Rockwell Automation

Unlock predictive maintenance insights from variable-frequency drive data

FactoryTalk® Analytics™ GuardianAI™

Maintenance engineers have a clear goal to maintain plant assets and avoid unexpected equipment failures.

Often, maintenance activities are performed proactively based on original equipment manufacturer recommendations. While this helps prevent unexpected downtime, maintenance engineers struggle to keep up and churn through spare parts quickly due to frequent part replacements that may be unnecessary. But there's a risk that an upcoming failure could go undetected even with this proactive approach.

Imagine if maintenance engineers had insights into the current condition of the assets on the plant floor. What if they received an alert as soon as an asset began deviating from normal? They could plan their activities based on which asset had the highest risk of failure and let other assets continue to run — without stopping production unnecessarily to perform service. FactoryTalk Analytics GuardianAI software provides predictive maintenance insights via continuous condition-based monitoring and helps maintenance engineers get the right information at the right time to optimize their activities and reduce unplanned downtime.

| PowerFlex 755 AC Drives | PowerFlex 755TL, TR and TM Drives | PowerFlex 755TS VFD | PowerFlex 6000T Medium Voltage AC Drives |

Use your existing drives as sensors

There's no need to purchase additional sensors or monitoring equipment. With FactoryTalk Analytics GuardianAI software, you receive early warning of potential asset failures based on data that's already available from your variable frequency drives. FactoryTalk Analytics GuardianAI software expands on the drive's embedded health monitoring capabilities by using its electrical signal to monitor the condition of a plant asset. When it detects a deviation in the electrical signal, it alerts you to the anomaly so that you can investigate and plan the correct response. FactoryTalk Analytics GuardianAI software provides premier integration with PowerFlex® 755, 755T and 6000T drives for key process applications like pumps, fans and blowers.

BENEFITS

- Reduce the number of unplanned downtime events
- Minimize the length of downtime events
- Increase maintenance team efficiency
- Reduce spare parts
- Increase plant safety
- Optimize maintenance activities

CAPABILITIES

- Predictive maintenance insights provided through motor current signature analysis
- Premier integration with PowerFlex® 755, 755T and 6000T variable-frequency drives
- Embedded expertise in the form of first principle fault recommendations for pump, fan and blower applications
- Intuitive workflow for deployment, configuration, training and monitoring
- Frequency map to track training progress
- Continuous learning with user classification of process specific faults
- Alerts provided via email
- Deployment at the edge via FactoryTalk® Edge™ Manager

With FactoryTalk Analytics GuardianAI software you can drive more efficient maintenance decision-making. You'll get more value from your existing PowerFlex drives by using the data that's already available for predictive maintenance insights. And all the analysis happens at the edge, close to the asset so you receive alerts at the first sign of failure. With this information in hand, you can drive manufacturing improvements that reduce downtime and improve efficiency.

No data science required

When deploying innovative solutions in an operations environment, time to value is key. FactoryTalk Analytics GuardianAI software saves time with intuitive and streamlined workflows via a self service, browser-based experience. Just deploy the application on an edge PC, specify your drive and asset information, and train the predictive maintenance model on live plant data with no impact to operations. When the training is complete, FactoryTalk Analytics GuardianAI software will automatically switch to monitoring mode and you can oversee the condition of your plant assets.

Starting from an overview of all assets, you can select any at risk asset to learn more about its condition. You'll discover key information like root cause of the deviation, how far it peaked above baseline and deviation duration. You can also include context about the severity of the failure risk and the estimated time to resolve the issue. These details support your maintenance team with prioritization and planning required for repair.

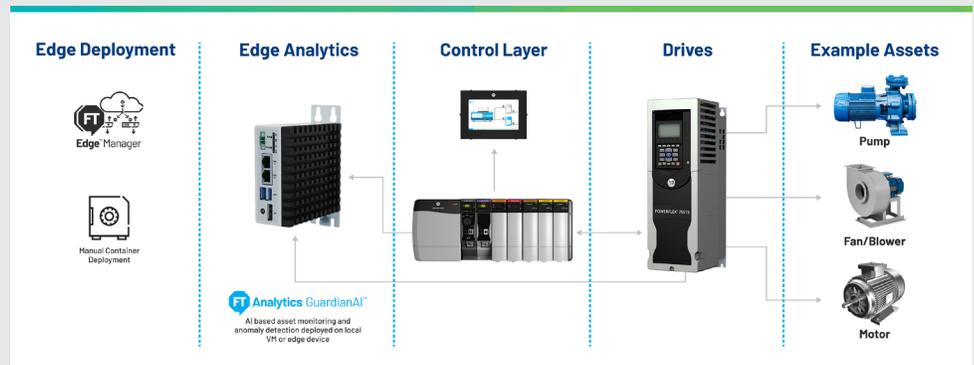## Advance from anomaly detection to anomaly identification

FactoryTalk Analytics GuardianAI software comes out-of-the box with embedded expertise about the most probable cause of failure for common plant asset types. If you're monitoring a pump, fan or blower application, FactoryTalk Analytics GuardianAI understands and recognizes the electrical signature of the associated first principle faults and will provide this context when it alerts you of a deviation. By providing maintenance engineers with information about what type of failure is about to occur, you can reduce investigation time and minimize any downtime required.

The embedded expertise provides a great start for anomaly identification. But you're not limited to the out-of the-box functionality. You also have the flexibility to train FactoryTalk Analytics GuardianAI software on process specific faults. After you investigate and identify the source of the issue, you can label the anomaly. When the same issue occurs again, FactoryTalk Analytics GuardianAI software will recognize it and notify you.

Analyze at the edge

FactoryTalk Analytics GuardianAI software is deployed, learns and runs right at the edge. As a result, it analyzes the electrical signal drive data at high speeds to alert your maintenance engineers of anomalies at the very first sign of deviation.

You can manage your FactoryTalk Analytics GuardianAI edge devices and application deployments centrally, securely and at scale with FactoryTalk Edge Manager for higher productivity and efficiency.

Edge Deployment — Edge Analytics — Control Layer — Drives — Example Assets

Edge Manager / Manual Container Deployment

FT Analytics GuardianAI
AI based asset monitoring and anomaly detection deployed on local VM or edge device

Pump / Fan/Blower / Motor

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