

INFORMATIONAL BROCHURE





What is it?

In this section we explain what mGuard® CompressorWatch[™] is.

What does it do?

An in-depth explanation of what mGuard CompressorWatch does.

How does it work?

In this section we present how mGuard CompressorWatch, using mCore®SDR; captures real-time data from compressor packages and sends that data to MonicoLive[™] where predictive analytics are run in real-time.

What's required?

This section covers everything needed to implement mGuard CompressorWatch and explains the systems that are being monitored, the analytics that are being run and how it all is wired up; preconfigured ready for installation.

What's included?

Automated Predictive Analytics, Advanced Notification System, Data Visualization and Data Storage is all included in mGuard CompressorWatch.

Why you need it and the benefits



What is it?

mGuard® CompressorWatch[™] is remote *condition* monitoring for your reciprocating gas compressors (i.e., drivers and ancilliary equipment). Monico's Engineers work with you to determine exact hardware requirements to collect, aggregate, cleanse, translate, buffer and transmit your real-time stamped engine and compressor data to **MonicoLive**[™] servers.



Users have access to:

- **Industrial Data Acquisition and Storage**
- **Data Visualization Environment** Asset status overview & operational KPI's **Active Faults/Alarms**
- **Predictive Analytics for Condition Monitoring** Designed to run automatically 24/7/365



CompressorWatch is built on the trusted **MonicoLive**[™] platform hosted in the Microsoft® Azure cloud. Our automated analyses and notifications are completely setup and managed by Monico's Subject Matter Experts and specifically designed to save you money through improved asset reliability, reduced unscheduled shutdowns and improved preventative maintenance planning.

Real-time, stamped engine and compressor data

Digital dashboards of real-time and historical data

Preconfigured analysis and automated notifications

What does it do?

Key Point:

2

Condition Monitoring is being able to detect that while components are still healthy the health is deteriorating, and action may need to be taken before deterioration results in failure.



mGuard® CompressorWatch is a tool that provides maintenance managers, technicians, and reliability with improved insight as to how the station, the engines, and the compressors are performing and their health statuses.



Helping to improve: **Optimization** Uptime Reliability

> It's used to Analyze Real-Time Streaming data Visualization, human review and interaction **Automatically**, triggering alerts/notifications

Condition Monitoring is using data from compressor assets to evaluate the state of components of the system to determine if any of those components are beginning to show signs of failure. The purpose of mGuard CompressorWatch is to run real-time analytics on compressor package components to determine the status of their health.

Objective of CONDITION MONITORING:

Detect end of useful life **Detect reliability related failures**

Tool for performing CONDITION-BASED MAINTENANCE

How does it work?

mGuard CompressorWatch collects real-time streaming data from the compression station assets; including the engine ECM, Package Controller and other external sensors.

Key Point:

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mCore®SDR is the industrial data acquistion device that is collecting data from connected assets. The data is then sent to the MonicoLive[™] Cloud environment where mGuard[®] CompressorWatch[™] is analyzing data in real-time





Review next secton for what happens when data gets to mGuard CompressorWatch in MonicoLive

Key Point:

Once data is received into MonicoLive[™] it is then processed in real-time by mGuard[®] CompressorWatch[™] analytics to determine if any conditions are presenting that may require advanced notification and attention by maintenance and service professionals





SME accesses **Dashboards** for analytics creation, review and refinement

What is required? 4

mGuard CompressorWatch does not require expensive sensor package addons

HARDWARE

Key Point:

Monico mCore®SDR are: IP66/IP67 Enclosures -Water and Dust Resistance

Class I, Division II Certification - Haz. Loc. Approved Groups A-D, Surface Temp T5A.



CompressorWatch remote **condition** monitoring can be accomplished with the installation of a data acquisition gateway (mCore®SDR), and a wiring kit.

If an ethernet access to a network is not available, a cellular modem can be installed.

All of the data acquisition, automated analytics and alert/notifications are accomplished with typical sensor packages. Additional expensive sensor solutions are not required.

>> For more information on mCore®SDR click here



connect to the compressor package assets.

INTERFACE CABLING





Every installation of **mGuard CompressorWatch** comes with interface cabling preconfigured to

What is Included?

AUTOMATED ANALYTICS

Key Point:

5

All analytics are designed to run 24/7/365 and require no human interaction to perform. The analytics run in real-time as data is received from the compressor package.



Monico's mGuard CompressorWatch includes real-time analytics that run unattended 24/7/365 as data streams in from the asset(s).



There is no need to download data records, CAN logs or other information to run analytics manually in spreadsheets or other tools



No need for a human to be actively involved in analyzing data (it works while you sleep)

Automated notifications and analysis include, but are not limited to:

Emissions Engine & Compressor Components Engine & Compressor Sensors Engine Performance Compressor Valve Failures Equipment KPIs (e.g., Reliability) **Jacket Water Cooling Systems**

Auxiliary Cooling Systems Air Intake Systems **Ignition Systems Lubrication Systems Exhaust Systems Air/Fuel Ratio Systems**

CompressorWatch Analytics help operations & reliability:

Optimize Production Reduce Unexpected Shutdowns from component failures Reduce Excessive Parts & Labor Cost

Avoid extra cost for incorrect and or expedited parts After-hours labor (scheduled versus reactionary) Avoid additional costs associated with failure mode misdiagnosis. (i.e., removing incorrect part)

ADVANCED NOTIFICATIONS

Key Point:

Advanced notifications provide a direct link to MonicoLive[™] at the time of the event; this makes it easy to quickly get to the root of the problem and perform additional human analysis of the data coming from the asset.



A key feature to mGuard CompressorWatch is the Advanced Notifications.

When **CompressorWatch** identifies a potential failure or shutdown, the system will trigger an email notification. These notifications provide the name of the asset, time of occurrence, severity, the types of conditions that are indicative of a failure, recommended action and a hyperlink to **MonicoLive**.

Monico's mGuard CompressorWatch generates Automated Advanced Notifications



Dashboards/ **Data Visualization**

Key Point:

All dashboards are preconfigured and setup for the compressor package it's depicting data on.

Additionally due to the availability of historical data, the dashboards provide a DVR type functionality that allows the user to move backwards and forwards along the timeline of data. Users can also move to a specific date/time.



Another key feature of **mGuard CompressorWatch** is the Data Visualization environment or **Dashboards**. Built on MonicoLive, mGuard CompressorWatch provides a full suite of visualizations.

These Dashboards include:

Main Landing Page Maintenance Page Engine Displays for: Status A/F Ratio and Load Control **Oil-Coolant Systems** Exhaust Temperatures **Transformer Secondary** Ignition Timing **Combustion Time** Engine Cylinder Data **Event & Diagnostic Codes**

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Included in the visualizations is a dashboard for the **Compressor Process**.

The Compressor Process Dashboard depicts:

Driver Type/Model (engine) Compressor Type/Model Fault Codes Stages Stage Ratios **Stage Suction Pressures**

Compressor Speed

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Compressor Oil Pressure Cylinder Discharge Temperatures **Bearing Temperatures**



HISTORICAL DATA STORAGE

Data Archiving and Storage





> Back to ToC

With mGuard CompressorWatch being implemented on MonicoLive and hosted in the Microsoft® Azure Cloud; you can rest assured that data is backed up, has a high availability and is securely protected.

Data availability

Save money on data storage No setup of servers required Data backup

Data Archiving is important for a **remote** condition monitoring solution as it provides the opportunity to 'go back' and historically review what was happening and to perform analytics on data that is slowly trending over time.



Why you need it and the benefits?

It helps maintenance professionals by increasing awareness of how their compressor package is performing. It does this by alerting them to any potential conditions that may result in an unplanned shutdown event or catastrophic failure-This increased awareness, along with a proactive approach to maintenance, can provide increases in productivity and help with scheduling maintenance intervals.

mGuard® CompressorWatch[™] provides service managers, technicians and maintenance crews with a powerful tool that is specifically designed to provide valuable insight into the performance and health status of their compressors.

This advanced technology is proven to provide:



More time to schedule and prepare for needed repairs Useful analysis that aids in determining the severity of a failure **Reduced unnecessary and or unscheduled repairs** Improved Mean Time to Repair (MTTR) Improved Reliability, Utilization and Mean Time Between Outage (MTBO) Increased production and reduced unscheduled downtown

Oil and Gas Midstream Customer Benefit

One Monico customer that is using mGuard CompressorWatch on 20 compressors recently reported an average increase in Mean Time Between Outage (MTBO) of 41% over a six-month period.

Their maintenance and upkeep of compressor packages was made easier with advanced analytics constantly monitoring incoming data from the assets and email notifications that contained specifics on the severity of faults, times of occurrence, developing conditions and recommend repair actions. All of this gave them improved insight into equipment condition, additional time in which to schedule corrective action, and the ability to repair the correct part the first time.







SIMPLE SOLUTIONS. POWERFUL MONITORING.

For more information please reach out to Monico at:

Web: Phone: **Email**:

www.monicoinc.com 281-350-8751 sales@monicoinc.com

For more information on MonicoLive™

The cloud based solution that mGuard[®] CompressorWatch[™] runs on. https://www.monicoinc.com/monicolive

For more information on mCore_®SDR

Monico's industrial gateway for data acquistion; protocol translations, edge analytics and more... https://www.monicoinc.com/mcore-sdr



