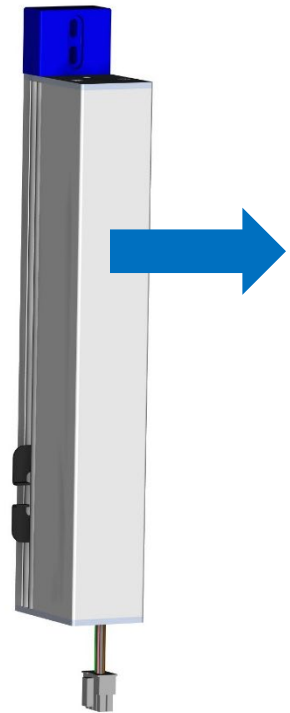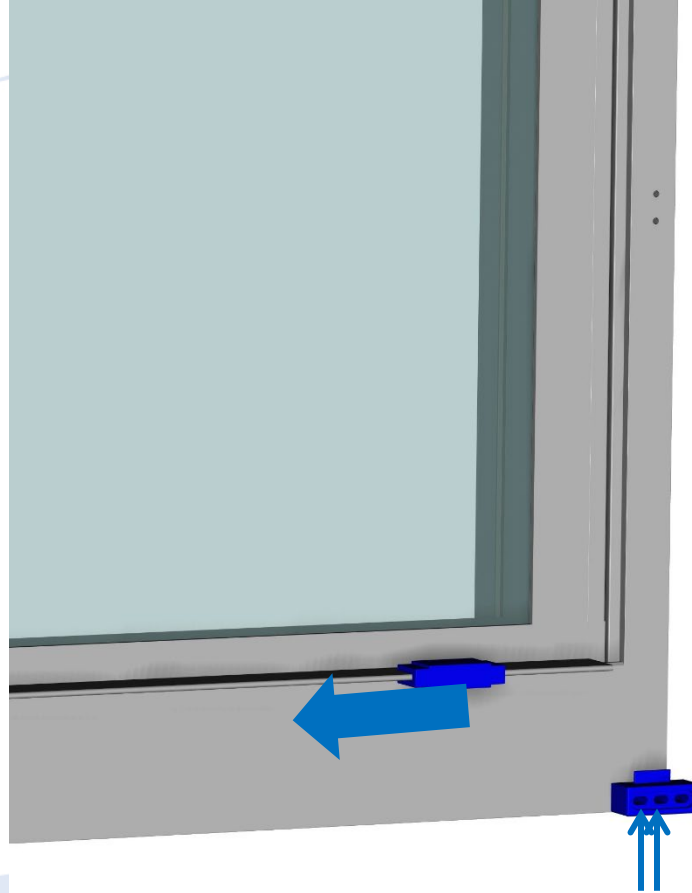
Installation Process

- Position the Enginuity™ Actuator & Upper Mounting Bracket back on the Lower Mounting Bracket

- Screw the Upper Mounting Bracket Into Pre-Drilled Holes

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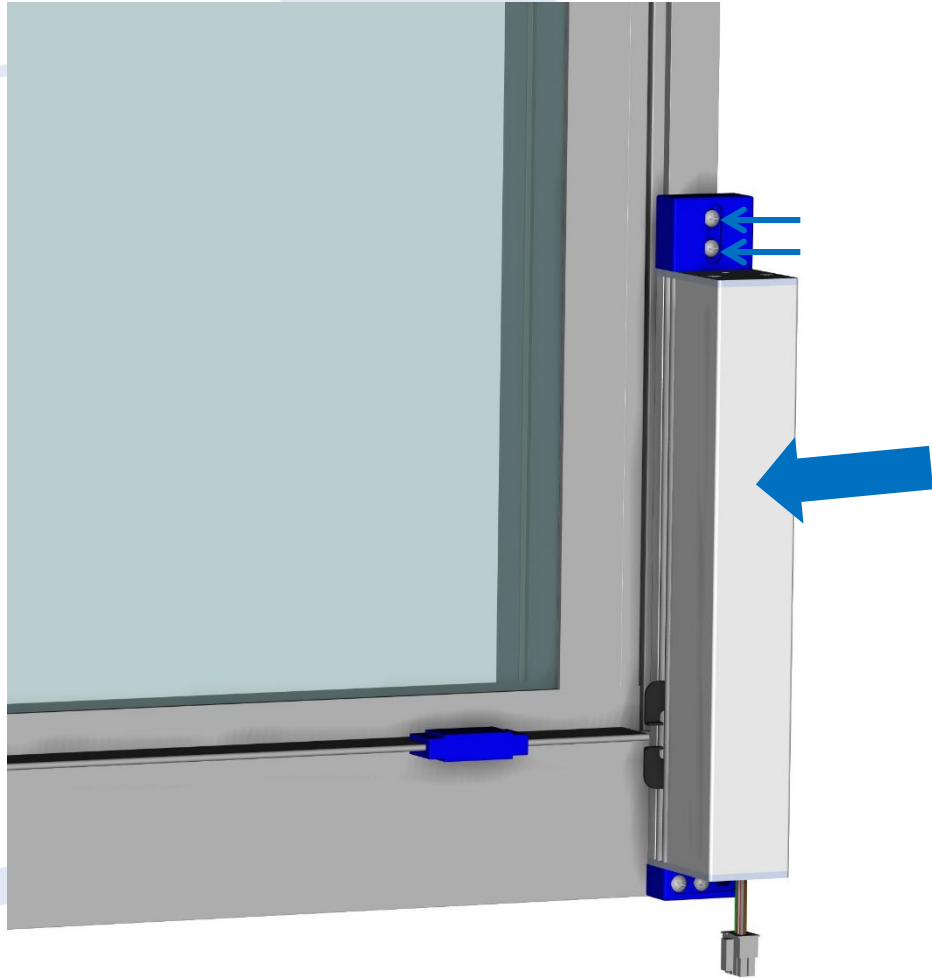
Installation Process

- Slide the Window Connection Latch back into place on the Enginuity™ Actuator between the Arms of the Actuator Bracket.

- Tighten Set Screws with 5/64th Allen Wrench

- **Mechanical Installation is now complete.**

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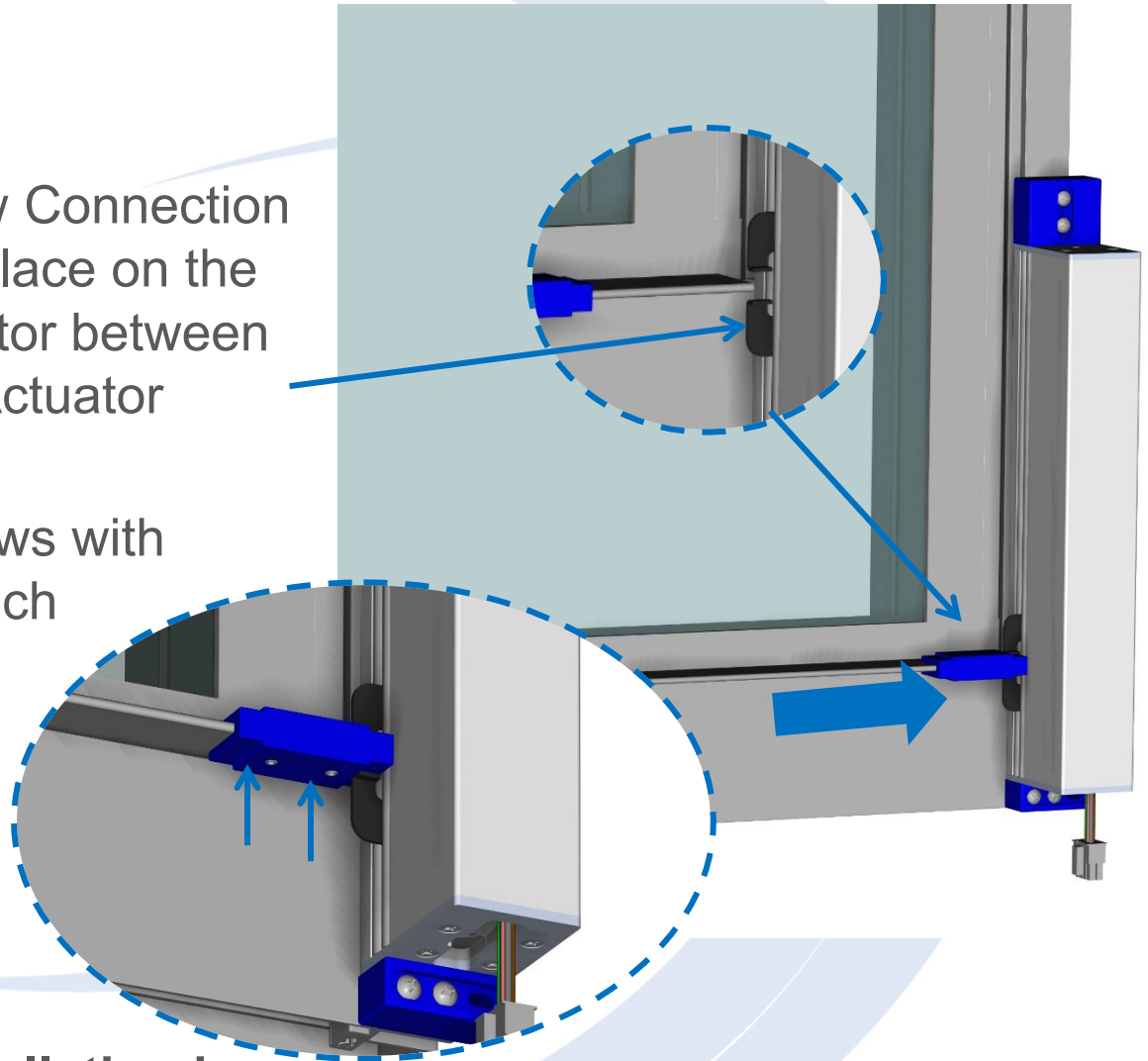
Automation System Installation

Mechanical Installation Complete:

- Before beginning the electrical installation, check for rubs and interferences by manually moving the window over the entire length of its travel. Make sure that the window moves freely over its entire length of travel, and that it is plumb sash to sash and sash to frame.

- Ensure that the Enginuity™ Actuator's Actuator Bracket and Window Connection Latch remain engaged over the full travel of the window.

- If any problems are detected, contact the window installer to correct them. Everything must be working properly **mechanically** before beginning the **electrical** installation.

Electrical Installation Begins:

- **Do not connect motor or control panel to power before instructed.**

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Initial System Setup

1 Plug the Enginuity™ Actuator in to the provided 8 pin cable.

2 Connect the other end of the provided 8 pin cable to the Enginuity™ Controller.

3 Connect Enginuity™ Controller to Power Supply with Provided Cable.

4 Use an RJ45 Cable to Connect Wall Switch to Enginuity™ Controller.

5 Plug Power Supply into the 110V, 60Hz, 15A (recommended dedicated).

Wired Wall Switch (back & front)

Either RJ45 port can be used

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Programming the Automation System

PAIR Button
Not used during Programming

MODE Button LED:
🟢 **Green = Normal Operation**
🔴 **Red = Start Programming**

While Programing:
🟢 **Green = Auto Programming**
🔵 **Blue = Manual Programing**

FUNCtion Button LED:
🔵 **Cyan = Solid, 1 Second Button Press**

Programming & Normal Operation:
🟢 **Green = Flashes while Opening**
🔵 **Blue = Flashes while Closing**

Normal Operation:
Press to Open, Stop and Close

SET Button LED: (Only ON in Programming Mode)
🔵 **Cyan = Solid, 1 Second Button Press**

**Auto Program Mode:**
✳️ **Cyan = Flashing, Press & Hold while window cycles**

Manual Programing Mode:
🔵 **Cyan = Solid, 1 Second Button Press**
✳️ **Cyan = Flashing, Press & Hold while window cycles**

🔵 Solid LED
✳️ Flashing LED

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Programming the Window
Auto Programming

1. **Plug In Power (With Window Closed)**
   LEDs: Green/Cyan/Off 🟢🔵⚪

2. **Hit "MODE" Button**
   LEDs: Red/Cyan/Cyan Flashing 🔴🔵✳️

3. **Press & HOLD "SET" Button**
   LEDs: Green/Green OR Blue Flashing/Cyan Flashing
   Window will move open and closed.
   First cycle will find the travel limits, the second cycle
   will calibrate the safety force limits. (Middle LED color
   flashes indicating window's open/close direction.)

4. **When the "SET" LED stops flashing, RELEASE
   the "SET" button.**
   Programming is complete.
   LEDs: Green/Cyan/Off 🟢🔵⚪

🔵 Solid LED
✳️ Flashing LED

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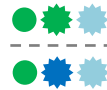
Programming the Window Manual Programming

1. **Plug In Power (With Window Closed)**
   LEDs: Green/Cyan/Off 🟢🔵⚪

2. **Hit "MODE" Button**
   LEDs: Red/Cyan/Cyan Flashing🔴🔵✴

3. **Hit "FUNC"tion Button**
   LEDs: Red/Cyan/Off 🔴🔵⚪

4. **Hit "FUNC"tion Button**
   Open the window to its open position
   LEDs: Blue/Green Flashing/Cyan 🔵✴🔵

5. **Hit "Set" Button**
   LED: Blue/Cyan/Off 🔵🔵⚪
   then press the **"FUNC"tion Button**

6. **Hold the "SET" Button:**
   LEDs: Blue/Off/Cyan Flashing 🔵⚪✴

7. **While holding the "SET" Button** the window closes, then opens.
   🔵✴✴
   - - - - - -
   🔵✴✴
   LEDs: Blue/Blue OR Green Flashing/Cyan Flashing

8. **Release "SET" button** when window stops at open
   LED's: Green/Cyan/Off 🟢🔵⚪
   Manual Programming Complete

🔵 Solid LED
✴ Flashing LED

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After Installation

Installation is now complete.

Before operating the automation system, please:

- Remove any construction debris and clean all jambs and hardware.

- Check for rubs and interferences by manually moving the window over the entire length of its travel. Make sure that the window moves freely over its entire length of travel, and that it is plumb sash to sash and sash to frame.

- If any problems are detected, contact the window installer to correct them. Everything must be working properly **mechanically** for the automation system to work properly.

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