

THINGWORX ASSET MONITORING and UTILIZATION

ThingWorx AMU Application:

Enable manufacturers to connect existing assets, remotely monitor them in real-time, generate alerts based on abnormal conditions, and deliver critical insights with data trending and analysis tools.

AMU powers enterprises to:

- ✓ Rapidly Connect to and Catalog Assets
- ✓ Establish Parameters to Track Performance
- ✓ Quickly Identify Abnormal Data Trends
- ✓ Perform Root Cause Analysis
- ✓ Access Performance Information
- ✓ Create Configurable Asset Cards

AMU provides manufacturers and their maintenance engineering team with the ability to connect and monitor brownfield assets in real-time, generate alerts based on abnormal conditions delivered in an easy to configure application to accelerate deployment and ultimately increase uptime and availability.

The Problem

For manufacturers with asset intensive operations, asset uptime and availability are critical performance metrics, but it's often very challenging to connect to various existing assets on a shop floor and monitor asset health.

Additionally, once the connections are formed, there are additional challenges of creating real-time alerts when anomalies are detected.

The PTC Approach

Building an IoT Environment

AMU is built on top of the ThingWorx platform. ThingWorx serves as the IoT hub for AMU, allowing you to pull in data from several data sources, such as Kepware and Windchill.

Enterprise Architecture Readiness

AMU is encompassed in a larger framework of factory applications. The framework model enables you to easily and consistently roll-out to additional sites, and naturally expand your applications portfolio to include other use cases, such as Real-Time Production and Performance monitoring (RTPPM) and Connected Work Cell (CWC).

Enterprise Scale

AMU is architected to roll out quickly to multiple sites across multiple geographies, eliminating the need for a pilot project. This deployment capability gives AMU an accelerated time to value, as short as 3 months on the first implementation.

With flexible hosting options from on-premise to PTC Microsoft Azure Cloud instances, AMU can be easily deployed and expanded to match your manufacturing process. The deployment process is architected by manufacturing experts, whose experience and shop floor knowledge have made the process easily repeatable for fast implementation.

Low Cost of Entry

Subscription model removes excessive capital requirements that often hinder activating on similar manufacturing initiatives.

Reduced Total Cost of Ownership

AMU comes with a commitment to continuous updates and enhancements. AMU will be constantly improving with feedback from the field. New functionality consistently rolling out with all functional enhancements available at no additional cost.

Rapid Impact

AMU delivers noticeable improvements on a much shorter timetable by using a standardized implementation approach, furthered by flexible hosting options for rapid deployments. AMU ensures prescriptive offerings of high value, with a no-regret use case.

Realizing the Value of your investment

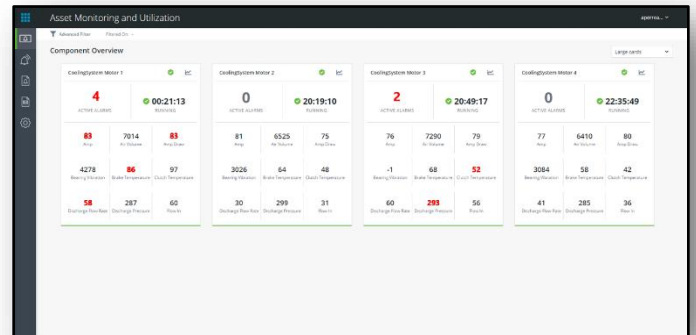
PTC offers a low risk, fast, standardized implementation process for AMU, whether on premise or in the Cloud to realize the business benefit sooner.

AMU Value

We use a **descriptive analytics approach where asset health is monitored in real-time** based on threshold values and complex event processing to identify abnormal conditions and alert people in real time.

Delivering insights that **identify underperforming assets** and foster new efficiencies for continuous improvement.

Form the basis for Predictive Maintenance, moving towards a model that will not only alert when an anomaly occurs, but accurately predict when conditions are met that will create an anomaly.



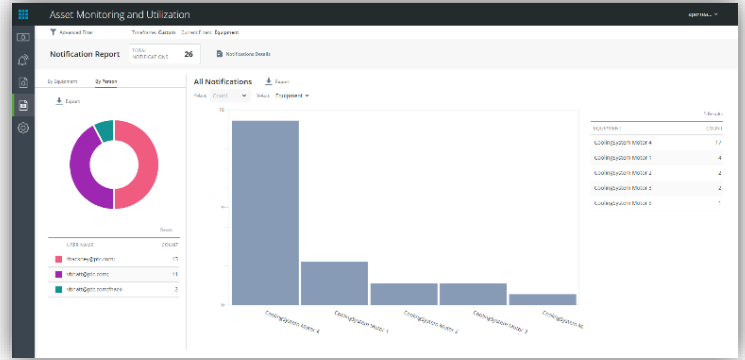
AMU Out of the Box

- Monitoring of Asset Properties through Kepware connectivity
- Connectivity to Existing Brownfield Assets
- Configurable “Asset Cards”
- Alerts based on configurable property rules and limits
- Escalation Process in case of unacknowledged alarms

DATA SHEET

- Alarm Reporting tools

- ✓ Filterable by Asset, Time, Alarm Severity
 - ✓ Categorize by Severity, Average Close Time
 - ✓ Identify which users respond to alarms
 - ✓ Export all data to raw files
- Integrations to existing enterprise systems
 - Physical Model
 - ✓ Data by Enterprise, Sites, Areas, Work Centers, Work Units, Equipment, Control Groups
 - System Administrator Displays
 - Advanced Filtering
 - Support for Ideal Rate by Product by Equipment
 - Escalation can be unique to the asset and alarm type



🔔 Acknowledge Alarm

Alarm Name
XXXXXXXXOutOfSpecification

Alarm Description
When xxxxxxxxxxx happens, this means that xxxxxxx is xxxxxxx.

Timestamp Equipment
YY-MM-DD HH:MM:SS EquipmentName

Details

Alarm is not yet acknowledged.

All Alarms

🔔 Acknowledge Alarm

Alarm Name
XXXXXXXXOutOfSpecification

Alarm Description
When xxxxxxxxxxx happens, this means that xxxxxxx is xxxxxxx.

Timestamp Equipment
YY-MM-DD HH:MM:SS EquipmentName

Details

Acknowledged by username

Acknowledged At Alarm Closed At
YY-MM-DD HH:MM:SS -

All Alarms

Technical Requirements

Software Component	Version	Provider
ThingWorx AMU	Latest available at time of contract execution	PTC
ThingWorx	8.5.7 , 9.3.1	PTC
Kepware	6.8	PTC
SQL Server	2016 or later	Microsoft

Guardrails and Technical Limitations

Category	Limitation
Number of Connected Assets	Up to 100 Assets can be connected to AMU. More than 100 can be connected, but you may notice a decrease in performance.
Number of Tags per Asset	Up to 20 tags / attributes can be monitored per asset. More than 20 can be configured, but you may notice a decrease in performance.
Number of Connected Tags	Up to 2000 total tags can be connected to AMU. More than 2000 can be connected, but you may notice a decrease in performance.
Number of Conditions per Alarm	AMU supports 1 (one) condition to be monitored per alarm.



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