

TECHNICAL DATA MR1

Outputs	Balanced XLR, unbalanced RCA			
Waveforms	Sinusoidal, Square, White Noise, Pink Noise, Polarity			
Frequency Range	20 Hz - 20 kHz in 31 steps (Sine) 20 Hz - 5 kHz in 25 steps (Square)			
Sweep Capabilities	20 Hz - 20 kHz with sinusoidal signals			
Sweep Speed	0.05, 0.5, 1, 2, 3, 4, 5 seconds per step			
Units	dBu, dBV, V selectable			
Level Ranges	Waveform	Range	Steps	Inc.
	Sine, Square,	-76 dBu to +6 dBu	42	2 dBu
	White Noise,	-78 dBV to +4 dBV		2 dBV
	Sweep	0.13 mV to 1.6 V		± 23 %
	Pol Test	-76 dBu to +4 dBu	41	2 dBu
		-78 dBV to +2 dBV		2 dBV
		0.13 mV to 1.25 V		± 23 %
	Pink Noise	-56 dBu to -4 dBu	27	2 dBu
		-58 dBV to -6 dBV		2 dBV
		4 mV to 500 mV		± 23 %
Flatness	± 0.5 dB			
Accuracy	± 0.5 dB, ± 1 digit in unit Volts (20 Hz - 20 kHz)			
THD+N	< -72 dB (0.025 %) typ. @ 6 dBu < -55 dB (0.18 %) or 100 µV over all max.			
White Noise	20 Hz - 20 kHz, Crest factor = 2.12			
Pink Noise	20 Hz - 20 kHz, Crest factor = 3.27			
Output Impedance	200 Ohm balanced & unbalanced			
Auto Power Off	10, 30, 60 minutes or OFF			
Batteries	2 x 1.5 V Dry or NiCd type cell, LR 6, AA, AM3 types			
Battery Lifetime	> 20 hours of continuous operation typ.			
Temperature Range	0° C to 45° C (32° F to 113° F)			
Humidity	< 90 % R.H., non condensing			
Dimensions	140 mm x 74 mm x 25 mm (5.5" x 2.9" x 1.00")			
Weight	170 g (6 oz) incl. batteries			

MINIRATOR MR1

Audio Generator



SIGNALS

Sine Wave

Square Wave

Sweeps

White- / Pink Noise

Polarity Test Signal

FEATURES

20 Hz to 20 kHz

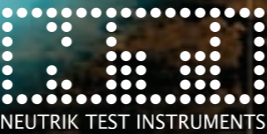
Levels adjustable

Low distortion

Minirator MR1 is the powerful analog audio generator providing you with a comprehensive set of audio test signals as required by a professional audio environment.

This handy tool enables you to stimulate any analog device with a broad range of appropriate signals for performance checking, maintenance and repairs.

Convenient, reliable and optimized: Minirator MR1 fits in to your pocket as well as in your budget.



All information subject to change without notice.

MINILYZER ML1

Audio Analyzer



vu & PPM Meter

3rd Oct. Spectrum

Scope Mode

Meter Panel

Polarity Test

Freq. & Time Sweeps

RMS Levels

Distortion Analyzer

PPM & vu Meter

Sweep Recording

Speaker Polarity Test

Scope

3rd Octave Spectrum

Signal Balance Error

Minilyzer ML1 is the state-of-the-art audio analyzer that fits into the palm of your hand. It provides you with a comprehensive set of functions essential for the analysis of professional audio systems.

The powerful Minilyzer ML1 continuously measures the signal and displays the desired results with all complementary information on an illuminated hi-res graphical LC-Display.

Minilyzer ML1 together with the signal generator Minirator MR1 is the unbeatable mobile test system for high-end demands in the audio industry.



www.minstruments.com

TECHNICAL DATA ML1

Measurements Level-RMS, Level-Relative, THD+N, vu & PPM, Frequency, Polarity, Signal Balance Error, Sweep, 3rd Octave Spectrum, Scope

Level Units: dBu, dBV, V RMS
Resolution: 3 digits (dB-scale) or 4 digits (V-scale)
Accuracy: ± 0.5 %
Bandwidth: 20 Hz to 20 kHz
Flatness: ± 0.05 dB

Frequency Range: 10 Hz to 20 kHz
Resolution: 4 digits
Accuracy: better ± 0.1 %

THD+N (Total Harmonic Distortion + Noise)
Meas. Bandwidth: 10 Hz to 20 kHz
Residual THD+N: < -85 dB (0.005 %) @ input -10 dBu to +20dBu
Resolution: 3 digits (dB-scale) or 4 digits (%-scale)

vu & PPM (Peak Program Meter)
vu DIN 45406, PPM Type I, IIa and Nordic.
Both meters with adjustable reference and with analog & numerical peak-hold readout.

Polarity Test (with MR1 test signal)
In-phase / out-of-phase detection through internal microphone or XLR/RCA connector.
Checks tweeters, midrange-speakers and woofers down to 10 dB S/N input signal.

Signal Balance Error Deviation from perfect balance, relative in % or *1
Indication range 0.0 % to 100 %

Sweep Level vs. Frequency or
Level and THD+N and Frequency vs. Time.

Third Octave 3rd Octave Spectrum acc. IEC 1260, class II and ANSI S1.11-1976, class II from 50 Hz to 20 kHz
Bargraph for Level RMS 20 Hz to 20 kHz

Scope Auto triggering, auto ranging, auto scaling

Filters Linear, A-weighting, C-message, Voice bandpass
Highpass: 22 Hz / 60 Hz / 400 Hz

Input Connectors XLR balanced, RCA unbalanced

Input Range -95 dBu (13.8 µV) to
+20 dBu (7.75 V RMS) balanced
+14 dBu (3.8 V RMS) unbalanced

Residual Noise < 12 µV

Monitor Output Jack 3.5 mm, suitable for all common headsets

Display Graphic LCD 64 x 100 pixel, with backlight

Batteries 3x AA package dry batteries
Typical battery lifetime > 16 hrs (Alcaline type)

Dimensions (L x W x H)
163 x 86 x 42 mm (6.4" x 3.38" x 1.63")

Weight 300 g (10.5 oz) incl. batteries

Temperature 0° to +45° C (32° to 113° F)

Humidity < 90 % R.H., non condensing

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The Unbeatable Couple

The Minirator MR1 as well as the Minilyzer ML1 will help you saving time and resources for the tasks of checking, maintaining and repairing of audio systems. The real power, though, the two devices display is when working together — giving you a

complete and very compact test system at an unbeatable low price: The Minirator generating a vast range of signals harmonizing perfectly with the Minilyzer analyzing the output at any analog audio device.

Minstruments System Case

Store your valuable Minstruments test system consisting of the Minilyzer and the Minirator adequately in the compact System Case which gives you extra space for cables, connectors and other accessories you may wish to bring along when you are out in the fields checking audio systems.



Ordering Minstruments

For ordering Minstruments please refer to the respective Article Identification Code.

Product	Article Identification Code
Minirator MR1	Minirator MR1
Minilyzer ML1	Minilyzer ML1
Pouch for Minirator	MR1 Pouch
Pouch for Minilyzer	ML1 Pouch
System Case for Minirator and Minilyzer	MR1/ML1 Case



Photographer: Bemo Hagelmeier / Vision FotoStudio AG

Performing at the Bregenz Festival

Every night during the summer the well known Bregenz Festival in Austria is attracting up to 7000 spectators into the world of opera with a spectacular show on its giant floating stage. Not an easy task, considering the fact that the Festival held at the shores of Lake Constance is an open air venue. To ensure all the spectators enjoy the very high quality performance of music and singing, the acoustics department has installed 80 state-of-the-art PA systems around the stage. Checking and maintaining those were very time consuming

tasks. Now Bruno Himmerle (Technical Audio Support) and the acoustic team are using NTI's Minstruments for those purposes: Checking the polarity, for instance, of all required systems with the Minstruments is incredibly simple. All it is about clicking two or three buttons. The saving of time is enormous since we brought those handy tools into action. Another task carried out almost by itself using NTI's Minstruments is the regular checks of the different audio setups, Mr. Himmerle says: I can't imagine to carry out checks without the Minstruments anymore.



The Minstruments Series

Audio measurement solutions
in the palm of your hand
at a price that won't break the bank!

Minirator MR1

Minilyzer ML1

