

 Made in Switzerland

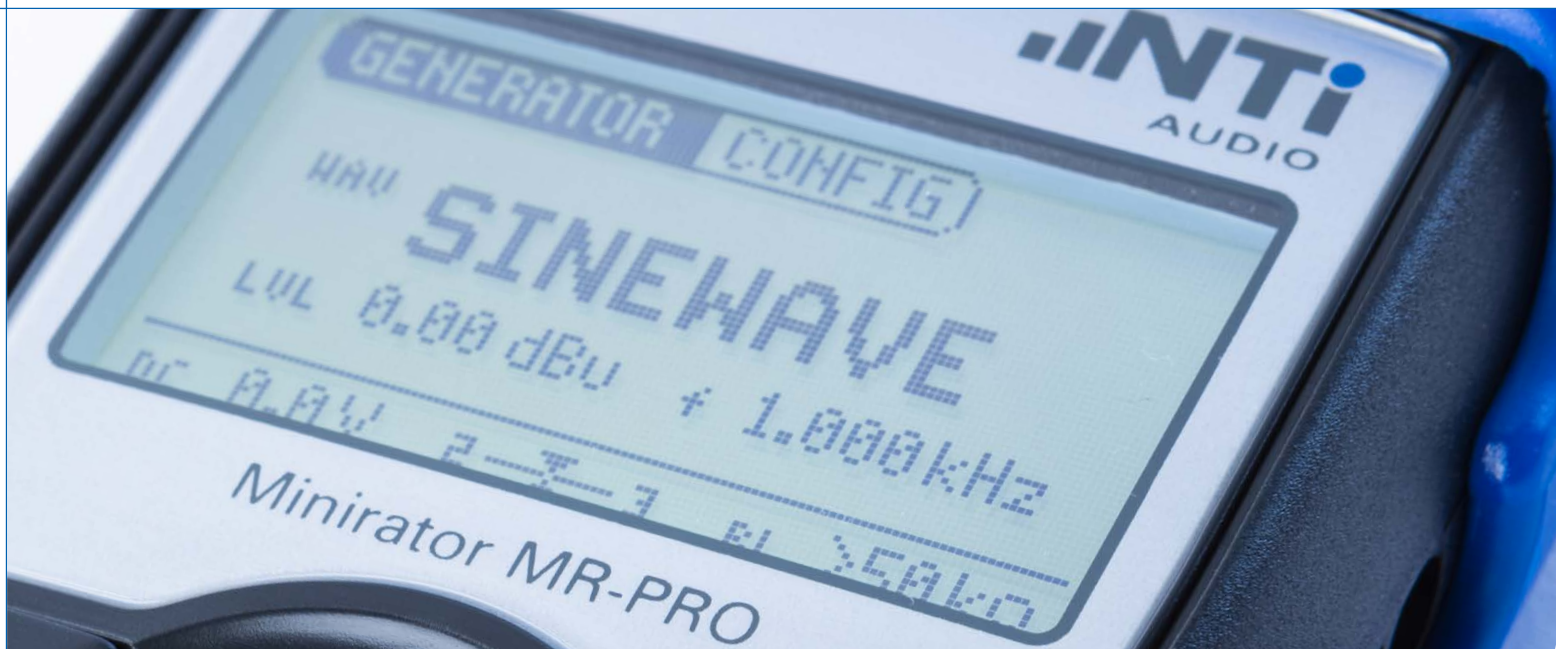
# Minirator MR-PRO/MR2

## Audio Signal Generators

SINE TEST SIGNALS  
FREQUENCY SWEEPS, CHIRPS  
PINK NOISE, WHITE NOISE  
POLARITY & DELAY SIGNALS  
USER WAV-FILE PLAYBACK WITH MR-PRO  
MEASUREMENT FUNCTIONS WITH MR-PRO



# Minirator MR-PRO / MR2



## What does the Minirator MR-PRO provide?

Firstly, the Minirator MR-PRO provides a full set of precision analog audio signals including sine wave, pink noise, white noise, delay test signal, polarity test signal, stepped sweep and continuous sine sweep. Further, a set of wav files, useful for system optimization is stored in the internal flash memory. Add your own personal favorites to this set.

The pure sine signal can be generated at any level and frequency over the entire audio band, acting as a source for distortion testing.

The signal balance, phantom power and impedance of a connected load can be continuously monitored, while the integrated XLR cable tester simplifies troubleshooting tasks.

Finally, the MR-PRO measures the impedance of a distributed audio line and displays the results as impedance or apparent power connected. This is an indispensable tool for installers.

## MR2 - basic model

The MR2 is the basic version of the MR-PRO, offering all essential generated signals at an attractive price point. Both generators are indispensable and proven tools for setup, maintenance and monitoring of all types of audio devices and systems.



Minirator MR-PRO / MR2

# Functions MR-PRO / MR2

## Sinewave Output



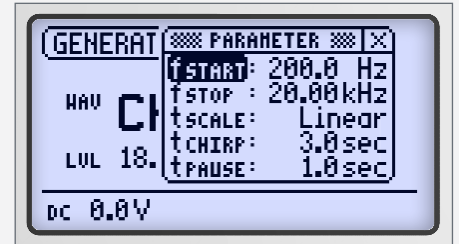
Minirator generates pure sine waveforms at user-selectable frequencies and amplitudes. The frequency steps interval can be set to as low as 0.1 Hz.

## Pink Noise, White Noise



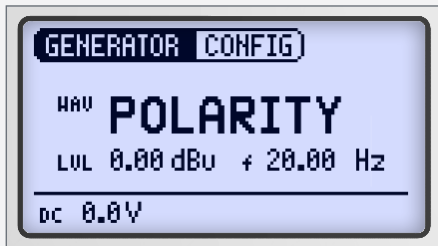
Pink or White Noise is synthesized with high spectral density, normal amplitude distribution, and infinite cycle duration.

## Chirp



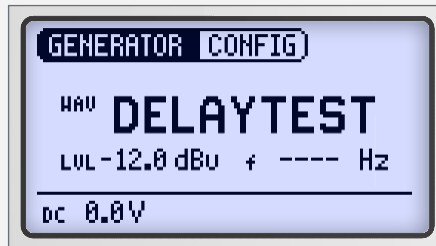
The chirp signal is a logarithmic or linear gliding sine sweep signal with continuous frequency increase over time, useful for assessments of rooms.

## Polarity



Test signal for measuring the polarity of speakers and audio signals in combination with the XL2 Audio and Acoustic Analyzer.

## Delay



Special configured delay signal to set up delay lines in combination with the XL2 Audio and Acoustic Analyzer.

## Sweep



The start/stop frequency, step and trigger times, and a step resolution as fine as 1/12th octave can be adjusted.

# Functions MR-PRO

## Impedance Meter



The Minirator MR-PRO measures the impedance, phase and power rating of distributed speaker systems at selectable frequencies.

## User Wav Files \*.wav



The MR-PRO offers a range of additional factory test files, e.g. for speech intelligibility verification. You may store additional user test signals.

## Cable Test



The MR-PRO verifies the correct XLR cable wiring, detecting all common XLR wiring faults with a precise description, such as "2-3 Crossed".

# Professional Audio Signal Generator

Whenever you need a reliable, precise signal source with calibrated levels and selectable units, and/or periodic signals at precise frequencies, the Minirator is the right choice.

The Minirator provides you a full set of the most-useful signals and wav files.

Compact. Portable. Indispensable.



## The Applications

### Live Sound Installations

- Adjust levels
- Find defective cables
- Find broken input channels
- Provide reference songs

### Broadcast / Service

- "Line occupied" message looped
- Clean sine signals for distortion tests
- Cable tests for distortion

### Sound Installations

- Check signals paths
- Provide clean sine signals for distortion tests
- Delay test signal for support loudspeakers
- Impedance Measurements

### Evacuation / Installed Sound

- Provide clean test signals
- Impedance measurements
- STIPA test signal

### Vibration Measurement

- Stimulation of shakers
- Low frequency
- Exact frequency setting



Minirator MR-PRO

# Solutions



## Set up and Maintain Audio Systems

Use the Minirator to set up PA systems and monitors. Generate pink noise and optimize the frequency response of your system with the XL2 Analyzer. Confirm that all speakers have the same polarity with the polarity signal. To optimize delay speakers, generate the delay test signal, and measure the actual acoustic delay with the XL2 Analyzer.

The Minirator signal generator and XL2 Analyzer are valuable instruments for fast troubleshooting of the audio signal path throughout the installation. The MR-PRO verifies phantom power supply of microphones, checks XLR cables and measures load impedance and balance.

## Verify Speech Intelligibility of Life Safety Systems

The Minirator MR-PRO generates the STIPA test signal for system line inputs in conjunction with speech intelligibility measurements performed by the XL2 Analyzer according to IEC 60268-16.

## Impedance Testing of 70V/100V Distributed Systems

The MR-PRO measures the impedance and power rating of distributed speaker systems. Deviations from the expected result identify problems such as bad connections, incorrect tap connections or short circuits. Use the optional 70V/100V Protection Adapter for safe operation.

## Insulation Measurement for Building Acoustics

The Minirator MR-PRO generates band-limited pink noise for sound insulation, absorption, privacy and articulation index measurements. The following test signals support your applications:

- 32 Hz - 16 kHz in individual octave bands
- 20 Hz - 20 kHz in individual third-octave bands

# Minirator MR-PRO or MR2?

	MR-PRO	MR2
<b>Generator</b> <ul style="list-style-type: none"> <li>• Output Level maximum</li> <li>• Flatness</li> <li>• Output Impedance</li> <li>• THD+N typical</li> </ul>	18 dBu +/- 0.2 dB 12.5 Ω < -96 dB	8 dBu +/- 0.5 dB 200 Ω < -90 dB
<b>Measurements</b> <ul style="list-style-type: none"> <li>• Phantom Power</li> <li>• Impedance and Phase</li> <li>• Signal Balance</li> <li>• XLR Cable Tester</li> </ul>	✓ ✓ ✓ ✓	- - - -
<b>Test Signals</b> <ul style="list-style-type: none"> <li>• Sine, Sweep and Chirp</li> <li>• Pink Noise, White Noise</li> <li>• Polarity and Delay</li> <li>• User Wav Files (*.wav)</li> </ul>	✓ ✓ ✓ ✓	✓ ✓ ✓ -
<b>Configurations Storage</b> Protective Shock Jacket Hand Strap, USB Cable	✓ ✓ ✓	- - ✓
NTi Audio #	600 000 310	600 000 300

The MR2 is the basic model of the Minirator family, providing all essential signal-generation capabilities.

The MR-PRO adds an additional set of functions, making it an indispensable tool for audio engineers.

## Related Products

### Analyzer



XL2 Sound Level Meter,  
Audio and Acoustic Analyzer

### Signal Generator



TalkBox Calibrated Acoustic Genera-  
tor (STIPA Reference & other signals)

### Sound Source



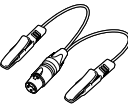
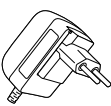




DS3 Dodecahedron Loudspeaker  
and PA3 Amplifier

# Specifications

	MR-PRO	MR2		MR-PRO	MR2
<b>Test Signals</b>					
Signal Wave Forms	<ul style="list-style-type: none"> <li>• Sine</li> <li>• Stepped Sweep</li> <li>• Continuous Sweep</li> <li>• Polarity Test Signal</li> <li>• Delay Test Signal</li> <li>• White Noise: crest factor = 3.05 (9.7dB)</li> <li>• Pink Noise: crest factor = 4.5 (13.1dB)</li> <li>• Gated Pink Noise (1 - 9 seconds)</li> <li>• Wav-File playback (MR-PRO)</li> </ul>		Output Impedance Balanced	12.5 Ohm (I <sub>max</sub> = 10 mA)	200 Ohm
Frequency Setting Range: Increment: Accuracy:	10 Hz to 20 kHz in 1-digit steps (e.g. 0.01 Hz @ 10 Hz) 0.01%		THD+N typical 22 Hz to 22 kHz average @ 1 kHz	-96 dB @ 18 dBu (0.0016%)	-90 dB @ 8 dBu (0.0032%)
Wav-File Format Sampling frequency: Resolution: Output level:	48 kHz 16 Bit, Mono/Stereo 0 dBFS = 18 dBu (sine)	-	Noise floor typical:	15 µV	25 µV
<b>Level Parameters</b>					
Level Setting Units: Increment:	dBu, dBV, V, dBFS, % in 1 digit steps (e.g. 0.1 dBu)	dBu, dBV, V in 1 digit steps (e.g. 0.1 dBu)	<b>Measurement Functions</b>		
Output Level Ranges Sine, Sweep: White Noise: Pink Noise: Polarity, Delay:	-80 to +18 dBu -80 to +10 dBu -80 to +8 dBu -80 to +16 dBu	-80 to +8 dBu -80 to +0 dBu -80 to -2 dBu -80 to +6 dBu	Impedance Method: Measurement range Balanced: Unbalanced:	Absolute value Z  4 Ohm to 50 kOhm 2 Ohm to 25 kOhm	-
Flatness RL ≥ 600 Ohm	±0.2 dB @ 10 Hz-12 kHz  -0.1 dB / +0.3 dB @ 12 kHz - 20 kHz	±0.5 dB	Frequency range: Level range: Accuracy:	30 Hz to 10 kHz -20 to +18 dBu ±10 % or ±2 Ohm	-
Accuracy @ 1kHz	±0.2 dB	±0.5 dB	Power Reference voltage	25, 35, 50, 70.7, 100, 140, 200 V	-
<b>General</b>					
			Phantom Voltage Measurement range: Accuracy:	0 to 54 V ±3 % or ±0.5 V	-
			USB Functionality	Firmware update Mass Storage Device	Firmware update
			Flash Memory	512 MByte for stor- ing wav-files and configurations	-
			Batteries	3 x AA Alkaline dry cells or rechargeable equivalents	
			Battery Life 0 dBu, no load, typical	8 hours	14 hours

## ACCESSORIES

					
Remote Cable Test Plug (MR-PRO) # 600 000 311	Minirator -40dB Adapter # 600 000 312	MR-PRO 70V/100V Protective Adapter # 600 000 313	Mains Power Adapter # 600 000 333	Ever-ready Pouch # 600 000 302	Calibration Certificate # 600 000 018

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[www.nti-audio.com](http://www.nti-audio.com)

MR-PRO  
MR2



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