

AMS Online Prediction, Protection and Process Monitor



- DeltaV™ CHARM-based vibration and process inputs, accepting all type vibration signals
- Rugged enclosure IP66, NEMA-4X
- Advanced automated vibration monitoring and analysis with Emerson's PeakVue™ and PeakVue Plus technologies
- Built-in common asset classes with ISO 20816 default alert sets or user custom alert set
- Built-in application logics
- Antifriction bearing library
- Publishes actionable asset application-based values and assessments with Health Index, current waveform and spectrum
- Easy installation at the asset
- Robust industrial design - conformal coating, shock and vibration tested
- Hazardous area rated
- Marine certification
- Wired or WiFi Ethernet deployment
- Browser-based interface
- 12 CHARM Inputs
- OPC UA server
- Modbus TCP/IP slave/server
- External Data Points to receive process data from external system (DCS or PLC) via software link
- MTP (Module Type Package) export tool for effortless integration with Emerson's DeltaV distributed control system
- Cyber security measures (access authentication, communication encryption, whitelisting)
- Developed in compliance with Emerson's secure product lifecycle methodology

Predictive Analytics at the Edge

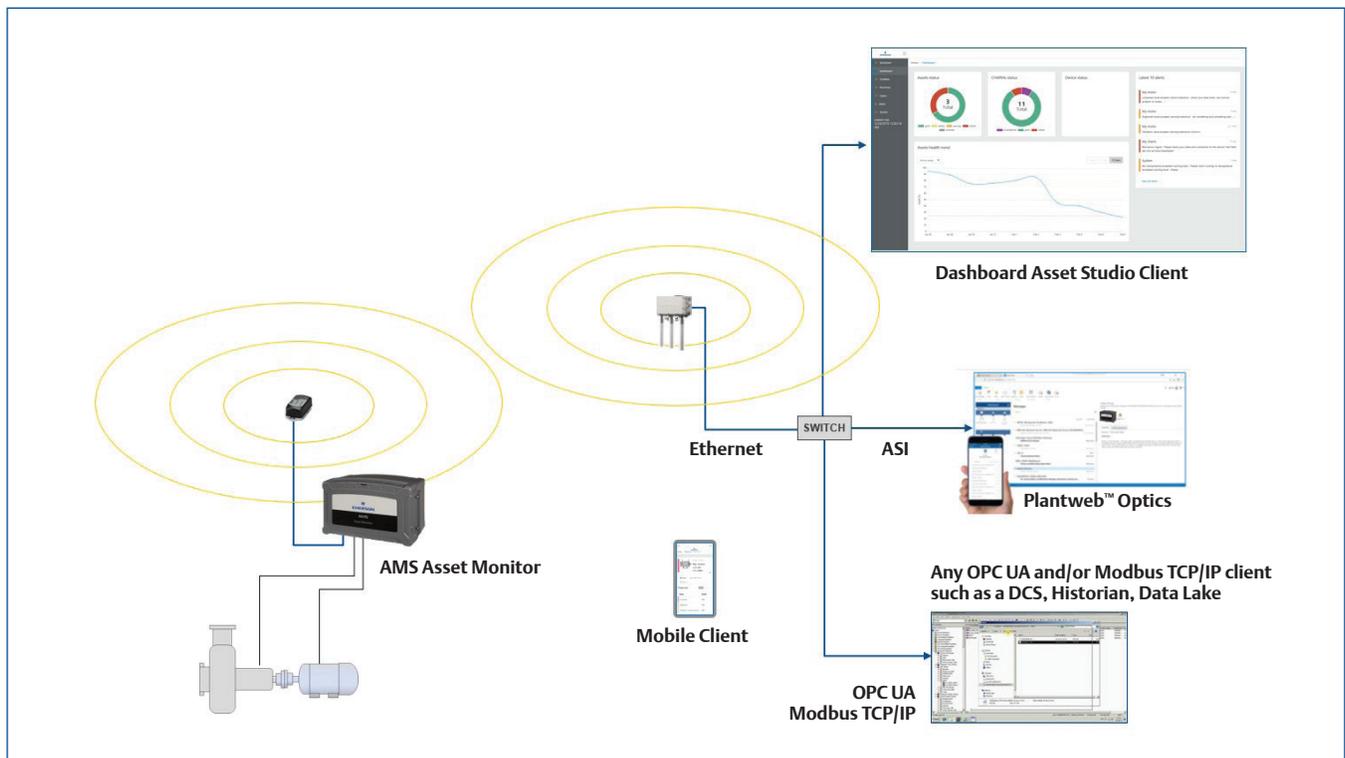
Knowing the health of your important assets is critical to achieving production and business goals. Emerson’s innovative AMS Asset Monitor provides up to the moment process and condition monitoring results with automated analytics and actionable alerts.

Until now, sensing technologies for process and condition monitoring have been siloed in different applications. Process feedback is frequently limited to a few values such as on/off state or running speed. Traditionally, condition monitoring has relied heavily on manual vibration measurements, which may be performed as infrequently as once per month or quarter. While online vibration monitoring

provides continuous updates, it has been sparsely used due to cost and complexity of implementation. In all cases, the systems have focused on data collection and required manual data analysis from trained experts.

CHARM - based Reliability Monitoring

Emerson’s AMS Asset Monitor manages pervasive sensing while providing edge analytic results. It’s designed to mount at the asset, reducing cabling requirements and other installation costs. It accommodates up to 12 CHARMS including new Vibration CHARMS as well as DeltaV CHARMS for process inputs. For larger systems, multiple units can be daisy-chained together to extend asset coverage.



The Plantweb™ Optics platform provides visibility to assets across the enterprise

AMS Asset Monitor features internal predictive Rules with multiple pre-programmed application solutions for easy to understand analysis and alert reporting. Once collected and analyzed, the monitor can be setup to send overall Asset Health index and alerts to Emerson’s Plantweb™ Optics platform and detailed asset data by OPC UA. Detailed asset information is also available on a user’s mobile device or desktop thin client from the monitors internal Web served Asset Studio interface.

Asset Health predictive Rules

AMS Asset Monitor includes the following Asset Health predictive Rules with others under development:

- Balance – detects rotor imbalance
- Alignment – detects rotor misalignment
- Looseness – detects mechanical looseness of the support

- Vane/Blade Pass – detects bladed component issues
- Flow Turbulence – detects pump cavitation or fan rotating stall
- Gear Faults – detects several types of gear defects (Tooth wear, Gear misalignment, Broken/cracked tooth with PeakVue Plus)
- Bearing – detects antifriction bearing defects at the early stage with Emerson’s PeakVue Plus methodology
- Lubrication – detects antifriction bearing lubrication issues with Emerson’s PeakVue Plus methodology
- Oil Whirl – detect sleeve bearing instability issues
- Electric Motor Problems – detects basic electric motor faults (soft foot, uneven air gap)

AMS Asset Monitor delivers:

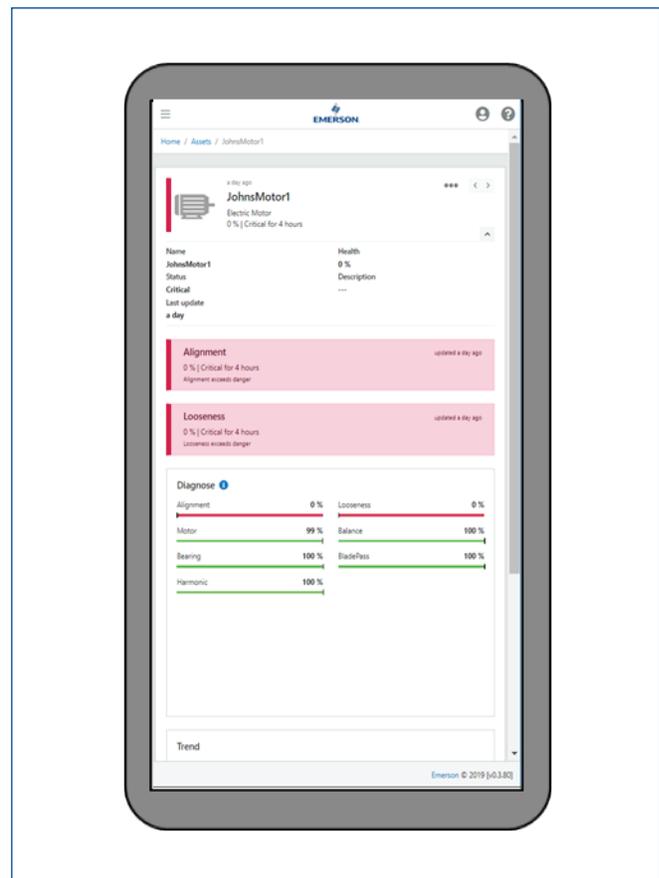
- Out-of-the-box easy asset monitoring using default alert limits
- DeltaV CHARM-based vibration and process inputs, accepting all type vibration signals
- Edge analytics, continuous asset condition monitoring
- Continuous analysis of process and vibration data to provide an overall asset health score (0–100%)
- Several rotating asset templates – with applicable measurement location list and preconfigured predictive Rules (fan, pump, hydrocarbon pump with additional safety-critical measurement locations, electric motor, gearbox, generic asset template)
- Supports DeltaV DO CHARM with configurable Output Logic for notification or shutdown actions
- Heat Exchanger template – with built-in diagnostics for excessive fouling and heat duty error detection
- System/sensor Health status by local LED and from mobile or desktop thin client interface
- OPC UA, Modbus TCP/IP and optional Plantweb Optics interface
- Complete system setup access available by secure, remote thin client interface
- MTP (Module Type Package) export tool for effortless integration with Emerson’s DeltaV distributed control system
- Cyber security measures (access authentication, communication encryption, whitelisting)

Cost Effective, Simple Installation

Installation of an online monitoring system can be expensive and complicated. AMS Asset Monitor is designed for easy field mounting at the asset, eliminating the need for expensive, cumbersome components including: long sensor field cables, junction boxes, barriers, cable trays, and long cable runs back to the system rack. This also eliminates the associated labor for installing these additional components.

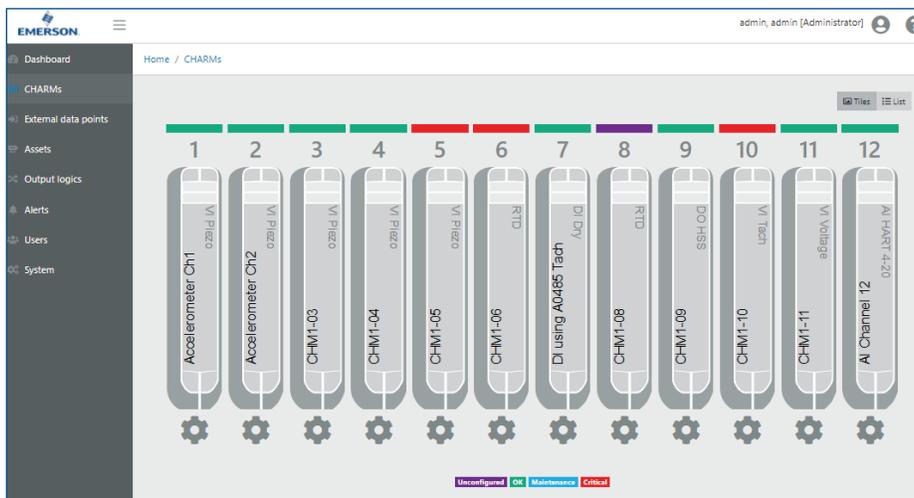
The installation is simple: mount the monitor and power supply at the asset site. Next mount sensors on the asset (configuration templates will help with sensor location selection) and wire the sensors to the monitor. Plug the appropriate CHARM into the monitor for each input. Installation costs can be reduced further with a wireless router.

Configuration is accomplished using Emerson’s thin client interface. The monitor stores trend values internally along with the most recent spectrum and waveform data. Each application offers default alert settings for out-of-the box use without requiring specialized training. More advanced users can customize settings and alerts to their specific application needs.

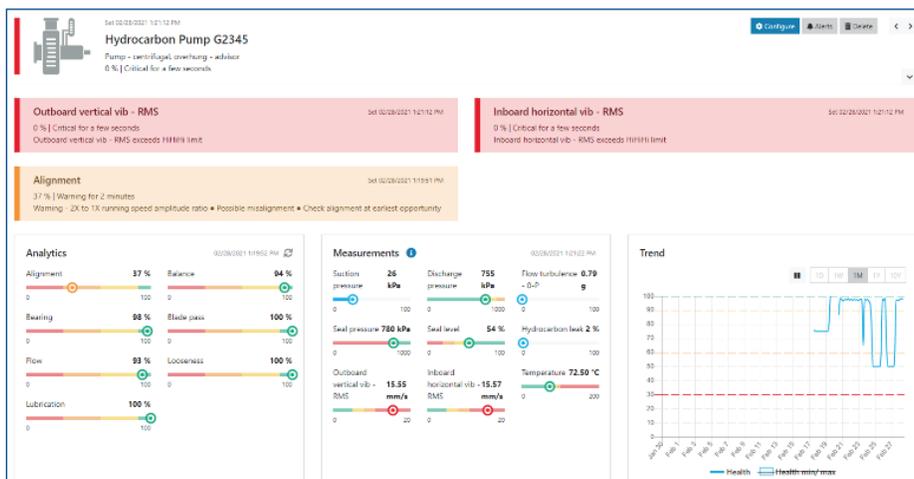




AMS Asset Monitor – Dashboard



AMS Asset Monitor – CHARMs view



AMS Asset Monitor – Asset health summary

| Base Monitor Model Number | Product Description |
|-------------------------------------|---|
| SE8701-PKG1 | Base with 1/2-NPT Cable Gland Threading, (1) SE8701T02-IP Internal Power Supply, (12) SE4501 Std Terminal Blocks, (1) SE4602 Address Plug #1 (1) KL4502X1-DA1 Address Plug Terminal Block |
| Accessory Model Numbers | Product Description |
| SE8701UMB | Universal Mounting Bracket |
| SE8701-10-GLANDS-PKG | ½-NPT Hazardous Rated Cable Glands, 10 pcs |
| SE8701-10-PLUGS-PKG | ½-NPT Cable Gland Plugs, 10 pcs |
| SE8701-SOLA-PWR-PKG | External 24V Power Supply IP67, 3.8A @ 24V with 10 meter input and output cables, not hazardous rated |
| SE8701-TRACO-PWR-PKG | External 24V Power Supply IP67, 5.0A@24V with 6 meter input and output cables; ATEX Zone 2 |
| A02101WLAN | External Wireless Router for North America CSA Class 1 Div 2 |
| A02100WLAN | External Wireless Router for outside of North America, no hazardous ratings |
| SE8701-SHADE | Protection from the sun, includes canopy and pipe mounting bracket |
| Vibration CHARMs Model Numbers | Product Description |
| SE8701V01-PZ | VI Piezo CHARM (2-wire accelerometers and piezo velocity ICP® sensors) |
| SE8701V02-VT | VI Voltage CHARM (dynamic voltage input signals in a range of ±24 V, including externally powered eddy current sensors and seismic probes) |
| SE8701V03-TH | VI Tach CHARM (externally powered eddy current sensors, passive magnetic sensors and Hall-effect sensors) |
| DeltaV Process CHARMs Model Numbers | Product Description |
| SE4303T03 | RTD Input |
| SE4303T02 | Thermocouple/mV Input |
| SE4303T01 | Analog Input 4-20 mA HART |
| SE4301T02 | Discrete Input 24VDC Low-Side sense (dry contact) |
| SE4302T01 | Discrete Output 24VDC High-Side |

| CHARM Terminal Blocks Model Numbers | Product Description |
|-------------------------------------|--------------------------------------|
| SE4501 | Standard Terminal Block |
| SE4503 | Relay Output Terminal Block |
| SE4504 | Thermocouple/mV Input Terminal Block |
| KL4502X1-DA1 | Address Plug Terminal Block |
| SE4602 | Address Plugs |
| Licensed Options | |
| A488500-DS | Plantweb Optics Interface |

Guardian™ Support

Guardian™ Support is the core element of our Lifecycle Services program. It proactively delivers risk management, lifecycle management and incidence management through relevant, system-specific information and 24x7x365 expert technical support.

For further information, please contact your local Emerson Sales Office / representative for quotation.

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