



# Partnering with Manufacturers to Achieve Peak Operational Health.

A Guide to Our Products and Services.



📍 Mining Quarry, PA

---

# Table of Contents.

## **KCF at a Glance**

Who We Are, Who We Work With \_\_\_\_\_ **03**

What We Do \_\_\_\_\_ **04**

## **Right Data: Hardware**

Vibration Sensor, Base Station \_\_\_\_\_ **05**

IoT HUB, Piezo Sensing \_\_\_\_\_ **06**

Advanced Solutions, DART Wireless \_\_\_\_\_ **07**

## **Right Analysis: Software**

SD Connect, MCSA (Motor Current Signature Analysis) \_\_\_\_\_ **09**

Desk, Guided Workflows \_\_\_\_\_ **10**

Analytics, KCFchat \_\_\_\_\_ **11**

## **Right Action: Service**

SENTRYsolutions \_\_\_\_\_ **12**

**Asset Coverage** \_\_\_\_\_ **13**

**Why KCF?** \_\_\_\_\_ **14**



# KCF Technologies at a Glance.

## Who We Are:

KCF Technologies exists to drive sustainability, safety, and competitiveness for our partners and their communities by solving the world's machine health problems. Our team empowers industry to eradicate downtime, waste, and injuries with KCF's Comprehensive Machine Health Platform.

**135,000+**  
Assets Monitored

**20+**  
Years in Business

**\$4B**  
in Customer Savings

More Than  
**600** Unique  
Locations

**>75,000**  
Downtime Hours Prevented

**6** Continents  
Across  
the Globe

## Who We Work With:

We know there is no one-size-fits-all solution for machine health. Our team is made up of experts who understand industry specific challenges to help achieve the best-fit machine health solution for your business.

KCF Technologies is proud to partner with critical manufacturers across a variety of industries, including:



And Many More

# Right Data. Right Analysis. Right Action. **It's What We Do.**



Water Treatment Plant, PA

## How We Make it Happen:

Through three key pillars, we're in the business of providing the right data, facilitating the right analysis, and enabling you and your team to take the right action.



### 1. Right Data:

Our solution combines **online analytics** and up-to-minute monitoring, offering continuous 24/7 surveillance. With insights delivered 50x faster than other platforms, KCF identifies and delivers process-related insights others miss, effectively eradicating downtime for our machine health partners.



### 2. Right Analysis:

KCF Technologies processes a **volume of 1.2+ billion** vibration datasets per month, enabling best-in-class machine learning models, delivering exceptional predictive maintenance analysis and analytics directly through SMARTdiagnostics software and validated by our high touch engineering team.



### 3. Right Action:

Our seamless integration of **analytics** with the SMARTdiagnostics workflow streamlines the consumption of model insights—simplifying maintenance prioritization and empowering users to actively drive machine learning capabilities for enhanced decision-making.

Let's take a closer look at these three key pillars and the critical roles KCF Technologies' Hardware, Software, and Services play in our comprehensive machine health solution.

# Hardware.

## Ruggedized Solutions, Designed to Provide the Right Data.



Your machine health optimization program is only as good as the data it's built from. Discover the KCF equipment enabling you and your team to gather the insights needed to optimize manufacturing performance.

The KCF SMARTsensing Product Suite is our core product family, consisting of: the High-Definition Vibration Sensor, the Base Station Gateway, Hazloc Base Station, the IoT HUB, and Piezo Sensing.

### Hardware Feature:

## The High-Definition Vibration Sensor



Optimized for low power use, our 3rd generation wireless High-Definition Vibration Sensor use easily replaceable batteries and KCF Technologies' proprietary wireless protocol to transmit the full vibration spectrum on a nearly-continuous basis.

Reliable Monitoring	Flexible Configuration	Cost-Effective
Vibration Sensor Nodes provide health monitoring in the most hard-to-reach, rugged locations. Each node communicates wirelessly with SMARTdiagnostics® Software.	The system is highly configurable and scalable. A system can have thousands of sensor points, each of which can be configured to transmit data on a user-selected frequency with unique indicators.	Easily installed without the downtime, expense, and labor costs of hard-wired sensors. Simply place the sensors where they're needed and within minutes they transmit data.



### Hardware Feature:

## The Base Station Gateway

The Base Station is the central device managing the communication between KCF Hardware and Software. Multiple Base Stations located throughout a facility create a mesh network—facilitating multiple communication routes for data to take between devices, which in turn, increases data reliability. Hazloc Base Stations also available for Class 1 Div 2 locations, in which volatile flammable liquids or gases are handled.

# Hardware.

**We Don't Stop There. Upgrade Your Monitoring Capabilities with Next Generation Hardware.**

**Hardware Feature:**

## The IoT HUB

The SMARTdiagnostics IoT HUB is the next generation of full asset health solutions designed to handle the most complex asset monitoring needs.

**Including:** Triggered Collections; Multi-Functional Sensor Ports; Higher Temperature Resistance; External Power Sourcing; Optional Wired Power Solution.



**The IoT HUB Monitoring Capabilities Include:**

- Ultrasonic Sensing
- Oil Humidity
- Tachometer
- Legacy Vibration\*
- Motor Current Signature Analysis
- Pressure Signature
- Voltage
- PLC-Based Trigger
- Current Signature

*\*Through Integrated Piezoelectric (IEPE)*

**Hardware Feature:**

## Piezo Sensing

Piezo Sensing leverages state-of-the-art technology to deliver high-resolution data with exceptional fidelity, utilizing advanced high-frequency sampling to offer early detection of bearing and gear faults. This unprecedented level of detail allows for proactive maintenance decisions, drastically reducing downtime and maintenance costs, and significantly improving operational efficiency and safety compliance.



**Piezo Sensing Potential Applications:**

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• Difficult Install Environments</li> <li>• Bringing in Legacy Sensor Data</li> <li>• Extreme Temperature Locations</li> </ul> | <ul style="list-style-type: none"> <li>• Slow Rotating Equipment, Such as Paper Machines</li> <li>• And More</li> </ul> |
|---|---|

# Hardware.

**One View. All the Insights. The IoT HUB enables the Advanced Solutions Suite.**

## Advanced Solutions Include:

The Analog Adapter, The IEPE Adapter, Tachometers, Pressure Sensors, Ultrasonic Sensors, Oil Humidity Sensor, Motor Current Signature Analysis (MCSA)



*Advanced Solutions listed above require a KCF IoT HUB for use.*



### The KCF Hardware Advantage:

## DART Wireless

**DART Wireless is KCF's communication protocol used for sending data** throughout our mesh network of sensors and base stations. Standing for Deterministic, Agile, Robust, and Trustworthy, sensors do not need to be paired to a specific base station. Instead, they can hop from one base station to another, always utilizing the strongest signal pathway, ensuring a reliable stream of continuous data without any user input. This makes the system a very modular and scalable solution for facilities of all sizes, and makes it easy to expand as your needs grow.

### Why KCF?

## The Right Data, Matched with the Right Analysis.



KCF offers industry leading data acquisition in high definition—collecting the full spectrum of data **as often as once every minute.**

Our ability to take high-interval, full spectrum data, allows for a best-in-class machine learning training dataset—delivering exceptional predictive maintenance analytics.

**Read on to learn more about KCF's approach to providing the Right Analysis.**





# Software.



## SMARTdiagnostics<sup>®</sup> Facilitates the Right Analysis. Putting You in Control of Your Operations.

By combining data from a range of sensor types and the people and processes that influence asset behavior in your plant, SMARTdiagnostics creates a holistic view of machine health for accurate root cause analysis. SMARTdiagnostics was built to be as

easy to use as it is powerful, and accessible to many different types of users. Intelligent data visualizations put actionable machine health information in front of the right people at the right time.

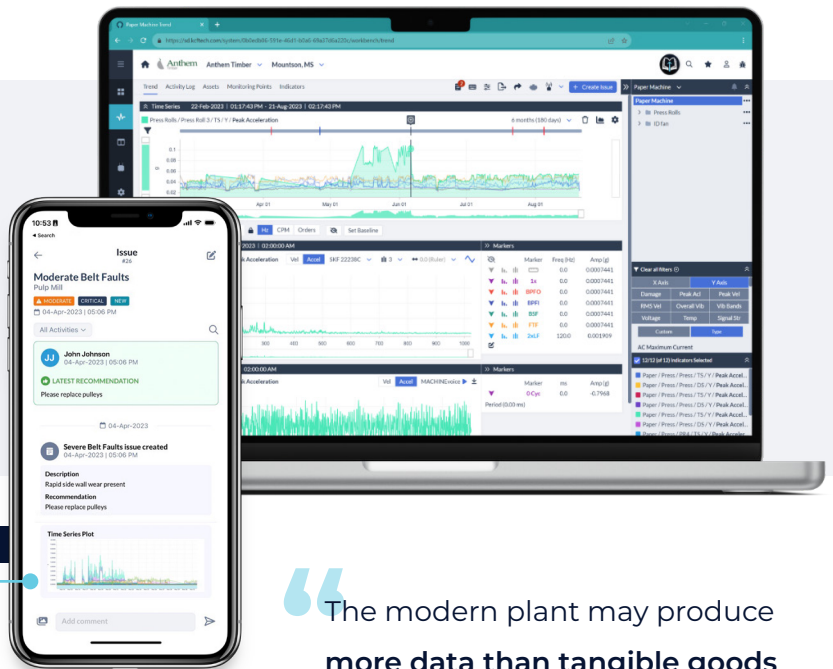
**Predictively solve your greatest machine health challenges directly from the shop floor.** SD Connect brings the problem-solving power of SMARTdiagnostics to a native mobile experience. Prioritize maintenance activities, check hardware availability, and easily integrate insights with machine health data for a complete picture of your factory environment. Available for both Apple and Android.


### Software Feature: **SD Connect, Mobile App**

Right Data. Right Analysis. Right Action.  
Now at Your Fingertips with SD Connect.

### Product Spotlight: **Motor Current Signature Analysis (MCSA)**

The addition of MCSA to KCF's Comprehensive Machine Health Platform combines MCSA's robust motor-electrical diagnostic capabilities with the high-fidelity continuous monitoring, ease of installation, and focus on root cause eradication that are central to KCF's solutions. Pairing this technology with vibration monitoring results in a comprehensive asset health solution crafted for your most critical electric motors.



“The modern plant may produce more data than tangible goods, and yet most of it gets left on the shop floor. We developed the  SMARTdiagnostics<sup>®</sup> platform to turn overwhelming amounts of manufacturing data into actionable machine health insight.”

**DR. JEREMY FRANK**  
CEO and Co-Founder  
KCF Technologies

# Software.

Continuous, Always Monitoring.

 SMARTdiagnostics Gives Your Machines a Voice.

Software Feature:

## Desk



Whether you're communicating with SENTRY support or with internal team members throughout your facilities, Desk enables you to focus your attention around asset issues. All communication is contained directly in the software, making it easier than ever to identify and address problems for optimal efficiency. Desk helps track and make data-driven decisions only KCF can provide with 50x faster data collection than the average predictive maintenance provider.

Desk Key Features Include:

### 1. Issue Screen

Take a closer look at the issues identified.

- Sort, filter, or search for specific issues.
- Tap on an issue to get a detailed view of the issue.
- Review historical activity regarding the issue.
- Edit issue details: Status, Fault Type, Severity, and/or Priority.
- Add notes or images to the issue via comments.
- Log savings around an issue.

### 2. Task Screen

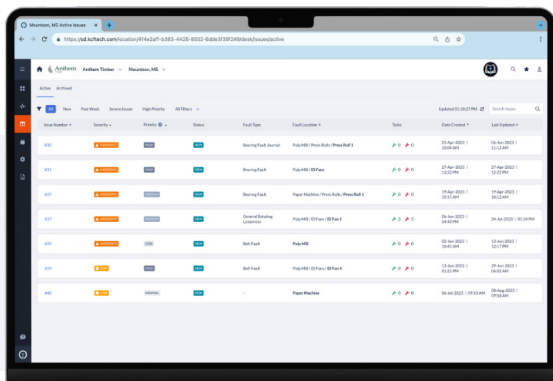
Navigate to the Task screen to capture tasks that need completed for a particular issue.

- Sort, filter, or search for specific tasks.
- Review historical activity regarding tasks.
- Edit task details: Type, Date Scheduled, and/or Notes.
- Create, schedule and complete tasks.

### 3. Creating Issues

Navigate to the Trend screen to create issues based off of data that is being captured.

- Create an issue to log the problem that you want to dive into and take further action on.
- Add plot data to help depict what you are seeing.



***Shift from Preventive to Predictive Culture at Your Facilities with Guided Workflows.***

KCF offers an infinitely scalable, cloud-based, predictive maintenance platform that provides immediate ROI by eliminating unplanned downtime, identifying normal wear and tear, and optimizing asset operations. Improve efficiency by democratizing your data from the shop floor to the C-Suite.

# Software.

## Identifying the Right Action. Made Easy for You and Your Team.



Automotive Manufacturing, OH

KCF Technologies processes a volume of 1.2+ billion vibration bursts per month, powering a best-in-class machine learning training dataset, empowering us to deliver exceptional predictive maintenance analytics. Our Asset Specific Machine Learning models generate precise and tailored insights specific to your application and condition, ensuring highly relevant and actionable information. Our models are tailored to your specific asset, they are not generic—generating higher accuracy and better fault detection.

**Benefit from cutting-edge machine learning techniques that identify new and unexpected operating conditions for your assets, and receive off-the-shelf analytics for common assets from day one.**

### Product Spotlight: KCFchat

KCFchat is an AI assistant designed to provide information and support about KCF Technologies and our SMARTdiagnostics system. KCFchat can assist you with any questions you have about our products and services, and provide guidance on how to effectively use our system. Whether you need help troubleshooting an issue, submitting a ticket, or understanding the capabilities of our sensors and base stations, it's here to help. KCFchat is knowledgeable about our public APIs, flexible configuration options, and mobile app, SD Connect. By rating the responses and providing feedback, KCFchat will continue to improve and evolve.

### Full Visibility Benefits:

1. Understand root cause and eradicate recurring failure.
2. See startup and intermittent behavior (resonance, cavitation, hard starts/stops).
3. Immediately identify the quality of performed maintenance.
4. See operator impacts on the machine.
5. Overlay process changes and maintenance data with machine health data.

### Why KCF?

## Less Analysis. More Action.



**Prioritize outcomes and the Right Action** by leveraging the knowledge of over 500 unique assets, 50x faster data collection, and operational change anomalies.

SMARTdiagnostics combines the right data with the right analysis to drive the right action, putting you in control of your operations.

**Read on to learn more about KCF's approach to providing the Right Action.**



# Service.

## Our Machine Health Experts Help You and Your Team to Take the Right Action.



### Service Feature:

## SENTRYsolutions

SENTRYsolutions is a service delivered by a team of industry-specific machine health experts designed to provide coaching and support to get the most out of your SMARTdiagnostics system. They are an optional and flexible service meant to aid companies with large and small teams.



### SENTRYsolutions Helps You:

1. Track return on investment (ROI).
2. Guide integrations into your systems, processes, and SOPs.
3. Realize the full benefit of KCF's programs.
4. Ensure scalability.
5. Ease your team's data load to gain the right insights.

**Mobius Certified CAT II and CAT III vibration analysts** deliver data-driven asset health insights to help prevent failures, improve maintenance, and optimize your operations.

**With 200+ years of collective vibration and reliability experience,** our industry-specific analysts deliver 2,000+ accurate health insights monthly. Designed to aid companies with both large and small teams alike, SENTRY partners partners experience accelerated insight to action and a higher level of problem solving for root-cause eradication.

### Why KCF?

## A Partner to Systematically Ensure Your Success.



Transform your operational approach from merely preventive to powerfully predictive, led by industry experts.

SENTRYsolutions helps maximize ROI, accelerate insight to action, and provide a higher level of problem solving for root-cause eradication. Anyone can monitor for faults, SENTRY partners to permanently engineer failure out of your process.

# We've Got You Covered.

**We Cover a Wide Variety of Critical Asset Classes. No Matter Your Industry.**

• Centrifugal Pumps	• Planers
• Winders	• AC Fixed/Variable Speed Motors
• Agitators	• DC Fixed/Variable Speed Motors
• Variable Displacement Pumps	• Spur Gearboxes
• Vacuum Ring Pumps	• Helical Gearboxes
• Induced Draft Fans	• Conical/Bevel Gearboxes
• Forced Draft Fans	• Planetary Gearboxes
• Lathes	• Worm Gearboxes
• Recirculation/Heat Transfer Fans	• Reducers
• Debarkers	• Vertical Lifts
• Air Handling Units	• Conveyors
• Exhaust Fans	• CNC Machines
• Roots Blowers	• Stamping Press
• Regenerative Thermal Oxidizers	• Robotic Drives
• Cooling Tower Fans	• Right Angle Transfers
• Screens	• Lifts
• Refiners	• Saws
• Centrifugal Compressors	• Steam Turbines
• Screw Compressors	• Cranes
• Reciprocating Compressors	• Rolls
• Scroll Compressors	• Shakers
• Rotary Compressors	• Bucket Elevators
• Stranders	
• Rotary Positive Displacement Pumps	
• Reciprocating Positive Displacement Pumps	

**Optimize Your Operations. Our Comprehensive Solution Helps Eradicate:**

• Imbalance	• Sheave Runout
• Structural Looseness	• Sheave Eccentricity
• Rotating Looseness	• Cracked Rotor
• Resonance	• Starvation
• Bent Shaft	• Cavitation
• Inner Race Bearing Fault	• Turbulence
• Outer Race Bearing Fault	• Gear Tooth Defect
• Rolling Element Bearing Fault	• Eccentricity
• Cocked Bearing	• Gear Wear
• Fluting/EDM	• Gear Misalignment
• Skidding	• Lubrication
• Journal Wear	• Soft Foot
• Misalignment	• Electrical Short
• Belt Looseness	• SCR Fault
• Belt Wear	• Brush Wear

# So, Why KCF?



## Democratized Data. Intelligent Analytics. Accelerated Insight to Action.

### The Value:

We combine condition monitoring data with shop floor insights and maintenance practices to paint a complete picture of the factory environment. Failure is engineered out of the process using KCF's proprietary machine health optimization solution—made up of hardware, software, and services. Our impact on industry has prevented over \$4B in unplanned downtime since 2018.

“KCF works in conjunction with our customers to eliminate waste, downtime, and injuries by engaging today's workforce through technology. In order to quantify and measure this impact over time, we work to convert everything from complex optimization projects to simple downtime avoidance into 'dollars saved.' This metric drives our collective teams to remember the work we're doing is having a real impact in the communities we serve. Those dollars can be reinvested into the business and the workers so they can continue to thrive.”

**LOU ROMANO**  
President  
KCF Technologies

### The Security:

We understand that data security is of utmost importance to our partners. We were the first machine health platform to achieve bank level security with the combination of SOC 2 Compliance and ISO 27001. We are committed to maintaining the confidentiality, integrity, and availability of your information assets. Your data remains in trusted hands.



**KCF Technologies—The Industry's Most Comprehensive and Scalable Machine Health Platform.**

**Right Data.**



**Right Analysis.**



**Right Action.**

**14**



Ready to Take the Next Step in  
Your Machine Health Journey?  
**Let's Get in Touch.**

Email: [sales@kcftech.com](mailto:sales@kcftech.com)

Phone: **1 (814) 867-4097 Ext. 1**



Scan Here  
to Visit  
Our Website



Water Treatment Plant, PA