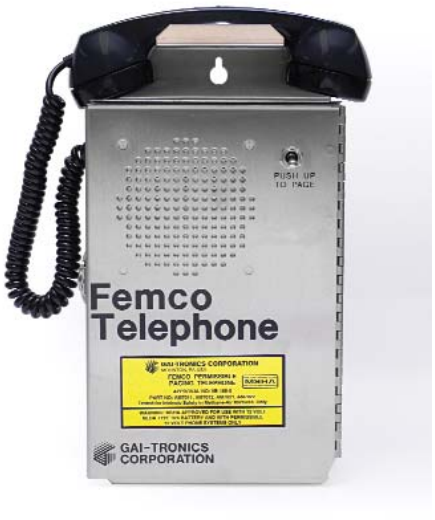
Loudspeaking Telephone

GAI-TRONICS® HUBBELL

Features

- **Simple Installation**
- **Simple Operation**
- **Ease of Service**
- **Portable**
- **Battery Operation**
- **Rugged Construction**
- **Environment Protected**
- **Stainless Steel Case**



The Loudspeaking Telephone (LST) is a completely self-contained battery-powered communication unit that provides loudspeaker paging and handset party line conversation over a twisted telephone line.

Installation and maintenance are simple due to the single plug-in amplifier board and the battery power supply used in the LST. The mode of operation is also simple, greatly improving ambient noise rejection. An anti-side tone circuit provides improved reception, particularly in areas with high ambient noise, and individual volume controls are provided for the speaker and handset receiver. The audio is of high quality; voices sound clear and natural, not harsh or metallic.

The LST operates from two 12 volt DC batteries which are placed in parallel during normal conversation to share on battery drain. Provisions on the LST unit keep the speakers quiet when receiving a normal audio signal or when paging. Input phone line DC polarity does not have to be observed since the unit design provides for polarity reversal.

Also available is a single battery Loudspeaking Telephone, LST II which is fully compatible with the standard LST and ideal where space is limited. The LST II offers all of the features of the two battery unit but requires only one battery.

Typical System Interconnection

There is no practical limit to the number of units which can be connected to the Loudspeaking Telephone system. The units can be placed miles apart or as close together as a few feet. The type of wire that is used is not critical; in fact, low cost telephone twist wire ranging from AWG 12 to AWG 19 is suitable. The AWG size is dependent upon the line length of the system and the number of phones connected to the line. For example, systems up to 1000 feet and containing up to 100 phones will use AWG 19. The system arrangement need not be on a loop basis, but can include side branches as required for convenience.

Typical Cable Characteristics

The table below defines cable size with cable characteristics to achieve increased operating distance and is dependant upon the type and quality of cable utilized and optimum cable line installation.

Cable Size	DC Resistance (per 1000 ft)	Inductance	Capacitance (conductor to conductor)	Maximum Cable Length
No. 22 AWG	16. 5 ohms	Max 0.20 µH/ft	Maximum 60 pF/ft	15,750 feet (~3 miles)
No. 18 AWG	7. 1 ohms	Max 0.20 µH/ft	Maximum 60 pF/ft	31,500 feet (~6 miles)
No. 14 AWG	2.8 ohms	Max 0.20 µH/ft	Maximum 60 pF/ft	63,000 feet (~12 miles)

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Specifications

Electrical

Power Source:
- LST: Two 12 volt DC NEDA 926 batteries or the equivalent
- LST II: One 12 volt DC NEDA 926 battery or the equivalent

Battery Requirements: Standby: 0 milliamperes
- Speaker Amplifier: 28 milliamperes at standby and 250 milliamperes for peak operation
- Handset Amplifier: 10 milliamperes nominal into 200 ohms (varies with phone lines and number of phones)

Phone Line: 17 K ohms at DC, 4.5 K ohms at 1 KHz. Allows operation of many units on the same phone lines

Paging Voltage:
- LST and LST II: 12 volt DC

Paging Sensitivity: Solid State. Pick up at 2.5 volt DC or greater. Drop out at 2.0 volt DC

Speaker:
- LST: 15 watt, 8 ohm, Compression Driver
- LST II: 2 watt, 8 ohm, 4" (102mm) treated water resistant cone

Handset: Standard handset with sealed push-to-talk; switch and 4 foot coiled cord

Controls:
- Speaker Amplifier (POT 1): adjustable to 30 dB
- Handset Amplifier (POT 2): adjustable to 30 dB

Output Power:
- Speaker Amplifier: 2 watts maximum into 8 ohms (clipped)
- Handset Amplifier: 380 milliwatts into 200 ohm load

Short Circuit Paging Current: Standard Model 0.8 amperes, Permissible Model .35 amperes

Insulation: 600 volt DC line-to-ground

Carrier Impedance:
- Line-to-Line: 7 K ohms
- Line-to-Ground: 100 K ohms

Mechanical

Dimensions:
- LST: 6.5 (165) W x 16.25 (413) H x 5.56 (142) D; inches (mm)
- LST II: 6.5 (165) W x 12.38 (315) H x 3.25 (83)D; inches (mm)

Weight:
- LST: 13 (5.9) without batteries; 3.25 (1.5) per battery; pounds (kg)
- LST II: 9.38 (4.3) with battery; pounds (kg)

Construction: #16 gauge stainless steel

Connection: Spring loaded push terminals for phone line (2)

Environmental

Moisture: 0 to 95% humidity with printed circuit board conformal coated

Temperature Range: -30° C to 60° C

Application	Rig Models	Mine Models	Desktop Model
LST (Two 12 Volt Batteries)	N/A	AM7021*	N/A
LST II (One 12 Volt Battery)	AM7009	AM7011*	AM7030

Note 1: Models marked with an asterisk (*) are MSHA permissible; approval Number 9B-155-0.

Note 2: There are no operational differences between the Rig, Mine LST and Mine LSTII Models; the only variation is the front cover labels, tailored to the listed industry.

GAI-TRONICS®

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