

**SHURE****MICROPHONES AND ELECTRONIC COMPONENTS**

AREA CODE 312/328-9000 • CABLE SHUREMICRO

**MODEL ES51****UNIDIRECTIONAL DYNAMIC MICROPHONE  
FOR ACOUSTICALLY EQUALIZED SOUND SYSTEMS**

**General:** The basic role of the microphone in an equalized sound system is to pick up the program source without disturbing the uniformly distributed sound-adjustment which has been performed on the system. The feedback threshold, measured in half-octave bands, gives an overall picture of the performance potential of the microphone when used in an equalized sound system. This measurement *includes* the effects of *frequency response* and *polar response*.

The design of the Model ES51 microphone has been specifically optimized to operate in equalized sound systems and to maintain a uniform feedback threshold characteristic.

The feedback threshold curve of the Model ES51 is shown in Fig. A.

NOTE that the feedback threshold in the useful operating range of 110 Hz. to 5000 Hz. is maintained at uniform level. This factor is imperative for optimum results from an equalized system at minimal costs. In the critical range above 5000 Hz. the response of the ES51 has been smoothly tailored to increase the feedback rejection in this region.

A further requirement of a microphone for use in an equalized system is its uniform phasing—the Model ES51 is 100% phase checked.

The microphone features:

- Response specially tailored for use in equalized sound systems
- True cardioid pickup pattern: symmetrical about axis and uniform at all frequencies
- Cartridge and microphone body separately shock mounted for quiet operation
- An accessory switch adapter furnished to serve in applications where an ON-OFF switch is necessary at the microphone
- Dependability under all operating conditions
- A convenient carrying and storage case

The Model ES51 is dual impedance for connection into 30-50 ohms or 150-250 ohms line. The microphone is recommended where long cable lengths are required or under conditions of severe hum disturbance. For use with high impedance amplifiers, Shure Model A95A Line Matching Transformer is available for coupling the low impedance line to amplifier input.

### FURNISHED ACCESSORIES

Carrying Case .....	90B1521
Switch Knob Assembly .....	94B272

### OPTIONAL ACCESSORIES

Line Matching Transformer .....	A95A
Vibration-Isolation Stand .....	S39A
Desk Stand .....	S33B
Quick Disconnect Isolation Unit .....	A45

### SWITCH ADAPTER INSTALLATION

Remove the impedance switch cover plate by removing the two #2-56 binding head machine screws at each end of the cover plate. Position the switch plate in place of the cover plate. (The key of the switch plate must be set into the slot of the impedance change switch in the microphone). Replace the two #2-56 binding head machine screws.

The center position on the switch plate marked "O" is the "OFF" position; "H" is the medium impedance (150-250 ohms) position; "L" is the low impedance (30-50 ohms) position. Most applications require use of only one impedance. In this case, insert the small #2-56 fillister head screw in the threaded hole below the impedance position NOT being used. This prevents the switch from accidentally being turned to the wrong impedance setting during use as "ON-OFF" switch.

### ARCHITECT'S SPECIFICATIONS

The microphone shall be Shure Model ES51 or equivalent. A moving coil (dynamic) microphone with a frequency and polar response especially tailored for equalized sound systems, this unit shall have a cardioid polar characteristic. The feedback threshold, measured in half-octave bands, shall be uniform from 110 to 5000 Hz. Above 5000 Hz. its response shall be peak free and smoothly rolled off. The cancellation at the sides shall be approximately 6 db and the cancellation at the rear shall be 15 to 20 db. The microphone shall be equipped with a three-position impedance "OFF" switch for adjusting microphone impedance to 50 ohms or 150 ohms.

The microphone output shall be:

- 50 ohms impedance —60.0 db  
(0 db = 1 milliwatt with 10 microbars)
- 150 ohms impedance —60.0 db  
(0 db = 1 milliwatt with 10 microbars)

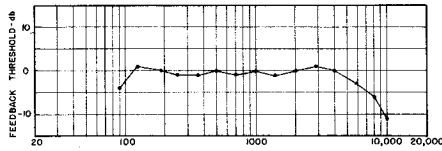
The microphone rating Gm (sensitivity) at 1000 Hz. shall be:

- 50 ohm impedance —152.0 db
  - 150 ohm impedance —153.0 db
- EIA Standard SE-105, August 1949

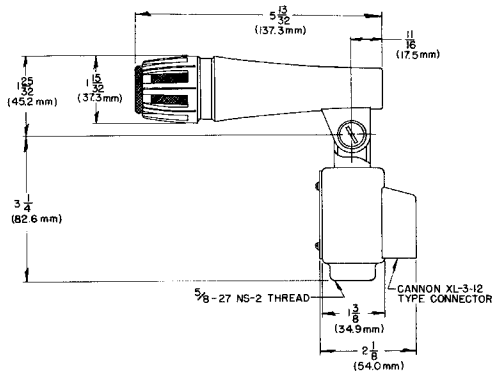
The microphone shall be provided with a swivel adjustable through 180°. It shall be equipped with a vibration-isolation unit in combination with a stand connector. The microphone shall mount on a stand having 5/8"-27 thread.

The overall dimensions shall be 5 1/32" high, 1 3/8" wide, and 6 3/32" deep.

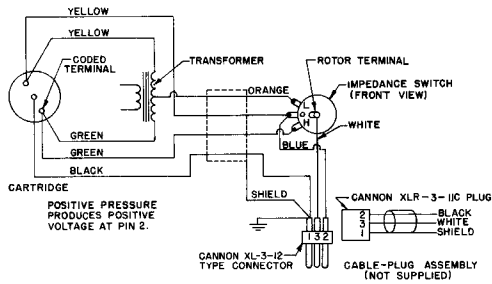
The microphone shall be supplied in a protective re-usable storage case.



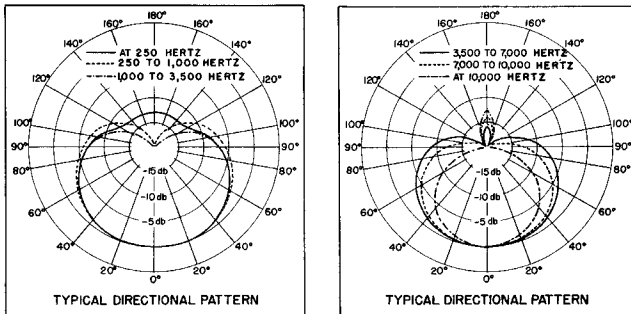
**HALF OCTAVE FEEDBACK THRESHOLD  
FIGURE A**



**OVERALL DIMENSIONS  
FIGURE B**



**INTERNAL CONNECTIONS  
FIGURE C**



**POLAR PATTERN  
FIGURE D**

## SPECIFICATIONS

- Type: Dynamic
- Polar Pattern: Cardioid (Unidirectional). Uniform with frequency, symmetrical about axis.
- Feedback Threshold: Uniform from 110 Hz. to 5000 Hz. Above 5000 Hz., its response shall be peak free and smoothly rolled off.
- Impedance: Dual. Choice of 30-50 ohms "L" or 150-250 ohms "H", selected by impedance switch. (See "Switch" below. Factory set to 150-250 ohms)
- Output Level: 1000 Hz. response

### Model ES51 30-50 ohms "L" position

Open circuit Voltage .....	87.5 db* (.043 mv)
Power Level .....	60.0 db**
EIA Microphone Rating	
Gm (Sensitivity) .....	152.0 db***

### Model ES51 150-250 ohms "H" position

Open Circuit Voltage .....	81.5 db* (.085 mv)
Power Level .....	60.0 db**
EIA Microphone Rating	
Gm (Sensitivity) .....	153.0 db***

\*0 db = 1 volt per microbar

\*\*0 db = 1 milliwatt with 10 microbars

\*\*\*0 db = EIA Standard SE-105, August 1949

- Switch: Impedance selection switch with center position "OFF." May be used with "tamperproof" cover, or accessory (included) "ON-OFF" knob.
- Swivel: New improved "Positive Action" life-time swivel permits tilting of the head through 180°.
- Shock Mount: Cartridge and microphone body separately shock mounted for quiet operation.
- Connector: Cannon XL-3-12 type in microphone.
- Case: Die-cast and "Armo-Dur".
- Case Finish: Non-reflecting gray paint.
- Stand Thread: Standard 5/8"-27 thread.
- Dimensions: See Figure B.
- Weight: 1¼ pounds (567 grams).

**Guarantee:** Each microphone is guaranteed to be free from electrical and mechanical defects for a period of one year from date of shipment from factory provided all instructions are complied with fully. In case of damage, return the microphone to the factory for repairs. Our guarantee is voided if the microphone is subject to accident or abuse or if the case is opened.