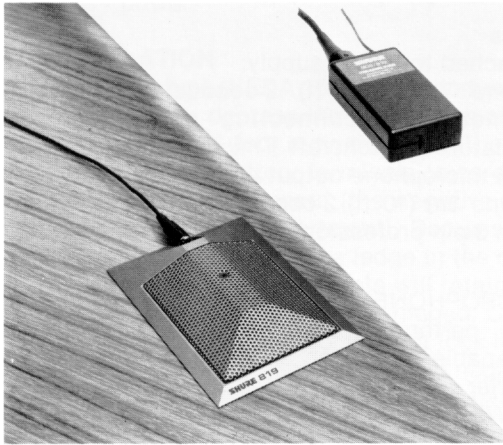


SHURE®

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Model 819 User Guide



SHURE MODEL 819 SURFACE-MOUNTED UNIDIRECTIONAL CONDENSER MICROPHONE

The Model 819 Microphone is designed especially for surface-mounted applications. It is a superior-quality permanently-biased (electret) condenser microphone with a hemi-cardioid directional pattern (cardioid in the hemisphere above the mounting surface).

The 819 is particularly suited for sound-reinforcement and recording of speech, singing, or acoustic instruments—in locations like churches, schools, conference rooms, and theaters. Whenever an inconspicuous high-output, high-fidelity unidirectional surface-mounted microphone is desirable, the 819 is a logical choice.

The microphone design relies on the fact that sound pressure doubles at a barrier or boundary compared to its value if the boundary is removed. When placed sufficiently near the boundary surface, a microphone has effectively 6 dB higher sensitivity and approximately 3 dB greater rejection of random background noise.

Because of its half-cardioid (unidirectional) polar pattern, the 819 discriminates against sounds originating from the rear, suiting it for conditions where an omnidirectional pattern makes other surface-mounted microphones impractical. This built-in unidirectionality can be an enormous advantage when it is desirable, for instance, to isolate pickup of a particular vocalist, instrument, or performer from the rest of a group, or to discriminate against audience pickup. Because of the unidirectional polar pattern, no physically isolating barriers are required, and directionality is maintained to low frequencies.

The 819 can be used for individual instrument pickup, e.g., mounted inside the lid of a grand piano or on the floor next to a bass drum. Experimental placement and critical lis-

tening will demonstrate the best microphone location for any particular purpose or effect desired.

The optimized design of the 819 includes a new cartridge, developed at Shure. The result is high output, accurate sound reproduction over the entire audio frequency range, and off-axis performance comparable to the finest unidirectional microphones. The 819 provides low distortion and high signal-to-noise ratio for distinguished performance even under difficult acoustic conditions.

The 819 is powered either by a single 9-volt alkaline battery (2500 hours continuous battery life) or by an 11 to 52 volt phantom supply from sound-reinforcement or recording equipment. The system is designed so that the Battery supply will automatically switch in should the phantom power fail. The output impedance is 600 ohms, compatible with balanced-line low-impedance microphone inputs.

The 819 consists of a small, rugged, surface-mounted microphone finished in durable platinum beige enamel, and a sturdy power supply with battery compartment and two 2-conductor shielded attached cables: one small-diameter 7.6m (25 ft) with 3-socket Tini "Q G" connector to mate with the microphone, and one 3m (10 ft) with 3-pin professional audio connector to mate with a mixer, amplifier, or tape recorder microphone input.

Features:

- *Wide, flat frequency response for accurate sound reproduction across the audio spectrum*
- *Fixed low-frequency rolloff to minimize pickup of room noise from air conditioners, furnace fans, etc.*
- *Half-cardioid polar pattern minimizes pickup from rear of microphone, permits aiming microphone (toward performers and away from audience, or toward singers and away from instruments)*
- *High sensitivity and high signal-to-noise ratio*
- *Battery or phantom powering: uses standard 9-volt battery; accepts wide range of phantom voltages*
- *Low susceptibility to RFI, electrostatic and electromagnetic hum*
- *Extremely rugged construction of microphone and power supply for outstanding reliability*
- *Low profile, platinum beige finished microphone for inconspicuous but handsome appearance onstage, on floor, table, ceiling, wall, or lectern*
- *Usable over very wide range of temperature and humidity*

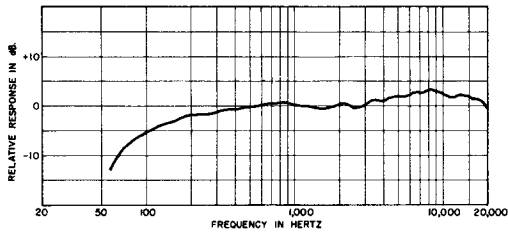
SPECIFICATIONS

Type

Cardioid condenser (electret bias) for surface mounting

Frequency Response

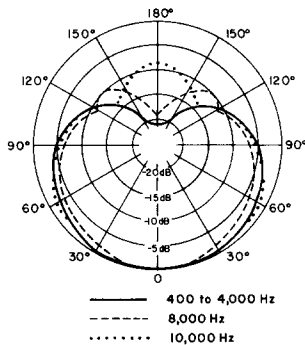
60 to 20,000 Hz at 300° incidence to infinite surface (see Figure 1)



TYPICAL FREQUENCY RESPONSE
FIGURE 1

Polar Pattern

Half-cardioid (cardioid in hemisphere above mounting surface), uniform with frequency, symmetrical about axis (see Figure 2)



TYPICAL POLAR PATTERN
FIGURE 2

Output Impedance

600 Ω

Recommended Minimum Load Impedance

800 Ω

Output Level (at 1,000 Hz, measured with sound source at 300° incidence to infinite surface)

Open Circuit Voltage -73.0 dB (0.22 mV)

0 dB = 1 V/μbar

Output Clipping Level (at 1,000 Hz, 3% THD)

2,000 Ω load -10 dB (0.32 mV)

800 Ω load -17dBV(0.14V)

Maximum SPL (at 1,000 Hz, sound source at 300° incidence to infinite surface)

2,000 Ω load 137 dB

800 Ω load 132 dB

Hum Pickup

2 dB equivalent SPL in 1 mOe field (60 Hz)

Output Noise

26 dB SPL, A-weighted

31 dB SPL, weighted per DIN 45 405

Signal-to-Noise Ratio

68 dB re 94 dB SPL

Dynamic Range

111 dB

Phasing

Positive pressure on diaphragm produces positive voltage on pin 2 relative to pin 3 of power supply output connector.

Power

Battery: One 9 Vdc alkaline (NEDA 1604A), approximately 2500 hours continuous with fresh alkaline battery

Phantom Voltage: 11 to 52 Vdc, operational down to 5 Vdc; 0.2 mA current drain; permissible to use phantom power with batteries in place or removed

Cables

Attached to power supply:

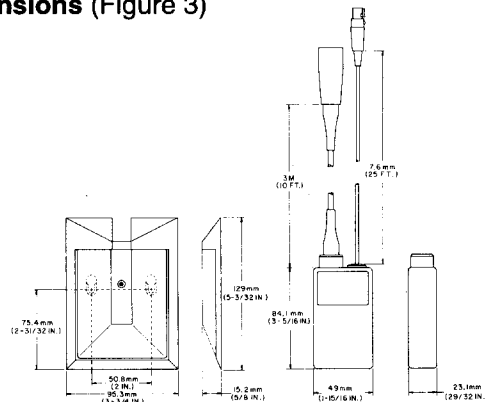
One 7.6m (25 ft) 2-conductor shielded, small diameter interconnecting cable with 3-socket miniature Switchcraft Tini "Q G" connector to mate with microphone output connector. One 3m (10 ft) 2-conductor shielded output cable with 3-pin professional audio connector

Case

Microphone: Platinum beige enamel die-cast base and perforated steel grille with replaceable or cleanable fine mesh screen and foam pad wind/dirt barrier

Power Supply: Black molded high-impact plastic

Dimensions (Figure 3)



OVERALL DIMENSIONS
FIGURE 3

Environmental Conditions

Operating Temperature: -18 to 57° C (-28 to 135° F)

Storage Temperature: -29 to 74° C (-20 to 168° F)

Relative Humidity (Operating or Storage): 0 to 95%

Net Weight

Microphone: 263 grams (9.3 oz)

Power Supply: 292 grams (10.3 oz) with battery and cables

POWERING THE 819

The 819 can be powered by a single internal 9-volt battery or by an external phantom supply of 11 to 52 volts DC.

To Use Battery Power: Install a 9-volt alkaline battery. A fresh one will power the 819 for 2500 hours continuous use. A battery turns on as soon as it is correctly installed. The output of a battery-powered 819 can be connected to any balanced-line low-impedance microphone input.

To Use Phantom Power: Connect the power supply output to a balanced-line microphone input supplying 11 to 52

Vdc phantom power. The battery may be left in place as backup while the unit is phantom powered. There will be no battery drain as long as the phantom voltage exceeds 1.5 volts. If the phantom source should fail, the 819 will automatically switch to battery power.

BATTERY INSTALLATION

A 9-volt dc alkaline type (NEDA 1604A) is recommended. To install the battery, depress the ridged area of the case and swing the hinged door outward. Insert the battery in the compartment, battery terminals toward the hinge and positive terminal inward (the negative contact is marked inside the compartment). Depress the battery slightly and hook it under the ledge in the compartment. The ledge and spring contacts will retain the battery even if the door or hinges are damaged. Close and lock the door. Note that the door will not lock if the battery is incorrectly inserted; the positive and negative contact areas accept only the corresponding battery terminals.

TO PREVENT BATTERY DRAIN

If a battery is installed in the 819 and phantom power is switched off, the battery will be activated. Therefore, when the unit is not in use, to prevent battery drain, either remove the battery or store it in the battery compartment upside down (contacts upward) and positive contact inward. If the 819 is not being used for a prolonged period, be sure to remove the battery to prevent the possibility of damage from leakage.

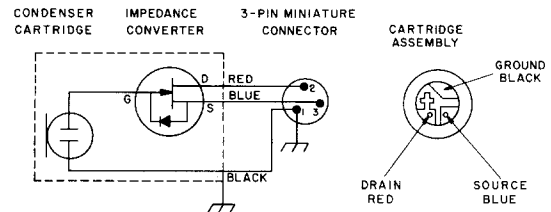
INTERCONNECTING CABLE

One 7.6 m (25 ft) cable is supplied, attached to the pow-

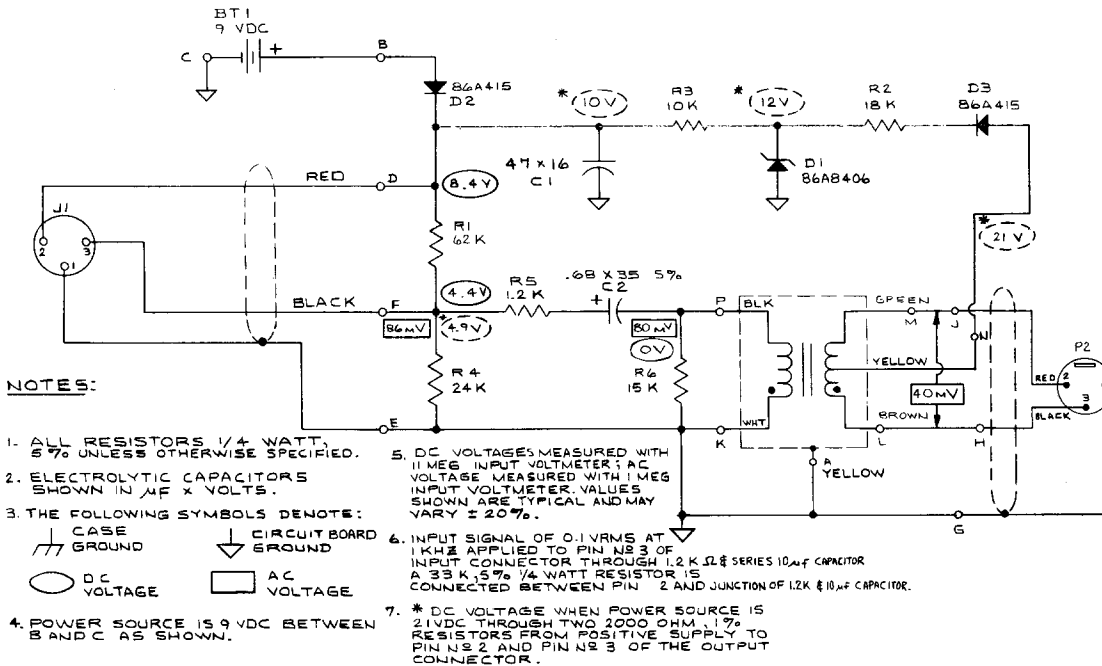
er supply, for connection to the microphone. It is sometimes desirable for the units to be located a greater distance apart. Up to 15 m (50 ft) of additional cable can be used between the microphone and power supply with no loss in response or output.

CLEANING

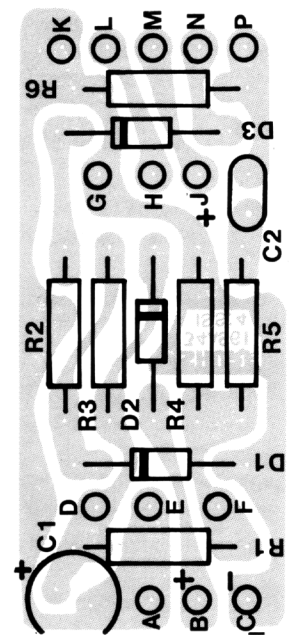
When the microphone is located in a dusty environment, periodic cleaning may be desirable. This can be easily accomplished by removing the Phillips head screw on the grille, and lifting off the grille, the fine mesh screen, and the foam pad. Clean the fine stainless steel mesh screen by washing it in soapy water. Dry it thoroughly, and replace the foam pad, screen, and grille. Fasten firmly with the Phillips screw.



MICROPHONE CIRCUIT DIAGRAM
FIGURE 4



POWER SUPPLY CIRCUIT DIAGRAM
FIGURE 5



POWER SUPPLY PC BOARD
FIGURE 6

Reference Designation	Part Number	Description	Commercial Alternate
A1	90A3870	Printed Circuit Board Assembly	None
A2	R129	Microphone Cartridge & Impedance Converter	None
C1	86AF629	Capacitor, Electrolytic, 47 μ F, 16 WVdc	None
C2	86C651	Capacitor, Tantalum Electrolytic, 0.68 μ F, 35 WVdc, 5%	None
J1	95R, V973, W973, X973, Y973	Connector, Cable, 3-socket, Miniature	Switchcraft TA3F
MP1	53A1879C	Grille (Microphone)	None
MP2	37A147	Inner Screen (Microphone)	None
P1	95A8077	Connector, Receptacle, 3-pin Miniature	Switchcraft TB3M
P2	95BA994A	Connector, Output Cable, 3-pin	Cannon XLB3-12C, Switchcraft a#M
T1	51A288	Transformer	None
W1	90A3877	Interconnecting Cable & Connector Assembly	None
W2	90A3873	Output Cable & Connector Assembly, 3 m (10 ft)	None

For additional service or parts information, please contact the Shure Service Department at 1-800-516-2525. Outside the U.S.A., contact your authorized Shure Service Center.

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