LevNet RF Shade Controller

Cat. No. WS0RC-S00

enocean alliance
No Wires. No Batteries. No Limits.

LEVITON

DI-005-WS0RC-00B

INSTALLATION

WARNINGS AND CAUTIONS:

- TO BE INSTALLED AND/OR USED IN ACCORDANCE WITH ELECTRICAL CODES AND REGULATIONS.
- IF YOU ARE NOT SURE ABOUT ANY PART OF THESE INSTRUCTIONS, CONSULT AN ELECTRICIAN.
- LEVNET RF RELAY RECEIVERS ARE INTENDED ONLY FOR USE INDOORS, IN DRY LOCATIONS, AND WITH PERMANENTLY INSTALLED FIXTURES.
- LEVNET RF RELAY RECEIVERS SHOULD NOT BE INSTALLED IN LOCATIONS WHERE THE UNITS WILL BE IN CLOSE PROXIMITY TO LIGHT BULB(S) OR OTHER SOURCES OF HEAT, SUCH AS ABOVE A CEILING HUGGER FIXTURE, PARTICULARLY WITH HIGHER WATTAGE LOADS. (SEE “OPERATING TEMPERATURE” ON SPECIFICATIONS TABLE).
- INSTALLATION IN METALLIC ENCLOSURES OR NEAR LARGE METAL OBJECTS WILL TYPICALLY REDUCE RADIO RANGE. IF POSSIBLE, INSTALL IN PLASTIC OR FIBERGLASS ENCLOSURES FOR BEST PERFORMANCE.

DESCRIPTION:

The Shade Controller provides control to new and/or existing window shades and blinds. The receiver responds to radio signals from self-powered wireless light switches, providing control for 2 independent output channels. Each output channel consists of two signals, UP and DOWN, for a total of 4 outputs.

COMPATIBLE DEVICES:

- Single Rocker Self-powered Wireless Light Switches
- Dual Rocker Self-powered Wireless Light Switches
- Dual Rocker Handheld Remote

TOOLS NEEDED FOR INSTALLATION:

- Pencil or ballpoint pen (stylus)
- Electrical Tape
- Power pack (2 for each output channel, one "UP", one "DOWN")

INSTALLATION:

To install the Shade Controller select your application from the options below. Follow the instructions for that application. For transmitter installation instructions, see appropriate installation guide(s).

SELECT 1 OF THE FOLLOWING APPLICATIONS:

OPTION A:

High Voltage Installation Instructions

1. Read all steps for this option before taking any action to install receiver.
2. **WARNING:** To avoid risk of fire, shock, or death, **TURN OFF POWER** at circuit breaker or fuse and verify that it is OFF before installation begins. Make sure that it remains OFF until installation is complete.
3. For in-wall installation, a wiring box must be used. For ceiling installation make wire connections inside a junction box. For best performance install receiver in plastic box away from floor and away from wall niches. Do not install in a location where the temperature exceeds the temperature rating of the receiver **(see “Specifications” for ratings)**.
4. Connect wires as shown **in Figure A**. Twist wire nuts on clockwise making sure no bare wires show. Wrap connections with electrical tape.
   - **a)** Identify the red and black thin wires protruding out of the side of the Power Pack. Connect the thin Red wire (power) to VCC on the receiver and the thin Black wire (ground) to GND on the receiver.
   - **b)** Identify the thin Blue wire protruding out of the side of the Power Pack. Connect this thin Blue wire (relay coil) to UP1 on the receiver.

     (Other Power Packs may be connected to Outputs DOWN1, UP2 and DOWN2 by following the same procedure. Connect all the thin Black wires together and to the GND terminal of the Shade Controller. In these instances, the thin Red wires of each additional Power Pack can just be left unconnected since the Shade Controller already has power. Cap off or otherwise insulates these wires – DO NOT connect them together.)
   - **c)** Identify the 2 thick Blue wires on the top of the Power Pack. Connect one of these Blue wires (relay contact) to the electrical load.
   - **d)** Connect the other thick Blue wire, along with the thick Black wire from the top of the power pack to the hot line voltage.
   - **e)** Connect the thick White wire from the top of the Power Pack and the Neutral wire from the electrical load to the Neutral line voltage.
5. Restore power and follow programming instructions for appropriate programming mode **(see "Programming" below)**. For this installation, Rocker Mode (the default programming mode) is recommended.
6. Test receiver (If receiver is not working, review wiring and programming instructions).
7. Stow all wires and receiver in wiring box or attach receiver to Power Pack outside of junction box using nylon tie or adhesive tape. Finish any installation of fixture or wall switch.

OPTION B:

Low Voltage Installation Instructions

1. Follow steps 1-3 of **"High Voltage Installation Instructions."**
2. Connect wires as shown in **Figure B**. Twist wire nuts on clockwise making sure no bare wires show. Wrap connections with electrical tape.
   - **a)** Connect power (+) to the VCC wire trap.
   - **b)** Connect ground (-) to the GND wire trap.
   - **c)** Connect electrical loads to UP1and DOWN1on the receiver. (Other loads may be connected to UP2 and DOWN2 on the receiver.)
3. Follow steps 5-7 of **"High Voltage Installation Instructions."**

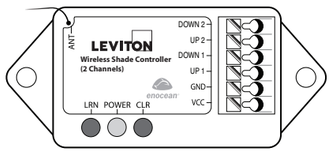
PROGRAMMING

The receiver must be powered when programming. After programming, settings are retained when power is disconnected. The receiver sensitivity is reduced when in Learn Mode to prevent unintentionally associating unwanted transmitters with the receiver. Transmitters should be within 15 feet (5 meters) of the receiver when programming. Program the receiver in any of the modes below.

Learn Mode (default): In Learn Mode the receiver responds only on a transmitter press and not on the release. For example, one end of the rocker on a wireless switch will activate the relay connected to Up 1 (turn the load ON) when pressed and the opposite end of the same rocker will deactivate the relay connected to DOWN 1 (turn the load OFF) when pressed. Pair either the Top or Bottom button and the other half is automatically paired for you.

Follow the instructions below for the desired programming mode:

PROGRAMMING



DOWN 2, UP 2,
DOWN 1, UP 1 = Outputs

GND = Power Supply (-)

VCC = Power Supply (+)

LRN = Program Button

CLR = Clear Button

Learn Mode (default) Programming Instructions

1. Read all Learn Mode programming steps before taking any action to program receiver.
2. Enter Learn mode for Channel 1 (which is both UP 1 and DOWN 1) by pressing and holding the LRN button until green LED begins flashing 1 per second **(See Figure C)**.
3. When associating a wireless switch to the receiver, press one end of a switch rocker **(See Figure D)**. The green LED will stay ON for about 3 seconds indicating that the receiver has stored the transmitter's unique ID in its memory.
4. (If only one transmitter is desired then skip **Step 4** and exit Learn Mode by following **Step 6**). To program a second transmitter to communicate with this receiver, wait until toggling of the green LED resumes. Repeat the instructions in **Step 3** and **Step 4** until the unique IDs of all desired transmitters are stored in the memory of the receiver (up to 30).
5. Enter Learn Mode for Channel 2 (which is both UP 2 and DOWN 2) by briefly pressing and releasing the LRN button. The Power LED will blink twice indicating that Channel 2 is in Learn Mode. Channel 2 will be in the same programming mode that Channel 1 was just in. Follow **Steps 3 and 4** to program transmitters to Output 2.
6. To exit Learn Mode, just wait; the receiver automatically exits Learn Mode after 30 seconds (indicated by the ceasing of the blinking of the green power LED). Alternatively, the LRN button may be pressed for about 2 seconds to exit Learn Mode.

Selective Deleting: Follow the Learn Mode steps above to delete a transmitter from a receiver's memory. Upon pressing the button on the desired transmitter **(See Learn Mode Programming Instructions, Step 3)** the green LED will stay OFF for about 3 seconds indicating that the receiver has removed the transmitter's unique ID from its memory.

Clear All: If the CLR button is pressed and held **(See Figure E)**, the entire memory of the receiver will be deleted. The receiver will instantly enter the default programming mode indicated by the electrical green LED turning ON and OFF.

Clear One Channel: First enter Learn Mode by repeatedly pressing the LRN button until the toggling LED blinks the channel number (two blinks for channel 2). Hold down the clear button for about 2 seconds. This will clear the entire memory for that output, leaving the other outputs intact.

ADDITIONAL PROGRAMMING OPTIONS

Inverting (reversing) the Outputs: The Shade Controller supports an inverted output mode of operation. This mode inverts the logical sense of the output voltages. (**NOTE:** This mode is not for reversing the direction of the blinds. To reverse the direction of travel, reverse the UP and DOWN wiring connections. Alternatively, if the wiring is inaccessible, turn the wireless switch upside-down).

In the default configuration, an output is at or near 0 volts when not active, and at or near VCC (the power supply voltage) when active. When the outputs are inverted, they are at VCC when not active and at 0 volts when active.

Inverted Output Mode Programming Instructions

1. Turn the power to the receiver OFF.
2. Press and hold the CLR button for 5 seconds while turning on the power. The green LED will blink twice to indicate activation of Inverted Output Mode.

   To change back to normal operating mode, repeat Steps 1 and 2. The green LED will blink once to indicate normal (non-Inverted) mode. The state of this mode is stored in non-volatile memory and is maintained even if the power is removed.

Repeater Operation: In order to extend the range of operation in certain environments, Leviton repeaters are available. A repeater re-transmits a copy of every signal received, and many repeaters also function as receivers (The controller models corresponding to this installation guide function as Receiver/Repeaters). It is recommended that no more than two repeaters are active within range of any Leviton transmitter or receiver.

Repeater Mode Programming Instructions (controller models only)

To deactivate Repeater Mode:

1. Turn power to the repeater OFF.
2. While holding down the LRN button turn the power back ON. Continue holding the LRN button for 5 seconds. If Repeater Mode was previously ON, the Output will blink once to indicate that Repeater Mode is now inactive.

   To turn Repeater Mode back ON, repeat the same procedure. The Output will blink twice to indicate that repeater mode is now turned ON.

   These settings are saved in non-volatile memory, and will be maintained even if power is turned OFF and ON.

Momentary First and Latching First Modes: The Shade Controller supports two different functional modes for the attached blinds. In the default (shipping) configuration, a short press will run the motor only momentarily. If the button is held down longer than 3/4 of a second, the output will latch on and continue running until a limit switch stops the blinds. After 3 minutes, the motor outputs will turn off automatically. This (default) mode is called "Momentary First" mode **(See high voltage installation diagram)**. For certain types of blinds and shades, it is more desirable for a short press to latch the motor on, while longer presses will run the motor in momentary mode. In this mode, called "Latching First" **(See low voltage installation diagram)**, a press longer than 3/4 of a second will run the motor only until the button is released.

To change the operating mode of the Shade Controller form Momentary First to Latching First, turn off the power to the receiver. While holding down both the LRN and CLR buttons simultaneously, turn the power on while keeping both buttons held for 5 seconds. The Power LED will blink once to indicate Momentary First mode, or it will blink twice to indicate Latching First mode.

Specifications

	WS0RC-S00
Range	50-150 feet (typical)
Radio Frequency	315 MHz
Power Supply	8-30 VDC, 40 mA
Output rating	30 VDC max, 100 mA max, Off Voltage 1V max, On Voltage VCC-1V min
Number of Output Channels	2 (2 Up and 2 Down)
Operating Temperature	-13° to 140°F (-25° to +60°C)
Storage Temperature	-40°F to 140°F (-40°C to +60°C)
Dimensions	2.88"(W) x 1.30"(H) x 0.67"(D) - 7.32cm x 3.30cm x 1.70cm
Antenna	Attached whip antenna (5.85")
Radio Certification	FCC (United States) SZV-TCM2XXC, IC (Canada) 5713A-TCM2XXC

WEB VERSION

Figure A - High Voltage Installation Wiring Diagram

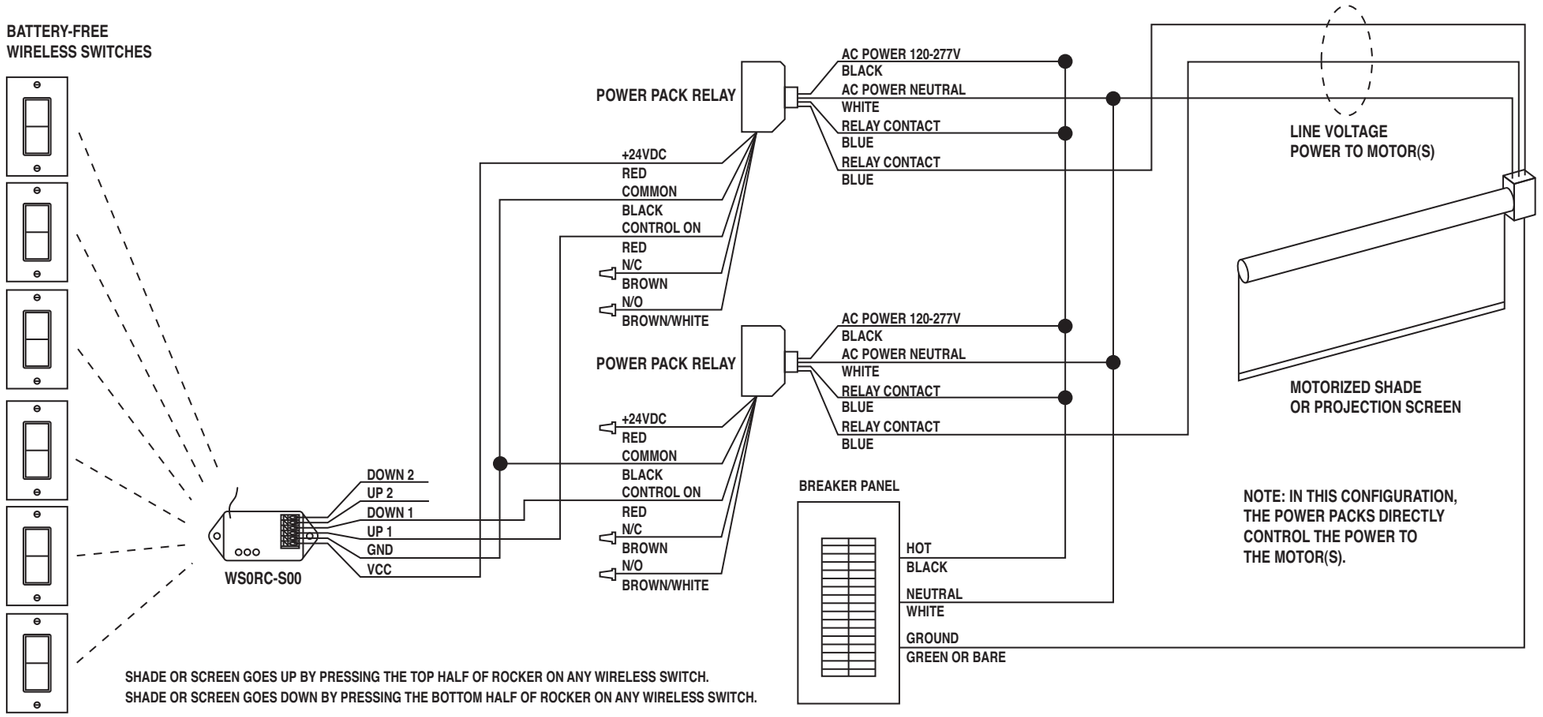


Figure B - Low Voltage Installation Wiring Diagram

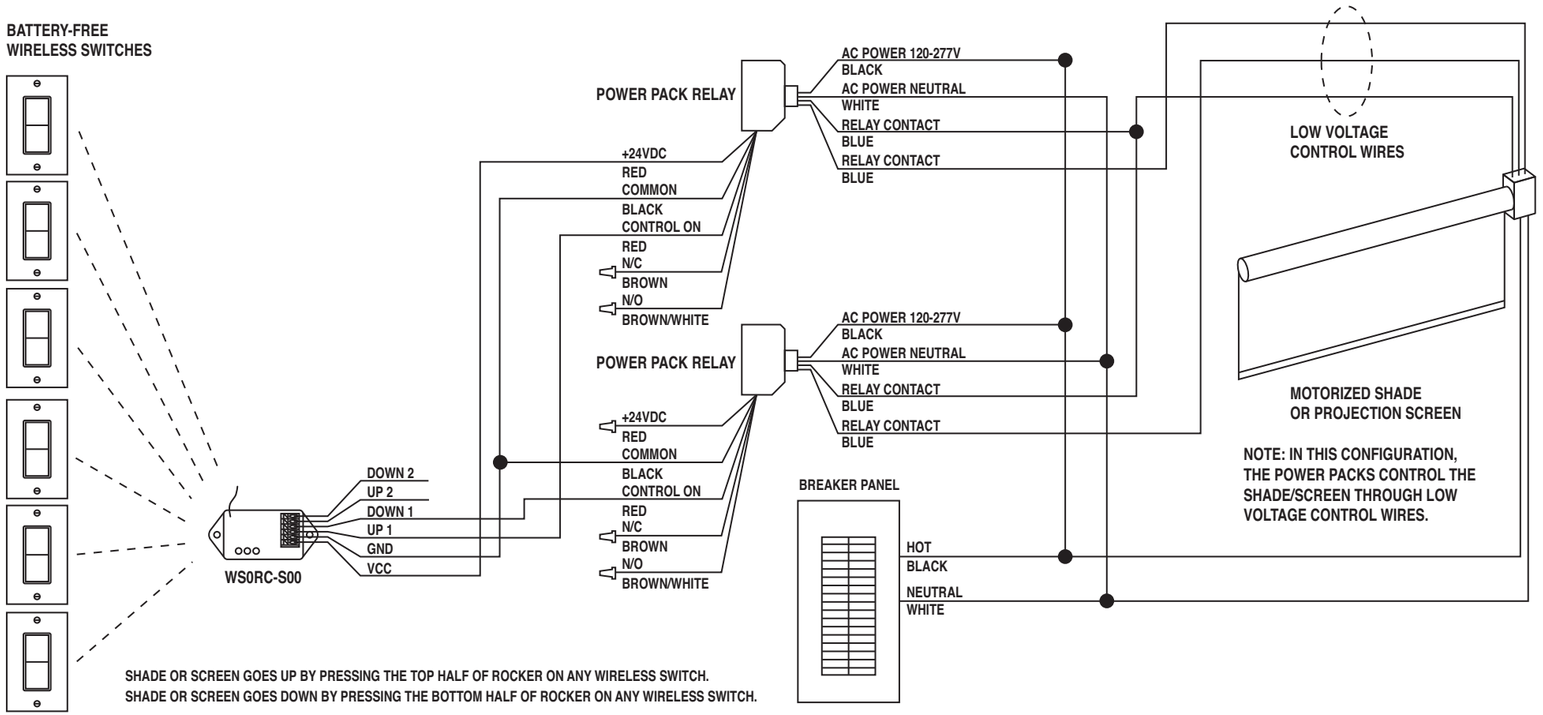


Figure C - Enter Learn Mode

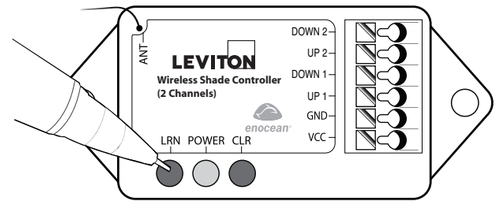


Figure D - Press Transmitter

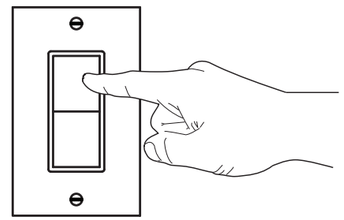
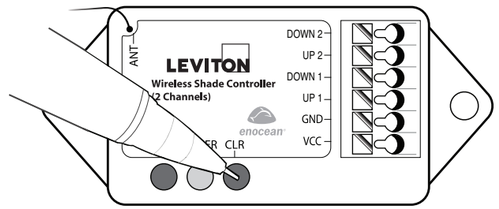


Figure E - Clear All



FCC COMPLIANCE STATEMENT: Contains FCC ID: SZV-TCM2XXC. Contains IC: 5713A-TCM2XXC
The enclosed device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (i.) this device may not cause harmful interference and (ii.) this device must accept any interference received, including interference that may cause undesired operation.

LIMITED 5 YEAR WARRANTY AND EXCLUSIONS

Leviton warrants to the original consumer purchaser and not for the benefit of anyone else that this product at the time of its sale by Leviton is free of defects in materials and workmanship under normal and proper use for five years from the purchase date. Leviton's only obligation is to correct such defects by repair or replacement, at its option, if within such five year period the product is returned prepaid, with proof of purchase date, and a description of the problem to **Leviton Manufacturing Co., Inc., Att: Quality Assurance Department, 201 North Service Road, Melville, New York 11747.** This warranty excludes and there is disclaimed liability for labor for removal of this product or reinstallation. This warranty is void if this product is installed improperly or in an improper environment, overloaded, misused, opened, abused, or altered in any manner, or is not used under normal operating conditions or not in accordance with any labels or instructions. **There are no other or implied warranties of any kind, including merchantability and fitness for a particular purpose**, but if any implied warranty is required by the applicable jurisdiction, the duration of any such implied warranty, including merchantability and fitness for a particular purpose, is limited to five years. **Leviton is not liable for incidental, indirect, special, or consequential damages, including without limitation, damage to, or loss of use of, any equipment, lost sales or profits or delay or failure to perform this warranty obligation**. The remedies provided herein are the exclusive remedies under this warranty, whether based on contract, tort or otherwise.

For Technical Assistance Call: 1-800-824-3005 (U.S.A. Only) www.leviton.com

WEB VERSION