

## dScope Series III - No Ordinary Audio Instrument



The world's most comprehensive and powerful measurement instrument for analog and digital audio devices, including AES3 and I<sup>2</sup>S interfaces, Bluetooth® systems, acoustic transducers and Windows™ audio devices.

## Beyond Traditional Measurements

Prism Sound, world-renowned leaders in digital audio engineering, bring you a truly unique audio measurement system, loaded with innovations and exclusive features to help you design and test faster.

## Speed

- Over 100 concurrent measurements for faster analysis
- Real time interaction for instant measurement feedback
- Built in automation for rapid, repeatable tests
- Multi-tone testing for high volume manufacturing
- Windows™ Audio Device I/O for real-time soundcard analysis

## Simplicity

- Auto Sequence; easily create test sequences and reports
- Simple USB connection to host PC
- Most compact audio bench instrument available
- Programmable shortcuts to frequently used tests
- ActiveX / COM control for QC integration, e.g. LabVIEW
- Field calibration utility to reduce downtime
- Turnkey packages for zero learning curve deployment

## Power

- Unrivalled analysis power at an unbeatable price
- 'Smart FFT' Detectors for the most revealing analysis
- World's most advanced digital audio debug tools
- Twin generators for independent and arbitrary waveforms
- Advanced sweeps for unrivalled analysis detail
- Quasi-anechoic acoustic transducer measurements
- Event manager; your always-on Watchdog Monitor

## Applications



AUTOMOTIVE



MANUFACTURE

BLUETOOTH  
AUDIO

MOBILE AUDIO



BROADCAST

MUSIC  
INDUSTRYCOMPUTER  
AUDIO

PRO AUDIO



EDUCATION



R &amp; D



ELECTROACOUSTICS



SEMICONDUCTOR



TELEPHONY



SERVICE

HOME  
ENTERTAINMENT

CONVERTERS



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## dScope Series III Innovations and Exclusive Features

**The ONLY audio analyzer with 'Smart FFTs'**

Beyond THD+N - determine how your device REALLY performs



Exclusive, user-configurable soft instruments for measuring and monitoring up to 40 different parameters at once: Amplitude, THD+N, THD, N, Nth harmonics, mains hum, crosstalk, gain, and much more. And all at the same time!

**The ORIGINAL audio analyzer with live interaction**

Test faster than ever with over 100 simultaneous live results



Scope traces, FFTs, residual distortion traces, sweeps, continuous time analysis, 'Smart FFT' Detectors, jitter measurements, digital metadata and more. Over 100 live measurements at once - no waiting for test sequences to complete!

**EXCLUSIVE Event Manager toolbox**

Always-on watchdog monitor that NEVER misses a glitch



Powerful tools to continually monitor and log status changes and limit breaches. Flexible error reporting including email alerts when an error is detected. Ensure you never miss a glitch with a software log file that can run indefinitely.

**The world's FIRST complete Bluetooth audio test solution**

Bluetooth audio testing made faster and easier!



Unique tools to address Windows™ audio devices and Bluetooth® systems directly from the dScope Series III software. Avoid external editing software, and measure faster in a closed loop, in real time.

**Electronic and electroacoustic test**

Measure your ENTIRE loudspeaker with a single instrument



Perform all of your loudspeaker system measurements in one instrument: From digital inputs to I<sup>2</sup>S interfaces, through analog and class D amplification to acoustic transducers.

**ActiveX/COM control interface**

SIMPLIFY integration with your automation system



Standalone automation via in-built, easy-to-use VBScript development environment.

Automation also supported via 3rd party software, e.g. Teststand, LabVIEW, Python, C#, Visual Basic, Delphi, etc.

**Test automation easier than ever**

Auto Sequence: create sequences and reports without scripting



Create automated test sequences, with limit checking and reporting, faster than ever before. All the analysis power of the dScope Series III, the simplicity of a click-and-run interface, and no code writing.



## dScope Series III Functions and Capabilities

## Signal Analyzer

## Amplitude



## Frequency



## Phase



## Continuous-Time Detector

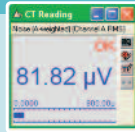
## Amplitude



## Gain



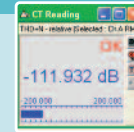
## Noise



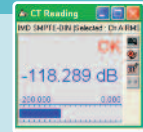
## Cross-talk



## THD+N



## IMD



## FFT Detectors

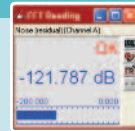
## Amplitude



## THD



## Residual Noise



## Nth Harmonic



## IMD

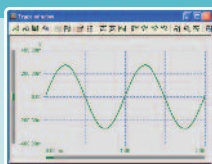


## User-defined

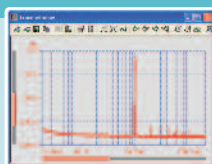


## Graphical results

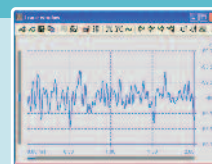
## Live Scope



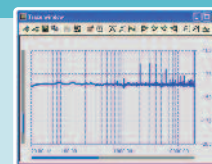
## Live FFT



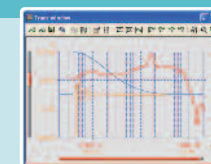
## Live Residual



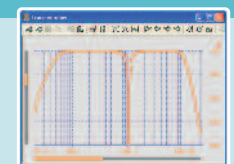
## Live Residual FFT



## Gated Impulse

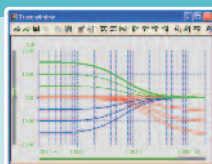


## Analysis Filters

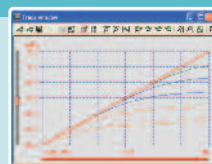


## Swept results

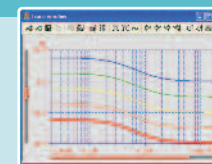
## vs Frequency



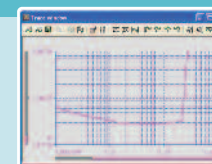
## vs Amplitude



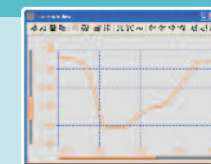
## Nested



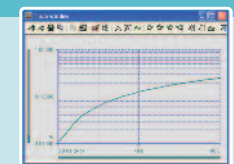
## vs Power



## vs Time

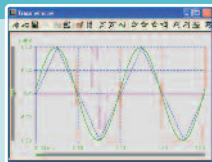


## vs Jitter Amplitude

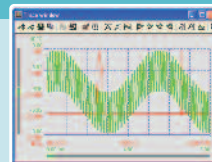


## Generator Functions

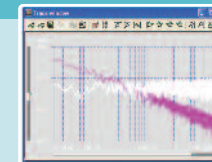
## Periodic



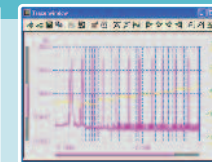
## Twin-tone



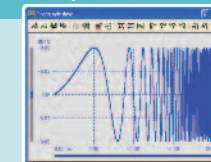
## Noise



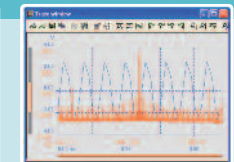
## Multi-tone



## Chirp

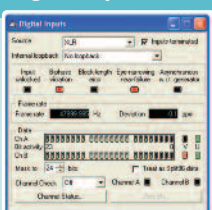


## Prism Sound JTest



## Digital Parameters

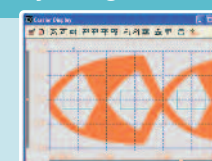
## Digital Inputs



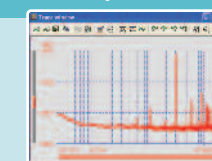
## Digital Carrier



## Eye Diagram



## Jitter Spectrum



## Channel Status 1



## Channel Status 2

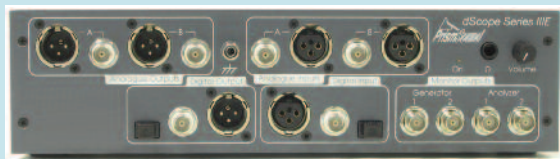


## dScope Series III Instruments Available in Four Versions

- **dScope Series III Analog and Digital Audio Test System.** The ultimate instrument with extensive analog and digital capabilities.
- **dScope Series IIIE Analog-and-Digital Essentials Audio Test System.** All the essential tools, ideally suited to price sensitive analog and digital QC applications.
- **dScope Series IIIA+ Analog-Plus Audio Test System.** All the power of the dScope Series III, but without digital I/O.
- **dScope Series IIIA Analog Audio Test System.** For those who don't need the full power of dScope Series III.



dScope Series III Analog and Digital version front panel



dScope Series IIIE Analog and Digital version front panel



dScope Series IIIA and A+ Analog versions front panel



**dS-NET VSIO Adapter** Digital Serial Interface Adapter (I<sup>2</sup>S, I<sup>2</sup>C, SPI)



**dS-NET I/O Switcher** Dual bus, 16 Channel Input / Output Switcher



**dS-LPF** Dual Channel Low Pass Filter for class D amplifiers and sigma-delta converters

Options	dScope Series III	dScope Series IIIE	dScope Series IIIA+	dScope Series IIIA
Analog I/O	✓	✓	✓	✓
Sound Card I/O	✓	✓	✓	✓
FFT Analysis	✓	✓	✓	✓
Impulse Response Testing	✓	✓	✓	✓
Scripting	✓	✓	✓	✓
Multi-tone Generation /Analysis	✓	✓	✓	✗
Advanced Multi-tone Analysis	✓	✗	✓	✗
FFT Detectors	40	2	40	2
Scripted FFT Detectors	✓	✗	✓	✗
Nested & Sensed Sweeps	✓	✗	✓	✗
Sweep Input on X axis	✓	✗	✓	✗
Regulation	✓	✓	✓	✗
dS-NET I/O Switcher Support	✓	✓	✓	✗
dS-NET VSIO Adapter Support	✓	✗	✗	✗
Port Access from Scripts	✓	✗	✓	✗
Event Manager	✓	✗	✓	✗
192kHz Sampling (Analog)	✓	✓	✓	✗
Digital I/O	✓	✓	✗	✗
Digital Carrier I/O	✓	✗	✗	✗
Channel Status I/O	✓	Simple CS only	✗	✗
Ref Sync I/O	✓	✗	✗	✗
Digital Carrier & Sync Pulse Monitor Outputs on BNC	✓	✓	✗	✗
Monitor Outputs On BNC, Headphones, and Inbuilt Loudspeaker	✓	✓	✓	✓
Signal Generator Functions	All functions	All functions	All functions	Sine Swept Sine, Twin Tone, White Noise & Pink Noise only



# DSCOPE SERIES III

## AUDIO TEST SYSTEM

### TECHNICAL DATA



dScope Series III is a portable audio test system that is remotely controlled by a Windows98 or Windows2000 PC. The dScope Series III unit is complemented by an easy to use software application. Communication with the host PC is by means of a USB link, providing true plug-and-play installation with no need to put anything inside the PC. dScope Series III supports the new OLE/COM standards, allowing data to be exchanged easily with other applications.

#### ANALOGUE SIGNAL GENERATOR

**Frequency range:** <1Hz..86kHz  
**Amplitude range:** <-100dBu..+28dBu(bal)/+22dBu(unbal)  
**Residual THD+n (20Hz..20kHz):** -105dB  
**Multitones:** 2-128, 20Hz..20kHz, 0.73Hz resolution  
**User waveforms:** 0.73Hz resolution at 192kHz  
 0.18Hz at 48kHz  
 Bongs  
 Square-Wave  
 Polarity checking  
 Multi-tone: Quick results from a single FFT trace showing frequency response, noise & distortion  
**Output:** XLR or coaxial BNC  
 Balanced, common-mode 40R, 150/200R\*, 600R. Max output +28dBm into 600R  
 \*Note: Jumper selected  
 Unbalanced 20R, 600R, floating/grounded  
 Asymmetric 600R, 20R

#### ANALOGUE SIGNAL ANALYZER

**Amplitude range: noise...peak:** 1.1uV..159Vrms  
 Input XLR or coaxial BNC/RCA 100kR, 150/200R\*\*, 600R (1W)  
 \*\*Note: Jumper selected  
**Small-signal CMRR:** <-80dB,  
**Frequency range:** <5Hz..86kHz  
**Residual THD+n (20Hz..20kHz):** -108dB  
**Frequency resolution:** 0.01 Hz  
**Phase resolution:** 0.1 degrees

#### DIGITAL SIGNAL GENERATOR (DATA)

**Wordlength:** 8bits..24bits  
**Dither:** TPDF  
**DC resolution:** 48bits  
**Frequency range:** 1Hz-fs/2 (maximum 96kHz)  
**Residual THD+n (20Hz..20kHz):** <-140dBFS  
**User waveforms:** as analogue signal generator  
**Channel Status:** Fully settable for each channel  
**Valid bits:** Settable for each channel

#### DIGITAL SIGNAL GENERATOR (SYNC)

**Reference input formats:** AES11, (XLR); WCK, (BNC); Video, (BNC) PAL/NTSC/SECAM  
**Termination:** switchable  
**Reference input rates:** Any standard rate  
 Automatically recognised and measured with 1ppm accuracy  
**Test input carrier phase wrt reference:**  
 0..127.9UI (+/-180 degrees) displayed  
**Reference output formats:** AES3, (XLR); WCK (BNC)

#### DIGITAL SIGNAL GENERATOR (CARRIER)

**Formats:** AES3, (XLR); S/PDIF, (RCA); AES3-id, (BNC); TOS, (optical); 1wire/2wire at high rates (Sony SDIF-3/DSD options planned)  
**Output impedance:** 110R, 75R  
**Sampling rates:** 32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz\*, 192kHz\*\*\* +/- 1000ppm in 1ppm steps  
**Carrier amplitude:** XLR and coaxial independently settable  
**Rise times:** XLR and coaxial independently settable 5ns..200ns  
**Added jitter:** Audio functions to 40kHz LF/HF noise, 0..0.5UI HF, 0..20UI LF  
**Added normal mode interference:** Noise, 256 amplitude steps  
**Added common mode interference:** up to 40kHz, max 20V p-p  
 (\*\*\*) Note : Single channel only using 1 AES bearer at 88.2 or 96kHz frame rate.)

#### DIGITAL SIGNAL ANALYZER (DATA)

**Frequency range:** DC..fs/2 (maximum 96kHz)  
**Residual THD+n (20Hz..20kHz):** <-140dBFS  
**Wordlength:** Bit activity displayed  
**Channel Status:** Displayed and decoded for each channel  
**Validity:** Displayed for each channel

#### FFT ANALYZER

**FFT Points:** 1k-256k  
**Analogue THD+n (20Hz..20kHz):** <-106dB  
**Digital THD+n (20Hz..20kHz):** <-140dB  
**Processing precision:** 48+16 Floating Point  
**Window functions:** Industry standard window functions plus proprietary Prism Sound windows to 150dB dynamic range

#### DIGITAL SIGNAL ANALYZER (CARRIER)

**Formats:** AES3, (XLR); S/PDIF, (RCA); AES3-id, (BNC); TOS, (optical); 1wire/2wire at high rates (Sony SDIF-3/DSD options planned)  
**Input impedance:** 75R, 110R or HiZ  
**Input sampling rate:** 28.8-105.6kHz, up to 200kHz in 2wire mode\*\*\*\* Measured with 1ppm resolution  
**Carrier amplitude:** Measured with 5mV resolution, 5% accuracy  
**Common-mode carrier amplitude (XLR):** Measured with 20mV resolution  
**Jitter analysis:** Measured P-P with 700Hz cutoff. Demodulated jitter can be passed to Time-domain and FFT analyzers.  
**Carrier display (Eye diagram):** Display mode with up to 300ps resolution  
**Signal condition indicators:** Coding violations  
 Biphas error, eye-narrowing, parity error  
 (\*\*\*\* Note : Single channel only using 1 AES bearer at up to 100kHz frame rate.)

#### MONITOR FUNCTIONS

**Monitor outputs (BNC):** Digital or analogue generator outputs, digital or analogue analyzer inputs, analyzer function outputs, digital carriers, demodulated jitter, sync pulses  
**Audio monitor:** Loudspeaker or headphone, to monitor functions, with volume control.

#### TYPICAL USES:

- Research and development
- Production test
- Field service
- Maintenance

#### APPLICATIONS:

- Professional audio
- Broadcast
- Internet audio
- Multimedia
- Consumer products
- Sound reinforcement
- Telephony
- Communications

#### LIGHTWEIGHT CASE:

A custom-made case for the dScope Series III is available separately.

Completely self-contained in a custom carrying case, dScope Series III can be transported as carry-on airline luggage. No 'scope is needed to view signal or residual waveforms, or even digital carriers, and a monitor speaker is built-in.



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