

The logo for CIMCON, featuring the word "CIMCON" in a bold, black, sans-serif font. The letter "O" is replaced by a blue circle containing a white circuit board pattern.

CIMCON

digital

solutions for the digital economy

A close-up photograph of a VIBit sensor mounted on a piece of industrial machinery. The sensor is a dark, rectangular device with several small, illuminated windows in red, green, yellow, and blue. A black cable is connected to the sensor. The background shows a large, light-colored metal component of the machinery.

VIBit

**Easy-to-Install, Tri-axial Vibration, Temperature, and
Acoustic Sensor for Anomaly Detection**



KEY FEATURES

VIBit is an intelligent, powerful and compact sensor that monitors the condition of machines or equipments to predict their failures in advance to avoid costly downtime saving time and money for its owners. Designed to work in a rugged, industrial environment, VIBit is a very compact, light-weight vibration sensor which can be easily installed on a range of equipment to detect abnormal vibrations, unusual sounds, or high temperature. This enables production floors and utilities to know the real time condition of their equipments. The VIBit works with the CIMCON Digital Connect Application, a smartphone application that gives the maintenance engineers or technicians instant feedback on sensor readings and enables various configurations over Bluetooth.

- » Helps manufacturing plants, facilities, and utilities monitor their machine health and take preventive action before a fault occurs, reducing plant downtime and increasing overall efficiency.
- » Powerful Wi-Fi connectivity which transmits data even in the extremely noisy industrial environment, making remote condition monitoring very reliable and helping maintenance engineers, vibration experts, and data scientists to glean further insights and predict failures.





FEATURES

- » Covers a large range of rotating equipment across various industries
- » Powerful computing engine based on 32-bit ARM Cortex-M4 processor
- » Wi-Fi Tx power up to +15.1dBm, ensuring reliable data communication in a factory environment
- » Bluetooth low power up to +8dBm Tx power for smart phone configuration
- » RS-485 connectivity to CIMCON IEdge 360 gateway or any third party gateway through Modbus protocol
- » Ultra-low sensor noise 75ug/sqrt (Hz) helps detect faults in their early stages so maintenance can be planned in advance
- » FFT graphs for detailed AI/ML driven analysis
- » Real-time and historical data trending and reporting
- » Local LED indication with different colors to display status
- » Standard Industrial protections on +24V input & RS-485 interface
- » Magnetic and stud mount options
- » Alarms and e-mail alerts
- » Asset Health and KPI cards

EQUIPMENT FAULTS BEING REPORTED

- » Static unbalance of rotor
- » Couple unbalance of rotor
- » Radial misalignment across coupling
- » Angular misalignment across coupling
- » Loose mounting of structural & support components
- » Looseness in rotating components
- » Excessive clearances in bearings
- » Various defects in rolling element bearings like race, cage damages etc.
- » Bearing damages due to electric current leak
- » Lubrication issues in rolling element bearings
- » Resonance
- » Beat and Modulation phenomena
- » Rubbing between rotating and static components.
- » Abnormal acoustics issues due to interaction of electromagnetic forces in motors, aerodynamics forces in Compressors/ Fans, hydrodynamics forces in Pumps etc.
- » Centrifugal pump abnormalities like:
 - cavitation
 - Flow related issues due to improper operation
 - Impeller vane frequency due to excessive hydraulic forces
 - Excessive mechanical loadings on pump connections
- » Centrifugal Fans/Blowers/Compressor abnormalities like:
 - Surge / Stall
 - Flow related issues due to improper operation
 - Blade pass frequency due to excessive aerodynamic forces
 - Excessive Leakage across sealing arrangements
- » Electrical Induction drive motors: Various fault conditions like
 - Air gap problem due to stator or rotor eccentricity
 - Cracked / loose rotor bars
 - Stator shorts
 - Soft foot
- » Electric DC drive motors:
 - SCR firing faults (Silicon Controlled Rectifier)
- » Gear drive abnormalities like:
 - Gear wear / abnormal meshing
 - Gear / Pinion misalignment
 - Gear / Pinion Excessive backlash
 - Gear / Pinion eccentricity
 - Gear / Pinion pitch line runout
 - Gear / pinion tooth damage
- » Belt / Chain drive abnormalities like:
 - Belt / chain resonance
 - Eccentric Drive / Driven pulley
- » Conveyor Rollers : Various fault conditions like
 - misalignment across both bearings of the Roller
 - Roller eccentricity
- » Positive displacement Pumps (Gear / Reciprocating etc. abnormalities like:
 - piping vibration due to excessive pressure pulses
 - excessive noise and vibration due to hydraulic pressure pulses
- » Positive displacement compressors / blowers (Lobe / Screw / Reciprocating etc.)
 - Piping vibration due to excessive pressure pulses
 - excessive noise and vibration due to undesirable aerodynamic interaction of static and rotating components.
- » High vibration in equipment mounted on "Isolators" due to malfunction / damage of the "Isolators".
- » Diesel Engines abnormalities like
 - Bearing wear
 - Mounting wear and tear



SUPPORTED ASSETS

- » Centrifugal pumps of all types of configurations and applications
- » Positive Displacement pumps of all types of configurations applications
- » Centrifugal compressors / fans / blowers of all types of configurations and applications
- » Positive Displacement compressors of all types of configurations and applications
- » Gear boxes of all types, configurations and applications
- » AC Electrical drive Induction Motors of all sizes, capacities and applications
- » DC Electrical drive motors of all sizes, capacities and applications
- » Conveyor Rollers of all types configurations and applications
- » Diesel Engines

EQUIPMENT MOUNTED ON

- » Rigid Foundations
- » Flexible Foundations
- » Isolators

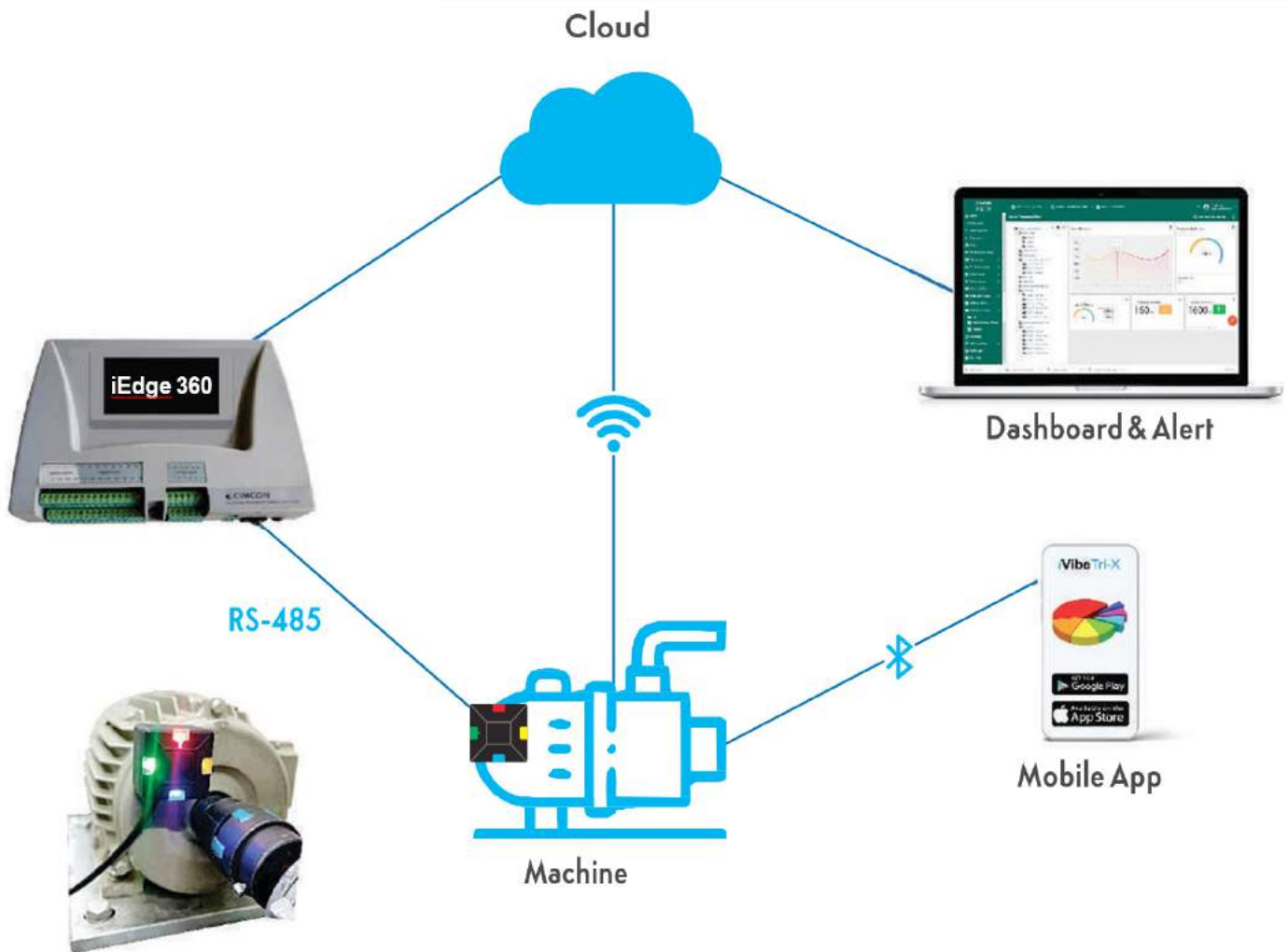
SUPPORTED INDUSTRIES

- » Textile
- » Pharmaceutical
- » Paint
- » Automobile
- » Beverages
- » Food Processing
- » Furniture
- » Cement
- » Paper
- » Power
- » Oil & Gas
- » Fertilizer
- » Chemical
- » Steel
- » Mining
- » Corporate Hospitals
- » Five Star Hotels

EQUIPMENT MANUFACTURERS

- » Centrifugal Pumps
- » Positive Displacement Pumps
- » Centrifugal Compressors / Fans
- » Positive Displacement Compressors / blowers
- » Gear Boxes
- » Electrical Motors
- » Air Handling Unit

HOW IT WORKS



CLOUD-BASED HEALTH MANAGEMENT PLATFORM

Our Cloud-based Health Management platform is a powerful tool in reducing maintenance spending and increasing Mean Time Between Repairs (MTBR) by proactively identifying detrimental system conditions prior to catastrophic machine failure by using an Artificial Intelligence/Machine Learning (AI/ML) model to provide FFT graph analysis, asset health monitoring, real-time data, and historical data.

It provides a dashboard which helps you understand the overall equipment efficiency of assets in the form of waveforms. This further reduces unplanned downtime, increases equipment availability, and significantly reduces inventory costs.



CUSTOMER FACILITY

Dedicated page for customers to compare health and performance across devices. Customers can also access and dig into site-level performance.

MACHINE EFFICIENCY STATUS

Quick overall health status of multiple devices.

OVERALL EQUIPMENT STATUS

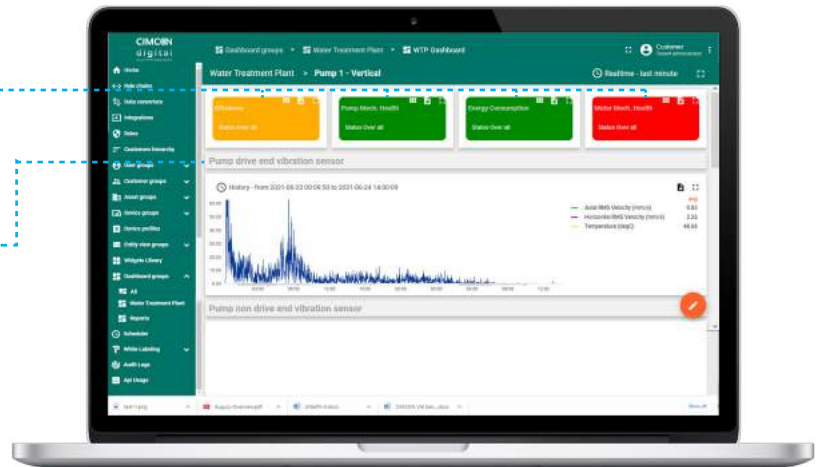
Get overall equipment efficiency for a period of time, further helping to decide proper equipment usage.

STATUS OF INDIVIDUAL ASSET

Individual asset health status can be checked with color indication and a further dig for expert verification.

REAL TIME & HISTORICAL WAVEFORM

Real-time and historical waveform to check various parameters.



ASSET NAME CUSTOMIZATION

User-friendly names can be created as needed.

USER FRIENDLY WIDGETS

Easy-to-understand dashboards and widgets are used to show whether parameters fall within the defined specifications.

REAL TIME WAVEFORMS

Get real-time information in terms of waveforms.





SPECIFICATIONS

DEVICE SPECIFICATIONS		
	Sensing Technology	MEMS Based
	Vibration Sensor	3-axis MEMS Sensor
	Frequency Range	5Hz to 1.3kHz
	Sampling Rate	3.33kHz
	Shock Tolerance	10,000g for 0.2ms
	Linear Acceleration sensitivity	0.122mg/LSB (Max 2%)
	Low Noise	75ug/sqrt(Hz)
	Resolution	16-bit
	Data from Sensor	3-axis acceleration RMS & velocity RMS, 3-axis acceleration RMS & velocity FFT 3-axis spectral features as per configuration
	FFT Frequency Resolution	0.8Hz
	Temperature Sensor	Semiconductor sensor with max 0.2°C accuracy over -40°C to +100°C range
	Contact Temp. Range	-40°C to +125°C
	Wi-Fi Range	80mtrs LOS
	Bluetooth Low-Power Range	Low power, mesh, 26mtrs LOS
	RS-485	RTU connectivity on Modbus protocol, 2-wire, baud rate configurable to 1.2kbps to 115.200kbps
	LED indication	Red, Green, Blue, Orange

DATA CONFIGURATIONS		
	Transfer Interval Configuration	Real-time transfer every 0.5 sec to 2 sec (depending on LOR selection) •FFT data transfer every 20 mins, • FFT data on-demand from server •FFT data on alarm
	Local Monitoring & Configuration	Mobile Android & iOS applications
	Remote Monitoring & Configuration	Through dashboards
	OTA	Over-The-Air FW upgrade



WIRELESS SPECS
(802.11 B/G/N) COMPLIANT

Frequency Range	2412MHz to 2484MHz
Tx Power	15.1dBm (802.11 b, 1Mbps), 12.5dBm (802.11 g, 6Mbps), 12.1dBm (802.11n, MCS=0)
Receiver Sensitivity	-96.3dBm (802.11b, 1Mbps), 91.5dBm (802.11g, 6Mbps), -91dBm (802.11n, MCS=0)
Security	WPA/ WPA2
Encryption	AES/ WEP
Network Protocol	MQTTS/ HTTPS/ TCP/ IPv4

BLUETOOTH V5.2

Tx Power	+8dBm (Max)
Frequency Range	2400MHz to 2483.5MHz
Receiver Sensitivity	-98.9dBm, 1Mbps, 37byte payload
Security	AES128/256, SHA-1, SHA-2(256-bit), ECC (256-bit), ECDSA, ECDH.

ELECTRICAL SPECS

Power Supply	External 24VDC+/-10%
Power Supply Protections	Over current, EFT (Level 4), ESD (Level-4)
Connections	4-pin M8 connector for power supply & RS-485 connections.
External M8 Connector Cable	5mtr cable provided with product
Operating temperature	-40°C to +85°C

MECHANICAL SPECS

Size	40mm (L)X 40mm (W)X 33mm (H)
Weight	78 gms
Axis Orientation	Indication for X-axis
Enclosure	Polycarbonate, IP67
Mounting	Magnetic mount & stud mount options. Stud mount option recommended for better results. Mounting accessories Vibration plate & stud are provided with product.



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CIMCON
digital
solutions for the digital economy

SPECIFICATIONS SUBJECT TO CHANGE
WITHOUT NOTICE.
VIBIT DATASHEET-R2
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