White Paper

Motor Condition Monitoring in Hazardous and Hard to Access Areas

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Motor Condition Monitoring in Hazardous and **Hard to Access Areas**

Today, production facilities are under intense pressure in the face of rising commodity and energy prices. For the production facilities to maintain their competitive power against this increasing pressure, it is of vital importance that their production is carried out uninterruptedly and with maximum efficiency. Monitoring the rotating equipment, which is the backbone of production systems and intervening before the occurrence of malfunction is a determining factor in preventing unplanned stoppages.

So, how can condition monitoring be performed more efficiently if we have rotating equipment in hazardous areas or in an area that is very difficult to access? Facilities, where dangerous substances such as oil, gas, chemistry are frequently found are generally spread over large areas and access to electric motors can be quite difficult. Traditional condition monitoring methods will not be the right choice for monitoring equipment in these facilities.

Difficulties

Monitoring

Rotating equipment, particularly motors and pumps, can be difficult to access, therefore making it costly and time consuming to monitor conditions and performance in hazardous areas.

Maintenance

Traditionally, condition monitoring requires maintenance teams to collect and analyze data and create status reports manually. Depending on the collection frequency of this data, early changes in asset health trends can be difficult to detect. This data is critical to avoid unplanned downtime and loss of production, as it provides an assessment of the health of the equipment.

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Redundancy
While redundancy improves the reliability and availability of critical components, the maintenance team may replace a failed motor without knowing the root cause of the failure. Unknowing the root cause can cause replacement equipment to fail for the same reason.

Old Facilities
In aging facilities, interventions are limited to PLC and SCADA systems. Solutions from different suppliers often use different communication protocols, which makes it difficult to put them together to provide a correct overview of how a facility is performing.

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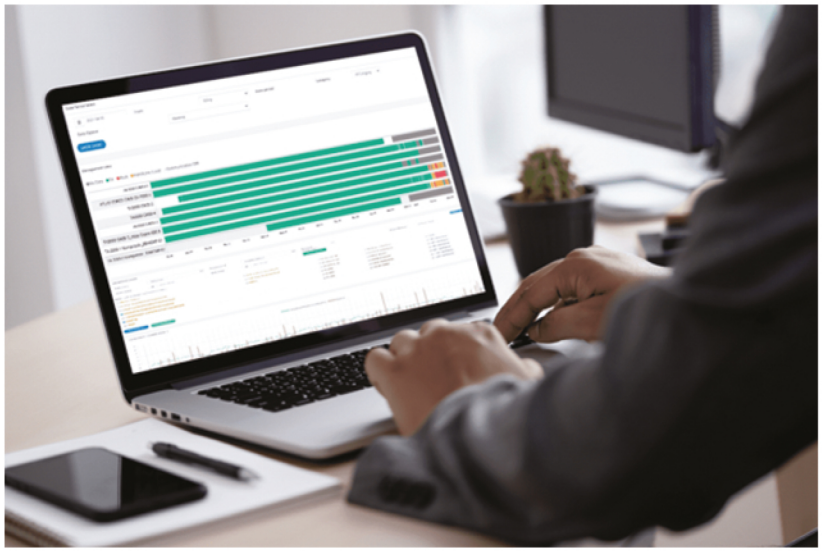
Why Are Traditional Condition Monitoring Methods Not Sufficient in Hazardous and Hard-to-Access Areas?



Cost
The expensiveness of sensors and data acquisition cards used in traditional condition monitoring systems makes condition monitoring difficult to apply throughout the plant.

Difficulty of Installation
In traditional methods, accelerometers must be placed on the motor and the most accurate position to optimize sensitivity, requiring expertise. It also poses a safety risk to maintenance personnel, even if sensors can be integrated into hard-to-reach and hazardous areas.

Diagnostic Area
Conventional analyses are generally effective in detecting failures. They are not successful in detecting electrical faults. In addition, since traditional methods do not analyze your electricity data, they cannot provide detailed information about energy efficiency. Even in systems where data is collected more easily, data collection takes a long time, and expert personnel must interpret this data.

Early Diagnosis
In traditional methods, threshold values depend on the operating conditions of the equipment. This causes the use of higher thresholds in continuous monitoring systems. Thus, it takes more time to receive a warning.

Difficulty of Use
The rotating equipment to be monitored may not always be in an easily accessible area. In this case, traditional condition monitoring methods can be difficult to implement both in data collection and cabling. This issue is especially common in the chemical, water treatment and oil and gas industries.

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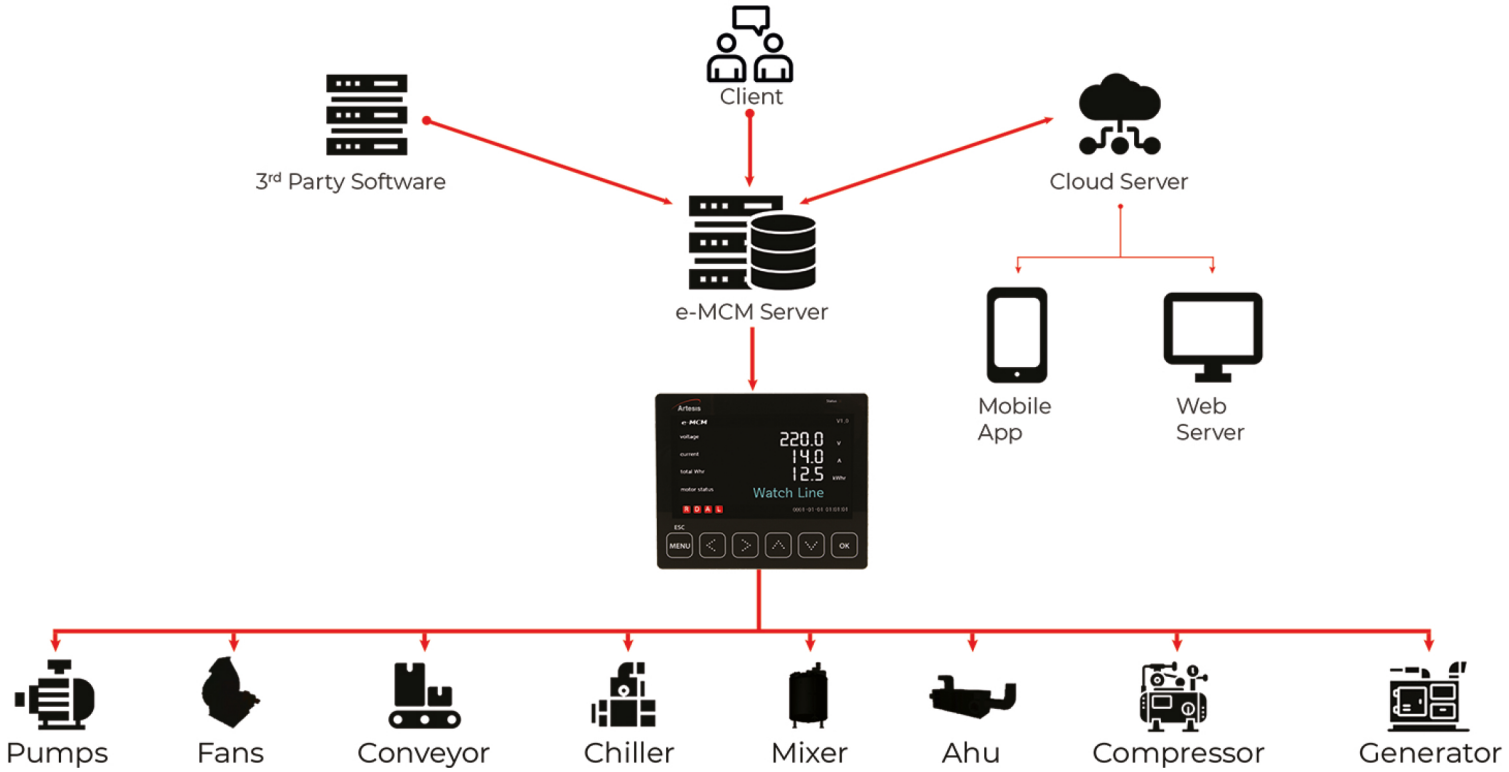
Digitalization and Asset Management

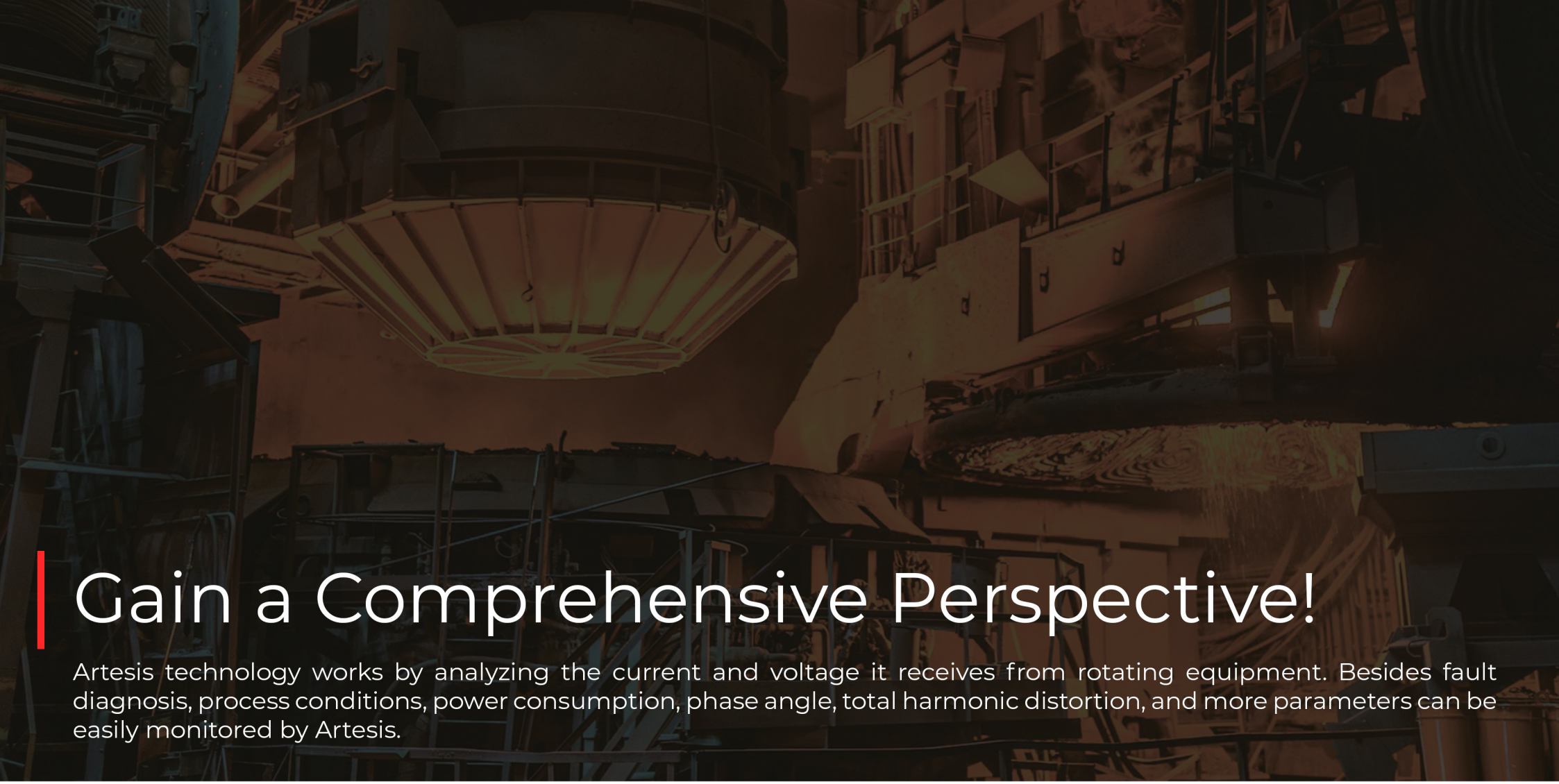
Digitalization is now of great importance for every facility. The proper condition monitoring method that you will choose for your facility should not only be related to maintenance processes but also include a digital solution that should work with IT and OT. Innovative condition monitoring methods provide serious benefits in asset management.

Artesis Solutions for Hazardous and Hard-to-Access Areas

With the online condition monitoring solutions we offer as Artesis, we provide comprehensive diagnostics and an easy-to-apply solution even in the most compelling facilities.

The Artesis motor condition monitoring solution offers an easy and practical installation. Artesis requires only three-phase voltage and current signals via current transformers (CT) and voltage transformers (PT), which are comparatively cheaper than other sensors. Typically, CTs and PTs located in the motor control cabinet require almost no wiring and eliminate the need for any installation on the equipment in remote or hazardous areas.





Gain a Comprehensive Perspective!

Artesis technology works by analyzing the current and voltage it receives from rotating equipment. Besides fault diagnosis, process conditions, power consumption, phase angle, total harmonic distortion, and more parameters can be easily monitored by Artesis.

Fact

Artesis allows remote condition monitoring, including those installed in hazardous or hard-to-reach locations. Therefore, the safety of workers is increased, as they will not have to enter dangerous environments as often.

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Monitoring Rotating Machinery located in **Remote and Hard-To-Reach Areas**

Artesis's technology combines big data, the Internet of Things (IoT), and machine learning technology. Thanks to this unique method, faults that may occur only by receiving current and voltage information from the rotating equipment can be diagnosed up to 6 months in advance. This technology is currently the only known method that can be used safely in hard-to-reach and dangerous areas (including ATEX) because the sensor is not required. Intelligent algorithms analyze and interpret all collected data and report on the root causes of failures. This enables the maintenance team to intervene at the right time and place.

Artesis offers web-based access to your data whenever you want with its IoT-based condition monitoring method. The Artesis early warning system ensures that all equipment Artesis condition monitoring systems installed can be monitored from a single platform, even if they are in different locations. The past failure progress of your equipment can also be checked and compared to support your maintenance decisions. Artesis IoT is an easy-to-use platform alternative to Artesis Enterprise Software installed and running on your local servers.

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Artesis for difficult to access and dangerous areas;

- Secure cloud environment
- Report results can be archived and accessed at any time.
- Does not require server and software installation
- Plug and Play

Whether your facility has all the tools it needs or is just getting started, Artesis can add value with its unique technology. Once you start thinking about a facility-wide solution, the field receives tighter as very few companies offer a genuinely facility-wide converged hardware, software, and service monitoring solution. In conclusion, you should partner with a company that has proven its commitment to helping you succeed-someone you can trust with your most valuable assets.

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Contact us

If you have any queries related to condition monitoring for Motor Condition Monitoring in Hazardous and Hard to Access Areas please kindly contact us.

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