

INSTALLATION AND OPERATION INSTRUCTION

WTRA-4C RADIO FREQUENCY (RF) TRANSMITTER

Orion Energy Systems

WARNING

Read this manual completely before the wiring, installation and operation of this device.

This device is for in-door use only.

Danger with high voltage 120 VAC or 208 to 277 VAC.

There are risks of electrical shock if this device is not wired or installed properly.

This device must be installed by a qualified personnel.

DESCRIPTION

WTRA-4C is a radio frequency transmitter which transmits radio frequency signals to Orion Energy Systems WREC-2R receivers to remotely turn lights or other devices on and off or to Orion Energy Systems WREP-4C repeaters so that the repeater will relay the signals either to a WREC-2C receiver or another WREP-4C repeater. It can transmit four (4) “off” signals; individually or its combination at one time; or four (4) “on” signals; individually or its combination at one time, but not “on” and “off” signals combination. The duration for each transmission is one second.

INSTALLATION

AC power supply connection:

Warning: Turn power off before you connect this device to your power supply.

Make sure your power supply voltage matches the transmitter power supply requirements: 120 VAC or 208 to 277 VAC.

For power supply 120 VAC, connect the white wire to neutral and the black wire to the line, leave the red wire alone and **cover its end with wire nut**. Failure to terminate the unused wire presents a shock hazard.

For 208 to 277, connect the white wire to either the neutral or line and connect the red wire to the other line, leave the black wire alone and **cover its end with wire nut**. Failure to terminate the unused wire presents a shock hazard.

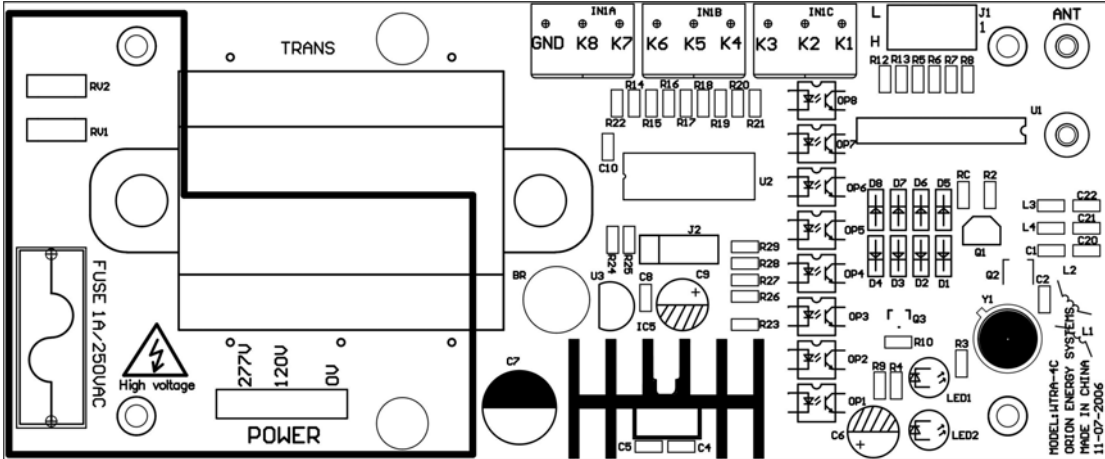
Control Wire Connection:

There are nine (9) control wire terminals on the printed circuit board (PCB): GND, K1 to K8. Those are dry contacts. See FIGURE 1 WTRA-4C RF TRANSMITTER PCB BOARD LAYOUT for location. Use 24 AWG or larger wires rate 24V or greater to connect the terminals to external relays or control devices. The connection of GND with K1 to K4 forms four (4) “off” signals and GND with K5 to K8 forms four (4) “on” signals. GND, K1 and GND, K5 forms a pair of “off” and “on” signal. So does GND, K2 and GND, K6; GND, K3 and GND, K7; GND, K4 and GND, K8. You can use from one to four pairs according to your needs.

Coding:

There is a J1 jumper socket on the transmitter printed circuit board as shown in FIGURE 1 WTRA-4C RF TRANSMITTER PCB BOARD LAYOUT. This is the transmitter address.

FIGURE 1 WTRA-4C RF TRANSMITTER PCB BOARD LAYOUT



You use one jumper to jump the pins high (H) and its central pin, or another jumper to jump the pins Low (L) and its central pin. Any jumper configuration forms address including no jumpers installed on the jumper socket and different jumper configuration forms different address. For example if you jump 4H and its central pin 4, 1L and its central pin 1, it forms address. In order for the transmitter to communicate with WREC-2R receiver, you need to code the receiver address **exactly the same**. Otherwise the receiver can not receive the control signal. For details on how to code the receiver address, please refer to
 Installation and Operation Instruction
 WREC-2R Radio Frequency (RF) Receiver
 Orion Energy Systems

In order for the transmitter to communicate with WREP-4C repeater, the receiving jumper socket J1 (receiving address) on the repeater PCB board needs to be coded **exactly the same**. For details on how to code the repeater, please refer to
 Installation and Operation Instruction
 WREP-4C Radio Frequency (RF) Repeater
 Orion Energy Systems

OPERATION

Warning: Make sure your power supply voltage matches the transmitter power supply requirements: 120 VAC or 208 to 277 VAC. Otherwise there is electrical shock hazard.

After the transmitter’s power supply is properly wired and its voltage matches the line power voltage, the control wires are connected with external relays or control devices and the transmitter, receiver or repeater addresses are properly coded, turn the transmitter’s

power on. When GND and K1 are connected through an external relay or control device, the transmitter transmits the “off” signal to the receivers or repeaters which have the same receiving code. The same for any other off or on signals. Remember no “off” and “on” signal combination can be transmitted. Transmitter transmits the signal one (1) second only no matter how long the external relay or device connects the terminals. It can transmit the signal again only after the external relay or control devices disconnect the terminals.

TROUBLESHOOTING

The receivers or repeater can not receive the signal:

- Check if there is power to the transmitter.
- Check if the light LED 2 light is on. If it is not, it means no power to the transmitter.
- Check if the transmission light LED 1 is flashing while the signal is transmitted. If not, the transmitter does not work.
- Check if the transmitter address matches the receiver address or the repeater receiving address.
- Check if the jumpers are installed properly.
- Check if the receiver or the repeater is too far away from the transmitter. See **TECHNICAL DATA** for details.
- Check if there are big obstacles between the transmitter and receiver or the repeaters. If there are, either re-locate the transmitter or install more repeaters to get the signal around the obstacles.

TECHNICAL DATA

Power Supply: 120 VAC or 208 to 277 VAC.

Antenna: Enclosed.

Frequency: 315 MHz

Transmission Power: 6 mV/m at 3 meter

Transmission range: 300 meter at free field

Modulation: ASK

Number of Codes Transmitted: four (4) pair (4 off signals and 4 on signals)

Operation Temperature: -20 °C to 60 °C (-4 °F to 140 °F)

Certification: FCC compliance

This device complies with Part 15 of the FCC Rules. If this device is operated in compliance with the following requirements, it can be operated without notification and free of charge in the area of the United States of America.

Radio Frequency(RF) Transmitter

FCC ID: UTVWTRA4CTX

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

(1)This device may not cause harmful interference,
and(2)This device must accept any interference
received, including interference that may cause
undesired operation.

Changes or modifications not expressly approved
by the party responsible for compliance could void
the user's authority to operate the equipmen

Orion Energy Systems Ltd.

Model No.: WTRA-4C

Operation Frequency: 315MHz

Warning: Changes or modifications made to this device not expressly approved by Orion Energy Systems may void the FCC authorization to operate this device.