

Spotlight for High-Speed Compressors and Engines

Get a complete picture of your assets



SPOTLIGHT

Monitoring Systems

Spotlight for compressor paired with Spotlight for high-speed engines (HSE) provides pressure, vibration, and temperature data that gives you a complete picture of the health of your reciprocating assets in a single application.

Technology overview

Windrock's Spotlight monitoring systems for compressors and high-speed engines lead the IIoT revolution.

The Spotlight automated, monitoring tool uses magnet-mounted or epoxied peripheral universal connections (PUCs) and controller 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 two or four PUC modules that are quickly and easily attached to either a compressor or engine. Only one 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 the data is transmitted to the analyst's computer, smartphone or other handheld device. When used together, the Spotlight system for compressors and for engines can provide you with a complete view of your assets machine health.



How the Spotlight system works

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. Users can receive performance alerts and KPI reports directly to their mobile devices.

A faster, easier solution

Control and compatibility

- Compatible with the industry-leading Windrock MD™ analytical software
- Integrates with the ChampionX Enterprise platform for easy operational analysis
- Works with other control networks and historians



Quick and easy installation

- Installs in as little as half a day vs. traditional analyzing systems can take weeks to install



Secure

- Cellular (LTE) technology
- Transmits data directly to the cloud with no need to access network gateways
- Uses the Microsoft® Azure security platform to protect sensitive data



Affordable

- Complete system runs about 1/6th the cost of comparable monitoring networks



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 want a complete picture of their assets and to ensure they are performing efficiently. The Spotlight system lets them know asset status instantly, and when a service interruption may have occurred.

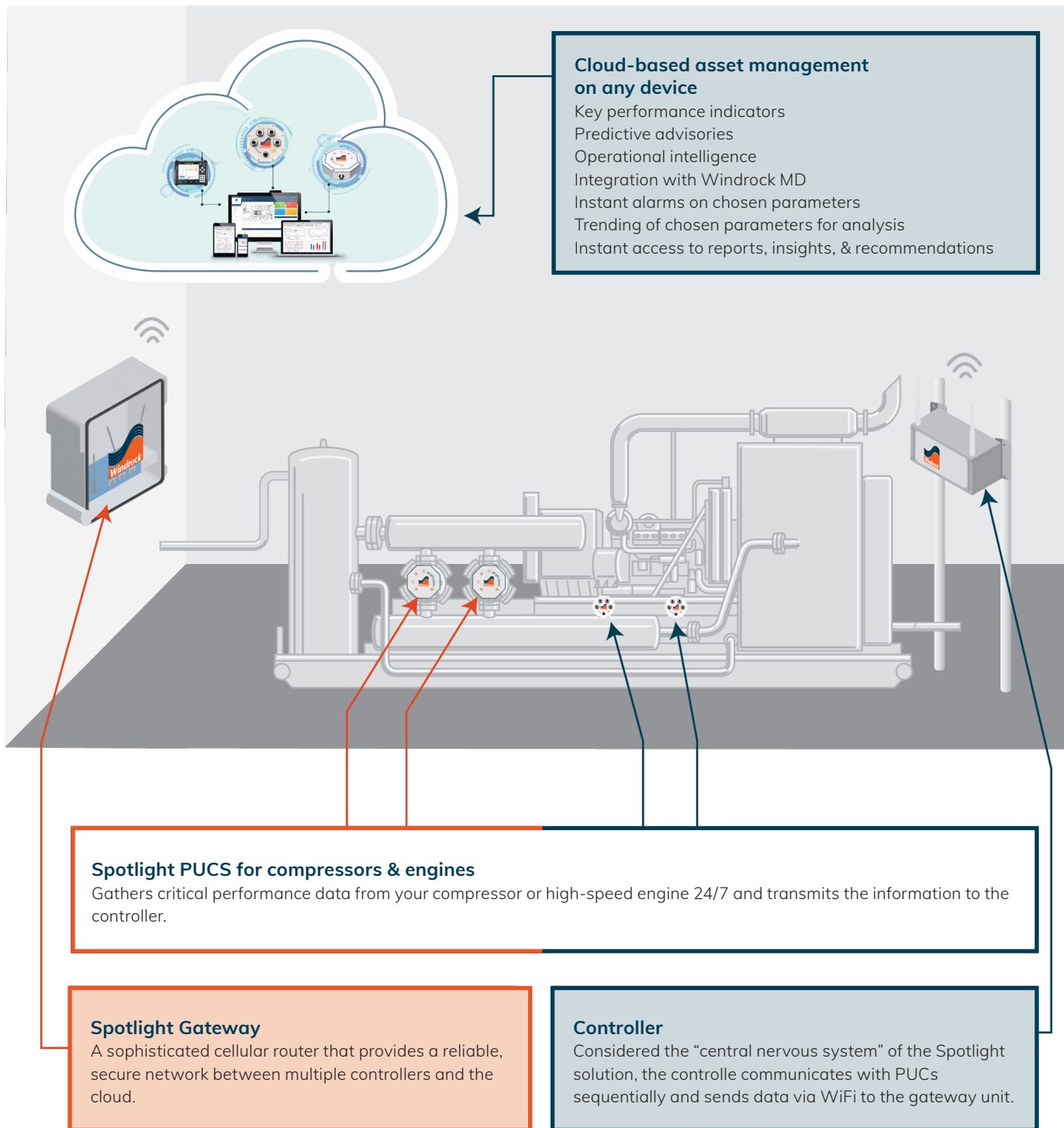


CFOs / finance analysts: The bottom line IS the bottom line for CFOs and financial analysts. Assets that are idled are costing the company money. The Spotlight system lets them know that each asset is performing as required, which helps identify potential problem points before they happen, which provides a boost to the bottom line.



Analysts: Analysts ensure that each machine's individual components are operating up to standards. When they are, the analyst knows the machine will work as expected. The Spotlight system puts this performance data in the palm of the analyst's hand, minimizing the need for a site visit.

How it works



Avoid equipment breakdowns

As an industry leader, Windrock has designed asset-monitoring technologies to work with our Enterprise intelligence gathering platform to keep equipment optimized at peak performance.

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 S ELV 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		
Emmissions / 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		

Hardware and software

Spotlight for Compressors PUC

Two or four PUCs are included with a standard Windrock Spotlight system for compressors.



Senses

- Head-end pressure
- Crank-end pressure
- Suction temperature
- Crosshead vibration

Spotlight for Engine PUC

Two or four PUCs are included with a standard Windrock Spotlight system for engines.



Senses

- Power cylinder
- Valve train
- Turbo health
- Main bearings
- Frame vibration

Controller for Compressors and / or Engines

This is the central nervous system and polls each PUC at a user selectable polling interval.



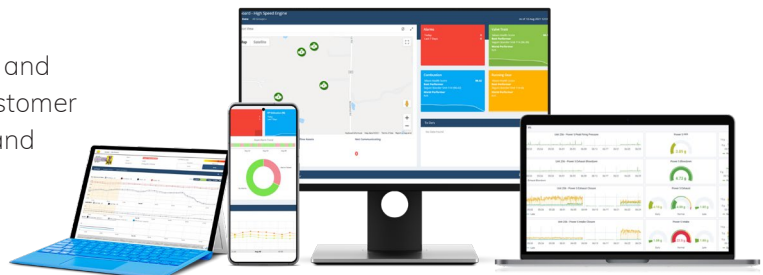
Gateway for Compressors and / or Engines

Securely bridges controllers to the cloud. Software stack uses Microsoft IOT Client for MQTT-based communication.



Windrock MD & Enterprise

Our Windrock MD software for trending, reporting and analysis – paired with our Enterprise intelligent customer centric ecosystem – provides insights on rotating and reciprocating equipment, as well as most other industrial assets.



Digital overview of services: reciprocating compressors and engines

	Monitor	Analyze	Optimize
	Insource I need coverage	Outsource I need advice	Speed and rank I need more updates I want to benchmark
Data frequency	Hourly	Up to 4 times an hour	Up to 12 times an hour
Access / display	<ul style="list-style-type: none"> • Operation screen • Standard KPIs • Fleet-wide & asset • Dashboard –status • Dashboard – detail • Software – MD analysis 	+ Dashboard – expert	+ Dashboard – custom
Alarming and detection	Standard – single points	+ Advanced – formula + DSG Pre-set alarms	+ Advanced – formula + DSG pre-set alarms
Analysis and reporting	Report – daily	+Data monitored by DSG + Report – on alarm	+Data monitored by DSG + Report – on alarm
Asset overview			Fleet-wide benchmark

Note: Windrock's Preferred CARE is provided with digital contract

SPOTLIGHT

Monitoring Systems

The power of IIoT is now
scalable and affordable.

The Spotlight system is a cost-effective monitoring solution that analyzes performance data from assets in the field and transfers it to the palm of your hand in real-time.



Performance
analysis



Machine
protection



Condition
monitoring



Economic
evaluation

CHAMPIONX



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GOALZERO
YOU LEAD

The safety of our employees, customers, shareholders, and communities is vitally important. From the way we operate, to the products we develop, to how we partner with customers, our goal is zero: zero accidents, zero incidents, and zero environmental releases.

Goal Zero is an ongoing initiative at ChampionX designed to reinforce our safety culture, based on the fundamental belief that all accidents are preventable.

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