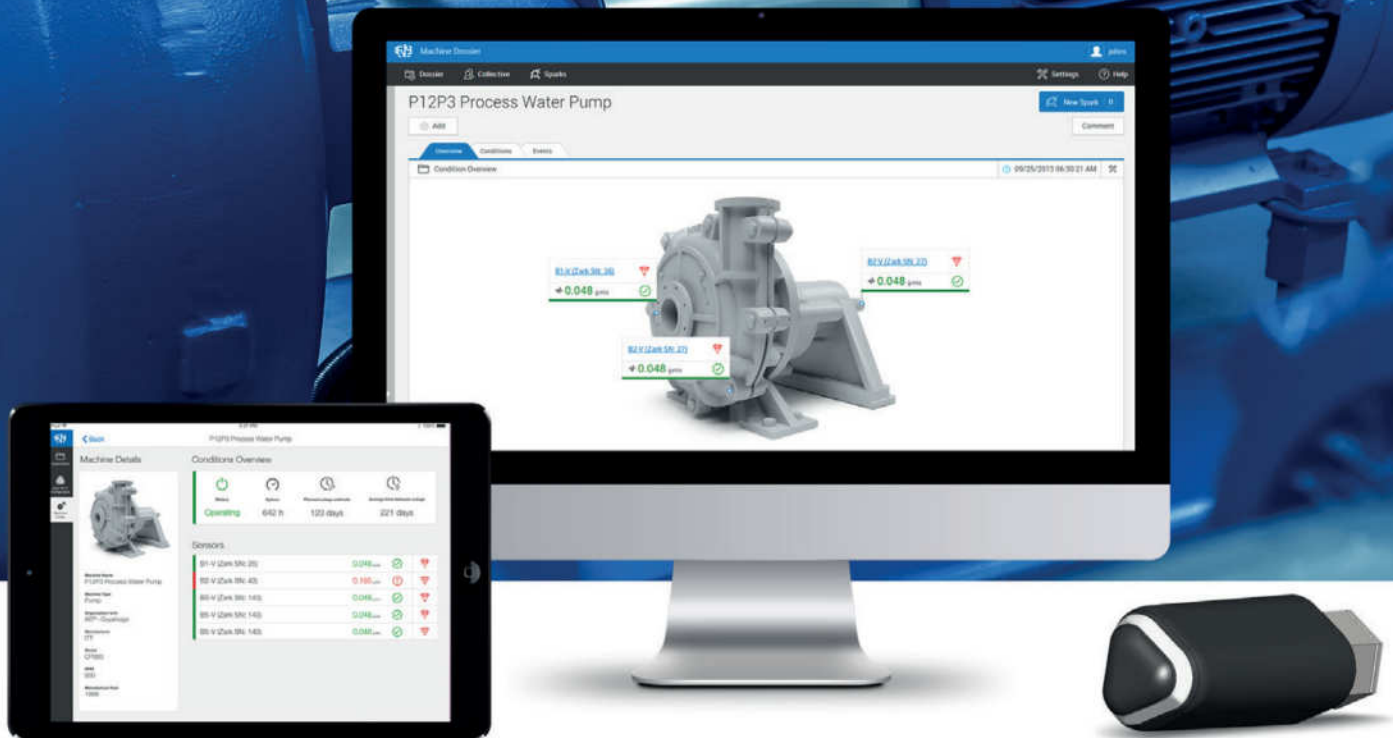




Machine Dossier

Plant Reliability Ecosystem

A product of FLARE Labs



Drama-free Reliability



The Unified Theory of Reliability

FLARE Labs was founded with the sole mission of simplifying the practice of industrial reliability.

Our goal is to make reliability accessible and attainable to all. We believe this can only be achieved when motivated teams share common goals and are empowered by great technology to collaboratively solve problems.

Harmonizing the human, machine and data resources that impact your operation is the very essence of The Unified Theory of Reliability... that's why we created the Machine Dossier Reliability Ecosystem.

 Machine Dossier
Plant Reliability Ecosystem



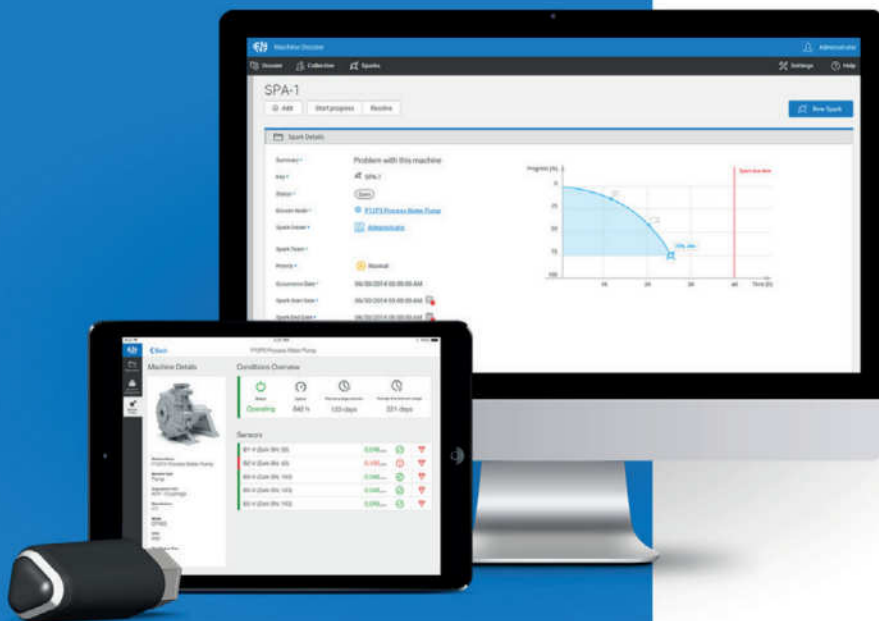
ZARK Wireless Machine Fitness Device

Wearable fitness devices are all the rage for human health tracking, so why should tracking the fitness of your machines be any more difficult? Zark makes the process easy and extends our Machine Dossier ecosystem right to your plant floor.

Web Service and artu iOS app

The Machine Dossier Web Service is tightly integrated with our iOS app, artu, so you are always in touch with your team and your machinery.

- Intuitive Database Navigation through datasets
- Record and archive photos, videos and sounds
- Collaborative problem-solving with Spark process



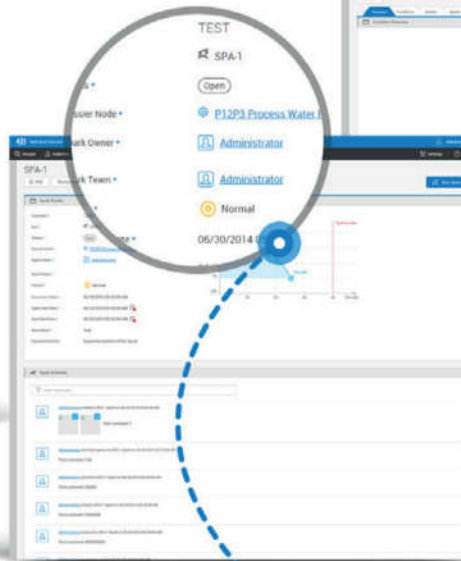
Drama-free Reliability

www.machinedossier.net

Machine Dossier

Plant Reliability Ecosystem

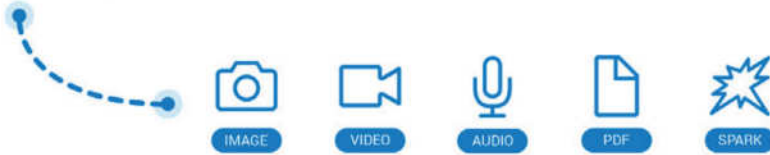
MACHINE
IMAGE LIBRARY
industry bundles



MACHINE
CONDITION
easy to interpret
vibration signals

CONDITION CONTENT
along Timeline Navigation

SPARK
collaborative
problem solving



Collaborative Problem-solving

While highly useful in diagnosing machinery faults, complex vibration signals can be confusing to interpret. While a Zark is able to pinpoint a number of defects automatically, sometimes it would be nice to get an expert opinion before taking action to correct a problem.

Machine Dossier can connect you to a wide array of experts in various reliability disciplines. We call this group the Reliability Collective. Connecting them to your machines is as simple as starting a SPARK - our cloud-powered problem resolution tool.

I've created a New Spark. There seems to be a problem with this machine.
Monday, 2:00 PM

Attached file: Noise from machine.mp3

Based on the info from the ZARK, it looks like balance problem... see attached spectrum.
Monday, 2:24 PM

Screen capture of high 1 X.jpg

We had a similar problem with our machine. The unbalance cause the bearing to wear out quickly. You need to balance it the machine. Here is a video of what happened when we didn't catch it ontime.
Monday, 2:35 PM

Scheduled to be balanced during maintenance downtime.
Monday, 3:45 PM

Attached file: Bearing problem.mp4

Attached file: Maintenance schedule.pdf

Problem resolved, I'm closing the SPARK. Thank You for your input everybody. Good job!
Tuesday, 9:15 AM

Machine Dossier

Plant Reliability Ecosystem

Vibration Sensing	
Onboard Sensor	Triaxial MEMS Accelerometer
Dynamic Range	10-bit resolution @2g
	11-bit resolution @4g
	13-bit resolution @16g
Frequency Response	10Hz to 1000Hz (+/- 10%)
Sensitivity	0.004g/LSB
Noise Floor	X/Y Axis: 0.75 LSB RMS
	Z Axis: 1.1 LSB RMS

Measurements	
Sampling Speed	User-configurable: 100, 200, 400, 800, 1600, 3200 samples/second
High-Pass Filtering	109-tap Linear-Phase Type 2 FIR High-pass filter: Off, 5 or 10 [Hz]
High-Pass Filtering	60-tap Linear-Phase Type 2 FIR Low-pass filter: Off, 50, 100, 200, 500, 750 or 1000 [Hz]
Range	+/- 2, +/- 4, +/- 8 or +/- 16 [g]

Communications	
Wireless Specifications	Wi-Fi / Wireless
Standard	IEEE 802.11 b/g
Certification	FCC / CE / IC
Wireless Security	Wi-Fi Protected Access II, WPA-2 (AES-256 Packet Encryption)
Transmission Rate	1-11 Mbit/s with IEEE 802.11b
Reception Sensitivity	Typically -83 dBm
Output Level	+12dB
Channels	1-14 with 5MHz intervals
Application Protocol	Packet based proprietary protocol
Encryption	AES-256 with strong 384-bit ECC key generation
Integrity and Ubiquity	Protected with multilevel Signature Hash Algorithm

Vibration Analysis (Overall)	
Types	Acceleration / Velocity
Engineering Units	Acceleration: [g] or [mm/s ²] Velocity: [in/s] or [mm/s]
Detection Types	RMS, RSS, Peak, Peak-to-Peak, True Peak, True Peak-to-Peak
Alarming	Four user-configurable vibration levels: 1. Machine OFF 2. OK 3. Warning 4. Alarm

Vibration Analysis (Frequency)	
Types	Acceleration / Velocity
Engineering Units	Acceleration: [g] or [mm/s ²] Velocity: [in/s] or [mm/s]
Detection Types	RSS, RSS-Peak, Peak
Bands	Six (6) user-configurable frequency band energy measurements

Vibration Analysis (Raw FFT)	
Types	Acceleration / Velocity
Engineering Units	Acceleration: [g] or [mm/s ²] Velocity: [in/s] or [mm/s]
FFT Mode	User-configurable FFT half-spectrum calculation
Resolution	User-configurable settings 1. 100 bins / lines 2. 200 bins / lines 3. 400 bins / lines 4. 800 bins / lines
Averaging	User-configurable: 1-10 times
Overlapping	User-configurable: 0%, 10%, 20%, 30%, 40% 50%, 60%, 70%, 80% and 90%

Vibration Analysis (RAW Waveform)	
Type	Acceleration
Engineering Units	Acceleration: [g] or [mm/s ²]*
Detection Types	User-configurable settings: 1. 256 samples 2. 512 samples 3. 1024 samples 4. 2048 samples

Physical	
Dimensions	Zark Device: 4.750" H x 1.250" W (120.65mm H x 47.00mm W) Mounting Ring: 1.125" H x 1.250" W (28.58 mm H x 31.75 mm W)
Material	Zark Body: XENODY 5524 Zark Base: AISI 1018 Ring: AISI 30455
Mounting	To ring: 20lb magnet To machine: ½-2UNF stud
Connector	Zark-Ring Interface: Custom 12-pin LCP with gold-plated copper alloy pins
Misalignment Protection	Macro-micro key mechanism

Environmental	
Temperature	-4°F to +140°F (-20°C to +60°C)
Shock	100g
Water resistance	IP66 with sealing ring

Power	
Power Types	Onboard rechargeable battery or 24V DC with aux-power ring
Battery	5700 mA/h Lithium Ion
Battery Protection	Temperature above 158°F (70°C)

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