



Modern Methods for Ultrasound

Ultrasound prevents unplanned downtime.



OUR COMMITMENT



Engaging Collaboration: Connect with industry experts, collaborate on real-world case studies, and network with professionals. Our interactive bootcamp fosters active participation, growth, and valuable connections.



Personalized Roadmap: Elevate your ultrasound program with our tailored guidance. Gain practical tools, best practices, and proven processes to implement upon your return. Explore new possibilities and unlock your program's potential.



Powerful Networking: Forge meaningful connections with peers, UE, and industry professionals. Amplify your knowledge and collaboration beyond the bootcamp, leveraging a network of support and shared insights.

UE SYSTEMS: GLOBAL LEADER IN ULTRASONIC

Since 1973, we've helped thousands of customers across the world prevent equipment failures, identify energy losses, and return home safe to their families. We provide the tools and support to help facilities operate more efficiently, reliably, and safer. You can expect:



CONTINUOUS SOFTWARE DEVELOPMENT

As industries evolve, so do we.



CERTIFICATION TRAINING

Become an ultrasound specialist in Category I, II ISO 18436-8.



ONSITE TRAINING

Experts orient your team in UE Systems equipment, software, and implementation.



PEACE OF MIND

Advanced tools and continual support designed to keep your production safe and running.

THINK A NEW SYSTEM IS HARD? THINK



EASY TO USE

Easy to learn,
implement and use.

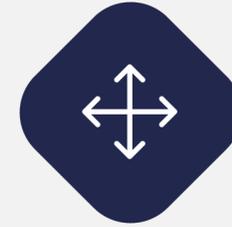
Simply point and listen.



COST EFFECTIVE

No more wasted energy
or costly downtime.

See ROI via energy savings.



VERSATILE

A single instrument can
handle multiple needs.

Monitor just your bearings, or include
leaks, steam traps and valves.

YOUR EQUIPMENT IS TRYING TO TELL YOU

You can use UE Systems to listen and learn. How Reliability Managers use our Ultrasound Technology:



CONDITION-BASED LUBRICATION

Instead of applying grease according to a schedule, Condition-Based Lubrication applies grease according to need. No more guesswork. No more under or over lubricating.



BEARING CONDITION MONITORING

Use the decibel level (dB) reading to get an instant and accurate measure of bearing health. Take corrective action and avoid unexpected downtime.



ULTRASONIC LEAK DETECTION

Pinpoint the exact location of leaks and see just how much leaks are costing you in wasted energy.



STEAM TRAP & VALVE INSPECTION

Inspect any type of steam trap, even when it's online, and easily determine its operating condition. Use ultrasound to ensure valves are opening and closing as intended, ensuring a safe and efficient manufacturing process.



PARTIAL DISCHARGE DETECTION

Ultrasound eliminates the danger of electrical inspections, letting you scan and diagnose enclosed electrical assets at all voltage levels from a safe distance.

ADDING ULTRASOUND for MECHANICAL INSPECTION

Stop Problems Before They Stop Production

DETECT DANGER, SOONER

Ultrasound technology detects faults at the earliest stages.

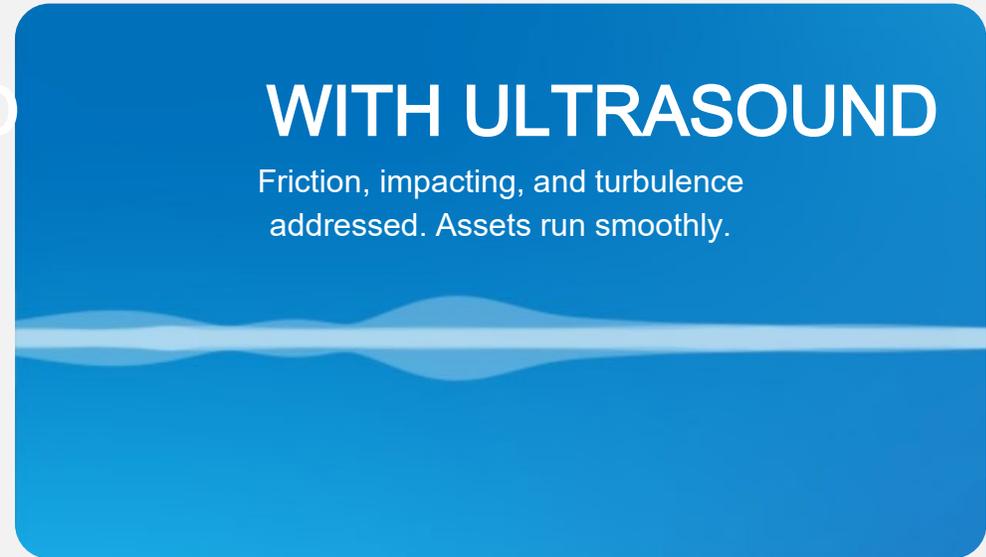
WITHOUT ULTRASOUND

Friction, impacting, and turbulence run high. Problems accumulate.



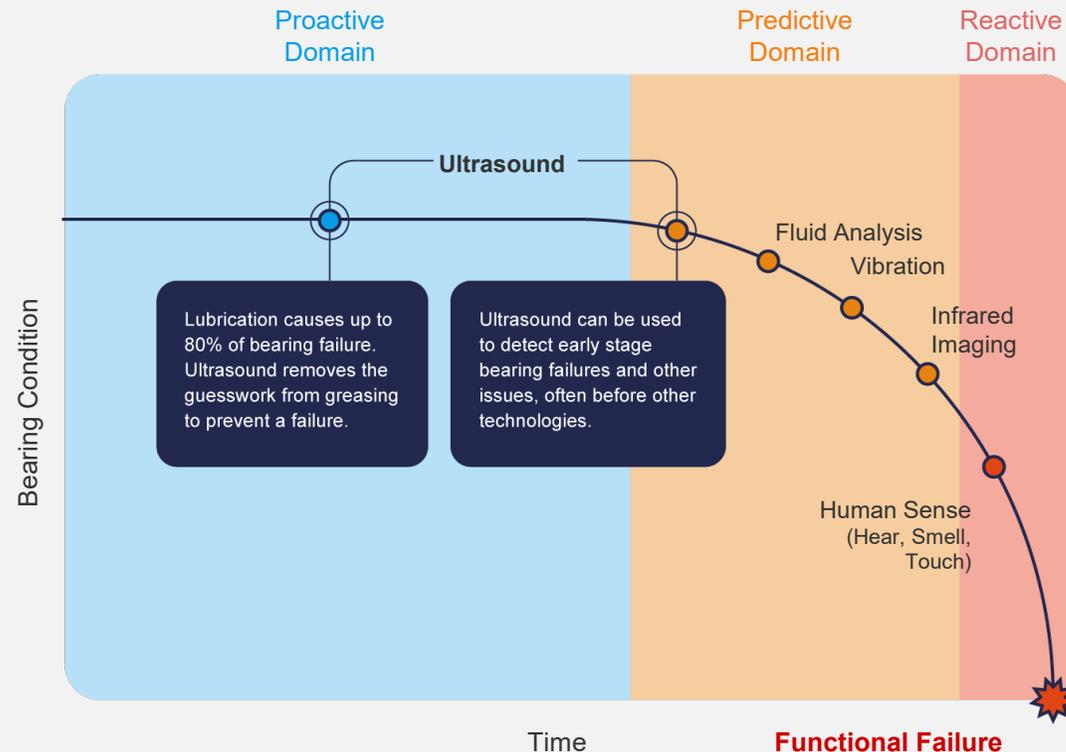
WITH ULTRASOUND

Friction, impacting, and turbulence addressed. Assets run smoothly.



HELPING YOU STAY PROACTIVE

Ultrasound Enables Early Stage Detection



THE SOONER YOU KNOW, THE MORE YOU SAVE.

Unlike infrared or vibration, ultrasound can alert you to faults long before they become visible. Ultrasound is a proactive technology that detects subtle changes in friction or frequency.

When you know what's really happening to your assets, you can address problems before they escalate.

LUBRICATING “JUST INTO CASE” IS TROUBLE.

Too much lubrication creates just as much friction as too little.

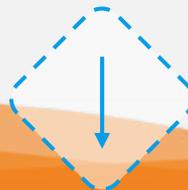
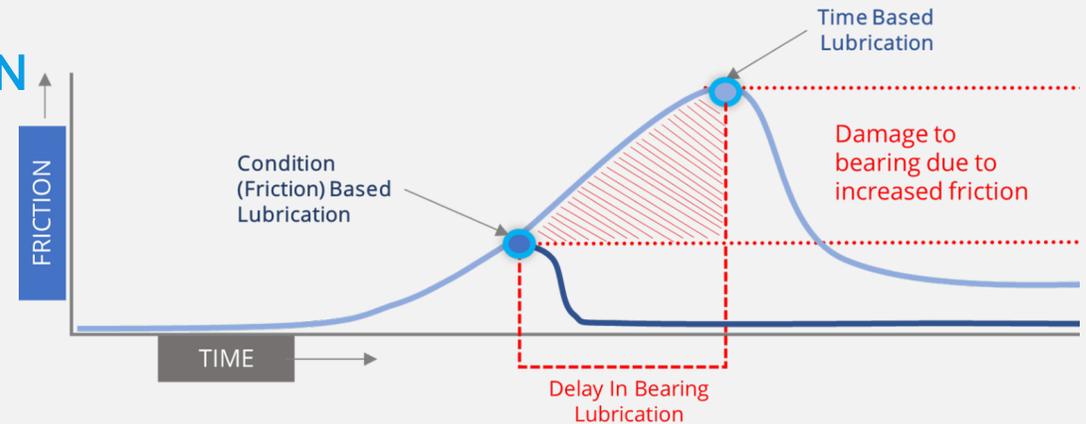
80%
of premature
bearing failure
caused by poor
lubrication.

CONDITION BASED LUBRICATION

applies grease when friction is detected

SKIP THE GUESSWORK

Instead of a schedule, lubricate your bearings **when they need it**



Automatically apply the right amount of grease at the right time.
Never under or over lubricate your bearings again.

HOW CONDITION-BASED LUBRICATION WORKS



MONITOR

Ultrasound technology monitors changes in friction



DETECT

8 decibels of change = time for lubrication



LUBRICATE

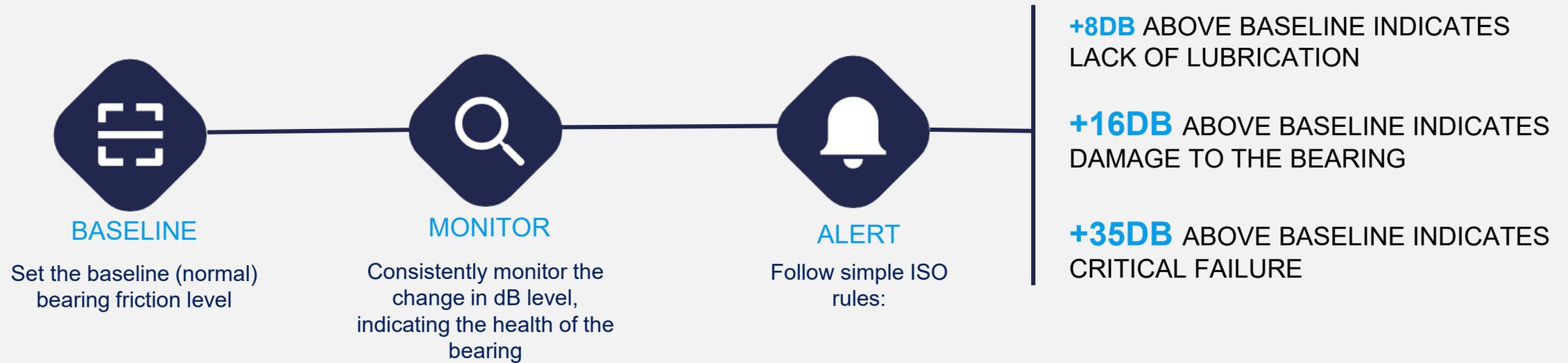
System applies grease until back to baseline



REPEAT

[BACK TO APPLICATION LIST](#)

IT IS SIMPLER THE FRICTION IN THE BEARING IN DUE TO ONCOMING FAILURE, THERE WILL BE A LEVEL DETECTED BY ULTRASOUND.





PRECISION LUBRICATION PROACTIVE MONITORING

Bearing maintenance has been revolutionized by harmonizing ultrasound, vibration, and temperature monitoring to provide total bearing health monitoring

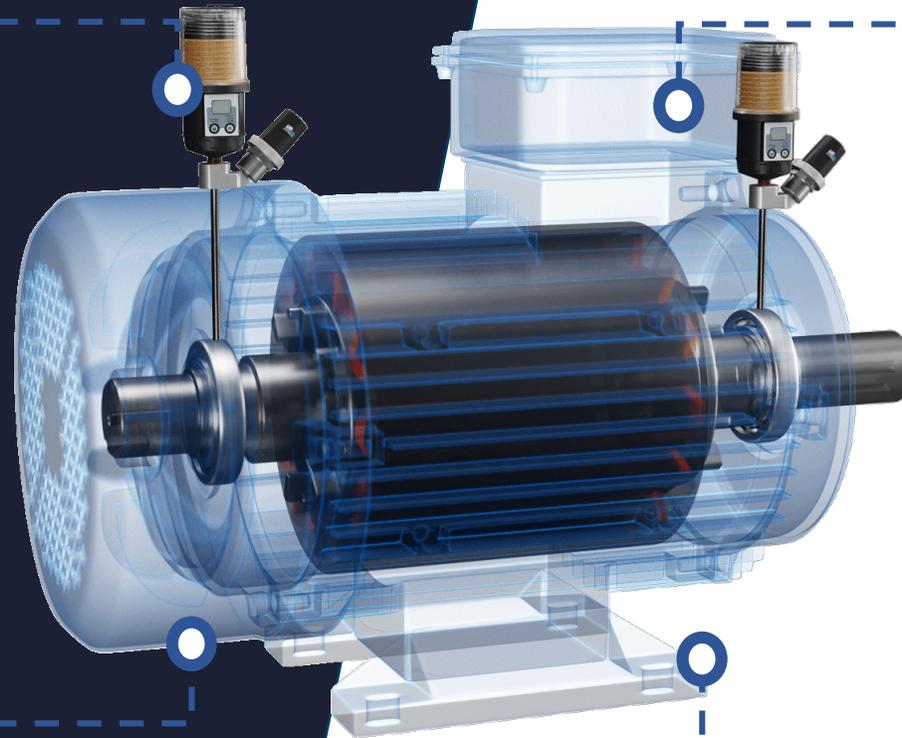
PREVENTION

LUBRICATION FAULTS

- Lack of Lubrication
- Over Lubrication

PRECISION LUBRICATION

- Condition-Based Automatic Lubrication



DETECTION

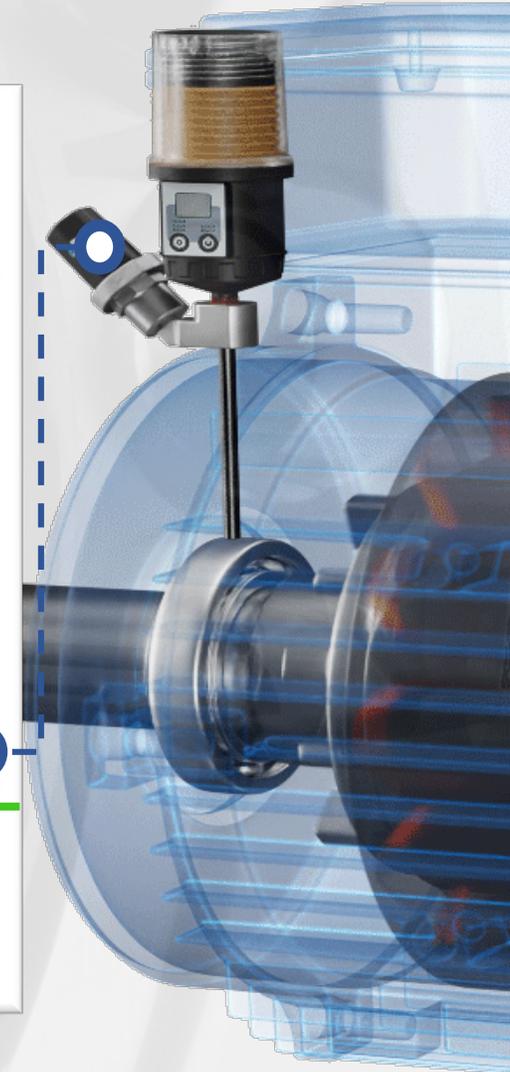
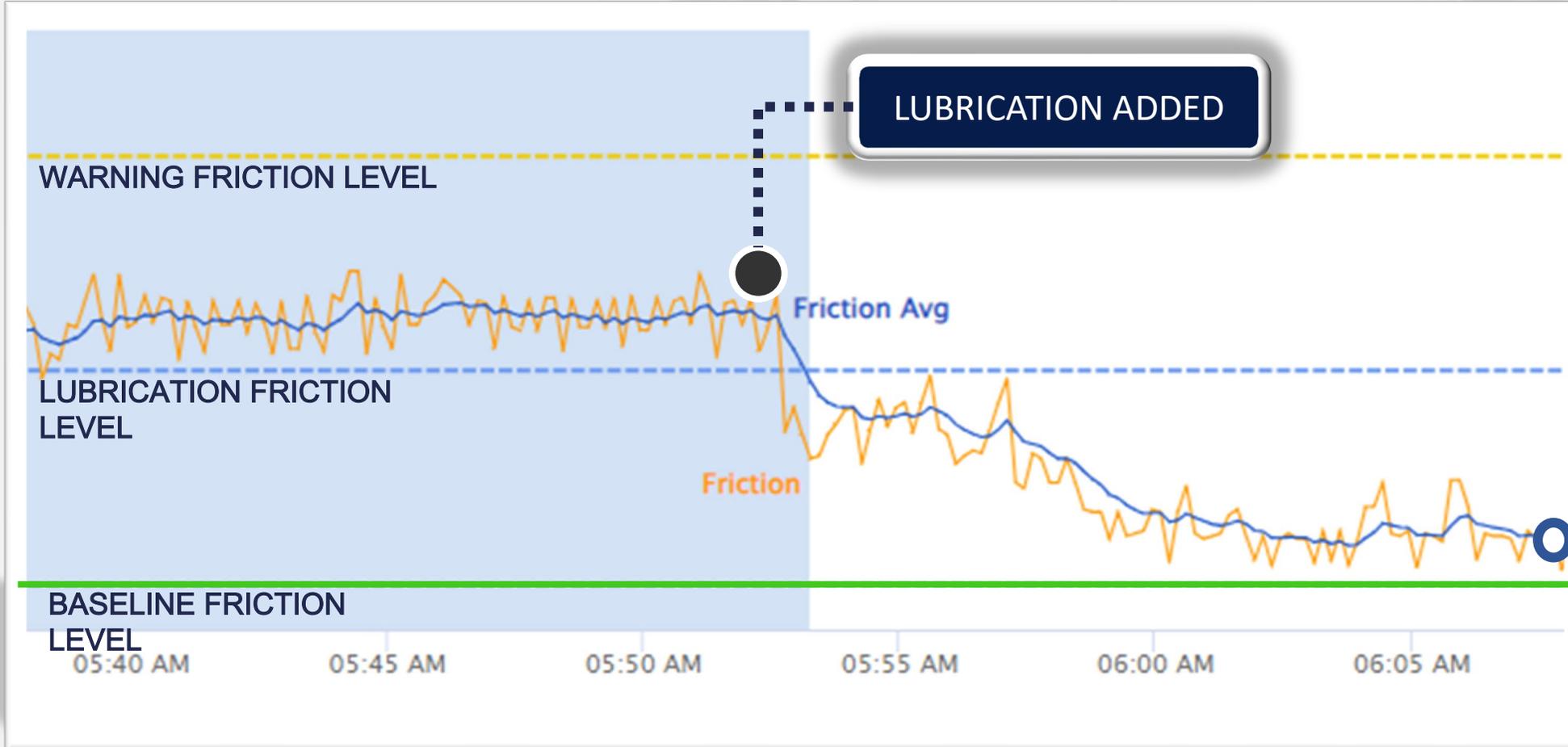
BEARING FAULTS

- Early Stage Bearing Defect
- Bearing Mechanical Defect
- Bearing Impacting Severity

MACHINE FAULTS

- Misalignment
- Mechanical Looseness
- Imbalance
- Belt Issues

PRECISION LUBRICATION MADE SIMPLE





ULTRASONIC LEAK DETECTION
FIND LEAKS FASTER.
SAVE COSTS SOONER.

Easily locate and quantify air leaks that are wasting energy in your facility.

Acoustic Imaging for Leak Detection



Acoustic Imaging allows you to locate air & gas leaks as small as .00014 CFM in optimal conditions.

Scan large areas quickly, combining both sonic and ultrasonic frequencies

Onboard processing shows exact location of leaks and leak size and cost estimate

Intuitive Analysis & Reporting

41.4 dB

-25.1 dB

41.9 dB

Details

Label: Mezzanine

Serial: AC130402

ID: 7663

Level: 41.9 dB

Creation date: 2022-06-21 03:36:03 EDT

Synchronization date: 2022-06-30 03:34:49 EDT

Leak analysis

Distance: ft away

Utilization can be adjusted on the leak report

Estimated leak size: 3.4 ft³/min
 Estimated annual cost: 702 \$ / year
 Compressed air

Δf 21000Hz - 35156 GHz

0 ms 20 ms 40 ms 60 ms 80 ms 100 ms

SIGNAL FFT AUTOCORRELATION SPECTROGRAM CEPSTRUM

Download raw or [suritized](#) audio

Ultrasonic Leak Survey - Dashboard

Cost

Cost - USD

Repaired Not Repaired

Gas	Category	Repaired	Not Repaired
Argon	Major	5,208	4,954
	Helium	6,770	
Other	Major		4,495
	Air	2,427	4,143

Survey Name: Building 3 Operating Floor

Year: 2021

Date: 12/23/21 11:00 AM

Month: December

12/23/21 11:05 AM

12/23/21 11:08 AM

12/23/21 11:12 AM

Show All Refresh

Energy/Emissions Avoidance

	Energy (kWh)	CO2 (lbs)	NO2 (lbs)	SO2 (lbs)
Repaired	54,336	42,910	54	81
Not Repaired	39,827	31,452	39	59
Total	94,164	74,362	93	141

Identified CFM Total

Type of Gas	Repaired	Not Repaired	Total
Air	31	23	54
Other		4	4
Helium	4		4
Hydrogen		2	2
Total	35	28	63

100% Rate

Capturable: \$263,533

Uncapturable: \$0

PARTIAL DISCHARGE DETECTION

LISTEN BEFORE YOU AC ELECTRICAL INSPECTION ULTRASOUND

Ultrasound can be used to perform safer electrical inspections to detect corona, tracking, arcing, and mechanical vibrations.

LISTEN BEFORE YOU SAFER ELECTRICAL INSPECTIONS WITH

WHAT IS PARTIAL DISCHARGE DETECTION?

Corona, tracking, and arcing can create serious electrical problems. If left untreated, this can cause safety risks and asset failures. These events produce high frequency sounds that Ultrasound can detect and track in the audible ranges that can be heard through headphones. These sounds are recorded and analyzed to help determine severity.

What Can be Detected?

Ultrasonic Technology Provides Inspectors With **Sound Signatures** from Electrical Apparatus That Can Provide Direct Insight into Whether Faults are Present While Maintaining **SAFETY**. These Individual *Signatures* From Energized Equipment Have Unique, Distinguishable Clues. Ultrasound Detects **CORONA**, **TRACKING**, **ARCING** and **MECHANICAL VIBRATIONS**. The Recommended Frequency for Airborne, Electrical Inspection is **40kHz**



- Corona 
- Tracking 
- Arcing 
- Mechanical 



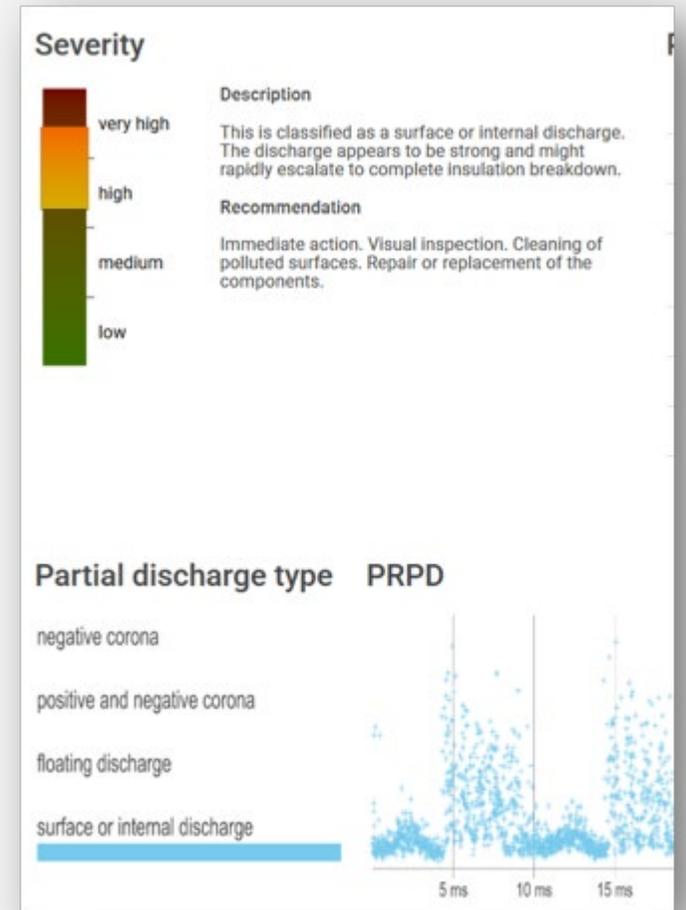
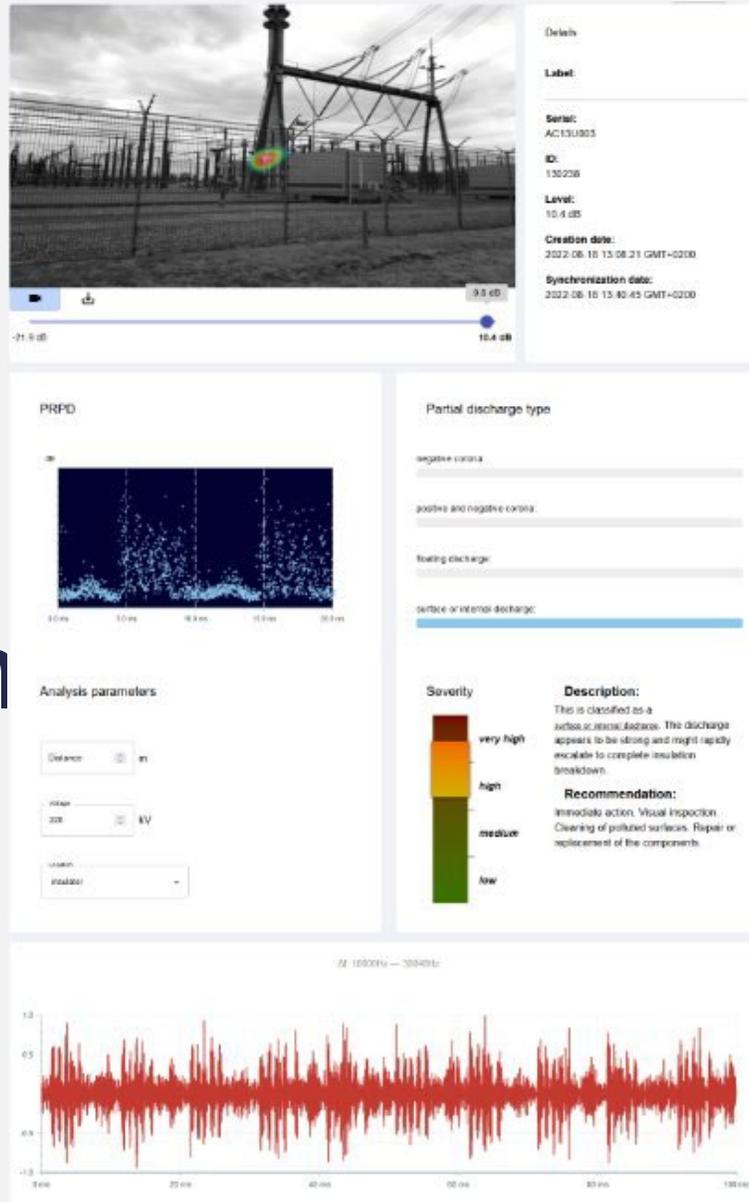
Acoustic Imaging for Partial Discharge Detection



Acoustic imagers automatically recognize the sound partial discharges emit and distinguishes them from other sounds.

The camera will automatically display the partial discharge pattern that depicts the type of partial discharge detected.

PD Severity & Suggested Corrective Action



Create Reports & Download Sound Files for F Analysis



Severity



Description
This is classified as a surface or internal discharge. The discharge appears to be strong and might rapidly escalate to complete insulation breakdown.

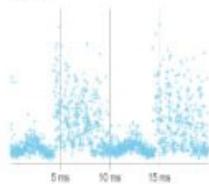
Recommendation
Immediate action. Visual inspection. Cleaning of polluted surfaces. Repair or replacement of the components.

Properties

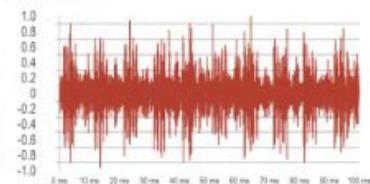
Level	10.4 dB
Date created	18.8.2022
Device	AC13U003
Device Label	AC13U003_00012_220818_1308_0012
Distance	50 m
Voltage	220 kV
Location	insulator

Partial discharge type PRPD

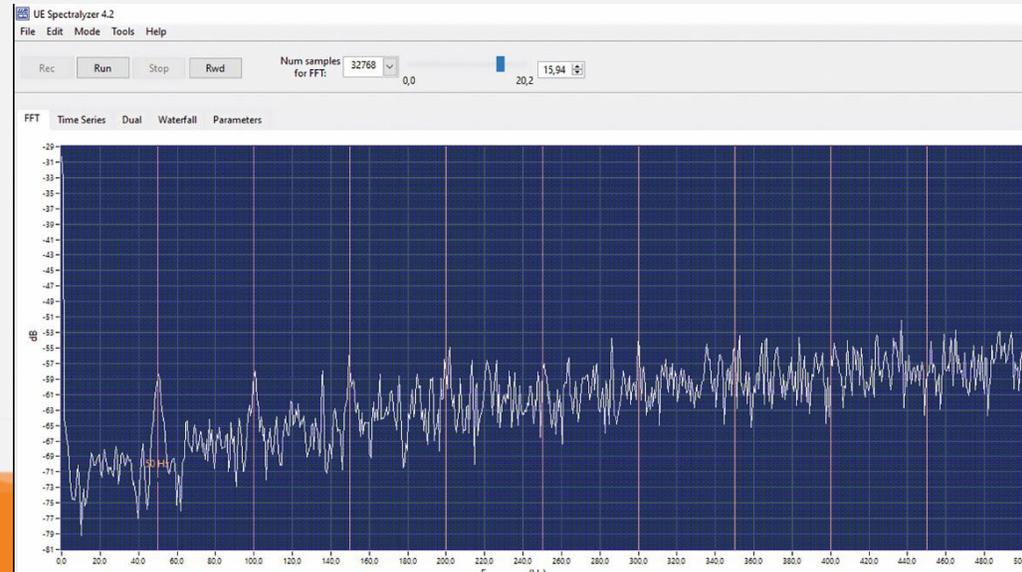
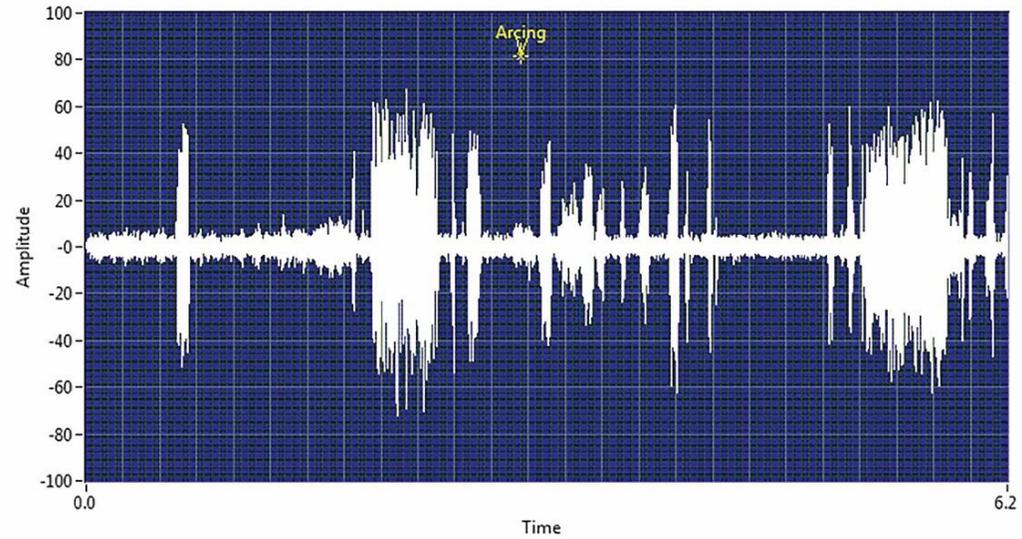
- negative corona
- positive and negative corona
- floating discharge
- surface or internal discharge



Waveform



Analysis





THANK YOU

We look forward to partnering with you.

NAME

Title



www.uesystems.com



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linkedin.com/company/ue-systems/