

## Earthworks Limited Warranty

Earthworks, Inc. warrants this product to be free of defects in material and workmanship for a period of two years from the date of original retail purchase. This warranty is enforceable only by the original retail purchaser. To be protected by this warranty, the purchaser must complete and mail the enclosed warranty card within 14 days of purchase. During the warranty period Earthworks shall, at its sole and absolute discretion, repair or replace, free of charge, any product that proves to be defective on inspection by Earthworks. To obtain warranty service, the purchaser must first call or contact Earthworks at the contact information listed below to obtain a Return Merchandise Authorization number (RMA#) and instructions of where to return the unit for service. All inquiries must be accompanied by a description of the problem. All authorized returns must be sent to the Earthworks repair facility postage prepaid, insured and properly packaged, preferably in the original packing material. Earthworks reserves the right to update any unit returned for repair. Earthworks reserves the right to change or improve the design of the product at any time without prior notice. This warranty does not cover claims for damage due to abuse, neglect, alteration or attempted repair by unauthorized personnel, and is limited to failures arising during normal use that are due to defects in material or workmanship in the product. Any implied warranties, including implied warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this limited warranty. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. In no event will Earthworks be liable for incidental, consequential or other damages resulting from the breach of any express or implied warranty, including, among other things, damage to property, damage based on inconvenience or on loss of use of the product, and, to the extent permitted by law, damages for personal injury. Some states do not allow the exclusion of limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state. This warranty only applies to products sold and used in the U.S.A. For warranty information in other countries please refer to your local distributor.

For an RMA# or questions about service please email:  
Returns@EarthworksAudio.com



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**Made in U.S.A.**



## Precision Microphone Preamplifiers Featuring David Blackmer's Zero Distortion Technology™ Owner's Manual



1021 Single Channel



1022 Two Channel



1024 Four Channel

## Description

Earthworks Zero Distortion Technology™ (ZDT) precision microphone preamplifier is a discrete-component Class A bipolar input circuitry device. The primary signal path from the balanced XLR input to a balanced and symmetrical XLR output is completely differential (the signal is never converted to single-ended). There are no transformers or electrolytic capacitors in the signal path. All connectors and switches are gold-plated.

The ZDT preamplifiers have extremely flat wideband frequency response from 1Hz to 200kHz, slew rate of 22V/μs, and the lowest self-noise available from any preamplifier on the market. The nonlinear distortion is kept well below one part per million even at the highest signal levels (below clipping). Each channel has separate phantom power switch, polarity reversal, and mute switch that turns off the output while keeping the microphone powered and the gain unchanged. A separate ¼" output has additional vernier gain reduction of up to 20dB after the stepped gain.

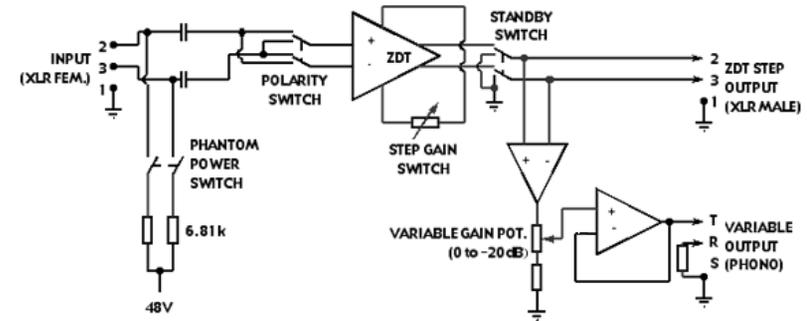
The ZDT preamplifiers are available in single (Model 1021), two- (Model 1022), or four-channel (Model 1024) versions. The multi-channel preamplifiers have separate signal boards divided by electromagnetic shields to minimize crosstalk.

## Specifications

Frequency Response:	2Hz to 100kHz ±0.1dB, 1Hz to 200kHz ±0.5dB
Settling Time:	1.4μs
Distortion:	XLR out: less than 1ppm (0.0001%); ¼" out: 0.001%
Input Noise SD $E_{noise}$ :	1.6nV/Hz <sup>1/2</sup> @ 20dB gain; 0.6nV/Hz <sup>1/2</sup> @ 60dB gain
EIN:	-132dBV @ 20dB gain; -143dBV @ 60dB gain
Slew Rate:	22V/μs
Output DC Offset:	±1mV typical, servo balanced
Power Requirements:	120V AC (100V and 220-240V versions available)
Input:	1 XLR Fem. balanced transformerless
Input Impedance:	10kohm phantom ON, 100kohm phantom OFF
Outputs:	1 XLR Male balanced transformerless (stepped) 1 ¼" TRS Fem. balanced transformerless (variable)*
Output Impedance:	5 ohm nominal
Max. Output Level:	+33dBu (37V peak-to-peak)
Dimensions H x W x D:	1 rack space 1.75" x 19" x 10.375" (1021 is ½ rack)
Weight:	1024, 1022: 6lb (ship.: 10lb); 2.7kg (ship.: 4.5kg); 1021: 4lb (ship.: 7lb); 1.8kg (ship.: 3kg)

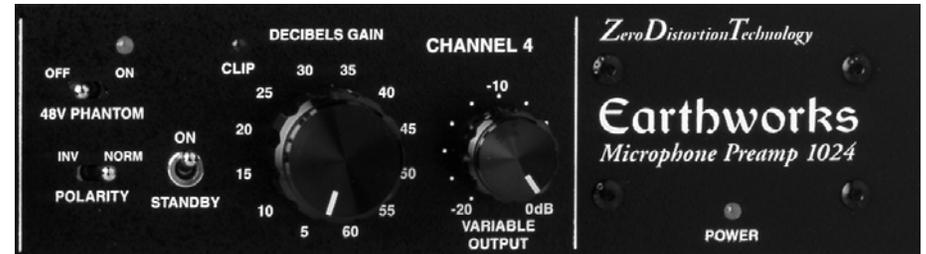
\*note: on some units the ¼" TRS outputs may be incorrectly labeled as "unbalanced"

## Block Diagram of the Signal Path



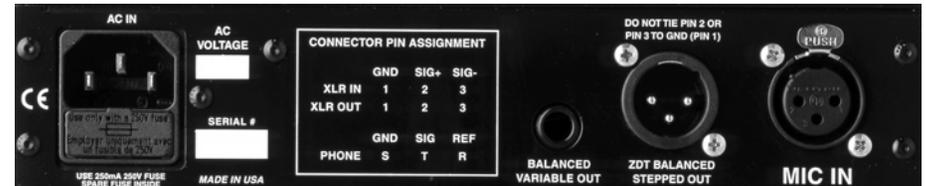
## Front Panel (one channel)

48V phantom switch (yellow LED) clip indicator (red LED)



polarity reversal switch standby switch mutes the output stepped gain switch 5 to 60dB to XLR output variable gain 0 to -20dB from the step (¼" output) power indicator (green LED)

## Rear Panel (one channel + power)



IEC power connector and fuse compartment AC voltage and serial number variable gain out (balanced) stepped gain out (balanced, symmetrical) mic input

**Important: the XLR stepped output is fully differential, that is, it has equal and opposite signal present on pins 2 and 3. NO extra gain stage is used, and the preamp relies upon the signals on pins 2 and 3 to be equal and opposite for distortion correction. Never short pin 2 or pin 3 of the male XLR output connector to ground (pin 1)!**