

Minstruments® from NEUTRIK TEST INSTRUMENTS

Together the Minirator MR1 and the Minilyzer ML1 are a complete and very compact analog audio test system. They are compact lightweight, automatically shut off after several minutes of inactivity, and can start-up at settings shown at time of shut off.

Minirator® MR1

Professional Analog Audio Generator



- Sinusoidal Signal 20Hz to 20kHz
- Square Wave
- White/Pink Noise
- Polarity Test Signal
- Frequency Sweep
- Levels adjustable
 - 76 dBu to +6 dBu in 2 dB steps,
 - 78 dBV to +4 dBV in 2 dB steps,
 - 0.13 mV to 1.6 V

Minilyzer® ML1

Professional Analog Audio Analyzer



- Level RMS, Relative or SPL (Sound Pressure Level)
- THD+N (Total Harmonic Distortion + Noise)
- vu-Indicator and PPM (Peak Program Meter)
- Frequency
- Polarity Test (in combination with NTI's Minirator MR1)
- Signal Balance Error
- Sweep recording with respect to frequency or time
- 1/3RD Octave Spectrum RMS or SPL
- Scope mode

 **NEUTRIK®**
CONNECTING THE WORLD

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TECHNICAL DATA

	Minirator® MR1	Minilyzer® ML1
CONNECTIONS:		
XLR balanced	X	X
RCA unbalanced	X	X
Microphone (for Polarity measurement only)		See back page
3.5mm jack (1/8", suitable for all common headsets)		X
WAVEFORMS:		
Sinusoidal, Square, White Noise, Pink Noise, Polarity Test	Generates all	Analyzes all
FREQUENCY RANGE ¹	20 Hz - 20 kHz in 1/3 rd Octave steps (Sine)	10 Hz - 20 kHz
Resolution		4 digits
Accuracy		< ±0.1%
SWEEPS:		
Capabilities	20 Hz - 20 kHz for sine	Frequency sweep, automatically or manually triggered; Time sweep, manually triggered
Speed	0.05, 0.5, 1, 2, 3, 4, 5 seconds per step	Parallel measurement of level, THD+N and frequency as function of time
Units (accuracy)	dBu (±0.5), dBV (±1), V selectable	dBu, dBV, V _{RMS}
LEVEL RANGES		
Sine, Square	Range -76dBu to +6 dBu Steps Inc 2 dBu	Line input RMS (upper measurement limit)
White Noise	-78 dBV to +4 dBV 2 dBu	balanced +20dBu(7.75 V RMS)
Sweep	0.13 mV to 1.6 V ±23%	unbalanced +14 dBu(3.8 V RMS)
Polarity Test	-76 dBu to +4 dBu -78 dBV to +2 dBV 0.13 mV to 1.25 V 2 dBu 2 dBV ±23%	
Pink Noise	-56 dBu to -4 dBu -58 dBV to -6 dBV 1.25 mV to 500 mV 2 dBu 2 dBV ±23%	
Resolution	2dB steps	3 digits (dB-scale); 4 digits (V, %-scale or Hz, kHz)
Bandwidth		20 Hz - 20 kHz
Flatness	±0.5 dB	±0.1 dB
Accuracy	±0.5 dB	±0.5 % @ 1 kHz
THD+N	<-72 dB (0.025%) typical @ 6 dBu, 1kHz <-55 dB (0.18%) @ 10mV, 20 Hz - 20 kHz	
Meas. Bandwidth		10 Hz to 20 kHz
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	
Resolution		3 digits (dB-scale) or 4 digits (%-scale)
Residual THD+N		balanced <-85 dB @ -10 dBu to +20 dBu unbalanced <-74 dB @ 0 dBu to +14 dBu
PEAK PROGRAM METER & vu INDICATOR		According to IEC 60268 and DIN 45406. PPM Type I Ila & Nordic. Both meters with adjustable reference & with analog & numerical peak-hold readout.
POLARITY CHECK	20 Hz sawtooth signal	Positive/Negative detection through internal microphone or XLR/RCA connector. For tweeters, midrange-speakers and woofers down to 10 dB S/N input signal
SIGNAL BALANCE		Indication range 0.0% to 100%. Deviation from perfect balance in % or *1
SCOPE		Auto ranging, auto scaling, auto triggering
FILTERS		Linear A-weighting, C-message, Highpass 22 Hz/60 Hz, 400 Hz voice bandpass
RESIDUAL NOISE		<12µV, XLR-input shorted
DISPLAY	2 line LCD (16 characters p/line)	Graphic LCD 64 x 100 pixel, with backlight
TEMPERATURE RANGE: 0°C TO 45°C (32° TO 113°F)	X	X
HUMIDITY: <90% relative non-condensing	X	X
BATTERIES	2 x 1.5 V Dry or NiCd type cell, LR 6, AA, AM3 types 20 hrs continuous operation typical	3x AA package dry batteries (alkaline) 16 hrs continuous operation typical
AUTO POWER OFF	10, 30, 60 minutes	3, 10, 30, 60 minutes
DIMENSIONS (L x W x H)	140 mm x 74 mm x 25 mm (5.5" x 2.9" x 1")	163 mm x 86 mm x 42 mm (6.4" x 3.38" x 1.63")
WEIGHT (INCLUDES BATTERIES)	170 g (6 oz)	300 g (10.5 oz) inc. batteries

¹For input levels >20 dBu (balanced) a 20 dB attenuator is available.

MR1

ML1

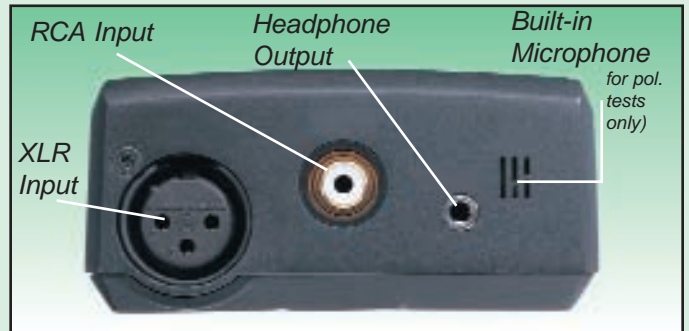
CONNECTIONS



Due to its smart design, the connection to the DUTs is especially simple.

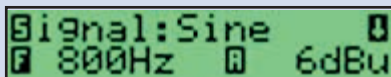
The retractable XLR connector allows direct balanced connections to the DUT as well as easy cable connections.

For unbalanced connections, an RCA Phono jack (Cinch) is available.

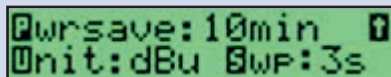


A balanced XLR as well as an unbalanced RCA connector are available to connect the test signal to the device. The system automatically detects the input source, while a headphone output allows monitoring of the input signal at a normalized level for aural diagnostics. A built-in microphone is provided for polarity checks. Broken connections in an XLR can easily be detected by the balance indicator.

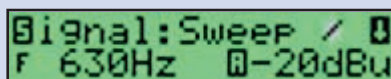
Display Examples



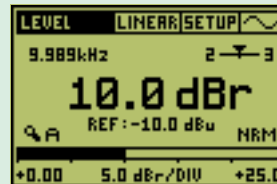
Main Display
Sinusoidal signal with 800 Hz running at a level of +6 dBu.



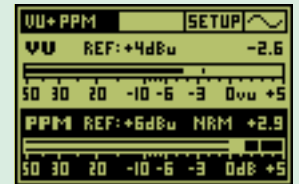
Status Display
Switch off time is after 10 minutes of inactivity. Selected unit is dBu and sweep step duration is 3 seconds.



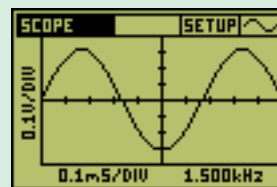
Main Display
Sweep is running at a level of -20 dBu, currently at 630 Hz. Rotating bar indicates active sweep.



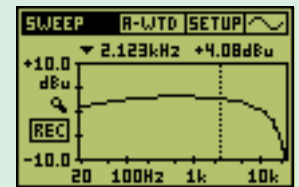
Relative Level Measurement



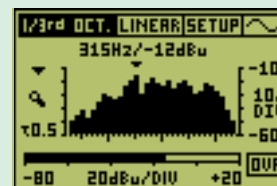
PPM & vu mode



Auto Triggering Scope



Graphed Frequency Response



1/3RD Octave Spectrum Analysis



Speaker Polarity measured with Mic.

Ordering Information

Minirator MR1

Part No.
MR1

Minilyzer ML1

Part No.
ML1

ACCESSORIES



MiniSPL

The omni directional MiniSPL Type 2 is in accordance with IEC 60651. A Minilyzer/MiniSPL system enables the measurement of SPL and Equivalent Continuous Sound Pressure Level (L_{Eq}) with standard frequency weighting filters (A, C, linear) and the time response modes (fast, slow, impulse). The system allows selectable integration intervals with start, pause and stop. To the user's convenience the MiniSPL signal can be displayed with the Minilyzer 1/3 oct. spectrum analyzer.

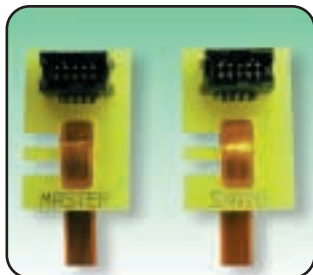
Free Software Update for Minilyzer ML1

The software of the Minilyzer has been optimized for the acoustic analysis together with the MiniSPL. Purchaser of the MiniSPL using a Minilyzer with software 1.x are entitled to obtain a free copy of the new software including sound pressure level measurement.



ML1 Adapter-20dB

This passive adapter extends the balanced input range of the Minilyzer ML1 up to +40dBu. Ideal to connect power output stages of amplifiers. Accuracy 0.1% balanced to balanced.



Copy Cable

Direct software updating from one Minilyzer to another by linking the two ML1 with NTI's copy cable. The ML1 with the newer software release will then within seconds automatically update its software on the ML1 with the older version.

MiniSPL	
Microphone Type	1/2", omni-directional, pre-polarized condenser, free field transducer
Sensitivity	(20±2) mV/Pa, (-34±1) dBV/Pa @ 1 kHz, balanced out
Frequency Response	100 Hz - 1250 Hz ±1.5 dB 20 Hz - 20 kHz ±3 dB in accordance with IEC60651, Type 2
Peak Acoustic Input	130 dB _{SPL} @ 1 kHz
Noise	30 dB _{SPL} , A-weighted
Output Impedance	200 Ohm (XLR balanced)
Power Supply	1x AA battery, 1.5V, battery lifetime typical 300 hrs, no phantom power required, phantom power resistant
Dimensions (D x L)	22 x 180 mm, 0.87" x 7"
Weight	100 g (3.5 oz) inc. battery
Minilyzer ML1 Software	
Measurements	Sound Pressure Level, 1/3 rd Octave Spectrum
Additional Acoustical Functions	Instantaneous Sound Pressure Level (Lp) Maximum/Minimum Sound Pressure Level (Lmax/Lmin)
Measurement Results	Units dB _{SPL} , dB Leq Resolution 0.1 dB Display Ranges 20 - 140 dB _{SPL} in 3 bands 20 - 100 dB _{SPL} 40 - 120 dB _{SPL} 60 - 140 dB _{SPL} Bandwidth 20 Hz to 20 kHz Flatness ±0.1 dB
Time Response	Selectable Fast, Slow, Impulse
Weighting Filters	Selectable A, C, Linear, X-CURVE ¹ for 1/3 rd Octave Spectrum
Integration	Start-, Pause-, Stop function
1/3 rd Octave Spectrum	31 octave band display 20 Hz to 20 kHz, Bargraph dB _{SPL}
Sensitivity & Calibration	Selectable default value (MiniSPL), calibration using an external source, selectable sensitivity value

Represented and Serviced by:



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