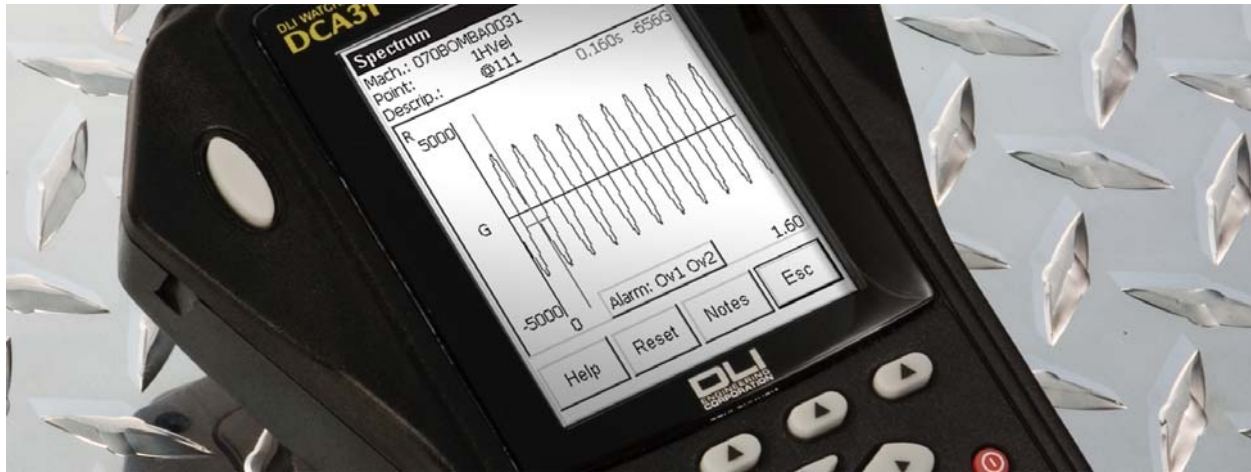


# DLI Watchman® DCA-31™/IS

Intrinsically Safe (IS) Handheld Data Collector/Real Time Analyzer



The Intrinsically Safe DLI Watchman® DCA-31/IS includes technology that allows the user to perform vibration analysis and predictive maintenance in hazardous areas where standard equipment is not allowed; such as those commonly found in the petrochemical industry. This handheld data collector interfaces with DLI's ALERT™ family of condition monitoring software, and can collect data to feed DLI's proven Expert Automated Diagnostic System to help quickly analyze large amounts of data. Machinery and measurement parameters are configured in the ALERT software and transferred from a host PC to the DCA-31/IS. Viewing and analysis features are available on the data collector to check measurements as they are collected. "Off-route" data can also be collected and viewed with user-selected measurement parameters. Coupled with StandardALERT™ or ExpertALERT™ software, the DCA-31/IS provides support for a complete machine condition monitoring program to include: database management, data collection, data trending, analysis fault diagnosis and report generation.

## Benefits

- Easy and convenient to use
- No need to shut down equipment or obtain "hot work" permits in hazardous areas
- Use magnet base for quickly moving sensor to different locations on the machine
- Review data in the field
- Early detection & warning of rolling element bearing faults
- No need to worry about wet or dirty conditions
- Intuitive Interface can be used by novice or advanced users for routine data collection or performing custom measurements

## Features

- Windows CE™ operating system
- Intrinsic Safety Rating, (ATEX) II 1G Eex ia IIC T4 (Ta -20°C to +50 °C) for non-mining applications with gaseous explosive hazards continuously present
- Intrinsically safe sensor (single axis) included for single-channel vibration data acquisition
- Frequency, time or overall (RMS) measurements
- Trigger input for tachometer or phase reference
- Rugged polycarbonate/ABS case for high impact resistance and durability. Sealed to IP65 (ingress against dust and jets of water)



# Specifications

## Input Signal Types

ICP Accelerometers  
Velocity Transducers  
Displacement Probes  
Infrared Temperature Sensors  
Photo-Optical Pickups  
Acc/Vel Transducers  
DC Inputs  
Keypad

## Signal Inputs

1 x ICP, AC Signals, DC Signals  
Tacho from Trigger  
TEDS (Technical Electronic Data Sheet)  
Power in Battery Charge  
Trigger Supply Output  
Trigger In

## Input Channels

1 channel: Single axis ICPTM/AC/DC  
1 channel: Tachometer or phase reference

## Input Signal Range

+/- 40 Volts Max.

## Signal

RMS / Pk / Pk-Pk / dB

## Measurement Parameters

Acceleration, Velocity, Displacement, Demod,  
Temperature, Phase, Voltage, User Specified.

## Measurement Types

Overall, Spectrum, Time Waveform, Phase, Order  
Normalized, Spectral Band Alarm.

## Transducer Check

Bias Voltage Integrity

## Auto Range

Yes

## Dynamic Range

>90 dB

## Frequency Range

DC to 40 kHz Max.

## AC/ICP

0.16 Hz Min.

## Integrated

0.24 Hz Min.

## Filters

High Pass - 2, 10, 70 Hz  
Demodulated Vibration: 0.6-1.25, 1.25-2.5, 2.5-5, 5-10,  
10-20 kHz

## Real Time Rate

40 kHz single channel

## Windowing

Hanning, Hamming, Rectangular

## FFT Resolution

100 - 12,800 lines, single channel

## Time Block Length

256-32,768 samples, single channel

## Averaging

Time and Spectral

## Power

Rechargeable Ni-MH

## Operating System

Windows CE™

## Processors

Main Processor - xScale PXA255 @ 400MHz  
DSP: Motorola DSP56L307

## Internal Operating RAM

64 Megabytes RAM

## FLASH Disk

>40 (up to 50) Megabytes Flash

## PC Communications

Serial: 9 -Pin D-Type and IrDA 1.1

## Machine Identification

Plant, Area, Machine, Location, Point Description, Units,  
Alarm Levels, Previous Measurements and Alarm Types.

## Alarms

Overall and Spectrum

## Physical

Display - 1/8 VGA, backlit touch screen  
Indicators - LED Red-Amber-Green  
Size - 8 in x 5 in x 2in. (200mm x 130mm x 50mm)  
ATEX: II 1G Eex ia IIC T4 (Ta -20°C to +50 °C)  
Drop Test - 6.5 Feet (2 Meters) (Mil Std 810)  
Sealing - IP 65  
Weight - 1.5 lb. (700grams)  
Temperature - -20°C to + 50°C (Operating)  
Temperature - -20°C to + 60°C (Storage)

## Connectors

Input - 6 Pin Fisher (Two Connectors)  
Power/Trigger - 7 Pin Fisher  
RS232 - 9 Pin Plug D-Type

## Standard Accessories

Single Axis Accelerometer, Intrinsicly Safe  
Magnet Mounting Base  
Battery Pack  
Power Adapter/Battery Charger  
Communications Cable  
Protective Cover with Shoulder Strap & Access Pouch  
Hand strap  
Stylus  
Transit Case  
User Manual (electronic format)



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