

## MONITOR ANY AREA OF CONCERN ON YOUR CNC MACHINE TOOL OR FIXTURE



D-Tect-IT is a Windows application that communicates with custom Caron Engineering USB sensors to effectively monitor any area of concern on your CNC machine tool or fixture. Using sensors for **vibration, strain, high-precision power, and analog**, the user can establish a baseline of characteristics to determine when irregularities are present.

## MONITORING AND ANALYSIS MODES

### LIMIT ANALYSIS



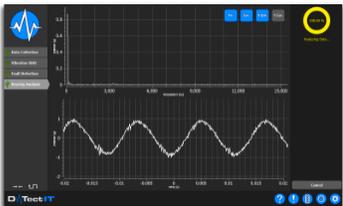
- Limits can be learned automatically or set manually using the adjustable sliders
- Work (area under the curve) limits can be enabled to calculate tool wear

### FAULT DETECTION



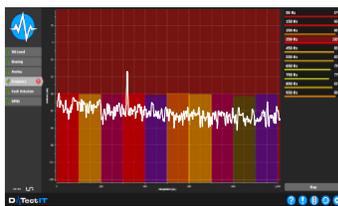
- D-Tect-IT recognizes when set upper and lower limits are exceeded, identifying an excessive condition (e.g. machine impact, overheating, extreme vibration)
- Indicates and time stamps machine faults and records data on either side of the fault for analysis

### BEARING ANALYSIS



- D-Tect-IT measures spindle vibration to monitor bearing health for analysis
- Vibration signal is analyzed for the (1) Acceleration signature which tells the health of the bearings, (2) Velocity signature which detects misalignment, imbalance and looseness

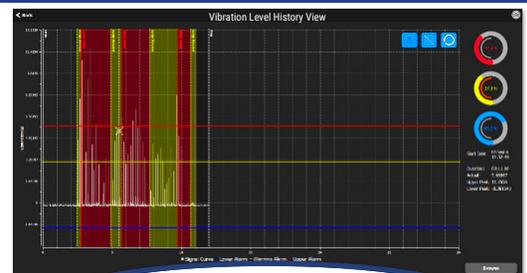
### FREQUENCY ANALYSIS



- Set magnitude limits to monitor and detect anomalies within specific frequency bands
- Alarms and notifications are generated when magnitude limits (in decibels) are exceeded

## FEATURES

- Ideal for monitoring up to 4 tools
- Run multiple analysis at the same time
- Application runs standalone or easily integrates with the CNC control
- Monitoring can be initialized from the user interface or the CNC control
- Collects raw data from any sensor (up to 62,500 data points/sec)
- Easily detects excessive bar feeder vibration (i.e. bent bar), and signals the CNC to automatically adjust spindle RPM, if needed



Analyze historical monitoring data using the **Analysis Viewer!**

## SENSOR SPECIFICATIONS



### Vibration Sensor

Wireless and USB options



- Dynamic Range: 0 - 32 g
- Frequency Response: 100 Hz - 20 kHz at 41.667 ksp/s
- Temperature Sensor: -40 - 85°C NTC thermistor
- 40mm x 16mm (1.575 x 0.623 inch) including the anodized aluminum case



### Analog Sensor



- 4 channel inputs
- 0 to ±10 VDC analog signals
- 4 - 20 mA current signals
- Allows monitoring with power, pressure, coolant flow, etc.



### High Precision Power Sensor



- 24 bit resolution
- Power monitoring range 0 - 10 HP (0 - 7.5 KW)
- Ideal for micro-tools (less than 1 mm), right angle heads, and low power cutting operations



### Strain Sensor



- Capability depends on mounting characteristics
- Temperature Sensor: -40 - 100°C NTC thermistor



### Audio Sensor (using microphone)

- Records from any recognized audio device on the DTect-IT Windows PC

### Operating System Requirements

- Windows 7, 10

### Stored Data Format

- CSV
- SQLite
- XML



### Control Compatibility

- Fanuc
- Mitsubishi
- Citizen
- Okuma
- Siemens
- Brother
- Heidenhain

### Communication

- TCP/IP Ethernet
- Physical I/O - Ethernet
- RS232
- Physical I/O - USB

## PROMINENT APPLICATIONS

Barfeeder Vibration Detection

Spindle Bearing Analysis

Yoke Strain Detection

Temperature

Displacement

Machine Health and Preventative Maintenance

Tapping Operations

Tool Wear and Breakage Detection

## OTHER PRODUCTS FROM CARON ENGINEERING



[www.caroneng.com](http://www.caroneng.com)

Caron Engineering, Inc.  
116 Willie Hill Rd.  
Wells, Maine 04090

Phone: +1 (207) 646 - 6071  
Email: [marketing@caroneng.com](mailto:marketing@caroneng.com)



MADE IN THE U.S.A.