

DLI Watchman® DCA-50B™

Vibration Data Collector / Analyzer



A RICH USER INTERFACE, FOUR-CHANNEL DATA COLLECTION, AND MULTI-PLANE BALANCE SOFTWARE ONBOARD DIFFERENTIATE DCA-50B™ FROM COMPETITIVE DATA COLLECTORS.

The DCA-50B offers unmatched performance and features in its class. It is the only data collector on the market that includes the depth of desktop analysis software and capability to collect three axes of vibration data simultaneously, at a price comparable to less capable single-channel collectors. It has a long battery life and a rugged enclosure that is ready for use in dirty and wet industrial environments.

DCA-50B features:

- Spectrum, waveform, overall (RMS) and envelope demodulation
- Time synchronous averaging, tachometer speed, 1X amplitude and phase (with optional tachometer)
- On-screen analysis capabilities with harmonic, sideband, and reference cursors, and historical data overlay
- Waterfall, Bode, Orbit and Cepstrum plots
- FFTs up to 25,600 line for accurate troubleshooting

The DCA-50B utilizes a combination keypad/touchpad which offers easy mouse control as well as input of user commands, process readings, and field observations.

An embedded computer onboard the DCA50B runs its sophisticated route-based data collection and balance software and optional advanced analysis software. Of its non-volatile flash memory, over 1.5 gigabytes are available for data storage. Load your entire plant and all your machine surveys without worrying about available memory!

DCA-50B data collection software is easy to use in either route-based or barcode-driven collection modes. The software shares components with DLI's host ALERT™ software systems so you don't have to learn a new interface. Statistical average baseline data is loaded into the collector by comparing current with historical data, allowing the user to make accurate in-the-field analyses to check data validity.

Standard accessories for DCA-50B include:

- Triaxial accelerometer with 6ft/2m integral cable with 5/32-inch ball driver
- AC power adapter / internal battery charger
- Four lithium battery packs
- Protective cover & accessory pouch with shoulder strap
- User manual - hard copy
- Transit case



Specifications¹

Digital Signal Processing

- Texas Instruments TMS320C51 Digital Signal Processor (DSP), running @ 40 MHz
- Four 16 Bit delta-sigma A/D converters
- Simultaneous sampling of all four inputs up to 41 KHz
- Anti-aliasing via an analog RC filter plus a 64th order digital FIR filter
- Dynamic range greater than 85 dB
- Signal to noise ratio greater than 76 dB
- Overall RMS amplitude detection from 10 Hz to 1 kHz per ISO 2954-1975 (E)

Spectral Analysis

- Four channel, simultaneous FFT analysis of the analog input channels up to 16 kHz span
- FFT Resolution of: 50, 100, 200, 400, 800, 1600, 3200, 6400, 12800, 25600 lines
- Spectral Windows: Hanning, Hamming, Flat top, and Uniform
- Averaging Types: Linear, Exponential, Peak-hold, and Peak-hold continuous
- Overlap processing; selectable overlaps of 0%, 25%, 50%, and 75%

Time Domain Analysis

- Sample rates from 1 Hz to 41 kHz Inputs
- Four single-ended analog inputs
- Selectable ICP accelerometer sources
- Cable fault detection
- Input signal clipping detection (25 Volts maximum input signal amplitude)

Time Domain Analysis (cont.)

- TTL-level tachometer input
- Analog Signal Processing
- Selectable DC coupling or 0.2 Hz or 10 Hz high pass analog filtering
- Selectable single stage analog integration
- No more than -76 dB inter-channel cross talk

Triggering

- Internal: Selectable from any analog input channel. Level, slope, rising or falling edge
- External: TTL trigger, rising or falling edge
- Pre or Post-triggering: 0 to 100% of capture

Physical

- Size: 11" x 8" x 1.8"
- Weight: 6.2 lbs (2.8 kg) with 2-batteries
- Fully machined from aircraft grade aluminum
- Sealed IP-67 water and dust proof
- Anodized finish

Processor System Memory

- Intel-based x86 processor - 800 MHz
- 256 MB RAM
- 2 GB Compact Flash Hard Drive (programs and data)
- Microsoft® Windows® XP Embedded OS

Video & Display

- 6.3" 640 x 480 TFT VGA color display
- Rich color saturation and good contrast even in outdoors
- High visibility display glass

Host Interface / Printing

- USB 1.1 PC interface
- Optional Ethernet network adapter
- Direct connect mobile printer (HP Deskjet 450ci mobile printer)
- Compatible with host software:
 - ExpertALERT v3.0 and later
 - AdvancedALERT v3.0 and later
 - StandardALERT v3.0 and later
 - ViewALERT v3.0 and later

Protective Cover

- Durable, shock-absorbing, insulating, molded foam case
- Shoulder and hand straps
- Leather and nylon
- Accessory pouch

Power Consumption & Battery Life

- 5 hours continuous data acquisition (no idle time between tests) with 4 batteries
- Approximately 8 hours of use with power management enabled
- Batteries are "hot-swappable" for uninterrupted use (two batteries are supplied as standard package)
- 4000 mAh Lithium batteries 2-4 batteries
- Universal AC power adapter 110-230 volts, 50-60 Hz

Interfaces

- iGesture touchpad / keypad digitizer
- Power switch
- Connectors (IP-67)
 - Power supply
 - CH-4/Tachometer (BNC)
 - DLI-USB
 - Signal + ground (4 channel)

Environmental Specifications

- Temperature:
 - Operating 0°C to 50°C
 - Storage -40°C to 70°C
- Six foot drop (in case)
- Vibration: 15 Grms (random vibration 6 axis)
- Humidity: 0-100% condensing

* ALERT host software is required

¹Specifications are subject to change without notice



253 Winslow Way West
 Bainbridge Island, WA 98110 U.S.A.
 Tel.: (206) 842-7656
 Fax: (206) 842-7667
 E-mail: sales@DLIengineering.com

Document DCA-50B Product Sheet.doc
 © 2008 – DLI Engineering Corp. - All rights reserved.
 Printed in U.S.A.