AIR-EAGLE XLT

441U-HHEBD-4

900 MHz RF Transmitter

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Product Rev: 2

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BWI EAGLE

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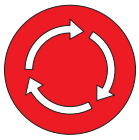
WARRANTY STATEMENT

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 or 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.

SIGNAL RANGE

Max range statements are estimates based on a clear line of sight with few interferences. Actual range will vary based on transmitting power, orientation of transmitter and receiver, height of transmitting and receiving antennas, weather conditions, electronic interference, terrain, and physical obstacles, including but not limited to; walls, building structures, trees (foliage), metal objects, and landscape (hills, mountains).



WIRELESS STOP, ASTOP, and E-STOP SYSTEMS

Wireless E-STOP systems should never be considered a primary life-saving device. At least one hard-wired switch must be available in the event the wireless system is not operational. Failure to comply may result in serious injury or death to personnel and damage to equipment.

Wireless STOP and ASTOP transmitters are not failsafe emergency stop controls. They are NOT to be used as a life-saving device. They are designed for wireless control of equipment or vehicle remote operation. Failure to use as intended may result in serious injury or death to personnel and damage to equipment.

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Photo on right shows unit with optional mounting plate

INTRODUCTION

The Air-Eagle XLT is an RF system designed for medium range wireless remote control of electrical apparatus in a variety of industrial applications. Systems can consist of any number of receivers and handheld or stationary transmitters working together to create a medium radio frequency system that operates hazardous or hard-to-reach equipment from safe, convenient locations.

Eight user selectable frequencies allow multiple systems to be used in the same area without interference.

This handheld transmitter is designed to work with the 441P-8D-ESTOP receiver, located up to 2500 feet away, to provide a failsafe E-stop for electrical equipment or machinery. The XLT transmitter utilizes spread-spectrum technology and provides the utmost in security and reliability.

This transmitter is programmed to send a periodic heartbeat signal that continuously monitors the connection between the transmitter and receiver by keeping one or more relays in the receiver energized and the system running. The linked relays de-energize after a specified timeout period of link-loss: and immediately upon activation of the E-stop button.

INITIAL OPERATION SET-UP

This transmitter comes from the factory with a full charge. The internal battery will hold a charge for approximately 45 days. It is recommended to fully charge the transmitter before its first use. As an additional safety feature, you will be required to set both the Frequency and Unit Number to match the receiver you wish to operate with this transmitter. This must be followed by the Pairing procedure . The POWER/SELECT button will not allow RF communication until these parameters have been set and “saved”. See menu settings for more information.

CONTROLS & INDICATORS

POWERED ON **COMMUNICATING WITH RECEIVER**	**TX Display**	While transmitting a beacon the display will rotate a character around the outside of the screen to show that it's transmitting. The character will be as follows: **-** Battery is discharging **+** Battery is charging **L** Battery is discharging, Level is below 10% (LOW BATTERY) **F** Battery is charging, Level is 100% (BATTERY FULL)
	Power/Select Button	Turns power ON or OFF when held for 3 seconds.
	E-Stop Button	When pressed the display will blink "STOP" and the relays in the receiver will de-energize.
	Pushbuttons 1, 2, 3 and 4	When any of these buttons is pressed while a beacon is being transmitted, the display will show the frequency, unit # and battery level. See "Display".
	Charging Jack	The micro-USB connector on the left side of the unit is for charging the battery. Use the supplied micro-USB cable and any power source that can supply 5VDC at 1 amp. Can be charging and powered ON at the same time.
POWERED OFF **NOT COMMUNICATING WITH RECEIVER**	**Power/Select Button**	Used to advance through the menu selections.
	Pushbutton 2 (MENU)	This button brings up the menu options for programming frequency, power level, or unit #. See "Menu Settings" for more information.
	Pushbutton 4	Use this button to check signal strength between the transmitter and receiver. See "Signal Strength" section for more information.
	Pushbuttons 3 & 4 Together	Displays VID security code, firmware revision and serial number of this transmitter.

MENU SETTINGS

Prior to initial use, the transmitter must be programmed. The MENU button allows you to enter programming mode. It is important to follow the steps in the order shown below. Please read thru this section thoroughly before starting programming.

Press the “MENU” button (button 2) to bring up the programming selections. Pressing the “MENU” button again will cycle through the selections as follows:

Frequency → Power Level → Unit Number → PAN ID → Pairing → then back to frequency if pressed again.

STEP 1 - FREQUENCY
When first received, the transmitter frequency will be “None”. The frequency must be set to the same number (1 – 8) to match the remote receiver you want to pair/operate. The frequency will be saved in the EEPROM memory so it will always remember this setting. The frequency will be set back to “None” only if the “Pairing” is cleared. Press and release the POWER/SELECT button until the desired frequency is selected then press the MENU button to save. The display should show “Saving”… then “Done” when complete.

STEP 2 - POWER LEVEL
The power level, either “Low”, “Mid”, or “High” (default), will be displayed on the bottom line. Pressing the POWER/SELECT button will bring up the blinking cursor and allow the power level to be changed to any of the aforementioned settings. Press the POWER/SELECT button to change the setting then the Menu button to save the setting.

STEP 3 - UNIT NUMBER
When first received the transmitter Unit number will be “None”. The system allows up to two unique transmitters to operate the same receiver at the same time. Press and release the POWER/SELECT button to assign this transmitter as Unit 1 or Unit 2. Press the MENU button to save your selection. The display will show “Saving”... then “Done” when complete. The unit number will be saved in EEPROM memory so it will always remember this setting. The unit number will be set back to “None” only if the pairing is cleared.

STEP 4 – PAN ID
The PAN ID allows multiple systems on the same frequency without interference. There are 6 different PAN IDs starting with the root number (BWI in the case of a standard unit). Pressing Power/Select will bring up a blinking cursor allowing the PAN ID to be changed. Continue pressing the power/select button to change the PAN ID. It will cycle from the root (BWI) to 1 (BWI1) then 2, etc. Press the Menu button to save the PAN ID. Only transmitters and receivers with the same PAN ID can operate with one another.

STEP 5 - PAIRING
Pairing is the last step needed before this transmitter can operate/login to the remote receiver. The remote receiver must be powered ON before attempting to pair this transmitter. Because pairing involves communication with the intended receiver, it is recommended to perform this procedure when no other transmitters are logged in and communicating with this receiver. This will help ensure a successful pairing on the first attempt. Press the MENU button until “Pair” is displayed. Underneath “Pairing” the display will show either “None” or an 8-digit serial number. If a serial number is displayed, this will match the serial number of the last receiver it was paired with. To exit without changing the pairing, press buttons 1, 3, or 4 to exit the menu. To continue with pairing press the POWER/SELECT button. The cursor will be flashing “Pair”. To immediately pair with a new receiver, press the MENU button. The display will show “Pairing”…then “Success”, followed by the serial number of the newly paired receiver. Selecting “Clear” in the menu will erase the current receiver pairing AND also will set the frequency and unit number back to “None” – essentially resetting the transmitter back to the factory defaults.

If the Pair function fails, make sure you’re in range of the receiver you’re pairing with, and steps 1, 2 and 3 have been performed successfully, then try again.

SYSTEM ON/OFF

SYSTEM ON
Depress and hold the POWER/SELECT button. The display will show “XLT Power Up” and 3….2….1… then displays “Power On” followed by “Logged In”. Release the POWER/SELECT button. The transmitter is now sending a failsafe beacon signal to the receiver approximately every 0.5 seconds

NOTE 1: If you press the POWER/SELECT button and the display shows “XLT Not Paired”, the transmitter will NOT power on. Confirm all setting are correct in the Menu by pressing the MENU button to view all setting parameters.

NOTE 2: If the display shows “Unit Number in Use” while attempting to power on the system, it means you are trying to login with the same unit number that another logged in transmitter is using. Press the MENU button to view “Unit Number”; press the POWER/SELECT button to change unit number, then save the setting by depressing the MENU button. If two transmitters are already logged in to the receiver, you will have to wait until one of the transmitters has logged out.

SYSTEM OFF
Depress and hold the POWER/SELECT button. The display will count down 3…2…1 then “Power Off” when the unit has turned off. At this point the beacon will stop and a log out code will be transmitted to the receiver. This will turn off the corresponding ‘login’ relay on the receiver and allow the transmitter to log back in later

NOTE: If the POWER/SELECT button is released at any point during the power on/off countdown the unit will stay in its current state and the countdown timer will reset.

SIGNAL STRENGTH

*Signal strength check can only be performed when the transmitter is powered OFF (Not logged in.)

The signal strength between the transmitter and receiver can be checked by using button 4. Press and hold button 4 of the transmitter. A countdown will start from 3 to 1 then START. When it says “START” release button 4. A row of dots will show up on the screen and they will disappear one by one as the signal strength is being checked. Once all of the dots disappear the receiver will calculate the signal strength and it will be transmitted back to the transmitter and displayed on the screen.

The signal strength is shown in dBm. The strongest value is -40dBm and the weakest is around -106 dBm.

If the transmitter doesn’t get an acknowledgement from the receiver it will show “Out of Range”. This would happen if the receiver were completely out of the signal area or on another channel or not even powered on.

If the receiver misses too many of the transmissions, then it won’t be able to do a proper calculation of signal strength and will send “Error”. If this is the case, then it is likely that either there is some strong interference in the band, or the receiver is on the fringe of being completely out of range. Try changing the frequency of the transmitter and receiver or move to a closer or less obstructed position.

CHARGING

Use only the micro-USB cable to connect to USB supply rated at 5V and at least 1 amp of current. When the charger is plugged into the jack the display will show “Charging” and the current battery level in %. The battery level will fade in and out and periodically rotate around the screen as long as the charger is plugged in.

When pressing the power/select button normally it shows the battery level with BAT: over top of it. While the charger is plugged in the “BAT” will change to “CHG” to show that it is charging.

When the charger is unplugged, the display will show “Battery” and the current level below it to show that the charger is now unplugged. The “CHG” will change back to “BAT” in the information display.

While the beacon is being transmitted the display will show the charge state with a rotating character on the screen. See “TX Display” under “Controls and Indicators” above.

DISPLAY

At any time while not in a menu setting if button 1 is pressed the unit will show a status display. This shows the Frequency, Unit # and Battery Level as such:

FRQ-UNIT BAT:
1-1 95%

The Unit number & Frequency will show 0 if no unit number or frequency has been set up yet. BAT will change to CHG if the charger is plugged in.

Button 3 will show the PAN ID selection, Revision number and transmitter serial number:
VID:BWI REV:3
S/N: 4123ABCD (example S/N)

While the beacon is transmitting, button 4 will show the paired receiver’s serial number:
RECEIVER
S/N: 4567EFGH (example S/N)

LOW BATTERY

When the battery goes below 10% charge level the unit will show an “L” rotating on the screen when the beacon is transmitting. It is advised to charge as soon as possible. The unit will operate normally with the charger plugged in and the display will change to a ‘+’ character for the beacon indicator.

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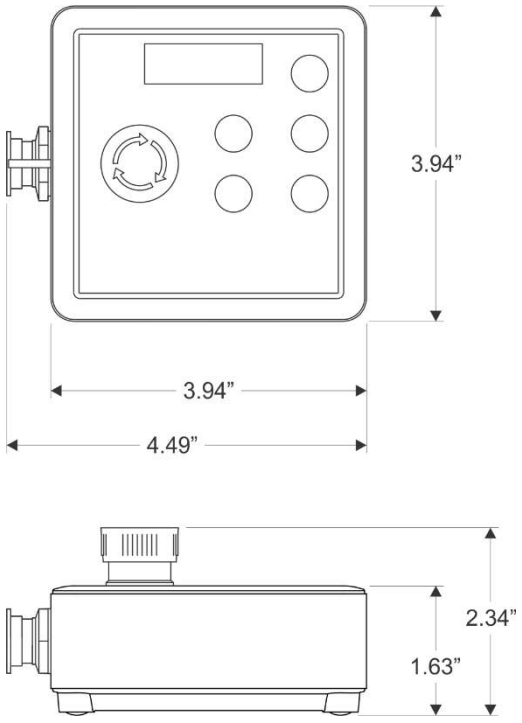
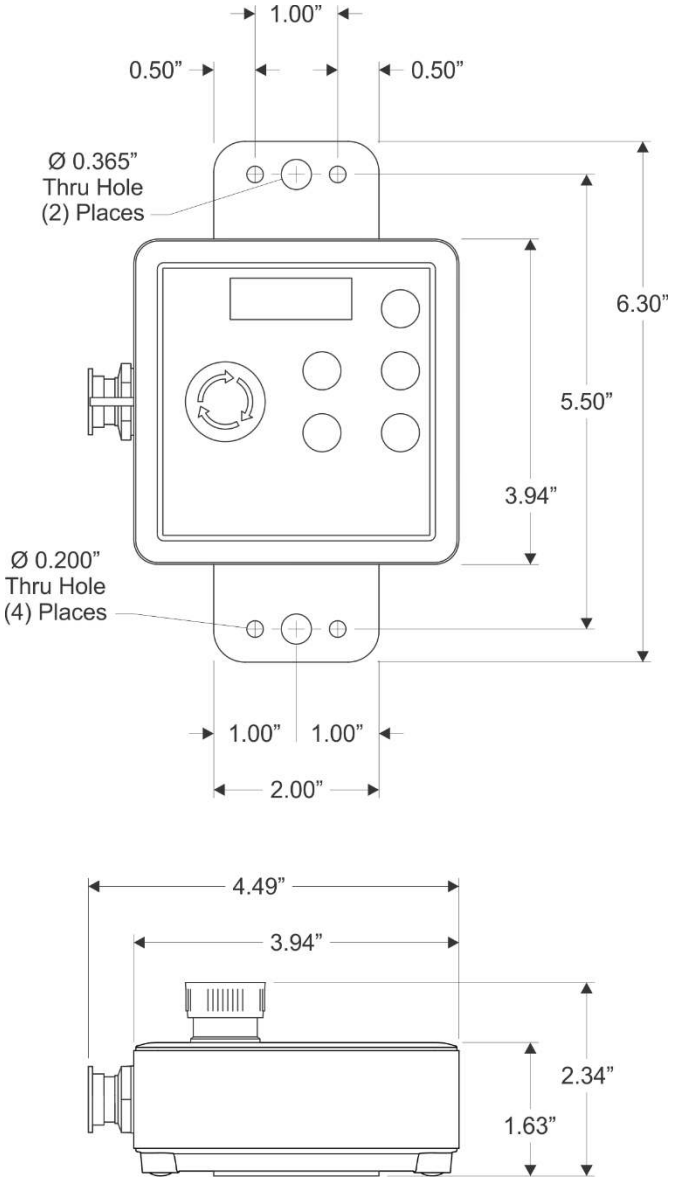
DIMENSIONS

Standard Model	Model with Optional Mounting Plate
	

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SPECIFICATIONS

Keypad	Durable Sealed Microswitch Keypad – Eliminates Dust, Dirt and Moisture Failures	
Enclosure	ABS Plastic	Enclosure with ring is rated IP40 *Not Waterproof
Protective Ring	Aluminum	
Battery Type	Internal non-replaceable 3.7V 2000mAh Rechargeable Lithium Ion Battery	
Battery Life(Active Usage)	15 to 16 Hours of Continuous Operation	
Battery Life(Sleep Mode)	Approx 45 days	
Charging Requirement	5V @ 1amp from Micro USB Charging Cable	
Charging Time	Approx 3-4 Hours	
Transmit Frequency	900MHz Spread Spectrum	
RF Networks	Eight Independent Network Frequencies	
RF Output Power	250 mW, 125mW, 75mW	
Max Transmit Range	Up to 2500 Feet	
Note: 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.		
Operating Temperature	-40° F to +185° F	
Weight	Approx .6 lbs. (w/belt clip)	

APPROVALS

United States (FCC)	MCQ-XB900HP
Canada (IC)	1846A-XB900HP
Australia	RCM
Brazil	ANATEL 3727-12-1209