XR-D

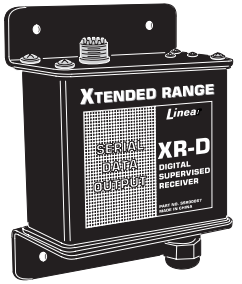
XTENDED RANGE SERIAL DATA OUTPUT SUPERVISED STATIONARY RECEIVER

For Use With Linear's XR Series Xtended Range Transmitters

Installation Instructions

WARNING: THIS PRODUCT SHOULD NOT BE USED IN LIFE SAFETY APPLICATIONS.

FCC Rules allow unlicensed high-power transmissions at or near the operating frequency of this product which may interfere with, or even disable, normal operation of this radio device.



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1. PRODUCT DESCRIPTION

Linear's Xtended Range FM receivers and transmitters are designed for use in various wireless remote control applications. The Model XR-D serial data output receiver is used for specialty O.E.M. data acquisition and processing systems. When the Model XR-D receiver detects a signal from its companion transmitter(s), it will output 9600 baud ASCII serial data through its RS-232 style interface in "real-time" (no buffering) as the transmitted data is received.

The XR-D receiver's serial data output contains all of the information that can be sent from any type of Linear's Xtended Range transmitters. In a typical installation, the receiver's output terminals would be connected to a computer through a user supplied custom made cable. The computer would run user supplied software written to suit the needs of the application. It could display and log the transmitted unit number, channel number, bank number, alarm state, battery condition, status reports, and transmitter type. Alternately, the XR-D could be connected directly to a line printer for specialty or diagnostic purposes.

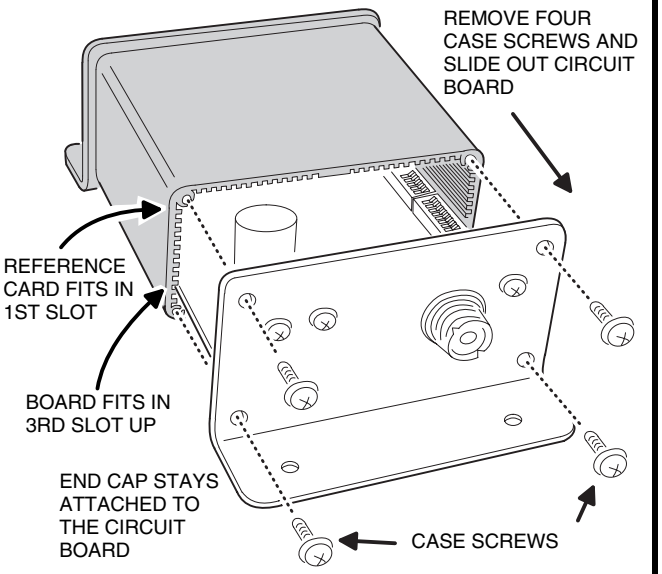
Power for the XR-D receiver can come from an external regulated 12 VDC power supply (Linear Model T-124DC) or from a 12-volt battery. A diode protects the unit from reverse power polarity. The XR-D draws about 30 mA current.

Two antennas (sold separately) are available for the XR-D. The Model ANT-1A is an 8-inch "rubber duck" antenna for short range applications (less than 1 mile). The ANT-1A requires a CON-180A (straight) connector to mate the antenna to the transmitter. For a right angle antenna, use the CON-180A plus the CON-90A.The Model ANT-2 is a 3-foot whip antenna for use in long range or difficult installations where more range from the XR-D is required. A common 9-foot 1/4 wave CB whip antenna can also be used with the XR-D for maximum range.

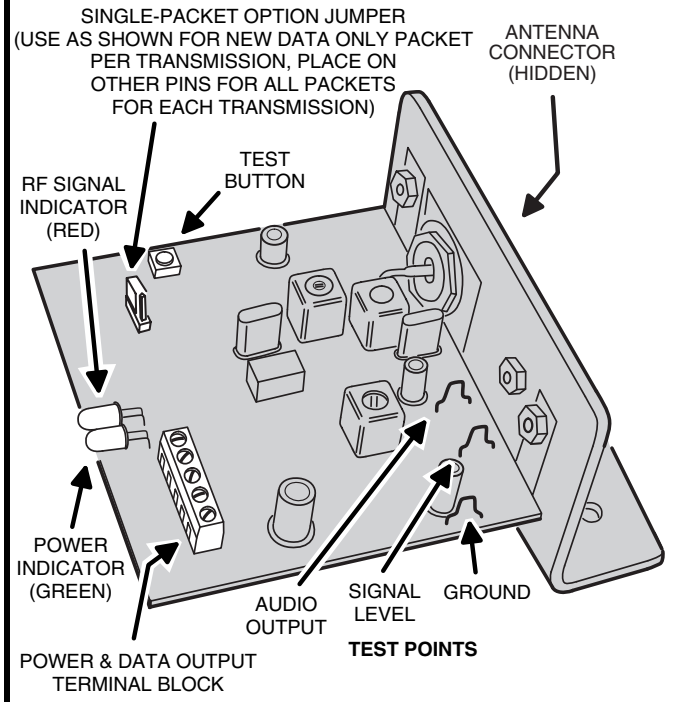
The receiver is housed in a rugged weather-resistant metal enclosure with a sturdy SO-239 antenna connector and a water-tight wiring strain relief bushing. Two indicators are visible through a window on the case. The green power indicator lights when the receiver has power. During reception, the red RF indicator lights. A two-position single-packet option jumper allows selection of one round of only new data for each transmission or all data sent for each transmission. Two internal test points are provided for signal strength and audio monitoring.

Data Specification:
Baud Rate: 9600
Stop Bits: 1
Parity: None

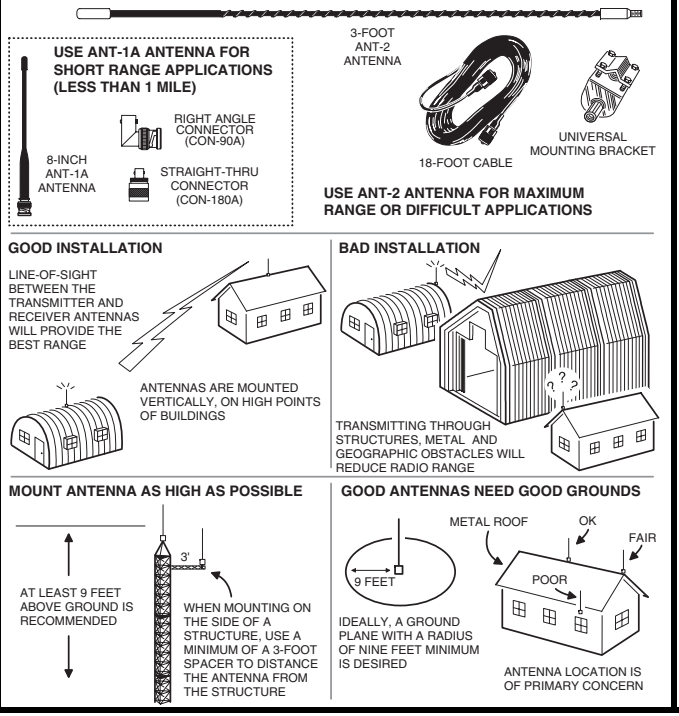
2. OPEN RECEIVER



3. COMPONENT LOCATIONS



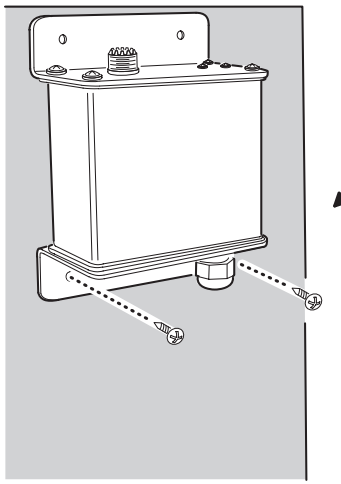
4. INSTALLATION TIPS



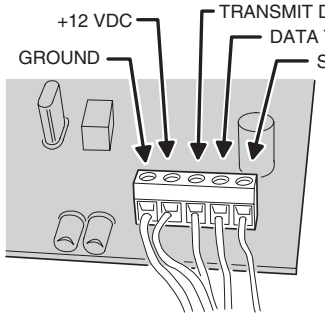
5. MOUNT RECEIVER CASE

If using the ANT-1A antenna: For best range mount the XT/XR unit to a metal plate with a minimum size of 12" x 12". The ANT-1A antenna should extend above the mounting plate and be free of obstructions. If the ANT-1A antenna cannot be mounted in the open, consider using an extension coaxial cable with PL-259 connectors to move the antenna's location.

The XT/XR series of radios operate in the 27 MHz Citizens Band (CB) and may use any CB antennas or CB antenna accessories. Antennas, PL-259 extension cables and other adapters are available at Radio Shack® or other electronics stores.



6. CONSTRUCT CABLE & CONNECT POWER



SIG GND
DTR
TD
+ 12 VDC
GROUND

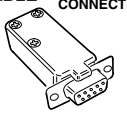
WARNING

THIS UNIT REQUIRES 12 VDC AT 1/2 AMP. THE NO-LOAD VOLTAGE OF THE SUPPLY MUST NOT EXCEED 17.5 VDC OR DAMAGE TO THE UNIT WILL OCCUR!

ROUTE WIRES THROUGH CASE STRAIN RELIEF BUSHING BEFORE CONNECTING TO TERMINALS

XR-D TO FEMALE DB-9 FOR COMPUTER CABLE

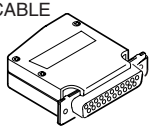
SIG GND	PIN 5 (SIG GND)
DTR	PIN 6 (DSR)
TD	PIN 2 (RD)
+ 12 VDC	
GROUND	



FEMALE DB-9

XR-D TO FEMALE DB-25 FOR COMPUTER CABLE

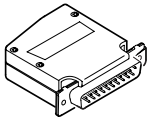
SIG GND	PIN 7 (SIG GND)
DTR	PIN 6 (DSR)
TD	PIN 3 (RD)
+ 12 VDC	
GROUND	



FEMALE DB-25

XR-D TO MALE DB-25 FOR PRINTER CABLE

SIG GND	PIN 7 (SIG GND)
DTR	PIN 6 (DSR)
TD	PIN 3 (RD)
+ 12 VDC	
GROUND	



MALE DB-25

7. ASCII DATA OUTPUT DETAILS

DATA OUTPUT PRODUCED WHEN PRESSING XR-D TEST BUTTON
A 65432 0001 21A0HX

XR-D SERIAL DATA OUTPUT STRING KEY

P SSSSSS CCCC BTARVXE

P = PACKET TYPE CHARACTER (A OR B). XT TRANSMITTERS SEND FOUR ROUNDS OF DATA EACH ACTIVATION. PACKET TYPE "A" IS FIRST ROUND, PACKET TYPE "B" IS FOR THE NEXT THREE ROUNDS.

S = FIVE-DIGIT DECIMAL NUMBER (00000 - 65535) THAT IS EQUAL TO THE BINARY CODE SET ON THE TRANSMITTER'S SYSTEM CODE SWITCHES "A" & "B" . SYSTEM CODE SWITCH "B", POSITION 8 IS THE LEAST SIGNIFICANT BINARY DIGIT, SWITCH "A" POSITION 1 IS THE MOST SIGNIFICANT BINARY DIGIT.

C = FOUR BINARY DIGITS (0 OR 1) INDICATING TRANSMITTER CHANNEL ACTIVATED. 0=NO ALARM, 1=ALARM. ORDERED CH4, CH3, CH2, CH1.

B = ONE-DIGIT DECIMAL NUMBER (0 - 3) EQUAL TO THE BANK NUMBER (1-4) SET IN THE TRANSMITTER.

T = ONE-DIGIT DECIMAL NUMBER (0 - 2) DEFINING TRANSMITTER TYPE (0 = XT-1, 1 = XT-4, 2 = XT-2H OR XT-4H IN MULTI-CHANNEL MODE).

A = ALARM/RESTORE CHARACTER (A OR R). RELEVANT FOR SINGLE-CHANNEL TRANSMITTERS ONLY.

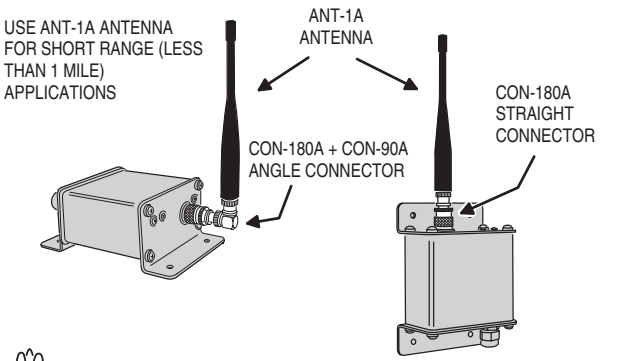
R = ONE-DIGIT BINARY DIGIT (0 OR 1) INDICATING THE STATE OF THE TRANSMITTER'S AUTO-RESTORE SWITCH (0 = OFF, 1 = ON).

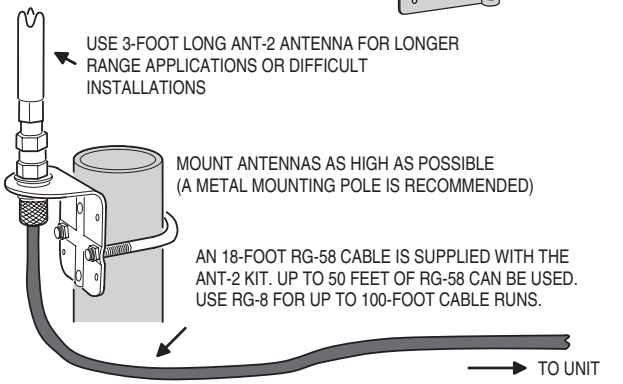
V = TRANSMITTER VOLTAGE CHARACTER (H OR L). NORMAL CONDITION = "H". IF TRANSMITTER VOLTAGE IS BELOW 10.5 VDC CHARACTER = "L".

X = SPARE CHARACTER, NOT IMPLEMENTED AT THIS TIME.

E = END-OF-DATA. A CARRIAGE RETURN AND A LINE FEED ARE SENT.

8. MOUNT ANTENNA AND ROUTE CABLE

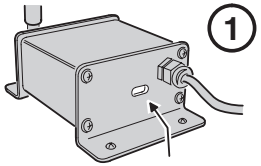




9. TEST SYSTEM

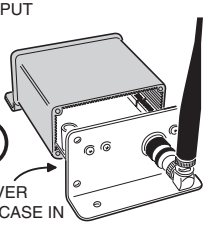
TRANSMITTER

INSTALL AND SETUP THE TRANSMITTER AS DESCRIBED IN ITS INSTALLATION INSTRUCTIONS



1 APPLY POWER AND TRIGGER THE TRANSMITTER'S INPUT

THE TRANSMIT INDICATOR SHOULD LIGHT WHEN THE TRANSMITTER IS TRIGGERED



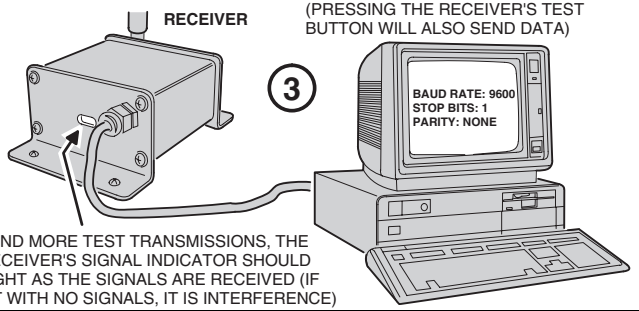
2 SLIDE RECEIVER BOARD INTO CASE IN THE 3RD SLOT UP

WARNING

NEVER CONNECT THE TRANSMITTER AND RECEIVER ANTENNA CONNECTORS DIRECTLY TO EACH OTHER. MAJOR DAMAGE TO BOTH UNITS WILL OCCUR!

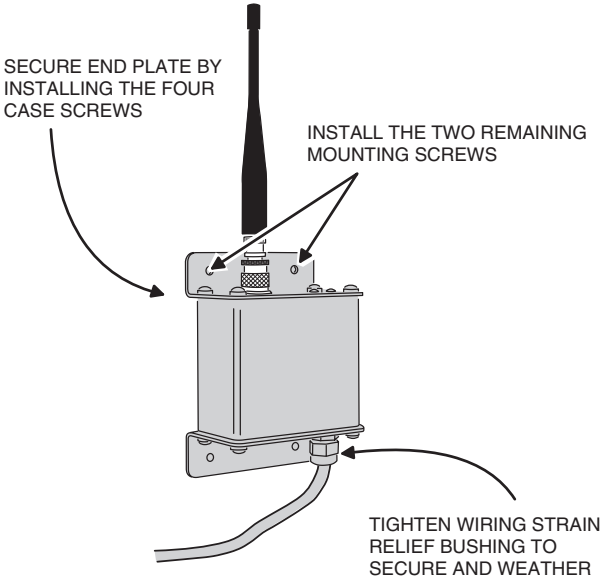
VERIFY THAT COMPUTER OR PRINTER IS SETUP PROPERLY AND ACQUIRING THE DATA FROM THE RECEIVER (PRESSING THE RECEIVER'S TEST BUTTON WILL ALSO SEND DATA)

RECEIVER



SEND MORE TEST TRANSMISSIONS, THE RECEIVER'S SIGNAL INDICATOR SHOULD LIGHT AS THE SIGNALS ARE RECEIVED (IF LIT WITH NO SIGNALS, IT IS INTERFERENCE)

10. COMPLETE INSTALLATION



TEST SYSTEM AGAIN AFTER COMPLETING INSTALLATION

LINEAR LIMITED WARRANTY

This Linear product is warranted against defects in material and workmanship for twelve (12) months. The Warranty Expiration Date is labeled on the product. This warranty extends only to wholesale customers who buy direct from Linear or through Linear's normal distribution channels. **Linear does not warrant this product to consumers.** Consumers should inquire from their selling dealer as to the nature of the dealer's warranty, if any. **There are no obligations or liabilities on the part of Linear LLC for consequential damages arising out of or in connection with use or performance of this product or other indirect damages with respect to loss of property, revenue, or profit, or cost of removal, installation, or reinstallation.** All implied warranties, including implied warranties for merchantability and implied warranties for fitness, are valid only until Warranty Expiration Date as labeled on the product. **This Linear LLC Warranty is in lieu of all other warranties express or implied.**

All products returned for warranty service require a Return Product Authorization Number (RPA#). Contact Linear Technical Services at 1-800-421-1587 for an RPA# and other important details.

IMPORTANT !!!

Linear radio controls provide a reliable communications link and fill an important need in portable wireless signaling. However, there are some limitations which must be observed.

- **WARNING: THIS PRODUCT IS NOT TO BE USED IN LIFE SAFETY APPLICATIONS. FCC Rules allow unlicensed high-power transmissions at or near the operating frequency of this product which may interfere with, or even disable, normal operation of this radio device.**
- For U.S. installations only: The radios are required to comply with FCC Rules and Regulations as Part 95 Radio Control devices. As such, they have limited transmitter power and therefore limited range.
- A receiver cannot respond to more than one transmitted signal at a time and may be blocked by radio signals that occur on or near their operating frequencies, regardless of code settings.
- Changes or modifications to the device may void FCC compliance and user's authority to operate equipment.
- Infrequently used radio links should be tested regularly to protect against undetected interference or fault.
- A general knowledge of radio and its vagaries should be gained prior to acting as a wholesale distributor or dealer, and these facts should be communicated to the ultimate users.