

# XR-1

## XTENDED RANGE SINGLE CHANNEL SUPERVISED STATIONARY RECEIVER

For Use With Linear's  
XR Series Xtended  
Range Transmitters

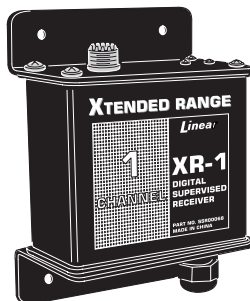
### Installation Instructions

# Linear®

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www.linearcorp.com

**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.



### 1. PRODUCT DESCRIPTION

Linear's Xtended Range FM receivers and transmitters are designed for use in various wireless remote control applications. When the Model XR-1 receiver detects a signal from its companion transmitter, it will verify the digital code, activate its output, and trigger the remote device connected to the receiver.

The XR-1 receiver has full supervision capabilities. If the "status" option is selected, the receiver expects hourly status signals from its transmitter. If these signals cease, the receiver will indicate trouble by activating its status output after four hours. Contact supervision allows the receiver's output to follow the transmitter's input, staying activated as long as the transmitter input is activated. Alternately, an "auto-restore" option can be selected in the transmitter, causing a momentary receiver output each time the transmitter input is activated. If the transmitter sends a low battery signal, the receiver's low battery output will activate.

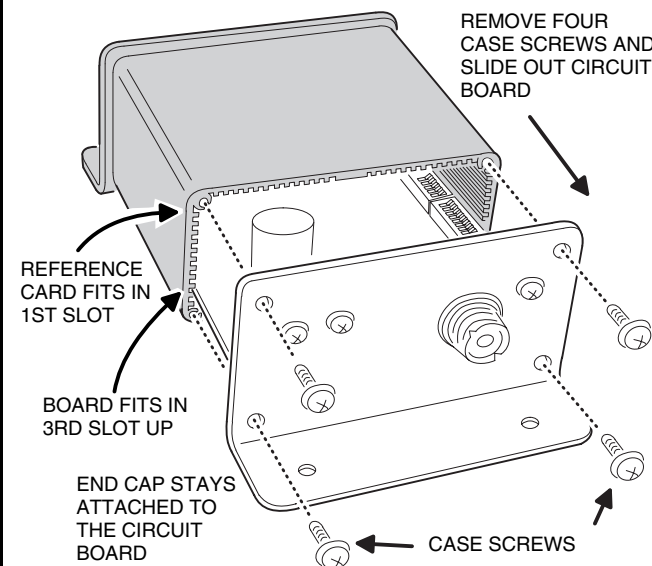
Power for the XR-1 receiver can come from an external regulated 12 VDC power supply (Linear Model T-1224DC) or from a 12-volt battery. A diode protects the unit from reverse power polarity. The XR-1 draws about 30 mA standby, and about 70 mA when the output is active. The receiver output provides isolated N/O and N/C relay contacts capable of switching a maximum of 1 Amp @ 32 VDC. The low battery and status outputs are solid state and are capable of switching up to 50 mA @ 20 VDC to ground.

Two antennas (sold separately) are available for the XR-1. 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-1 is required. A common 9-foot 1/4 wave CB whip antenna can also be used with the XR-1 for maximum range.

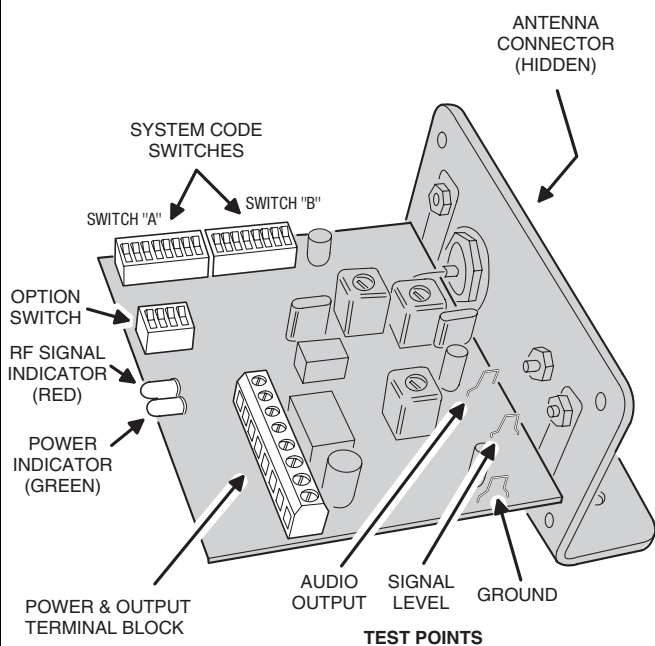
Two 8-position switches set the unit's system code. This code must be matched in the XR-1's transmitter. There are 65,536 different system codes possible. The 4-position option switch selects the receiver's channel (to match the transmitters channel), and status supervision option.

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. Two internal test points are provided for signal strength and audio monitoring.

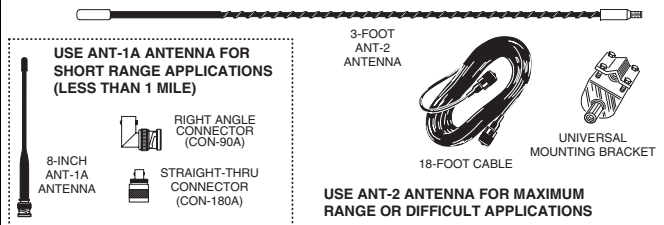
### 2. OPEN RECEIVER



### 3. COMPONENT LOCATIONS



### 4. INSTALLATION TIPS



#### GOOD INSTALLATION

LINE-OF-SIGHT BETWEEN THE TRANSMITTER AND RECEIVER ANTENNAS WILL PROVIDE THE BEST RANGE

ANTENNAS ARE MOUNTED VERTICALLY, ON HIGH POINTS OF BUILDINGS

#### MOUNT ANTENNA AS HIGH AS POSSIBLE

AT LEAST 9 FEET ABOVE GROUND IS RECOMMENDED

WHEN MOUNTING ON THE SIDE OF A STRUCTURE, USE A MINIMUM OF A 3-FOOT SPACER TO DISTANCE THE ANTENNA FROM THE STRUCTURE

#### BAD INSTALLATION

TRANSMITTING THROUGH STRUCTURES, METAL AND GEOGRAPHIC OBSTACLES WILL REDUCE RADIO RANGE

#### GOOD ANTENNAS NEED GOOD GROUNDS

IDEALLY, A GROUND PLANE WITH A RADIUS OF NINE FEET MINIMUM IS DESIRED

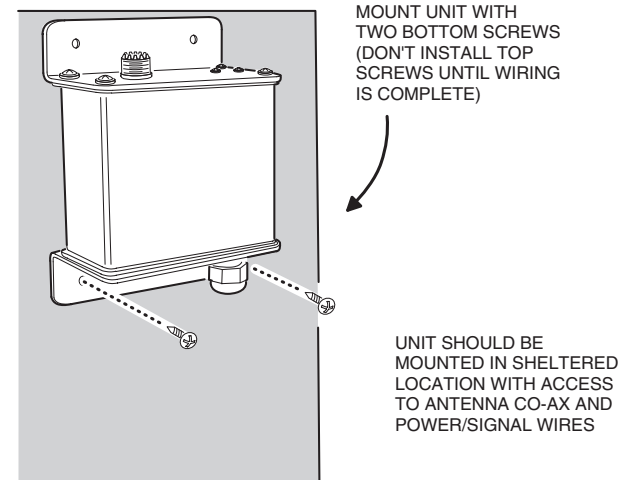
METAL ROOF OK FAIR POOR

ANTENNA LOCATION IS OF PRIMARY CONCERN

### 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. SET RECEIVER SWITCHES

OPTION SWITCH		
CHANNEL TO RECEIVE		
SWITCH 1	SWITCH 2	CH #
OFF	OFF	CH 1
ON	OFF	CH 2
OFF	ON	CH 3
ON	ON	CH 4

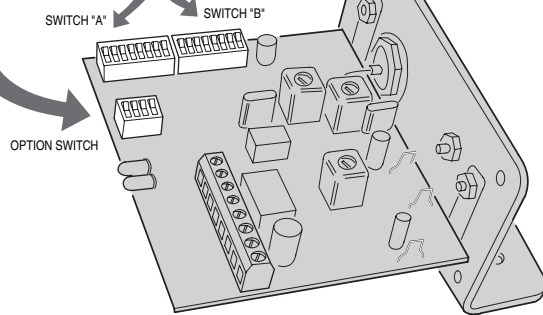
STATUS REPORTS	
OPTION SWITCH 3	
OFF	NO STATUS REPORTS REQUIRED FROM TX
ON	STATUS REPORTS REQUIRED FROM TX

NOTE: OPTION SWITCH 4 IS UNUSED

SET SWITCHES 1 & 2 IN THE RECEIVER TO SELECT THE CHANNEL NUMBER THAT THE TRANSMITTER IS GOING TO SEND

### SYSTEM CODE SWITCHES

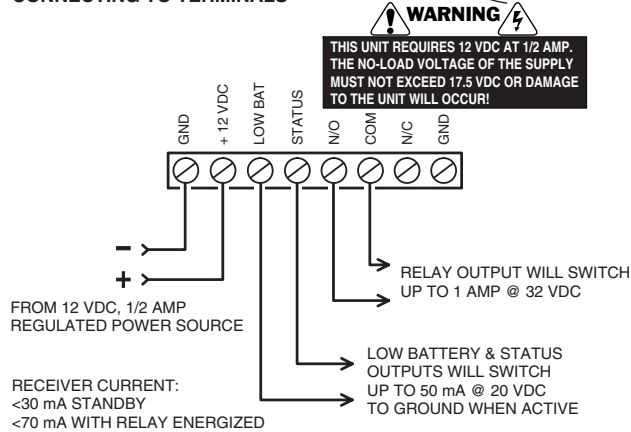
SET SYSTEM CODE SWITCHES A & B TO MATCH SYSTEM CODE SWITCHES A & B IN THE TRANSMITTER



## 7. CONNECT POWER AND OUTPUTS

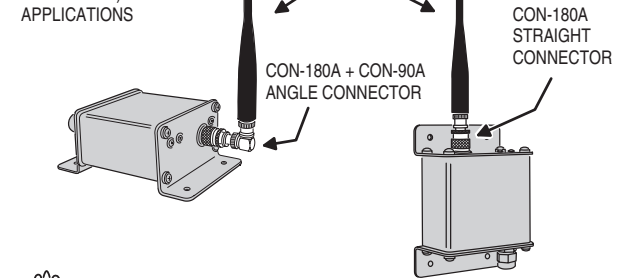
USE 18-24 AWG WIRE TO CONNECT POWER AND OUTPUTS

ROUTE WIRES THROUGH CASE STRAIN RELIEF BUSHING BEFORE CONNECTING TO TERMINALS



## 8. MOUNT ANTENNA AND ROUTE CABLE

USE ANT-1A ANTENNA FOR SHORT RANGE (LESS THAN 1 MILE) APPLICATIONS



USE 3-FOOT LONG ANT-2 ANTENNA FOR LONGER RANGE APPLICATIONS OR DIFFICULT INSTALLATIONS

MOUNT ANTENNAS AS HIGH AS POSSIBLE (A METAL MOUNTING POLE IS RECOMMENDED)

AN 18-FOOT RG-58 CABLE IS SUPPLIED WITH THE ANT-2 KIT. UP TO 50 FEET OF RG-58 CAN BE USED. USE RG-8 FOR UP TO 100-FOOT CABLE RUNS.

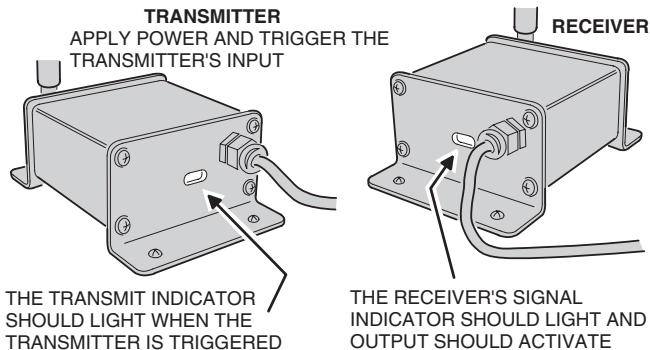
## 9. TEST SYSTEM

SLIDE BOARD INTO CASE IN THE 3RD SLOT UP

INSTALL AND SETUP THE COMPANION UNIT AS DESCRIBED IN ITS INSTALLATION INSTRUCTIONS

**WARNING**

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

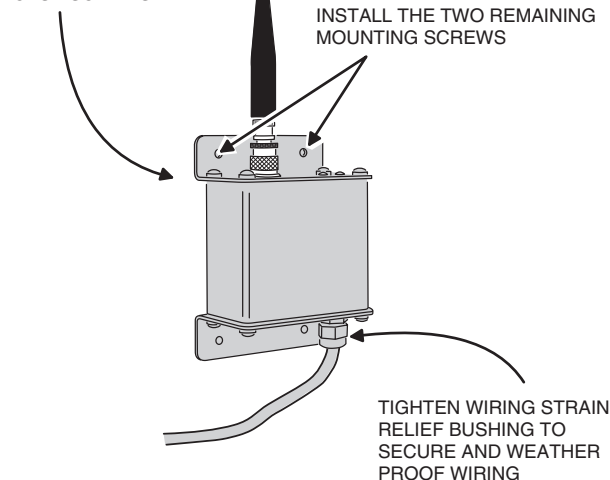


IF SYSTEM FAILS TEST, CHECK POWER, SWITCH SETTINGS AND ANTENNA CONNECTIONS

## 10. COMPLETE INSTALLATION

SECURE END PLATE BY INSTALLING THE FOUR CASE SCREWS

INSTALL THE TWO REMAINING MOUNTING SCREWS



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.
- \* 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.

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