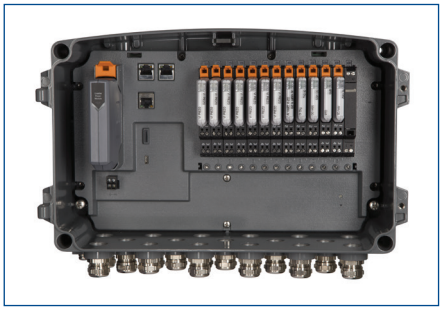
Online Prediction, Protection and Process Monitor

- DeltaV CHARM based vibration and process inputs
- Vibration with PeakVue™ and PeakVue Plus
- Built in common asset classes with ISO 10816 default alert sets or user custom alert set
- Publishes actionable asset application-based values with health plus current waveform and spectrum
- Easy installation at the asset
- Shock and vibration tested robust industrial design
- Hazardous area rated
- Wired or WiFi Ethernet deployment
- Browser based interface
- Built in application logic



Rugged Enclosure



12 CHARM Inputs

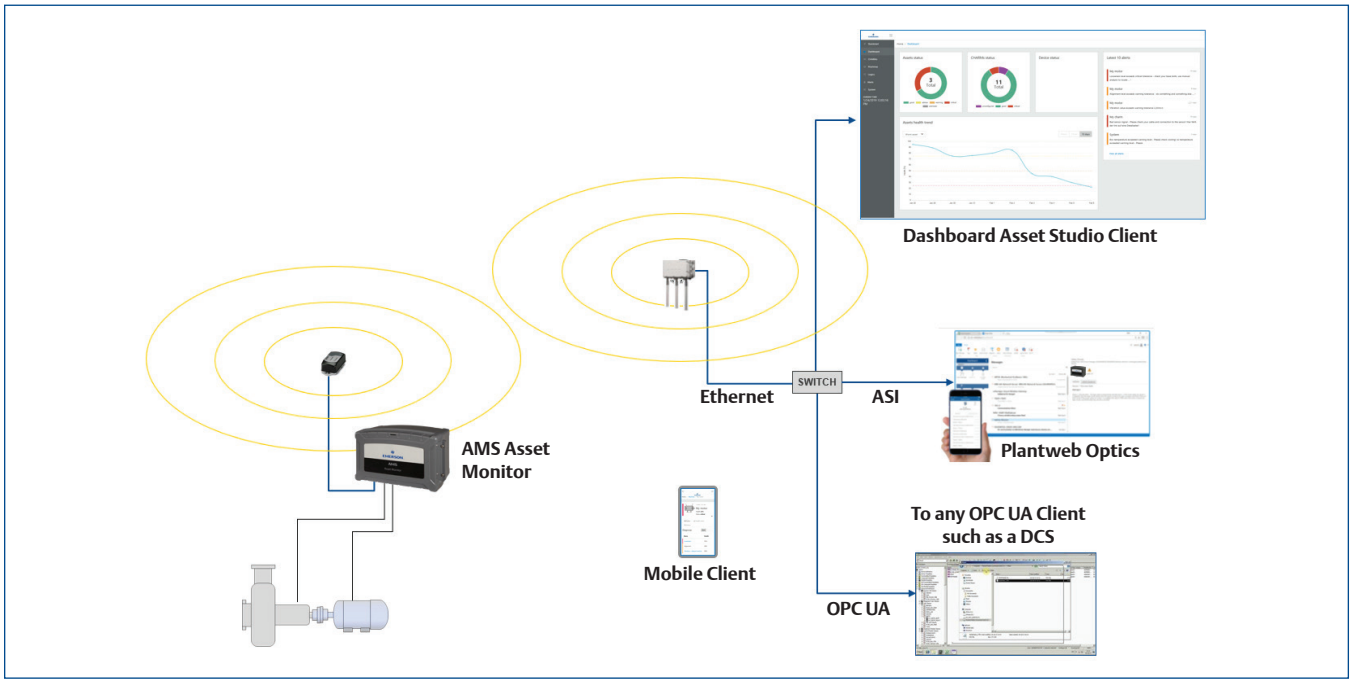
Predictive Analytics at the Edge

Knowing the health of your important assets is critical to achieving production and business goals. Emerson's new 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. 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.

CHARMs-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.



AMS Asset Monitor features an internal Logic Studio 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 status and alerts to Emerson's Plantweb Optics asset performance 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 Applications

AMS Asset Monitor includes the following asset health applications with others under development:

- Balance – detects imbalance
- Alignment – detects misalignment
- Looseness – detects mechanical looseness
- Vane/Blade Pass – detects bladed component issues
- Flow Turbulence – detects pump cavitation or fan rotating stall
- Gear Faults – detects defective gears
- Ratio – computes gear Hunting Tooth ratio matching issues
- Rolling Element Bearing Defects – detects failing antifriction bearings
- Lubrication – detects antifriction lubrication issues
- Electric Motor Problems – detects basic electric motor faults

AMS Asset Monitor includes:

- Out-of-the-box easy asset monitoring using default alert limits
- System/Sensor Health Status by local LED and from mobile or desktop Asset Studio thin client interface, OPC UA or Optional Plantweb Optics
- Complete system setup access available by Asset Studio secure, remote, thin client interface
- Onboard memory continues asset analysis during communications loss
- Supports DeltaV DO CHARM with configurable Simple Logic for notification or other actions

The monitor will also include embedded optional applications for specific asset types that continuously analyze process and vibration data to provide an overall asset health score (0 – 100%).

- Pump Advisor – Built-in diagnostics for high vibration, cavitation, bearing temperature, strainer plugging and seal fluid/hydrocarbon leaks.
- Heat Exchanger Advisor – Built-in diagnostics for fouling/cleaning, fouling rates, lost energy cost, duty error and exchanger in/out of service.

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 such as; long sensor field cables, junction boxes, barriers, cable trays, and long cable runs back to the system rack and the associated labor to install them.

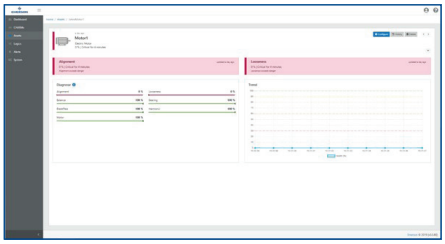
To install this solution; mount the monitor and power supply at the asset site, mount sensors on the asset, wire the sensors to the monitor and plug the appropriate CHARM into the monitor for each input. Further reduce installation costs with an optional Wireless Ethernet router.

Configuration is accomplished using Emerson's thin client-based Asset Studio software. 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.

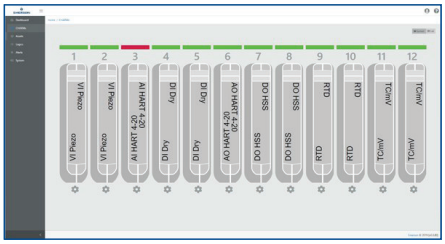
Dynamic Performance	
Channels	Up to 12 CHARMs
Collection Modes	Simultaneous or Independent
A/D Resolution / Dynamic Range	24 bit / Greater than 100dB
Amplitude Accuracy Deviation	<1%
Repeat Accuracy	≤ 2% of Full Scale
LOR/Fmax	40,000 or 400,000 LOR @ 40kHz
Units	SI (Metric) or Imperial (English)
Frequency Units	Hz, CPM
Scaling	Linear
Communications	
Monitor Internet Protocol	OPC UA server
Monitor Daisy Chain (up to 8 monitors)	(2) 100Mbps Ethernet Ports
Monitor Backhaul to Plant Network	(1) 1Gbps Ethernet Port



Dashboard



Asset health summary



CHARMs view



The Plantweb Optics asset performance platform provides visibility to assets across the enterprise.

Vibration CHARMs	
SE8701V01-PZ	Piezo (accelerometers, velocity sensors or dynamic pressure sensors)
A/D Resolution / Dynamic Range	24 bit / Greater than 100dB
Piezo Power	24V @ 4mA typical (1 to 10 mA adj.)
Input Type	Differential
Frequency Range	40kHz
High Frequency Detection	PeakVue and PeakVue Plus
DeltaV Process CHARMs	
SE4303T03-RS	RTD
SE4303T02-RS	Thermocouple
SE4303T01-RS	AI 4-20mA
SE4301T02-RS	DI 24V Low Side Sense
SE4302T01-RS	DO 24V DC High Side
DeltaV CHARM Terminal Blocks	
SE4501-RS	Standard Terminal Block
SE4504-RS	Thermocouple
SE4503-RS	Relay Output
KL4502X1-DA1-RS	Address Plug Terminal Block
SE4502-RS	Address Plug #1
Physical, Environmental and Hazard	
Dimensions mm(in)	238(9.4)H x 384(15.1)W x 196(7.7)D
Weight (with CHARMs)	7.3kg (16.3 lb.)
Operating Temperature	-40 to 55°C (-13 to 131°F)
Relative Humidity	5 to 95% Noncondensing
Enclosure Seal Rating	IP66, NEMA-4X
Vibration (Operating) EN-60068-2-6	1mm PP 2 to 13.2, 0.7g 13.2 to 150Hz
Shock (Operating) EN-60068-2-27	10g @ ½ Sine for 11ms
Hazardous Area Approvals	CSA Class I Div 2 Groups A, B, C, D, T4 IECEx/ATEX Zone2 II 3G-Ex nA IIC Gc
EU Conformity	CE (RoHS and REACH)
MTBF	61 years plus

Base Monitor Ordering Details	
SE8701-PKG1 BASE ANALYZER	Base with 1/2-NPT Cable Gland Threading, (1) SE8701T02-IP Internal Power Supply, (12) SE4501-RS Std Terminal Blocks, (1) SE4502-RS Address Plug #1 and (1) KL4502X1-DA1-RS Address Plug Terminal Block
Add CHARMs to Base; see prior page CHARM list	
Accessory Ordering Details	
SE8701UMB	Universal Mounting Bracket
SE8701-10-GLANDS-PKG	(10) ½-NPT Hazardous Rated Cable Glands
SE8701-10-PLUGS-PKG	(10) ½-NPT Cable Gland Plugs
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 Z2
A02101WLAN	External Wireless Router for NA CSA Class 1 Div 2
A02100WLAN	External Wireless Router for non-NA, no hazardous ratings
SE8701-SHADE	Sun Shade - include canopy and pipe mounting bracket
Licensed Options	
A488500-DS	Plantweb Optics Interface
SE8701-PUMP-APP	Pump Advisor License
SE8701-HEATX-APP	Heat Exchanger Advisor License

Future Releases

As a modular device, future releases are already planned for this monitor. Additional asset health monitoring application logic will include a variety of process and reliability options. These updates are intended to be field deployable.

To learn more, contact your local Emerson sales partner.

NOTICE: *This is a preliminary data sheet. In the interest of continuous improvement, all content is subject to change.*

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