



Phone: (866) 701-1146  
Fax: (425) 216-7558  
[www.remotecontroltech.com](http://www.remotecontroltech.com)

# Short Range Wireless Switch System 1 Handheld Installation and Operations Guide

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## Introduction

Thank you for choosing Remote Control Technology's Short Range Wireless Switch System Handheld 1 (SRWSSH 1). This versatile device has numerous practical applications and will surely become a mainstay in your business and production structure. This guide will help you install your new wireless switch system and show you how to operate and customize it to fit your needs.

This system consists of:

- 1 handheld wireless radio transmitter
- 1 wireless radio receiver
- 1 link cable
- 1 plastic NEMA 4X enclosure with a built-in power supply
- 1 set of wall mounting brackets included with the enclosures
- 1 42" high-gain antennas
- 25' of coaxial cable
- 1 right angle mounting bracket
- 1 lightning arrestor (attached to the mounting bracket)

## Before Installation

- Remote Control Technology recommends that you have your new wireless switch system installed by a professional electrician.
- 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 one input of the device to be controlled to the common contact (C) of the output terminal block and connect the other input to either the normally open contact (NO) or the normally closed contact (NC).

**Caution:** The relay is a SPDT Class C rated for 5 A @ 250 VAC. Do not connect any device that draws more than 5 A @ 250 VAC directly to the receiver outputs. Doing so can result in damage to the receiver.

2. Attach the antenna to the antenna bracket assembly and connect a ground wire to the lightning arrestor. The lightning arrestor is shipped connected to the antenna bracket. Do not disassemble the antenna bracket or the lightning arrestor.
3. Connect the assembly to the coaxial cable provided and attach the cable to the BNC connector at the top of the 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. Apply 12 VDC to the receiver by either connecting 110–240 VAC to the power supply built into the receiver enclosure or by connecting the receiver directly to a source of 12 VDC.

**Caution:** Double check all connections made to the receiver. Pay special attention to the polarity of power connections and the position of the outputs to prevent damage to the product.

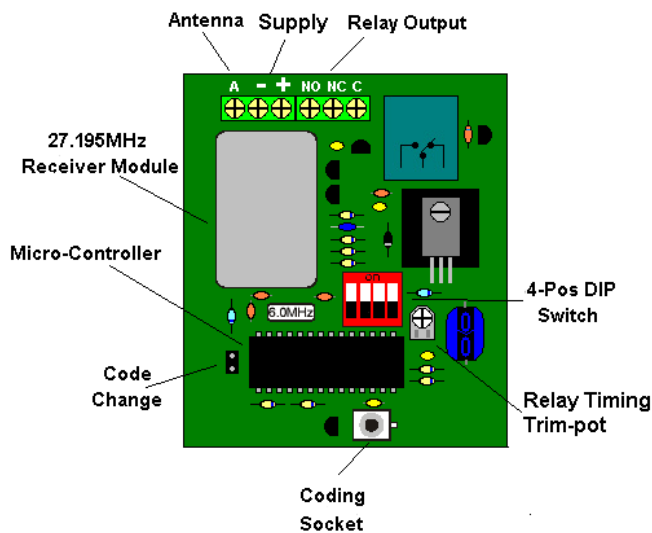


Figure 1. SRWSSH 1 Receiver

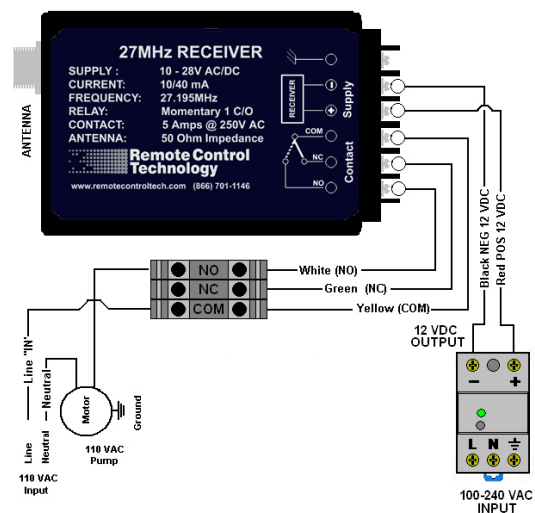


Figure 2. Receiver Wiring Diagram

## Transmitter Assembly

1. Remove the battery cover on the bottom of the transmitter.
2. Connect a 9V battery (included with the system) into the transmitter and replace the battery cover.

## Custom Installations

By default, the receiver and transmitter are programmed with one of over 4 billion random access codes. This code allows communication between matching transmitters and receivers. It is usually unnecessary to change the security code, but it is possible to do so.

To reprogram the security code:

1. Using a flat-bladed screwdriver, short the code change pins on the receiver marked by the “CC” symbol. This will randomly generate a new receiver security code. Refer to Figure 1 for the location of the code change pins.
2. Apply power to the receiver.
3. Connect the link cable (RED) to the coding sockets of the receiver and the transmitter. The coding socket of the transmitter is in the battery port. The LED on the keypad will glow solid red to indicate a properly installed link cable. See Figure 1 for the location of the receiver coding socket and Figure 3 below to find the coding socket of the transmitter.
4. Simultaneously press and hold the button on the transmitter keypad until the LED on the keypad of the transmitter blinks twice to indicate that programming is complete.
5. Disconnect the link cable from the coding sockets of the receiver and transmitter.
6. Using the DIP switch on the receiver, select the mode of operation for the outputs (see Receiver Operation Modes).
7. Connect a 9 V battery to the transmitter, insert it into the battery port and replace the battery cover.



**Figure 3. Transmitter Coding Socket**

## Using Multiple Transmitters to Control One Receiver

A SRWSSHH receiver can be controlled by multiple transmitters. Configuring the receiver to accept commands from multiple transmitters can allow a process, such as pump control, to be controlled by more than one individual.

1. Install the SRWSSHH receiver as shown in Receiver Installation and apply power to the receiver.
2. To randomly generate a new receiver security code, short the code change pins marked by the “CC” symbol. Refer to Figure 1 to locate the code change pins.
3. Follow steps 3–5 of Custom Installations for each transmitter to be installed.
4. Using the DIP switch on the receiver, select the mode of operation for the outputs (see Receiver Operation Modes).

## Using One Transmitter to Control Multiple Receivers


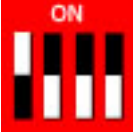

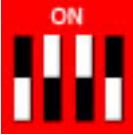
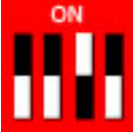

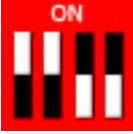

In the same way that one SRWSSHH receiver can receive commands from multiple transmitters, multiple receivers can be controlled by one transmitter. When one transmitter is set to control multiple receivers, pushing a button on the transmitter will activate the corresponding outputs on all receivers simultaneously.

1. Install the receivers as shown in Receiver Installation.
2. Short the two code change pins marked with the symbol “CC” on each receiver by sliding the jumper that comes with each receiver over the pins. Maintain all shorts until programming for all receivers is complete.
3. Connect the transmitter to a receiver using the red link cable. A battery for the transmitter is required during this step, and the transmitter LED will not illuminate when the link cable is installed.
4. Press and hold any two buttons on the transmitter simultaneously for two seconds. The LED will blink rapidly twice to indicate that programming is complete.
5. Disconnect the transmitter from the receiver and repeat step 4 for each receiver being installed.
6. Using the DIP switch on the receiver, select the mode of operation for the outputs.

# SRWSSHH 1 Receiver Operation Modes

The SRWSSHH 1 has eight operation modes that control the behavior of its outputs. You can set the operation mode using the four-position DIP switch on the receiver of the system. DIP switch positions and their corresponding operation modes are outlined in Table 1 below.

**Table 1. SRWSSHH 1 DIP Switch Settings and Operation Modes**

DIP Switch Position	Receiver Operation Mode
	<b>Momentary:</b> In momentary mode, the output will change its state and maintain it for the duration of the transmission received. Once the transmission is terminated, the output will change back to its original state.
	<b>Flip-Flop:</b> In flip-flop mode, the output will change its state and maintain it until a matching transmission is received. Every time a transmission is received, the output will change its state and maintain it until another transmission is received.
	<b>Delayed Off 1:</b> In delayed off 1 mode, the output will change its state and maintain it for 1-10 seconds. This is adjustable using the timing trimpot.
	<b>Delayed Off 2:</b> In delayed off 2 mode, the output will change its state and maintain it for 10-300 seconds. This is adjustable using the timing trimpot.
	<b>Pulsing:</b> In pulsing mode, the output will change its state repeatedly for 10-300 seconds. This duration can be adjusted using the timing trimpot.
	<b>Latching:</b> In latching mode, the output will change its state and maintain it until power to the receiver is removed or interrupted.
	<b>On-Off:</b> On-Off mode requires a two push-button transmitter. Push Button "1" changes the state of the output. Push Button "2" returns the output to its original state.
	<b>Test:</b> In test mode, the output will change its state and maintain it until position 4 on the DIP switch is in the off position.

# 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 arrestor to an earth ground or 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.

