The DCA-50 is the newest DLI Watchman® data collector offering unmatched performance in its class. It has four simultaneous data inputs and a large 6.3” color screen, all at a price point similar to competitive single channel collectors with fewer features. It has a long battery life that will last a full 8 hour shift. The rugged enclosure measures 8” x 11” x 1.8” and weights just 5 lbs. Its interfaces include connectors for 4 input channels, tachometer, power supply and DLI-USB peripherals.

DCA-50 features:
- Spectrum, waveform, envelope demodulation
- Time synchronous averaging
- Harmonic, sideband and reference cursors
- Waterfall, phase, Bode, orbit and Cepstrum plots
- FFTs up to 25,600 line for accurate troubleshooting
- Load digital imagery from your ALERT™ database
- Interfaces with all ALERT host software*

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

Its processing power comes from an industrial-grade single board computer that runs an Intel-based 800 MHz CPU and 256 MB of RAM. It has 1 gigabyte of solid state memory, of which over 500 megabytes are available for data storage.

DCA-50 System
The DCA-50 software system runs on Microsoft® Windows® XP Embedded™ operating system. Its data collection software is very easy to use in either route-based or barcode collection modes. The integral analysis software is the same as used in DLI’s host ALERT™ software systems. Statistical average baseline data is loaded into the collector allowing data overlays and easy comparisons with historical data.

Standard Accessories
- Triaxial sensor with cable
- Leather/nylon protective cover with shoulder strap
- USB host interface cable assembly
- Ball driver
- 110-230 VAC mains charger
- User manual on CD
Optional Accessories
- 1 to 4-plane balance software
- Transit case
- Accessory pouch
- Ethernet network adapter
- Barcode scanner
- Infrared tachometer
- Remote battery charging fixture for 110-230 VAC mains
- 12VDC car charging cable
- User manual – hardbound
- BNC input cable (4-channels)
- HP Deskjet 450ci mobile printer

Specifications

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: 50, 100, 200, 400, 800, 1600, 3200, 6400, 12,800, 25,600 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)
• 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: 5 lbs 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
- 1 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)
- 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