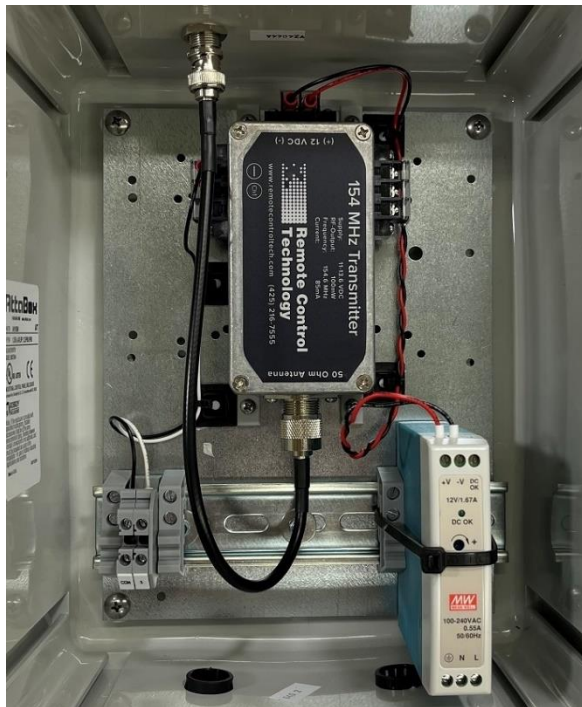


# Short Range 154 System #01540-001-001 Installation and Operation Guide



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## Introduction

Thank you for choosing Remote Control Technology's Short Range 154 System. This versatile device has numerous practical applications and will surely become a mainstay in your business and production structure. Although this guide will show you how to install and customize your system to meet your needs, keep in mind that the default factory settings are ideal for well-to-tank pumping applications.

This system consists of:

- (1) Wireless radio transmitter
- (1) Wireless radio receiver
- (2) NEMA 4X enclosures
- (2) 12VDC power supplies
- (2) Sets of wall-mounting brackets included with the enclosures
- (2) 44" high-gain antennas
- (2) Right angle mounting brackets
- (2) Lightning arrestors

**NOTE:** Remote Control Technology assumes no liability for damage to peripheral equipment, including pumps, due to incorrect transmitter or receiver settings. Customers must verify proper application operation prior to completing installation (new or existing).

## 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 ground connection to the receiver and transmitter power supplies.
- 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.

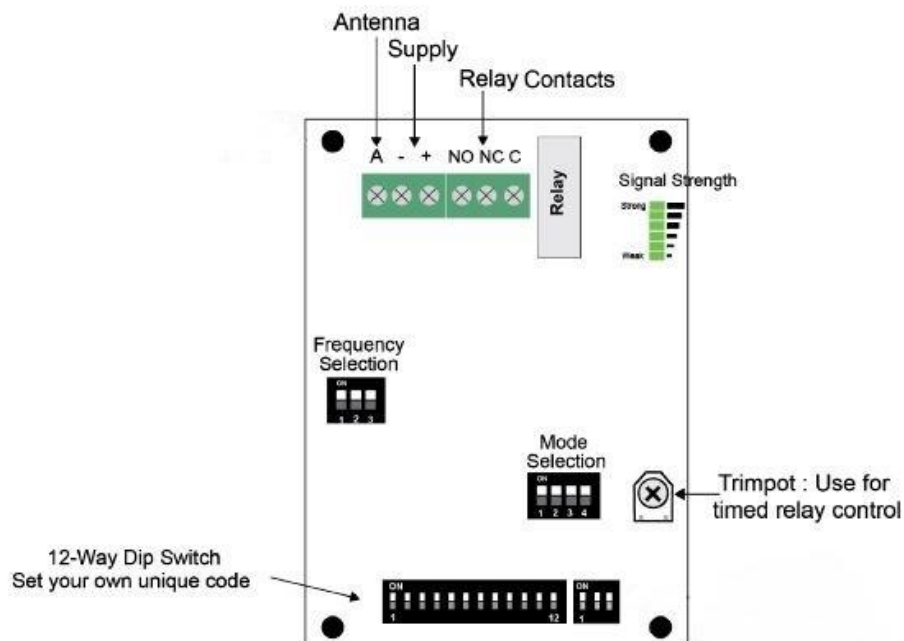
## Receiver Installation

1. Connect one side of the device to be switched to the common (COM) contact of the terminal block. The other side is connected to the normally open (NO) contact or the normally closed (NC) contact.
2. Attach the antenna to the antenna mount assembly. The lightning arrester is shipped connected to the antenna mount. Do not disassemble the antenna mount or the lightning arrester.
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. 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 supply 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.



154MHz Receiver

## Transmitter Installation

1. Connect a dry contact closure such as a switch to the terminal block.
2. Attach the antenna to the antenna mount assembly. The lightning arrester is shipped connected to the antenna mount. Do not disassemble the antenna mount or the lightning arrester.
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 a 110-220 VAC power source to the built-in power supply. Alternatively, connect a 12 VDC power source directly to the transmitter.

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



154MHz Transmitter

## Programming

The transmitter and receiver are shipped pre-programmed to communicate with each other, which allows them to be installed and used as soon as they have been received.

However, there are situations where it may be necessary to reprogram the system which are generally limited to the addition of more receivers or transmitters to an existing system.

The 12 way dip switch on the receiver sets the unique code for the system:

- At least one DIP switch must be in the “ON” or up position
- The settings on the transmitter & receiver **MUST MATCH**
- Cycle power each unit after making any changes to the DIP Switch settings

## Operation

### Factory Set-Up

It is important to note that the Short Range 154 System settings are configured at RCT for use with pump-to-tank applications. No adjustments to the DIP switches or timing trim pots are necessary on either the transmitter or the receiver.

### Receiver Operation Mode

The receiver is set for a 10 second off-delay as the factory default. DIP switch #2 is set to the “ON” position and the trim-pot is set fully clockwise (to the right).

Additional off-delay time is available by turning on DIP switches #2 & #3 to the “ON” position and adjusting the trim-pot;

- Fully counterclockwise (to the left) = 10 seconds
- Fully clockwise (to the right) = 300 seconds

### Transmitter Operation Mode

The transmitter is set for repeating burst transmissions at 2-3 second intervals. On the two position DIP switch, both switches are in the “OFF” position and the trim-pot is set almost fully counterclockwise.

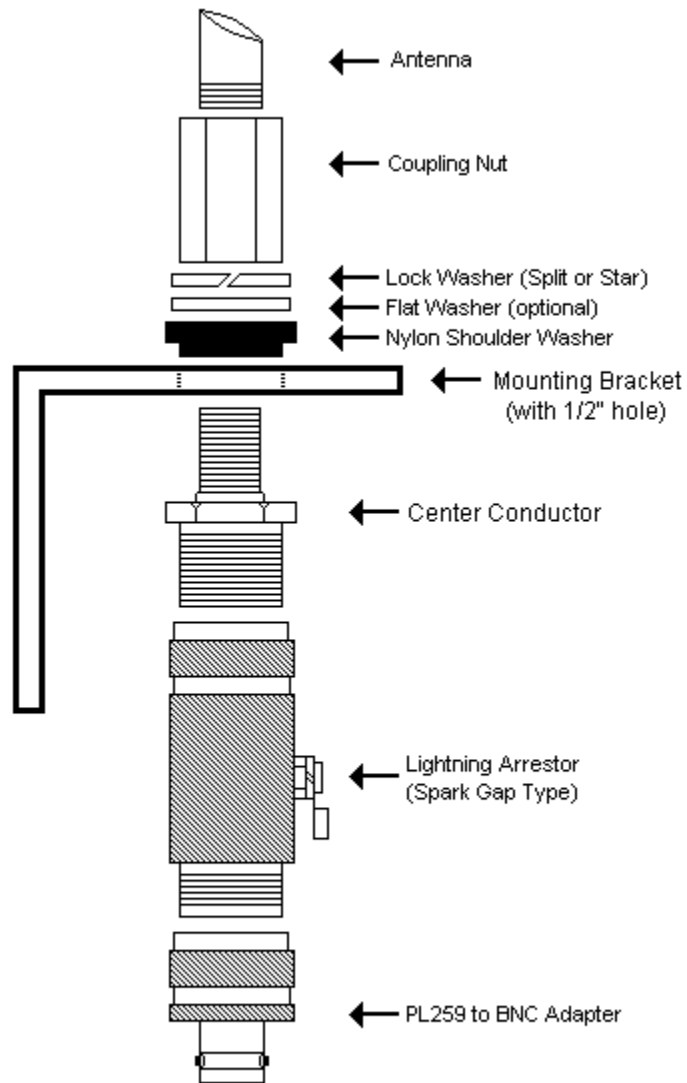
### Note:

**Do not** make changes to DIP switch or trim-pot settings without contacting Remote Control Technology technical support!

## Optimizing Your Wireless Switch System

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

- Supply the antennas for the receiver and the transmitter with a good ground plane. To do this, apply a 12 AWG or larger wire from the lightning arrester to an earth ground or mount 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 below.



**NOTE: Nylon Shoulder Washer lip MUST be seated inside Mounting Bracket hole for proper insulation!**

**NOTES:**

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**At Remote Control Technology, we are committed to quality and service.**

**With over 40 years of experience, we manufacture and sell the highest quality wireless control systems in the industry.**