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# PRODUCT INFORMATION BULLETIN

## AIR-EAGLE® XLT PLUS High Power 900MHz RF Receiver MODEL 461-5000-AC

### DESCRIPTION

The AIR-EAGLE XLT PLUS is an RF system designed for long range wireless remote control of electrical apparatus in a variety of industrial applications. Systems can consist of any number of receivers and handheld or contact input transmitters working together. The "461" series of receivers feature built-in repeating capability. They will listen for all transmissions from the control transmitter, perform commands if necessary and pass all commands on to any receiver within range. This receiver is equipped with 3 independent relays, capable of switching 5 amps @ 120VAC or 30VDC, which can be directly interfaced with the customer's equipment or P.L.C. Eight user selectable frequencies allow multiple systems to be used in the same area. The Air-Eagle XLT Plus can receive remote signals transmitted from up to 5000 feet away (with a handheld transmitter) or up to 10 miles away (with a stationary transmitter and external antennas).

### APPROVALS

|                     |             |
|---------------------|-------------|
| United States (FCC) | MCQ-XBPSX   |
| Canada (IC)         | 1846A-XBPSX |

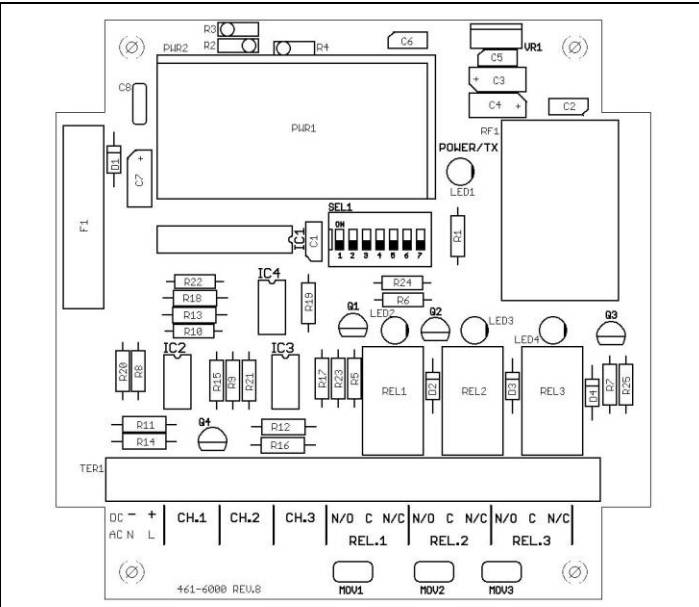
### INSTALLATION

1. Mount the AIR-EAGLE XLT PLUS RECEIVER in a convenient location.
2. Install relay control wiring to the terminal strip.
3. Attach rubber duck antenna or coax from external antenna to connector on side of enclosure.
4. Connect supplied power input cable to your external power source.

| TERMINAL STRIP WIRING (TER1) |                         |
|------------------------------|-------------------------|
| Terminal 1                   | 100-250 VAC Power Input |
| Terminal 2                   | 100-250 VAC Power Input |
| Terminal 3                   | Not Used                |
| Terminal 4                   | Not Used                |
| Terminal 5                   | Not Used                |
| Terminal 6                   | Not Used                |
| Terminal 7                   | Not Used                |
| Terminal 8                   | Not Used                |
| Terminal 9                   | N/O Relay 1             |
| Terminal 10                  | C Relay 1               |
| Terminal 11                  | N/C Relay 1             |
| Terminal 12                  | N/O Relay 2             |
| Terminal 13                  | C Relay 2               |
| Terminal 14                  | N/C Relay 2             |
| Terminal 15                  | N/O Relay 3             |
| Terminal 16                  | C Relay 3               |
| Terminal 17                  | N/C Relay 3             |
| Terminal 18                  | Not Used                |



### CONTROLS & INDICATORS



|                  |   |
|------------------|---|
| POWER/TX LED1    | Dual color LED. Illuminates red while receiver is booting up; changes to green when boot-up is successful and unit is ready to operate. <b>If this LED fails to turn green, power unit off for 15-20 seconds, then reapply power.</b> |
| LED2             | Illuminates green while relay 1 is energized  |
| LED3             | Illuminates green while relay 2 is energized  |
| LED4             | Illuminates green while relay 3 is energized  |
| REL1, REL2, REL3 | Three SPDT output control relays  |
| RF1              | RF Module that transmits/receives data  |

# AIR-EAGLE® XLT PLUS

## High Power 900MHz RF Receiver

### MODEL 461-5000-AC

## RELAY OPERATION

Relays energize and de-energize based on commands received from the transmitter. See table below for relay mode configuration for this receiver:

| TX Signal Received | Relay Function                          |
|--------------------|---|
| Input 1 Closed     | Relay 1 energizes, maintained momentary |
| Input 2 Closed     | Relay 2 energizes, maintained momentary |
| Input 3 Closed     | Relay 3 energizes, maintained momentary |

## FREQUENCY & OPTIONS SET-UP

This unit is shipped from the factory with SEL1 switches in the open positions. The safety off-delay on all relays is 5 seconds and the unit is operating on frequency #1. If you wish to change the default setting, follow the instructions below:

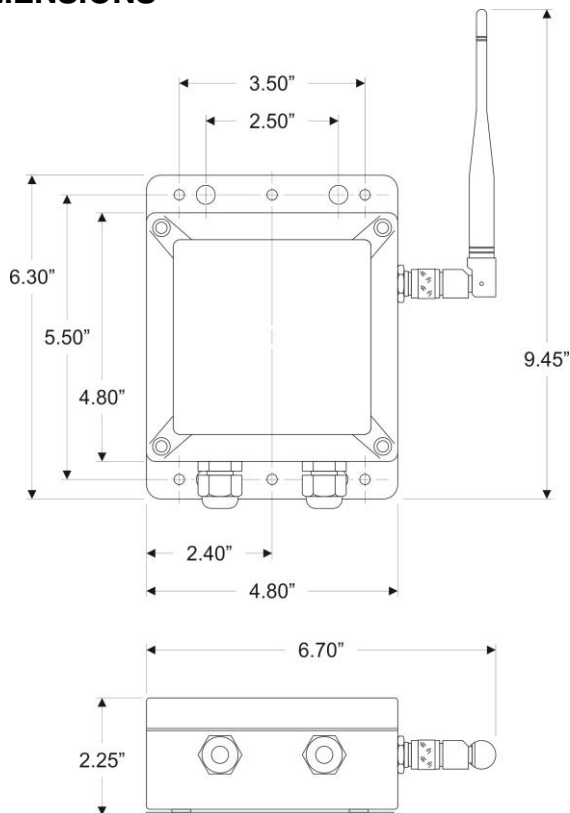
- 1) Remove power from unit and remove top cover.
- 2) Select desired safety off-delay time and network frequency using table below.
- 3) Reattach cover and apply power. Programming is now complete.

| FREQUENCY SELECTION        |                        |        |        |        |
|----------------------------|------------------------|--------|--------|--------|
|                            | Network Frequency      | SW1    | SW2    | SW3    |
| SEL 1<br>(SW1, 2 & 3):     | #1 (default)           | OPEN   | OPEN   | OPEN   |
|                            | #2                     | CLOSED | OPEN   | OPEN   |
|                            | #3                     | OPEN   | CLOSED | OPEN   |
|                            | #4                     | CLOSED | CLOSED | OPEN   |
|                            | #5                     | OPEN   | OPEN   | CLOSED |
|                            | #6                     | CLOSED | OPEN   | CLOSED |
|                            | #7                     | OPEN   | CLOSED | CLOSED |
|                            | #8                     | CLOSED | CLOSED | CLOSED |
| SAFETY OFF-DELAY SELECTION |                        |        |        |        |
|                            | Off-Delay              | SW4    | SW5    |        |
| SEL 1<br>(SW4 & 5):        | 5 Seconds (default)    | OPEN   | OPEN   |        |
|                            | 30 Seconds             | CLOSED | OPEN   |        |
|                            | 1 Minute               | OPEN   | CLOSED |        |
|                            | 1 ½ Minutes            | CLOSED | CLOSED |        |
| SEL1<br>(SW6-7)            | Not used on this model |        |        |        |

## SPECIFICATIONS

|  |   |
|--|---|
| Power Supply   | 100-250 VAC, 5 W, 50/60 Hz  |
| Fuse Protected   | 2 amp   |
| Relay Contacts   | SPDT 5 amp @ 120VAC or 30VDC  |
| Receiver Range   | Up to 1 Mile (Up to 10 miles with external antenna - see accessories) |
| <p><small>Note: Max range figures are estimates, based on free-air terrain with limited sources of interference. Actual range will vary based on transmitting power, orientation of transmitter and receiver, height of transmitting antenna, height of receiving antenna, weather conditions, interference sources in the area, and terrain between receiver and transmitter, including, but not limited to, indoor and outdoor structures such as walls, metal objects, trees, buildings, hills, and mountains</small></p> |   |
| Receiver Frequency   | 900MHz Spread Spectrum  |
| RF Networks  | Eight Independent Network Frequencies                                 |
| Enclosure  | Polycarbonate, NEMA 4, IP66   |
| Operating Temp   | -40° F - +185° F  |

## DIMENSIONS



## ACCESSORIES

| Standard Antenna (Included):   |                                  |
|--|----------------------------------|
| 900MHz TNC "Rubber Duck" Antenna   | 49-1103                          |
| Mobile/Base Antennas –<br>Used to help achieve max range in both non line of sight and line of sight applications. - Contact BWI Eagle for recommendations |                                  |
| 900MHz Thru-Hole Mount Mobile Antenna  | 49-2101                          |
| 900MHz Magnet Mount Mobile Antenna   | 49-2102                          |
| 900MHz Omni Directional Base Antenna   | 49-3101                          |
| 900MHz Yagi Directional Base Antenna   | 49-3102                          |
| High Quality Coax Cables –<br>Used to connect external high gain antennas to control unit  |                                  |
| Flex Coax Cable w/Connectors – Available in 5', 15', 25', 30', 40', 60', 80', 100' Lengths   | 49-4000-XX<br>(XX = # of Feet)   |
| Bulkhead Extensions –<br>Used to provide an external antenna connection when mounting control unit inside another enclosure                                |                                  |
| TNC Male to TNC Bulkhead Cable Assembly – Available in 2', 4', 7' Lengths  | 49-5004-X-ISO<br>(X = # of Feet) |

## LIMITED WARRANTY STATEMENT

BWI Eagle Inc. warrants the Air-Eagle Remote Control System, if properly used and installed, will be free from defects in material and workmanship for a period of 1 year after date of purchase. Said warranty to include the repair or replacement of defective equipment. This warranty does not cover damage due to external causes, including accident, problems with electrical power, usage not in accordance with product instructions, misuse, neglect, alteration, repair, improper installation, or improper testing. This limited warranty, and any implied warranties that may exist under state law, apply only to the original purchaser of the equipment, and last only for as long as such purchaser continues to own the equipment. This warranty replaces all other warranties, express or implied including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. BWI Eagle makes no express warranties beyond those stated here. BWI disclaims without limitation, implied warranties of merchantability and fitness for a particular purpose. Some jurisdictions do not allow the exclusion of implied warranties so this limitation may not apply to you. To obtain warranty service, contact BWI Eagle for a return material authorization. When returning equipment to BWI Eagle, the customer assumes the risk of damage or loss during shipping and is responsible for the shipping costs incurred.

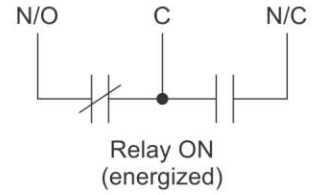
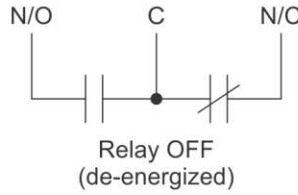


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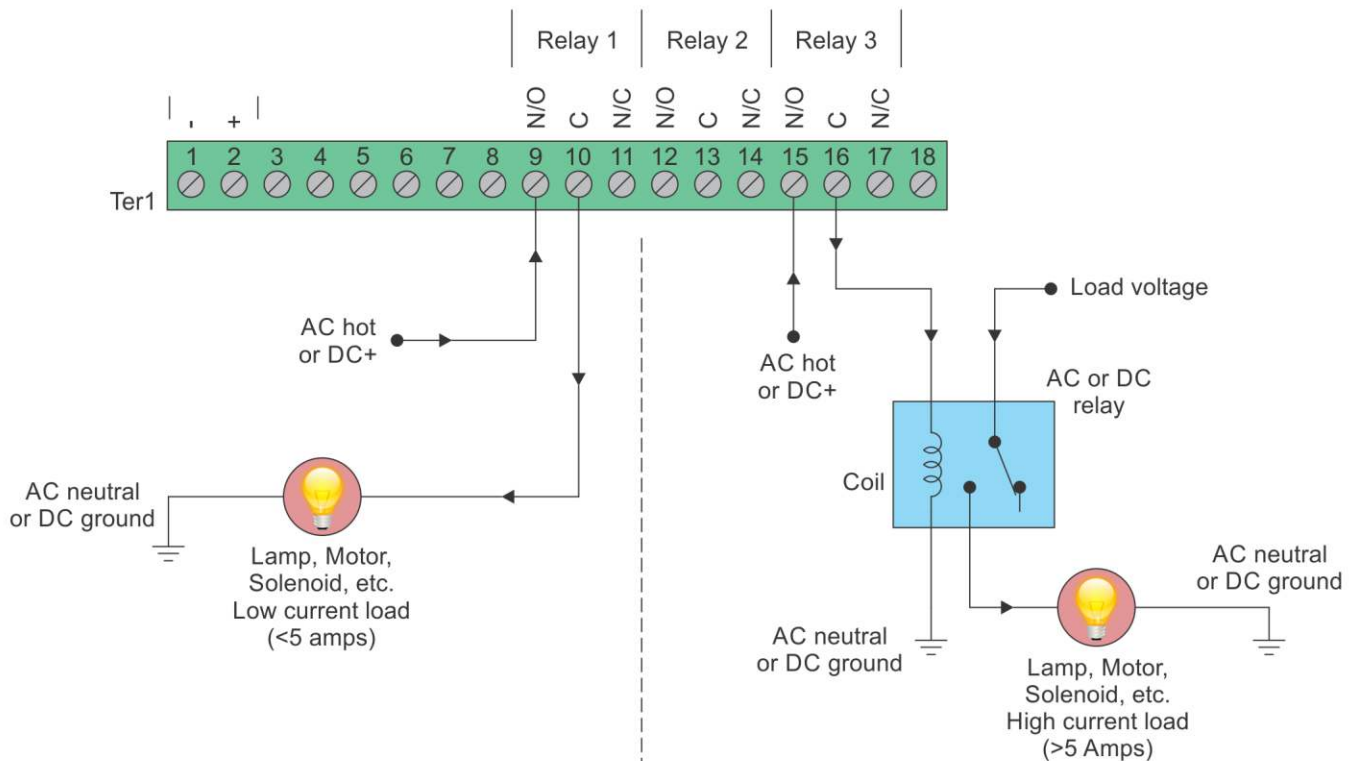
# RELAY OUTPUT WIRING

## 3-Relay Receiver

Receiver outputs are dry relay contacts, like an SPDT switch. When the relay is in a de-energized state, the N/C (normally closed) contact is connected to C (common). When the relay is energized the N/O (normally open) contact is connected to C (common).



### Normally Open Application with Externally Supplied Voltage



#### Internal Relay - Loads Less Than 5 Amps

Loads up to 5 Amps may be wired directly to the internal relays. Wiring to the N/O contact will cause the load to turn on when the relay is energized (the load is on when the relay is on). Wiring to the N/C contact will cause the load to turn on when the relay is de-energized (the load is on when the relay is off). AC or DC voltages can be switched through the relay.

#### External Relay - Loads Over 5 Amps

Loads over 5 Amps must use an external high current relay. Diagram shows how to turn on the relay using the lower current internal relay of the receiver. AC or DC voltages can be switched through the relay. Note: A protection diode for DC coils or an MOV for AC coils is recommended to reduce inductive EMI noise.

Wiring configurations shown here are examples. The wiring for your application may differ.  
Call BWI Eagle for assistance or consult an electrician.