

## GENERAL

The Shure Model 839 is a miniature, lavalier condenser microphone designed for sound reinforcement applications where a tiny, high-quality lavalier microphone is required. The 839's wide frequency response, low distortion and RF susceptibility, and reliable operation at temperature and humidity extremes make it suitable for use in clubs, hotels, schools, churches, virtually anywhere an entertainer or speaker needs optimum sound without the distraction of conventional microphones and stands.

The 839 features a specially tailored frequency response designed to provide a more natural "stand mike" sound when the microphone is chest-worn. This response is achieved by an acoustically generated high-frequency boost for a flatter response in the lavalier position. In addition, a 12 dB/octave rolloff below 100 Hz helps reduce room noise and other undesirable low-frequency signals.

In addition to the microphone's small size, the 839's cable emerges from the side, rather than the bottom, of the microphone housing. This arrangement makes the thin, strong microphone cable even more unobtrusive by eliminating the distracting cable loop visible below most lavalier microphones.

The 839 is powered either by a single 9-volt alkaline battery (2500 hours continuous battery life) or by a phantom supply such as an external power supply or sound-reinforcement or recording equipment. The 839 operates over an extremely wide voltage range of 11 to 52 Vdc, covering DIN Standard 45 596 phantom voltages. A dual-channel power supply (Model PS1A) is available for providing phantom power to the 839.

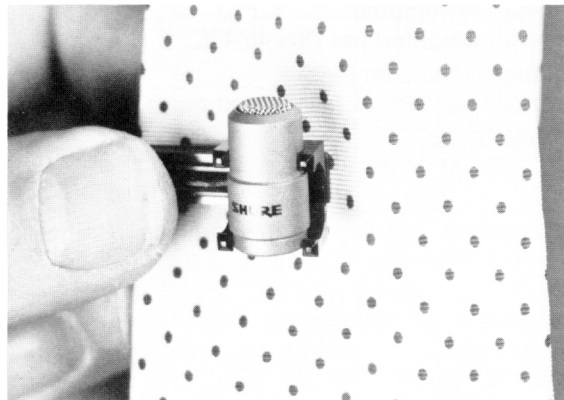
The 839 consists of the following: microphone with attached power supply cable; power supply with attached cable and three-pin XLR audio connector; tie bar mount; and acoustic windscreen to minimize wind noise in outdoor applications such as live remotes and political rallies.

## Features

- Wide-range frequency response specially tailored for chest-worn microphone operation
- Controlled low-frequency rolloff reduces low-frequency clothing and room noise
- Low distortion and wide dynamic range characteristics under various load impedances
- Wide-range phantom powering accepts all commonly used voltages

## MODEL 839

### CONDENSER LAVALIER MICROPHONE



- Tiny size and light weight for inconspicuous use
- Usable over wide range of temperature and humidity conditions
- Rugged construction for outstanding reliability
- Fast and simple user installation
- Power supply can be pocketed, strapped to body, or clipped to belt or waistband

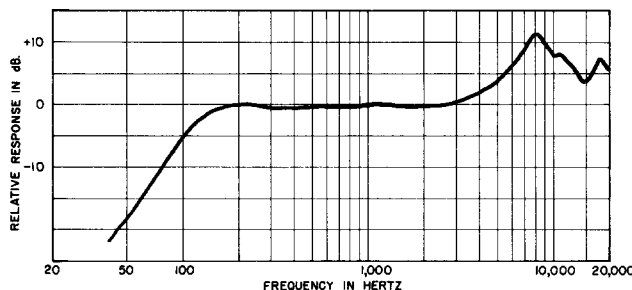
## SPECIFICATIONS

### Type

Condenser (electret bias)

### Frequency Response

80 to 20,000 Hz (see Figure 1)



TYPICAL FREQUENCY RESPONSE  
FIGURE 1

### Polar Pattern

Omnidirectional

### Output Impedance

600 ohms

CONDENSER LAVALIER MICROPHONE

**SHURE**  
MODEL 839

### Output Level (at 1,000 Hz)

Open Circuit Voltage ..... -70 dB (0.32 mV)  
(0 dB = 1 volt per microbar)

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

2000-ohm Load ..... -12 dBV (0.25V)  
800-ohm Load ..... -19 dBV (0.11V)

### Maximum SPL

134 dB with 2000-ohm load  
129 dB with 800-ohm load

### Hum Pickup

-1 dB equivalent SPL in a 1 millioersted field (60 Hz)

### Output Noise (equivalent sound pressure levels; measured with true rms voltmeter)

23 dB typical, A-weighted  
29 dB typical, weighted per DIN 45 405

### Dynamic Range (2000-ohm load)

111 dB (maximum SPL to A-weighted noise level)

### Signal-to-Noise Ratio

71 dB (IEC 651) at 94 dB SPL

### Phasing

Positive pressure on diaphragm produces positive voltage on pin 2 relative to pin 3

### Power

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

Phantom Voltage: 11 to 52 Vdc; operation down to 5 Vdc; 2.0 mA current drain (typical at 48 Vdc); operational on phantom power with battery in place or removed

Protected against reverse voltage application

### Environmental Conditions

Operating Temperatures ..... -18° to 60° C (0° to 140° F)  
Storage Temperature ..... -29° to 66° C (-20° to 150° F)

### Cables

Microphone: 1.5 m (5 ft), attached, two-conductor, shielded

Power Supply: 3 m (10 ft) attached, two-conductor, shielded, TRIPLE-FLEX® with 3-pin XLR professional audio connector\*

### Case

Microphone: Brass construction with bronze finish and stainless-steel-mesh grille

Power Supply: Black molded high-impact plastic with detachable belt clip

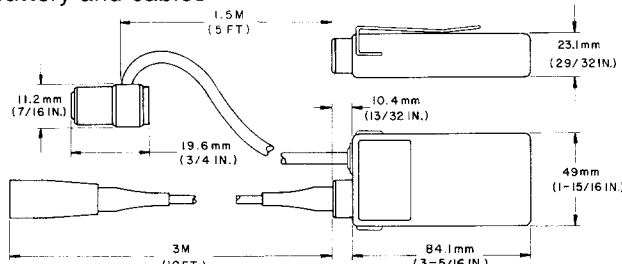
### Dimensions

See Figure 2

### Net Weight

Microphone: 6 grams (0.21 ounces)

Power Supply: 292 grams (10.3 ounces) including battery and cables



OVERALL DIMENSIONS  
FIGURE 2

\*Designed to mate with Cannon XL series, Switchcraft A3 (Q.G.) series or equivalent connectors.

### MICROPHONE POWER

The 839 can be powered by a single internal 9-volt battery or by an external phantom supply of 11 to 52 volts dc. The system is designed so that the battery supply will automatically switch in should the phantom power fail.

**Battery:** Install a 9-volt alkaline battery. A fresh one will power the 839 for 2500 hours continuous use. A battery provides power as soon as it is correctly installed. The output of a battery-powered 839 can be connected to any balanced-line, low-impedance microphone input. Recommended battery types are:

Duracell MN1604	NEDA 1604A
Eveready 522	IEC 6LR22
Bright Star 7590	Japanese 6AM6
Ray-O-Vac A1604	Varta 4022
Radio Shack 23-553	U.S. Military BA3090

Note that the 839 is designed without an on-off switch; the power supply is on whenever a "good" battery is inserted or phantom power is applied. The highly efficient circuit can operate for over three months continuously with a fresh alkaline battery.

To insert 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.

**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 15 volts. If the phantom source should fail, the 839 will automatically switch to battery power.

The Shure Model PS1A Power Supply will provide phantom power to one or two 839 microphones. Phantom powering uses the balanced audio cable pair to carry the supply current to the microphone, and the cable shield as a ground return.

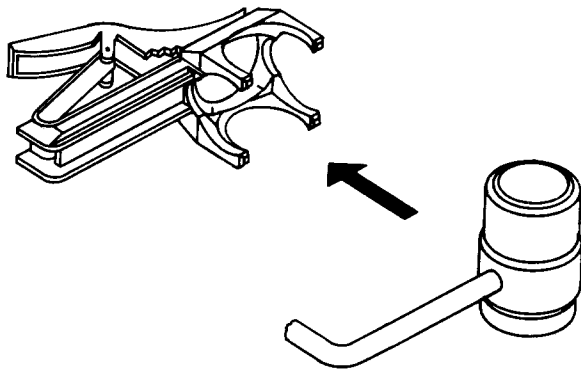
Use only high-quality cables, as intermittent shorts between broken shield wires and balanced conductors will cause objectionable noise transients in the system. A reliable ground path is essential for the same reason.

### PREVENTING BATTERY DRAIN

If a battery is installed in the 839 and phantom power is switched off, the battery will be activated. To prevent battery drain when the unit is not in use, either remove the battery or store it in the battery compartment upside-down (contacts upward) and positive contact inward. If the 839 is not to be used for a long period, be sure to remove the battery to prevent the possibility of damage from leakage.

### MICROPHONE LOADING

A minimum load impedance of 800 ohms or greater should be used for maximum signal handling and minimum distortion. The load can be as low as 150 ohms, but a reduction in output clipping level will result. It should be noted that the power supply itself may add loading (3300 ohms in the Shure PS1A) to the microphone.



TIE BAR MOUNTING  
FIGURE 3

### WIND NOISE

A lavalier microphone generally needs no windscreen for proper operation. However, when used outdoors under windy conditions, the acoustic foam windscreen helps eliminate the unpleasant “rushing” noise associated with outdoor miking.

### MOUNTING

The tie bar mount attaches to a blouse, shirt, coat or tie using the spring-loaded tie clasp. After the microphone is snapped into the mounting block, the cable is tucked into the channel behind the microphone (see Figure 3). The unique construction of the mounting block permits the microphone to be mounted in four different positions. In addition to the conventional method shown in Figure 3, the tie bar can be reversed for left-buttoning apparel, or attached vertically to V-neck clothing.

Most 839 applications require that the power supply be worn on the body. The spring-loaded belt clip holds the power supply to a belt, skirt or trousers, or inside pocket.

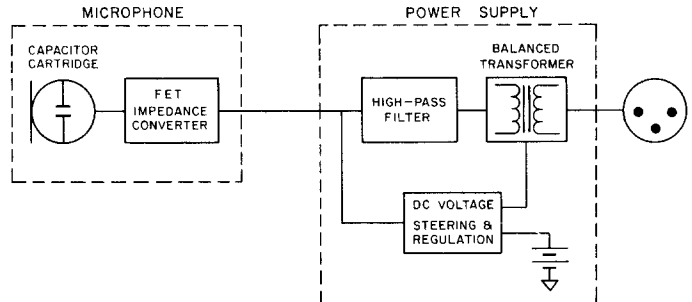
The belt clip can be removed from the case and the power supply placed on a nearby horizontal surface or worn in an inside pocket without any retention method. Clip removal requires disassembly of the case (two Phillips screws in the case and two 5/16-inch setscrews in the connector collar).

Note that the “W-shaped” belt clip permits the power supply to be worn with the cable end either upward or downward, depending on the speaker’s comfort and the particular application.

### CIRCUIT DESCRIPTION

A block diagram of the 839 is shown in Figure 4. The capacitor cartridge is followed by a field-effect transistor impedance conversion stage. The FET output is coupled through a two-conductor, shielded cable to the power supply assembly. The signal enters a 12 dB/oct-

tave high-pass filter, followed by a transformer-coupled, balanced output. The design of the capacitor cartridge and the selection of the following circuitry ensure low noise and distortion, wide frequency response and dynamic range, and reliable operation over a wide range of working environments.



BLOCK DIAGRAM  
FIGURE 4

## SERVICING

### TROUBLESHOOTING

The following steps should be taken if problems arise.

1. Check that battery or phantom voltage is adequate.
2. If a second 839 is available, connect it to the same microphone input to see if the problem is in the mixer or amplifier.
3. Remove power supply case cover\* and check microphone and power supply cables for continuity.

\*Remove four screws: two Phillips in the case and two Allen head in the connector collar.

### REPLACEMENT PARTS

Microphone Cartridge-Housing .....	R133
Microphone-Power Supply Cable .....	90A3875
Battery Compartment Door .....	65A1536
Belt Clip .....	44A279

### FURNISHED ACCESSORIES\*

Tie Bar .....	RK240SB
Windscreen .....	RK242WS

### OPTIONAL ACCESSORIES\*

Universal Mounting Block .....	RK239MB
Dual-Mount Tie Bar .....	RK241DB

\*Furnished in multiples of 4.