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# Short Range Wireless Switch System Handheld 2 Installation and Operations Guide

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## Introduction

Thank you for choosing Remote Control Technology's Short Range Wireless Switch System Handheld 2 (SRWSSH 2). 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 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(s) to be controlled to the common contact (C) of the desired output and connect the other input to either the normally open contact (NO) or the normally closed contact (NC) of the output.

**Caution:** The relay outputs are SPDT Class C relays 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 arrester. The lightning arrester is shipped connected to the antenna bracket. Do not disassemble the antenna bracket or the lightning arrester.
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 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.

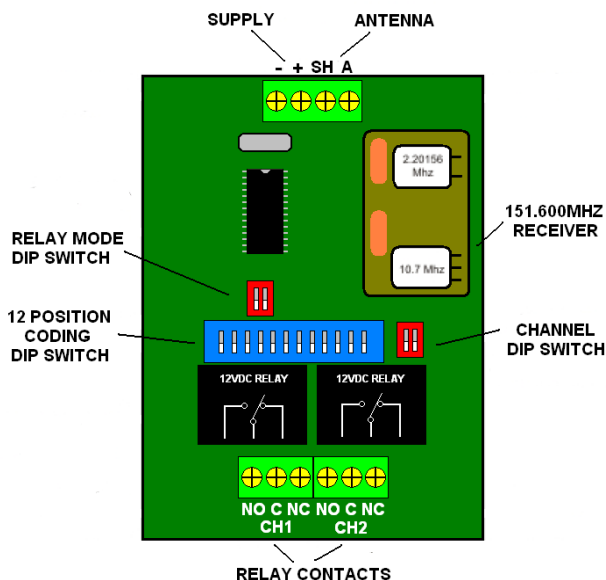


Figure 1. SRWSSH 2 Receiver

## 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 2 below to find the coding socket of the transmitter.
4. Simultaneously press and hold any two buttons 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 2. Transmitter Coding Socket**

## Individual Push-Button Programming

Using the programming method above, each numbered button on the transmitter controls the output that matches that number. Individual push-button programming allows users to assign buttons to control user-specified outputs. For example, individual push-button programming can set push-button 2 on a transmitter to control output 1.

1. Apply power to the receiver as shown in Receiver Installation.
2. If necessary, short the code change pins marked "CC" on the receiver board. Refer to Figure 1 if you cannot locate the code change pins.
3. Connect the transmitter to the receiver using the red link cable included. The transmitter LED should glow steadily.

Output	DIP Switch Position
1	
2	

**Table 1. Receiver Output Selection**

4. Use the red DIP switch on the receiver to select an output. DIP switch settings for this step are outlined in Table 1 to the right.
5. Press and hold the button on the transmitter that will control the selected output until the transmitter LED blinks twice to indicate that programming is complete.
6. Repeat steps 4 and 5 for each button on the transmitter.
7. Disconnect link cable from the coding sockets on the receiver and transmitter and select the mode of operation for the outputs (see Receiver Operation Modes).

## Using Multiple Transmitters to Control One Receiver

A SRWSSH 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 SRWSSH 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 one for the location of 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 SRWSSH 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 when the transmitter buttons are pressed to program the receiver.
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.

# SRWSSH 2 Receiver Operation Modes

The SRWSSH 2 has three operation modes that control the behavior of the outputs:

- **Momentary Mode:** In this mode, the selected output(s) 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.
- **Flip-Flop:** In this mode, the selected output(s) will change state and maintain that state 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.
- **Latching** (must be set at factory): In this mode, when the transmitter activates the selected output, that output will change its state and maintain it until power to the receiver is removed or interrupted.

These modes can be selected by using the DIP switches found on the receiver of each system. Each switch has a corresponding output, and the position of the switch determines the operating mode for its output. Table 2 below lists each mode and its activation method.

**Table 2. SRWSSH 2 Operation Mode Activation**

<b>Operation Mode</b>	<b>Activation</b>
Momentary	DIP Switch is off
Flip-flop	DIP Switch is on
Latching	Insert a buss wire or 0 ohm resistor into the two holes next to the DIP switch

# 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 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.