Spotlight for High Speed Engines and Compressors

Introducing Spotlight for **High Speed Engines (HSE),** the newest product in our Spotlight line up. Spotlight for High Speed Engines provides up to 20 points of vibration data and when paired with Spotlight for Compressors, gives you a complete picture of your reciprocating assets in a single application.

Machine Protection

Condition Monitoring

Economic Evaluation

Performance Analysis

Windrock

SP TLIGHT
TECHNOLOGY OVERVIEW
For High Speed Engines and Compressors

▶ **Windrocks Spotlight Monitoring Systems for Compressors & High Speed Engines Lead the IIoT Revolution.**

Driving the "fourth phase" of the Industrial Revolution is a phenomenon known as the Industrial Internet of Things, or IIoT. IIoT combines machine learning and data technology to harness sensor data and machine-to-machine communication technologies.

Windrock has addressed the needs of the growing IIoT revolution with its new **Spotlight Monitoring Systems for Compressors and High Speed Engines.** Spotlight is an automated, continuous monitoring tool that uses magnet-mounted or epoxied PUCs to record an asset's

operational information which is then transmitted via cellular (4G LTE) technology to a cloud based system to efficiently and reliably monitor the health and performance of essential mechanized equipment.

Each Spotlight Monitoring System consists of four PUC (Peripheral Universal Connection) modules that are quickly and easily attached to either a compressor or engine. A single cable routes the sensor signals from the PUCs to the Spotlight Controller. The Controller then wirelessly talks to the Gateway where performance data is collected and uploaded to a database, then transmitted to the analyst's computer, smartphone or other handheld device. When utilized together, Spotlight for Compressors and Spotlight for Engines can provide you with a complete view of your assets machine health.

▶ How Spotlight Does What It Does

Once the Spotlight system is operational, the PUC Sensors, Controller and Gateway send critical data to specialized interpretive software, where performance and condition-based algorithms perform real-time calculations. Reports on KPI's and performance alerts can be relayed to the user's smartphone or other mobile device, anywhere in the world, usually in a matter of minutes.

SPOTLIGHT
FASTER, EASIER SOLUTION

► QUICK AND EASY INSTALLATION
- Installs in as little as half a day vs. traditional analyzing systems can take weeks to install

► AFFORDABLE
- Complete system runs about 1/10th the cost of a comparable monitoring networks

► CONTROL AND COMPATIBILITY
- Compatible with Windrock MD™ analytical software, the industry standard for more than 25 years
- Compatible with data from other Windrock products such as Platinum and 6400 Analyzer.
- Turnkey integration with Windrock Enterprise platform for easy operational analysis
- Integrates with other control networks and historians
- Creates a seamless transition between old and new technology

► SECURE
- Cellular (LTE) technology.
- Transmits data directly to the cloud with no need to access network gateways
- Utilizes the Microsoft® Azure security platform to protect sensitive data
- On-prem solutions available if desired

► WORKFORCE OPTIMIZATION
- Collect and analyze more data, FASTER compared to current limited resources
- Mitigates analyst attrition by expanding data collection footprint across more assets

► WHO BENEFITS FROM SPOTLIGHT MONITORING?

Executives / Operations Management: Operators at the executive level want to look at a schematic of their assets and see a green light on every machine. Only then will they know the network is operating at its highest level of performance, efficiency and reliability. Spotlight lets them know asset status instantly, and when a service interruption may have occurred.

CFO's / Finance Analysts: The bottom line IS the bottom line for CFOs and financial analysts. Assets that are idled are costing the company money. Spotlight lets them know that each asset is performing as required, which helps identify potential problem points before they happen, which provides a boost to the bottom line.
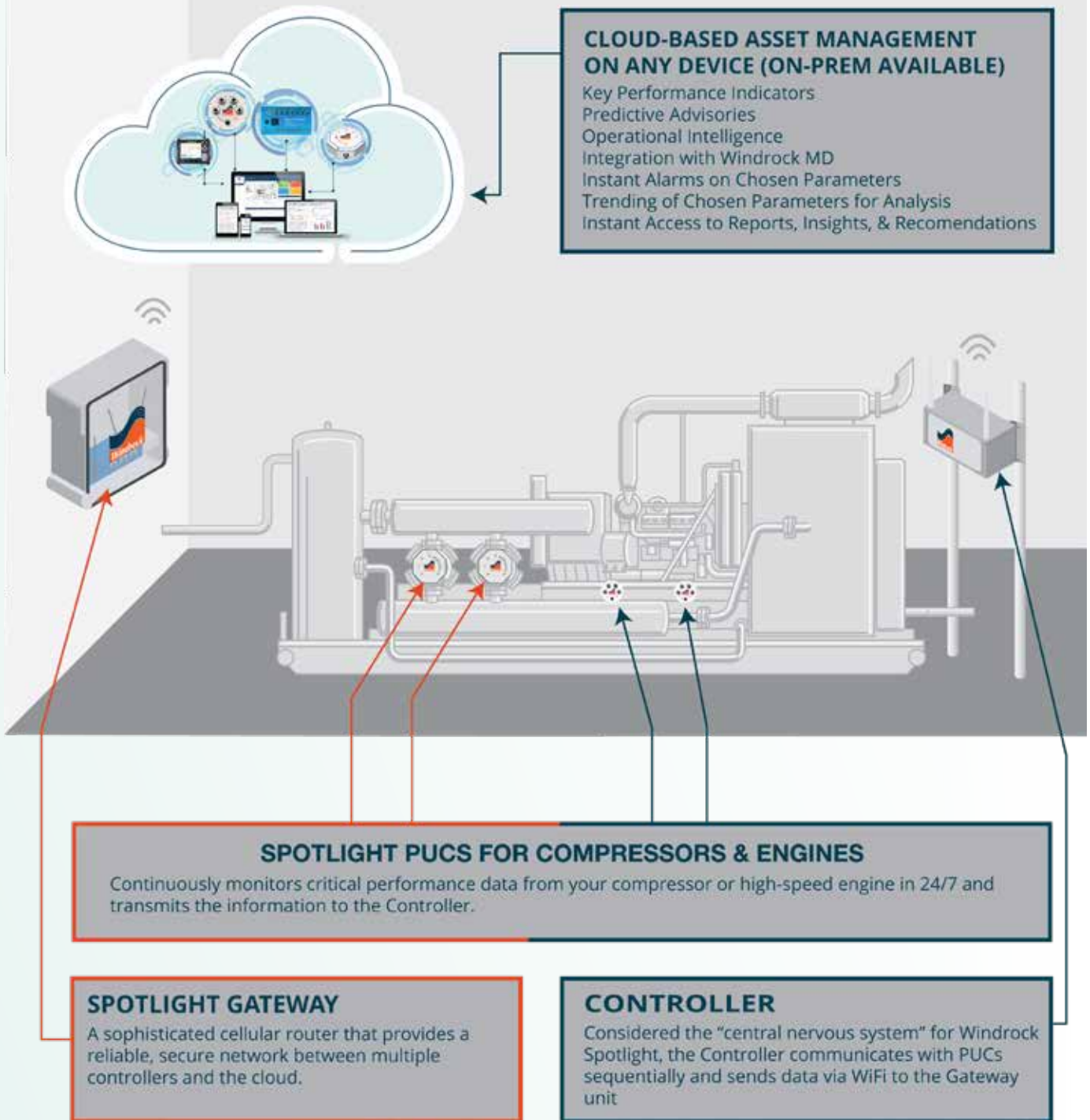
Analysts: The job of the analyst is to ensure that each machine's individual components are operating up to standards. When they are, the analyst knows the machine will work as expected. Spotlight puts this performance data in the palm of the analyst's hand minimizing the need for a site visit.

SP♦TLIGHT

TECHNOLOGY OVERVIEW
Now available for High Speed Engines and Compressors

CLOUD-BASED ASSET MANAGEMENT ON ANY DEVICE (ON-PREM AVAILABLE)

Key Performance Indicators
Predictive Advisories
Operational Intelligence
Integration with Windrock MD
Instant Alarms on Chosen Parameters
Trending of Chosen Parameters for Analysis
Instant Access to Reports, Insights, & Recomendations

SPOTLIGHT PUCS FOR COMPRESSORS & ENGINES

Continuously monitors critical performance data from your compressor or high-speed engine in 24/7 and transmits the information to the Controller.

SPOTLIGHT GATEWAY

A sophisticated cellular router that provides a reliable, secure network between multiple controllers and the cloud.

CONTROLLER

Considered the "central nervous system" for Windrock Spotlight, the Controller communicates with PUCs sequentially and sends data via WiFi to the Gateway unit

SPOTLIGHT

A SYSTEMIC APPROACH TO AVOIDING CATASTROPHIC EQUIPMENT BREAKDOWNS

Windrock, a leader in the latest IIoT Technologies to keep equipment optimized at peak performance, has designed all of its various asset-monitoring technologies and systems to be compatible with its Windrock Enterprise intelligence-gathering platform.

▶ Specifications

MECHANICAL			
Enclosure Dimensions	Controller		6.75" x 4.4" x 4.3"
	Compressor PUC		5.23" x 5.23" x 1.54"
	HSE PUC		5.38"x5.38"x1.75
Weight	Controller		4lb
	Compressor PUC		2lb
	HSE PUC		1.5lbs
Mounting	Controller		Wall Mount
	Compressor PUC		Compressor Crosshead
	HSE PUC		On engine at appropriate temp range

ENVIRONMENTAL			
Temperature Range	Controller		Operating: -20°C to +50°C
	Compressor PUC (Temp Range PUC Module)		Operating: -20°C to +80°C
	Suction Temp RTD		Operating: -20°C to +200°C
	HSE PUC		Operating: -20°C to +85°C
Ingress Protection Rating	Controller		IP55
	HSE PUC		IP65
	Compressor PUC		IP65

ELECTRICAL			
Input Voltage	Controller	Nonhazardous locations	20VDC - 30VDC using approved SELV LPS power source
		Class I, Div 2 locations	24VDC (+0%, -5%) using approved SELV LPS power source
Input Power	Controller		13W max
Accelerometer	Internal to Compressor PUC		100mV/g with +/-50g max
	HSE PUC		10mV/g with +/- 500g max
	Gateway		10VDC - 60VDC / approved SELV LPS power

INDUSTRY CERTIFICATIONS & APPROVALS	
Hazardous Area	ISA-12.12.01/CSA 213, Class I, Division 2, Groups A, B, C, D
Emmisions / Immunity	FCC Part 15, Subpart B; ICES-003
Safety	UL 61010-1; CAN/CSA C22.2 No. 61010-1-12
Certifying Body	SGS Q-Mark Certification

SP☀TLIGHT
Hardware & Software

THE SPOTLIGHT FOR COMPRESSORS PUC

Four PUCs are included with a standard Windrock Spotlight for Compressors System.

Senses

- Head-End Pressure
- Crank-End Pressure
- Suction Temperature
- Crosshead Vibration
- Vibration Bias Voltage
- Vibration raw time waveform

THE SPOTLIGHT FOR ENGINE PUC

Four PUCs are included with a standard Windrock Spotlight for Engines System.

Senses

- Power Cylinder
- Valve Train
- Turbo Health
- Main Bearings
- Frame Vibration

THE CONTROLLER FOR COMPRESSORS AND/OR ENGINES

This is the Central Nervous System and polls each PUC at a user selectable polling interval.

THE GATEWAY FOR COMPRESSORS AND/OR ENGINES

Securely bridges Controllers to the cloud or local on-prem solution. Software stack uses Microsoft IOT Client for MQTT based communication.

WINDROCK MD & ENTERPRISE

Our revolutionary Windrock MD software for trending, reporting, and analysis paired with Enterprise - our intelligent, customer centric ecosystem that provides actionable insights and predictive advisories on rotating and reciprocating equipment, as well as most other industrial assets at the operating site.

► Digital Services Program for Spotlight

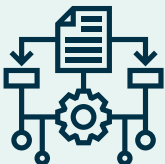| SERVICE OFFERING	MONITOR	ANALYZE	OPTIMIZE
Asset Visibility	√	√	√
Preferred CARE	√	√	√
Standard Integration	√	√	√
Daily Status Updates	√	√	√
Standard KPI's	√	√	√
Windrock MD	√	√	√
User's Group Discount (1 Seat)	None	50%	Free
Remote Analysis		√	√
Fleet-wide Benchmarking		√	√
Daily Status Reports		√	√
Asset AI Model		√	√
Enterprise AI Model			√
Access to Windrock SME			√
Discounted On-site Analysis Services			√

MONITOR

Monitor is our basic plan. With the monitor option you will have visibility to your assets and their trending data including data analysis through Windrock MD. Our Preferred CARE plan is included as well (excluding pressure sensors). We want to make sure your Spotlight system is up and operational. This plan ensures that your coverage for Spotlight goes on as you are subscribed. If you have a mature analysis program the monitor option might be suitable for you.

ANALYZE

Analyze is the next step up. At this level Windrock will augment your program through remote analysis. Windrock analysts will remotely monitor your machine data. We will also apply fleet-wide benchmarking so you can actively track your top performing assets and understand how they compare to other assests in your fleet. Daily status reports are also delivered as a part of this service. These status reports ensure you have the latest analytics should you need to do a deeper dive into your data.

OPTIMIZE

Optimize is our premium option. At this level Windrock is fully engaged in your program working to ensure success pro-actively. We will apply AI models to your individual assets and observe behavior based on internal asset data. We will also apply learning Algorithms that keep you informed of any changes in your asset health. You will be empowered to compare your fleet performance to our Enterprise AI model which will benchmark your program against world class performance. At this level of engagement our expert analysts have their fingers on the pulse of your assets and your fleet. If you are looking for the expected productivity and profit that the digital revolution promises they will arrive at this level of program maturity.

SPOTLIGHT

MONITORING SYSTEM

THE POWER OF IIOT IS NOW SCALEABLE AND AFFORDABLE

The ultimate benefit of the Spotlight Monitoring System is that it cost-effectively collects and analyzes performance data from assets in the field and transfers it to the palm of your hand in real time. Simply put, no other product available today can provide the measurable advantages that are personified by Windrock's new Spotlight Monitoring System.

Machine Protection

Performance Analysis

Condition Monitoring

Economic Evaluation

CONTACT US

Windrock Inc
1832 Midpark Rd Suite 102
Knoxville , TN 37921
865.330.1100
wrk.sales@apergy.com
www.windrock.com/spotlightforengines
www.windrock.com

Windrock

IIoT ENABLED