









**Mounting Brackets**



Standard



Long

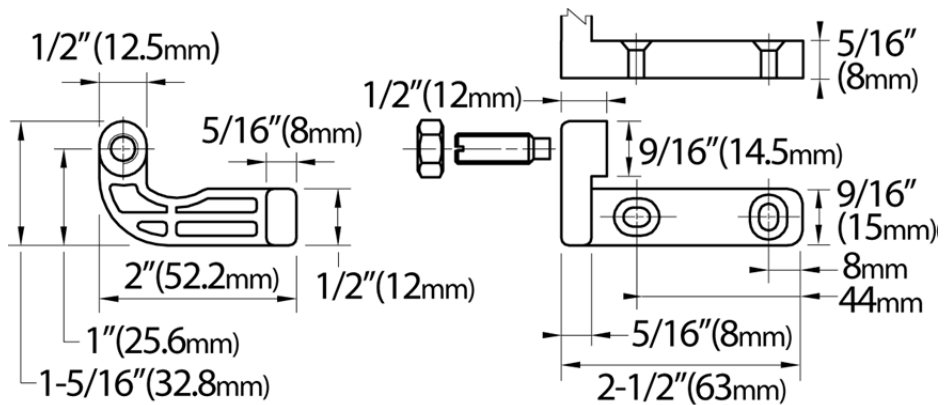


Hopper

Paint Color	Standard brackets pair (VROGTHSDUDWHEON)	Long brackets pair *** (sold separately)
gray RAL 9006	40843F	41455L
black RAL 9005	40844G	41456M
white RAL 9010	40845H	41454K

Hopper bracket (packaged individually)	
Anodized Aluminum, adjustable	41200C

**Standard Bracket**



(brackets continued on next page)



**Attention:**

**Prior to installation it is essential to read these safety notices, warnings and installation instructions.**

**SAFETY NOTICES**

- (1) **Actuators should be used only on windows or skylights that are out-of-reach of people. Installation below 2.5 meters (8 feet) wall height is not recommended. If the sash will be accessible, provide an emergency off-switch or anti-entrapment device.**
- (2) Do not approach moving parts until they have come to a complete stop.
- (3) When installing or un-installing the actuator, take proper precautions to avoid accidental closing of the window which might cause injuries to people (for example, impact, squashing, cutting or shearing).
- (4) Unsuitable application or improper installation may result in a loss of system operating functions, window damage and/or injuries to people.
- (5) The actuator must be installed by skilled engineers and licensed electricians.
- (6) Prior to installation make sure that:
  - a) The actuator is appropriate for the application.
  - b) Window profiles and hinges are suitable to withstand the forces produced by the actuator.
  - c) Windows and sashes can open and close completely and are free of obstacles.
  - d) The electrical system complies with local building codes and regulations.
  - e) Power supplies and wiring should provide ample capacity for normal current amperage draw, plus peak demand spikes that may be 2 to 3 times normal demand.
  - f) The power circuit is turned OFF before connecting the actuator to it.

**WARNINGS**

- (1) The actuator is for **indoor use only**.
- (2) Operating temperature range: 14° to 140° F (-10° to 60° C); maximum relative humidity 60%.
- (3) The actuator uses electronic circuits to sense end-stroke positions and to detect circuit overload.
- (4) Only original parts and fittings may be used to install the actuator.
- (5) Do not use more than one motor on a vent unless using:
  - a) “Synchro-” series motors, which are designed for use on extra-wide vents, or
  - b) Only two tandem motors (not “Synchro-” series) connected to a 40733T Control Box.
- (6) In most applications pivoting brackets are recommended for mounting the actuator.
- (7) **Do not tamper with actuators, or warranty is void!** Do not open the actuator case, disassemble the actuator, clip wires, attempt to repair, or otherwise alter the product. **In case of malfunction, contact FFI Customer Service at 800-677-0228 or [service@fenestration.net](mailto:service@fenestration.net) for instructions.** For defect claims, FFI must inspect the motor. The two-year manufacturer’s warranty is provided by Ultraflex Control Systems.
- (8) After installation keep these instructions for later review.

**MANUFACTURER’S LIMITED WARRANTY**

Ultraflex Control Systems S.r.l. (UCS) products are guaranteed against defects in material and workmanship for a period of **two years from the date of manufacture**. Alleged defective products returned, freight prepaid, within the warranty period will be repaired or replaced free of charge, at UCS’s option, if found effectively below UCS quality standards. This guarantee does not cover other claims for direct or indirect damages. In particular, UCS declines liability and excludes guarantee (except for what is stated above) if improper installation or misuse should result in a failure of UCS products. UCS motors should be used together with UCS-approved accessories. Substitutions must meet UCS specifications. **Functional Fenestration Inc. (FFI) will honor the manufacturer’s limited warranty (stated above) for two years from the date of sale listed on FFI’s invoice.**

**FFI TERMS**

Liability of Functional Fenestration Inc (FFI), Hawthorne, CA, as the seller for any defective product is limited to the replacement or credit of FFI product at original cost, and shall not include damages of any kind, whether incidental, consequential or otherwise. **Any claim and return must be made in accordance with FFI Terms and Conditions.**

### **CORRECT DISPOSAL OF THIS PRODUCT**

Responsible disposal of this and other electronic products will help prevent potential negative consequences for the environment and human health. Aluminum case and other re-usable elements should be re-cycled.

### **INSTALLATION INSTRUCTIONS**

These instructions refer to the mounting and wiring diagrams on following pages

#### **Installation on Top-Hinged Window with Windowsill or Skylights**

- (1) Mark the center-line of the sash and drill the holes.
- (2) Fasten the Sash Connector to the sash with the supplied screws.
- (3) Fasten the actuator to the window sill with Pivoting Brackets (recommended) or appropriate screws (not supplied). If the window is less than 35 inches tall, Pivoting Brackets must be used.
- (4) Attach the chain operator to the sash with the Sash Connector Pin.

#### **Installation on Top-Hinged Window with No Sill, using the Standard or Long Pivot Bracket**

- (1) Mark the center-line of the sash and drill the holes.
- (2) Fasten the Sash Connector with the supplied screws.
- (3) Fasten the actuator to the wall just below the window with Pivoting Brackets.
- (4) Attach the chain operator to the sash with the Sash Connector Pin.

#### **Installation on Bottom-Hinged (Hopper) Windows**

- (1) Mark the center-line of the sash and drill the holes.
- (2) Fasten the Sash Connector to the Hopper Bracket, and attach this assembly to the sash.
- (3) Fasten the actuator to the window frame using the Standard Pivoting Brackets.
- (4) Attach the chain operator to the sash with the Sash Connector Pin.

### **ELECTRICAL CONNECTIONS**

Before specifying electrical connections, refer to **Guidelines for Planning Wiring and Power Supplies** in the following pages.

#### **For RF Version only: Remote Control Battery Installation**

Battery does not come installed in the remote.

- (1) Find battery package inside the box.
- (2) Unscrew the small screw from the back of the remote.
- (3) Remove cover by prying open from bottom with flathead screwdriver or other tool (see picture below).
- (4) Insert battery, with wording side up.
- (5) Replace cover, snap into place, then replace screw in back.
- (6) **Remote will have Frequency code 1, 2, 3 or 4 to match the motor. If you want one remote/one frequency to operate several motors, or want different frequencies for several motors in a room, please specify before ordering.**



After battery installation, remote control has approximate range of 30 feet.

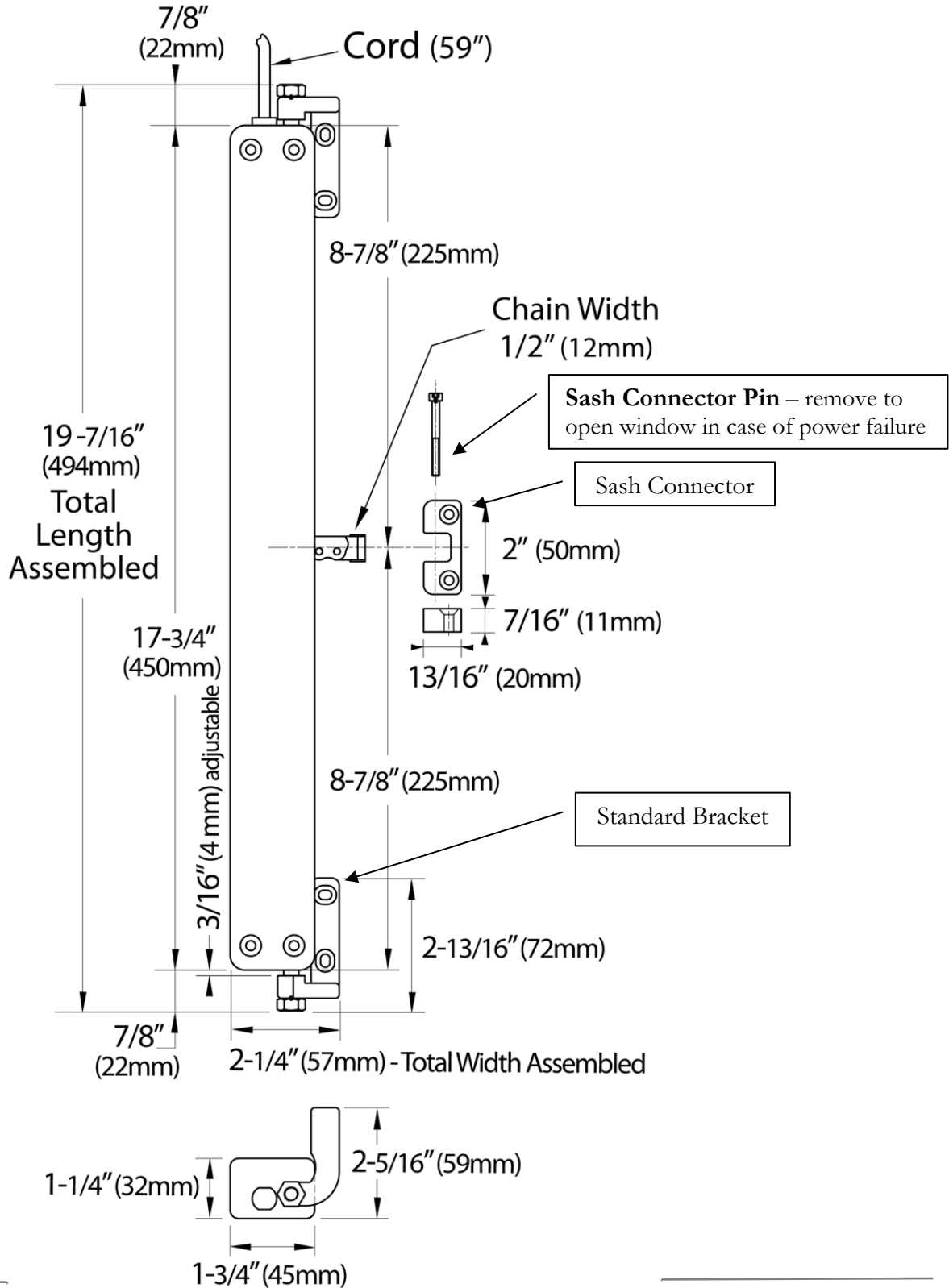
**Replacement Battery:** type CR2032 (not sold by FFI).

**Extra Vega RF Remote Control** for replacement or multiple motor control is **FFI part # 40956W**.

(With order specify frequency code 1, 2, 3 or 4 to match the motor frequency).

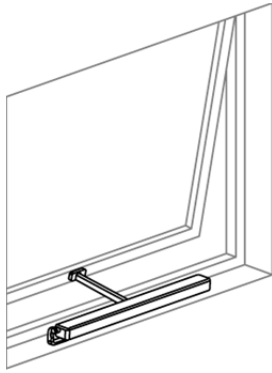


**Case Dimensions Diagram**

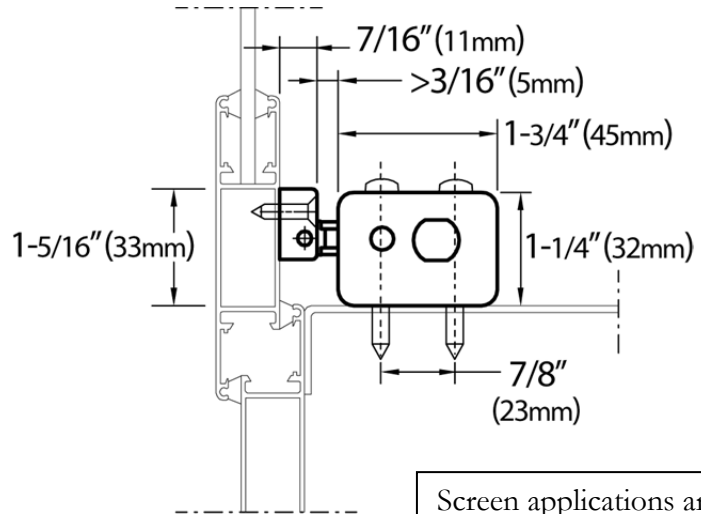


### Bracket Mounting Diagram (1)

#### Sill-mount without brackets



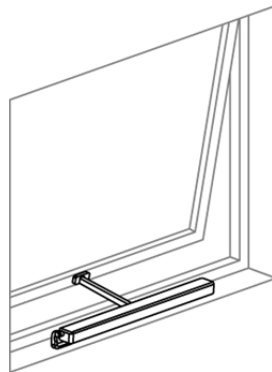
Minimum sash height is 3 times the chain length.



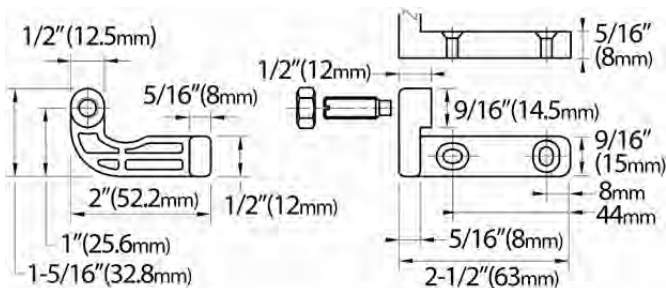
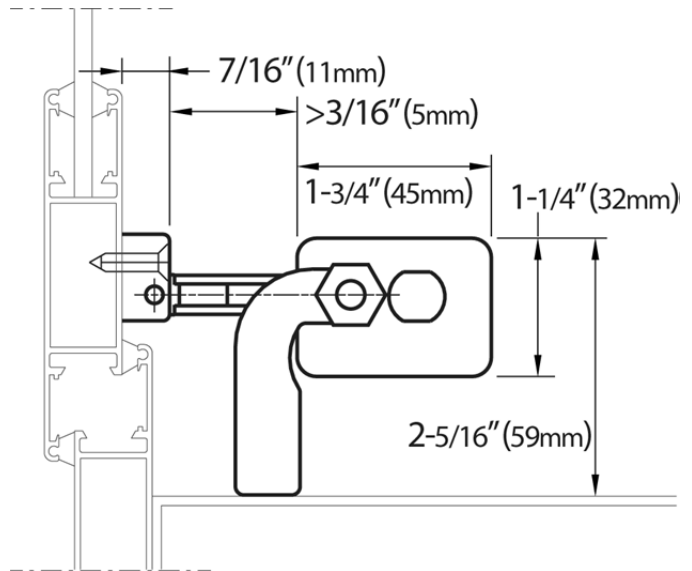
Screen applications are possible but not shown here.

### Bracket Mounting Diagram (2)

#### Sill-mount with Standard brackets

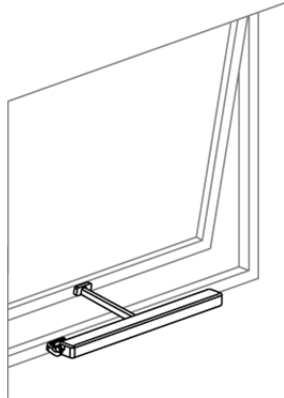


Screen applications are possible but not shown here.

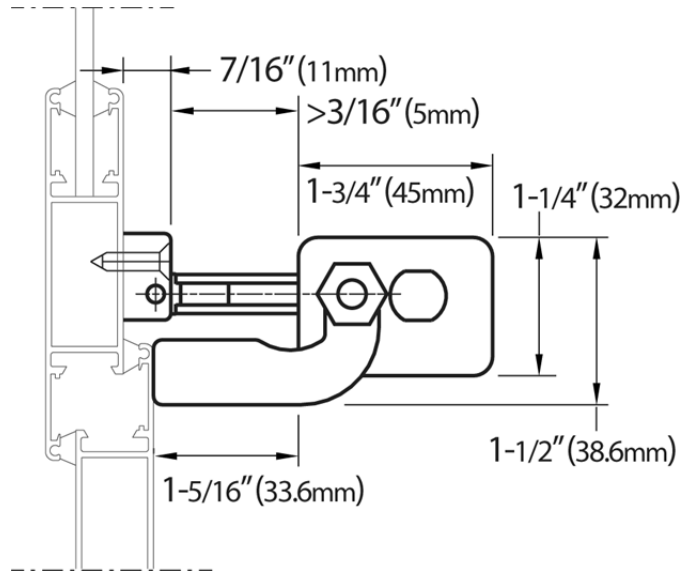


**Bracket Mounting Diagram (3)**

Wall-mount with Standard brackets

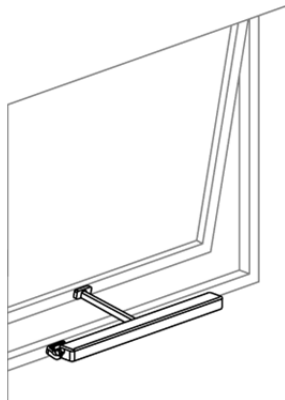


Screen applications are possible but not shown here.

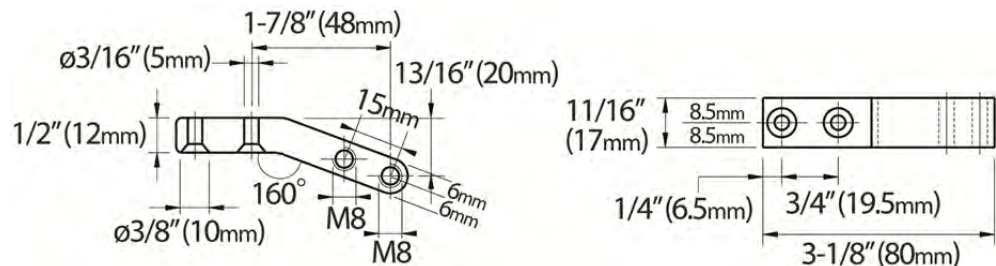
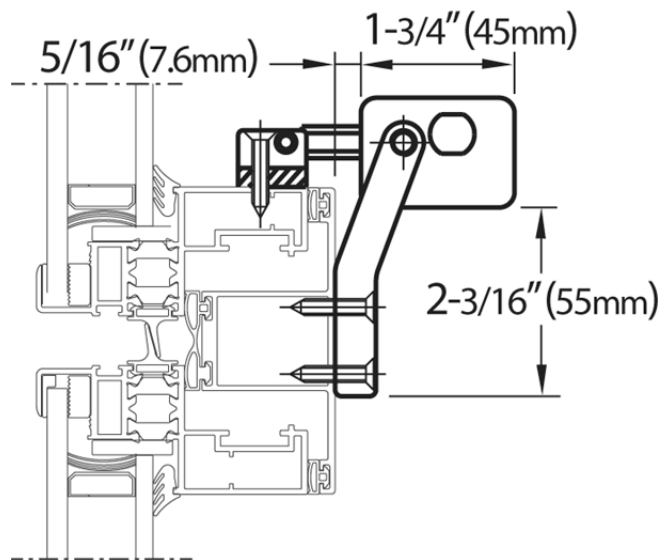


**Bracket Mounting Diagram (4)**

Wall-mount with Long brackets



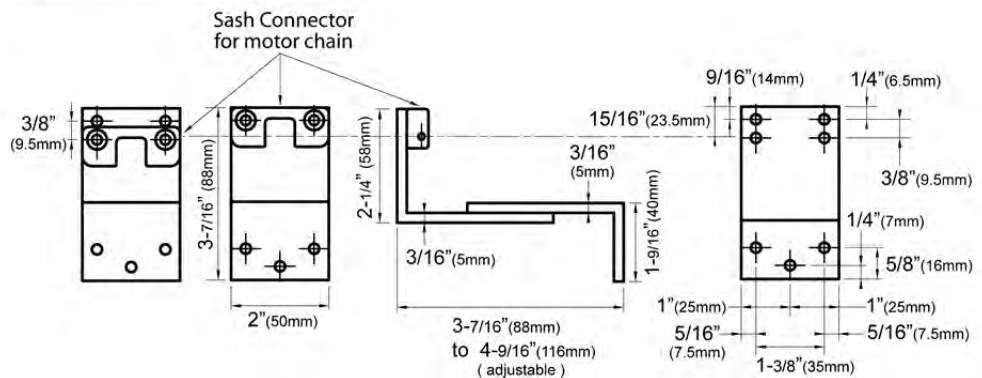
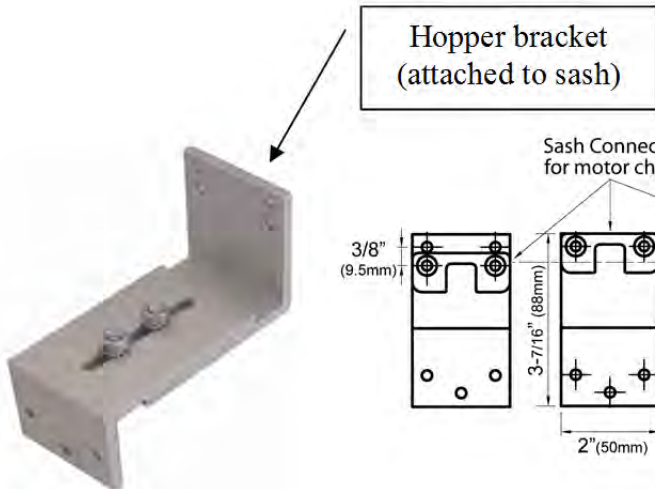
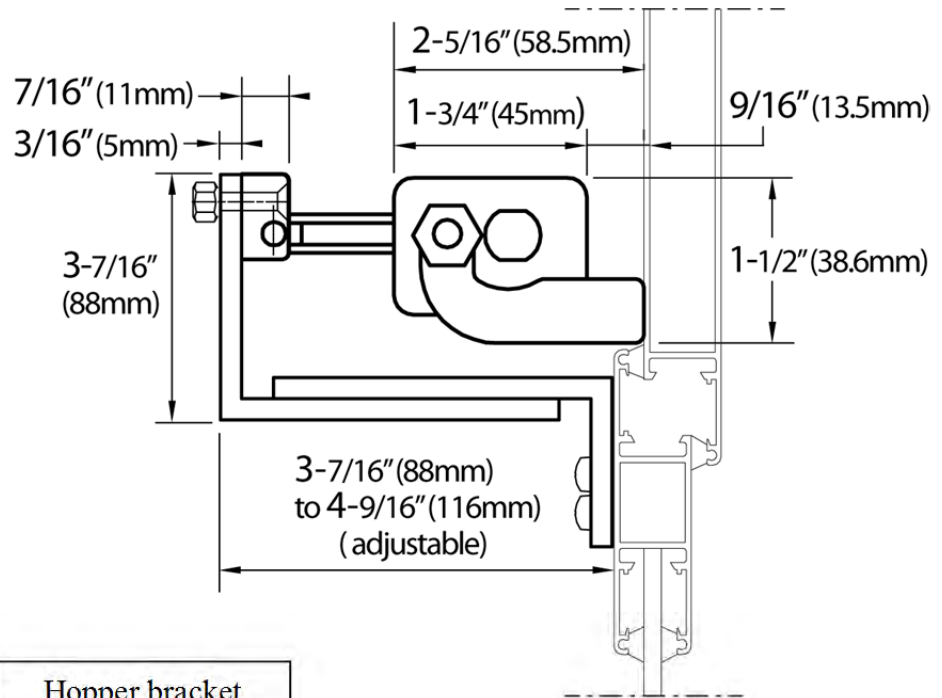
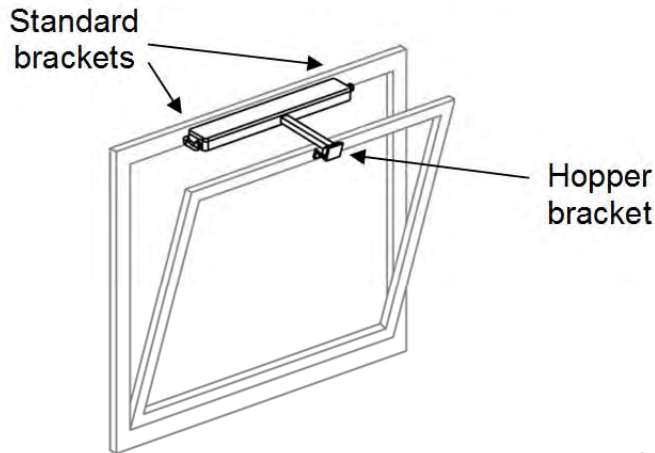
Screen applications are possible but not shown here.



**Bracket Mounting Diagram (5)**

**Hopper mount with Standard brackets and Hopper bracket**

- \* More Hopper mounting options are available.
- \* Screen applications are possible but not shown here.



## Guidelines for Planning Wiring, Power Supplies, and Other Accessories

Every automation project is different and will require varying electrical wiring and power arrangements, which are the responsibility of the project electrical contractor. FFI is a material supplier and not a project subcontractor. Based on project experiences, however, FFI does have some general advice for project electrical contractors who are planning electrical wiring and power requirements:

The **distance between power supply and actuator** is a critical factor in the design of every project. The distance means the actual length of wire, not the distance “as the crow flies” between the actuators, power supplies, and power source. Electrical contractors are responsible to **plan and account for voltage drop** that occurs along the distance of wire. Therefore **voltage drop calculations** are critical to ensure adequate power to actuators. (There are electrical calculators for voltage drop available online for reference, for example at [http://www.electrician2.com/calculators/vd\\_calculator\\_initial.html](http://www.electrician2.com/calculators/vd_calculator_initial.html)).

**Power supplies** and **wiring** need to provide for normal actuator amperage current draw and also for exceptional current demands at open and close, which can produce amperage spikes up to 2 to 3 times normal demand.

**A reliable and consistent current supply is critical to the operation of actuators and accessories.** Even a momentary drop in voltage below the stated requirement of 24VDC  $\pm$  10% may result in malfunction. For these reasons, FFI strongly recommends that power supplies, controls, and conductors be sized to provide capacity of minimally 150%, and up to 250%, of normal operating amperage requirements.

**Supply lines to the power supply** must also be ample for peak demand. Additional factors (such as temperature or number of connections) may affect performance of the conductor.

**Arrangements for proper field wiring must be coordinated by the electrical contractor.** Project specifications for number of actuators and wire run distance will affect the size of wire gauge, conduits, and raceways. Consult with FFI before ordering power supplies and wiring for your project.

In the past, FFI provided a generic sample wire gauge and run length chart, which was for reference for a single motor only, under standard operating conditions, and not intended as a job-specific guide. However, due to situations of this information being mis-interpreted in planning for multiple-motor projects, FFI no longer supplies this chart.

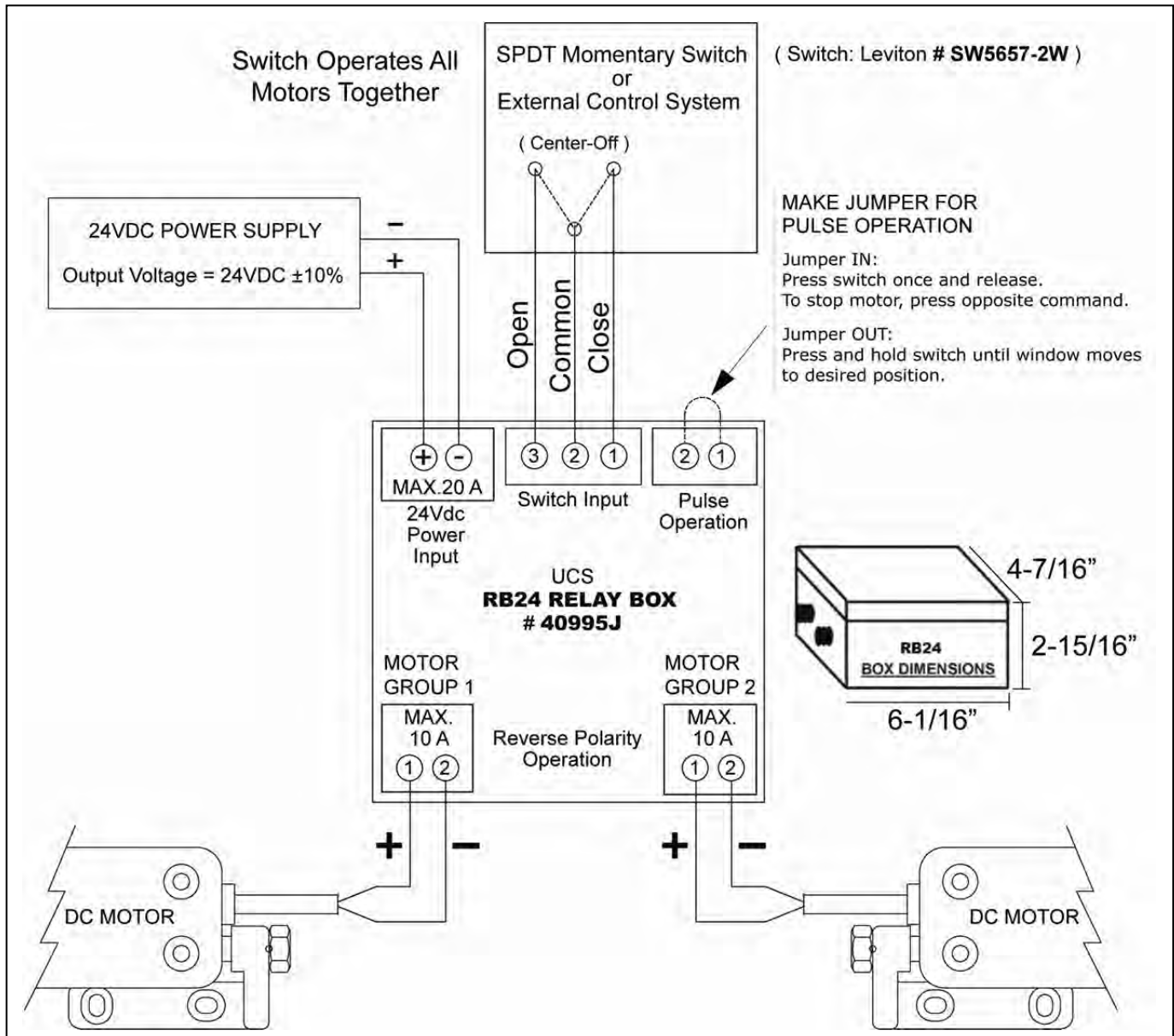
Again, proper field materials and wiring must be confirmed by the project electrical contractor. . Consult with FFI for additional advice for your project.

View Vega diagram 1, 2, 3, or 4 to match actuator model & project requirements.

**Sample Wiring Diagram (1): Vega DC with Control Relay Box for interface with DDS, BMS, BAS, HVAC, or Home Automation Systems**

FOR REFERENCE ONLY – NOT PROJECT SPECIFIC

This wiring scheme is recommended for low voltage systems because it turns off power to actuators after a time delay (< 1 minute), in accordance with the manufacturer’s recommendation.

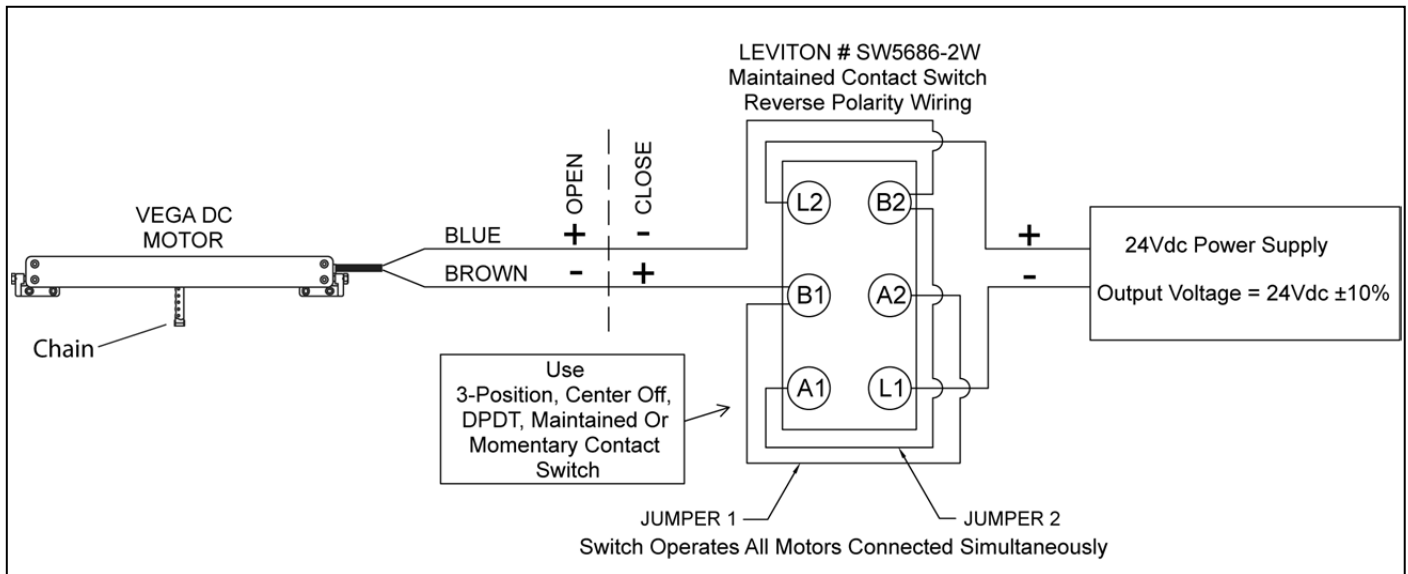


**Power Supplies:** FFI has a variety of UL Listed Power Supplies; ask for part numbers and advise.

**Relay Boxes/Control Boxes:** In addition to the RB24 control relay box model shown above, FFI has a variety of **UL Listed Control Boxes** for interface with direct Digital Control (DDC) and Building Management Systems (BMS); ask for part numbers and advise.

**Sample Wiring Diagram (2): Vega DC with maintained contact switch**

FOR REFERENCE ONLY – NOT PROJECT SPECIFIC

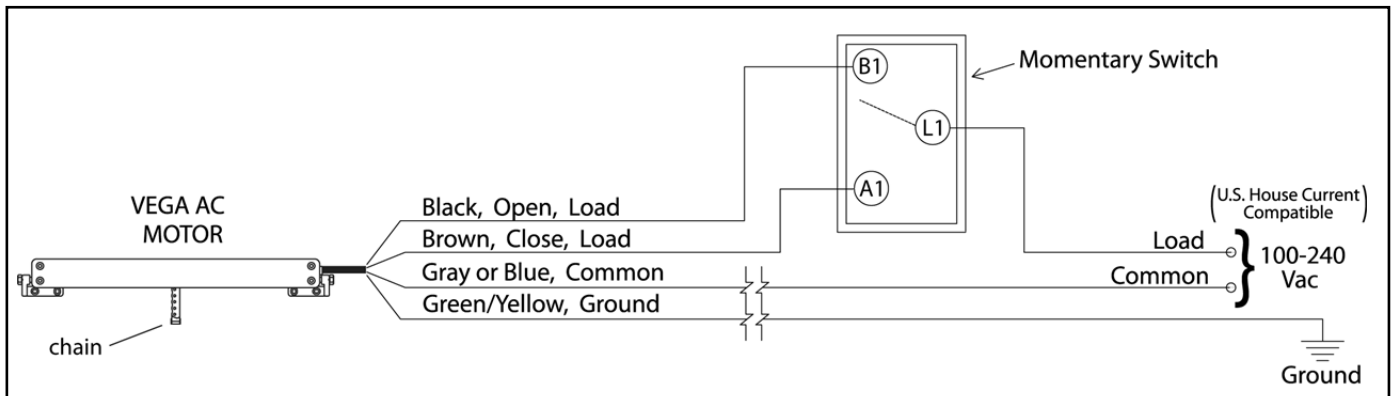


**Operation of Maintained Contact Switch DPDT (Double Pole-Double Throw):**

- Maintained contact means switch must be pressed continuously until actuator(s) reach open or closed position.
- To **open, press and hold** the switch up until the actuator chain has fully extended.
- To **close, press and hold** the switch down until the actuator chain has fully retracted.

**Sample Wiring Diagram (3): Vega AC**

FOR REFERENCE ONLY – NOT PROJECT SPECIFIC

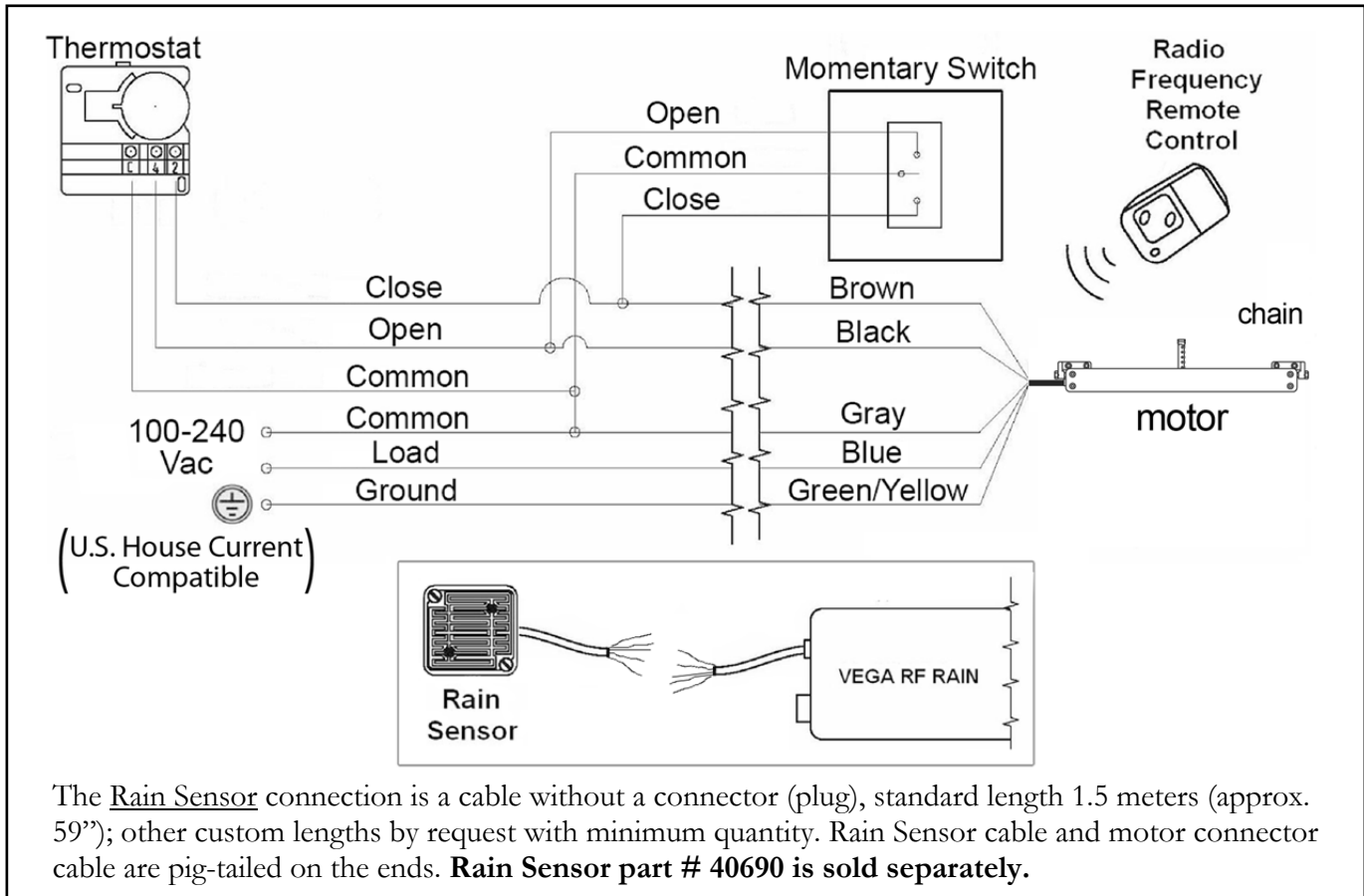


**Operation of Momentary Contact Switch SPDT (Single-Pole, Double-Throw):**

- Momentary Contact means pressing the switch for a moment will activate actuator(s) to open or closed position.
- To **open, press up** on the switch **momentarily**.
- To **close, press down** on the switch **momentarily**.

**Sample Wiring Diagram (4): Vega RF Rain**

FOR REFERENCE ONLY – NOT PROJECT SPECIFIC



The Rain Sensor connection is a cable without a connector (plug), standard length 1.5 meters (approx. 59"); other custom lengths by request with minimum quantity. Rain Sensor cable and motor connector cable are pig-tailed on the ends. **Rain Sensor part # 40690 is sold separately.**

**RF Remote Control Information**

- Remote control operating range is approximately **30 feet**.
- Each RF actuator must be used with a remote having a matching frequency code.
- A label with the part number (with the last number indicating the number of frequency 1, 2, 3, etc) will be on the packaging, on the actuator, and on the remote for future reference.
- **Extra Vega RF Remote Control** for replacement or multiple motor control is **FFI part # 40956W**. (With order specify frequency code 1, 2, 3 or 4 to match the motor frequency).

**RF Remote Control Troubleshooting**

In some cases remote control interference might occur. For example, an installation with CRM, keypad and IR remote may have a problem in which the TV or stereo IR remotes in the homes are also activating the IR sensor on the CRM keypad. Therefore when someone changes channels with a TV IR remote, the window or skylight may open or close.

One solution is to mount the CRM keypad in a different room from other electronics that are operated by IR remote. Another solution: it is possible to codify the keypad and the remote control of the CRM panel; for this, please see the CRM Installation Guide. Selecting the dip-switches 1-2-3 in a different position, it is possible to avoid interference.