



## Features

of the *Portable*

# ProCAT



### PRODUCTIVITY FEATURES

Eight BNC signal conditioning inputs, constant current, 2-4 mA, 20-24 VDC nominal  
Light weight and Small - 6.5 lbs - 3 Kg. 15" x 10" x 2.5" - 380 mm x 254 mm x 64 mm  
AA Filters: Chebyshev, 8 channels parallel  
Portable unit, 110-240 VAC, 50-60 Hz, selectable line input. 12VDC optional  
0.76 Hz resolution 10,000 line zoomable spectrums  
Simple operation - *One or two mouse clicks for complete control with default setups*  
Exports data directly in Engineering Units, no spreadsheet conversion needed  
Only Analyzer with Accumulated Fatigue Damage Spectrum, DP(f) with overlay for comparison  
Quad Spectrum Plots (4 on a screen), PSDs or DP(f)s  
Easiest to Use: Does not require training or experience with high level analyzers

### SPECIFIC FEATURES

Sampling Rate/Ch: 25 KS/s  
Sampling Bandwidth: 12.5 KHz  
Data Block/FFT Length: 32 KS Span  
Block capture time = 1.3 sec  
Basic Spectrum: 12,500 lines, 0.76 Hz to 12,500 Hz, Any portion zoomable to 512 Hz bands  
Setup Table for full scale amplitude, engineering units, sensor calibrations  
Six full scale sensitivity ranges/Ch in engineering units, equivalent to 0.4 V to 10 V Peak  
Log-log or log-linear displays, FFT, PSD, Transfer function/Coherence  
Weighting windows: Default (selects best for analysis selected) Hamming, Hann, Rectangular, None  
Single capture or continuous running modes  
Selectable averaging for: PSDs, FFTs, Transfer Functions, DP(f), and Waterfall plot  
Overlay DP(f) Plots from any of 8 different channels  
Spectrum Smoothing smooths display with averaging filter - Independent function on each channel  
Zoom by painting - expands portion to higher resolution - multiple zooms allowed - Restore cancels  
gRMS displayed for all zoomed spectrums - compare analyzers or meters with cutoffs  
Restore returns all spectra and waveforms to 'as initially plotted' status  
File export in ASCII - spectral amplitudes vs frequencies lists in engineering units  
PSD plot file Save and Recall - zoomable after recall Copy analysis screens to Clipboard in BMP format for electronic export

## ANALYSIS MODES

### **WAVEFORM**

Displays signals from 8 inputs in parallel  
Each waveform with wideband gRMS  
Each waveform with scaled amplitude grids in engineering units  
Zoomable

### **FFT**

Four FFTs displayable in Quad Display Mode - Supports items below  
Single, averaged, or continuous capture and display - zoomable  
Low/High and Bandpass spectrum decimation for filtering - inverse FFT for reconstruction of waveform  
Averages: 3, 5, 10 or 50 sample blocks - zoomable

### **PSD**

Four PSDs on screen in quad plot mode - any mix of channels - independent cursors, and zoom on each  
Single, averaged or continuous capture and display - zoomable  
Computes gRMS for zoomed spectrum for partial spectrum comparisons  
Averages: 1, 3, 5, 10, 50 or 100 - zoomable - (default = 5)

### **TRANSFER FUNCTION**

Single, averaged, or continuous capture and display - zoomable  
Algorithm: Piersol/Bendat  
Coherence displayed with transfer function  
Coherence shown with percentage validity  
Active cursor on both plots  
TF with Coherence can be analyzed between any two channels giving 28 combinations

### **DAMAGE POTENTIAL - DP(f)**

Single or continuous capture and display - Zoomable  
Algorithm: Piersol/Henderson. Based on velocity spectrum and fatigue weighting functions  
Dual channel overlays  
Estimated DP(f) ratios between reference and overlay channels shows variance in accumulated fatigue directly  
DP(f)RMS for any spectrum including zooms - gives overall comparative fatigue magnitude of test  
User inputs for fatigue weighting: Test duration, damping, and materials S-N  $\sigma$  slope  
Four DP(f) overlay plots in Quad plot mode - each with smoothing and zooming

### **WATERFALL PLOT**

Three dimensional plot of spectrum amplitude and frequency versus time  
Single or continuous capture and display  
Displays averaged PSD's or FFT's. Time durations up to hours  
Color coded amplitude magnitude display



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