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Wireless Multi-Switch Controller System Installation and Operation Guide

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Introduction

Thank you for choosing Remote Control Technology's Wireless Multi-Switch Controller System. 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 transmitter (battery included)
- 1 wireless receiver
- 1 metal NEMA 4 enclosure with a built-in power supply
- 1 42" high-gain antenna
- 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 power supply.
- Keep the receiver and transmitter antennas away from any device that would cause interference.
- Be sure to bench test the system before final 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 desired device(s) to the to the terminal block output(s). To activate the device(s), connect the positive input to one of the terminal blocks labeled “COM” and the negative input to the terminal block corresponding to the desired output.

   Caution: Do not connect any device that draws more than 1 A at 12 VDC directly to the receiver outputs. Doing so will result in damage to the product.

2. Attach the antenna to the antenna bracket assembly. The lightning arrestor is shipped connected to the antenna bracket. Do not disassemble the antenna bracket or the lightning arrestor.

3. Connect the antenna assembly to the coaxial cable provided and attach the cable to the BNC connector on the bottom 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. If you can, lay excess cable out straight or loosely route it back and forth in an S configuration.

4. Connect a 110–240 VAC power source to the built-in 12 VDC power supply. Alternatively, a 12 VDC power source can be connected directly to the receiver.

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

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.

3. Attach the transmitter antenna to the BNC connecter at the top of the unit.

Programming

(Skip for Default Operation)

After the WMSC has been installed, it is capable of being used immediately with its default programming. However, the WMSC can be reprogrammed to fit the specific needs of a user. Each receiver uses a two-stage programming process: programming the group code and setting the receiver code. The group code is a unique number that can be set by the user to designate a receiver as part of a group of receivers. The receiver code is the number that differentiates the receivers in a group. These codes are controlled with DIP switches located on the receiver.

Programming the Group Code

The group code is four-digit number between 0001 and 9999 that is set using the pair of eight-position DIP switches on the receiver. The switches are grouped in fours; each group corresponds to a digit in the group code. Each switch in a group has a value of 1, 2, 4, or 8. Figure 1 below shows the default group code, 1, and an example using 7539 as the code to be entered. The white boxes in Figure 1 represent the position of the DIP switch.

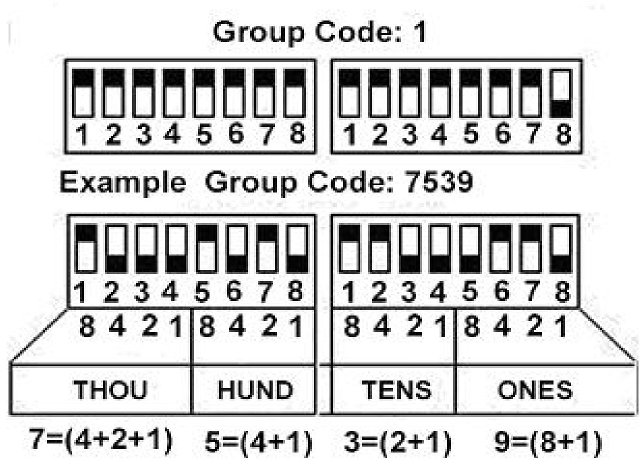


Figure 1. Group code programming example

To access the receiver DIP switches:

1. Remove the four screws from the receiver enclosure.

2. Disconnect the interface cable from the receiver. The power supply can be removed from the DIN rail for easier access to the interface cable.

3. Disconnect the antenna cable inside the enclosure.

4. Carefully remove the receiver.

To enter a group code:

1. Choose the switch group that corresponds to the digit place you want to enter a value for.

2. Turn switches on until the sum of the switch values is equal to the value that you want to assign to that digit.

3. Repeat this process until you have entered your four-digit group code.

Programming the Receiver Code

The receiver code is a three-digit number between 001 and 199 that is set with the nine-position DIP switch on the receiver. Like the switches that are used to set the group code, the switches used to set the receiver code are grouped into fours, with each group corresponding to a digit in the code. The switches in a group have a value of 1, 2, 4, or 8. Figure 2 below shows an the default receiver code, 1, and an example using 64 as the code . The white boxes in Figure 2 represent the position of the DIP switch.

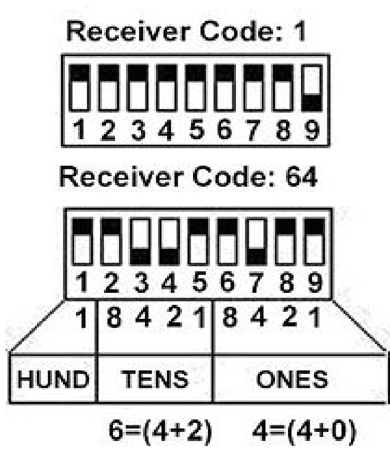


Figure 2. Receiver code programming example

To program the receiver code:

1. Choose the switch group that corresponds to the digit place you want to enter a value for.

2. Turn switches on until the sum of the switch values is equal to the value that you wish to assign to that digit.

3. Repeat this process until you have entered your three-digit group code.

Transmitter Programming
(Skip for Default Operation)

1. Enter the access code below and press the REC# key on the keypad. If you had pressed any keys before attempting this step, you must wait at least fifteen seconds before entering the access code.

   Access code:

   8 + 8 + 5 + 2 + 1 + 4 + 1 + REC #

   Note: This access code is a default setting and cannot be changed.

2. Enter your four-digit receiver group code and press the REC# key.

   Example:

   0 + 0 + 0 + 1 + REC #

   The example above displays the default group code settings. If you programmed a custom group number into the receiver, enter that number.

3. Enter your three-digit receiver code and press the REC# key.

   Example:

   0 + 0 + 1 + REC #

   The example above displays the default receiver code settings. If you programmed a custom receiver code into your system, enter that number.

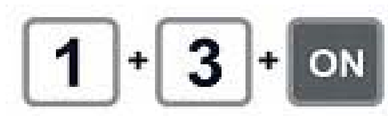
Operation

Operation is simple: entering the correct sequence of keys will allow the user to control different outputs on the receiver or switch between receivers in a group. The transmitter can then send “ON” or “OFF” transmissions to the receiver activating the device(s) (which must operate on 12 VDC and draw less than 1 A of current) connected to an output.

Activating an output

1. Enter the number of the output that you want to activate and press the ON key.

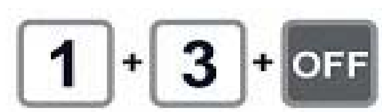
   For example, to activate output 13, enter:



Deactivating an output

1. Enter the number of the output that you want to deactivate and press the OFF key.

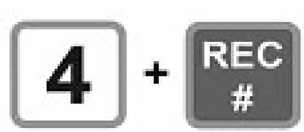
   For example, to deactivate output 13, enter:



Switching between receivers in a group

1. Enter the receiver code of the receiver that you want to control and press the REC# key.

   For example, to select a receiver with the receiver code 4, enter:



Note: The receiver group code does not need to be entered to select receivers in the same group.

Optimizing Your Wireless Switch System

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

- Supply the antenna for the receiver with a good ground plane by either 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, VFD, 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.