SECTION 12 25 09

WINDOW TREATMENT MOTORS, CONTROLS, AND NETWORKED AUTOMATION SYSTEMS

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\*\* NOTE TO SPECIFIER \*\* Somfy Systems, Inc.; commercial motors and controls for window coverings.
This section is based on the products of Somfy Systems, Inc., which is located at:
121 Herrod Blvd.
Dayton, NJ 08810
Toll Free Tel: 800-64-SOMFY
Tel: 609-395-1300
Fax: 609-395-1776
Email:[request info (commercial\_solutions\_na@somfy.com)](https://admin.arcat.com/users.pl?action=UserEmail&company=Somfy+Systems,+Inc.&coid=35600&rep=&fax=609-395-1776&message=RE:%20Spec%20Question%20(12259sfy):%20%20&mf=)
Web:<https://www.somfysystems.com/commercial>
[[Click Here](https://www.arcat.com/arcatcos/cos35/arc35600.html)] for additional information.
Somfy is the leading global manufacturer of strong, quiet motors with electronic and app controls for interior and exterior window coverings. Over 270 million users worldwide enjoy the more than 150 million motors produced by Somfy.

1. GENERAL
	1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete motor and control technology not required for project, details on type of technology can be found in part 2.

* + 1. Motor Operators and Controls for Roller Shades:
			1. Wired technology.
			2. Wireless technology.
			3. Digital network technology.
	1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required. For rough carpentry it is important to provide blocking or suitable mounting for motorized shades as the application can be very heavy and may result in risks of falling if not coordinated. Consider Section 09 22 00 for Metal Studs and other accessory systems.

* + 1. Section 06 10 00 - Rough Carpentry. For wood blocking and grounds for mounting motors, controls, and accessories.
		2. Section 09 22 00 - Support Systems for Gypsum Board; for mounting motors, controls, and other system accessories.
		3. Section 12 24 13 - Roller Window Shades. For window shades.

\*\* NOTE TO SPECIFIER \*\* If low voltage wiring is not within the scope of the roller shade contractor of section 12 24 13, please include the related section below for coordination with electrical division.

* + 1. Section 26 05 00 - Common Work Results for Electrical. For Low-voltage and line voltage electrical power when scope of work to be by others. For identification of products and requirements. For wiring devices, and motorized shade wall switches.

\*\* NOTE TO SPECIFIER \*\* If integration to low voltage lighting control system is required using digital network technology motors, please include the related section below for coordination with electrical division.

* + 1. Section 26 09 43 - Network Lighting Controls. For lighting control system for control of motorized window shades via 0-10v technology.
	1. ADMINISTRATIVE REQUIRMENTS

\*\* NOTE TO SPECIFIER \*\* Delete article below if Work of this Section is not extensive or complex enough to justify a conference.

* + 1. PRE-INSTALLATION CONFERENCE
			1. Preinstallation Conference: Conduct conference at Project site to review the following:
				1. Low voltage wiring requirements and responsibilities.
				2. Separation of power and low voltage / data wiring.
				3. Wire labeling.
				4. Control locations.
				5. Connections to other equipment.
				6. Installer responsibilities.
				7. Pocket and/or mounting conditions.
	1. ACTION SUBMITTALS
		1. Submit under provisions of Section 01 33 00 - Submittal Procedures.
		2. Shop Drawings:
			1. Include plans, elevations, sections, and mounting details.
			2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
			3. Description of Operations pertaining to automation schedule.
			4. Motor-Operator and Control Systems:
				1. Include details for power, signal, wiring, and:

\*\* NOTE TO SPECIFIER \*\* Dependent on type of technology selected and power options, delete options not required.

Line-voltage 120 Vac.

Low-voltage 24 Vdc.

Wired technology motors.

Wireless technology motors.

Digital network technology motors.

\*\* NOTE TO SPECIFIER \*\* Delete any of the following items not required. System riser diagrams, and sensors are only compatible with digital network technology.

* + - * 1. Installation instructions.
				2. System riser diagrams.
				3. Sensor positioning diagrams.
				4. Include requirements for interfacing with other systems.
				5. Include wiring detail for interconnection between components; gauge of wiring, wire limitations, connection to building electrical to follow local electrical code.
				6. Include final document package reflecting all changes to infrastructure, equipment type, locations, and other changes from original documentation.
				7. Include floor plan drawings to meet designated requirements of the building infrastructure and locations of all system components.
				8. Provide completed operation and maintenance manual including list of components and part numbers, and operation and maintenance instructions.
	1. INFORMATIONAL SUBMITTALS
		1. Submit under provisions of Section 01 33 00 - Submittal Procedures.
		2. Product Data: For each type of product.
			1. Include component assembly details, material descriptions, dimensions of individual components and profiles, features, finishes, operating equipment, control systems, power, and signal types, electrical and communications requirements and connections, wiring diagrams, and installation instructions.

\*\* NOTE TO SPECIFIER \*\* Sustainable and Healthy design credits can be achieved when using motorized drapery, windows, skylights, blinds, shades, fabric awnings, and other sun-control devices with networked automation controls that can contribute to sustainable and Healthy design LEED v4.1 and WELL v2, Green Globes, or IgCC credits during design and post construction.

* + 1. Sustainability Submittals refer to Division 01.
		2. Product Schedule: For each motor-operator unit and network controls, and controllers. Use the same designations indicated on Drawings.
		3. Operation and Maintenance Data: For motor operators and control systems to include in operation and maintenance manuals.
		4. Warranty: Manufacturer's executed warranty documentation.
	1. QUALITY ASSURANCE
		1. Manufacturer Qualifications: Motor operators, controls, and controllers certified by a Nationally Recognized Testing Laboratory to provide CE Compliant, UL-listed and/or cURus certified wired ac and dc powered motors.
			1. ISO 9001 certified including in-house engineering and product design activities.
			2. Motor manufacturer capable of supplying a full range of low-voltage (24 Vdc), main or line-voltage (120 Vac) motor and control products.
		2. Installer Qualifications: Trained by manufacturer of motor-operator and control system products.
		3. Controls manufacturer capable of supplying commissioning services for control systems.
		4. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

\*\* NOTE TO SPECIFIER \*\* Include mock-up if the project size or quality warrant the expense. The following is one example of how a mock-up might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Construct a mock-up with actual materials in sufficient time for Consultant's review and to not delay construction progress. Locate mock-up as acceptable to consultant and provide temporary foundations and support.
			1. The intent of mock-up is to demonstrate quality of workmanship and visual appearance.
			2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
			3. Retain mock-up during construction as a standard for comparison with completed work.
			4. Do not alter or remove mock-up until work is completed or removal is authorized.
	1. DELIVERY, STORAGE, AND HANDLING
		1. Deliver complete motorized roller shade and control systems and accessories in factory packages, marked with manufacturer, product name, unique motor identification code, and location of installation using same designations indicated on Drawings.
		2. Store equipment indoors in clean, dry space with uniform temperature to prevent condensation. Protect from exposure to dirt, fumes, water, corrosive substances, and physical damage.
	2. PROJECT CONDITIONS
		1. Ambient Limitations: Do not install motor operators and control systems until spaces are dry with ambient temperature and humidity conditions maintained at levels indicated for Project when occupied for its intended use.
		2. Field Measurements: Where motor operators and control systems are indicated to fit to other construction, verify dimensions of other construction by field measurements and indicate measurements on Shop Drawings.
			1. Allow clearances for operating hardware through entire operating range.
			2. Notify Consultant of installation conditions that vary from Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
	3. WARRANTY
		1. Manufacturer's Special Non-Prorated Warranty for Motor Operators and Control Systems: Manufacturer agrees to repair or replace motor and control system products not free from defects in material and workmanship under normal and proper use within specified warranty period.
			1. Warranty Period: Five years from date of manufacture.
1. PRODUCTS
	1. MANUFACTURERS

\*\* NOTE TO SPECIFIER \*\* Delete the USA or Canadian paragraph; whichever is not required.

* + 1. Acceptable Manufacturer: Somfy Systems, Inc., which is located at: 121 Herrod Blvd.; Dayton, NJ 08810; Toll Free Tel: 800-64-SOMFY; Tel: 609-395-1300; Fax: 609-395-1776; Email:[request info (commercial\_solutions\_na@somfy.com)](https://admin.arcat.com/users.pl?action=UserEmail&company=Somfy+Systems,+Inc.&coid=35600&rep=&fax=609-395-1776&message=RE:%20Spec%20Question%20(12259sfy):%20%20&mf=); Web:<https://www.somfysystems.com/commercial>Email: commercial\_solutions\_na@somfy.com; Web:<https://www.somfysystems.com/commercial>
		2. Acceptable Manufacturer: Somfy Systems Inc., which is located at: 6411 Edwards Blvd, Mississauga, ON L5T 2P7; Phone: 800-66-SOMFY; 905-564-6446; Email: request info (commercial\_solutions\_na@somfy.com); Web: https://www.somfysystems.com/commercial
		3. Basis of Design Manufacturer: Subject to compliance with requirements, provide Somfy Systems; named motor operators and control systems.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs: coordinate with requirements of Division 1 on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with the provisions of Section 01 60 00 - Product Requirements.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. WIRED MOTOR OPERATORS AND CONTROLS - ROLLER SHADES

\*\* NOTE TO SPECIFIER \*\* Somfy Wired Technology solutions provide simple and reliable control for installations that do not require complex management solutions. Wired Technology links the control device to the motor using electrical wires carrying power and limiting the switch to the source of control. The common motor options available for Wired technology are durable and dependable and feature a wide variety of torques and speeds which are a beneficial resource for interior motorized shading applications. Typically used when intelligence or automation is not required for motorized shades. Integration with third party systems is possible but will require third party system to provide a relay for each command (open, stop, close), per zone. Delete electric motor paragraphs not required. Motor selection can be determined based on power coordination for motorized shades low voltage, or line voltage 120 Vac. Motor selection is also selected based on roller shade quietness.

* + 1. Electric Low Voltage Motor: cULus listed tubular, enclosed in roller.
			1. Basis of Design Product: Somfy Systems; Sonesse 30 DCT.
			2. Control Interface: Wired; local control and group control via dry contact switching.
			3. Electrical Characteristics: 24 Vdc, 0.8 Amps.
				1. Sound Level: 42 dBA or less.
			4. Low Voltage Power and Data Cable: Two Cables; Two-wire for power, Four-wire for dry contact control; non-removable, 6 ft (1.8 m).
			5. Low Voltage Power Distribution: cULus Listed.
				1. Basis of Design: Somfy Systems; Power Distribution Enclosure Kit; for up to twenty 24v DC motors per kit.
				2. Electrical Characteristics: 120 Vac 2.8 A - 11A; coordinate with Division 26.
		2. Electric Motor: cURus certified tubular, enclosed in roller.
			1. Basis of Design Product: Somfy Systems; Sonesse 50 RA.

\*\* NOTE TO SPECIFIER \*\* Delete control type not required. Single Pole Double Throw switch is used for 1 to1 connection with motor. Double Pole Double Throw Switch can support two motors per switch, and local and group control option is for a motor controller with up to four motors per motor controller.

* + - 1. Control Type: Wired; local control via 120 Vac Momentary or Maintained Single Pole Double Throw Decora Switch.
			2. Control Type: Wired; group control, 120 Vac Momentary or Maintained Double Pole Double Throw Decora Switch.
			3. Control Type: Wired; local control and group control, low voltage dry contact switch, low voltage Momentary or Maintained Decora Switch via Motor Controller.
			4. Electrical Characteristics: 120 Vac, 60 Hz, 1.2 - 1.67 Amps.
				1. Torque: 53.1 in-lbsf (6 N/m) - 88.5 in-lbsf (10 N/m).
				2. Sound Level: 47 dBA or less.

\*\* NOTE TO SPECIFIER \*\* Delete Power cable option not required. Each motor by default will come with a 6.5 ft power cable, optional upgrade to a fast connector with a twist and lock connection.

* + - 1. Power Cable: Four-wire SJTW cable. 6.5 ft (1.98 m) hardwired with quick disconnect plug.
			2. Power Cable: Four-wire SJTW cable on Motor with Fast Connector; 1.6 ft (480 mm).
				1. Extension cable to be supplied by roller shade contractor.
				2. Four-wire Fast Connector Extension Cable with Open Leads:

Length: 4.4 ft (1.3 m). - 22.4 ft (6.8 m).

* + - 1. Product Environmental Profile Type III EPD Certified.
		1. Electric Motor: cURus certified tubular, enclosed in roller.
			1. Basis of Design Product: Somfy Systems; Sonesse ULTRA 50 RA.

\*\* NOTE TO SPECIFIER \*\* Delete control type not required. Single Pole Double Throw switch is used for 1 to1 connection with motor. Double Pole Double Throw Switch can support two motors per switch, and local and group control option is for a motor controller with up to four motors per motor controller.

* + - 1. Control Type: Wired; local control via 120 Vac Momentary or Maintained Single Pole Double Throw Decora Switch.
			2. Control Type: Wired; group control, 120 Vac Momentary or Maintained Double Pole Double Throw Decora Switch.
			3. Control Type: Wired; local control and group control, low voltage dry contact switch, low voltage Momentary or Maintained Decora Switch via Motor Controller.
			4. Electrical Characteristics: 120, 60 Hz, 0.95 Amps.
				1. Sound Level: 38 dBA ultra-quiet.

\*\* NOTE TO SPECIFIER \*\* Delete Power cable option not required. Each motor by default will come with a 6.5 ft power cable, optional upgrade to a fast connector with a twist and lock connection.

* + - 1. Power Cable: Four-wire SJTW cable. 6.5 ft (1.98 m) hardwired with quick disconnect plug.
			2. Power Cable: Four-wire SJTW cable on Motor with Fast Connector; 1.6 ft (480 mm).
				1. Extension cable to be supplied by roller shade contractor.
				2. Four-wire Fast Connector Extension Cable with Open Leads:

Length: 4.4 ft (1.3 m) - 22.4 ft (6.8 m).

\*\* NOTE TO SPECIFIER \*\* Somfy Wired Technology solutions provide simple and reliable control for installations that do not require complex management solutions. Wired Technology links the control device to the motor using electrical wires carrying power and limiting the switch to the source of control. The control options are listed below, delete the controls not required based on the motor control type selected above.

* + 1. Motor Control Key Switch: Three-position, key switch-operated control station with open, close, and center off (stop) function.

\*\* NOTE TO SPECIFIER \*\* Delete contact option not required. The maintained contact switch changes its position when actuated and will remain in that position until moved to the center off position. A momentary switch is actuated only when someone is operating and pressing down on the switch, motorized shade will stop when the button is released.

* + - 1. Contact: Maintained.
			2. Contact: Momentary.
			3. Basis of Design Product: Somfy Systems; Indoor key switch.

\*\* NOTE TO SPECIFIER \*\* Delete switch type not required. Single Pole Double Throw switch is used for 1 to1 connection with motor. Double Pole Double Throw Switch can support two motors per switch.

* + - 1. Switch Type: Single Pole Double Throw.
			2. Switch Type: Double Pole Double Throw.
			3. Electrical Characteristics: 120Vac, 60Hz.
		1. Motor Control Wired Decora Switch: Three-position, switch-operated control station with open, close, and center off (stop) functions.

\*\* NOTE TO SPECIFIER \*\* Delete contact option not required. The maintained contact switch changes its position when actuated and will remain in that position until moved to the center off position. A momentary switch is actuated only when someone is operating and pressing down on the switch, motorized shade will stop when the button is released.

* + - 1. Contact: Maintained.
			2. Contact: Momentary.
			3. Basis of Design Product: Somfy Systems.

\*\* NOTE TO SPECIFIER \*\* Delete decorator, switch style, switch type, electrical characteristics, and finish options not required. Single Pole Double Throw switch is used for 1-to1 connection with motor. Double Pole Double Throw Switch can support two motors per switch.

* + - * 1. Decorator: AC.
				2. Decorator: DC.
				3. Switch Style: Paddle.
				4. Switch Style: Toggle.
				5. Switch Style: Rocker.
				6. Switch Type: Single Pole Double Throw.
				7. Switch Type: Double Pole Double Throw.
				8. Electrical Characteristics: 120 Vac, 60 Hz.
				9. Electrical Characteristics: 24Vdc.
				10. Electrical Characteristics: Dry Contact.
				11. Finish: White.
				12. Finish: Ivory.
		1. Motor Control Dry Contact Individual/Group Button/Keypad: Momentary-contact, wall-switch-operated control station with open, close, and stop functions.

\*\* NOTE TO SPECIFIER \*\* Delete basis of design options not required, Requires use of Somfy's "IGC 4n1"Motor Controller.

* + - 1. Basis of Design Product: Somfy Systems; DecoFlex Dry Contact Keypad
			2. Basis of Design Product: Somfy Systems; Dry Contact Open, Close, Stop Wall Switch.
			3. Finish: White.
		1. Motor Control Wired Individual/Group Motor Controller: Programmable microprocessor controller with open, stop, close, and preset intermediate position functions.
			1. Basis of Design Product: Somfy Systems; IGC 4n1 Motor Controller.
			2. Motor Connections: Four or less per Motor Controller.

\*\* NOTE TO SPECIFIER \*\* Delete control device type not required, multiple control device types can be selected.

* + - 1. Control Device Types: Key Switch
			2. Control Device Types: Keypad.
			3. Control Device Types: Radio receiver.
			4. cULus Rated - UL certified E160923.
			5. Plenum Rated NEMA Enclosure.

\*\* NOTE TO SPECIFIER \*\* Delete Accessories not required per the control devices selected above.

* + - 1. Accessories:
				1. IGC 4n1 RTS Radio Receiver to be used with Somfy RF transmitters, providing wireless open, stop, close functions.
				2. Decoflex Dry Contact Keypad for IGC 4n1 provides three intermediate shade positions, open, stop, and close functions.
				3. Momentary Indoor Key or Momentary Decorator Paddle Switch providing open, or close functions.
			2. Operating Features:
				1. Configurable individual or group control of roller shades.
				2. Capable of accepting input from third-party automation control system via momentary Dry Contact signal.
		1. Factory-assembled, electric motor and factory-prewired motor controls with connector that disconnects motor from power.
		2. Enclosures protecting controls and operating parts.
		3. Accessories necessary for complete installation.
		4. Coordinate operator wiring requirements and electrical characteristics with building electrical system and contractor.
		5. Electrical Components: Listed and labeled as defined in NFPA 70.
		6. Electric motor tested for standards CAN/UL 325, and CSA-C22.2 No. 247 by a qualified testing agency and marked for intended location and application.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. WIRELESS CONTROLLED MOTOR OPERATORS AND CONTROLS - ROLLER SHADES

\*\* NOTE TO SPECIFIER \*\* Somfy wireless controlled motors enables users to adjust motorized shades using radio frequency-controlled remotes, or wall switches wirelessly. The controls do not require any wiring and use long-lasting batteries. This is typically useful in small conference and meeting rooms with a wireless switch on the wall within 30-65ft. Best used when the client is looking for simple localized control for open, stop, close functionality of the motorized roller shades. Delete electric motor paragraphs not required. Motor selection can be determined based on power coordination for motorized shades low voltage, or line voltage 120 Vac. Motor selection is also selected based on roller shade quietness.

* + 1. Electric motor tested for standards CAN/UL 325, and CSA-C22.2 No. 247 by a qualified testing agency and marked for intended location and application.
		2. Electric Low Voltage Motor: cULus listed tubular, enclosed in roller.
			1. Basis of Design Product: Somfy Systems; Sonesse 30 RTS.
			2. Control Type; Radio: Local control and group control via Switches.
			3. Electrical Characteristics: 24 Vdc, 0.8 Amps.
				1. Sound Level: 42 dBA or less.
			4. Low Voltage Power Cable: Two-wire with weidmuller; 10 in. (250 mm).
			5. Low Voltage Power Distribution: cULus Listed.
				1. Basis of Design: Somfy Systems; Power Distribution Enclosure Kit; for up to twenty 24v DC motors per kit.
				2. Electrical Characteristics: 120 Vac 2.8 A - 11A; coordinate with Division 26.
		3. Electric Low Voltage Motor: cULus listed tubular, enclosed in roller.
			1. Basis of Design Product: Somfy Systems; Sonesse ULTRA 50 DC RTS.
			2. Control Type; Radio: Local control and group control via Switches.
			3. Electrical Characteristics: 24 Vdc, 1.5 Amps.
				1. Sound Level: 38 dBA ultra-quiet.
			4. Low Voltage Power Cable: Two-wire with weidmuller; 10 inches (250 mm).
			5. Low Voltage Power Distribution: cULus Listed.
				1. Basis of Design: Somfy Systems; Power Distribution Enclosure Kit; for up to twenty 24v DC motors per kit.
				2. Electrical Characteristics: 120 Vac 2.8 A - 11A; coordinate with Division 26.
		4. Electric Motor: cURus certified tubular, enclosed in roller.
			1. Basis of Design Product: Somfy Systems; Sonesse 50 RTS.
			2. Control Type; Radio: Local control and group control via Switches.
			3. Electrical Characteristics: 120 Vac, 60 Hz 1.2 - 1.67 Amps.
				1. Torque: 53.1 in lbsf (6 N/m) - 88.5 in lbsf (10 N/m).
				2. Sound Level: 47 dBA or less.

\*\* NOTE TO SPECIFIER \*\* Delete Power cable option not required. Each motor by default will come with a 9.8ft power cable, optional upgrade to a three-prong molded plug, or fast connector with a twist and lock connection.

* + - 1. Power Cable: Three-wire SJTW cable. 9.8 ft (3 m) hardwired with quick disconnect.
			2. Power Cable: Three-wire cable with molded three prong plug. 9.8 ft (3 m).
			3. Power Cable: Three-wire SJTW cable on Motor with Fast Connector; 1.6 ft (480 mm).
				1. Extension cable to be supplied by roller shade contractor.
				2. Three-wire Fast Connector Extension Cable with Open Leads:

Length: 4.4 ft (1.3 m). - 22.4 ft (6.8 m).

* + - 1. Product Environmental Profile Type III EPD Certified.
		1. Electric Motor: cURus certified tubular, enclosed in roller.
			1. Basis of Design Product: Somfy Systems; Sonesse ULTRA 50 RTS.
			2. Control Type; Radio: Local control and group control via Switches.
			3. Electrical Characteristics: 120 Vac. 60 Hz, 0.95 Amps.
				1. Sound Level: 38 dBA ultra-quiet.

\*\* NOTE TO SPECIFIER \*\* Delete Power cable option not required. Each motor by default will come with a 9.8ft power cable, optional upgrade to a three-prong molded plug, or fast connector with a twist and lock connection.

* + - 1. Power Cable: Three-wire SJTW cable. 9.8 ft (3 m) hardwired with quick disconnect.
			2. Power Cable: Three-wire cable with molded three prong plug. 9.8 ft (3 m).
			3. Power Cable: Three-wire SJTW cable on Motor with Fast Connector; 1.6 ft (480 mm).
				1. Extension cable to be supplied by roller shade contractor.
				2. Three-wire Fast Connector Extension Cable with Open Leads:

Length: 4.4 ft (1.3 m). - 22.4 ft (6.8 m).

\*\* NOTE TO SPECIFIER \*\* Somfy wireless controlled motor controls enables users to operate motorized shades using radio frequency. The controls do not require any wiring and use long-lasting batteries. This is typically useful in small conference and meeting rooms with a wireless switch on the wall within 30-65ft. Best used when the client is looking for simple open, stop, close functionality for motorized roller shades.

* + 1. Wireless Remote Control: Electric controls with NEMA ICS 6, Type 1 enclosure for handheld remote-control activation of shades:

\*\* NOTE TO SPECIFIER \*\* Delete basis of design options not required, selection can be dependent on number of channels per control, multiple basis of design remotes can be selected, and selected at a later time by consultant.

* + - 1. Basis of Design Product: Somfy Systems; Telis 16 has an LCD display for channel selection; Sixteen channel.
			2. Basis of Design Product: Somfy Systems; Situo 1; Single channel.
			3. Basis of Design Product: Somfy Systems; Situo 5; Five channel.
			4. Finish: Pure.
			5. Electrical Characteristics: Battery operated.
			6. Optimal RF Range: 65 ft (20 m) radius under optimal conditions, FCC Approval Part 15, Class B.
			7. Control Functions: Open, Close, My (stop).
			8. Accessories:
				1. Wall mount holder with screw cover and screw kit.
		1. Wireless Control Wall Switch: Button-operated keypad station, fitting standard decora style wall switches.
			1. Basis of Design Product: Somfy Systems; DecoFlex WireFree RTS Switch.

\*\* NOTE TO SPECIFIER \*\* Delete mounting, finish, and engraved button options not required.

* + - 1. Mounting: Surface.
			2. Mounting: Recessed.
			3. Mounting: Flushed.
			4. Wall Switch Finish: White.
			5. Wall Switch Finish: Black.
			6. Wall Switch Finish: Ivory.
			7. Custom Engraved Buttons: Yes.
			8. Custom Engraved Buttons: No.
			9. Wireless Transmitter: Up to five channels of individual or group control of roller shades, consultant to select channel options during shop drawings.
			10. Electrical Characteristics: Battery operated.
			11. Optimal RF Range: 65 ft (20 m) radius under optimal conditions, FCC Approval Part 15, Class B.
			12. Control Functions: Open, Close, My (stop).
		1. Wireless Control Surface-Mounted Wall Switch: Button-operated keypad station.

\*\* NOTE TO SPECIFIER \*\* Delete finish, and engraved button options not required.

* + - 1. Basis of Design Product: Somfy Systems; Smoove RTS.
			2. Wall Switch Finish: Pure.
			3. Wall Switch Finish: Black.
			4. Wall Switch Finish: Silver matte.
			5. Wall Switch Finish: Light Bamboo.
			6. Wall Switch Finish: Walnut.
			7. Wall Switch Finish: Cherry.
			8. Wall Switch Finish: Amber bamboo.
			9. Custom Engraved Buttons: Yes.
			10. Custom Engraved Buttons: No.
			11. Wireless Transmitter: Up to four channels of individual or group control of roller shades, consultant to select channel options during shop drawings.
			12. Electrical Characteristics: Battery operated.
			13. Optimal RF Range: 65-ft (20-m) radius under optimal conditions, FCC Approval Part 15, Class B.
			14. Control Functions: Up, Down, My (stop).

\*\* NOTE TO SPECIFIER \*\* App control application only applicable to vertical residential tower projects where base building motorized shades is being specified, and each suite will require app control. App control is not specified in commercial projects.

* + 1. App Control: Wireless Control Interface: RTS 433.42 MHz, 2.4 GHz WiFi, or direct wired network connection with WEP, WPA2, TKIP, open and mixed mode encryption; multiple single-zone units may be joined to create a multi-zone system; capable of serving as an Internet protocol (IP) to radio bridge for third-party control systems.
			1. Basis of Design Product: Somfy Systems; TaHoma.
			2. Integration to third-party systems; App Control and Voice Control
			3. Control Functions: Open, Close, My (stop), Timers, and Scenes.
			4. Channels: 40 RTS Channels available.
			5. Enclosure: ABS; cULus listed; UL 94 V-0 flame rating; RoHS compliant.
			6. Electrical Characteristics: 120 Vac; 60 Hz; wall-mounted power supply.
			7. Timer Control: Clock timer based on astronomic timeclock with 60-minute sunrise and sunset offset.

\*\* NOTE TO SPECIFIER \*\* Optional. Delete if not required.

* + - 1. Ethernet Adaptor for direct wired network connection.

\*\* NOTE TO SPECIFIER \*\* Delete article below if there is no integration with third party systems. Somfy has a versatile line of technology products and is compatible with many well-known systems in the industry. Based on the specified products above select your integration device below.

* + 1. Third Party Integration Universal RTS Interface: Allow third-party automation systems to control RTS motorized solutions.
			1. Basis of Design Product: Somfy Systems; Universal RTS Interface II (URTSI II).

\*\* NOTE TO SPECIFIER \*\* Control up to 16 URTSIs together for up to 256 channels (via RS485).

* + - 1. Channels: 16; RTS controls per URTSI.
			2. Power Input: 9 Vdc, 200 mA; UL approved, electrical outlet required.
			3. RF Range: 65 ft (20 m) radius under optimal conditions, FCC Approval Part 15, Class B.
			4. Serial Inputs: RS232, RS485, or IR.
		1. Factory-assembled, of size and capacity and with features, characteristics, and accessories suitable for conditions indicated.
		2. Enclosures protecting controls and operating parts.
		3. Accessories required for reliable operation without malfunction.
		4. Coordinate operator wiring requirements, radio control requirements, and electrical characteristics with building electrical system and contractor.
		5. Electrical Components: Listed and labeled as defined in NFPA 70.
		6. Electric motor tested for standards CAN/UL 325, and CSA-C22.2 No. 247 by a qualified testing agency and marked for intended location and application.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. DIGITAL NETWORK MOTOR OPERATORS AND CONTROLS - ROLLER SHADES

\*\* NOTE TO SPECIFIER \*\* Somfy's Digital Network (SDN) is the latest generation of bus-line enabled intelligent tubular motors and smart switch controls. SDN is a bi-directional RS485 network that can be used over long distance networks and is a scalable solution that can support many connected products. Bi-directional communications make it possible to receive feedback and status from each motor on the network, in real time. SDN provides a solution that is future proof for new construction projects and energy efficient intelligent buildings. Multiple integration methods are readily available with third party systems such as low voltage lighting control system, Audio Video system, and Building Management System. Delete electric motor options not required. Somfy Digital Network™ (SDN) is a "standalone or integrated window treatment control system," for automation please include animeo IP control system, for integration please include integration accessories. Motor selection can be determined based on power coordination for motorized shades low voltage, or line voltage 120 Vac. Motor selection is also selected based on roller shade quietness. LT50 RS485 motor is for heavier torque applications for roller shades, often determined by roller shade consultant.

* + 1. Electric Motor: cULus listed tubular, enclosed in roller.
			1. Basis of Design Product: Somfy Systems; Sonesse 30 DC RS485.

\*\* NOTE TO SPECIFIER \*\* Delete control type options not required, multiple control type network options can be selected. Reminder based on the control type network selected, the controls section must match. For network intelligent DC low voltage motors, please include PowerConnectTM Power Panel.

* + - 1. Control Type Network: Automated control or Standalone window treatment control system.
			2. Control Type Network: Control via lighting control system.
			3. Control Type Network: Control via audio-visual system.
			4. Control Type Network: Control via BMS.
			5. Communication Network: Bus connected SDN PowerConnect Power Panel.
			6. Electrical Characteristics: 24 Vdc, 0.8 Amp.
				1. Sound Level: 42 dBA or less.
			7. Low Voltage Power and Data Cable: Five-wire with weidmuller; 10 inches (250 mm).
		1. Electric Motor: cULus listed tubular, enclosed in roller.
			1. Basis of Design Product: Somfy Systems; Sonesse ULTRA 50 DC RS485.

\*\* NOTE TO SPECIFIER \*\* Delete control type options not required, multiple control type network options can be selected. Reminder based on the control type network selected, the controls section must match. For network intelligent DC low voltage motors, please include PowerConnectTM Power Panel.

* + - 1. Control Type Network: Automated control or Standalone window treatment control system.
			2. Control Type Network: Control via lighting control system.
			3. Control Type Network: Control via audio-visual system.
			4. Control Type Network: Control via BMS.
			5. Communication Network: Bus connected SDN PowerConnect Power Panel.
			6. Electrical Characteristics: 24 Vdc, 1.5 Amps.
				1. Sound Level: 38 dBA ultra-quiet.
			7. Low Voltage Power and Data Cable: Five-conductor pigtail with inline detachable terminal block; 10 inches (250 mm).
		1. Electric Motor: cURus certified tubular, enclosed in roller.
			1. Basis of Design Product: Somfy Systems; Sonesse ULTRA 50 RS485.

\*\* NOTE TO SPECIFIER \*\* Delete control type options not required, multiple control type network options can be selected. Reminder based on the control type network selected, the controls section must match.

* + - 1. Control Type Network: Automated control or Standalone window treatment control system.
			2. Control Type Network: Control via lighting control system.
			3. Control Type Network: Control via audio-visual system.
			4. Control Type Network: Control via BMS.
			5. Electrical Characteristics: 120 Vac. 60 Hz, 0.95 Amps.
				1. Sound Level: 38 dBA ultra-quiet.

\*\* NOTE TO SPECIFIER \*\* Delete Power cable option not required. Each motor by default will come with a 9.8ft power cable, optional upgrade to a three-prong molded plug, or fast connector with a twist and lock connection.

* + - 1. Power Cable: Three-wire SJTW cable. 9.8 ft (3 m) hardwired with quick disconnect.
			2. Power Cable: Three-wire cable with molded three prong plug. 9.8 ft (3 m).
			3. Power Cable: Three-wire SJTW cable on Motor with Fast Connector; 1.6 ft (480 mm).
				1. Extension cable to be supplied by roller shade contractor.
				2. Three-wire Fast Connector Extension Cable with Open Leads:

\*\* NOTE TO SPECIFIER \*\* Delete length option not required.

Length: 4.4 ft (1.3 m).

Length: 22.4 ft (6.8 m).

* + - 1. Data Cable: RJ9/RJ45. Black.

\*\* NOTE TO SPECIFIER \*\* Delete length option not required.

* + - * 1. Length: 2.5 ft (0.76 m).
				2. Length: 24 ft (7.32 m).
		1. Electric Motor: cURus certified tubular, enclosed in roller.
			1. Basis of Design Product: Somfy Systems; Sonesse 50 RS485.

\*\* NOTE TO SPECIFIER \*\* Delete control type options not required, multiple control type network options can be selected. Reminder based on the control type network selected, the controls section must match.

* + - 1. Control Type Network: Automated control or Standalone window treatment control system.
			2. Control Type Network: Control via lighting control system.
			3. Control Type Network: Control via audio-visual system.
			4. Control Type Network: Control via BMS.
			5. Electrical Characteristics: 120 Vac, 60 Hz 1.2 - 1.67 Amps.
				1. Torque: 53.1 in lbsf (6 N/m) to 88.5 in lbsf (10 N/m).
				2. Sound Level: 47 dBA or less.

\*\* NOTE TO SPECIFIER \*\* Delete Power cable option not required. Each motor by default will come with a 9.8ft power cable, optional upgrade to a three-prong molded plug, or fast connector with a twist and lock connection.

* + - 1. Power Cable: Three-wire SJTW cable. 9.8 ft (3 m) hardwired with quick disconnect.
			2. Power Cable: Three-wire cable with molded three prong plug. 9.8 ft (3 m).
			3. Power Cable: Three-wire SJTW cable on Motor with Fast Connector; 1.6 ft (480 mm).
				1. Extension cable to be supplied by roller shade contractor.
				2. Three-wire Fast Connector Extension Cable with Open Leads:

\*\* NOTE TO SPECIFIER \*\* Delete length option not required.

Length: 4.4 ft (1.3 m).

Length: 22.4 ft (6.8 m).

* + - 1. Data Cable: RJ9/RJ45. Black.

\*\* NOTE TO SPECIFIER \*\* Delete length option not required.

* + - * 1. Length: 2.5 ft (0.76 m).
				2. Length: 24 ft (7.32 m).
		1. Electric Motor: cURus certified tubular, enclosed in roller.
			1. Basis of Design Product: Somfy; LT50 RS485.

\*\* NOTE TO SPECIFIER \*\* Delete control type options not required, multiple control type network options can be selected. Reminder based on the control type network selected, the controls section must match.

* + - 1. Control Type Network: Automated control or Standalone window treatment control system.
			2. Control Type Network: Control via lighting control system.
			3. Control Type Network: Control via audio-visual system.
			4. Control Type Network: Control via BMS.
			5. Electrical Characteristics: 120 Vac. 60 Hz, 1.8 - 2.1 Amps.
				1. Torque: 132 in-lbsf (15 N/m) - 308 in lbsf (35 N/m).
				2. Sound Level: 55 dBA or less.
				3. Speed: Depending on motor torque, roller shade contractor to use same motor torque for all roller shades.

\*\* NOTE TO SPECIFIER \*\* Delete Power cable option not required. Each motor by default will come with a 9.8ft power cable, optional upgrade to a three-prong molded plug, or fast connector with a twist and lock connection.

* + - 1. Power Cable: Three-wire SJTW cable. 9.8 ft (3 m) hardwired with quick disconnect.
			2. Power Cable: Three-wire cable with molded three prong plug. 9.8 ft (3 m).
			3. Power Cable: Three-wire SJTW cable on Motor with Fast Connector; 1.6 ft (480 mm).
				1. Extension cable to be supplied by roller shade contractor.
				2. Three-wire Fast Connector Extension Cable with Open Leads:

\*\* NOTE TO SPECIFIER \*\* Delete length option not required.

Length: 4.4 ft (1.3 m).

Length: 22.4 ft (6.8 m).

* + - 1. Data Cable: RJ9/RJ45. Black.

\*\* NOTE TO SPECIFIER \*\* Delete length option not required.

* + - * 1. Length: 2.5 ft (0.76 m).
				2. Length: 24 ft (7.32 m).

\*\* NOTE TO SPECIFIER \*\* Networked automation controls can include sun sensors, wind sensors, sun/wind sensors, timers, software programs for scenarios, network interface (computers, smartphones). Dry contact input is used for low-voltage control of building automation systems. Somfy's Somfy Digital Network (SDN) RS485 controls are a two-wired bus with open protocol communication between building automation systems and controller devices operating motors. Select Controls below based on control type selected above.

* + 1. Balanced multi-point digital intelligent motors integrated into the following:

\*\* NOTE TO SPECIFIER \*\* Delete system options not required, multiple systems can be selected.

* + - 1. System: Standalone.
			2. System: Building Management.
			3. System: Audio/Video.
			4. System: Low Voltage Lighting Control.
		1. Basis of Design Product: Somfy Systems; Somfy Digital Network (SDN) RS485.
			1. Linear Bus Wiring: ANSI/TIA/EIA RS-485 standard, capacitance controlled, unshielded twisted pair cable.
			2. Bus Distribution Components:

\*\* NOTE TO SPECIFIER \*\* SDN Data Hub 5 motors/controls per hub and SDN Data Hub Mini 3 motors/controls per hub are used for connecting motors and controls to SDN bus lines. Delete hub option not required. If more motors and keypads are within close proximity of each other select Data Hub if motors and keypads are distributed further apart select Data Hub Mini.

* + - * 1. SDN Data Hub.
				2. Data Hub Mini.

\*\* NOTE TO SPECIFIER \*\* SDN Data Panel is used for Somfy's RS485 motors headend. Typically, a Data Panel is used if animeo IP is specified, and/or if the project has a large quantity of motors, and/or is a multi-floored project. Delete if not required.

* + - * 1. SDN Data Panel.

\*\* NOTE TO SPECIFIER \*\* Power Panel for SDN PowerConnectTM Power Panel is used for power and controlling low-voltage DC motors. Delete if there are no low voltage motors specified.

* + - * 1. SDN PowerConnect Power Panel.
			1. Electrical Characteristics: Bus-connected control devices for SDN data such as keypads, sensors and receivers powered directly from bus line using a 24 Vdc NEC Class 2 power supply.
			2. Wire and Connectors: Category 5e balanced twisted pair cable, ethernet patch cables, RJ45 connectors and Weidmuller connectors.

\*\* NOTE TO SPECIFIER \*\* Solar Management System Paragraph is for a dedicated solar management system for the digital network motors, it will provide automation for time-based events, and sun sensor-based events. If control type for motors above is specified for Automated Control include paragraph below.

* + 1. Solar Management System: Digital network system integrating solar tracking, timed events, digital keypads, and weather sensors to operate motorized window coverings. Microprocessor controller for setting, changing, and adjusting control features of motorized window coverings.

\*\* NOTE TO SPECIFIER \*\* Animeo IP offers more advanced control features. System limitations are not based on a quantity of motors and scalable to support an increased quantity of motors.

* + - 1. Basis of Design Product: Somfy Systems; animeo IP.
			2. Electrical Characteristics: 120 Vac, 1.25 Amps.
			3. Motor Technology: Somfy Digital Network RS485 Networked Motors.
			4. Network Characteristics:
				1. Manage individually addressed intelligent motors and controls.
				2. Allow intelligent keypads, schedules, motor grouping and virtual switches to be configurable and managed from its own internal IP network, building internal network, or remotely over the internet.
				3. Up to 200 motors on Building Controller, system expansion using animeo IP Sub Controllers.
				4. Dedicated Motor Bus Segment and Sensor Bus Segment.

\*\* NOTE TO SPECIFIER \*\* Delete interface controls not required, multiple interface controls can be selected.

* + - 1. Interface Controls: Personal computer.
			2. Interface Controls: Virtual Keypad.
			3. Interface Controls: Low voltage lighting control system integration.
			4. Interface Controls: Dry Contact to Audio Video system integration.
			5. Interface Controls: Building Management System Integration.

\*\* NOTE TO SPECIFIER \*\* Delete sensors not required, only one type of sensor option can be selected. All sensor measurements are sent to animeo IP building controller, and sub-controller. The Outside Sensor Box (OSB) is an a la carte product that provides flexibility to pick and choose quantity and type of sensors, as well as the ability to be used in the interior of the building or mounting on the roof. The OSB can support an extension box which can be used for adding 4 additional sun sensors. Additional sensors can be added using animeo IP Sub-Controllers to support a scalable system that may have various facade sun exposure.

* + - 1. Sensors: Outside Sensor Box, all mounting installation brackets, and Sun Sensors.
			2. Sensors: Outside Sensor Box, Outside Sensor Box Extension, all mounting installation brackets, and Sun Sensors.
			3. PC Software: animeo IP Visual Configuration graphical user interface.
			4. Certifications: UL Listed.
		1. Digital Keypad: Digital button-operated wall station, fitting standard decora style wall switches.

\*\* NOTE TO SPECIFIER \*\* Delete Basis of Design options not required, if animeo IP is specified select DecoFlex digital keypad for animeo IP, if no automation is required select Decoflex digital keypad for SDN providing preset position control, or SDN Group Decoflex for zone-based control.

* + - 1. Basis of Design Product: Somfy Systems; DecoFlex digital keypad animeo IP.
			2. Basis of Design Product: DecoFlex digital keypad for SDN.
			3. Basis of Design Product: SDN DecoFlex digital keypad for group control.
			4. Electrical Characteristics: Cable and connector to SDN bus power.
				1. Power: 24 Vdc, supplied by SDN Bus with LED status indicators.
				2. Wire and Connectors: Category 5e balanced twisted pair cable, Ethernet patch cables, and RJ45 connectors.

\*\* NOTE TO SPECIFIER \*\* Delete control functions and button configurations options not required, ECO-MODE is only available when using animeo IP automation system and allows the keypad to push the zone back into automation. SDN Decoflex for group control only applies to Up, Down, Stop of Groups.

* + - 1. Control Functions: Up, Down, Stop, three presets.
				1. Button Configurations: Six button digital keypad.
			2. Control Functions: Up, Down, Stop, five presets.
				1. Button Configurations: Eight button digital keypad.
			3. Control Functions: Up, Down, Stop, ECO-MODE.
				1. Button Configurations: Six button digital keypad.
				2. Button Configurations: Eight button digital keypad.
			4. Control Functions: Up, Down, Stop, groups.
				1. Button Configurations: Six button digital keypad for 3 groups.
				2. Button Configurations: Eight button digital keypad for 5 groups.
			5. Face Plate: Lexan 945U material in standard Decora-style with color to match switch.

\*\* NOTE TO SPECIFIER \*\* Delete color options not required, multiple options can be selected, or can be determined by consultant at a later stage of the project.

* + - * 1. Color: Black.
				2. Color: Ivory.
				3. Color: White.
			1. Temperature Range: Ambient temperature; indoor use only.

\*\* NOTE TO SPECIFIER \*\* Delete paragraph below if no sensors are specified.

* + 1. Bus Power Supply for Digital Network: Provides power to the digital network and sensor bus.
			1. Basis of Design Product: Somfy Systems; Bus and Sensor Station Power Supply.
			2. Electrical Characteristics: Input 120 Vac; plugs into outlet; Output: 24 Vdc 1 Amps.
			3. Power Cord: 26 inches (660 mm) line-voltage, ac (IEC-320 C6).
			4. UL listed and CE approved.

\*\* NOTE TO SPECIFIER \*\* Adds 10 isolated motor ports and two isolated device ports to a SDN bus segment. The isolated motor ports support up to 240 ft (73 m) of power and data wiring to individual low-voltage intelligent motors. If low voltage motors are not used delete section below.

* + 1. Power Panel: provides power and data to a maximum of 10 Motors.
			1. Basis of Design Product: Somfy Systems; SDN PowerConnect Power Panel.
			2. Electrical Characteristics: Input 120 Vac 7.2A; Output 24Vdc fused 2A per motor.
				1. Power and Data wiring up to 240 ft (73 m) from motor to power panel using Somfy SDN Low-Voltage Motor Cable.
				2. Two isolated device ports up to 200 ft (20 m).
			3. Listed: cULus.

\*\* NOTE TO SPECIFIER \*\* Data Panel adds four isolated bus segments to an SDN system. Additional isolated bus segments support up to 255 devices, 4000 ft (1219 m) of bus wiring per segment. Typically, a Data Panel is used if animeo IP is specified, and/or if the project has a large quantity of motors, and/or is a multi-floored project. Delete if not required.

* + 1. Data Panel: Creates head-end and riser bus distribution network.
			1. Basis of Design Product: Somfy Systems; Data Panel.
			2. Electrical Characteristics: Input 120 Vac 3.35 A; Output 24 Vdc 1 Amp per segment.
			3. Provides four isolated digital network bus segments to the SDN system.
			4. Built-in override Decoflex Digital Keypad.

\*\* NOTE TO SPECIFIER \*\* Paragraph below is only compatible with Digital Network Motor Operators, for both standalone SDN or automated with animeo IP, this product provides integration to the Building Management system, deleted section below if not required.

* + 1. Third Party Integration Building Management System (BMS) Interface: Provide communication between BMS and network intelligent motors, operating either individual motors, or groups via Standalone SDN or animeo IP. Additional features of retrieving sensor data from animeo IP sensor bus.
			1. Basis of Design Product: Somfy Systems; Somfy Connect BMS Interface V2.
			2. Power Input: 9 to 24 Vdc power supply plugs into an ac outlet.
			3. Data Point Capacity: 4500 maximum.
			4. Integration Capabilities: Modbus, BACnet MS/TP, BACnet IP, Metasys N2 by JCI.
			5. Certifications: CE, FCC, IC Canada, RoHS3 and REACH complaint.

\*\* NOTE TO SPECIFIER \*\* Paragraph below is only compatible with Digital Network Motor Operators, only for a Standalone SDN with integration requirements to Audio Visual System, deleted section below if not required.

* + 1. Third Party Integration Universal Digital Automation Interface: Allows third-party automation systems to control network intelligent motors; one interface per motorized system for up to 250 motors per interface.
			1. Basis of Design Product: Somfy Systems; Somfy Connect Universal Automation Interface (UAI) Plus.
			2. Power Input: 24 Vdc, powered via Bus and Sensor Station Power Supply.
			3. Communication Input: RS232 protocol or IP Ethernet protocol.
			4. Communication Output: Somfy's "SDN RS485" protocol.
			5. Integration: Third-party drivers utilizing Somfy Synergy API.
			6. UL listed and CE approved.
			7. Operating Characteristics: Indoor conditioned space use only.

\*\* NOTE TO SPECIFIER \*\* Somfy's SDN 0-10 V Interface is a Digital Network (SDN) device that receives industry standard 0-10 V control input to operate Somfy's Digital Network Motor Operators, for standalone SDN or automated with animeo IP. This product provides integration to the low voltage lighting control system and using animeo IP can help enhance daylight harvesting strategies.

* + 1. Third Party Integration Building Control Systems 0-10 V Integration Interface: Provides integration between low voltage lighting control systems 0-10 V analog output and network intelligent motors, operating either individual or groups via Standalone SDN or animeo IP.
			1. Basis of Design Product: Somfy Systems; SDN 0-10 V Interface V2.
			2. Electrical Characteristics: 120C AC 60Hz 20mAmps.
			3. Power and Data Output: 24 Vdc SDN bus output.
			4. Integration Capabilities: Industry standard 0-10 V analog input.
			5. Mounting: Junction box mounted plenum rated enclosure.
			6. UL Listed.
			7. Operating Characteristics: Indoor conditioned space use only.
			8. Factory-assembled, of size and capacity and with features, characteristics, and accessories suitable for conditions indicated.
		2. Enclosures protecting controls and operating parts.
		3. Accessories required for reliable operation without malfunction.

\*\* NOTE TO SPECIFIER \*\* Delete one of the two following paragraphs, if low voltage wiring is to be supplied by Division 26, please coordinate with related sections.

* + 1. Low voltage wiring from motor controls to motors through digital network communication supplied by roller shade contractor.
		2. Low voltage wiring from motor controls to motors supplied by Division 26.
		3. Coordinate operator wiring requirements and electrical characteristics with building electrical system and contractor.
		4. Electrical Components: Listed and labeled as defined in NFPA 70.
		5. Electric motor tested for standards CAN/UL 325, and CSA-C22.2 No. 247 by a qualified testing agency and marked for intended location and application.
1. EXECUTION
	1. EXAMINATION
		1. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, operational clearances, blocking, accurate locations of connections to building electrical system, lighting, and other conditions affecting performance of the Work.
		2. Proceed with installation only after unsatisfactory conditions have been corrected.
	2. PREPARATION
		1. Clean surfaces thoroughly prior to installation.
		2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
	3. MOTOR CONTROLLER INSTALLATION
		1. Comply with reviewed Shop Drawings for system equipment placement in accordance with Somfy guidelines and instructions.
		2. Comply with NFPA 70, Article 400, for flexible cords and cables.
		3. Comply with NECA 1 and NECA 130.
		4. Comply with FCC guidelines.
		5. Install window treatment motor operators and stationary control systems level, plumb, and aligned with adjacent units in accordance with manufacturer's written instructions.

\*\* NOTE TO SPECIFIER \*\* Electrical connections paragraph below is for hard-wired motor operators and control systems. Delete if not required.

* + 1. Electrical Connections: Connect wired motor operators and stationary control systems to building electrical system in accordance with NEC requirements.
			1. Grounding: Provide electrical grounding in accordance with NFPA 70.

\*\* NOTE TO SPECIFIER \*\* Delete the following paragraph if not required.

* + 1. Networked BMS: Connect networked automation controls for motorized equipment to BMS.
		2. Sun, Rain, and Wind Sensor Locations: Mount on exterior in accordance with manufacturer's written instructions.
	1. ADJUSTING
		1. Adjust motorized equipment to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range.
			1. Adjust motor-limit settings in accordance with manufacturer's written instructions for specific locations and placements.
			2. Program each motor-operator control system to manufacturer's standard settings or Owner-provided program settings.

\*\*NOTE TO SPECIFIER\*\* Delete the following paragraph if there is no automation using animeo IP, or integration to Building Management System (BMS).

* + 1. Commissioning Control Systems: Perform commissioning of integrated automation control systems and connection to BMS in accordance with Division 01.

\*\* NOTE TO SPECIFIER \*\* Delete the remaining paragraphs not required.

* + - 1. Managed by shade manufacturer/supplier.
			2. Managed by motor and control manufacturer.
			3. Managed by digital network integrator.
			4. Managed by \_\_\_\_\_\_\_\_ aka, The Commissioning Agency.

\*\* NOTE TO SPECIFIER \*\* Contact manufacturer for fee-based window treatment control system commissioning support. System should be commissioned, and operation based on pre-project planning and optimal system performance led by occupant comfort or energy savings.

* 1. CLOSEOUT ACTIVITIES
		1. Demonstration and Training: Engage Somfy factory-authorized service representative to demonstrate and train Owner's maintenance personnel to adjust, operate, and maintain units.

END OF SECTION