

## General Description

The Rane MIC 1 Condenser Microphone is a professional quality back-electret condenser microphone with an omnidirectional pickup pattern. Originally designed specifically for use with Rane's real-time equalizers and analyzers, it may be used with any real-time analyzer to measure room response and/or sound pressure levels.

Today, the MIC 1 finds itself being used in a number of other related areas. Indeed, it is well suited for any application requiring a full frequency, high SPL omnidirectional microphone. This includes many broadcast, sound reinforcement, and musical instrument uses.

The MIC 1 comes complete with an extra long 40 ft (12.2m) cord to facilitate distant placing of the microphone

from the analyzer. Included also is a zippered, weather-resistant carrying/storage bag for added convenience and protection. The MIC 1 comes with a non-reflective black wrinkle powder-coat finish that is extremely durable and scratch resistant.

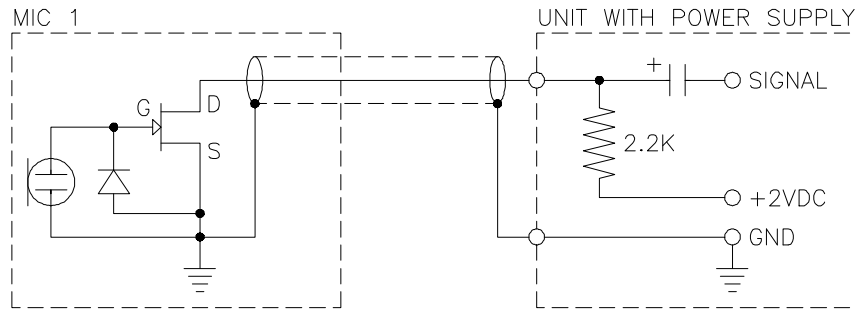
Like all condenser microphones, the MIC 1 must be powered before operating. This may be done using standard batteries, or a remote DC power supply. (See Application Information section for details).

The MIC 1 is supplied with the RA 27 Realtime Analyzer and the RE 27 Realtime Equalizer. When ordering separately, please contact the Parts Department and specify part number 410-008.

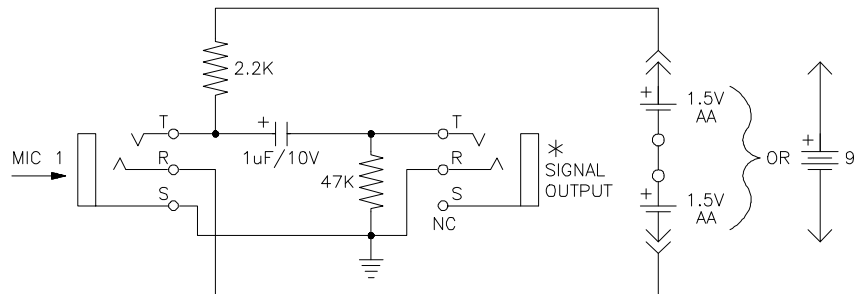
## Features and Specifications

Parameter	Specification	Limit	Units	Conditions/Comments
Microphone Type	Back-Electret Condenser			6mm capsule
Frequency Response	20 to 16,000	1	dB	+2dB at 20kHz
Polar Pattern	Omnidirectional			
Impedance	1.8k	5%	Ohms	With 2.2k Ohms Load
Sensitivity	-64 (0.63 mV @ 74dB SPL)	3	dBV	re 0dB=1V/ $\mu$ bar, 1kHz 1 $\mu$ bar = 74dB SPL
Maximum SPL	140		dB	1kHz
Signal-To-Noise Ratio	58 (re 94dB SPL)	Min	dB	1kHz, A-weighted
Phasing	Non-inverting			Positive pressure on diaphragm equals positive output voltage
Power				
.....Voltage Range	1.5 to 10		VDC	Absolute Min & Max Ratings
.....Rated Voltage	2.0	10%	VDC	
.....Sensitivity Loss	-3dB @ 1.5VDC			
.....Current Demand	0.5	Max	mA	At 2.0 VDC
.....Battery	9 VDC Alkaline (Type 1604A) or (2) 1.5 VDC Alkaline (Size AA)			1000 hrs (typ) continuous 4000 hrs (typ) continuous
Cable	Attached; 40 ft (12.2m) Long			1 cond. shielded; 1/4" TS phone
Case	6" x 9" (15.2cm x 22.9cm)			Zippered Heavy Black Vinyl
Storage Temperature	-20 to 60		oC	-4 to 140 oF
Operating Temperature	-18 to 50		oC	0 to 122 oF
Relative Humidity	0 to 95		%	Operating or Storage

**Electrical Diagram**



**Optional Battery Power Supply**



\* WHEN DRIVING BALANCED INPUTS USE 2-CONDUCTOR WITH SHIELD CABLE. TIE SHIELD ONLY AT RECEIVING END. FOR UNBALANCED INPUTS SHORT RING TO SLEEVE.

**Application Information**

The MIC 1 is a back-electret condenser microphone. The “back-electret” is an improved version of the standard electret condenser design where the polarization charge voltage, or electret bias, is applied to the rear backplate. This provides increased mechanical strength, improved resistance to environmental effects, and better sensitivity and stability of the charge. Since the electret is permanently charged (we think 30 years qualifies as permanent) it does not need the high voltage powering common to standard condenser designs—a major benefit. This benefit is reduced, however, by the electret requiring an impedance converter (built-in JFET) which *does* need low voltage powering. So, as always, you just can’t quite win.

Details of the simple power supply appear in the Electrical Diagram. As shown, the recommended standard operating voltage is +2 VDC supplied through a 2.2k ohms resistor.

Usually the 2 volts is zener regulated to a higher voltage and resistively divided down. Regulation and tolerances are not critical; however, the supply should be as noise free as possible. While 2 volts is recommended, the MIC 1 runs equally well up to 10 volts. *When using higher voltages be sure to observe the absolute maximum voltage limit of 10 volts.*

Battery power is an option where it is not possible to build the supply into the receiving unit, or portable applications demand it. The diagram shows a complete battery power supply using either (2) AA cells (preferred) or a single 9 volt transistor battery. Either design should use alkaline cells for longest life. Standard 5% tolerance, ¼ watt resistors work just fine. The capacitor and pull-down resistor values are minimum; larger sizes are okay.