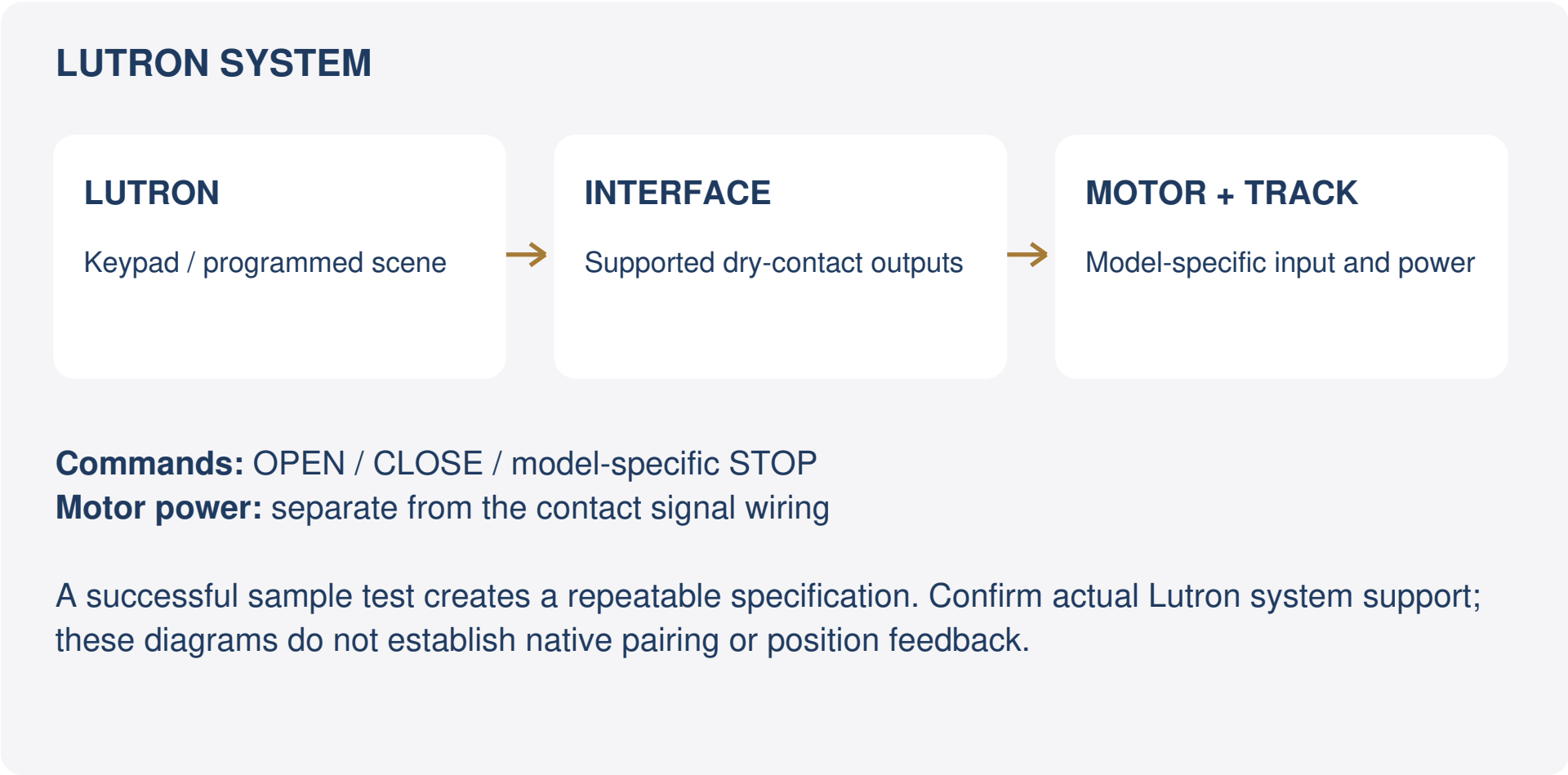
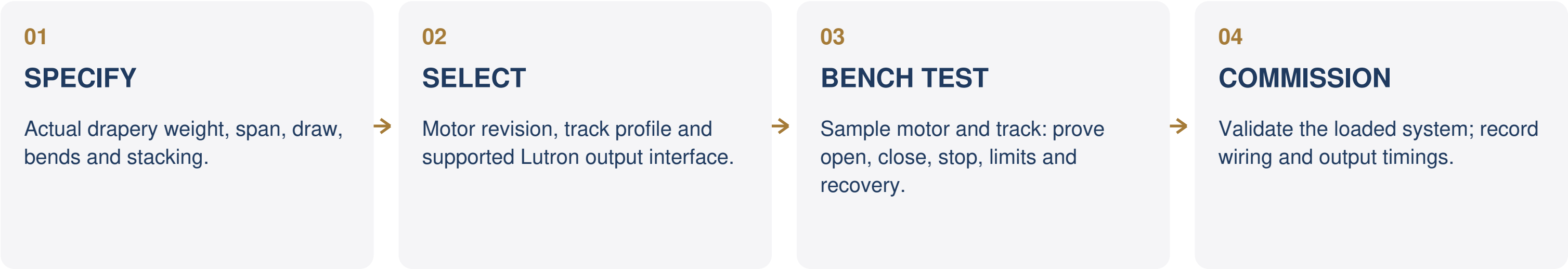


# Heavy-Duty Integration Roadmap

A practical route to Lutron control for heavy draperies, long spans, theaters and engineered curved tracks.



**Direct-drive reference:** 175 lb straight load / up to 65 ft. Curves reduce capacity; check geometry, radius, double-track spacing and fabric weight.

# Track and motor selection

## TECHNICAL INTEGRATION ROADMAP

| Reference family               | Selection limits in supplied material                                                                        |
|--------------------------------|--------------------------------------------------------------------------------------------------------------|
| 475 direct-drive               | 175 lb straight hanging load; track up to 65 ft; 120 VAC, 80 W.                                              |
| 475 curved capacity            | One / two curves: 120 lb; typical bay or continuous curve: 140 lb. Confirm the exact geometry.               |
| 475 reverse-S                  | Not supported by the supplied 475 curve reference.                                                           |
| 140-S belt alternative         | 100 lb one-way / 140 lb center draw; track up to 36 ft; 6 in/sec; 100–240 VAC.                               |
| Track 80 reverse-S alternative | Separate belt system reference shows 40 lb; do not apply the 475 capacity.                                   |
| Track 90 curves                | Minimum radius 12 in for 90-degree curves; 49 in for continuous curve; acute-angle motor leg at least 24 in. |

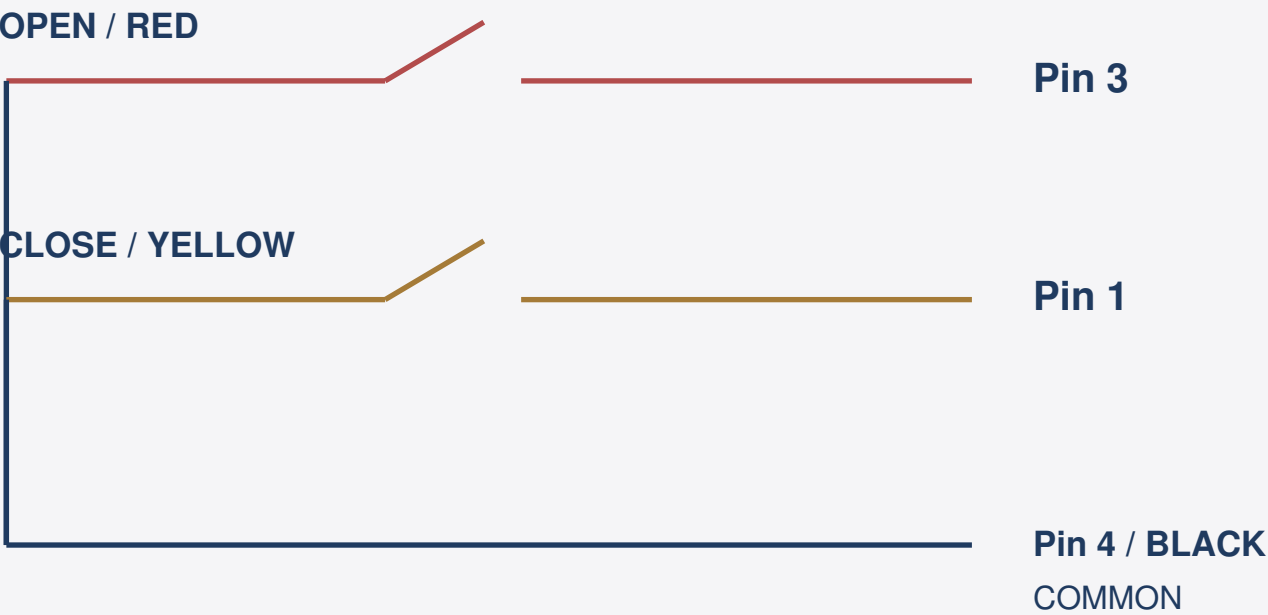
Double tracks require an approved spacing and stacking layout. Curved tracks require a template and a checked drapery load. Reference limits are starting points for engineering, not a promise that every shape or compound bend is possible.

The track-section and carrier plates show pleating and draw arrangements. Keep the motor, track, carriers, fabric heading and mounting specification together.

# Heavy-Duty Dry-Contact Wiring

Model 475 direct-drive drapery reference. Potential-free control contacts send commands; motor power is separate.

## FUNCTIONAL TWO-CONTACT CONTROL



**STOP:** after a run starts, a second action on either direction contact stops model 475. Prove the intended pulse timing on the sample motor.

## RJ11 SIGNAL LEGEND

|       |        |                                              |
|-------|--------|----------------------------------------------|
| PIN 1 | YELLOW | CLOSE<br>Direction command                   |
| PIN 2 | GREEN  | STOP<br>Dedicated three-contact control only |
| PIN 3 | RED    | OPEN<br>Direction command                    |
| PIN 4 | BLACK  | COMMON<br>Control return                     |

Functional signal legend, not a physical plug view.  
Use the enlarged original tab-side view in the modular wiring plate.

## DO NOT COPY STOP LOGIC BETWEEN MOTOR FAMILIES

- 475 direct drive:** a second action on either direction contact stops.
- 140-S belt drive:** the supplied reference describes simultaneous open / close or opposite-direction stop.
- Other shade / progressive motors:** follow their separate pinout and stop instructions.

Pin 2 is not used in the supplied two-contact automation arrangement. Validate contacts, common, output timing and recovery before the full installation.

# Choose the control architecture

## TECHNICAL INTEGRATION ROADMAP

| Route                      | Purpose / validation                                                                                                                                                |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| QSE-IO                     | QS contact-closure interface. Confirm the Lutron system, programming mode, NO / NC terminals, shared commons, output ratings and pulse behavior.                    |
| Wireless contact reference | Supplied legacy RadioRA 2 visor controller reference has four outputs and external 9 V supply. Verify current system support; not blanket RA3 / HomeWorks approval. |
| Local + automation         | Original circuit plates show separate local control and group control, with radio combinations. Use the matching motor and receiver circuit.                        |
| RF bridges                 | Bond / TaHoma material is alternative RF and network reference; it does not prove native Lutron interoperability.                                                   |
| Serial feedback            | No addressed RS485 position-feedback capability is established for the 475 by these supplied drapery sheets.                                                        |

**Stop comparison:** Forest S/L/M = both directions together. Model 475 = a second action on either direction contact. Model 140-S = simultaneous open / close or opposite direction as described in its sheet. Progressive motor families have their own control rules.

Keep dry-contact control wiring separate from motor power. Interface contacts carry commands; they do not provide mains power to the motor.

# Sample-track test roadmap

## TECHNICAL INTEGRATION ROADMAP

| Test / record         | Acceptance evidence                                                                                                       |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------|
| Configuration         | Motor and receiver model / revision, track profile, span, draw, bend layout, actual hanging load and interface model.     |
| Direction             | Correct open and close from local control and Lutron keypad / programmed scene.                                           |
| Stop                  | Repeatable mid-travel stop from each direction using the intended output timing and second-contact action.                |
| Commands while moving | Document same-direction repeat, opposite-direction action and repeated keypad presses.                                    |
| Limits / stacking     | No collision, fabric binding or overrun at either end; sufficient stack and clear motor access.                           |
| Recovery              | Document behavior after power interruption, controller restart and manual operation.                                      |
| Loaded cycling        | Repeat complete cycles with representative drapery weight; record noise, motion consistency and temperature observations. |
| Handover              | Sign off tested logic and timing. Retain wiring drawing, contact schedule and final track / load specification.           |

Sample-track and motor purchase is a practical next step if the integrator believes the interface can meet these requirements. Agree the test configuration before committing to a full project.

# Complete reference diagram index

## TECHNICAL INTEGRATION ROADMAP

| Reference set                    | All supplied pages retained                                                                                                                          |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Direct-drive / belt wiring guide | 19 plates: track sections, carrier layouts, control options, symbol legend, A–O circuits, group controls, modular wiring and automation connections. |
| Automation reference             | 6 plates: drapery pinouts, other shade-family pinouts, Bond and TaHoma references / network diagrams.                                                |
| Lutron QSE-IO                    | 10 plates: mechanical, mounting, terminal, wiring, application and DIP / operating-mode references.                                                  |
| Wireless dry-contact interface   | 7 legacy RadioRA 2 visor plates: hardware, mounting, inputs, outputs and wiring.                                                                     |
| Curved track drawings            | 9 enlarged original-shape diagrams with original dimensions / labels preserved, plus load comparison.                                                |

Source plate headers / supplier contact footers are minimized in the heavy-duty excerpts. Technical model identifiers remain where needed to match the circuit. Other product-family diagrams are clearly reference alternatives.

Use PDF bookmarks for each circuit plate. QSE-IO source font artifacts are retained rather than risk altering terminal labels. Plain-language companion:

[plumridge.com/rust-proof-hardware/motorization/roadmap-explained/](https://plumridge.com/rust-proof-hardware/motorization/roadmap-explained/)

## BASIC SWITCHING CONTROL TERMINOLOGY AND INFORMATION GUIDE

### LOW VOLTAGE MODULAR SWITCH (RECESSED WALL INSTALLATION)

Available with drapery motors only. A specially designed three button switch, open-stop-close, which allows direction reversal at any point. Low voltage switching connections are made, using RJ-11 modular cable, from the switching port of the motor to a modular wall jack (phone type); then inside the wall to the junction box containing the switch. Power to the motor is supplied by a 9 foot power cord.

### HARD WIRED (HW)

All motors (except drapery motors and Model 9700) come with a 4 wire, 6 foot pigtail, consisting of a common, two directional wires and a ground. Used for wiring to a powered, SPDT (single-pole, double-throw) 110VAC switch. The motor's pigtail is connected either by hard wiring or by plug/receptacle to an individual junction box. If more than one motor is controlled by a single switch, isolation (parallel) relays are required.

### HARD WIRED WITH ISOLATION RELAYS (HW/ISO)

This variation of Hard Wiring is used when controlling two or more motors simultaneously from a single SPDT switch. Each motor pigtail (with relay incorporated) is connected either by hard wiring or by plug/receptacle to an individual junction box. The wiring from each junction box is connected from one to the next; with the wiring from the terminal junction box going to the switch.

### RADIO FREQUENCY WIRELESS REMOTE CONTROL (TI-RF)

A radio frequency controlled system for Models 140-S, 400, 9600, 9300, 5100 and 8000 systems. The receiver is built-in for Models 140-S, 9600 and 8000. The maximum range is 100'. The style of the Ti transmitters are sleek with an anti-scratch white piano lacquer finish. The Ti transmitters are available in 1, 2, 6 and 16 channels. Each transmitter includes a wall bracket. The TiWMT is a wireless wall switch with removable transmitter available in 1, 2 and 6 channels. Fully compatible with Bond Controls.

### RADIO FREQUENCY WIRELESS REMOTE CONTROL (RTS)

Radio Technology Somfy, provides a comprehensive method for radio frequency control of motorized systems, with cross platform control system integration. Available both as stand alone, single motor RF control, or as an integrated part of a whole house automated system.

### RECHARGEABLE BATTERY SYSTEMS

No outlet required and eliminates any electrical work. This type of motor has a built-in battery that lasts up to a year before requiring a recharge. The plug-in charger includes a 14 ft. cord. Systems available up to 144" and 26 pounds. Compatible with all RTS controls.

### CONTROL SYSTEM

Provides an interface with a home theater, multi-room control system, or whole-house automation system. For drapery motors interfacing with a home theater, multi-room control system, or whole-house automation system; two (2) momentary dry contacts (switching contacts with no voltage inputted) are required for open-stop-close (two button) operation. Operation initiates with either the "Open" or "Close" contact, and a second action with either contact produces the "Stop" function. For Model 140-S, close the open/close contacts simultaneously for the stop function. All other motors (except model 9700) use two (2) momentary dry contacts. All motors are fully compatible with control systems by AMX, Control4, Crestron Electronics, Lutron Electronics, Savant, Vantage, and others.

# Model 140-S Drapery System



## FEATURES:

- **Built-in RF remote control receiver.**
- **Smart Home App Control.**
- **Bond Bridge Pro and Sidekick Compatible.**
- **Motorized drapery track with ultra-quiet operation (less than 35 dB).**
- **Drapery can head up to cover track.**
- **Manual operation override.**
- **Automatically identifies and sets Open and Stop operation limits.**
- **The Touch Motion function performs opening/closing of draperies without using any controls.**
- **Dry contact or line voltage controlled.**
- **Track available in 19 ft. lengths without a splice.**

MODEL 140-S DIRECT DRIVE DRAPERY TRACK SYSTEM

The Model 140-S Direct Drive Drapery Track System is a high quality belt-driven track system. The motor has a built-in RF Receiver, and has a touch motion or tug feature that works by simply tugging the drapery to engage the motor. In case of a power outage, the built-in clutch allows the drapery to be pulled easily by hand. The motor is used in conjunction with our 80 Series Roller Track, which is aluminum with an EPD (electrophoretic deposition) paint coating to assure smooth operation. The profile of the track was designed to allow the drapery to head-up or hang below. The components are all high quality. The drive pulley contains a steel bearing (not plastic), the carriers are designed with special resin wheels for virtually silent traversing, and the belt is steel reinforced. All to assure smooth reliable operation.



SPECIFICATIONS MODEL 140-S

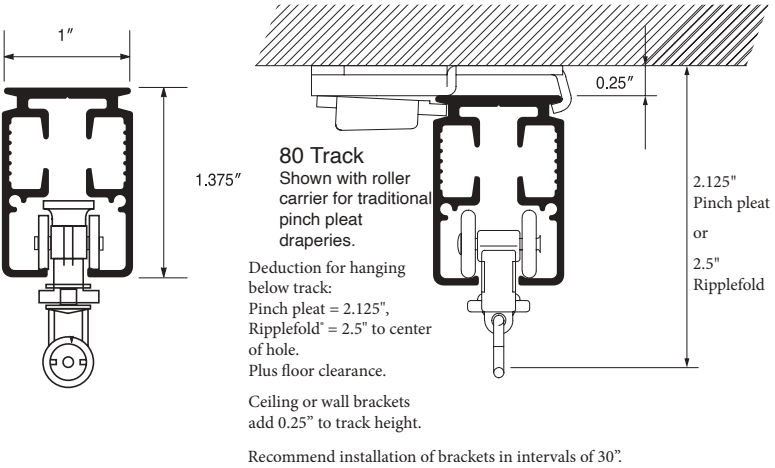
|                                          |                       |                                 |                                                              |
|------------------------------------------|-----------------------|---------------------------------|--------------------------------------------------------------|
| Dimensions (H) x (W) x (D)               | 13" x 3.125" x 2.125" | Power consumption               | During stand by: 2.5 W or lower<br>Max. load operation: 90 W |
| Track Compatibility                      | 80                    | Control board operating voltage | 5 VDC                                                        |
| Maximum Drapery Weight<br>(One Way Draw) | 100 lbs               | Control board operating current | 5 mA                                                         |
| Maximum Drapery Weight<br>(Center Open)  | 140 lbs               | Amperage                        | 1.4 A                                                        |
| Maximum Track Length                     | 36 ft.                | Operating speed                 | 6 in/sec                                                     |
| Rated power voltage                      | 100 VAC to 240 VAC    | Rated current                   | 0.8 N.m                                                      |
| Cycle                                    | 50/60 Hz              | Ambient temperature             | 0 to 50°C (non-condensing)                                   |
|                                          |                       | Time rating                     | 4 min. (continuous operation)                                |
|                                          |                       | Noise level                     | 35 dB (in default motor speed)                               |

BELT DRIVE  
DRAPERY MOTOR

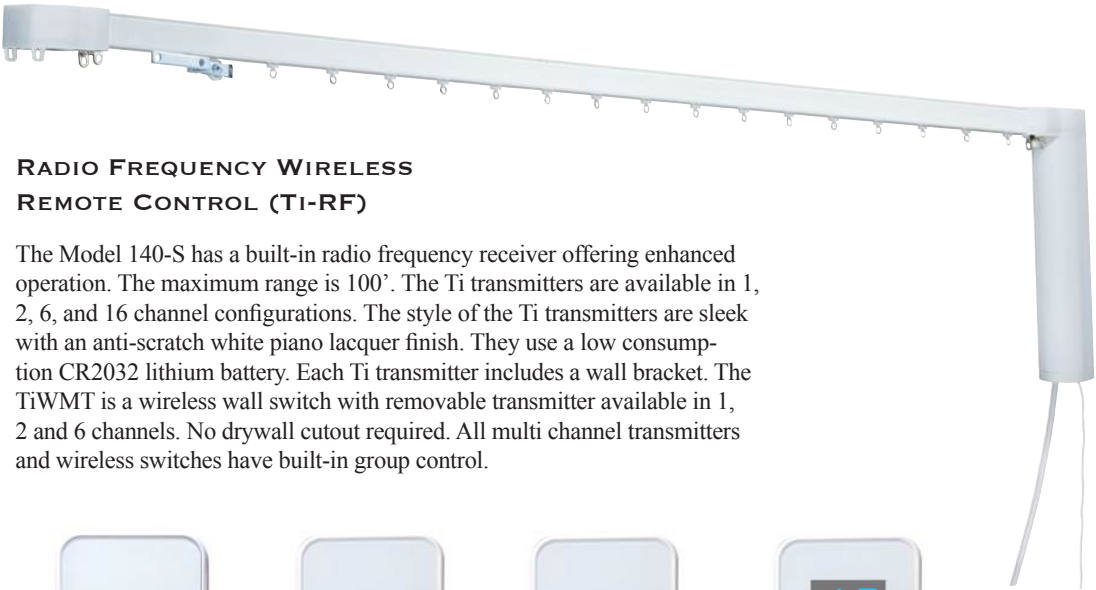
80 SERIES DUAL CHANNEL TRACK

The 80 Series Dual Channel Roller Track is aluminum extruded with an EPD (electrophoretic deposition) paint coating to assure smooth operation. The profile of the dual channel track was designed to allow the carriers to be isolated in a separate channel away from the belt. Available for pinch pleat draperies, which may head-up or hang below the track. Ripplefold® style roller carriers are available in 80%, 100% and 120% fullness. The maximum length track without a splice is 234.625" for straight tracks and 212" for custom curves. Available as either ceiling or wall mount.

80 TRACK CROSS SECTION AND  
INSTALLATION DIMENSIONS



## MODEL 140-S BELT DRIVE DRAPERY SYSTEM



### RADIO FREQUENCY WIRELESS REMOTE CONTROL (TI-RF)

The Model 140-S has a built-in radio frequency receiver offering enhanced operation. The maximum range is 100'. The Ti transmitters are available in 1, 2, 6, and 16 channel configurations. The style of the Ti transmitters are sleek with an anti-scratch white piano lacquer finish. They use a low consumption CR2032 lithium battery. Each Ti transmitter includes a wall bracket. The TiWMT is a wireless wall switch with removable transmitter available in 1, 2 and 6 channels. No drywall cutout required. All multi channel transmitters and wireless switches have built-in group control.



Ti-1



Ti-2



Ti-6



Ti-16



TiWMT 6



Ti-Hub  
App Control

The Ti-Hub offers smart home App control. Simple set up and integration with all Ti-RF controlled motors. Create scenes, timers, “Hey Siri” voice commands, Alexa and Google home compatible, and control your draperies, shades or blinds from anywhere in the world.

## BOND WIRELESS REMOTE CONTROL AND SMART HOME INTEGRATION (TI-RF AND RTS)



### SIDEKICK FOR SHADES GEN 3 UNIVERSAL SHADE REMOTE CONTROL

- Works with multiple motor technologies
- 5- or 1-channel interchangeable control
- Pairs directly with the shade
- Wireless control via RF
- Estimated 10-year battery life
- Flush mount: Install with or without a workbox
- Provides state feedback to the Bond Bridge Pro
- Set up shade limits
- No manufacturer remote required
- Supports the new Keypad Mode

\* Battery life is estimated based on using a sidekick to cycle a shade once a day.

### BOND BRIDGE

- Works with Alexa, Google Home, and SmartThings
- Remote Control via Bond Home app
- Works with iPhone or Android
- No installation needed
- Smart home functionality without breaking the bank
- Works with 2.4GHz Wi-Fi networks



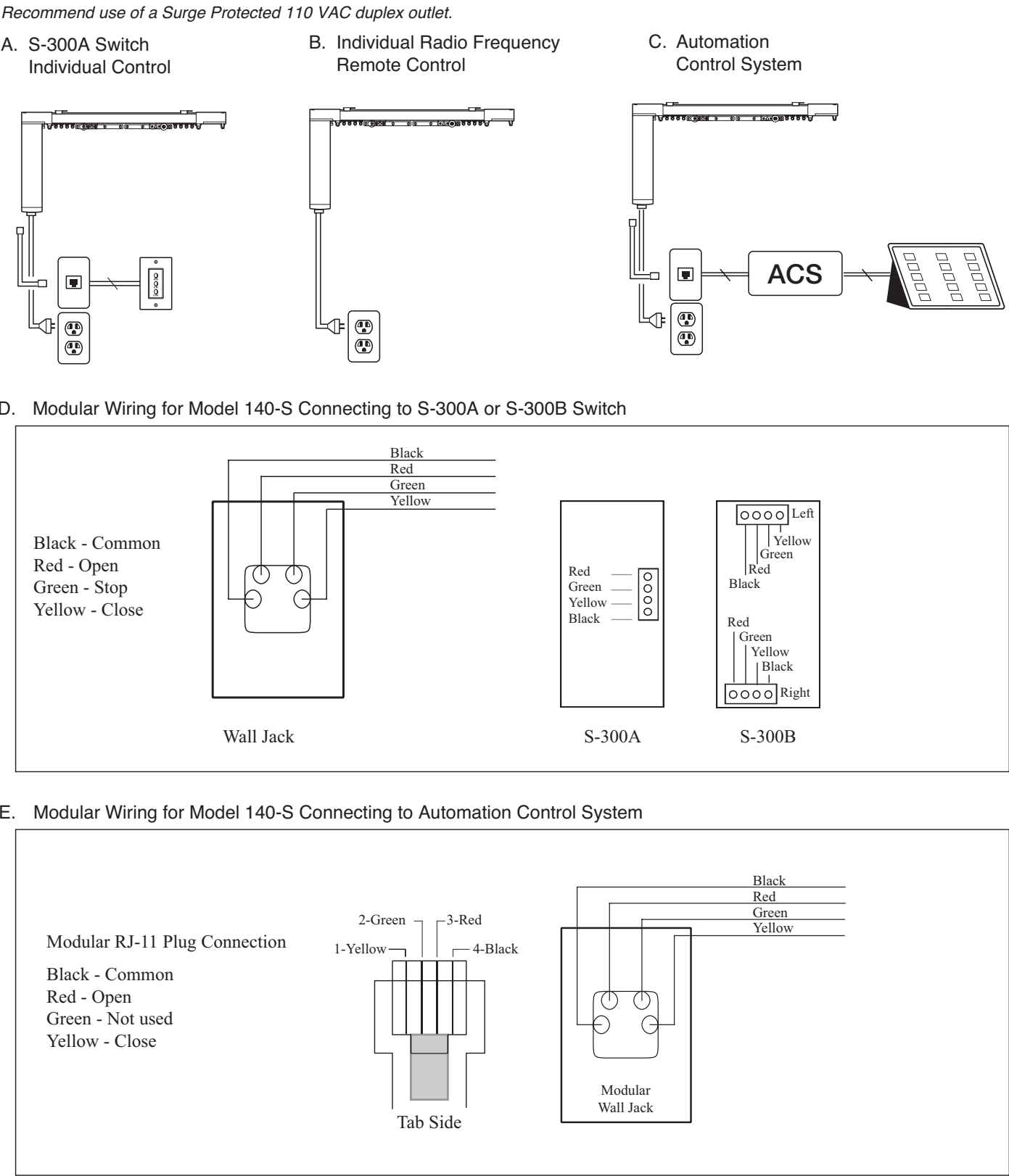
### BOND BRIDGE PRO

- Ethernet port & PoE technology
- Smart home integrations
- Ceiling and wall mount
- Works with Alexa, Google Home, and SmartThings
- Remote Control with App
- Works with iPhone or Android
- No installation needed
- Smart home functionality without breaking the bank



# Belt-Drive Alternative - A to E

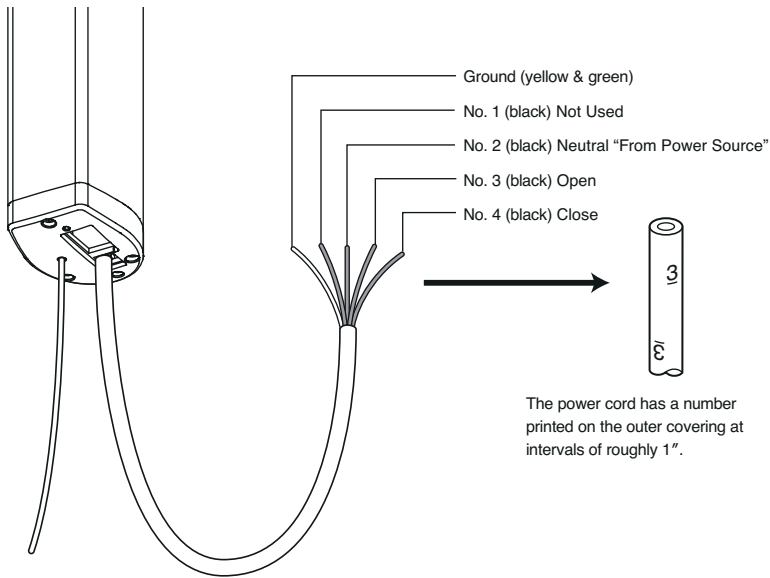
Model 140-S reference circuits. This is a separate motor family from direct-drive model 475.



Belt-Drive Alternative - F / G

Model 140-S power wiring, grounding and hard-wiring reference; use qualified installation.

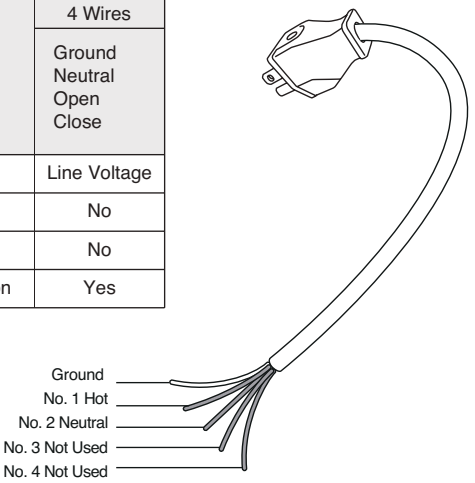
F. Line Voltage Switching Control Using 4 Wires



Operations and Connecting Diagrams

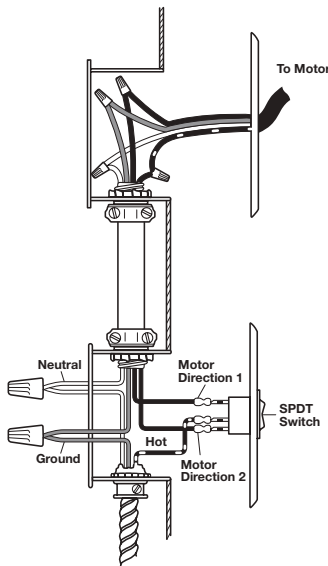
| Wire         | 4 Wires                            |
|--------------|------------------------------------|
|              | Ground<br>Neutral<br>Open<br>Close |
| Contact      | Line Voltage                       |
| RF Remote    | No                                 |
| Slow Stop    | No                                 |
| Touch Motion | Yes                                |

G. 3 Prong Grounding Plug Connection

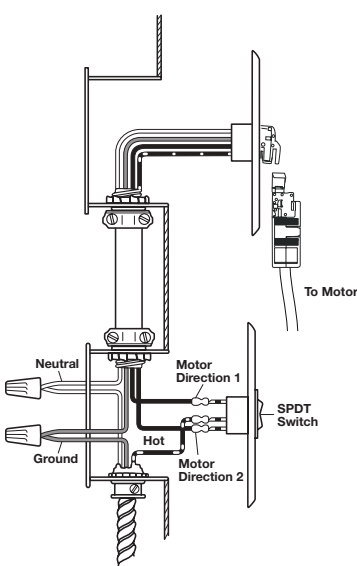


Hard Wiring (HW)

All motors come with a 4 wire 18 gauge grounded pigtail. This consists of a neutral, two directional wires, and a ground. This type of wiring is used when the motor is to be controlled by a recessed wall switch. The pigtail is connected by either hard wiring or a plug/ receptacle. A single motor is controlled by a SPDT (single pole, double throw) switch. Two motors can be controlled together by a DPDT (double pole, double throw) switch.



Standard Hard Wiring



Hard Wiring with optional plug/receptacle

## 400 SERIES DRAPERY MOTORS



Model 475 / 30 Track

**Motors assembled in the USA from components  
manufactured in the USA and Japan.**

Control options include  
Wall Switch - RF - RTS® - Timer

Fully Compatible with All Major Home  
Automation Systems, including those  
manufactured by AMX, Control 4, Crestron,  
Lutron Electronics, Savant, Vantage and others.

### POWERFUL FEATURES:

#### QuietSTOP

In a significant enhancement of previous designs, the motor's intelligent electronics anticipate limit positions, providing gentle and quiet stopping.

#### OSP

Optimum Stacking  
Positioning  
  
No settings. No fuss.  
  
Perfect appearance every  
time.

#### REALSPEED

Moving swiftly and  
quietly at 10"/second,  
draperies get to where  
they need to be.

#### TRU\_Load

Load capacities of our  
motors do not decrease  
as the track size  
increases.

DIRECT DRIVE DRAPERY MOTORS

Direct drive motors are used in conjunction with roller tracks as part of a direct drive system. The motor attaches to the end of the track where a shaft on the motor fits into a pulley, which moves the cable and operates the track components. Available as a straight or curved system, with the operating cable strung on the inside of the track. The motor is flush with the front edge of all tracks. All motors are available with surface mount or recessed low voltage switches, infrared or radio frequency wireless remote control, or home automation systems. Drapery should be manufactured with a 3.5” return to cover motor projection and a 5” space between the last two pleats on return (motor) side. Drapery should not drag on the floor, or rub against pocket or valance. Do not use silicone to lubricate as it will adhere to cord and cause slippage around drive wheel.



| SPECIFICATIONS         | MODEL 475             |
|------------------------|-----------------------|
| Dimensions (H)x(W)x(D) | 6.41" x 4.01" x 2.75" |
| Track Compatibility    | 30, 90                |
| Weight                 | 4.6 lbs.              |
| Voltage                | 120 VAC               |
| Amperage               | 0.76 A                |
| Cycle                  | 60 Hz                 |
| Wattage                | 80 W                  |
| Horsepower             | 0.11 hp               |
| Maximum Drapery Weight | 175 lbs.              |
| Maximum Track Length   | 65 ft.                |
| Traversing Speed       | 10 in/sec             |
| Thermal Overload       | 120°C                 |

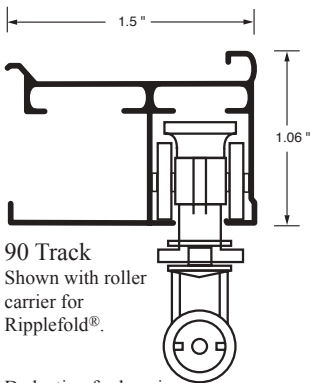
DIRECT DRIVE ROLLER TRACKS

90 DUAL CHANNEL TRACK

SM Automatic offers the Series 90 Dual Channel Track for pinch pleated draperies, as well as alternative Contemporary pleating styles, often referred to generically as S-fold or Z-fold.

Pinch pleated systems utilize 5/8” roller carriers for minimal stacking (which allows the option to hang the draperies below the track, or head up to conceal the track), while roller carriers (9/16”) have also been designed for Contemporary pleating applications, which guarantees smooth operation.

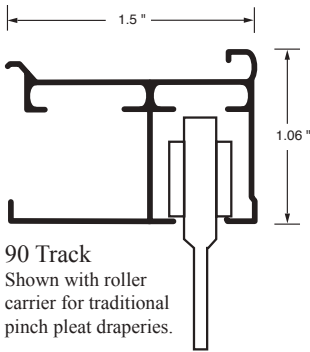
The aluminum track has a white finish. The maximum length of track without splice: 250”.



90 Track  
Shown with roller carrier for Ripplefold®.

Deduction for hanging below track: 1.5” plus floor clearance. Sew snap tape at top of fabric.

Ceiling or wall brackets add 0.25” to track height.  
Add an extra snap at 3” from end for overlap and return.



90 Track  
Shown with roller carrier for traditional pinch pleat draperies.

Deduction for hanging below track: 1.5” plus floor clearance

Ceiling or wall brackets add 0.25” to track height.

## DIRECT DRIVE ROLLER TRACK

### 30-VQ

The 30-VQ (Very Quiet) track is a breakthrough in combining noise reduction, durability and strength. Made from Hishimetal, the 30-VQ is formed by bonding high quality steel with layers of PVC, and coating with acrylic resin.

Assembled direct drive roller tracks include: cut-to-measure track, master carriers, roller carriers (3 per foot are standard, with extra carriers at additional cost), end pulleys, and plastic covered steel cable. Steel tracks are PVC coated inside and out. Roller tracks are also available as cord drawn and hand drawn. Since the draperies hang below the track, a recess or top treatment is strongly suggested. The maximum track width without splice is 237".

#### 30

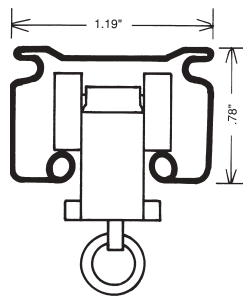
Steel with white finish

Dimensions: 1.19" x .78" (30mm x 20mm)

Deduction for hanging below track: 1.25"

Plus floor clearance

Capacity: 11 lbs. per carrier



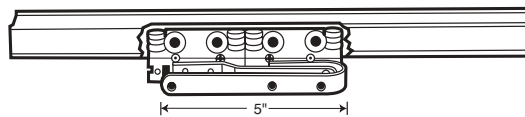
Cross sections of tracks shown actual size

## ROLLER TRACK MASTER CARRIERS

90 Track, which now includes as standard, long arm overlap master carriers

overlap: 5"

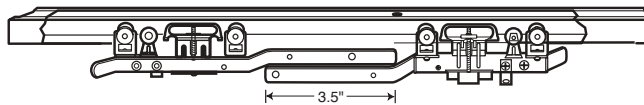
underlap: 3.5"



30 Track with standard overlap master carriers

overlap: 3.5"

underlap: 3.5"



*Custom extended arms may be available. If required, call Customer Service for details.*

## DIRECT DRIVE DRAPERY SYSTEMS

### HOW TO SELECT THE CORRECT DIRECT DRIVE SYSTEM FOR YOUR SPECIFIC REQUIREMENTS

1. Decide on the direct drive motor which best suits your needs, based on the actual weight of the draperies.
2. Choose the roller track which correlates with your project requirements. Criteria to be considered are: overall track size, stacking requirement, drapery pleating style, drapery weight, pocket or recess dimensions, and whether or not the draperies can hang below the track.
3. Refer to pricing below to find the system cost according to size requirements.
4. Add control options as listed on pages 20-22, as described on page 23.
5. All systems include motor, track and brackets. Switching controls must be ordered in addition.
6. If track is curved, refer to page 16 for additional information and costs.



#### CONTEMPORARY PLEATING INFORMATION

**S - fold**  
120% fullness - carriers spaced at 1.875" (4.25" snap tape)  
100% fullness - carriers spaced at 2.125" (4.25" snap tape)  
80% fullness - carriers spaced at 2.375" (4.25" snap tape)  
60% fullness - carriers spaced at 2.625" (4.25" snap tape)

**Z - fold**  
120% fullness - 3.75" pleat (7.5" snap tape)  
100% fullness - 4.25" pleat (8.5" snap tape)  
80% fullness - 5" pleat (10" snap tape)

**RIPPLEFOLD SNAPS SPACING**  
1<sup>st</sup> to 2<sup>nd</sup> snap on  
master carrier  
2.625" on center

2<sup>nd</sup> snap on  
master to 1<sup>st</sup> roller carrier  
4.25" on center

Draperies using Contemporary pleating must hang below the track.

## DIRECT DRIVE ROLLER TRACKS



*Please consult the electrical/electronic options on pages 20-22, to order either the appropriate switch(es) or remote control options. Please refer to page 68 for ordering information and page 70 for installation guidance.*

## DRAPERY MOTORS ELECTRICAL/ELECTRONIC CONTROL INFORMATION

### LOW VOLTAGE MODULAR SWITCH (RECESSED WALL INSTALLATION)

Available for drapery motors only. The switch conforms to a single gang junction box. Low voltage switching connections are made from the switching port of the motor to a modular wall RJ-11 jack (phone type) using a modular cable; then inside the wall to the junction box containing the switch. *The modular cable is nonstandard, and should be supplied by SM Automatic (see page 14).* Low voltage 4 conductor wire run within the wall is typically supplied by the electrician. Power to the motor is supplied by a 9 foot power cord. Electrical outlet and wall jack should be positioned behind drapery, typically 12" directly below motor.

The S-1DD, a hand held or surface mount version is also available. Switch is supplied with a 12 foot, low voltage cable, that plugs into a switching port of the motor.



### RADIO FREQUENCY WIRELESS REMOTE CONTROL (Ti-RF)

The Model 140-S has a built-in radio frequency receiver offering enhanced operation. The maximum range is 100'. The Ti transmitters are available in 1, 2, 6, and 16 channel configurations. The style of the Ti transmitters are sleek with an anti-scratch white piano lacquer finish. They use a low consumption CR2032 lithium battery. Each Ti transmitter comes with a wall bracket.

Ti-RF is compatible with Models 140-S, 9600, 9300, 5100, and 8000.



*Recommend use of a Surge Protected 110 VAC duplex outlet.*

### RADIO FREQUENCY WIRELESS REMOTE CONTROL (RTS)

Radio Technology Somfy, provides a comprehensive method for radio frequency control of motorized systems, with cross platform control system integration. Available both as stand alone, single motor RF control, or as an integrated part of a whole house automated system.



### CONTROL SYSTEM

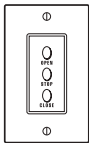
When interfacing with a home theater, multi-room control system, or whole-house automation system; two (2) momentary dry contacts (switching contacts with no voltage inputted) are required for open-stop-close (two button) operation. Operation initiates with either the "Open" or "Close" contact, and a second action with either contact produces the "Stop" function.

All drapery motors are "Smart Motors", designed with built-in logic boards. They are all fully compatible with all major control systems, including those manufactured by AMX, Control4, Crestron Electronics, Lutron Electronics, Savant, and Vantage Controls.



ELECTRICAL/ELECTRONIC CONTROL AND WIRING INFORMATION

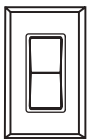
LEGEND



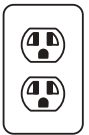
S-300A Switch



Modular Wall Jack (RJ-11)



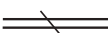
S-DEC2 Decora Paddle Switch



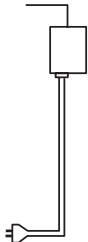
Standard 110 volt Duplex Outlet  
*(Recommend surge protection)*



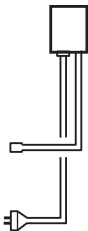
Modular Cable (four conductor: 4/26)



In-wall Modular Cable (four conductor: 4/26)  
(supplied by others)



Radio Frequency Receiver



Control System Interface

Low Voltage SPDT Interface



Automation Control System  
(supplied by others)



Automation Control System  
User Interface  
(supplied by others)

DRAPERY MOTORS ELECTRICAL/ELECTRONIC CONTROL AND  
WIRING INFORMATION GUIDE

SWITCHES

S-300A White



S-300A Ivory



S-300B White



S-300B Ivory



S-1DD



RADIO FREQUENCY REMOTE  
CONTROL (Ti-RF)

TiWMT - 1, 2, 6



RADIO FREQUENCY REMOTE  
CONTROL (SMA-RTS)

Situo 1 RTS



Situo 5 RTS



DecoFlex 5 RTS



RADIO FREQUENCY REMOTE CONTROL (Ti-RF)

Ti-1



Ti-2



Ti-Hub  
App Control



Ti-6



Ti-16



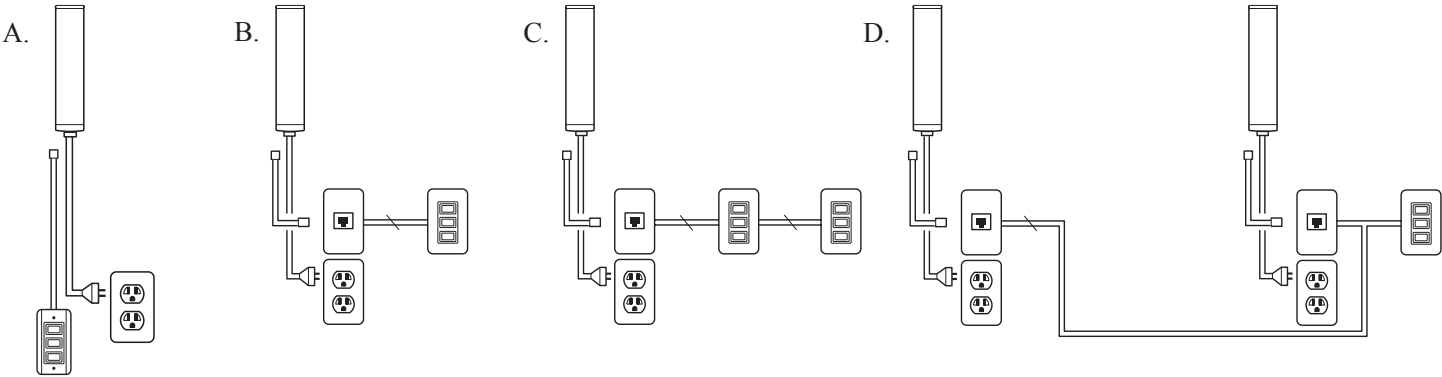
# Single and Group Controls - A to I

Local, group and radio circuit alternatives. Match each diagram to its motor and receiver.

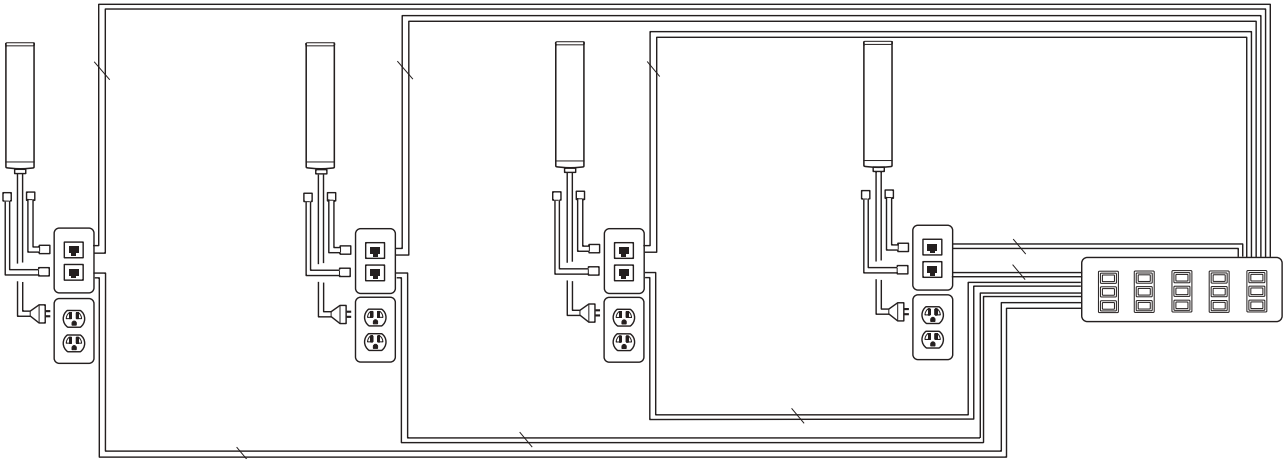
*Recommend use of a Surge Protected 110 VAC duplex outlet.*

- A. S-1DD Switch Individual Control
- C. Two S-300A Switch Individual Control

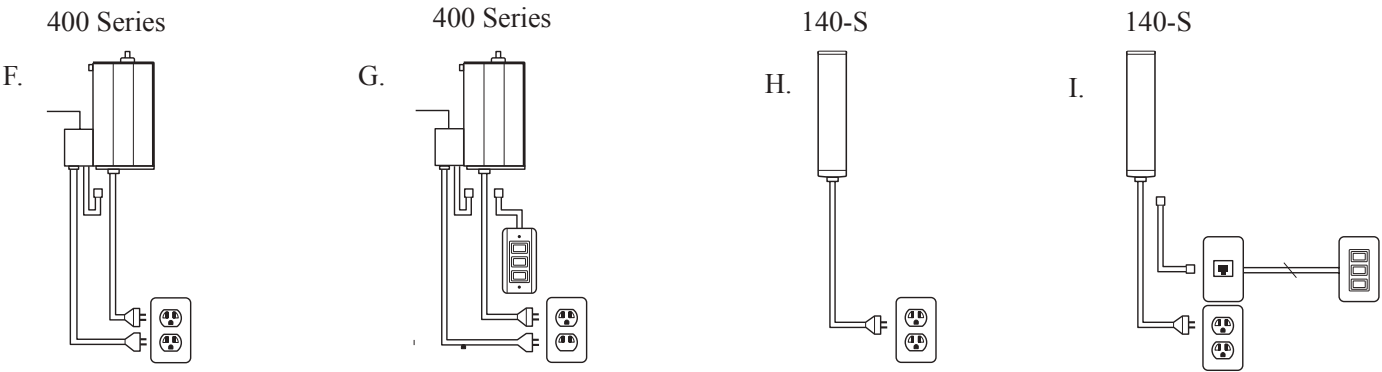
- B. S-300A Switch Individual Control
- D. S-300A Switch Group Control



- E. Individual and Group Switch Control



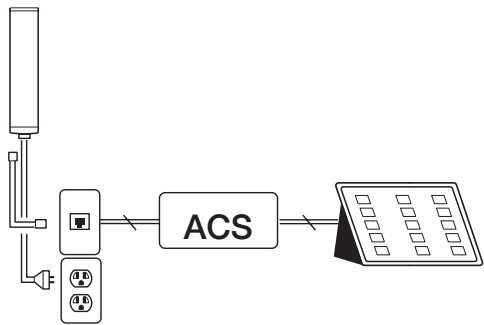
- F. Individual Radio Frequency Remote Control - 400 Series
- G. Individual Remote Control with S-1DD - 400 Series.
- H. Individual Radio Frequency Remote Control - 140-S
- I. Individual Remote Control with S-300A - 140-S



# Automation and Group Controls - J to M

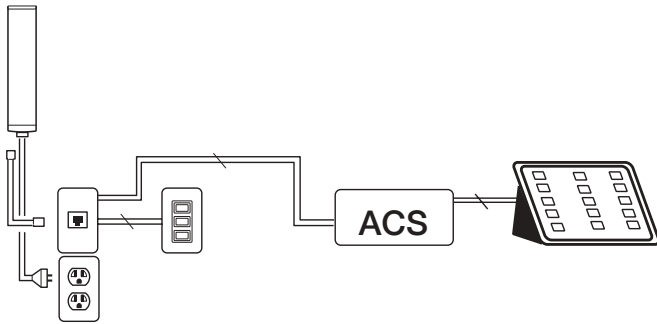
Automation, local control and grouped drapery motor wiring alternatives.

J. Automation Control System

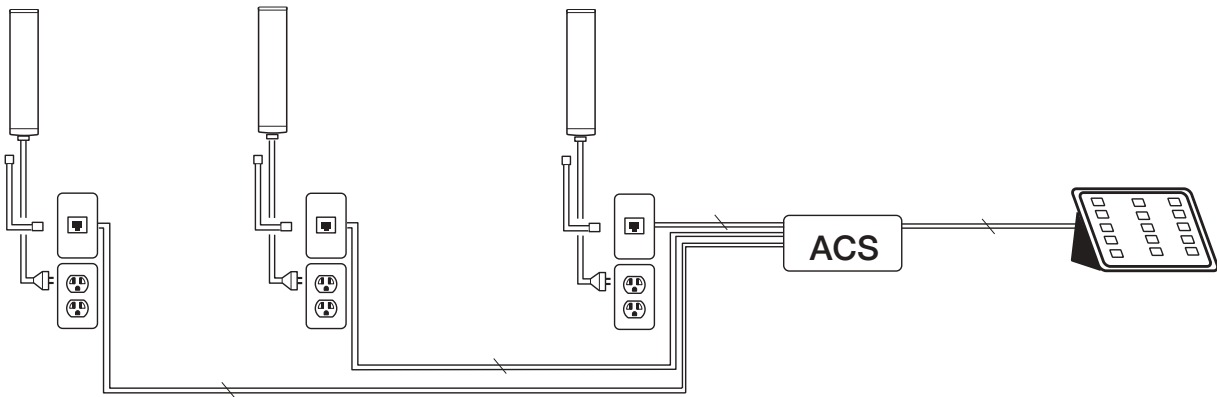


*Recommend use of a Surge Protected 110 VAC duplex outlet.*

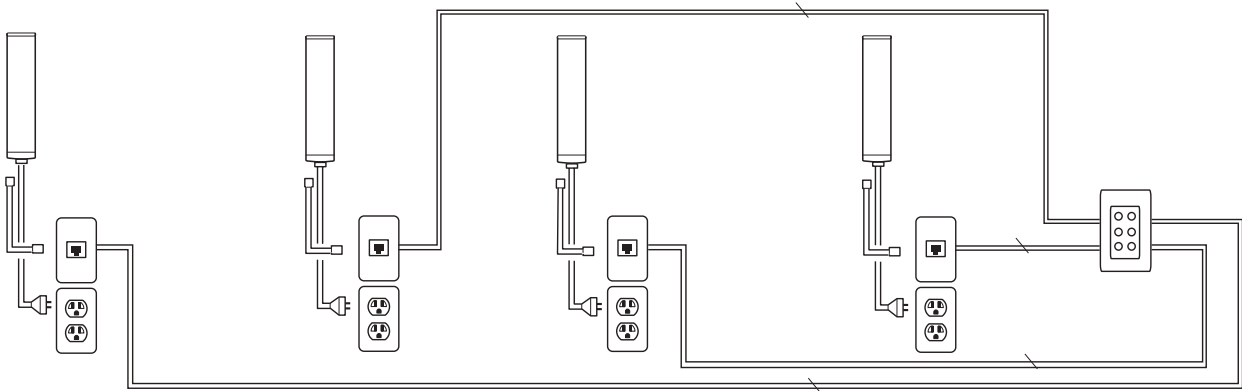
K. Automation Control System with Individual Remote Control and S-300A Switch



L. Individual and Group Automation Control System



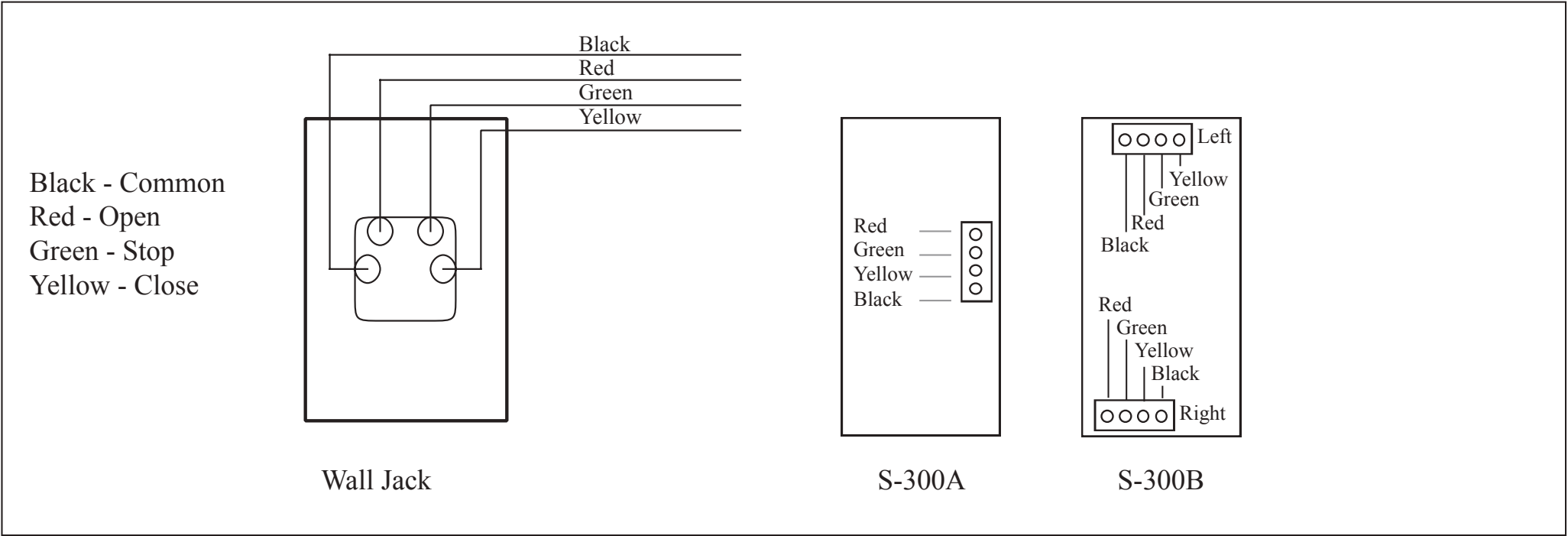
M. Double Group Switch Control with S-300B Switch



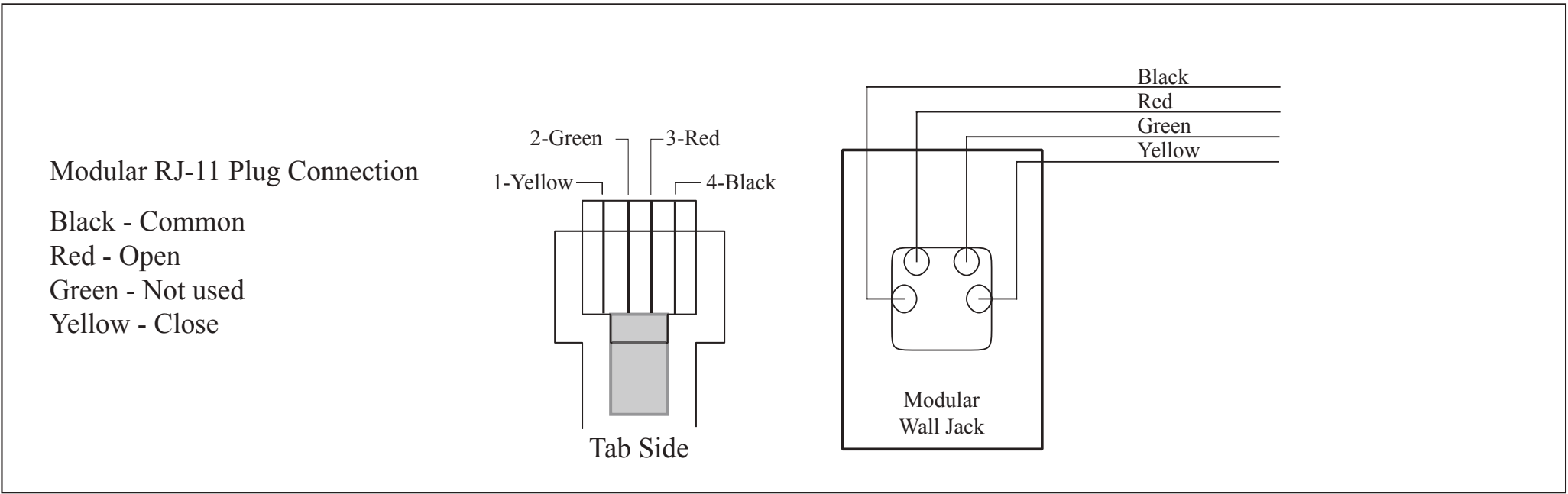
Modular Wiring - N / O

Tab-side connector views and local / automation wiring; direct-drive drapery motor family.

N. Modular Wiring for Direct Drive Motors Connecting to S-300A or S-300B Switch



O. Modular Wiring for Direct Drive Motors Connecting to Automation Control System



## RTS® - RADIO TECHNOLOGY SOMFY

Radio Technology Somfy (RTS) is a secure radio control system for the residential, commercial and hospitality markets. It offers a high performance, reliable and convenient wireless solution for motorization and automation, significantly reducing the wiring requirements. Wireless controls mean fast, easy installation with minimal impact on the building structure.

With the exclusive SMA-RTS receiver, the RTS control platform now extends across the entire spectrum of our product line, and is available for every drapery, blind and shade application.



Situ 1 RTS



Situ 5 RTS



Telis 16 Channel  
Transmitter



Telis 1 Chronis  
Timer Pure



DecoFlex 1- 5 Channels  
Wireless Wall Switch  
(shown: 5 channel)



Universal Interface



Repeater



SMA-RTS Drapery  
Motor Receiver



Dry Contact Interface  
(RTS)

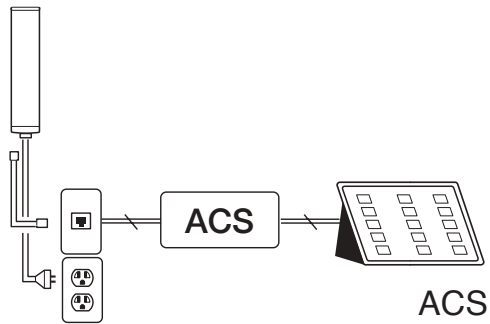


TaHoma

# Automation Interface Reference

Original drapery automation circuits and model-specific stop instructions.

DRAPERIES



**MODEL 475, 140-S OR  
PROGRESS 25/50/80**

When interfacing with a home theater, multi-room control system, or whole-house automation system; two (2) momentary dry contacts (switching contacts with no voltage inputted) are required for open-stop-close (two button) operation.

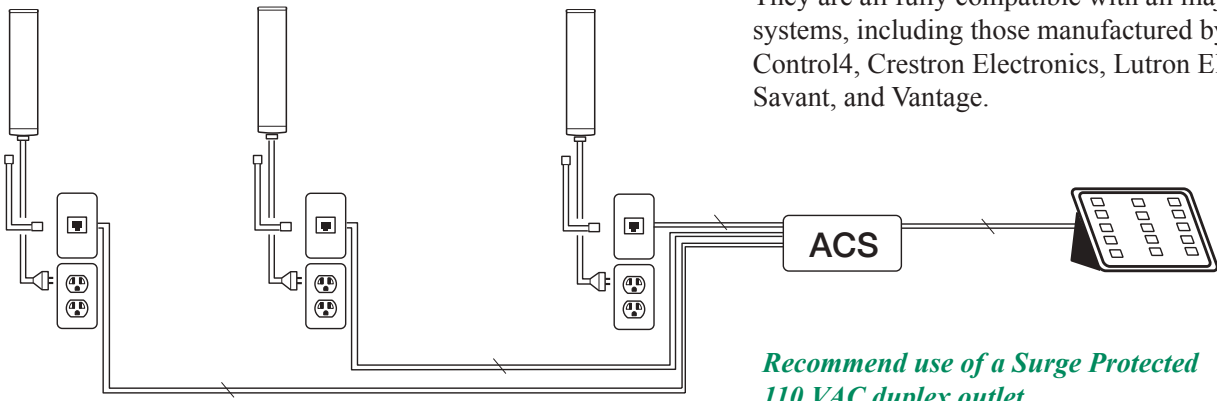
**Stop Function:**  
**For Model 140-S,** close the open/close contacts simultaneously or trigger the opposite direction contact for the “Stop” function.

**For Model 475,** operation initiates with either the “Open” or “Close” contact, and a second action with either contact produces the “Stop” function.

**For Progress 25/50/80 Ti-RF,** close the open/close contacts simultaneously for the “stop” function.

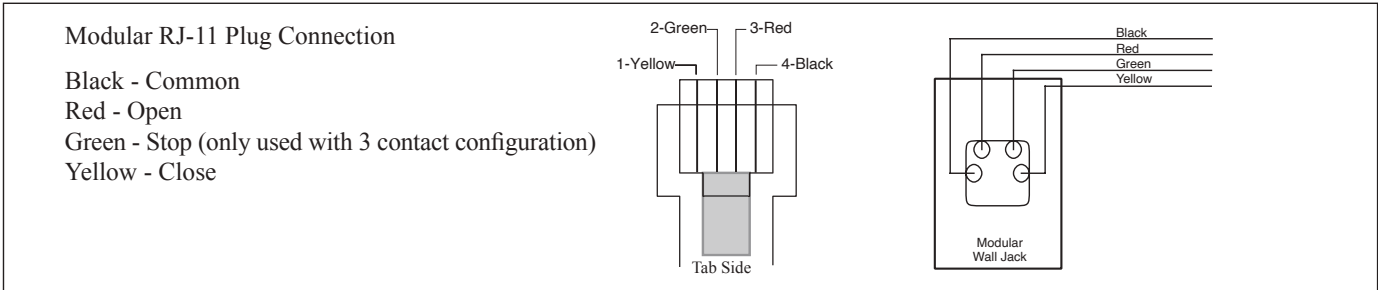
All drapery motors are “*Smart Motors,*” designed with built-in logic boards.

They are all fully compatible with all major control systems, including those manufactured by AMX, Control4, Crestron Electronics, Lutron Electronics, Savant, and Vantage.



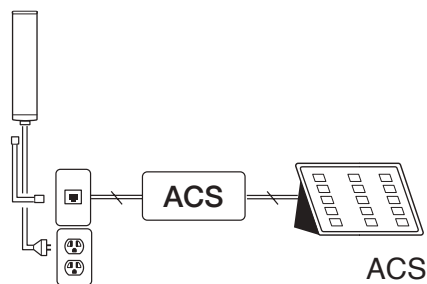
*Recommend use of a Surge Protected  
110 VAC duplex outlet.*

Modular Wiring for Direct Drive Motors Connecting to an Automation Control System



ELECTRICAL WIRING INFORMATION AND DIAGRAMS -  
A COMPARATIVE GUIDE FOR CONTROL SYSTEMS

DRAPERIES



MODEL 475, 140-S OR  
PROGRESS 25/50/80

When interfacing with a home theater, multi-room control system, or whole-house automation system; two (2) momentary dry contacts (switching contacts with no voltage inputted) are required for open-stop-close (two button) operation.

Stop Function:

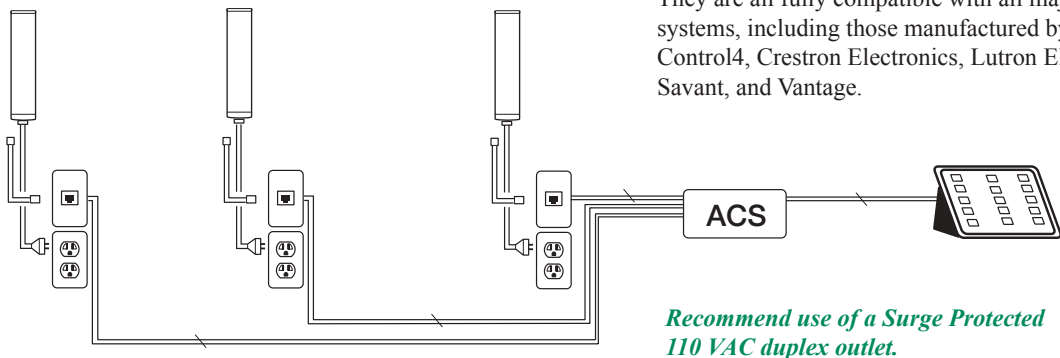
For Model 140-S, close the open/close contacts simultaneously or trigger the opposite direction contact for the “Stop” function.

For Model 475, operation initiates with either the “Open” or “Close” contact, and a second action with either contact produces the “Stop” function.

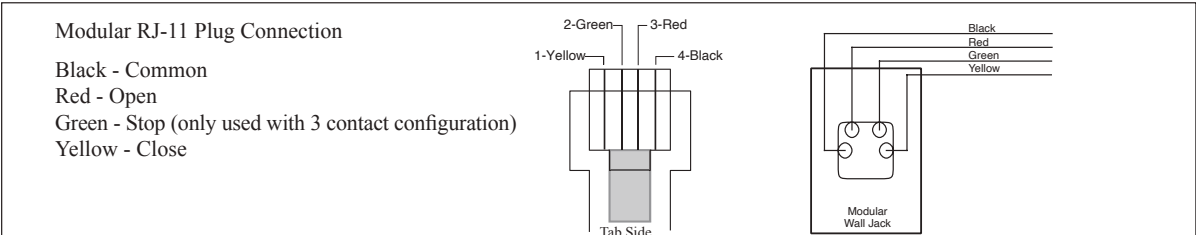
For Progress 25/50/80 Ti-RF, close the open/close contacts simultaneously for the “stop” function.

All drapery motors are “Smart Motors,” designed with built-in logic boards.

They are all fully compatible with all major control systems, including those manufactured by AMX, Control4, Crestron Electronics, Lutron Electronics, Savant, and Vantage.

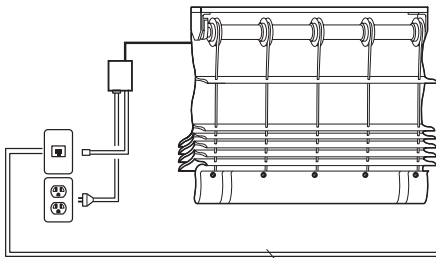


Modular Wiring for Direct Drive Motors Connecting to an Automation Control System

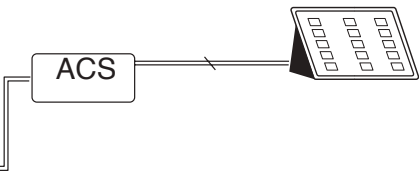


ELECTRICAL WIRING INFORMATION AND DIAGRAMS -  
A COMPARATIVE GUIDE FOR CONTROL SYSTEMS

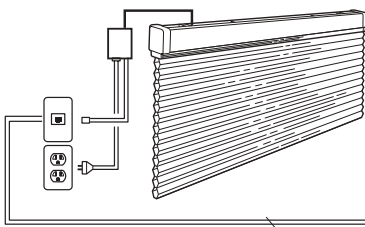
ROMAN AND ROLLER SHADES



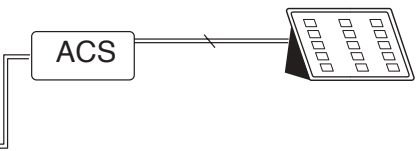
When interfacing with a home theater, multi-room control system, or whole-house automation system; two (2) momentary dry contacts are required. Operation initiates with either the “Open” or “Close” contact, and a second action with either contact produces the “Stop” function.



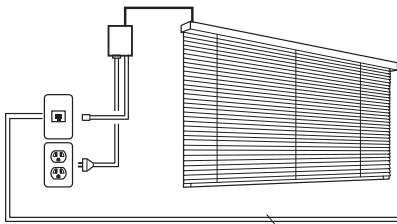
CELLULAR SHADES



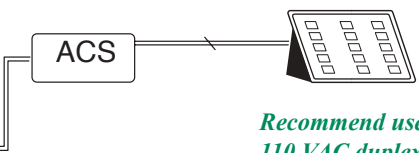
When interfacing with a home theater, multi-room control system, or whole-house automation system; two (2) momentary dry contacts are required. Operation initiates with either the “Open” or “Close” contact, and a second action with either contact produces the “Stop” function.



HORIZONTAL AND  
VERTICAL BLINDS

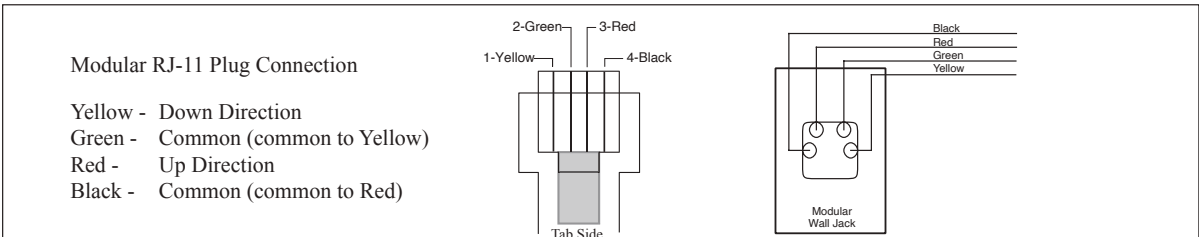


When interfacing with a home theater, multi-room control system, or whole-house automation system; two momentary dry contacts are required. “Tilting” function must have timed contacts of *less* than 1.5 seconds. “Lifting” function must have a timed contact of *more* than 1.5 seconds.



*Recommend use of a Surge Protected  
110 VAC duplex outlet.*

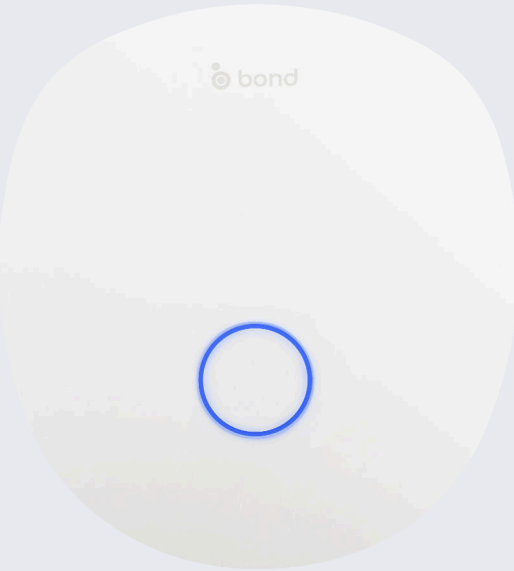
Modular Wiring for Shades and Blinds Connecting to an Automation Control System



# bond Bridge **PRO**

## for Pro Installers!

model number: BD-1750



### The Quick Read

- ✓ Bond Bridge Pro (BD-1750) is a Sub GHz to Wifi (TCP/IP) Bridge
- ✓ Cover remote controls between 300MHz - 450MHz\*
- ✓ Somfy, all ceiling fans, and fireplaces
- ✓ 2.4GHz Wi-Fi, Ethernet + POE
- ✓ Extended warranty
- ✓ Drivers for C4, Elan, RTI, URC and more
- ✓ Live tech support

### The Whole Story

The Pro Installer market has spoken, and we listened: Bond Bridge Pro is our new low frequency RF to Wi-Fi/ Ethernet bridge with a new look and new functionality.

It was created and designed for Pro Installers who demand to take the experience of using a Smart Bridge to the next level. It is an easier, faster, and more powerful way to connect RF controlled devices in a smart home automation portfolio.

**The setup is quick and easy, and there is no need for workarounds or complicated drivers in order to connect ceiling fans, fireplaces or shades.**

Just mount the Bond Bridge Pro to the wall or ceiling in a central location, to allow for full coverage and control of RF devices within the entire home. And, with PoE and ethernet, it allows a fully hard-wired integration.

And we are Open! Our open API allows integrations with all home automation systems.

### Supported Devices



Ceiling fans



Motorized shades



Fireplaces

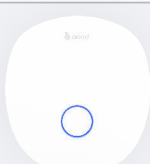
"Bond", and "Bond Bridge Pro" are trademarks of Olibra, LLC. All other brand names are trademarks of their respective owners.



 [bondhome.io](https://bondhome.io)

 [customerservice@olibra.io](mailto:customerservice@olibra.io)

Everything Smart

| Bond Bridge vs. Bond Bridge Pro |                                                                                                  |                                                                                                        |
|---------------------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
|                                 | <br>Bond Bridge | <br>Bond Bridge Pro |
| Range                           | 2,500 sq ft                                                                                      | 3,500 sq ft                                                                                            |
| Can control up to               | 30 devices                                                                                       | 50 devices                                                                                             |
| Warranty                        | 1 year                                                                                           | 3 years                                                                                                |
| Ethernet connectivity           | ✗                                                                                                | ✓                                                                                                      |
| Power Over Ethernet - PoE       | ✗                                                                                                | ✓                                                                                                      |
| Ceiling and Wall mount          | ✗                                                                                                | ✓                                                                                                      |
| Works with Sidekick             | ✗                                                                                                | ✓                                                                                                      |
| RF                              | ✓                                                                                                | ✓                                                                                                      |
| IR                              | ✓                                                                                                | ✗                                                                                                      |
| Open Local API                  | ✓                                                                                                | ✓                                                                                                      |
| In-App Live Customer Support    | ✓                                                                                                | ✓                                                                                                      |

Works With

- Control 4
  - Nice Home
  - RTI
  - URC
  - Savant
  - Crestron
- Hey Google
  - Amazon Alexa
  - SmartThings
  - Somfy
  - Rollease Acmeda
  - Nice

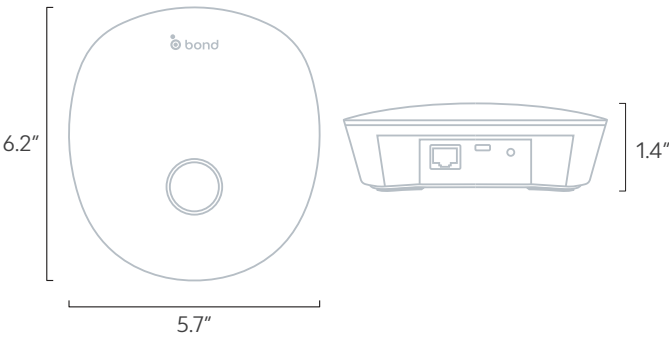


**And many more!** Check out the ever growing list of brands that Bond Bridge Pro work with

|                           |                     |                 |
|---------------------------|---------------------|-----------------|
| <b>RF Frequency</b>       | <b>Power</b>        | <b>RF Reach</b> |
| 300—450 MHz*              | 3VDC/1W or PoE      | 3,500 sq ft     |
| <b>Connectivity</b>       | <b>Cable Length</b> |                 |
| 2.4 GHz Wi-Fi or Ethernet | 6 ft                |                 |

\* Frequency range for the North America region is restricted, with bands 321.5—336.0 MHz & 399.5—410.5 MHz unavailable. In Australia only bands 433.05—434.79 MHz are supported. In EU, supported bands 433.05—434.79 MHz, Maximum Power: -1.7 dBm, Connectivity: 2.4 GHz Wi-Fi 2412—2472 MHz

Dimensions & Weight



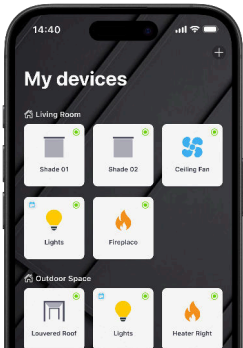
**Total:** 1.4" H x 5.7" W x 6.2" D **Weight:** 7.2 oz

Easy and quick setup

Setting up devices on the Bond Home app takes only 30 sec per device

 GET IT ON  
**Google Play**

 Download on the  
**App Store**



 [bondhome.io](https://bondhome.io)

 [customerservice@olibra.io](mailto:customerservice@olibra.io)

Everything Smart

# TaHoma® switch

Item #: 1871037 • Item #: 1871038 (includes Ethernet Adaptor)



### Overview:

The TaHoma® switch brings connectivity and advanced control to Somfy-powered shades. This hub can control up to 60 Somfy Zigbee products and 40 channels of Radio Technology Somfy® (RTS) motorized products. The TaHoma® app enables users to setup and configure their products, and access their smart shading from anywhere.

TaHoma also enables integration with third-party control systems by leveraging the Somfy Synergy™ API.



### Technical specifications:

- Radio protocol: Zigbee 3.0
  - Frequency: 2.4 GHz
  - Input: 100 – 240V AC / 50 – 60 Hz / Max 0.5 A
  - Output: 5V DC / 2000 mA
  - Plug type: A
  - Consumption: 0.1 A (nominal)
  - Connector: 1x Micro-USB
  - Dimensions: 6.37" L x 2.65" H x 1.33" W  
(162mm L x 67.5mm H x 34 mm W)
  - Operating temperature range: 32 °F – 95 °F (0 °C – 35 °C)
  - Shipping weight: 0.46lbs (212g)
  - Compatibility:
    - TaHoma pro
      - iOS Version 15.0 or later
      - Android Version 8.0 and up
    - TaHoma by Somfy
      - iOS Version 15.0 or later
      - Android Version 8.0 and up
- 
- where applicable
- FCC ID: DWN-SWITCH
  - IP Rating: IP 30 (for indoor use only)
  - Warranty: 5 years (from date of manufacture)
  - Certifications:
    - UL (for power supply)
    - FCC
    - Zigbee 3.0

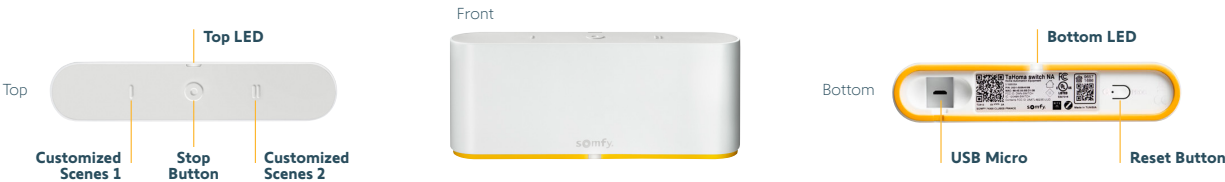
### Features summary:

- Enables third-party integration
- Create scenes and schedules for automated control
- Quickly launch scenes directly from the device or using the app
- Allows voice control with Amazon Alexa, Google Home, and Apple HomeKit (where applicable for Zigbee products only)
- Centralized control via an app
- Supports both Zigbee and RTS Somfy products

### What's in the box:

- TaHoma® switch
- 1x USB power adaptor
- 1x USB power cable
- 1x Product leaflet
- 1x Legal security notice
- 1 x Onboarding flyer
- 1 x HomeKit instruction flyer
- Ethernet adaptor (1871038 only)

### Connections and indicators:



#### Top LED

| Scene Status                    | Indicator color/state                     | Duration |
|---------------------------------|-------------------------------------------|----------|
| Wi-Fi research<br>Wi-Fi lost    | Blinking white 2 times<br>Blinking 1 time |          |
| Standing by                     | Off                                       |          |
| Scene launched                  | Slow blinking white                       | 3 sec.   |
| Scene stopped (via stop button) | Solid red                                 | <1 sec.  |

#### Top indicator used for SCENE MANAGEMENT

Top indicator is also used:

- for Wi-Fi setting process (blinking blue) + connection outage (blinking red)
- as a restart indicator (orange)
- as an indicator for TaHoma pro mode activation, using the new TaHoma pro app (green)

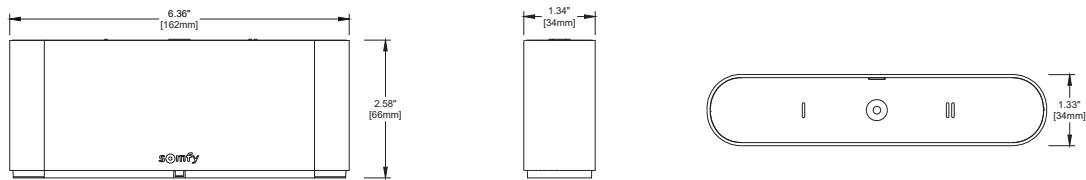
#### Bottom LED

| TaHoma® switch state                    | Indicator |                                |
|-----------------------------------------|-----------|--------------------------------|
|                                         | Color     | State                          |
| Box not powered                         | None      | Off                            |
| Box powered and not connected to server | Red       | Solid on                       |
| Box powered and connected to server     | White     | Solid on<br>Can be deactivated |

STANDARD use for power and server connection status

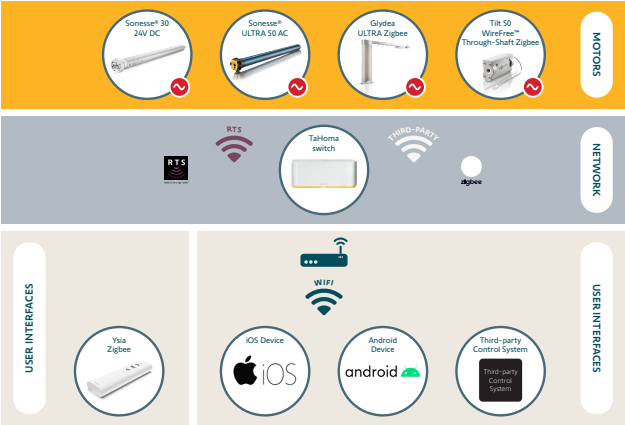


Dimensions:



Best wiring practices:

The diagram shown below is meant for illustrative purposes to show the connections from product to product. This device could be used in other configurations. Somfy does not recommend making custom cable with this device. Please ensure that the limits on the motor have been set and tested.



TaHoma® Ethernet Adaptor

Item #: 9028054

Overview:

The TaHoma® Ethernet Adaptor adds an Ethernet LAN port to TaHoma, providing a fast and stable internet connection.

Technical specifications:

- Input Power: Micro USB Female: 5V, 2A (max)
- Output Power: Micro USB Male: 5V, 2A (max)
- Number of Ports: (Downlink Port) RJ45 + Micro B Female (Uplink Port) RJ45 + Micro B Male
- Transmission Speed: 10/100Mbps
- Operating Temperature: 32°F – 140°F (0°C to 60°C)
- Dimensions: 7.36" L x 1.39" W x 0.67" H (186.94mm L x 35.31mm W x 17.02mm H)
- Shipping Weight: 0.056 lbs (25.5g)
- Certifications: FCC, IC
- Warranty: 5 years (from manufacturer date)

What's in the box:

- TaHoma® Ethernet Adaptor
- Safety instructions



www.somfypro.com

Installation:



© Somfy Systems, Inc. • MARCH 2024  
Zigbee® is a registered trademark of Connectivity Standards Alliance.

D-0150

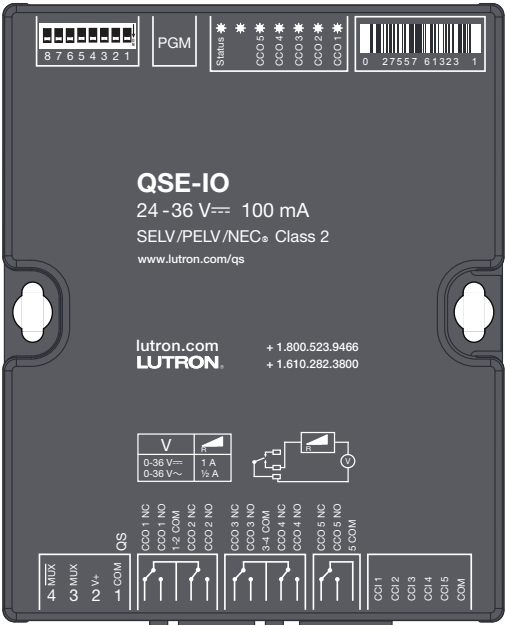
QSE-IO Control Interface

The QSE-IO contact closure interface provides integration with third-party equipment requiring contact closure input/output, including occupancy and vacancy sensors; motorized projection screens, skylights, and window shades; AV equipment; security systems; movable partition walls; and timeclocks. One QSE-IO interface provides five (5) dry contact closure outputs and five (5) inputs.

For complete functionality, programming instructions, and detailed DIP switch settings, see the QSE-IO Programming Guide, [www.lutron.com/TechnicalDocumentLibrary/040391.pdf](http://www.lutron.com/TechnicalDocumentLibrary/040391.pdf)

Features

- Integrates a QS control system with equipment that has contact-closure inputs and outputs.
- Provides five inputs and five dry contact closure outputs.
- Provides both normally open (NO) and normally closed (NC) contacts.
- May be programmed to control or be controlled on a QS system.



QSE-IO Contact Closure Interface

 SPECIFICATION SUBMITTAL

Page 1

|                |  |  |
|----------------|--|--|
| Job Name:      |  |  |
| Job Number:    |  |  |
| Model Numbers: |  |  |

Specifications

Regulatory Approvals

- UL® Listed
- cUL® Listed
- CE compliant
- RoHS compliant

Power

- SELV/PELV/NEC® Class 2
- Operating voltage: 24–36 V $\overline{=}$  100 mA

QS Link Limits

- Each QSE-IO control interface counts as 1 device and 5 zones.
- Each QSE-IO control interface consumes 3 Power Draw Units (PDU) on the QS link. Refer to the QS Link Power Draw Units Specification Submittal (P/N 369405) at [www.lutron.com](http://www.lutron.com) for more information.
- The maximum wiring length for the QS link is 2000 ft (610 m).

Environment

- 32 °F to 104 °F (0 °C to 40 °C).
- Relative humidity less than 90% non-condensing.
- Indoor use only.
- Unit generates heat, maximum 8 BTU/hr.

Functionality and Operating Modes

- Using the inputs, contact closures in other equipment can operate control units to:
  - Select scenes
  - Adjust scenes to reflect status of movable walls
  - Toggle any combination of zones in the system between Off and a configurable preset value
  - Turn lights on or off and/or move shades based on room occupancy
  - Perform special functions such as sequencing, panic, control lockout, or timeclock disable
- Using the outputs, scene and/or zone changes in control units can:
  - Trigger outputs to control other equipment
  - Provide status feedback to other equipment

Functionality and Operating Modes (continued)

- Using the inputs, contact closures in other equipment can operate Sivoia QS window treatments to:
  - Open or close.
  - Raise, lower, or stop.
  - Select one of three adjustable presets.
- Using the outputs, key presses on QS window treatment keypads or GRAFIK Eye QS window treatment buttons can:
  - Trigger outputs to other motorized window treatment equipment
- Scene selection
- Occupancy sensor
- Zone toggle
- Shade input
- Special functions
- Shade output
- Partitioning
- For a full list of functionality and operating modes, please see the Operating Modes and Dipswitch Settings table on Pages 8 and 9

Requirements

- QS Link Power Supply, such as a:
  - GRAFIK Eye QS
  - QS Link power supply, such as the QSPS-P1-1-50
  - Energi Savr Node QS
  - Quantum light management hub
- QS Communication Link (SELV/PELV/NEC® Class 2) (see QS Link Wire Sizes table)

|             |             |                |             |
|-------------|-------------|----------------|-------------|
| Job Name:   | <div></div> |                |             |
| Job Number: | <div></div> | Model Numbers: | <div></div> |

Specifications (continued)

Five Input Terminals

- Accept maintained inputs and momentary inputs with 40 msec minimum pulse times
- Off-state leakage current must be less than 100 µA
- Open circuit voltage: 36 V $\overline{=}$  maximum
- Inputs must be dry contact closure, solid state, open collector, or active-low (NPN)/active high (PNP) output
  - Open collector NPN or active-low on-state voltage must be less than 2 V $\overline{=}$  and sink 3.0 mA
  - Open collector PNP or active-high on-state voltage must be greater than 12 V $\overline{=}$  and source 3.0 mA

Five Output Terminals

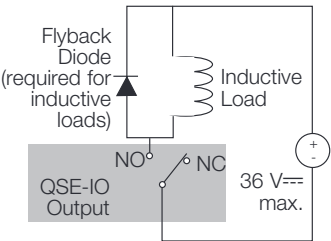
- Provide selectable maintained or momentary (1/4 second) outputs (SELV/PELV/NEC® Class 2 rated only)
- The QSE-IO is not rated to control unclamped, inductive loads. Inductive loads include, but are not limited to, relays, solenoids, and motors. To control these types of equipment, a flyback diode must be used (DC voltages only). See "Terminal Locations"
- Output relays are non-latching (if relays are closed and power is lost, relays will open)

Status LEDs

- Five Status LEDs light when associated output is active (on)

Output Ratings

| Supply Voltage        | Resistive Load  |
|-----------------------|----------------------------------------------------------------------------------------------------|
| 0–36 V $\overline{=}$ | 1.0 A                                                                                              |
| 0–36 V $\sim$         | 0.5 A                                                                                              |



**⚠WARNING – Entrapment Hazard –** To avoid the risk of entrapment, serious injury, or death, these controls must not be used to control equipment that is not visible from every control location or that could create hazardous situations if operated accidentally or through malfunction (for example, motorized gates, garage doors, industrial doors, microwave ovens, heating pads, fireplaces, space heaters, etc.). It is the installer’s responsibility to ensure that these controls are connected only to suitable loads and equipment types and that such equipment is visible from every control location. Failure to do so could result in serious injury or death.

 **LUTRON**

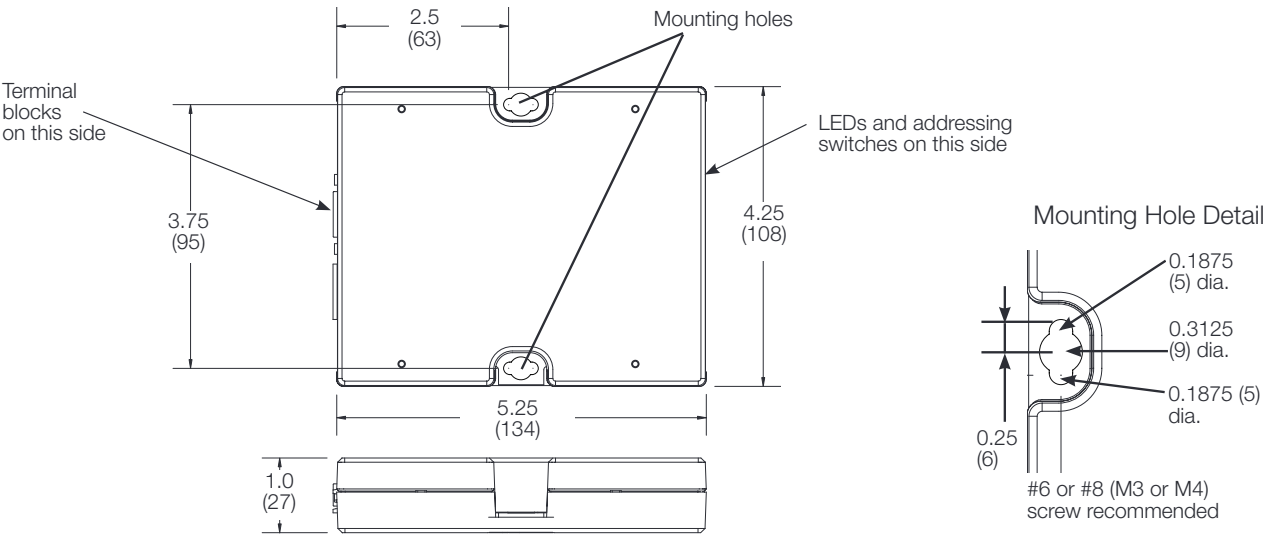
SPECIFICATION SUBMITTAL

Page 3

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|-------------|--|--|----------------|--|--|
| Job Name:   |  |  | Model Numbers: |  |  |
| Job Number: |  |  |                |  |  |

Dimensions

Dimensions are in inches (mm)



Mounting Options

Mount where terminal blocks, switches, and LEDs are accessible. Strip 3/8 in (10 mm) of insulation from wires. Each data link terminal will accept up to two 18 AWG (1.0 mm<sup>2</sup>) wires. Connect wiring as shown on the Wiring page. LED 1 lights continuously (Power) and LED 7 blinks rapidly (Data Link RX) when the SELV/PELV/NEC® Class 2 Data Link is installed correctly. Choose from the following mounting methods:

1 Direct Wall Mounting

Mount the control interface directly on a wall, as shown in Mounting Methods at right, using screws (not included). When mounting, provide sufficient space for connecting cables.

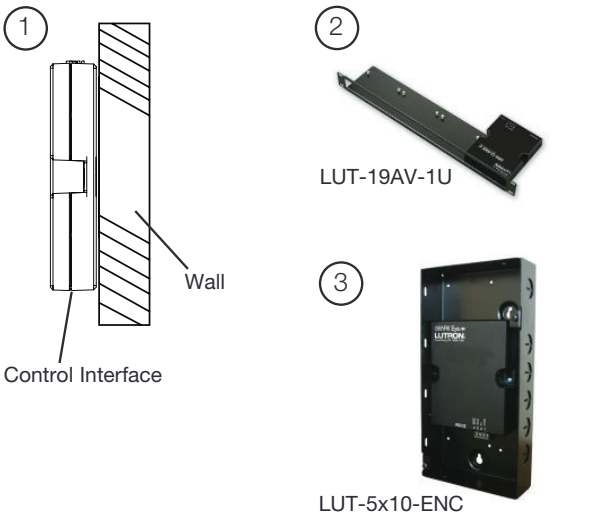
2 Rack Mounting

Place the unit in the LUT-19AV-1U AV rack using screws provided with the unit. The LUT-19AV-1U will hold up to four units.

3 Enclosed Wall Mounting

If conduit is desired for wiring, use the LUT-5x10-ENC to mount one unit.

Mounting Methods

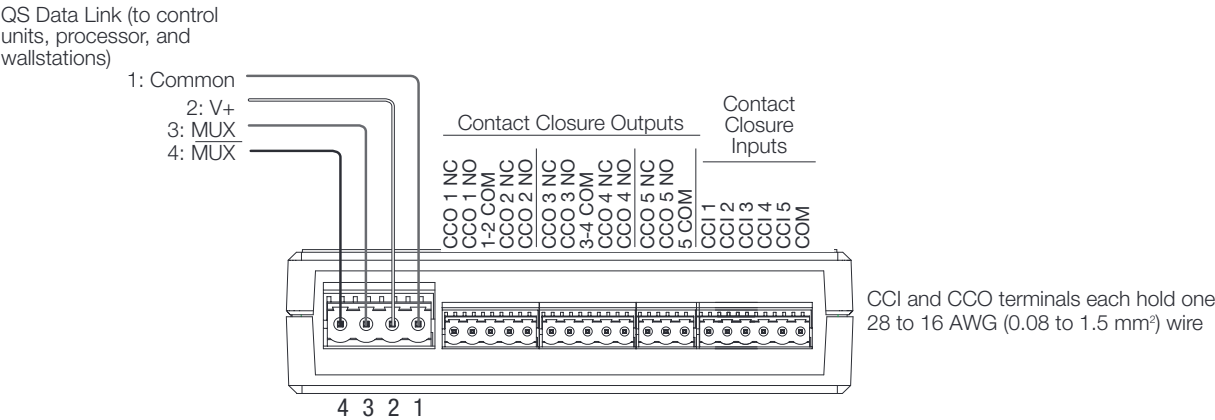


SPECIFICATION SUBMITTAL

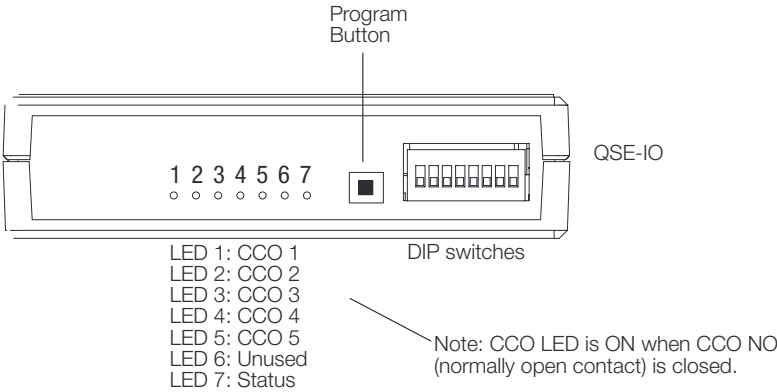
Page 4

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| Job Name:   | Model Numbers: |  |  |
|             |                |  |  |
| Job Number: |                |  |  |

Terminal Locations



LED and DIP Switch Locations



QS Link Wire Sizes (check compatibility in your area)

| QS Link Wiring Length         | Wire Gauge                                                            | Lutron® Cable Part Number                           |
|-------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------|
| < 500 ft (153 m)              | Power (terminals 1 and 2)<br>1 pair 18 AWG (1.0 mm²)                  | GRX-CBL-346S (non-plenum)<br>GRX-PCBL-346S (plenum) |
|                               | Data (terminals 3 and 4)<br>1 twisted, shielded pair 22 AWG (0.5 mm²) |                                                     |
| 500 to 2000 ft (153 to 610 m) | Power (terminals 1 and 2)<br>1 pair 12 AWG (4.0 mm²)                  | GRX-CBL-46L (non-plenum)<br>GRX-PCBL-46L (plenum)   |
|                               | Data (terminals 3 and 4)<br>1 twisted, shielded pair 22 AWG (0.5 mm²) |                                                     |

 SPECIFICATION SUBMITTAL

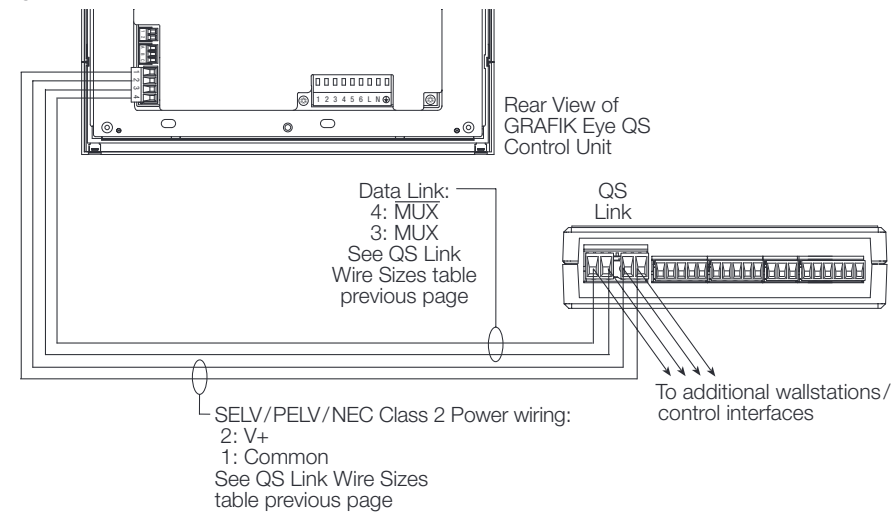
Page 5

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| Job Name:   | Model Numbers: |  |
|             |                |  |
| Job Number: |                |  |

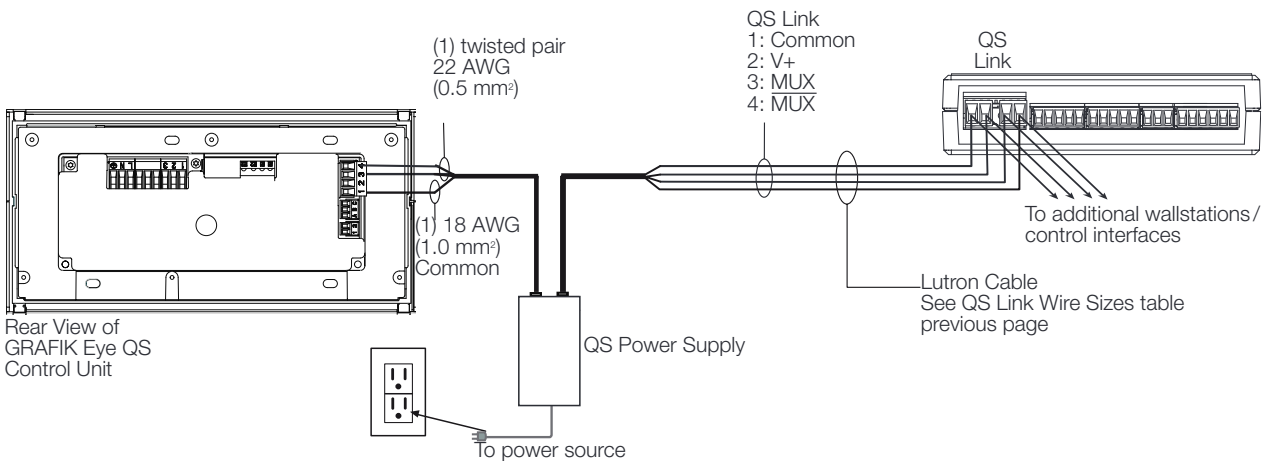
QS Link Wiring Methods (choose one)

- System communication uses SELV/PELV/NEC® Class 2 wiring.
  - Follow all local and national electrical codes when installing SELV/PELV/NEC® Class 2 wiring with line voltage/mains wiring.
  - Each terminal accepts up to two 18 AWG (1.0 mm²) wires.
  - Total length of control link must not exceed 2000 ft (610 m).
  - Typical Wire Sizes: See QS Link Wire Sizes table, previous page.
- Connect the terminal 1, 3, and 4 connections to all control units, wallstations, and control interfaces in the QS system. For terminal 2 connectivity, please refer to the wiring diagrams below.

Powered by GRAFIK Eye QS Control Unit



Powered by a QS Link Power Supply



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SPECIFICATION SUBMITTAL

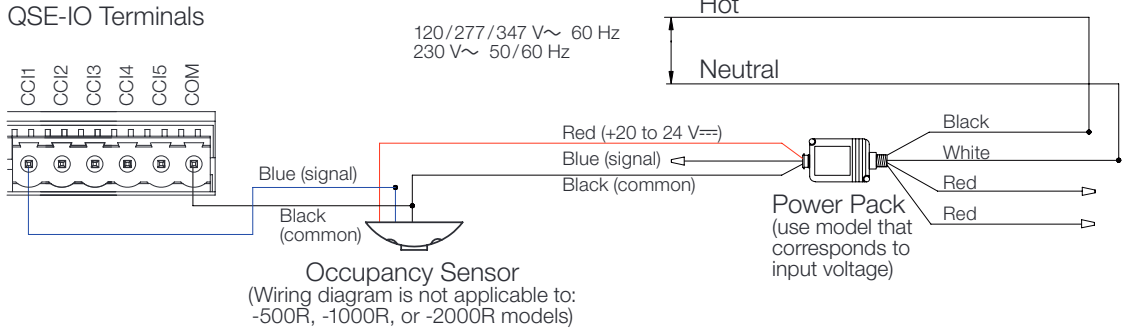
Page 6

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| Job Name:   | Model Numbers: |  |  |
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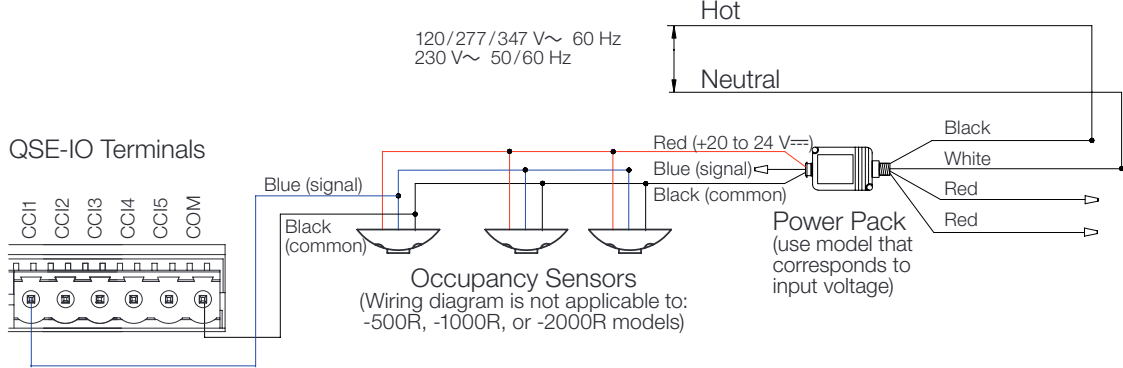
Wiring Application Examples

**NOTE:** Refer to Spec Submittal #369653 LOS-CDT Series on [www.lutron.com](http://www.lutron.com) for wiring details regarding Models -500R, -1000R, and -2000R for wiring the dry contact output from LOS sensors to the QSE-IO (e.g. 7 wire Occ Sensor with photocell)

1 Lutron Occupancy Sensor Wired to 1 QSE-IO Device Input



3 Lutron Occupancy Sensors Wired to 1 QSE-IO Device Input



**Note:** When used with a GRAFIK Eye QS standalone system in partitioned areas, each occupancy sensor input will only control the individual area. Changes in occupancy sensor state will not control adjacent areas. If partitioning functionality is required a Quantum processor is needed.

 SPECIFICATION SUBMITTAL

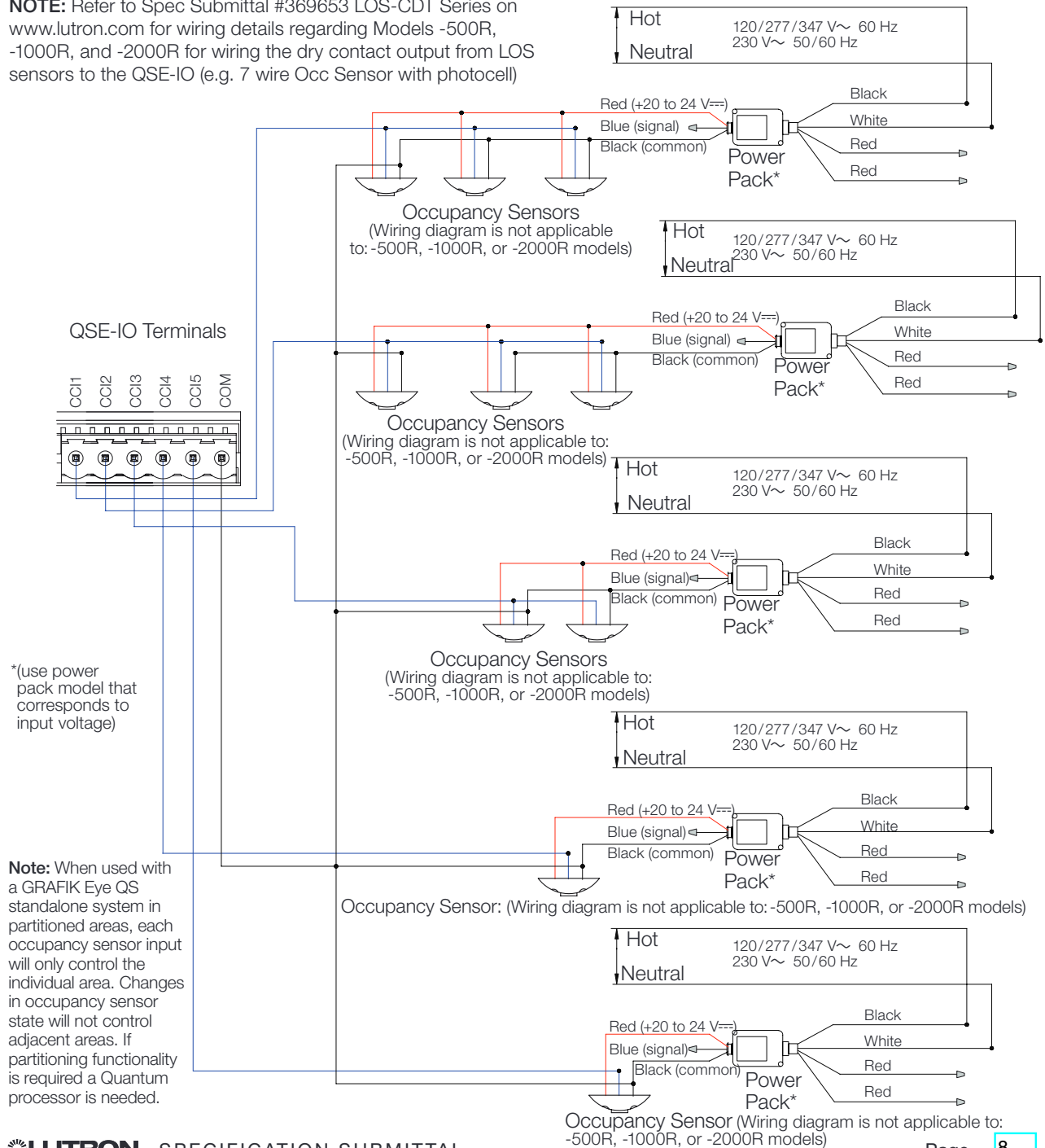
Page 7

|             |                |  |
|-------------|----------------|--|
| Job Name:   | Model Numbers: |  |
| Job Number: |                |  |

## Wiring Application Examples

## Multiple Lutron Occupancy Sensors Wired to Multiple QSE-IO Device Inputs

**NOTE:** Refer to Spec Submittal #369653 LOS-CDT Series on [www.lutron.com](http://www.lutron.com) for wiring details regarding Models -500R, -1000R, and -2000R for wiring the dry contact output from LOS sensors to the QSE-IO (e.g. 7 wire Occ Sensor with photocell)

 SPECIFICATION SUBMITTAL

Page 8

|                      |                      |                      |
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| Job Name:            | Model Numbers:       |                      |
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| Job Number:          | <input type="text"/> | <input type="text"/> |

QS System

QSE-IO

Control Interface

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## QSE-IO Operating Modes and DIP Switch Settings Overview

| Mode                                                              | Dip Switch |   |   |   |   |   | Contact Closures Invoke: |                        |                      |                      |                 |                         |                                           |
|-------------------------------------------------------------------|------------|---|---|---|---|---|--------------------------|------------------------|----------------------|----------------------|-----------------|-------------------------|-------------------------------------------|
| Configuration                                                     | 3          | 4 | 5 | 6 | 7 | 8 | Input 1                  | Input 2                | Input 3              | Input 4              | Input 5         | Inputs                  | Outputs                                   |
| Scene selection                                                   |            |   |   |   |   |   | Scene 1                  | Scene 2                | Scene 3              | Scene 4              | Scene Off       | Maintained or Momentary | Maintained                                |
|                                                                   |            |   |   |   |   |   | Scene 5                  | Scene 6                | Scene 7              | Scene 8              | Scene Off       |                         |                                           |
|                                                                   |            |   |   |   |   |   | Scene 9                  | Scene 10               | Scene 11             | Scene 12             | Scene Off       |                         |                                           |
|                                                                   |            |   |   |   |   |   | Scene 13                 | Scene 14               | Scene 15             | Scene 16             | Scene Off       |                         |                                           |
|                                                                   |            |   |   |   |   |   | Scene 1                  | Scene 2                | Scene 3              | Scene 4              | Scene Off       | Maintained or Momentary | Momentary                                 |
|                                                                   |            |   |   |   |   |   | Scene 5                  | Scene 6                | Scene 7              | Scene 8              | Scene Off       |                         |                                           |
|                                                                   |            |   |   |   |   |   | Scene 9                  | Scene 10               | Scene 11             | Scene 12             | Scene Off       |                         |                                           |
|                                                                   |            |   |   |   |   |   | Scene 13                 | Scene 14               | Scene 15             | Scene 16             | Scene Off       |                         |                                           |
| Special (maintained)                                              |            |   |   |   |   |   | Sequence 5–16            | Zone lockout           | Scene lockout        | Panic mode           | Timeclock       | Maintained              | Maintained                                |
| Special (momentary)                                               |            |   |   |   |   |   | Sequence 5–16            | Zone lockout           | Scene lockout        | Panic mode           | Timeclock       | Momentary               |                                           |
| Special 2 (maintained)                                            |            |   |   |   |   |   | Sequence 1–4             | Zone lockout           | Scene lockout        | Panic mode           | Afterhours mode | Maintained              | Maintained                                |
| Special 2 (momentary)                                             |            |   |   |   |   |   | Sequence 1–4             | Zone lockout           | Scene lockout        | Panic mode           | Afterhours mode | Momentary               |                                           |
| Shade input preset (“stop if moving”)                             |            |   |   |   |   |   | Shade open               | Shade preset 1         | Shade preset 2       | Shade preset 3       | Shade close     | Maintained or Momentary | Maintained                                |
| Shade input preset (no “stop if moving”)                          |            |   |   |   |   |   | Shade open               | Shade raise            | Shade lower          | Shade stop           | Shade close     | Momentary or Maintained | Maintained                                |
| Shade input (raise, lower, stop)                                  |            |   |   |   |   |   | Shade open               | Shade raise            | Shade lower          | Shade stop           | Shade close     | Momentary or Maintained | Maintained                                |
| Shade input dual group (“stop if moving”)                         |            |   |   |   |   |   | Open Group 1             | Close Group 1          | Open Group 2         | Close Group 2        | —               | Maintained or Momentary | Maintained                                |
| Shade input dual group (no “stop if moving”)                      |            |   |   |   |   |   |                          | Close Group 1          | Open Group 2         | Close Group 2        | —               | Maintained or Momentary | Maintained                                |
| Shade input dual group (raise / lower)                            |            |   |   |   |   |   | Raise / Stop Group 1     | Lower / Stop Group 1   | Raise / Stop Group 2 | Lower / Stop Group 2 | —               | Momentary               | Momentary                                 |
| Shade input toggle (“stop if moving”: open / stop / close / stop) |            |   |   |   |   |   | Toggle Group 1           | Toggle Group 2         | Toggle Group 3       | Toggle Group 4       | Toggle Group 5  | Momentary               | Momentary                                 |
| Shade input toggle (no “stop if moving”: open / close)            |            |   |   |   |   |   | Toggle Group 1           | Toggle Group 2         | Toggle Group 3       | Toggle Group 4       | Toggle Group 5  | Maintained              | Momentary                                 |
| AC Shade output (maintained outputs)                              |            |   |   |   |   |   | Open Group 1             | Stop Group 1           | Close Group 1        | Open Group 2         | Close Group 2   | Maintained or Momentary | Maintained                                |
| AC Shade output (momentary stop)                                  |            |   |   |   |   |   | Open Group 1             | Stop Group 1 if moving | Close Group 1        | Open Group 2         | Close Group 2   | Maintained or Momentary | Maintained (except 2, which is Momentary) |
| AC Shade output (momentary outputs)                               |            |   |   |   |   |   | Open Group 1             | Stop Group 1 if moving | Close Group 1        | Open Group 2         | Close Group 2   | Maintained or Momentary | Momentary                                 |

Notes

- For AC shades with only 2 inputs (open/close), set DIP switch 1 to the up/on position to enable the feature that mimics “stop” (asserts both “open” and “close” CCOs together when a “stop” command is received).
- The QSE-IO provides no power, only a control signal, to AC shades. Refer to the instructions that came with your shades for more information.

Legend:

Up / On

Down / Off

SPECIFICATION SUBMITTAL

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|             |  |  |                |  |  |
|-------------|--|--|----------------|--|--|
| Job Name:   |  |  | Model Numbers: |  |  |
| Job Number: |  |  |                |  |  |

QS System

QSE-IO

Control Interface

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QSE-IO Operating Modes and DIP Switch Settings Overview (continued)

| Mode                                      | Dip Switch |   |   |   |   |   | Contact Closures Invoke:                  |                          |                  |                           |                              |                                                 |                         |
|-------------------------------------------|------------|---|---|---|---|---|-------------------------------------------|--------------------------|------------------|---------------------------|------------------------------|-------------------------------------------------|-------------------------|
| Configuration                             | 3          | 4 | 5 | 6 | 7 | 8 | Input 1                                   | Input 2                  | Input 3          | Input 4                   | Input 5                      | Inputs                                          | Outputs                 |
| Partitioning (momentary)                  |            |   |   |   |   |   | Wall 1                                    | Wall 2                   | Wall 3           | Wall 4                    | Wall 5                       | Momentary                                       | Maintained              |
| Partitioning (maintained)                 |            |   |   |   |   |   | Wall 1                                    | Wall 2                   | Wall 3           | Wall 4                    | Wall 5                       | Maintained                                      | Maintained              |
| Occupancy sensor (auto on/off)            |            |   |   |   |   |   | Generates events on occupancy and vacancy |                          |                  |                           |                              | Maintained                                      | Maintained              |
| Occupancy sensor (manual on/auto off)     |            |   |   |   |   |   | Generates events on vacancy only          |                          |                  |                           |                              | Maintained                                      | Maintained              |
| Zone toggle (maintained)                  |            |   |   |   |   |   | Toggle 1                                  | Toggle 2                 | Toggle 3         | Toggle 4                  | Toggle 5                     | Maintained                                      | Maintained              |
| Zone toggle (momentary)                   |            |   |   |   |   |   | Toggle 1                                  | Toggle 2                 | Toggle 3         | Toggle 4                  | Toggle 5                     | Momentary                                       |                         |
| Zone toggle with raise/lower (maintained) |            |   |   |   |   |   | Toggle 1                                  | Toggle 2                 | Toggle 3         | Raise                     | Lower                        | Maintained                                      |                         |
| Zone toggle with raise/lower (momentary)  |            |   |   |   |   |   | Toggle 1                                  | Toggle 2                 | Toggle 3         | Raise                     | Lower                        | Momentary                                       |                         |
| Zone control (maintained output)          |            |   |   |   |   |   | Toggle 1                                  | Toggle 2                 | Toggle 3         | Toggle 4                  | Toggle 5                     | Maintained                                      | Maintained              |
|                                           |            |   |   |   |   |   | Toggle 1                                  | Toggle 2                 | Toggle 3         | Toggle 4                  | Toggle 5                     | Momentary                                       |                         |
| Zone control (momentary output)           |            |   |   |   |   |   | Pulse 1                                   | Pulse 2                  | Pulse 3          | Pulse 4                   | Pulse 5                      | Maintained                                      | Momentary               |
|                                           |            |   |   |   |   |   | Pulse 1                                   | Pulse 2                  | Pulse 3          | Pulse 4                   | Pulse 5                      | Momentary                                       |                         |
| Zone control (pulsed output)              |            |   |   |   |   |   | Pulse 1                                   | Pulse 2                  | Pulse 3          | Pulse 4                   | Pulse 5                      | Maintained                                      | Pulsed                  |
|                                           |            |   |   |   |   |   | Pulse 1                                   | Pulse 2                  | Pulse 3          | Pulse 4                   | Pulse 5                      | Momentary                                       |                         |
| Hotel configuration 1                     |            |   |   |   |   |   | Service (make up room)                    | Privacy (do not disturb) | Doorbell         | Start/end afterhours mode | Toggle Scene 1 / Off         | 1-3: Maintained or Momentary<br>4-5: Maintained | Maintained (except 3)   |
| Hotel configuration 2                     |            |   |   |   |   |   | Service (make up room)                    | Privacy (do not disturb) | Doorbell         | Start/end afterhours mode | Enable/disable Scene lockout | 1-3: Maintained or Momentary<br>4-5: Maintained | Maintained (except 3)   |
| Integration configuration                 |            |   |   |   |   |   | Control output 1                          | Control output 2         | Control output 3 | Control output 4          | Control output 5             | Maintained or Momentary                         | Maintained or Momentary |

Notes

- Occupancy sensor: Each input represents 1 sensor/group of sensors. Response to sensor event is programmable at the assigned lighting control.
- "Momentary" output pulse is of fixed duration (250 ms default).
- "Pulsed" output duration corresponds to activating button being held/released.
- Hotel: "Service" and "Privacy" are mutually exclusive; "Doorbell" is locked out when "Privacy" is active.
- DIP switch 1 must be up/on to activate the "Start/End Afterhours" feature on CCI4.
- DIP switch 2 must be up/on to activate the "Toggle Scene" or "Scene Blackout" feature on CCI 5.
- Occupancy sensors will not participate in partitioning logic.

Legend:

- Up/On
- Down/Off

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LUTRON SPECIFICATION SUBMITTAL

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|                      |                      |                      |
|----------------------|----------------------|----------------------|
| Job Name:            | Model Numbers:       |                      |
| <input type="text"/> | <input type="text"/> | <input type="text"/> |
| Job Number:          | <input type="text"/> | <input type="text"/> |

RadioRA 2 Visor Controls

RadioRA 2 Visor Controls allow lights, shades/draperies, and other equipment to be controlled from the car with just a touch of a button on a Visor Control Transmitter or a HomeLink<sup>®</sup> compatible visor control. Up to ten (10) Transmitters can be used with a Visor Control Receiver.

The Receiver provides two (2) Contact Closure Inputs (CCI) for integration with other systems and one (1) CCI for security systems. The CCIs can be configured to accept maintained or momentary contact closures. The security input is always a maintained CCI.

The Receiver also has four (4) maintained or momentary Contact Closure Outputs (CCO) to control up to four (4) garage doors or motorized gates.

Pre-printed and blank labels are included with the Visor Controls for naming scenes or buttons on both the Receiver and the Transmitter.

Model Numbers

|              |                           |
|--------------|---------------------------|
| RR-VCRX-WH*  | Visor Control Receiver    |
| LR-3B-H-SW** | Visor Control Transmitter |

\*Only available in White (WH).  
\*\*Only available in Snow (SW).



RR-VCRX-WH  
Visor Control Receiver



LR-3B-H-SW  
Visor Control Transmitter



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*RadioRA 2* Visor Controls**Specifications**

|                                  |                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Model Numbers</b>             | RR-VCRX-WH, LR-3B-H-SW                                                                                                                                                                                                                                                                                                                 |
| <b>Power</b>                     | Receiver: 9 V $\text{---}$ 300 mA<br>DC adapter:<br>Input: 120 V $\sim$ 60 Hz 6.5 W<br>Output: 9 V $\text{---}$ 300 mA<br>Transmitter: 6 V $\text{---}$ 10 mA (2 - CR2032, included – 10 year lifetime)                                                                                                                                |
| <b>Typical Power Consumption</b> | 1.6 W<br>Test conditions: two LEDs on (two presets active), powered by the 9 V $\text{---}$ adapter supplied, no CCOs or CCIIs active.                                                                                                                                                                                                 |
| <b>Regulatory Approvals</b>      | DC adapter: UL Listed for U.S. and Canada, NOM<br>Receiver/Transmitter: FCC, IC, COFETEL                                                                                                                                                                                                                                               |
| <b>Environment</b>               | Receiver:<br>Ambient operating temperature: 32 °F to 140 °F (0 °C to 60 °C),<br>0% to 90% humidity, non-condensing. Indoor use only.<br>Transmitter:<br>Ambient operating temperature: -40 °F to 235 °F (-40 °C to 113 °C),<br>0%-90% humidity, non-condensing. Meets the Society of Automotive Engineers (SAE) temperature standards. |
| <b>Communications</b>            | Visor Controls communicate with the system through Radio Frequency (RF). The Receiver must be located within 30 ft (9 m) of a Repeater. The typical operating distance between a Receiver and a Transmitter is 150 ft (46 m).                                                                                                          |
| <b>ESD protection</b>            | Tested to withstand electrostatic discharge without damage or memory loss, in accordance with IEC 61000-4-2.                                                                                                                                                                                                                           |
| <b>Surge Protection</b>          | Tested to withstand surge voltages without damage or loss of operation, in accordance with IEEE C62.41-1991 Recommended Practice on Surge Voltages in Low-Voltage AC Power Circuits.                                                                                                                                                   |
| <b>Mounting</b>                  | Mount Receiver on a wall, ceiling, or level surface using the two #6 (M3) screws provided. Clip Transmitter to a vehicle's visor.                                                                                                                                                                                                      |
| <b>Connections</b>               | 2 Contact Closure Inputs, 1 security input, and 4 momentary or maintained Contact Closure Outputs.                                                                                                                                                                                                                                     |
| <b>Warranty</b>                  | 1 Year Limited Warranty. <a href="http://www.lutron.com/resiinfo">http://www.lutron.com/resiinfo</a>                                                                                                                                                                                                                                   |

**Design Features**

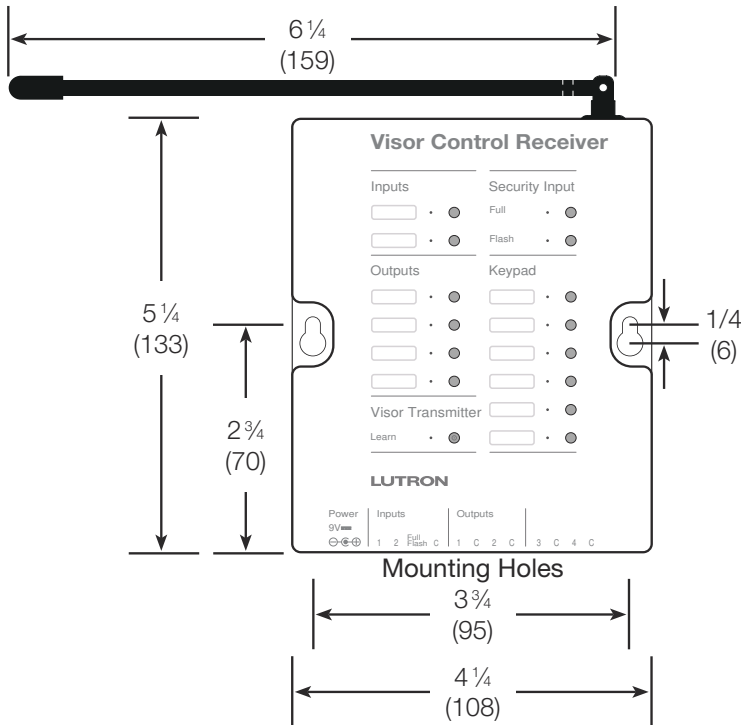
- Each output can be controlled locally at the Receiver or remotely by a Transmitter or keypad button.
- The Receiver 'Keypad' or 'Inputs' buttons can be programmed to light and shades/draperies.
- Full or Flash security options.
- The Transmitter can remotely control the 'Keypad', 'Security Input', and 'Outputs' buttons on the Receiver.

RadioRA 2 Visor Controls

Dimensions

All dimensions are shown as  $\frac{\text{in}}{(\text{mm})}$

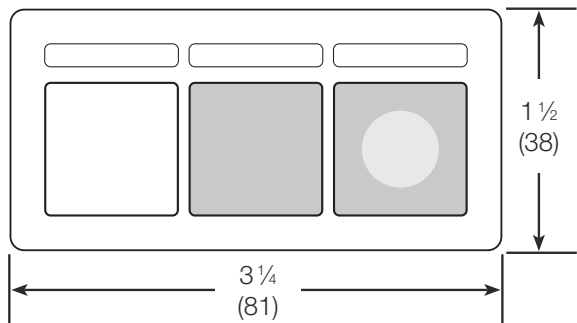
Receiver (Front)



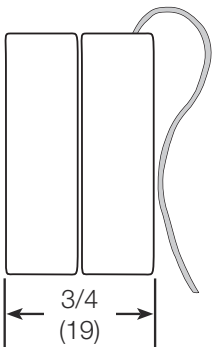
Receiver (Side)

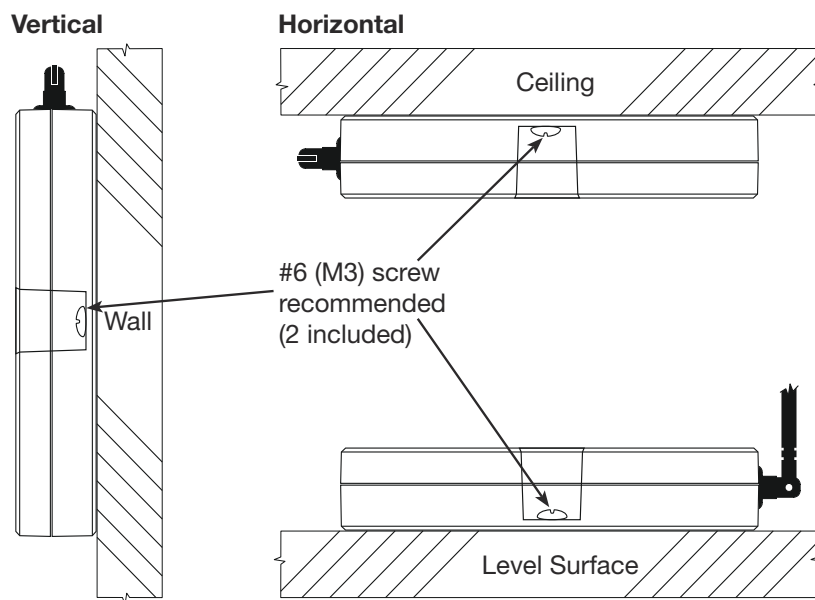
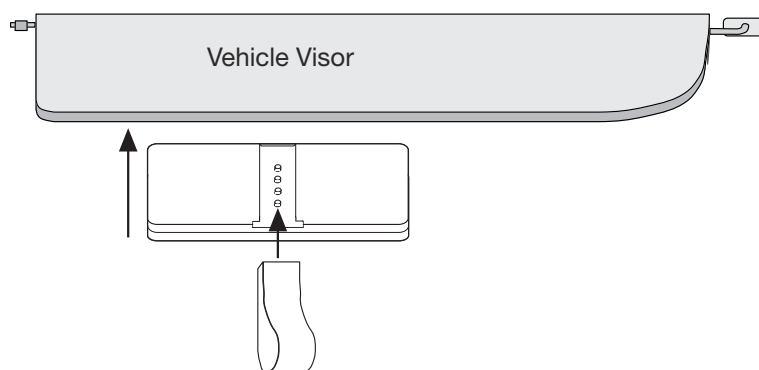


Transmitter (Front)



Transmitter (Side)

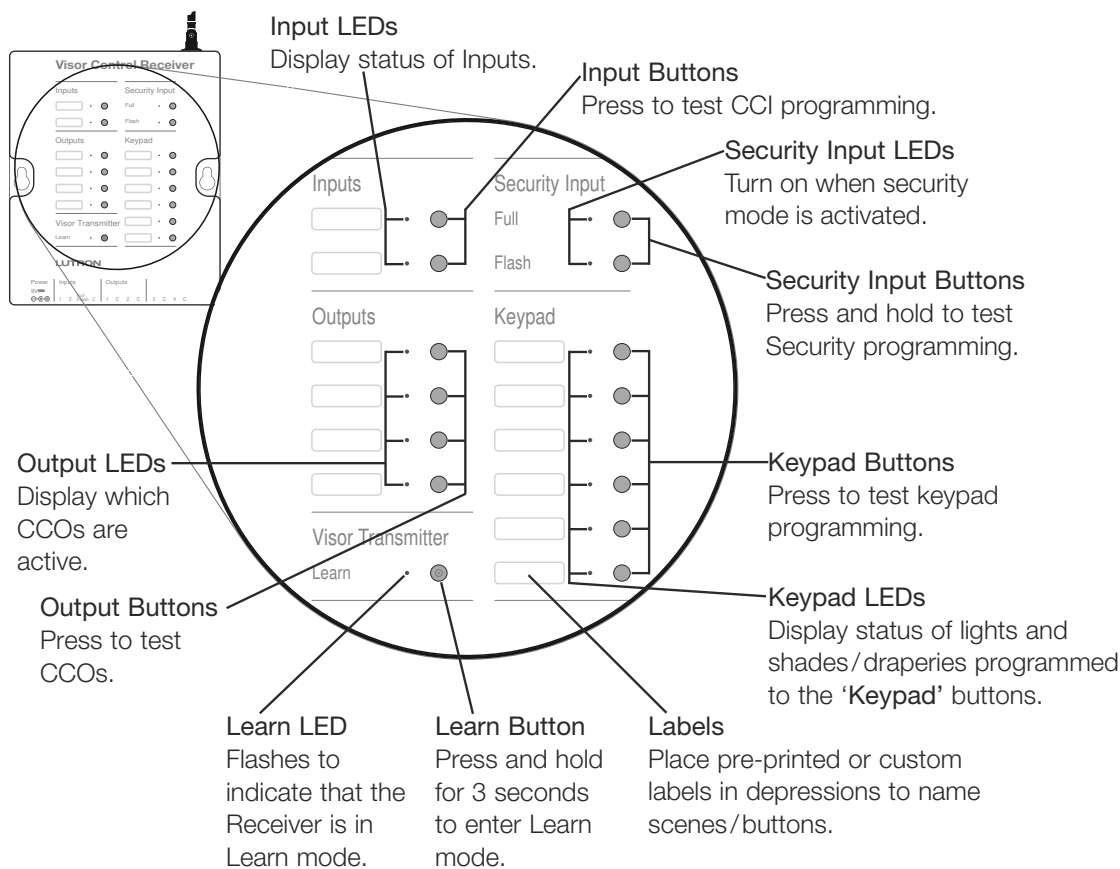


*RadioRA 2* Visor Controls**Mounting****Receiver****Transmitter**

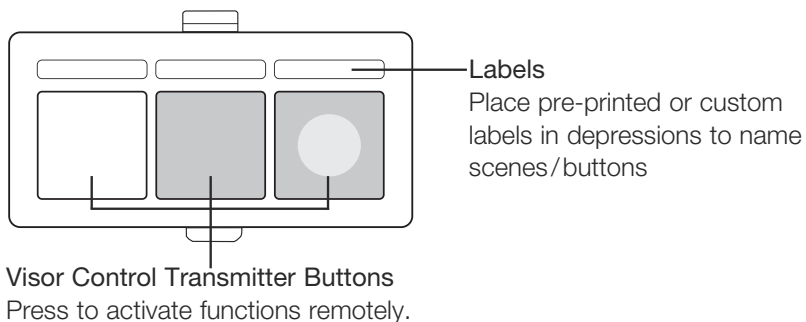
## RadioRA 2 Visor Controls

### Operation

#### Receiver



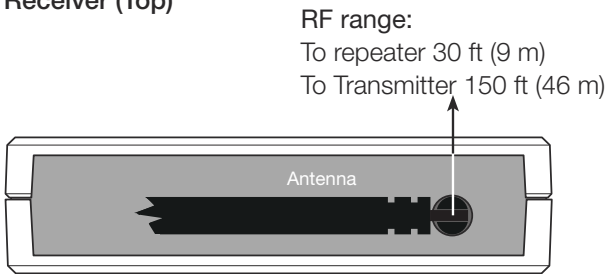
#### Transmitter



RadioRA 2 Visor Controls

Connections

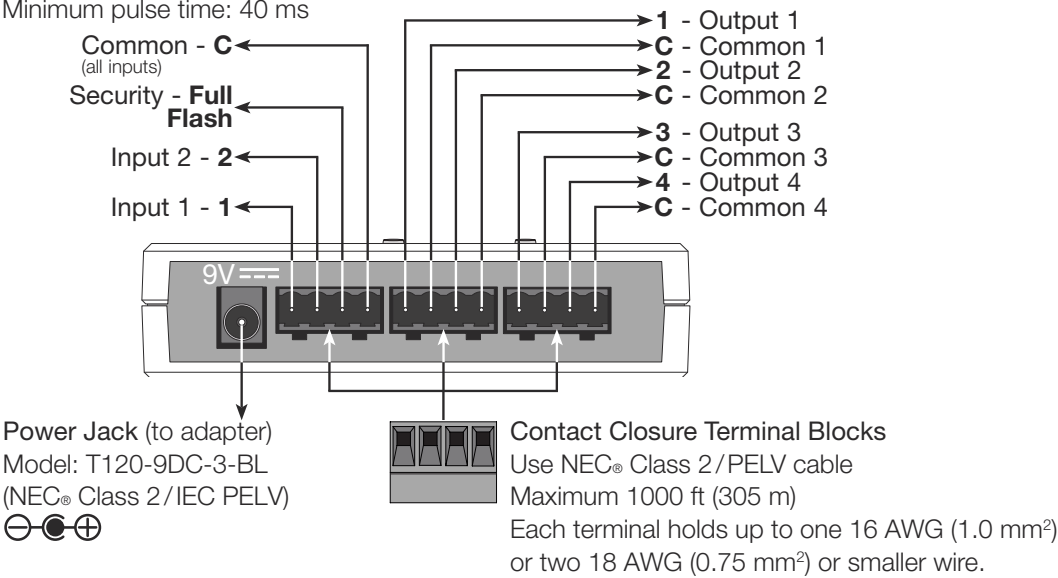
Receiver (Top)



Receiver (Bottom)

**Contact Closure Inputs (CCI)**  
Dry contacts only.  
ON saturation: <1 V<sub>DC</sub> at 2 mA  
OFF leakage: <1 μA at 9 V<sub>DC</sub>  
Minimum pulse time: 40 ms

**Contact Closure Outputs (CCO)**  
Max Voltage / Current: See **Relay Contact Ratings** below.  
Listed Class 2 / Certified PELV  
Minimum close time: 500 ms



Relay Contact Ratings

| Voltage                  | Resistive Load | Inductive Load |
|--------------------------|----------------|----------------|
| Up to 30 V <sub>DC</sub> | 1 A            | 0.2 A          |
| Up to 30 V <sub>AC</sub> | 1 A            | 0.1 A          |
| Up to 60 V <sub>DC</sub> | 0.5 A          | Do not use.    |

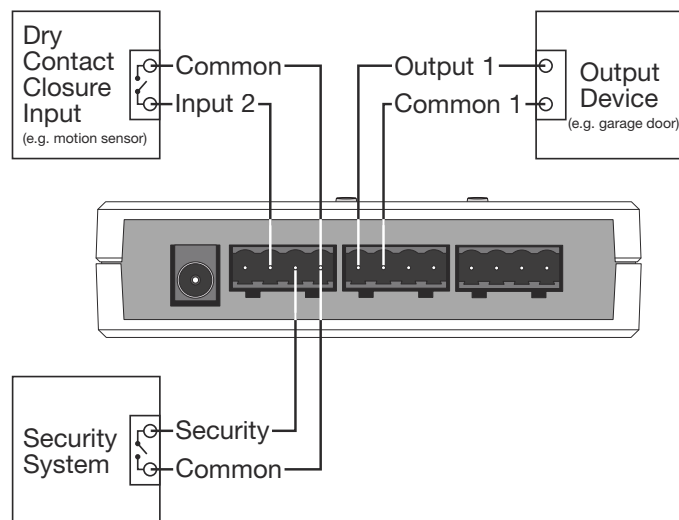
# RadioRA<sup>2</sup> product specifications

369-224c

09.02.10

## RadioRA 2 Visor Controls

### Wiring Diagram



## Curved-system reference comparison

### Curved-system reference loads

H = Heavy-duty direct drive · B = Quiet belt drive



One curve  
H 120 lb · B 90 lb



Two curves  
H 120 lb · B 55 lb



Typical bay  
H 140 lb · B 55 lb



Continuous curve  
H 140 lb · B 90 lb

Reverse S-shaped bends: quiet belt-drive option only, 40 lb reference capacity.

Reference minimum radius: 12 inches for 90° bends; 49 inches for continuous curves.

Approximate guide loads. Final track, geometry and motor specification require review.

PLUMRIDGE / EXPERIENCE CUSTOM

Approximate guide loads for the two systems shown. These values do not apply automatically to Forest or Lutron motors. Confirm the exact rail, motor and curve geometry before fabrication.

### Design Consultation

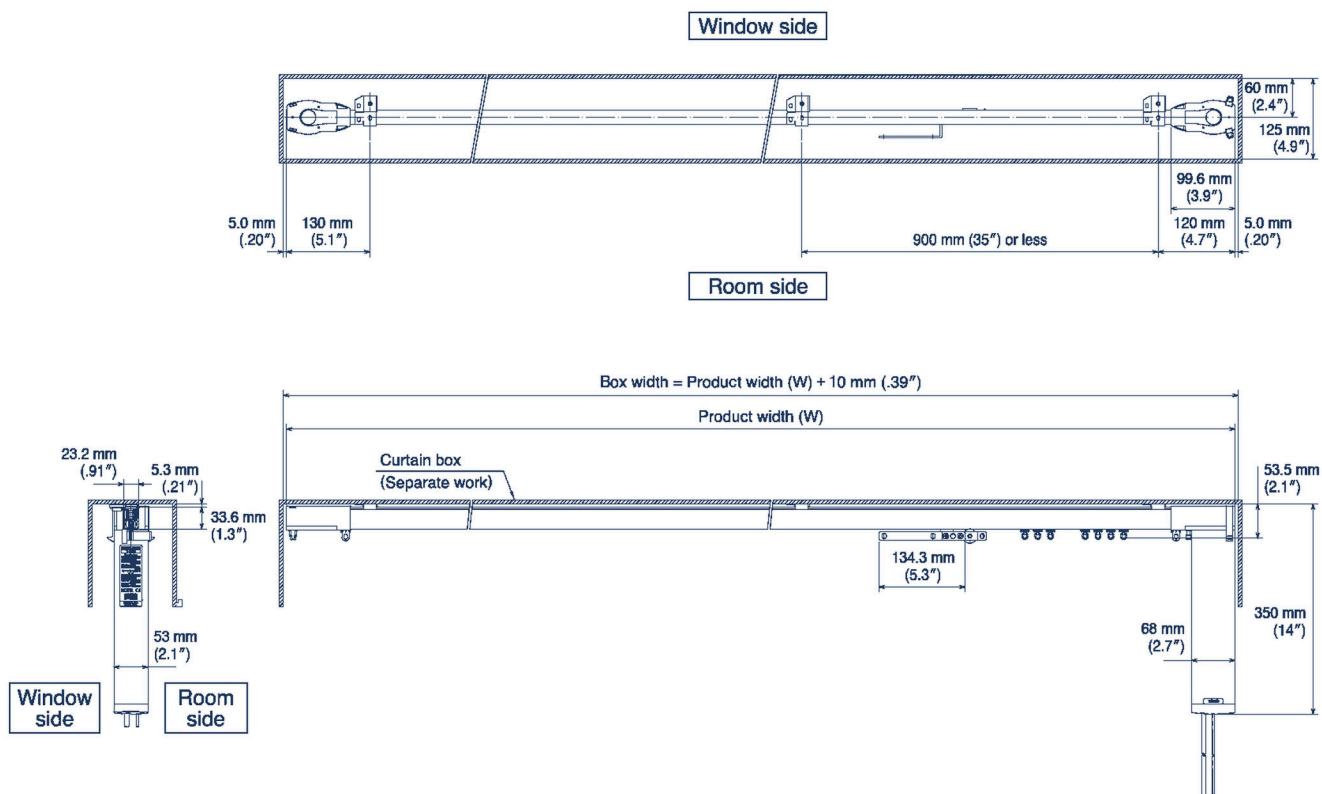
Share measurements, fabric or heading, track layout, power and the Lutron system.  
Visit [plumridge.com](https://plumridge.com) or scan the live system information using the link below.

View this system online: [plumridge.com](https://plumridge.com) / Hardware / Motorization

## One-way draw · single ceiling attachment

Reference layout. Original geometry, dimensions and annotations retained. Confirm suitability for the selected motor and rail.

### One-way draw: ceiling single attachment

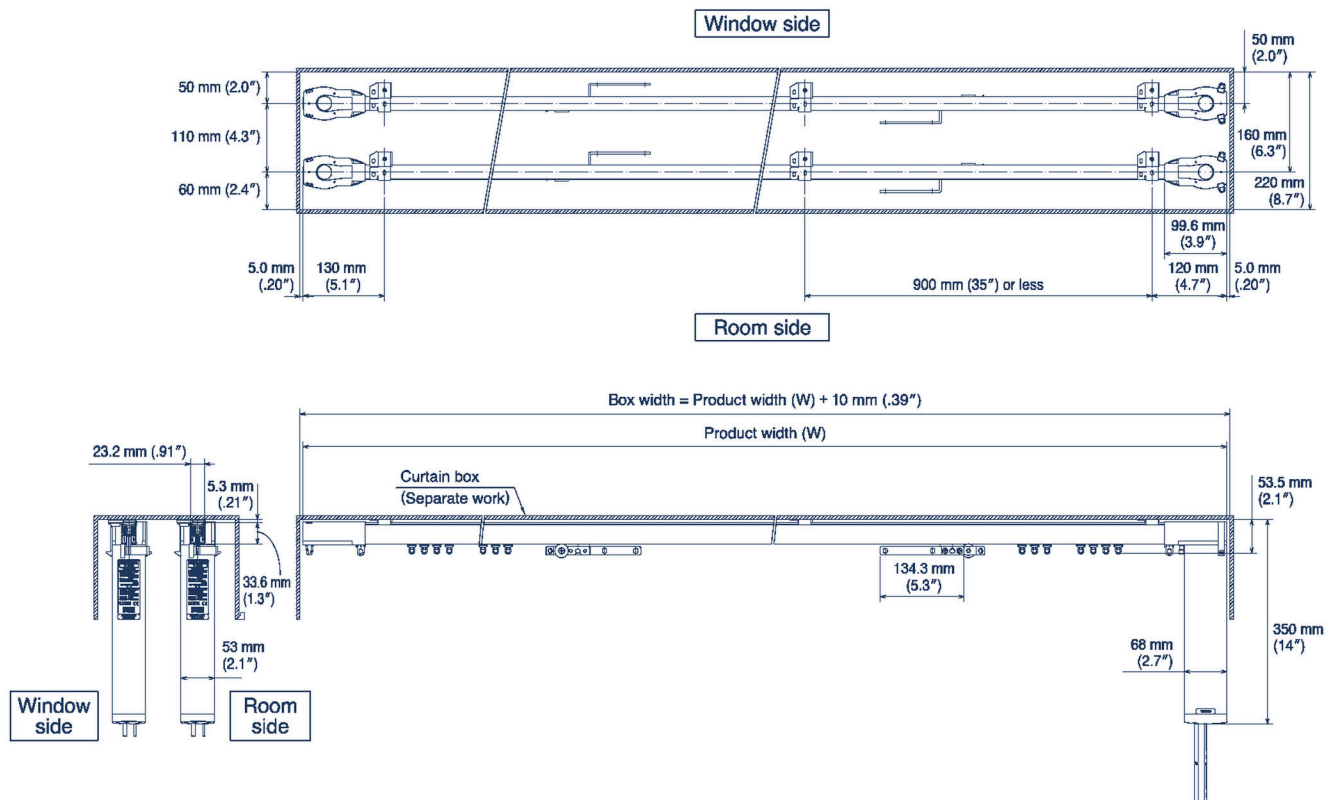


Do not scale this drawing for fabrication. Provide verified project measurements or a template.

## Two-way draw · double ceiling attachment

Reference layout. Original geometry, dimensions and annotations retained. Confirm suitability for the selected motor and rail.

### Two-way draw: ceiling double attachment

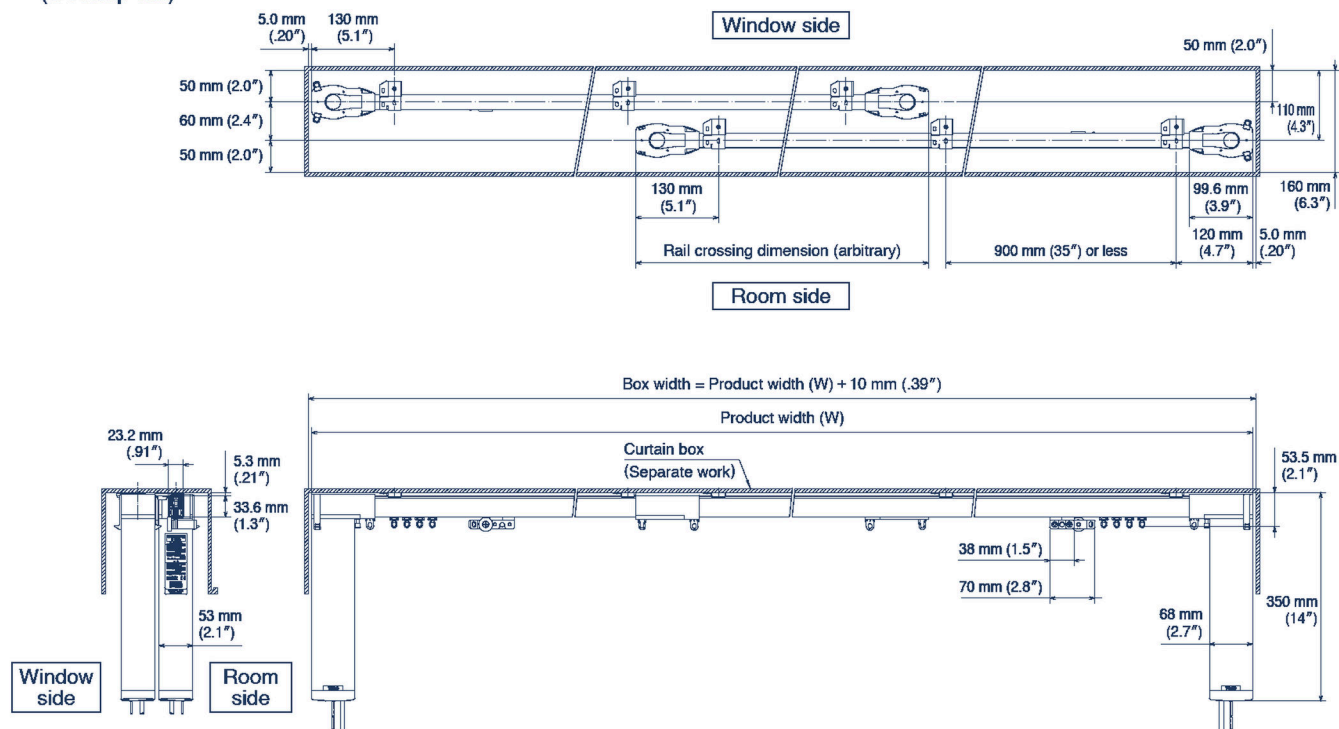


Do not scale this drawing for fabrication. Provide verified project measurements or a template.

## Two-way draw · overlap rail

Reference layout. Original geometry, dimensions and annotations retained. Confirm suitability for the selected motor and rail.

### Two-way draw: ceiling double attachment (Overlap rail)

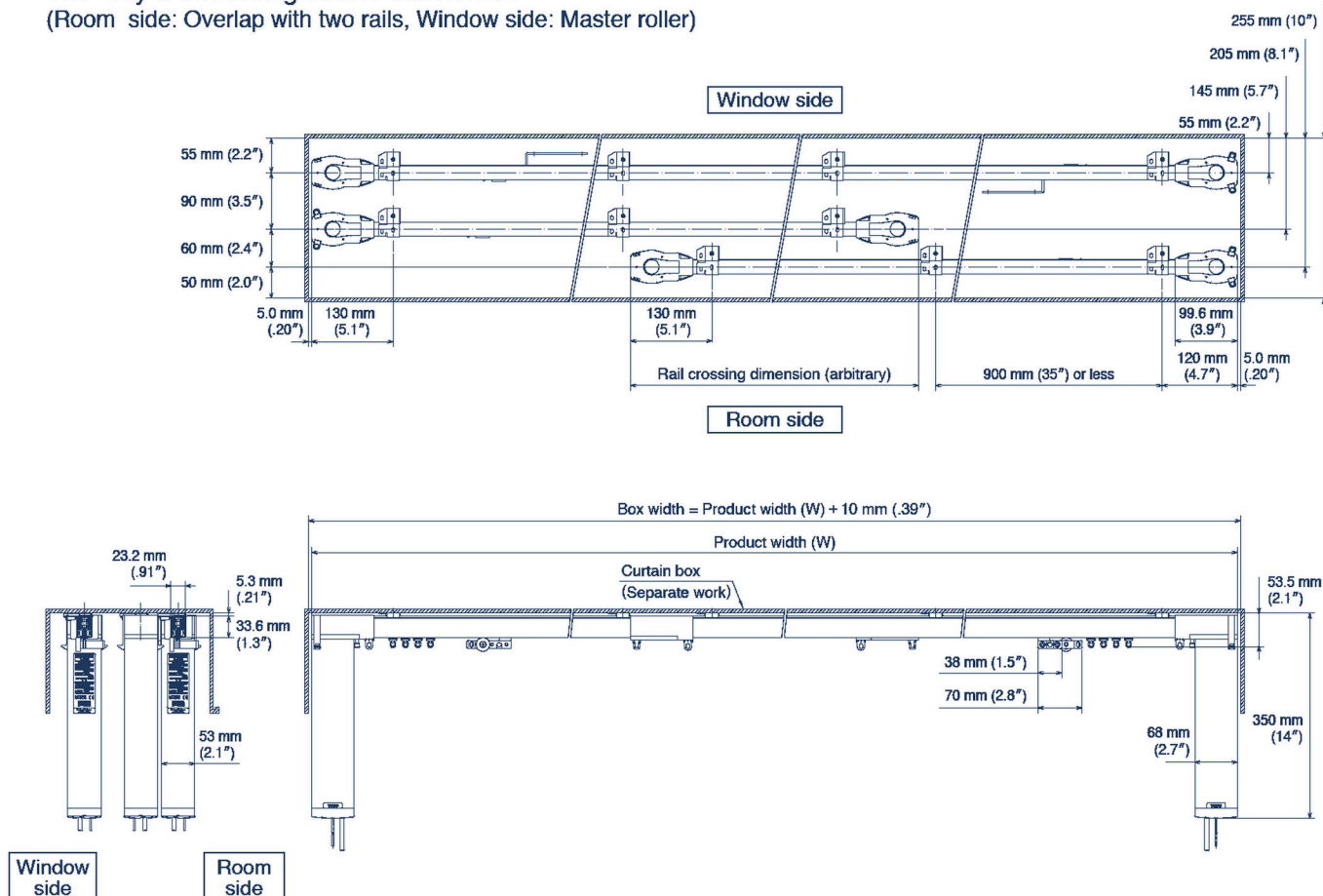


Do not scale this drawing for fabrication. Provide verified project measurements or a template.

## Two-way draw · double rail overlap

Reference layout. Original geometry, dimensions and annotations retained. Confirm suitability for the selected motor and rail.

### Two-way draw: ceiling double attachment (Room side: Overlap with two rails, Window side: Master roller)

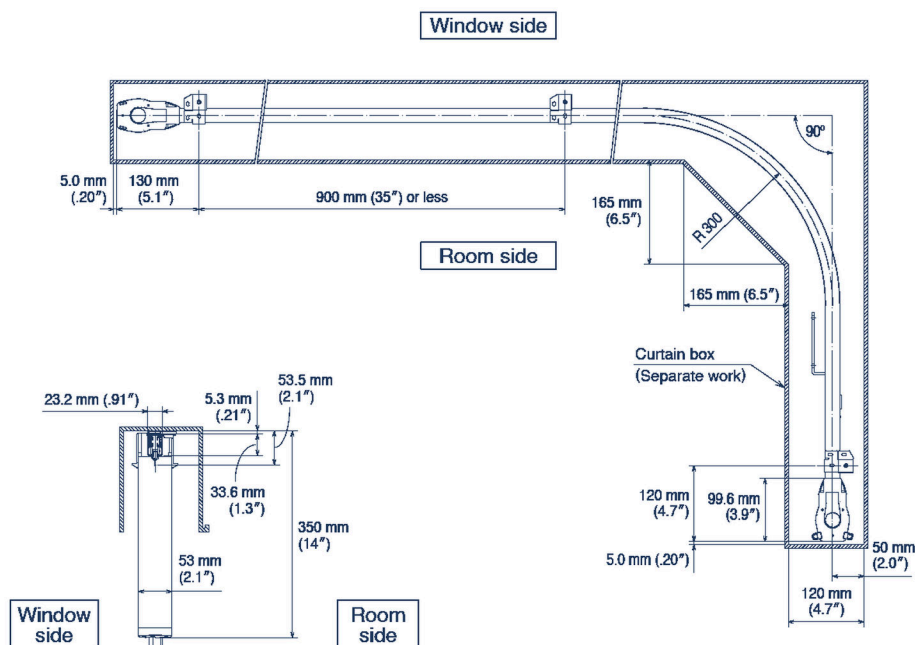


Do not scale this drawing for fabrication. Provide verified project measurements or a template.

## Single curve · one-way draw · single rail

Reference layout. Original geometry, dimensions and annotations retained. Confirm suitability for the selected motor and rail.

### Single curve one-way draw: ceiling single attachment

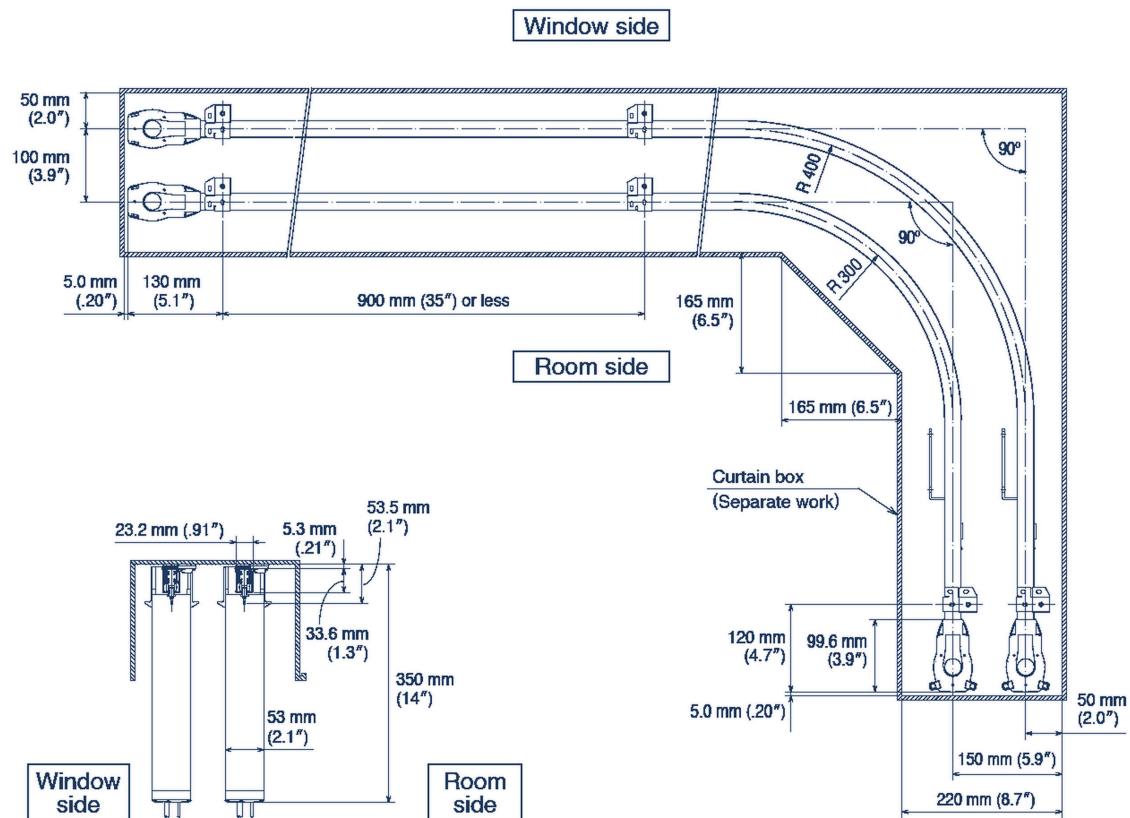


Do not scale this drawing for fabrication. Provide verified project measurements or a template.

## Single curve · one-way draw · double rail

Reference layout. Original geometry, dimensions and annotations retained. Confirm suitability for the selected motor and rail.

### Single curve one-way draw: ceiling double attachment



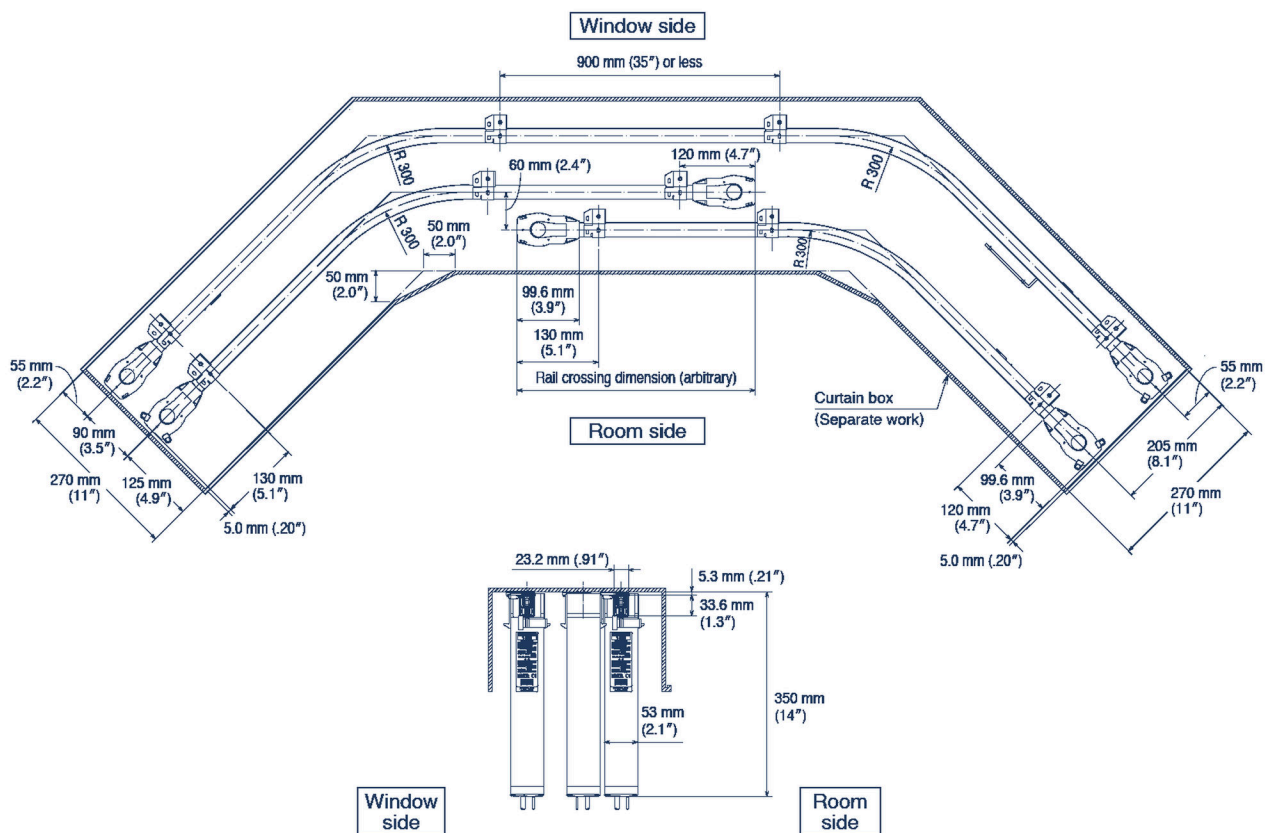
Do not scale this drawing for fabrication. Provide verified project measurements or a template.



## Two curves · one-way draw · double rail

Reference layout. Original geometry, dimensions and annotations retained. Confirm suitability for the selected motor and rail.

### Two curves one-way draw: ceiling double attachment (Room side: Overlap with two rails, Window side: Master roller)

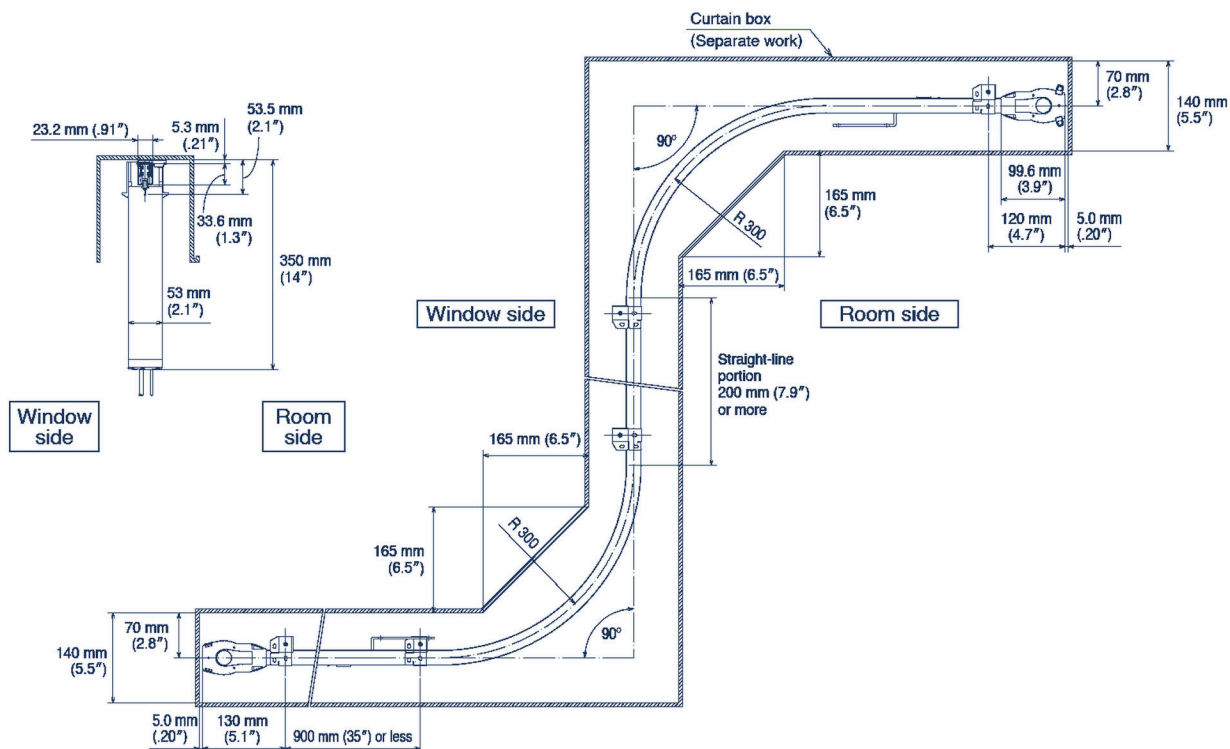


Do not scale this drawing for fabrication. Provide verified project measurements or a template.

## S-shaped track · two-way draw · single rail

Reference layout. Original geometry, dimensions and annotations retained. Confirm suitability for the selected motor and rail.

### Two curves (S-shaped) two-way draw: ceiling single attachment



Do not scale this drawing for fabrication. Provide verified project measurements or a template.