

## Technical Support

Should you have any questions regarding your M23R microphone please contact us:

email: [support@earthworksaudio.com](mailto:support@earthworksaudio.com)  
Phone: (603) 654-2433, ext. 119  
(9am – 5pm ET)

**WARRANTY** Earthworks products carry a limited warranty. Visit [earthworksaudio.com/warranty](http://earthworksaudio.com/warranty) for more information.

### Electronic Calibration Files

*Electronic Calibration Files (ECFs) in most cases will not be required for Reference Series Microphones as each M23R is already flat ( $\pm 0.5\text{dB}$  from 3Hz to 23kHz). However, ECFs are available for all models of Earthworks measurement microphones to calibrate a specific microphone to your measurement software or system. To obtain your ECF, first register your microphone online at [earthworksaudio.com/register](http://earthworksaudio.com/register) and then visit [earthworksaudio.com/ecf](http://earthworksaudio.com/ecf) to request your ECF, which will be sent to you as an email attachment. If you have any other questions, please call 603-654-2433, ext. 114 or email: [sales@earthworksaudio.com](mailto:sales@earthworksaudio.com)*



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# M23R

## User's Manual



## Description

Earthworks M23R is an omnidirectional (pressure) microphone designed for measurement purposes. It utilizes a pre-polarized condenser capsule directly coupled to a wideband, low output impedance preamplifier. The M23R requires 24-48V phantom power at 10mA. It features a linear frequency response from 3Hz to 23kHz, very low handling noise, uniform polar pattern, and high SPL handling capabilities. Its unique circuitry excludes the transconductance of the input FET from the overall gain structure. This means the sensitivity remains very stable when the microphone is subjected to variations in ambient temperature. The M23R meets or exceeds ANSI Type 1 requirements.

Each Reference Series measurement microphone is manufactured to within  $\pm 0.5\text{dB}$  of each other in frequency response and sensitivity. This ensures that any microphone in the series will be matched to all others now and forever while also eliminating the necessity of ECFs (Electronic Calibration Files) in most cases. The M23R is delivered with its own calibration chart providing its individually measured open-circuit sensitivity and the frequency response curve. Should it be needed, an ECF containing the frequency response data for importing directly into measurement software is available from Earthworks upon request. A mounting clip and calibrator adapter are included with the microphone.

## Applications

Earthworks M23R is ideally suited for acoustical measurements, sound system setup and troubleshooting, room acoustics, or any application where an accurate measurement microphone is required. The wide linear minimum-phase response and fast clean impulse response (Fig. 2) make the M23R especially suited for time domain measurements.

The M23R is simple to operate. Connect the microphone to a preamplifier supplying 24-48V

phantom power using a standard XLR microphone cable. Please allow up to one minute for the microphone to settle. Plugging in the microphone "hot" (phantom power already present at the input) will not damage the microphone. For optimum results we recommend pointing M23R toward the sound source.

This microphone has no removable parts.

## Calibration

The microphone's sensitivity at 1kHz is measured at the factory. The sensitivity in mV/Pa is provided on the included calibration chart. If on-site calibration is required, use the included one-half inch standard calibrator adapter.

## Specifications

<b>Frequency response:</b>	3Hz to 23kHz $\pm 0.5\text{dB}$
<b>Polar Pattern:</b>	Omnidirectional
<b>Sensitivity:</b>	36mV/Pa (-28.9 dBV/Pa)
<b>Matching Tolerance:</b>	$\pm 0.5\text{dB}$ (freq resp & sensitivity)
<b>Power Requirements:</b>	24-48V Phantom, 10mA
<b>Peak Acoustic Input:</b>	140dB SPL
<b>Output:</b>	XLR-3 (pin 2+)
<b>Minimum Load:</b>	600 $\Omega$ btw. pins 2 & 3
<b>Noise:</b>	20dB, A equivalent
<b>Temperature Operating Range:</b>	-4° to 140° F (-20° to +60° C)
<b>Storage Temp. Range:</b>	-40° to 176° F (-40 to +80° C)
<b>Humidity:</b>	Up to 90%
<b>Dimensions L x D</b>	6.25 x .860 in. (165 x 22 mm)
<b>Weight:</b>	0.35lb. (1.60kg)

 Compliant

Specifications are subject to change without notice.

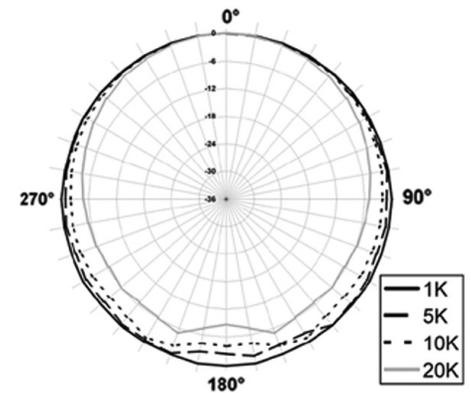


Fig 3. Polar Response (Typical)

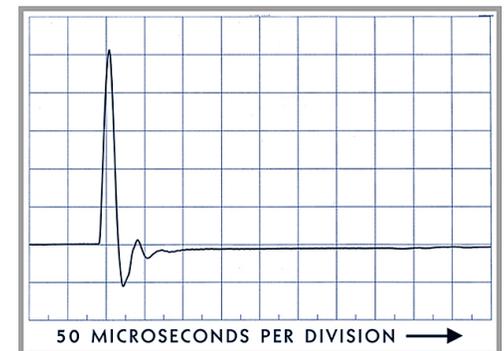


Fig 2. Impulse Response (Typical)

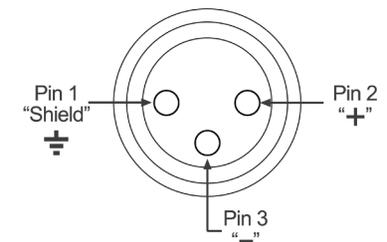


Fig 1. XLR Output Connector Assignment