REAM (Reliability Engineering & Asset Management) Products

1 Vibration Sensors- Accelerometers, Velocity sensors and non-contact displacement sensors

1.1 FK Series

Measures shaft vibration, axial position, rotational speed, phase mark on small rotating machinery to turbine and compressors

Eddy-current transducers that are used for measuring Shaft Vibration, Axial Position, Rotating Speed and Phase Mark (Phase Reference) from small rotating machinery to large critical machinery such as turbines and compressors in plants. These have environmentally friendly design that have become the concern for all, including lead-free soldering, compact body, and are RoHS directive (Restriction of the Use of Certain Hazardous Substances in Electrical and electronic Equipment) compliant. Also, the design comply with the American Petroleum Institute (API) Standard 670 that are widely referred to for machinery protection systems in oil refineries, petrochemical plants, etc.

Features:

- Environmentally friendly design
- Lead-free soldering, RoHS Directive Compliant and Downsized.
- Flexible mounting options
- DIN-rail adaptor, 4-screw-cramp plate adaptor (to replace VK series and others)
- API standard 670 compliant
- Intrinsically safe
- TIIS, CSA, ATEX, NEPSI, KTL
- CE marking compliant

1.2 WK Series [For monitoring of general-purpose rotating machinery]

Vibration/thrust conversion function incorporated into the conventional eddy-current transducer. The two-wire power loop system for power and signal transmission achieves low cost vibration monitoring systems.

1.3 CV Series

[For monitoring critical rotating machinery]

Piezoelectric velocity transducers that measure casing vibration of turbines, compressors, pumps and other rotating machinery, and outputs voltage signals.

1.4 CA Series

[For monitoring of turbine/general-purpose rotating machinery]

Compact piezoelectric Acceleration transducers. Responds to a wide frequency range.

1.5 CB Series

[For monitoring general-purpose rotating machinery]

Piezo-electric vibration accelerometers or vibration transmitters with built in integrators to provide a velocity output – an economical option for monitoring balance of plant equipment.

1.6 MS Series

[For monitoring of turbine/general-purpose rotating machinery]

By mounting MS Series sensor close to the detecting gear on a rotating shaft, rotational speed can be measured without touching the rotor.

1.7 LVDT Series

[For monitoring of turbine]

Highly reliable differential transformers that can be used for measuring valve opening, casing expansion and other long-range measurements.

1.8 Eddy-current Noncontact Displacement/Vibration Sensor VC Series

High performance displacement sensor with exceptional stability achieving exceptional reliability and stability with our proprietary eddy-current method, VC Series have been favored by many of our customers. Provides important data with high accuracy in diverse applications, including production equipment monitoring, production quality control, research institute, etc.

Features

· Reliable, superior temperature characteristics

Provides stable measurement in a severe condition where the temperature wildly changes through time . The sensor probe, the area that is placed in the most severe condition, is carefully designed with finely selected materials and crafted with our stringent quality control system so that the temperature coefficient becomes below ±0.015% of F.S./℃ (typical). Also the sensor has a temperature compensation circuit on the demodulation circuit to suppress the temperature coefficient below ±0.05% of F.S./℃.

· Internal circuits that ensures high stability

For fine, stable measurement, demodulation accuracy of the bridge circuit inside the sensor is indispensable. VC Series uses a crystal demodulator to stabilize the frequency, and takes the output voltage signals back in to the AGC circuit for amplitude control.

· Fine resolution linear outputs

Outputs finely calibrated linear signals proportional to the detected distance . The output signal is 0 to 5 VDC with displacement and vibration contents, making it applicable to a wide range of applications from static displacement measurement to high-speed vibration measurement.

· A broad range of lineup to meet the needs

Nine range types from 0 - 500µm to 0 - 25mm are available for different applications. (0 - 500µm is not available for the fine model.) The sensor lineup consists of standard and fine, water resistant (standard) models for various application use.

1.9 Touch-roll type Thickness Measurement System VND Series

High accuracy digital thickness measurement system with high stability and reliability

The VND converter, in combination with an eddy current type displacement sensor and the touch-roll attachment, provides a system that measures the thickness of the non-conductive sheets with high accuracy. Use of eddy current method makes the system superior to any other measurement systems based on optical, ultrasonic or radiological principles because it can provide highly accurate measurements of thickness of polymer films and rubber sheets continuously without being affected by ambient atmosphere with water, oil or dust etc.

Features

- Easy adjustment by (SET) button

When in the field, simply provide a mock thickness with a spacer of regulated pitches (10% or 20%), and press (SET) button to adjust characteristics.

- Digital display on the converter for thickness measurement check

No testers are required in the field to measure converter's output voltage.

- Smooth zero-shift function (Approx. ±20 % o f F.S.)

Smooth zero-shift adjustment made possible with the up/down (▲) (▼) keys on the converter surface. Zero-shift function doesn't affect sensitivity and linearity (accuracy) of the measurement.

- Highly accurate thickness measurement

The use of 6-point adjustment (20% pitches) or 11-point adjustment (10% pitches) to match with the actual target (rollers) has achieved the linearity of within ±0.5 % of F.S. (with the field adjustments, linearity as much as ±0.2% of F.S. (typical value) is also possible.)

- High stability

Superior temperature characteristics provide stable measurements. Run-out effects from target (rotor) are kept low just as that of our conventional VN series models.

- Compact

Downsized by half from the conventional VN converter

Applications

- For thickness measurement of non-conductive sheets
- For thickness measurement of steel plate
- For thickness measurement and positioning of metals

- For thickness measurement of paint coating and films
- For thickness control of paint coating
- For thickness measurement and control by roll gap measurement

1.10 Displacement Transducer FKP-452F

Displacement transducer driven by +24VDC power supply

FKP-452F is a small sized and durable non-contact displacement transducer using a driver powered by +24VDC which is easy to apply in the instrumentation site. The transducer consists of a sensor and an extension cable based on the API 670 complied FK-452F transducer (driven by -24VDC) which has much experimentation as machine condition monitoring.

* FKP-452F does not comply with API 670 because of +24VDC power supply, and cannot be used for the applications in combination with VM-5 or VM-7 condition monitors. Please use the FK-452F (-24VDC) for such those applications.

Features

- Driven by +24VDC power supply

Easy to apply in the instrumentation site

- Flexible mounting options

DIN-rail adaptor, 4-screw-cramp plate adaptor

- Type approval certificate for Classification of Ship

NK, LR, DNV

- CE marking compliant

1.11 VG Series

［For laboratory evaluations/high temperature (ex. steel production) ］

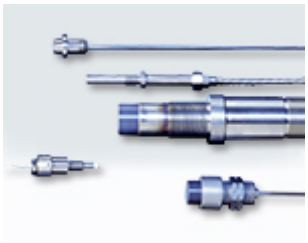
A displacement sensor that achieves measurement in a temperature of up to 600 deg Celsius. This is a unique system that allows various measurements of continuous steel casting equipment.

1.12 KP Series

［For railway maintenance］

A weather resistance displacement sensor used to detect position of rail condition measurement cars or maintenance cars.

1.13 Special Sensors



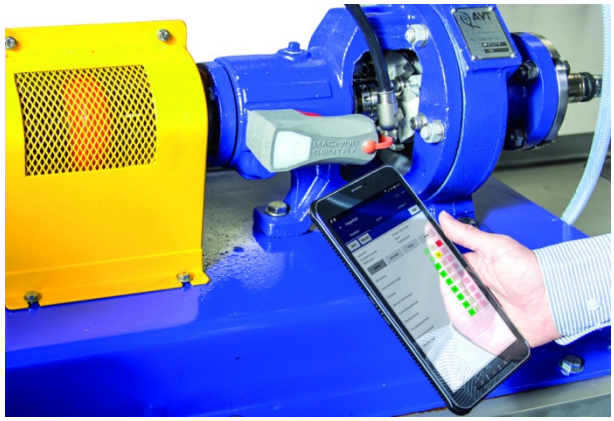
［For magnetic bearing］

SHINKAWA have been creating a wide range of special sensors to meet diversified needs for measurement in severe conditions required in various industries.

2 Wireless Online, Semi Online & route-based Condition Monitoring

2.1 Machine Sentry Mobile (MSM-1)

The Machine Sentry® MSM-1 sensor is a wireless intelligent tri-axial vibration and temperature sensor (patent pending) which connects via a Bluetooth® enabled hand held device to the Machine Sentry® software.



The sensor incorporates a 4 channel multiplexed data acquisition system which utilizes 3 internal accelerometers to give full 3-axis support. An additional sensor or fixed protection panel can be connected to the 4th channel.

The Machine Sentry® MSM-1 sensor can be paired to any Android tablet or smartphone using standard Bluetooth® communications. This provides safe and efficient data collection from up to 10m away. Assets which would normally be difficult to monitor using a traditional wired accelerometer can now be measured with ease (e.g. collection points behind guards, or large, moving assets such as gearboxes on agitators).

The integral rechargeable battery offers 60 hours of continual operation between recharges allowing a full week's data collection between charges.

The sensor is available with ATEX or IECEx certification for use in Zone 1 or Zone 2 classified areas. The sensor has an inbuilt magnet which allows correct and repeatable orientation when performing multi-axis data collection.

A) Typical applications

- Routine predictive maintenance
- Bad actor identification
- Critical asset management

B) Key features

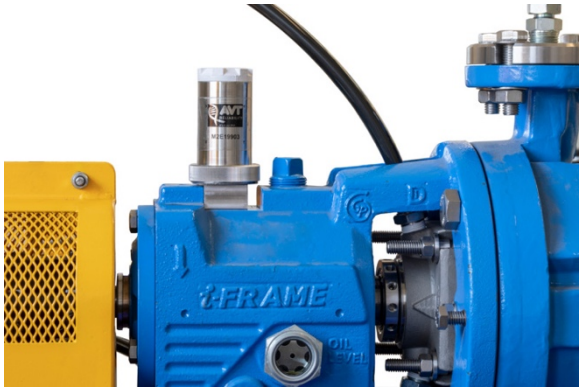
- Built to resist the harshest environments
- Rechargeable battery with up to 60 hrs Battery life,
- Wireless through Bluetooth
- ATEX Certification
- External port connection
- to 5 times faster data acquisition compared to traditional systems (do more asset in the same time or use the time gained to concentrate further on the analysis of the asset or more pressing reliability challenge

Read more- https://www.machinesentry.com/products/hardware/msm-1

2.2 Machine Sentry Fixed (MSF-2)

Semi-continuous monitoring reduces the chance of undetected fault conditions being missed. The sensor incorporates a 3 channel multiplexed data acquisition system connected to a tri-axial sensor to give full 3-axis support.

The Machine Sentry® MSF-2 sensor can be paired to any Android tablet or smartphone using standard Bluetooth® communications, to provides safe and efficient data collection from up to 100m away. The sensor can either be permanently mounted or temporarily installed using the optional magnet attachment. Assets which would normally be difficult to monitor using a traditional wired accelerometer can now be measured with ease (e.g. collection points behind guards and large or moving assets such as gearboxes on agitators). The sensor uses a unique combination of low energy Bluetooth® and classic Bluetooth® protocols to optimise battery life and increase data transfer speed.



Intelligent data compression utilities optimise the amount of data that can be stored internally. The time waveform is stored in a high definition raw format giving maximum flexibility for post processing.

The integral replaceable battery will operate for up to 5 years depending on collection mode.

A) Typical applications

- Batch or variable processes
- Hard to access assets
- Bad actor or critical assets

B) Key features

- Sample rate 1Hz to 5.5kHz
- Internal memory store for up to 5000 readings
- High speed data transfer via Bluetooth
- Programmable data acquisition rate
- User replaceable battery

- Up to 5-year battery life
- Tri-axis vibration sensor
- ATEX Zone 0 certified – suitable for almost any application
- Sealed to IP 67. Stainless steel construction
-

Read more - https://www.machinesentry.com/products/hardware/msf-1

2.3 Machine Sentry Online (MSO-1)

Machine Sentry® MSO-1 is ideally suited for monitoring of pumps, fans, gearboxes, cranes, compressors, wind turbines, gas and steam turbines, electric motors and many more. It is perfect for your most critical assets.

The Machine Sentry® web platform provides access to detailed condition monitoring data, with no historical restriction, which can be supported by world leading condition monitoring engineers.

The Machine Sentry® Gateway enables the creation of an industrial IOT System for your condition monitoring program.

The Cassia X2000 enterprise Bluetooth gateway delivers cost-effective connectivity for demanding indoor/outdoor enterprise Bluetooth IoT environments. It supports Power over Ethernet (PoE) and 12V DC. The X2000 easily attaches to a pole or wall with an included mounting kit, or it can be placed on a flat space with an optional desktop stand kit. The all weather-proof, IP66-rated X2000 gateway is ideal for manufacturing facilities, school and corporate campuses, ship yards and outdoor plant facilities.

The X2000 extends Bluetooth connectivity up to 400 meters for Bluetooth 4 and 1 kilometer for Bluetooth 5 in open space direct line of sight using a patented filtering and smart antenna array. Furthermore, the range extension does not require replacing existing Bluetooth low power end devices, nor is it dependent on Bluetooth Mesh. In bi-directional mode, the X2000 can pair and connect up to 40 end devices. While in broadcast/advertising mode, it can listen to hundreds of end devices. Cassia's X2000 can be used as a protocol gateway, which translates between Bluetooth protocol and IP protocol. The X2000 Internet Protocol (IP) backhaul options include Ethernet, 2.4/5GHz Wi-Fi and USB cellular modem. As a result, end devices are remotely accessible and controllable via an Internet application..

The Gateway provides secure connection to the internet using the latest internet security protocols ensuring your data is safe.

The Machine Sentry® Gateway allows up to 100 Machines Sentry® Bluetooth® vibration sensors to be connected to the internet. The Gateway extends the Bluetooth® range up to

50m (164ft), can be powered using Power Over Ethernet (POE) and is suitable for mounting either indoors or outdoors.

2.3.1 Typical applications:

- Critical assets
- Intermittently running assets
- Inaccessible assets
- Multiple sensor installations
- Remote locations such as pumping stations

2.3.2 Key features:

- 3g/4g, Wi-Fi, LAN connectivity to the internet
- Constant monitoring of machines
- Cost effective solution
- Simple to install and set up
- Early failure mode detection
- More accurate data acquisition
- Reducing data acquisition time constraint
- Reduce travelling time requirement
- Reduce equipment downtime
- Reduce maintenance cost
- Increase equipment uptime and efficiency
- 100% compatible with the Machine Sentry® product range of hardware and software
- Able to collect equipment vital signs without the need of a machine operator being present

2.4 Machine Sentry® Software

It is a unique asset reliability management solution which integrates all condition monitoring techniques and watchkeeping data, enabling effective maintenance planning and management reporting.

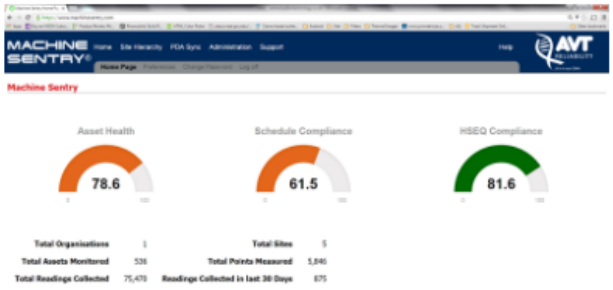
As a web enabled system, Machine Sentry® is the most versatile, readily accessible, intuitive and cost-effective condition monitoring solution on the market today.

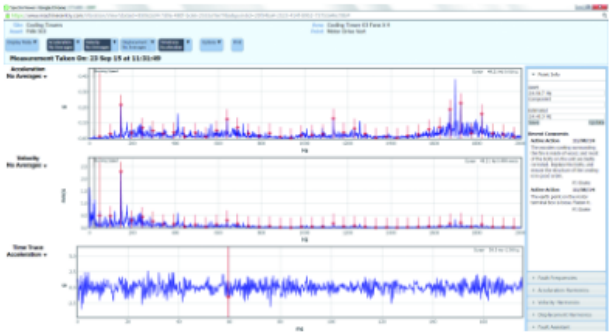
2.4.1 Salient Features:

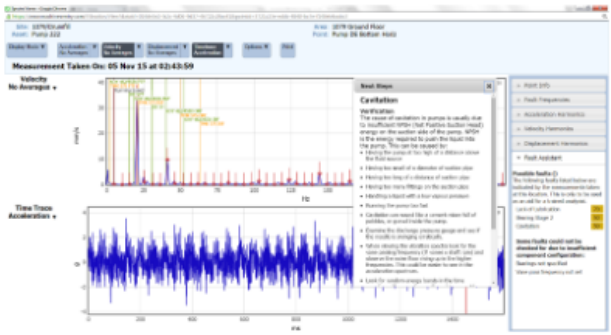
- Modular cloud-based Machine Sentry® software – Secure database is accessible from almost any location by multiple users.
- Accepts data from a wide range of measurement techniques – A single interface that collates data, collected manually from vibration and temperature (including thermal imaging cameras), records visual inspection and process parameters and stores oil analysis data.
- Suitable for both static assets and rotating machinery – The Pipework Vibration Compliance feature allows a plant operator to quickly screen all process pipework and small bore connections in order to identify lines that have the greatest risk of failure.
- Scalable and flexible – Machine Sentry® is extremely flexible and can be configured to meet the simplest of systems, more so, as requirements change it can be easily expanded to meet the most demanding situations.
- Automated fault diagnosis – Our proprietary ADATM algorithm automatically diagnoses potential problems and suggests verification procedures to confirm.
- Maintenance planning – Plan, track and manage a range of maintenance events including lubrication activities and usage.
- Key performance indicators (KPIs) – To systematically measure the effectiveness of the condition monitoring (CM) program from schedule compliance to asset health and bad actor management.
- Compatibility – Machine Sentry® can be used either as a standalone tool or alongside your existing enterprise system (e.g. SAP, Maximo, PEMAC, etc), data can be exported to Microsoft Excel, CSV, XML or JSON formats. OEM data such as pump curves, repair details or other documents can be imported and linked to appropriate assets.
- Expert support – Access to world leading condition monitoring engineers – providing detailed diagnosis and advice from anywhere in the world.
- Data collection – 5 times faster than any traditional data collection system, this significantly lowers the time required to acquire data from more assets in the same time. The data collection hierarchy is compliant with ISO14224 with advanced filtering

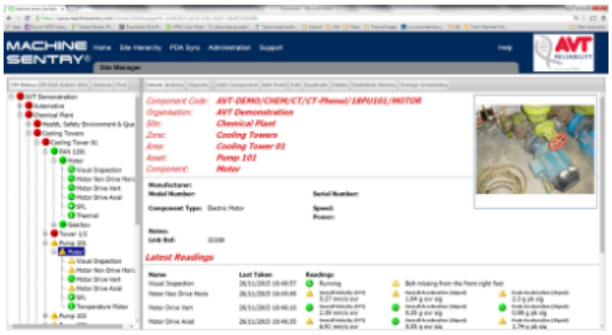
capability.

- Compliant data analysis – Vibration analysis is ISO 10816 compliant.
- Automated alarm configuration – Templates automatically configure alarms in accordance with ISO10816 and ISO 7919 standards saving you time.
- Its small size, low power consumption, high storage capability, make the system very easy to install, operate and maintain, while delivering the functions required by expert analysts or plant operators.









Read more- https://www.machinesentry.com/products/software

3 Condition monitors

3.1 Monitor for TSI VM-5 Series

A monitor which offers flexibly to respond to various sizes of rotating machinery. Designed in accordance to the American Petroleum Institute (API) standard 670 VM-5 Series monitor has flexible options of 10 and 8 slots, rack mount type and power source built-in. Standalone type allows for configurations for small to middle scale rotating machinery for TSI (Turbine Supervisory Instrumentation) for large turbine generator.

All settings and checks can be done on the front panel, without disturbing the operation. Modules are available to cover every function that is required for rotating machinery monitoring, from displacement/vibration to zero-speed. The monitor can be flexibly configured to the type and size of the asset to be monitored.

Features

- High reliability with redundant power supply (10 slot rack mount type)
- Data communication allows for system expansion (Rack mount type)
- Monitor modules allow for flexible configuration
- All settings and checks are done on the front panel without disturbing the operation.
- Easy monitoring with full display function
- Configuration can be changed in the field.
- Self-diagnostics function

3.2 Large Rotating Machinery Condition Monitor VM-7 Series

A monitor which is designed in accordance with the American Petroleum Institute (API) standard 670 and ISO standard can be scaled to the size of the rotating machinery

The fully digitalized monitor modules cover 17 measurement parameters used for TSI and other rotating machinery monitoring.The multi-functional modules can be configured on PC to meet monitoring needs.

Features

- Communication modules - now certified for Achilless Level 2, an international security certification to assess network robustness of control devices.【NEW】
- VM-741B, 741B communication modules have been tested and certified by Achilless, an industry leading benchmark for secure communication network of industrial devices. It provides cyber security solutions for cyber-attacks through internet as well as terminal devices, and this addition to our monitoring system will benefit our customers for stable operation of critical infrastructure such as petrochemical plants and power stations.
- Achilless is a registered trade mark of GE Digital.
- One 19 inch rack handles up to 44 vibration channels
- Five monitor modules handle 17 monitoring parameters
- Monitor module configuration setup can be done on PC
- All modules can be removed/installed from the front, which allows for hot swap
- High reliability with redundant power supply and host communication
- By incorporating the analysis board, the system directly connects to the infiSYS RV-200 analysis and diagnostic system.

3.3 VM-25 Compact Vibration Monitor

Standard digital communication making it IoT ready Expandable and configurable to suit your monitoring needs makes this monitor cost effective yet flexible. Due to it's small footprint it requires minimal space.

Features

- Digital communication (Modbus/TCP)
- Available in X configurations for optimized monitoring
- Field configurable - input sensors, monitor ranges etc*
- D 113mm x W 160mm x H 100mm
- *Device configuration software required to make adjustments

3.4 VM-21 Series

[For monitoring of general-purpose rotating machinery]

Signal conditioner that accepts signals from transducers installed, convert the signals to isolated 4-20 mADC or 1 to 5VDC signals.

4 Analysis & Diagnostic Systems

4.1 Analysis and Diagnostic System infiSYS RV-200

A vibration analysis & diagnostic system that fits various rotating machinery and supports safe operation and improved operational efficiency infiSYS RV-200 is a vibration analysis & diagnostic system that analyzes data for its phase mark and frequency and then plots analysis graphs required for vibration analysis.

Advantages

- By optimizing plant operation, it supports customer's productivity and reliability.
- Detects abnormal symptoms from vibration characteristics or subtle change in vibration. Reduces risks of unplanned production shutdown by taking proactive approach.
- Advanced diagnostics realizes assumption of causes and areas of anomalies and detailed analysis. Help users practice optimum, efficient maintenance.

Features

- For all rotating machinery
  Applicable to all scales from small rotating machinery supported by rolling element bearings to large rotating machinery supported by journal bearings.
- High-speed and flexible system configuration
  While achieving high-speed data acquisition, the system can be configured with various monitors, including non-SHINKAWA monitors.
- Sophisticated data analysis and various graphs
  The software provides a variety of analytical graphs which are optimized for the type of machinery and condition, satisfying stringent demands of vibration analysts and other plant personnel.
- User-friendly operability and plotting functions
  Intuitive software interaction with drag and drop graph display manipulation, graph area switching tab, etc.

4.2 Portable Vibration Analysis System Kenjin

Kenjin is compact, lightweight and transportable making it an excellent choice for vibration analysis on plant assets without permanent analysis system, and also for acquisition of transient data during startup/shutdown. This system can save time and money due to ease of use.

Advantages

- Easy data acquisition during startup/shutdown, as well as in abnormal conditions.
- Abnormal machine conditions are easily identified to help prevent damage and catastrophic failures.

Features

- Compact, lightweight, transportable
- Dimensions: 96 (W) × 224 (H)×163 (D) mm Weigth: 2.6 Kg
- Instant setup and on-site data analysis
  This simple system is user friendly and efficiently provides the necessary information to analyze conditions of your critical assets.
- High-speed data acquisition
  Fast data acquisition intervals of trend data 0.1 sec and waveform data 0.1 sec.
  (Time may vary, depending on the number of inputs and FFT lines.)
- Sophisticated data analysis and various graphs
  The software provides a variety of analytical graphs which are optimized for the type of machinery and condition, satisfying stringent demands of vibration analysts and plant personnel.
- User-friendly operability and plotting functions
  Intuitive software interaction with drag & drop display manipulation, graph area switching tab, etc.

5 Rotor Kit

The perfect training tool for rotor dynamics and vibration with journal bearings. This is a small sized rotor kit supported with journal bearings, and a perfect tool for teaching and learning fundamentals on rotor dynamics and vibration.

Features

For simulating;

- Vibration due to unbalance
- Vibration due to oil whirl
- Vibration due to misalignment
- Vibration due to loss of a component

6 Ultra-probe Digital Inspection Systems

6.1 Ultraprobe® 15000 Touch

Experience the Ultraprobe® 15,000 Touch – Years Ahead of Its Time. Miles Ahead of the Competition.

Get in touch with your plant Click here to view the Ultraprobe 15,000 Video

What would the future be like if equipment was tested so effectively, so safely, so intuitively that catastrophic failure and energy waste became terms of the past?
For the past three decades, the manufacturers at UE Systems have been working on a super detection system that combines state-of-the-art technology with each and every known plant inspection requirement (as indicated by our clients) – in order to create an entire ultrasonic condition monitoring laboratory – to fit in the palm of your hand.

- Touch Screen Technology
- Plan/Review Routes, Images and Sounds On-board
- Multiple Data Screens: dB/Temperature/ Spectral Analysis
- Take Temperature with Infrared Thermometer
- Adjust Emissivity
- Analyze Conditions with On-board Spectral Analyzer
- Photograph Test Points with On-board Camera
- Pinpoint Locations with Laser Pointer
- Review Alarm Groups & Generate Reports

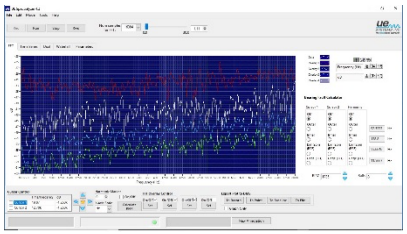
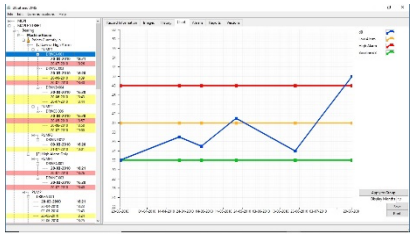
- Store Data, Sounds, and Images
- Review Historical Record Data
- Use for ALL Plant Applications

View housing
View instrument screens
View the Ultraprobe 15,000 Strobe Light

The minute you hold this remarkable digital inspection system in your hand, you will realize you are in for something truly special.
Read More- http://www.uesystems.com/products/state-of-the-art-ultrasound-detectors/ultraprobe-15000-touch

6.2 Ultraprobe® 10000

One of the worlds' most advanced digital ultrasonic detection systems
Inspect – Record Sounds – Store Information – Manage Data
The Ultraprobe® 10,000 brings Ultrasound Inspection technology to a whole new level. With this one system, inspectors can perform condition analysis, record sounds, store and manage data.

The Ultraprobe 10,000 Has On-board Sound Recording
With the push of a button, record a sound sample directly into the instrument and link it to one of 400 record files stored in the Ultraprobe.

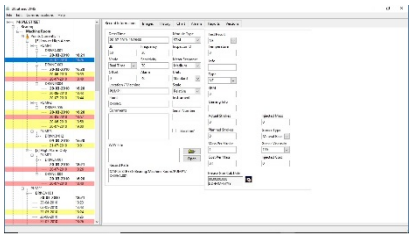
With The Ultraprobe 10,000 System, Test The Way You Want

- Specialized Application Screens
- Adjustable On/Off Features
- Connect to External Devices
- Flexible Reporting Options

Utilizing just two controls: User friendly Spin and Click Technology of the Ultraprobe 10,000 simplifies sound recording, data collection, system customization and data entry.

ULTRAPROBE® 10,000 is a Complete Ultrasonic Asset Management System
Something for Everybody: Whatever you're going to test, the Ultraprobe 10,000 has application-specific software for you. With the "click" of a button you can select an Application with Specialized fields for accurate reporting and analysis.

Select any of 6 applications: Generic, Leak Valves, Bearings, Electrical or Steam and the Ultraprobe 10,000 automatically sets relevant fields for your data logging convenience. All stored data is easily downloaded to the Ultratrend DMS software.



Expand your inspections

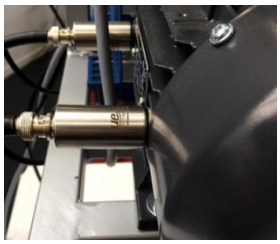
In addition to on-board data logging, the Ultraprobe 10,000 accepts and stores data from external devices such as thermometers and tachometers.

What Do You Want to Test Today?

Practically everything you'll need for specialized inspection is included with the Ultraprobe 10,000 Inspection System; LRM with laser sight and more!

LONG RANGE MODULE: will double the detection distance of the standard Trisonic Scanning Module and enhance performance for any electrical or leak inspection job. With a 10° field of view, you can pinpoint the exact location of a problem at a safe distance; no need to climb ladders or use a lift.

RAS-MT REMOTE ACCESS SENSOR MAGNETIC MOUNT TRANSDUCER: comes with cable, which allows users to inspect hard-to-reach test points. In addition, it provides for consistency of results by eliminating variables such as angle of approach and contact probe pressure.



Read more- http://www.uesystems.com/products/state-of-the-art-ultrasound-detectors/ultraprobe-10000

6.3 Ultraprobe® 9000

Expand your inspection capabilities with the ultrasound digital technology. **All the advantages of Digital with the feel of Analog.**

The Ultraprobe 9000 Kit Complete is a digital ultrasonic inspection, information storage and retrieval system that is so versatile, so easy (most operators are able to use the Ultraprobe 9000 within 15 minutes of purchase) and so much fun to operate, you'll be looking for opportunities to use it every day.

From the very instant you hold the Ultraprobe 9000 Ultrasonic Inspection System in your hand, the feel of the well balanced pistol grip, the elegance of simplicity, and the clarity of signal will convince you that this is truly a remarkable feat of engineering. This Ultraprobe is ready to unleash the potential of any inspection program.

- Open Platform Software
- Interchangeable Modules
- Frequency Tuning
- Spin and Click™ Technology
- 120 dB Dynamic Range
- 400 Memory Locations Record: dB, Frequency, Time, Date, Text, Operation Mode & More
- Acoustic Isolating Headphones
- Environmentally Friendly Rechargeable Batteries
- Superior Application Support
- Easy Interface for Most Vibration Analyzers
- Upload and Download Data via USB

For your safety, there are now two models available: Ultraprobe 9000 IS/ATEX EX and Ultraprobe 9000 Mb Ex ib I (for underground mining)

SPIN AND CLICK™ TECHNOLOGY
UE Systems' unique Spin and Click ™ Technology makes sophisticated inspection processes so simple, so quick, that you will be amazed at how much you can accomplish with only two controls.

By just “spinning” and “clicking” you can:

- Locate and Identify Potential Problems
- Store Data
- Change Frequency Quickly
- Change Sensitivity Quickly
- Download via USB Output
- Select “Snap Shot”, “Peak Hold” , “Real Time” …and More!

Your first glance at the easy to read display panel shows you something special. You can see the calibrated decibel readout and a 16-segment bar graph which instantly registers sound intensity changes and simultaneously registers peak hold as you scan.

Read More –http://www.uesystems.com/products/digital-ultrasound-detectors/up-9000

6.4 Ultraprobe® 3000

If you’re looking for high performance in a small, lightweight package, this Ultraprobe has what you want. Digitally powered, it will record and download all your test data for steam trap and compressed air inspection. Designed for ease of use, the Ultraprobe 3000 combines simplicity and sophistication. Featuring a fixed frequency response along with UE Systems’ “Spin and Click” technology, you can adjust sensitivity, store and record data with just one control. Backed by Ultratrend DMS you’ll get all the data you need with all the features you expect from an Ultraprobe system to analyze test results and generate reports.

Ensure the health of your equipment while reducing your carbon footprint.

Advance your Energy and PdM programs with the Ultraprobe® 3000 Digital Inspection Systems. Versatile enough to cut energy waste and improve uptime while saving money, and improving the environment, the Ultraprobe® 3000 is a digital ultrasonic inspection, information, storage, and reporting system that comfortably fits in the palm of your hand.

Dial into convenience and savings with the Ultraprobe 3000.

Experience the ultimate in airborne/structure borne ultrasonic inspection with the Ultraprobe 3000. This digital inspection system is fully equipped to detect energy waste, and locate mechanical and electrical problems, with many features that will help you inspect in the most challenging environments.

For your complimentary Energy Conservation Guide, **Click Here**.

Features include:

- Wide, dynamic sensitivity range
- "Spin and Click" operations to customize your inspection modes, store and view data and adjust instrument settings
- Easy-to-read display panel with calibrated decibel readout on a 16-segmented bar graph.
- The display panel showcases sensitivity level, storage location number, and battery level
- Store, overwrite, or enter data in a new location
- 400 Memory locations hold all of your test data
- Scanning and stethoscope (Contact) plug-in modules
- Update system software online

Typical Ultraprobe 3000 Applications:

- Compressed Air Leak Detection
- Steam Trap Inspection
- Valve Leak Detection
- Pressure & Vacuum Leak Detection
- Heat Exchanger, Leaks
- Tanks, Pipes, Leak Testing
- Wind Noise/Water Leaks
- Hatch Leak Integrity
- Bearing Testing
- Gear/Gear Box Inspection
- General Mechanical Inspection & Trouble Shooting
- Electrical Inspection

ULTRAPROBE® 3000 Spin and Click Technology Digital Ultrasonic Inspection System

UE Systems' unique Spin and Click ™ Technology makes sophisticated inspection processes so simple, so quick, that you will be amazed at how much you can accomplish with only two controls.

By just "spinning" and "clicking" you can:

- Locate and Identify Potential Problems
- Set a Store Mode: "Normal Store" or "Quick Store"
- Overwrite Data
- Delete Data
- Change Sensitivity Quickly
- Download via USB

Read More:- http://www.uesystems.com/products/digital-ultrasound-detectors/up-3000

6.5 Ultraprobe® 2000

The Industry's Most Comprehensive Analog Detection System

Fast, accurate, and designed for ease of use, it often takes no more than 15 minutes to become competent in ultrasonic testing using the Ultraprobe® 2000.

The Ultraprobe® 2000 can help:

- Reduce unplanned downtime
- Shorten planned outage time
- Diagnose equipment problems quickly
- One person quickly test equipment in an entire section
- Create more efficient scheduling of routine Preventative Maintenance procedures

The Ultraprobe® 2000 also enables data reporting through three modes: through auditory channels (via a headset that has been specifically selected for heavy duty industrial use), through a uniquely designed bi-modal analog meter, and through the ability to interface with vibration analyzers, & sound recording devices via the heterodyned output.

For use in hazardous environments, the Ultraprobe 2000 is rated intrinsically safe. An ATEX model is also available.

The Ultraprobe® 2000 can be adapted to test practically any problem in operating equipment with such features as:

- FREQUENCY TUNING enables a user to tune into problem "sounds" while minimizing background interference.
- METER MODE selection adjusts the meter response from a real time response to an averaging response. This feature allows accurate adjustments for leak detection and for mechanical analysis.

The Ultraprobe® 2000 can heterodyne ultrasound into audible range providing accurate sound reproduction.

Sensitive only to ultrasonic frequencies, the Ultraprobe 2000 will not respond to the low frequency noises often associated with most plant equipment. Therefore, the "gun" can be effectively utilized in extremely loud environments.

One Analog Instrument to Test Them All!

Contact Applications including:

- Bearings
- Gear Boxes
- Line Blockage
- Steam Traps
- Valves
- Compressors
- Motors
- Pipes
- Flow Direction
- Underground Leaks

Airborne Applications including:

- Vacuum Leaks
- Welds
- Substations
- Heat Exchangers
- Seals
- Pumps
- Tanks
- Air Brakes
- Gaskets
- Pressure Leaks (all types)
- Electrical Arc (including CORONA)
- Caulking (air infiltration)
- Wind Noise Problems
- Junction Boxes

Read More :- http://www.uesystems.com/products/cost-effective-ultrasonic-detectors/up-2000

6.6 Remote Monitoring

Beyond the Ultraprobe – UE Systems Offers Several Remote Monitoring Tools

From our UCA 586 Electric Cabinet Monitor to the Ultra-Trak 750, which passively monitors ultrasound produced by operating equipment, UE Systems has what you need to protect your facility – 24/7/365. While you use the famous Ultraprobe analog and digital systems for route inspection, find out how our remote monitoring instruments provide you with the coverage you need at all times.

Learn more about:

- Ultra-Trak 750
- UCA 586
- ECM 586
- Remote Access Sensor (RAS)
- 4Cast Remote Monitoring System

Read More :- http://www.uesystems.com/products/remote-monitoring

7 Ultrasound condition-based lubrication instruments

7.1 Ultraprobe® 401 Digital Grease Caddy Pro

Manage Your Lubrication Program: Prevent over/under lubrication and more.

The Ultraprobe 401 Digital Grease Caddy provides all the data you'll need to optimize your lubrication program. Whichever lubrication method you may use; **time-based/preventive lubrication** or **condition based lubrication**, you'll find the Ultraprobe 401 sy stem is essential to your program. View a video highlighting the UP 401.

The perfect blending of advanced digital technology and data management software provides the ability to review your total lubrication practice, trend successes, note warning signs, issue reports and have the ability to continually improve your program. Here's a small sampling of some of the important data you'll be able to review:

- Bearing housing lubrication capacity
- Type of grease used
- Baseline dB levels
- dB levels before applying grease
- dB levels after applying grease
- dB levels after applying grease
- Amount of strokes of the grease gun used to apply grease
- Cost of grease
- Cost analysis
- Trend bearing condition

The more you know about this unique product, the more you'll appreciate its capabilities. This isn't just a lubrication application device; it's a complete lubrication management system. **No other lubrication product does as much.**

The key features of the Ultraprobe 401 Digital Grease Caddy Pro that set this product apart from any other lubrication product are:

- Route based data collection
- Provides baseline data on screen
- Can view and store decibel level before lubricating
- Can enter decibel level after lubrication
- Can enter number of strokes used to apply grease

- Provides measurement of amount of grease used per bearing
- Report enables review of amount of grease used
- Provides cost analysis of amount of grease used

Read more:- http://www.uesystems.com/products/digital-ultrasound-detectors/up401-digital-grease-caddy-pro

7.2 Ultraprobe® 201 Grease Caddy

The Only Name in Lubrication Technology

You know what the #1 cause of bearing failure is? IMPROPER LUBRICATION

You know how to fix it? ULTRASOUND

Prevent over-lubrication with the Ultraprobe 201 Grease Caddy. This instrument is designed to help lube technicians know when to stop adding grease, you can guarantee over lubrication will be a thing of the past – along with downtime and incredible costs due to machine failure.

Know when to STOP lubricating…Today with the Ultraprobe® 201 Grease Caddy

- Hear when the grease is being applied
- Recognize when to stop greasing
- Prolong equipment life
- Prevent over lubrication
- Save on man-hours
- Save on operating costs
- Improve maintenance efficiencies

UE Systems' unique heterodyning and acoustic filtration system helps you isolate and clearly hear bearing sounds in most noisy plant environments. UE Systems' Ultraprobe 201 Grease Caddy is so sensitive you will hear when the grease enters the bearing and recognize when to stop applying lubrication.

Additional Useful Features:

- Easy to read LED's provide visual indication of ultrasound amplitude
- Use the LED bar graph as a guide to know when to stop applying grease.
- Built-in front-end lamp to illuminate dark areas
- Swivel Base adjusts to odd angles
- Heavy duty headphones for high noise environments

How the Ultraprobe® 201 Grease Caddy works

As lubrication levels fall, friction levels rise producing ultrasonic waves, which are very directional and localized. Easily attached to most standard grease guns, the Ultraprobe 201

Grease Caddy translates high frequency sounds down into the audible range where users will hear and recognize bearing sounds. The Ultraprobe 201 Grease Caddy focuses in on these sounds, even in the noisiest environments and helps users identify when to stop lubricating.

The Ultraprobe 201 Grease Caddy helps lubrication technicians recognize the correct amount of lubricant to apply to each individual bearing. When used properly, this product will dramatically reduce the problem of over lubrication and related bearing failure.

Read More:- **http://www.uesystems.com/products/cost-effective-ultrasonic-detectors/up-201-grease-caddy**

8 Online Oil Condition Monitoring Sensors & Systems

With the escalating price of crude oil and the vast improvements that are being seen in the quality of lubricants available today, it is more important than ever for organizations & Plants across the world, to ensure that they are maximising the service life of the oil used. The monitoring of lubricant oil has traditionally been carried out by means of periodical oil sampling and laboratory analysis. However, it is not possible to detect and solve early stages of degradation through periodical analysis and very often the reaction time is too long.

We propose a next generation™ Online Oil Condition Monitoring System, which could deliver immediate cash operating cost savings coupled with massive long-term equipment reliability improvements. The heart of this system is the OQSx oil condition monitoring sensor, which uses a unique patented method (Full Spectrum Holistic™) to offer unequalled sensitivity providing information regarding oil condition in real time and how the oil has changed from its new condition, giving you a single accurate broad-spectrum reading which takes into account all changes and relevant failure modes such as oxidation, TAN, TBN, liquid and/or particulate contamination, moisture ingress and wear particles.

Read more- https://www.tandeltasystems.com/products/

8.1 OQSx-G2 Oil Quality Sensor

The OQSx-G2 is the world's most advanced and flexible real-time oil quality/condition monitoring sensor. Suitable for application in any commercial or industrial environment from the smallest genset, to the largest engines on ships and mining equipment.

Easy to install, the OQSx-G2 continually analyses oil in real-time whilst equipment is in operation and provides an accurate statement of oil condition. Any wear or contamination is instantly detected, measured to an accuracy of 0.01%, and reported.

8.2 OQD Express (OQDe)

The OQD Express (OQDe) is the perfect partner for the Oil Quality Sensor (OQSx). Engineered to deliver outstanding performance, the robust IP67 rated enclosure delivers a straight forward and effective way to display the real time condition of your oil.

Constant, proactive monitoring ensures that your key resources are optimized at all times giving instant alerts from the easy to read display unit help ensure the reliability of your critical equipment. Data is also logged saving over 800,000 readings allowing you to easily record and trend your oil condition.

Bluetooth connectivity giving the ability to download and send data stored.

Ordering Code: OQDe-A-2-1-P

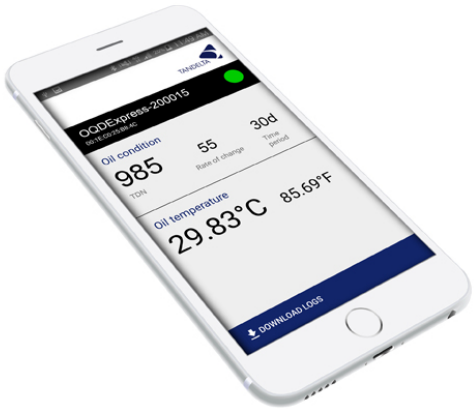
- ✓ **Flexible Installation -** Can be used stand alone or simply connected to a wide variety of control and display systems.
- ✓ **Ease of Use -** With the intuitive traffic light display the real time monitoring of your oil condition has never been easier.
- ✓ **Fully Certified -** The OQD Express (OQDe) is fully certified to international standards to work in the majority of commercial and industrial applications.
- ✓ **Robust and Rugged -** The rugged IP67 rated enclosure with membrane keypad and high quality industrial connectors make this unit very reliable.

- ✓ **Independently Tested -** Has undertaken rigorous independent testing to verify the outstanding performance in a wide variety of applications.

8.3 OQD Mobile (OQDm)

The OQD Mobile (OQDm) app can be downloaded onto your Android device to enable communication with our OQD Express (OQDe) unit via Bluetooth. This allows you to easily check the readings from any OQDe within a 10m radius and download the logged data to further analysis.

- ✓ **Wireless Connectivity -** Use your mobile phone to instantly connect by Bluetooth to any OQDe, view and manage live data.
- ✓ **Live Data -** Display and record real time oil condition.
- ✓ **Data Log Download -** Download logged data for analysis or forwarding to colleagues by email.
- ✓ **Health & Safety -** Allows operators to access data from active machinery at a safe distance.



9 Condition Monitoring Systems- system accessories

We could provide mounting accessories, field enclosures, cable assemblies, junction boxes and System Cabinets for all your Condition Monitoring System (CMS) packages and configurations.

Please contact us for the options and pricing.