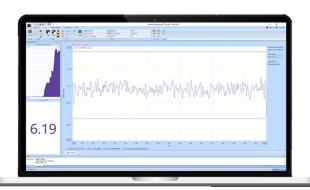
Random On Random simulates complex narrowband random on broadband random vibration environments. Narrow-bands may be swept or stationary. This vibration environment is typically seen in reciprocating equipment, repetitive impacts from tracked vehicles, and aircraft gunfire vibration.

**Random** is the seed for Random On Random. Your test is assured of true random control with patented Adaptive Control capability, which is enhanced, with the addition of narrowband generation.

The ability to switch the NB on/off as well as sweep in the frequency range, WITHOUT causing "holes" in the broadband, is vital to test accuracy.



## **FEATURES**

- Up to 10 independent Narrow-bands on a broadband random
- Independent sweep profile for each narrowband (acceleration g2/Hz vs. frequency breakpoints)
- Independent sweep rate and direction (up, down, stationary) for each narrowband
- Manual mode control of narrowband components (on/off, sweep rate, sweep direction)
- Test and level scheduling
- Powerful Adaptive Control permits the Lynx $^{\rm IM}$  to adjust to non-linear conditions dynamically



## Lynx<sup>™</sup> Random On Random- Technical Specifications

Control Methods		Alarm/Abort spectral lines	Number of lines, or percent of lines within user-specified range
Broadband control	Adaptive control algorithm controlling the shape of the drive spectrum and overall RMS level optimizes both	Remote Communication Interface	Supported, enables integration with environmental chamber controllers
	control speed and stability	Print Automation	Ability to create reports Automatically with Customized
Narrowband control	Frequency domain level extraction, independent		
	control for each narrowband with automatic adjustment for narrowband sweep and resolution	Alarm/Abort spectral lines	Number of lines, or percent of lines within
Drive signal generation	Digital drive signal generation from broadband and	Alami/Abort spectral lines	user-specified range
0 0	tone components, patented randomization algorithm		
	for broadband and narrowband components	Control signal loss	Standard (programmed abort when control signal
Input/Output	44.40		drops to within 3 dB of measured noise floor), low, or
Input channels	4 to 16, dependent on hardware subsystem >92 dB	Daine eigenel elippine	off
Input/output dynamic range Reference Spectrum	>92 dB	Drive signal clipping Startup/shutdown rates	2 to 20 sigma Independently selectable, 0.1 dB/sec to 999 dB/sec
Broadband definition	Easily defined by up to 500 frequency break	Channel Setup	independently selectable, 0.1 db/sec to 333 db/sec
	points/slopes	Channel type	Control, measurement, inactive
Frequency range	50, 80, 100, 200, 400, 500, 800, 1000, 2000, 4000,	Sensitivity	0.01 to 9,999 mV/g or mV/(m/s $^{2}$ ) (EU for measurement
	5000 Hz		channels)
Frequency resolution	(Broadband) 100, 200, 400, 800 lines	ICP power	On/off
Reference import	Import broadband reference profile from data file (SDD) or Universal File Format (UFF); cut and paste	Coupling	AC or DC
	from spreadsheets	Channel loop check	Enabled, disabled
Narrowband definition	User-defined bandwidth, sweep profile, composition,	Channel label	Up to 8 characters for each channel
	sweep rate	Transducer serial number	Up to 10 characters for each channel
Number	Up to 10 narrowbands	Transducer Database	Table Driven Archival Database
Sweep	Linear or log; user defined sweep start frequency,	Control channel weighting	Individuality defined, -20 to 6 dB
	sweep end frequency and sweep rate; independent for each narrowband	RMS abort	Individually defined, 0 to 999 grms or (m/s²)rms Label (EU), Conversion (EU/Transducer Units)
Initial sweep direction	Up, down, or stationary	Base Engineering Units Engineering Units	Integrated (Label and Scale Factor), Double
Linear sweep rate	0 to 30 Hz/sec	Calculations	Integrated (Label and Scale Factor), Differentiated
Log sweep rate	0 to 5 oct/min		(Label and Scale Factor), Double Differentiated (Label
Units	g-in/s-in; g-m/s-mm; m/s <sup>2</sup> -m/s-mm		and Scale Factor)
Control Parameters		On-Line Status Monitors	
Mode of operation	Manual, automatic, automatic only	Test status	Elapsed and remaining test time
Test duration Degrees of freedom	User defined, maximum 9999:59:59 (hhh:mm:ss) User defined, minimum 8. maximum 30000	Level status	Schedule level number, elapsed and remaining level
Number of control channels	1 to all available channels	Combal atatua	time
Multi-channel control	Average	Control status Channel status	Test dB level, test and drive RMS level RMS levels for all active channels
strategy		Component status	Status for each narrowband: center frequency, sweep
Startup Parameters			direction, sweeps completed
Initial test level Time at initial level	User-selectable, -99 dB to 0 dB Off, 0 to 99 control loops	Message log	Records all test operations, including operator
Level increment	1 to 99 dB		commands, and reports on alarm or error conditions
Time to full level	0 to 100000 seconds	On-Line Controls	Consolidar initiatos or terminatos tost
<b>Test Automation Features</b>		Start/Abort test Resume test	Smoothly initiates or terminates test Restart test and complete remaining time
Level scheduling	User-defined level, time at level, transition time to	Test Mode	Manual or automatic
D 1 1 1 0	reach the level	Drive update	Update of drive spectrum on or off
Pre-schedule time	User-defined time at full level prior to level schedule	Broadband level control	Step up or step down (manual mode)
Test scheduling	start User-defined sequence of independent tests can be	Narrowband control	Operator control of narrowbands during test (in manual
1 oot oonoudining	scheduled to run automatically		mode only), including on/off, sweep direction, sweep
Remote Communication	Supported, enables integration with environmental	Pause	rate Lower drive level to -90 dB, hold until resume
Interface	chamber controllers	On-line Analysis	Lower drive level to -50 db, floid dritti resume
Print Automation	Ability to create reports automatically with	Real-time displays	Spectra for all available channels may be
Safaty Features	customizable displays		simultaneously displayed during the test
Safety Features Shaker limits	Pretest verification that broadband spectrum dynamic	Spectra analyzed	PSD, auto-spectrum, linear-spectrum, frequency
	limits are within shaker operational limits (acceleration,		response function (magnitude/phase or
	velocity, displacement and voltage)	Averaging control	real/imaginary), coherence, User-defined DOF exponential or linear averaging
Loop check max. drive			
	User-selectable, 1 to 5000 mV RMS	Real-time/stored data	
signal Alarm/Abort RMS	User-selectable, 1 to 5000 mV RMS  RMS acceleration, specified in dB or absolute level	~ ~	Simultaneous display and overlay of spectra or time histories for real-time data and any stored data

## Lynx™ Random On Random- Technical Specifications

Data Storage

Setup options Automatic storage every 1 to 999 seconds, save on

level change, save on alarm, save on external command, save every sweep, manual save

Automatic play of entire test data file, with adjustable Playback

display update delay; manual selection

Run message log Text file records all system status messages displayed

during test run



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