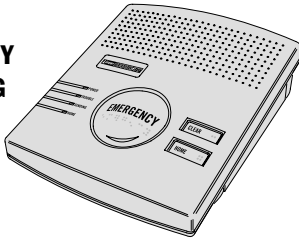


# PERS-2400



## PERSONAL EMERGENCY REPORTING SYSTEM



### Installation Instructions



(760) 438-7000 • FAX (760) 438-7043  
 USA & Canada (800) 421-1507 & (800) 392-0123  
 Toll Free FAX (800) 468-1340  
 www.linearcorp.com

#### PRODUCT DESCRIPTION

The PERS-2400 Console is a supervised wireless emergency reporting product designed for medical alert applications. The table-top or wall-mount Console provides "pushbutton" emergency assistance to anyone who desires additional security and peace of mind. The Console has three emergency functions: emergency, fire, and activity. The emergency zone can be triggered by the large EMERGENCY button on the face of the Console or with various models of wireless transmitters. The fire zone can be triggered by wireless smoke alarms. The optional activity timer can be set for 8, 12 or 24 hour operation. If the time expires before an activity transmitter is activated, or the HOME button is pressed on the Console, the inactivity will trigger the emergency zone. For the visually impaired, each button on the Console is molded with braille characters to identify the button's function. The Console is programmed using Linear's RA-2400 remote access software. For details on using the RA-2400 software, refer to the software's built-in help file. The Console can receive signals from Linear's wireless battery-powered transmitters sending DX or DXS format signals. Up to 16 individual transmitters can be used with the Console. Activating a transmitter causes the Console's built-in digital communicator to send the appropriate alarm report to the central monitoring station via the standard telephone network. In addition to the central station report, audible and visual indicators occur and the alarm relay energizes during an emergency activation. If the optional Model VB-4 voice board is installed, the Console will "talk" to the user. The digitally synthesized, actual human voice, will sound "emergency", "fire", "time done soon", and other system operation, setup, and supervisory prompts from a 38 word vocabulary. In addition, the voice board supports 2-way automatic, 2-way manual, and 1-way listen-only audio emergency communications with central station monitoring personnel using the Console's built-in high-sensitivity microphone and speaker. Supervised transmitters regularly send status reports to the Console and low battery reports when their batteries are low. When the Console receives a low battery report, the TROUBLE indicator flashes. If the Console fails to receive a status report from a transmitter for a period of 24 hours, the TROUBLE indicator will light. All supervisory conditions can sound a local announcement and be reported to the central station. The Console's digital communicator can route calls to three telephone numbers: primary, secondary, and supervisory. General reporting codes and individual sensor reporting codes are programmable for the 4x2 format. Alternately, Ademco Contact ID may be selected for the communicator reporting format. Powered by a low voltage plug-in transformer, the Console has provisions for a rechargeable backup battery for operation during AC power outages. A backup battery disconnect switch allows for out-of-service storage of the Console without discharge of the battery. The battery is recharged and supervised by the Console. If the backup battery becomes low the POWER light will flash and the condition can be reported to the central station.

#### OPERATION SUMMARY

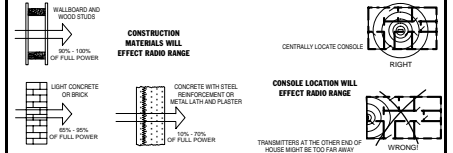
A variety of Linear's transmitters can be used with the Console. Supervised and non-supervised transmitters in DX or DXS format can be used. The Console's three zones function as follows:

**EMERGENCY**  
 Portable, supervised and non-supervised, pendant, belt-clip, or wristband type transmitters (Models DXT-41, DXT-42, DXT-61A, DXS-21, DXS-23, DXS-62, DXS-63) and stationary, supervised Model DXS-31 transmitters are used for medical alert applications. When this type of transmitter is triggered, the Console sounds a two-tone siren and an emergency report will be sent to the central station. The emergency zone can also be triggered by pressing the EMERGENCY button.

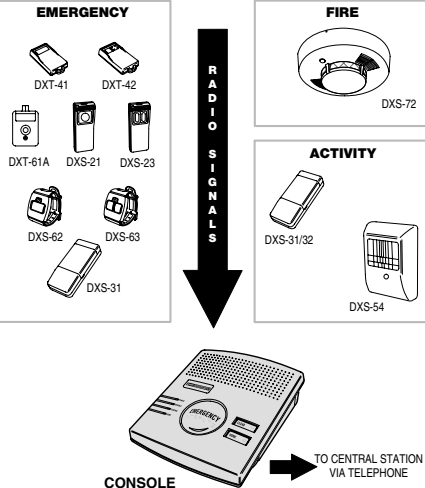
**FIRE**  
 Supervised Model DXS-72 wireless photoelectric smoke alarms can trigger the fire zone. When a smoke alarm is activated, the Console sounds a repeated series of three beeps and a fire report will be sent to the central station.

**ACTIVITY**  
 Supervised, switch or motion triggered transmitters (Models DXS-31, DXS-32 and DXS-54) can be used for ensuring human activity. The motion detector will monitor human presence in a room. The contact activated transmitter can be wired to a pushbutton or switch for manual activity monitoring. As long as a signal is received at least once every 8, 12, or 24 hours (programmable) an alarm will not be triggered. 15 minutes before the programmed time expires, the HOME indicator will start blinking and a low pitched beep will sound every ten seconds. The activity timer can be reset with a signal from one of these transmitters or by pressing the HOME button on the Console. Failure to receive a signal within the programmed time period will cause the Console to sound the two-tone emergency siren and report an inactivity alarm to the central station. The activity timer can be turned on or off at the Console or through programming.

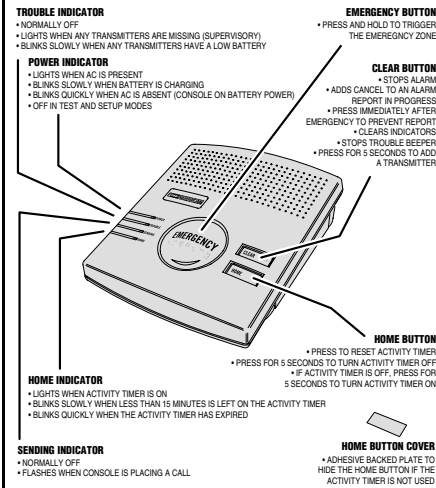
#### WIRELESS INSTALLATION TIPS



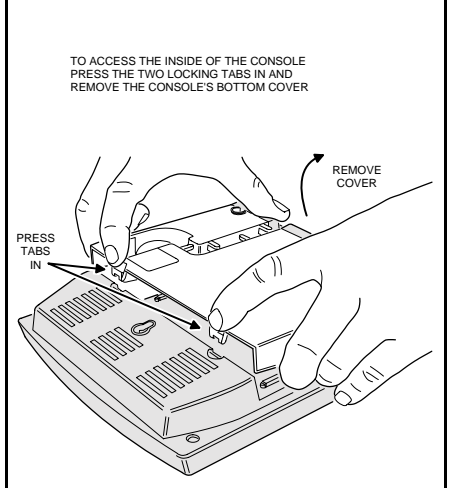
#### SYSTEM OVERVIEW



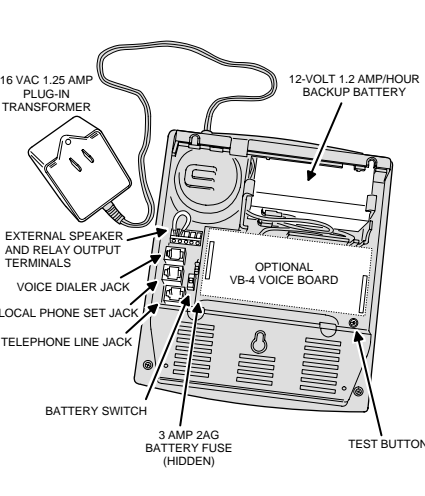
#### FRONT PANEL FEATURES



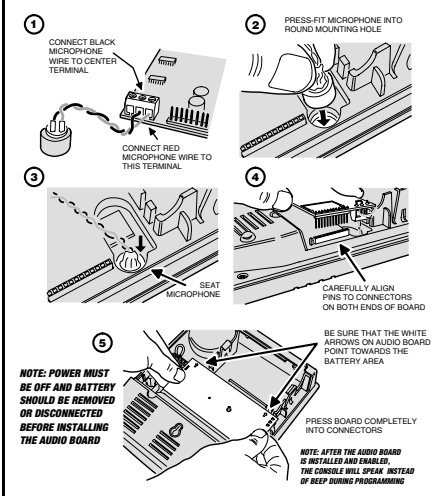
#### REMOVING BOTTOM COVER



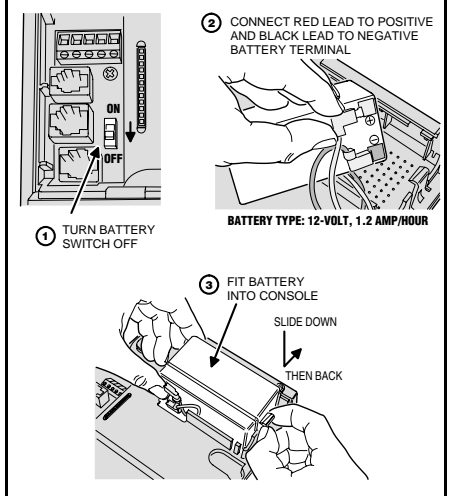
#### CONSOLE BOTTOM FEATURES



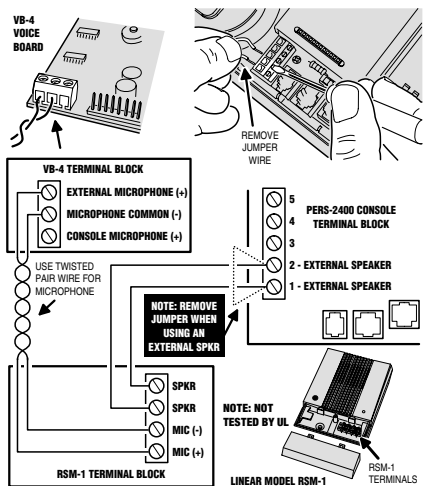
#### OPTIONAL MODEL VB-4 VOICE BOARD INSTALLATION



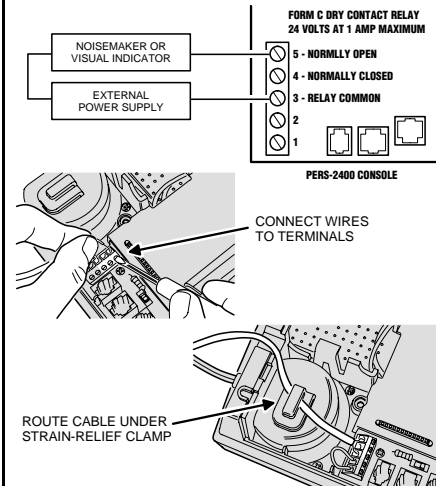
#### BACKUP BATTERY



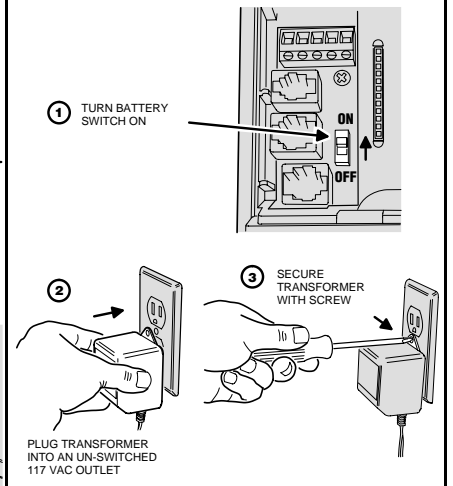
#### OPTIONAL MODEL RSM-1 REMOTE SPEAKER/MIC CONNECTIONS



#### OPTIONAL RELAY OUTPUT CONNECTIONS



#### INSTALL TRANSFORMER



**INSTALLING TRANSMITTERS (FROM FRONT PANEL)**  
**ADDS ONE TRANSMITTER AT A TIME**

- PRESS CLEAR BUTTON FOR 5 SECONDS  
5 BEEPS SOUND (TX ADD MODE)
- ACTIVATE TRANSMITTER  
1 BEEP SOUND (TX ADDED)  
CONSOLE REVERTS TO OPERATE MODE
- REPEAT STEPS 1 & 2 FOR ADDITIONAL TRANSMITTERS (UP TO 16 TOTAL)

**NOTE: IF THE CONSOLE'S MEMORY IS FULL, ONE LONG BEEP SOUND WHEN TRYING TO ADD A TRANSMITTER**

**NOTE: PRESS CLEAR BEFORE TRANSMITTING TO RETURN TO OPERATE MODE WITHOUT ENTERING A TRANSMITTER (2 BEEPS SOUND WITH ACTIVITY TIMER ENABLED, 3 BEEPS SOUND WITH ACTIVITY TIMER DISABLED) THE CONSOLE WILL RESUME OPERATE MODE AUTOMATICALLY AFTER 30 SECONDS**

**NOTE: FOR ALL TWO-BUTTON TX'S EXCEPT DXS-63**  
INSTALL WITH LEFT BUTTON  
ACTIVATE WITH EITHER BUTTON

**NOTE: FOR DXS-31 STATIONARY TRANSMITTERS**  
INSTALL WITH JUMPER SET FOR DELAY  
ACTIVATES AS EMERGENCY

**NOTE: FOR DXS-32 STATIONARY TRANSMITTERS**  
INSTALL WITH JUMPER SET FOR INSTANT  
ACTIVATES AS ACTIVITY

**DXS-32: CUT JUMPER (INSTANT TX) FOR USE AS AN ACTIVITY TX. SEE DXS-32 INSTALLATION INSTRUCTIONS**

**INSTALLING TRANSMITTERS (FROM INSIDE CONSOLE)**  
**ADDS MULTIPLE TRANSMITTERS**

- PRESS TEST BUTTON  
4 BEEPS SOUND (TEST MODE)
- PRESS TEST BUTTON AGAIN 5 BEEPS SOUND (TX ADD MODE)
- ACTIVATE TRANSMITTER  
1 BEEP SOUND (TX ADDED)
- REPEAT STEPS 2 & 3 FOR ADDITIONAL TRANSMITTERS (UP TO 16 TOTAL)
- PRESS CLEAR TO RETURN TO OPERATE MODE (2 BEEPS SOUND WITH ACTIVITY TIMER ENABLED, 3 BEEPS SOUND WITH ACTIVITY TIMER DISABLED) OTHERWISE, THE CONSOLE WILL RESUME OPERATE MODE AUTOMATICALLY AFTER 3 MINUTES

**NOTE: IF THE CONSOLE'S MEMORY IS FULL, ONE LONG BEEP SOUND WHEN TRYING TO ADD A TRANSMITTER**

**TESTING TRANSMITTERS**

- PRESS TEST BUTTON  
4 BEEPS SOUND (TEST MODE)
- ACTIVATE EACH OF THE CONSOLE'S TRANSMITTERS, ONE AT A TIME
- COUNT THE NUMBER OF BEEPS THAT THE CONSOLE SOUNDS WHEN THE TRANSMITTER IS ACTIVATED
- PRESS CLEAR TO RETURN TO OPERATE MODE (2 BEEPS SOUND WITH ACTIVITY TIMER ENABLED, 3 BEEPS SOUND WITH ACTIVITY TIMER DISABLED) OTHERWISE, THE CONSOLE WILL RESUME OPERATE MODE AUTOMATICALLY AFTER 3 MINUTES

**NOTE: WITH THE MODEL VB-4 VOICE BOARD INSTALLED, THE CONSOLE WILL ANNOUNCE THE TRANSMITTER STATUS**

1-BEEP = TX OK  
2-BEEPS = TX HAD ALARM  
3-BEEPS = TX MISSED STATUS  
4-BEEPS = TX HAS LOW BATTERY

**ERASING TRANSMITTERS**

**NOTE: ALL TRANSMITTERS WILL BE ERASED!**

- PRESS AND HOLD TEST BUTTON FOR 5 SECONDS  
6 BEEPS SOUND (ALL TRANSMITTERS WERE ERASED)
- PRESS CLEAR TO RETURN TO OPERATE MODE (2 BEEPS SOUND WITH ACTIVITY TIMER ENABLED, 3 BEEPS SOUND WITH ACTIVITY TIMER DISABLED) THE CONSOLE WILL RESUME OPERATE MODE AUTOMATICALLY AFTER 3 MINUTES

**CONNECTING TO RA-2400 FOR LOCAL CABLE PROGRAMMING**

- PERFORM THE STEPS DETAILED IN THE RA-2400/PERS-2400 REFERENCE GUIDE (P/N 217163) TO SET UP THE RA-2400 PROGRAM
- TO LOCALLY PROGRAM THE CONSOLE, CONNECT THE MODEM'S LINE JACK TO THE CONSOLE'S LINE JACK
- PRESS TEST BUTTON MOMENTARILY, 4 BEEPS SOUND (TEST MODE)
- WHEN RA-2400 CONNECTION TIMER STARTS COUNTING DOWN, PRESS THE EMERGENCY BUTTON  
4 BEEPS SOUND (RA-2400 ANSWER)
- PERFORM PROGRAMMING IN THE RA-2400 SOFTWARE, THEN DISCONNECT FROM THE CONSOLE

**NOTE: CONSOLE WILL EXIT TEST MODE AUTOMATICALLY AFTER 3 MINUTES OR BY PRESSING THE CLEAR BUTTON**

**TELEPHONE CONNECTIONS**

TELEPHONE JACK

ROUTE CABLES UNDER STRAIN-RELIEF TABS

PERS-2400 CONSOLE WITH REAR COVER INSTALLED

LOCAL TELEPHONE

CONNECT LOCAL TELEPHONE TO THIS JACK

CONNECT TELEPHONE LINE TO THIS JACK

**SYSTEM OPERATION**

CONSOLE STANDING BY

POWER LIGHT IS ON

OTHER LIGHTS ARE OFF

**- IN CASE OF EMERGENCY -**

PRESS AND MOMENTARILY HOLD EMERGENCY BUTTON

OR - ACTIVATE EMERGENCY TRANSMITTER

PRESS TRANSMITTER BUTTON FOR AT LEAST 2 SECONDS

CONSOLE IN ALARM

SENDING LIGHT FLASHES DURING COMMUNICATION

SIREN SOUNDS UNTIL CLEAR BUTTON IS PRESSED, CENTRAL STATION REPORT IS COMPLETE, OR SIREN TIME EXPIRES

PRESS CLEAR TO STOP SIREN (ADDS CANCEL TO ALARM REPORT IN PROGRESS)

**SUPERVISORY CONDITIONS**

**TRANSMITTER LOW BATTERY TROUBLE**  
WHEN A TRANSMITTER SENDS A LOW BATTERY SIGNAL THE CONSOLE'S TROUBLE INDICATOR WILL BLINK SLOWLY.

**TRANSMITTER SUPERVISORY TROUBLE**  
IF A TRANSMITTER PROGRAMMED AS SUPERVISED FAILS TO REPORT STATUS IN A 24 HOUR PERIOD, THE CONSOLE'S TROUBLE INDICATOR WILL LIGHT.

**CONSOLE BACKUP BATTERY TROUBLE**  
THE CONSOLE WILL TEST ITS BACKUP BATTERY EVERY 8 HOURS. IF THE BATTERY TESTS LOW, THE POWER INDICATOR WILL BLINK SLOWLY WHILE THE CONSOLE CHARGES THE BATTERY.

WHEN TROUBLE EXISTS, THE CONSOLE WILL BEEP EVERY HOUR UNTIL CLEARED:

- 2-BEEPS = CONSOLE LOW BATTERY
- 3-BEEPS = TRANSMITTER SUPERVISORY
- 4-BEEPS = TRANSMITTER LOW BATTERY

ERROR LOW SENSOR BATTERY

THE CONSOLE WILL ANNOUNCE THE SUPERVISORY CONDITIONS WITH THE OPTIONAL MODEL VB-4 VOICE BOARD INSTALLED. THE VOICE CAN BE DISABLED THROUGH PROGRAMMING

**CLEARING TROUBLE INDICATIONS**  
PRESS THE CLEAR BUTTON TO STOP TROUBLE INDICATORS AND SOUNDERS

**NOTE: THE TROUBLE CONDITION WILL LIKELY OCCUR AGAIN UNTIL THE PROBLEM IS FIXED**

**ACTIVITY TIMER**

- ENABLING THE ACTIVITY TIMER**  
PRESS THE HOME BUTTON FOR 5 SECONDS TO TURN THE ACTIVITY TIMER ON
- ACTIVITY TIMER RUNNING**  
THE HOME INDICATOR WILL LIGHT, SHOWING THAT THE ACTIVITY TIMER IS ENABLED
- TIME RUNNING OUT**  
THE HOME INDICATOR WILL BLINK & A SHORT BEEP SOUNDS EVERY 10 SECONDS WHEN LESS THAN 15 MINUTES OF TIME REMAIN
- RESETTING ACTIVITY TIMER**  
THE SUBSCRIBER NEEDS TO PRESS THE HOME BUTTON OR TRIGGER AN ACTIVITY TRANSMITTER BEFORE THE TIMER EXPIRES TO PREVENT AN INACTIVITY REPORT

PRESSING THE HOME BUTTON RESTARTS THE TIMER

**AUDIO BOARD OPERATION**

- PROGRAM THE CONSOLE FOR THE DESIRED AUDIO MODE
- AFTER THE CENTRAL STATION OPERATOR ACKNOWLEDGES THE COMMUNICATOR'S REPORT, THE CONSOLE WILL STOP ITS SIREN AND SWITCH TO THE AUDIO MODE FOR 90 SECONDS
- CENTRAL STATION OPERATOR:** USE THESE KEYS ON A TELEPHONE SET CONNECTED TO THE COMMUNICATOR LINE TO CONTROL THE AUDIO MODULE

**NOTE: TO USE THE AUDIO FEATURES THE MODEL VB-4 AUDIO MODULE MUST BE INSTALLED IN THE CONSOLE**

ALL AUDIO MODES { 9 } PRESS "9" TO DISCONNECT THE CALL

2-WAY MANUAL AUDIO MODE { 3 } PRESS "3" TO LISTEN

1-WAY FULL DUPLEX { 1 } PRESS "1" TO TALK

THE "1" AND "3" KEYS ARE NOT USED IN LISTEN-ONLY AUDIO MODE

THE "1" AND "3" KEYS CAN BE USED IN FULL DUPLEX MODE, ALTHOUGH THE MODULE WILL SWITCH TO 2-WAY MANUAL MODE. PRESS "8" TO RETURN TO DUPLEX MODE.

**PRESSING ANY KEY OTHER THAN "9" WILL EXTEND THE AUDIO TIME 90 MORE SECONDS**

**SPECIFICATIONS**

**CODING FORMATS**

DX CODE 24-BIT A1D PPM	1,048,567 CODES
DXS CODE 24-BIT A1D PPM	1,048,567 CODES

**POWER REQUIREMENTS**

PRIMARY SUPPLY	16 VAC 1.25 AMP PLUG-IN TRANSFORMER
BACKUP SUPPLY	12 VOLT 1.2 AMP HOUR BATTERY
NORMAL OPERATING CURRENT	60 mA
ALARM OPERATING CURRENT	120 mA
BACKUP OPERATION DURATION	12 HOURS MINIMUM
BATTERY LIFE EXPECTED	3 YEARS

**RF CHARACTERISTICS**

RECEIVER TYPE	DUAL-DIVERSITY SUPERHETERODYNE
RF SENSITIVITY	-100 dBm TYPICAL
RADIO FREQUENCY	315 MHz
MAXIMUM RANGE	400 FEET LINE-OF-SIGHT, OPEN RANGE UL LISTED FOR 150'

**COMMUNICATOR**

COMMUNICATOR FORMATS	4 BY 2 (GENERAL OR POINT-TO-POINT), ADEMCO CONTACT ID
UL TESTED WITH SURGARD SGMUR-DG CENTRAL STATION RECEIVER	
DIALING	TO NE OR PULSE
DIALING DELAY	0 OR 15 SECONDS
REMOTE ACCESS PASSWORD	6 DIGITS
ACCOUNT NUMBER LENGTH	4 DIGITS
PRIMARY TELEPHONE NUMBER	20 DIGITS
SECONDARY TELEPHONE NUMBER	20 DIGITS
SUPERVISORY TELEPHONE NUMBER	20 DIGITS
CONSOLE STATUS REPORT	OPTIONAL, 1, 7 OR 30 DAY REPORT

**CONSOLE**

OPERATING TEMPERATURE	32°-100° F (0°-50° C)
EMERGENCY ALARM DURATION	1-30 MINUTES
ACTIVITY TIMER PERIOD	8, 12, OR 24 HOURS
AUDIO RELAY OUTPUT	LISTEN-ONLY, 2-WAY MANUAL, 2-WAY DUPLEX N.O.N.C. (FORM C) @ 24 VOLT ACDC 1 AMP MAXIMUM, NEC CLASS II CIRCUITRY

**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.

- For U.S. installations only: The radios are required to comply with FCC Rules and Regulations as Part 15 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.
- In frequently 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.