Remote Control Technology

MEDIUM AND LONG RANGE WIRELESS SWITCH SYSTEM INSTALLATION ASSISTANCE GUIDE

1. **Noise Analyzer Activity**
    - **The Noise Analyzer is a good tool for evaluating surrounding area interference and transmition strength.**
    - **The row of LED's at the top of the receiver indicates signal strength from the transmitter, noise from other frequency generating devices in the local area (these devices are discussed later), and incoming Power connection Quality.**
    - **The objective is to have as few of the LED's illuminated as possible, unless the unit is receiving a transmission.**
    - **If there is a transmission and all LED's are not illuminated, it is an indication that either the transmitter signal strength is low or being blocked by other frequency generating devices and / or obstructions.**
    - **Antenna placement is key to proper reception!**
    - **Relocate the antenna to an area where there are few or no LED's illuminated when the receiver is not receiving a transmission.**

2. **Finding a Ground Plane**
    - **The antenna-mounting bracket requires a ground plane.**
    - **The best way to provide a ground is to drive a copper rod into the earth and run a ground wire from the rod to the mounting bracket.**
    - **If this is not possible you can run a ground wire from the mounting bracket to any metal structure that is imbedded into the earth.**
    - **If there are not metal structures nearby and you cannot imbed a copper rod into the earth, then you can run a ground wire to the ground wire for your power source. However, if the power source is common to the receiver and other frequency generating devices (these devices are discussed later), then you may experience some interference.**
    - **It is always best for the transmitter and receiver to have a their own dedicated ground planes.**

3. **Eliminating incoming power issues with the use of a 12V DC Battery.**
    - **Your incoming power may be a source of interference.**
    - **Test this by connecting a 12V DC Battery with correct polarity to the Receivers' incoming power source in place of the IDEC Transformer.**

- **Connecting the 12V DC Battery will eliminate any frequency noise being received through the public utility connection.**
- **Inline power filters, linear power supplies, or solar power may be required in the event public utilities supply range-limiting interference.**

4. **<u>Locating interfering frequency sources and devices.</u>**
    - **Pubic utility power pole transformers.**
    - **Ham /CB / AM Radio transmission antenna towers.**
    - **High-tension power lines.**
    - **Above ground pump motors, pivot drive motors, Variable speed drives.**
    - **High voltage power panels.**
    - **Military ECM (Electronic Counter Measures), is a military base near by? If so above normal interference may be experienced.**
    - **Place your Antenna 10 to 40 feet away from any of the above frequency emitting devices device.**
    - **The Antenna may be located up to 100 feet away from the receiver with RG-58 50 ohm impedance cable. If a further distance is required RG-8 50 ohm impedance cable should be used. Coax cable can be obtained from Remote Control Technology.**

5. **<u>Final antenna mounting</u>**
    - **Insure that the location for the final placement of the receiver antenna mount is producing the desired readout on the signal analyzer.**
    - **Mount the Antenna in a location that does not have any signal obstructions such as chain link fence, metal or steel reinforced concrete buildings. While the signal does not require line of sight, it will have difficulty transmitting through these materials.**
    - **The antenna needs to be placed at a higher elevation then any obstructions with signal absorbing blocking or reflecting type characteristics.**
    - **DO NOT REMOVE THE FIBER SPACER IN THE MOUNTING BRACKET! It is required that it be placed with the small diameter step in the mount bracket hole between the mount bracket and antenna so that it isolates the center conductor from contact to the bracket. The bracket also requires an earth ground to direct un-wanted signal interference to ground (discussed earlier).**
    - **The Antenna should be mounted vertically (note: it can be mounted upside down).**
    - **Excess coax cable must be laid out in a strait line or S shaped fashion as not to cross over its self. Looping of the cable will create a choke point and restrict the signal range.**

6. **<u>Transmitter operational indicators</u>**
    - **Check the incoming power LED to assure unit is getting power.**

- **Connect the Antenna prior to initiating a transmission (damage to the transmitter components can result from transmitting without antenna attached)**
- **Induce a transmission. Listen for the tactile tone, and view the green LED, this will indicate that a transmission is being sent. Place another person at the receiver to view the signal analyzer activity at time of transmission and confirm the transmission was received by viewing the green LED indicating the contact is closed.**

7. **<u>Connecting alternate power supply to Transmitter</u>**
    - **In certain circumstances public utilities may not be available.**
    - **An alternative source of 12V DC power such as; solar, battery, or generator may be substituted (turn-key solar panel kits can be obtained from Remote Control Technology).**
    - **Caution! When using alternate sources of power, be sure that they are regulated so as not to subject the transmitter circuitry to an over current condition.**

8. **<u>Relay connection to Receiver 12V DC output</u>**
    - **Relay current draw is of utmost concern! The receiver outputs are 12VDC at 1 amp.**
    - **Any relay or device connected to 1 receiver output should draw no more than 1 amp. Any more will reduce receiver's ability to receive signal and possibly damage circuit components.**
    - **Over current draw might also reduce signal analyzer activity thus indicating a diminished transmission signal or inactive state.**
    - **It is recommended that you use a relay or contactor in all applications to isolate the receiver from any powered devices.**