



## LINK RADIO Model 87-12001

### **Application:**

The LMG 87-12001 Link Radio provides radio communication in a variety of remote and difficult locations. A typical application is providing the link between talking hot box detectors and locomotive crews. The optional 2-channel DTMF decoder allows radio control of remote equipment. An example is a talking hot box detector with repeat capability. The Link Radio with the DTMF decoder enables the train crew to request a repeat of the hot box detector's message, when used in conjunction with an appropriate detector.

### **Features:**

The Link Radio includes a VHF transceiver. This rugged unit has eight programmable, synthesized channels, 12.5 KHz channel spacing and output power variable between 2 and 5 watts.

"MOD" & "DEMOD" circuits in the Link Radio include Automatic Gain Control to accommodate variable circuit conditions and ensure proper audio levels are transmitted to the radio and back to the originating device.

The power supply accommodates an input voltage from 12 to 30 VDC or 117 VAC. (When using DC power, for full transmit power, a minimum of 14 volts DC is required.)

An optional 2-channel DTMF decoder provides a timed output to control external equipment.

### **Operation:**

The Link Radio sends a "carrier on" signal to the equipment controlling it, typically a hot box detector. This enables the detector to wait until the channel is clear before transmitting. When the detector sends the Push-to-Talk signal and audio signal to the Link Radio, the report is transmitted to the train crew. Circuitry in the Link Radio ensures levels remain proper for a clear radio transmission.

When equipped with the optional 2-channel DTMF decoder, the Link Radio monitors radio receive audio for DTMF tones. Two different DTMF codes can be programmed into the Decoder, each up to 8 digits long. When either of the codes is decoded, a relay is energized for the preprogrammed amount of time (1 to 240 seconds), sending a signal to the attached equipment (e.g. hot box detector). This signal, on some detectors, can be used to cause a repeat of the last message. The two channels allow a different code to be used for each track in a two track environment. The relay outputs can also be used to operate other types of equipment.

### **Physical Description:**

The 87-12001 Link Radio is built into a rugged, steel case with a hinged cover and quick-release latches. Built-in mounting brackets will make wall-mounting easy. Indicator LEDs on the front door report the status of the applied power, the radio ("Receiving" or "Transmitting") and the optional DTMF decoder ("Decoding", "Relay 1 Energized", "Relay 2 Energized"). All external connections are made at the bottom of the enclosure: The antenna is connected to a UHF connector, line, control and DC power connections are made via a 12-position connector and, if AC power is used, the AC cord is connected via a strain relief.

### **Specifications:**

Input Power	12 to 30 volts DC, 2 Amps max., diode protected against reversed polarity. 117VAC, 0.5 Amp. AC and DC can be connected simultaneously to provide DC backup of the AC power.
Radio	Programmable VHF, 8 synthesized channels.
Input Sig. Level (mod)	-25 to +5 dBm.
Output Sig. Level (demod)	-22 to +3 dBm.
Input/Output	Transformer isolated from line, 2- or 4-wire, high input impedance or 600 Ohm
Temperature Range	Operational: -30C (-22F) to +60C (+140F). Storage: -40C (-40F) to +80C (+176F).
Size	8 3/4" x 4 3/8" x 11 1/2".
Weight	13 pounds.
Surge Protection	In-line inductors and 1500 Watt TVS Diodes to earth ground from both sides of the communication lines.
Relay Contacts	Signal Relay on DTMF Decoder Board, one normally open contact for each of two channels, rated 1 amp @ 30VDC.

### **Ordering Information:**

Complete Assembly:	
87-12001-AA	Link Radio
87-12001-AB	Link Radio equipped with 58-98026 DTMF Decoder Board
DTMF Decoder Only:	
58-98026	DTMF Decoder Board

11/2000 Specifications subject to change