

## SPECIFICATIONS

### Element,

#### Microphone:

Dynamic

#### Receiver:

Magnetic

### Frequency Response, Microphone:

50-7000 Hz

### Polar Pattern:

Noise cancelling

### Microphone Output Level:

-60 dB (0 dB = 1 mW/10 dyne/cm<sup>2</sup>)

### Impedance,

#### Microphone:

150 ohms

#### Receiver:

150 ohms

### Case Material:

Polycarbonate

### Finish:

Black

### Dimensions,

#### Length:

211.1 mm (8.93 in.)

#### Width:

60.3 mm (2.37 in.)

#### Height:

66.7 mm (2.62 in.)

### Net Weight:

397 g (14 oz)

### Cable:

5-conductor coiled cord, 5' extended

### Connector:

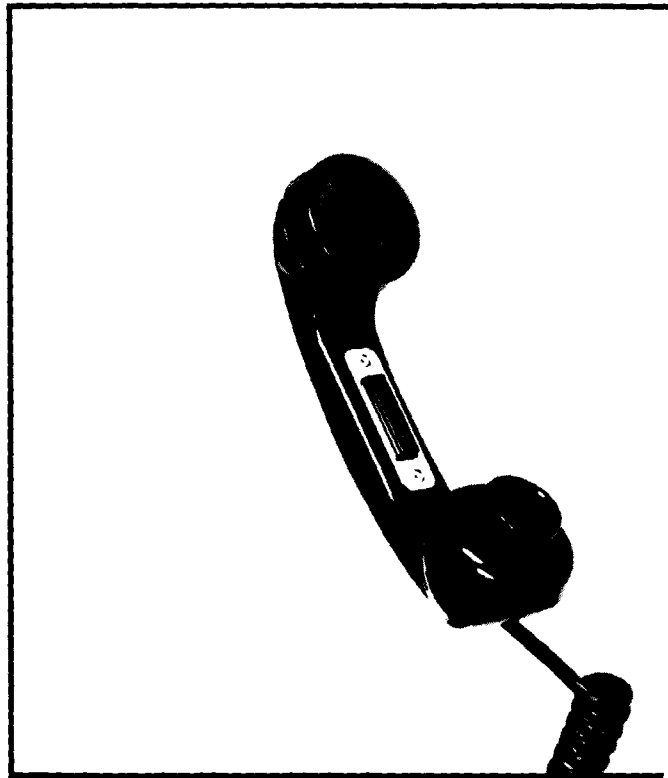
None supplied

### Switch:

Press to talk (non-shorting type)  
and relay switch

### Temperature Range:

-40°C (-40°F)  
to +70° (+158°F)

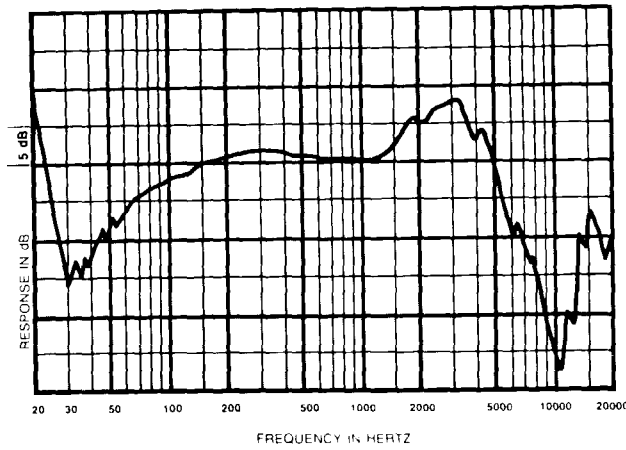


# US625ST

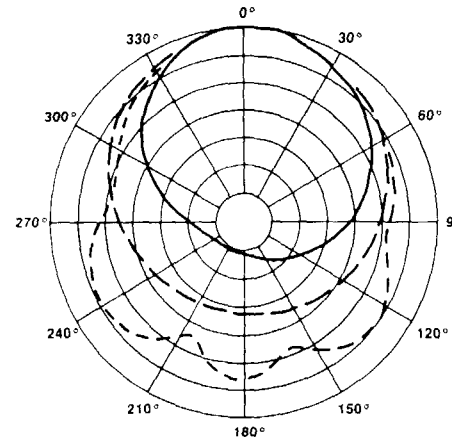
# Dynamic Handset

## DESCRIPTION

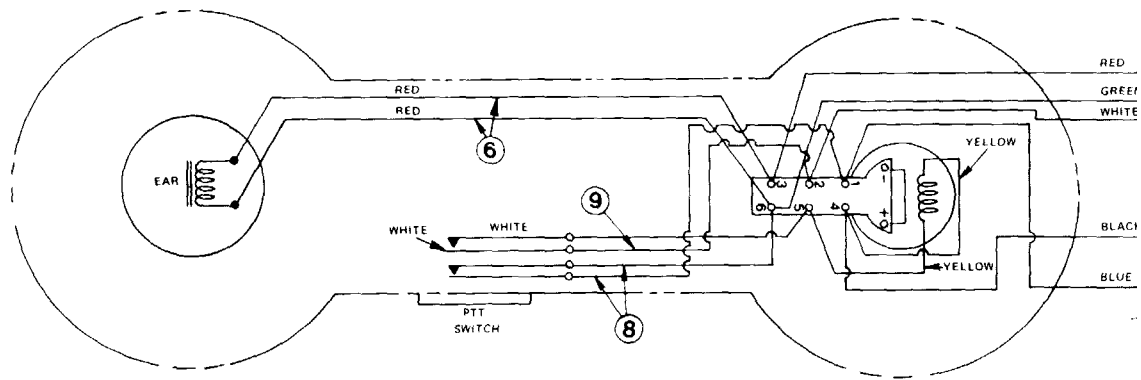
The Model US625ST is a noise-cancelling handset microphone, designed for speech transmission under high ambient noise conditions. The Model US625ST is the result of a continuous study of the needs of the communications industry and its specialized requirements of two-way radio and industrial applications noise-cancelling microphone utilizing two sound entrances for reduced noise. The US625ST is unexcelled at discriminating between near and far speech. The US625ST provides extreme speech reproduction with high sensitivity and low distortion.



**FIGURE 1**  
Frequency Response



**FIGURE 2**  
Polar Response



**FIGURE 3**  
Wiring Diagram

**ARCHITECTS' AND ENGINEERS' SPECIFICATIONS**

The model US625ST shall be a dynamic noise-cancelling handset.

The microphone (transmitter) shall be a noise-cancelling dynamic type with a uniform frequency response from 50 to 7000 Hz. The microphone impedance shall be specified 150 ohms. Output level shall be -60 dB with 0 dB equaling 1 mW/10 dynes/cm<sup>2</sup>. Dimensions shall be 211.1 mm (8.93 in.) long, 60.33 mm (2.37 in.) wide and 66.7 mm (2.62 in.) high. The case shall be molded of black high-impact Polycarbonate. A 5-conductor coil cord with an extension length of 1.5 meters (5 ft.) shall be included. An integral press-to-talk switch (non-shorting type) with relay connection shall be provided.

Receiver shall be a magnetic type with a specified 150 ohms impedance.

The University Sound Model US625ST is specified.

**WARRANTY (Limited)** — University Sound Commercial Microphones are guaranteed for two years from date of original purchase against malfunction due to defects in workmanship and materials. If such malfunction occurs, unit will be repaired or replaced (at our option) without charge for materials or labor if delivered prepaid to University Sound. Unit will be returned prepaid. Warranty does not extend to finish, appearance items, cables, cable connectors, switches, or malfunction due to abuse or operation under other than specified conditions, nor does it extend to incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you. Repair by other than University Sound will void this guarantee. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

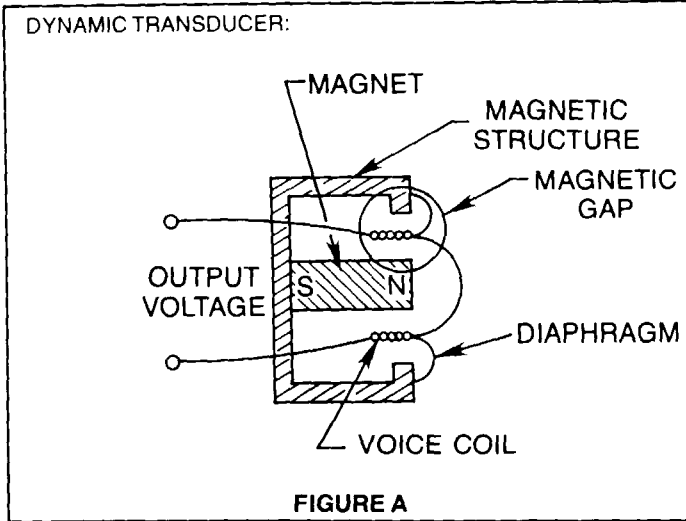
Service and repair information for this product: University Sound, Inc., Phone 818-362-9516 FAX 818-367-5292.

Applications and technical information for University Sound products: University Sound, Inc., Tec Coordinator, Phone 818/367-5292 FAX 818/367-5292

Specifications subject to change without notice.

# MICROPHONE SELECTION AND APPLICATION GUIDE

## HOW DO MICROPHONES GENERATE THEIR ELECTRICAL VOLTAGE?



The diaphragm of a dynamic microphone is a thin formed-plastic membrane. Attached to the diaphragm is a coil of wire, known as the "voice coil." As sound pressure moves the diaphragm/voice coil assembly within the magnetic gap, a very small voltage is generated. This small, induced voltage is the output of the microphone.

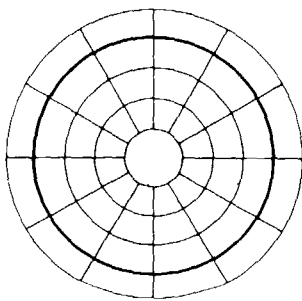
Dynamic microphones are used in a wide range of applications from public address to professional recording. The dynamic microphone provides excellent fidelity, extremely stable performance characteristics and ruggedness—all at a reasonable price to make the dynamic an excellent choice for any application.

### POLAR PATTERN

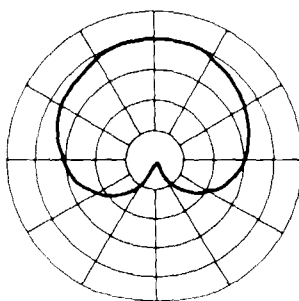
A microphone's polar pattern is three dimensional in character. Omnidirectional microphones pick up sound from all directions. Unidirectional microphones reject or reduce sound from their sides and rear.

### OMNIDIRECTIONAL POLAR PATTERN

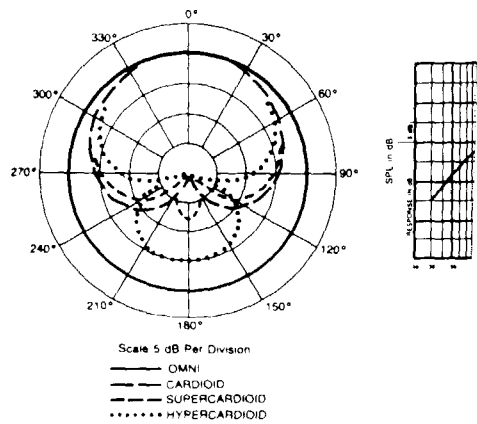
The polar pattern of an omnidirectional microphone may be visualized as an



**FIGURE B**  
Polar Pattern



**FIGURE C**  
Polar Pattern



**FIGURE D**  
Polar Pattern

**Ni**  
**Frec**

inflated balloon with the microphone at the center

Usually the polar pattern is represented on polar g in Figure B. The polar pattern shows the loss in output as the microphone is rotated 360° with a constant fixed distance and frequency.

### UNIDIRECTIONAL POLAR PATTERN

The most common unidirectional microphone is "heart-shaped" polar pattern. The output of the microphone is reduced (about 6 dB) for sources coming from the sides and reduced for sources to the rear. The polar pattern is shown in Figure C.

Directional microphones are widely used for live sound reinforcement because feedback is a problem. Depending on the microphone, null angles other than 180° may be advantageous.

### NOISE CANCELLING

The term "noise cancelling" is widely used for communications microphones (bi-directional polar pattern). When a microphone is used in a close-talking application, the low-frequency noise is greatly emphasized. This emphasis is known as "proximity effect." Figure E; both the free-field curve (equivalent to having the microphone in a free field) and the close-talking curve show a significant boost between the on-axis close response and the free-field response. If the unwanted noise is at low frequencies, the subject's voice signal is clearer. The ratio of direct to indirect sound at the microphone element is directional, which further reduces the noise arriving at the microphone from different angles.

### NOISE-CANCELLING FREQUENCY RESPONSE

For communications noise-cancelling style microphones, the frequency response is tailored for voice. Typically, the response is peaked to provide presence and the low-frequency roll-off provides greater intelligibility.

The combination of the noise-cancelling effect and the frequency response makes communications microphones ideal for voice applications where noise is extremely high.

