

# Short Range Wireless Switch System 8 Installation Guide



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## Introduction

Thank you for choosing Remote Control Technology's Short Range Wireless Switch System 8 (SRWSS 8). This versatile device has numerous practical applications and will surely become a mainstay in your business and production structure.

This system consists of:

- 1 wireless radio transmitter
- 1 wireless radio receiver
- 2 metal enclosures with built-in power supplies
- 2 42" high-gain antennas
- 2 right angle mounting brackets
- 2 lightning arrestors (connected to the antenna brackets)
- 1 link cable

## Before Installation

- Remote Control Technology recommends that you have your new wireless switch system installed by a professional electrician.
- Be sure to install the receiver and transmitter at least 20-40 feet away from any other device that would cause interference such as variable frequency drives, large power transformers, and other radio equipment.
- Keep AC and DC wiring in separate bundles.
- Use a multi-conductor shielded cable to connect any devices.
- Provide a good earth ground to the receiver and transmitter power supply.
- Locate the receiver and transmitter antennas away from any device that would cause interference.
- Be sure to bench test the system before installation.

**To Test:** Separate the transmitter and receiver by at least 20ft. Do not install the receiver antenna while testing. Never transmit without attaching the transmitter antenna.

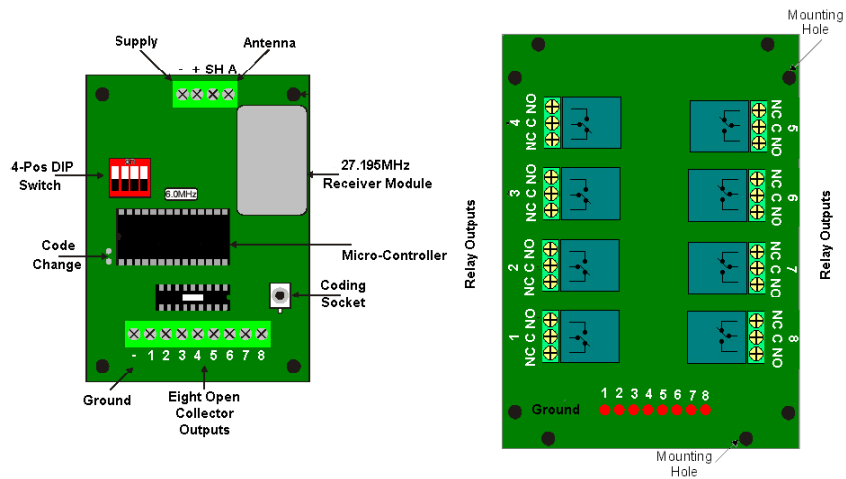
# Receiver Installation

1. Connect the positive input of the device to be switched to the common (C) contact on the terminal block of the desired output. The negative input is connected to the normally open (NO) contact or the normally closed (NC) contact. The terminal blocks are beneath the circuit board shown in the right diagram of Figure 1 (below).
2. Attach antenna to the antenna mount assembly. The lightning arrestor is shipped connected to the right-angle mounting bracket. Do not disassemble the antenna mount or the lightning arrestor.
3. Connect the antenna assembly to the coaxial cable provided and connect the cable to the BNC connector on the top of receiver enclosure.

*Note: Do not loop excess coaxial cable into a coil. This will cause a radio frequency choke and reduce your signal range. Lay excess cable in a straight line or loosely route it back and forth in an "S" configuration.*

4. Select the operation mode of the output relays using the four-position DIP switch (see Receiver Operation Modes on page 8).
5. Affix the wall mounting brackets included with the system to the back of the enclosure and mount the enclosure to a wall, pole, or another enclosure.
6. Connect 110-220 VAC power to the 12 VDC power supply. Alternatively, connect a 12 VDC power source directly to the terminals marked “-” and “+” on the receiver.

**Caution:** Check all wiring connections before applying power. Failure to do so can result in serious damage to your product.



**Figure 1. SRWSS 8 Receiver**

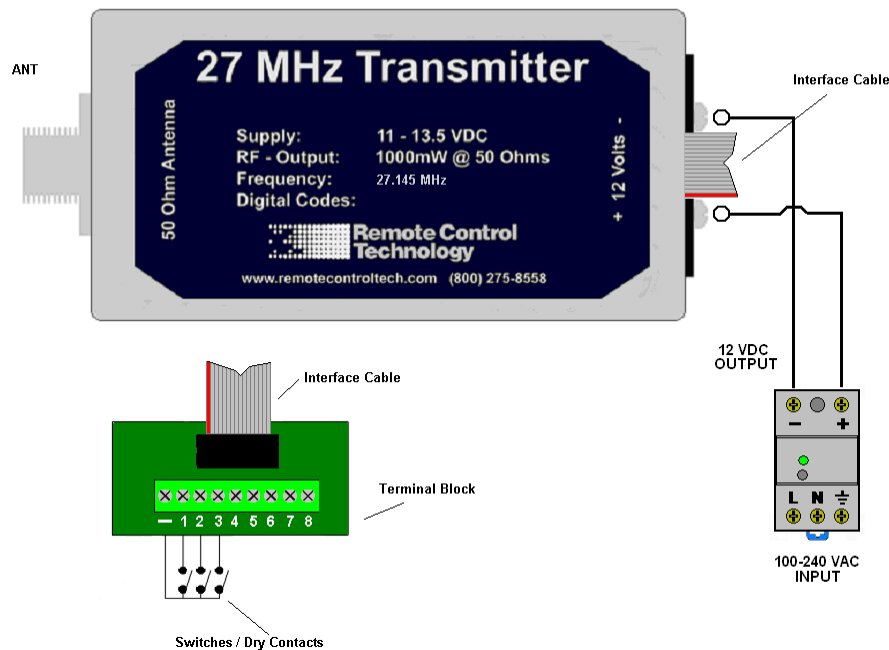
# Transmitter Installation

1. Connect one end of a dry contact closure to the desired input terminal. Connect the other end to the common terminal on the terminal block.
2. Attach the antenna to the antenna mount assembly. The lightning arrestor is shipped connected to the antenna mount. Do not disassemble the antenna mount or the lightning arrestor.
3. Connect the antenna mount assembly to the coaxial cable provided and connect the cable to the BNC connector on the top of transmitter enclosure.

*Note: Do not loop excess coaxial cable into a coil. This will cause a radio frequency choke and reduce your signal range. Lay excess cable in a straight line or loosely route it back and forth in an "S" configuration.*

4. Affix the wall mounting brackets included with the system to the back of the enclosure and mount the enclosure to a wall, pole or another enclosure.
5. Connect 110-220 VAC power to the 12 VDC power supply. Alternatively, connect a 12 VDC power source directly to the terminals marked “-“ and “+“ on the transmitter.

**Caution:** Check all wiring connections before applying power. Failure to do so can result in serious damage to your product.



**Figure 2. SRWSS 8 Transmitter**

## Programming the SRWSS 8

The SRWSS 8 is shipped from the factory pre-programmed and ready to use. However, there are situations where it may be necessary to reprogram the system, generally due to the addition of more receivers or transmitters to an existing system.

To program the SRWSS 8:

1. Remove the blue inside cover of the transmitter to reveal its coding socket.
2. Apply power to the receiver and transmitter.
3. If a new security code is required, short the code change pins on the receiver marked by the "CC" symbol using either the jumper included with the receiver or with a flat-bladed screwdriver. Refer to Figure 1 on page 3 to locate the code change pins.
4. Connect the link cable to the coding sockets of the receiver and transmitter. The red LED of the transmitter should glow steadily.
5. Momentarily close two inputs on the transmitter simultaneously to start code transfer. The red LED on the transmitter should blink twice to indicate a successful code transfer.

*Note: The closing of the two inputs on the transmitter must be simultaneous. Otherwise, the SRWSS 8 will go into individual input programming mode (see Individual Input Programming). To ensure that the contacts are closed simultaneously, use a jumper wire to connect any two inputs and then touch the jumper to the common contact.*

6. Remove the link cable from the receiver and the transmitter.
7. Select the transmitter and receiver operation modes using the DIP switches found on each device (see Operation).




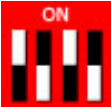


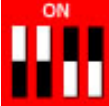

## Individual Input Programming

Each numbered input on the transmitter controls the output that matches the number. Individual input programming allows users to assign the inputs to control user-specified outputs. For example, individual input programming can set input 2 on a transmitter to control output 4.

To program each input individually:

1. Follow steps 1–4 in Programming the SRWSS 8.
2. Select the output of the receiver you wish to activate using the DIP switch on the receiver. Output DIP switch settings can be found in Table 1, below. The white boxes in the diagrams of Table 1 below represent the DIP switch position.

**Table 1. SRWSS 8 Output Selection**

Output	DIP Switch Position	Output	DIP Switch Position
1		5	
2		6	
3		7	
4		8	

3. Close the input on the input terminal strip that will activate the selected output. Observe the LED on the circuit board of the transmitter. The LED will blink twice to indicate the program is complete.
4. Repeat step 3 to program additional input-output combinations.
5. Disconnect the link cable from the coding sockets on the receiver and transmitter.
6. Using the four-position DIP switch on the receiver, select the mode of operation for the outputs

## Multi-transmitter Programming

A SRWSS 8 receiver can be controlled by multiple transmitters. Configuring the receiver to accept commands from multiple transmitters is useful for applications such as alarms, where multiple transmitters connected to sensor devices can send signals to a single receiver connected to an alarm system.

To program multiple transmitters to control one receiver:

1. Install the SRWSS 8 receiver as shown in Receiver Installation and apply power to the receiver.
2. To randomly generate a new receiver code, short the code change pins marked by the “CC” symbol. Refer to Figure 1 on page 3 to locate the code change pins.
3. Follow steps 4–6 of Programming the SRWSS 8 for each transmitter being installed.
4. Using the DIP switch on the receiver, select the mode of operation for the outputs (see Receiver Operation Modes).

## Multi-receiver Programming

In the same way that one SRWSSHH receiver can receive commands from multiple transmitters, multiple receivers can be controlled by one transmitter. This is useful in applications such as pump control, where one transmitter can control multiple pumps simultaneously.

To program one transmitter to control multiple receivers:

1. Install the receivers and transmitter as shown in Receiver Installation and Transmitter Installation.
2. Short the two code change pins marked with the symbol “CC” on each receiver by sliding to locate the code change pins. Maintain all shorts until programming for all receivers is complete.
3. Connect the transmitter to a receiver using the red link cable. The transmitter LED will not illuminate when the link cable is installed.
4. Simultaneously close any two inputs on the transmitter for two seconds. The LED will blink twice when the inputs are closed to indicate that programming is complete.
5. Disconnect the transmitter from the receiver and repeat step 4 for each receiver being installed.



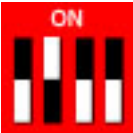

## Receiver Operation

Upon successful reception of the transmission from the transmitter, the selected output(s) will activate. Each output is a SPDT Class C relay rated for 5 A @ 250 VAC with a normally open (NO), normally closed (NC), and common (C) contact. The four-position DIP switch on the receiver serves two functions: it is used to select an output for individual transmitter input programming and to select the mode of the receiver outputs.

## Receiver Operation Modes

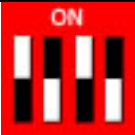


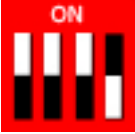
The receiver has eight modes that control how the outputs function. These are user-selectable modes using the four-position DIP switch on the receiver. Table 2 describes each operation mode and the DIP switch position used to activate it. The white boxes in the diagrams of Table 2 below represent the DIP switch position.

**Table 2. Receiver Output Operation Modes**

Dip Switch Position	Receiver Operation Mode
	<p><b>All Momentary</b> All outputs will change their state and maintain it for the duration of the transmission received. Once the transmission is terminated, the outputs will change back to their original state.</p>
	<p><b>All Flip-Flop</b> In flip-flop mode, the outputs will change their state and maintain it until a matching transmission is received. Every time a transmission is received, the outputs will change their state and maintain it until another transmission is received.</p>
	<p><b>Momentary and Flip-Flop</b> Outputs 1-4 are on momentary mode; 5-8 are flip-flop.</p>
	<p><b>Momentary and Flip-Flop 2</b> Outputs 1-6 are on momentary mode; 7-8 are flip-flop.</p>







**Table 2 Continued**

<b>DIP Switch Position</b>	<b>Receiver Operation Mode</b>
	<b>Momentary and Flip-Flop 3</b> Outputs 1-2 are on momentary mode; 3-8 are flip-flop.
	<b>Momentary and Flip-Flop 4</b> Outputs 1-3 are on momentary mode; 4-8 are flip-flop.
	<b>Latching on</b> Outputs will stay on until power to the receiver is interrupted.
	<b>Latching on 2</b> Output 1 is latching; 2-8 are momentary.

# Transmitter Operation Modes

All mode changes are made using the two-position DIP switch. The operation mode controls the way the transmitter will transmit when an input is closed. The time durations of each operation mode are controlled using the trimpot on the transmitter. Turning the trimpot clockwise increases time durations and turning it counterclockwise decreases durations. The white boxes in the diagrams of Table 3 below represent the DIP switch position.

**Table 3. SRWSS 8 Transmitter Operation Modes**

DIP Switch Position	Transmitter Operation Mode
	<p><b>2 to 62 second Repeat Transmission</b>            Transmitter will transmit a 1.5 second transmission burst and then repeat the burst transmission every 2-62 seconds if at least one code switch from the eight-position DIP switch is ON and power is connected.</p>
	<p><b>1 to 10 Minute Repeat Transmission</b>            Same as mode 1, except the repeat burst transmission is 1-10 minutes.</p>
	<p><b>Continuous Five-Minute Transmission</b>            Transmitter will transmit continuously for up to five minutes as long as the input is closed. When the input is opened or five minutes have elapsed, the transmission will end.</p>
	<p><b>One Burst Transmission</b>            Transmitter will transmit for a duration between 1.5 seconds to 10 seconds and then go into sleep mode.</p>

# Optimizing your Wireless Switch System

Following these guidelines will help you maximize the range of your signal:

- Supply the antennas for the receiver and the transmitter with a good ground plane by attaching a 10 AWG or larger wire from the lightning arrester to an earth ground or by mounting the antenna to a metal pole or conduit connected to an earth ground.
- Mount the antennas at least 40 feet away from electric motors, large power transformers, power lines, VFDs, or any equipment that produces ambient electrical noise.
- Mount all antennas outdoors. For equipment located indoors, run a length of RG-58 coaxial cable from the receiver to an antenna mounted outdoors.
- Mount antennas as high as possible, at least 3 feet away from vertical surfaces and not under roof awnings. If mounting the antenna on a building, mount it at the apex or the highest point of the building.
- When mounting the antenna to a metal pole, mount the antenna at the top of the pole or at least 3 feet away from the pole.
- Avoid mounting the antenna on the same pole as the power service.
- Avoid mounting the antenna on or near a chain link fence. If necessary, the antenna can be mounted at least 3 feet above the fence.
- Use only high-quality antenna and cable connectors, which are available from Remote Control Technology.
- Make sure that the antenna-mounting bracket is assembled as shown to the right.

