


SOLUTION OVERVIEW

# PLEX ASSET PERFORMANCE MANAGEMENT (APM)



Driving Insights and  
Desired Outcomes on  
the Plant Floor

# The Future of Smart Manufacturing Is Now.




The first IoT device was created for the October '89 INTEROP conference – a toaster that could be turned on and off over the Internet.

My, how things have changed!

Today, the advent of tiny low-cost sensors and high-bandwidth wireless networks has given birth to a new era—the Industrial Internet of Things, or IIoT.

IIoT enables billions of industrial devices—everything from production machines in a factory to the engines inside an airplane—to “talk” and exchange information with other machines and systems without human intervention. This connectivity has opened the door to new opportunities for manufacturers to leverage a wealth of data to drive manufacturing excellence and manage asset health.

Some manufacturers are capitalizing on this new potential by automatically extracting data from machines on the plant floor and using it in conjunction with a manufacturing execution system (MES). This approach yields previously unheard-of levels of visibility, control, and accuracy in production, inventory, and quality processes. Using IIoT technology, Plex Asset Performance Management (APM) provides a 360-degree view of your plant floor to unlock both plant and business insights to enable data-driven decisions ... smart manufacturing at its best.



# You have symptoms. We have solutions.

You're probably thinking, "APM sounds pretty cool—but will it really help me day in and day out?" The answer is, "Heck yeah!"

If you're experiencing any of the challenges below, your operation will benefit from the Plex APM application.



## **Missed Deadlines**

Equipment failure and unplanned downtime lead to delays, missed deadlines, and plummeting customer satisfaction.

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## **Inability to Rapidly Respond to Recalls**

Product recalls are on the rise, yet many manufacturers still struggle to store and track the data necessary to react to recalls and protect their reputation.

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## **Inefficient Micro-Stops**

Major production interruptions are often easy to identify and address, but micro-stops—short, yet frequent halts in production—often escape detection and create a noticeable drag on throughput and quality.

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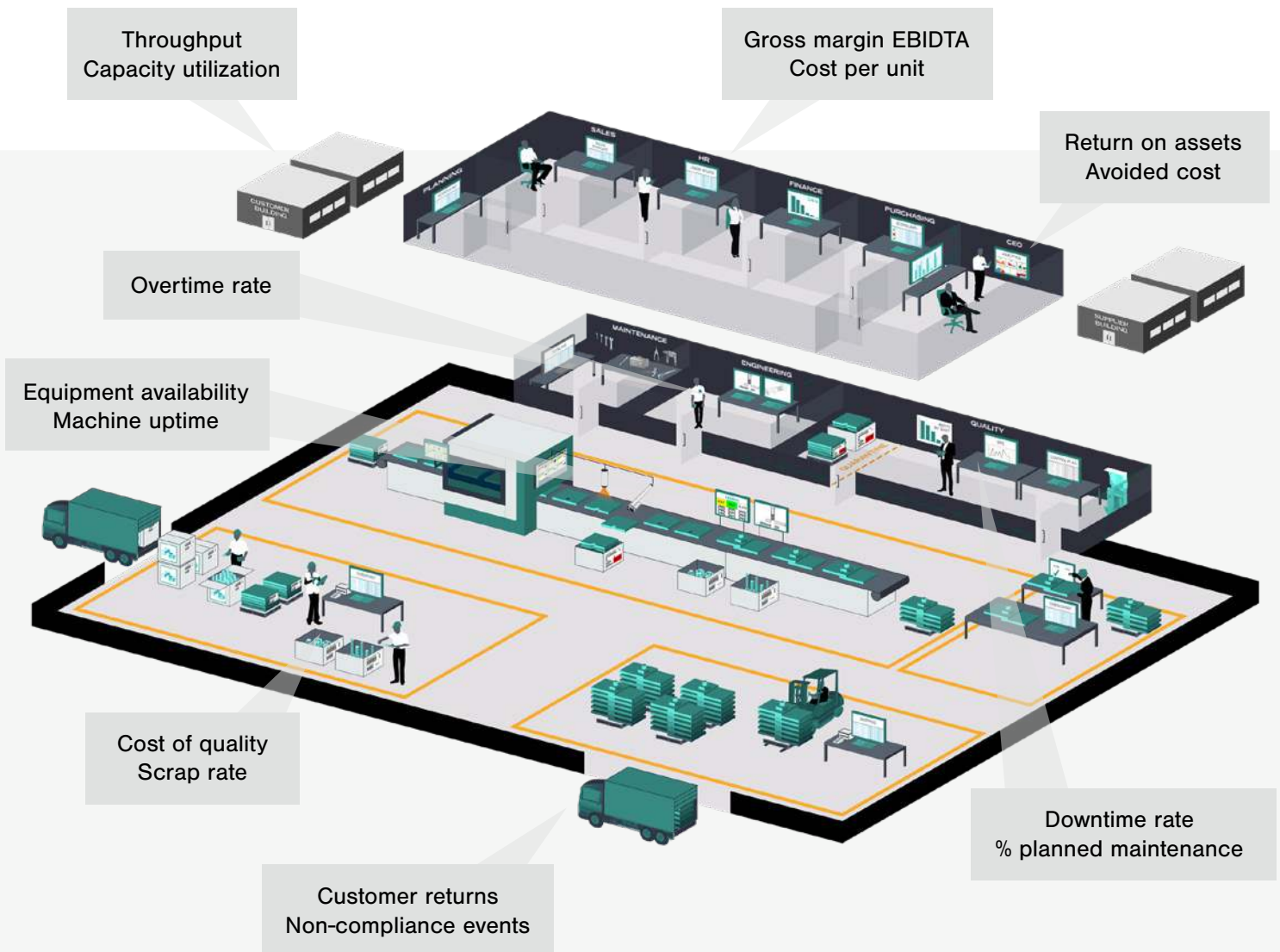


## **Costly Equipment Repairs or Replacement**

Without real-time performance data, manufacturers often wait for machines to break down—or show significant signs of malfunction—before realizing it's time to take them offline for maintenance. The result? Costly repairs and increased shipping and production costs to meet customer commitments.

**Plex APM offers today's manufacturers a new way of networking machinery together to gain a much deeper understanding of efficiencies and of potential failures, before they happen.**

# Machine health impacts every other plant floor KPI.



# Asset Performance Management Feature Set

## INTEGRATION/ CONFIGURATION

- OPC UA data ingest
- Map hundreds of OPC tags to assets
- Natively integrated with Plex MES for contextual data and work-order workflows
- APIs for external integration

## ANALYTICS

- Analytics w/ threshold rules, set-points, event pareto, timing analysis, other...
- Seamless access to historical data and trends
- Support for virtually any data type (Boolean, String, Numerical)

## TOOLS

- Pre-built dashboards – asset level, plant level, events, favorites, reports
- Pre-built reports – Pareto and timing analysis
- Notification engine with email rules and custom settings

**If your machines are not doing what they are supposed to be doing, it has a domino effect on every other aspect of your manufacturing success.**



# See it. Know it. Predict it.

Every manufacturer knows the value of implementing a good MES is to track and document its production processes. But more and more manufacturers are discovering the value of adopting solutions that enable machine connectivity and facilitate monitoring of machine conditions and output without performing physical checks. The greatest value comes when a manufacturer can combine process, operational, and machine-level data in a way that supplies context for everything happening in its manufacturing operation. With this insight in hand, the magic happens: You can discover new ways to enhance business performance.

Plex APM optimizes the performance of machines, equipment, and other assets used in production. Its number one job is to help your operation avoid production equipment failure and the cascading effect that results in unplanned downtime. With Plex APM, you'll see issues you couldn't see in the past and be able to respond to them before they occur.

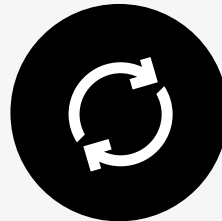
## CONNECT

Connect plant floor performance data to maximize production and operational visibility.



## AUTOMATE

Automate alerts sent to personnel who can effectively react to behavioral data that's outside of the norm.



## ANALYZE

Analyze trends and compare operational data against other KPIs to discover new opportunities for improvement.



## TRACK

Track equipment performance trends over time to predict downtime for proactive planning.



# Asset Performance Management (APM) Core Capabilities



- Connectivity to virtually any asset or data stream
- Live dashboards of facility, work cell, or asset with easy-to-understand color coding
- Real-time views of asset status (Off, In-Cycle, Idle, Problem, Other)
- Remote access to dashboards anytime, anywhere, from any device
- Historical views of logged asset statuses and event logs
- Visualizations of data over time with graphical trend lines
- Multiple data streams from machines and sensors
- Security control to restrict access to authorized users
- Contextual data insights that combine process, operational, and machine data



## Contextualized Insights

- Visualize process data from machines against operational MES data
- Improve the quality of decision making
- Isolate problems and impacted parts faster.



## Integrated Platform

- Track machine health
- Run entire maintenance workflows directly from Plex
- Works in an integrated fashion out of the box from day one

The screenshot displays the Plex Asset Dashboard interface. The main dashboard shows a grid of asset cards for various machines, including Injection Molding Machine, Heat Treat Furnace, Salt Bath Quench, Light Curtain, and Torque Tool. A callout box provides a detailed view of the 'Conveyor' asset, specifically 'Workcenter 2'. The callout shows the asset is 'Idle', currently running 'Operation 10: Assembly & Pack', and was last updated from the PMC on 26-Mar-20 at 07:57:00 PM. The last change was recorded on 28-Mar-20 at 01:00:31 AM. The callout also includes links for 'View Details', 'Event Log', and 'Asset Settings'.

## Rapid implementation

- Quick time-to-value
- Average implementation can be done in less than 20 hours
- Fully remote implementation

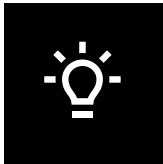
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# Plex Asset Performance Management (APM) makes awesome things possible.



## **Smarter Maintenance Management**

Run your maintenance programs around actual machine conditions by using both historical and trending data to determine the best time to schedule maintenance. Avoid the equally costly extremes of taking machines offline unnecessarily or letting them run until they break down.



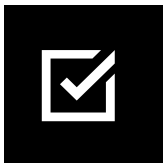
## **Less Reacting, More Proactive Problem Solving**

Collect data automatically, in real time, and eliminate slow, error-prone manual collection processes. Receive up-to-date information on machine output directly to mobile devices. Set thresholds that alert technicians to proactively intervene when problematic metrics arise.



## **Fully Informed Decisions, Earlier**

With total visibility, you can easily understand the vast amount of information your machines generate by viewing your data on intuitive dashboards. Instantly access the information that's most relevant to you, and drill down on the details you need, such as machine conditions, jobs, operators, and customers.



## **Always Recall Ready**

Rapidly trace a part in the event of a recall. By providing detailed, component-level traceability, you can trace varied part or product types through the entire production process, including raw materials, the exact day and time of production, as well as machine conditions and operations. And because Plex APM stores all production data in the cloud, you won't need to extend your IT footprint to retain it.

# We don't have to tell you Plex works. Your results will.

## **Manage Costs for a Healthier Bottom Line**

By taking a predictive approach to machine maintenance, our customers reduce machine downtime—avoiding expedited shipping costs, missed deadlines, and extra production shifts—and experience healthier bottom lines.

## **Consistently Deliver on Customer Commitments**

Losing just one customer can impact profitability. Plex APM customers readily retain their current customers as loyal purchasers by delivering quality products on time—every time.

## **Optimize Plant Performance and Throughput**

Plex APM delivers insight into the health of all machines in real time. Our customers keep their machines in top condition—avoiding bottlenecks, unplanned stoppages, and unnecessary rework.

## **Minimize Risks to Reputation**

With the ability to document part and ingredient quality thoroughly and store this data for several years, Plex APM customers are always recall ready and able to protect their reputations.

## **With Plex, You'll Get Faster Time to Value**

Plex APM was designed to be implemented quickly and easily. Our customers can go from idea to production in a matter of hours and easily add capabilities over time. Projects that may take weeks with other software providers go live and begin delivering value in days with Plex.

# Shorten the path between gathering data and taking action.

Plex APM enables you to visualize what's happening in work cells and individual assets within them. Real-time asset performance dashboards enable improved productivity and increase overall equipment effectiveness (OEE). Highly visual, historical views of assets help operators and supervisors analyze trends and implement improvements from anywhere in the world on any connected device. With Plex APM, you can dive deeper into data and perform better across all manufacturing activities.



## Production Trends

With the data you need to understand machine behavior trends over time and early notifications of imperfect machine conditions, you'll significantly reduce the likelihood of unplanned downtime.

## Machine Availability

With visibility into micro-stoppages and an understanding of who's interacting with each machine, you'll readily track and analyze causes for these interruptions and find solutions to avoid them.

## Maintenance and Compliance

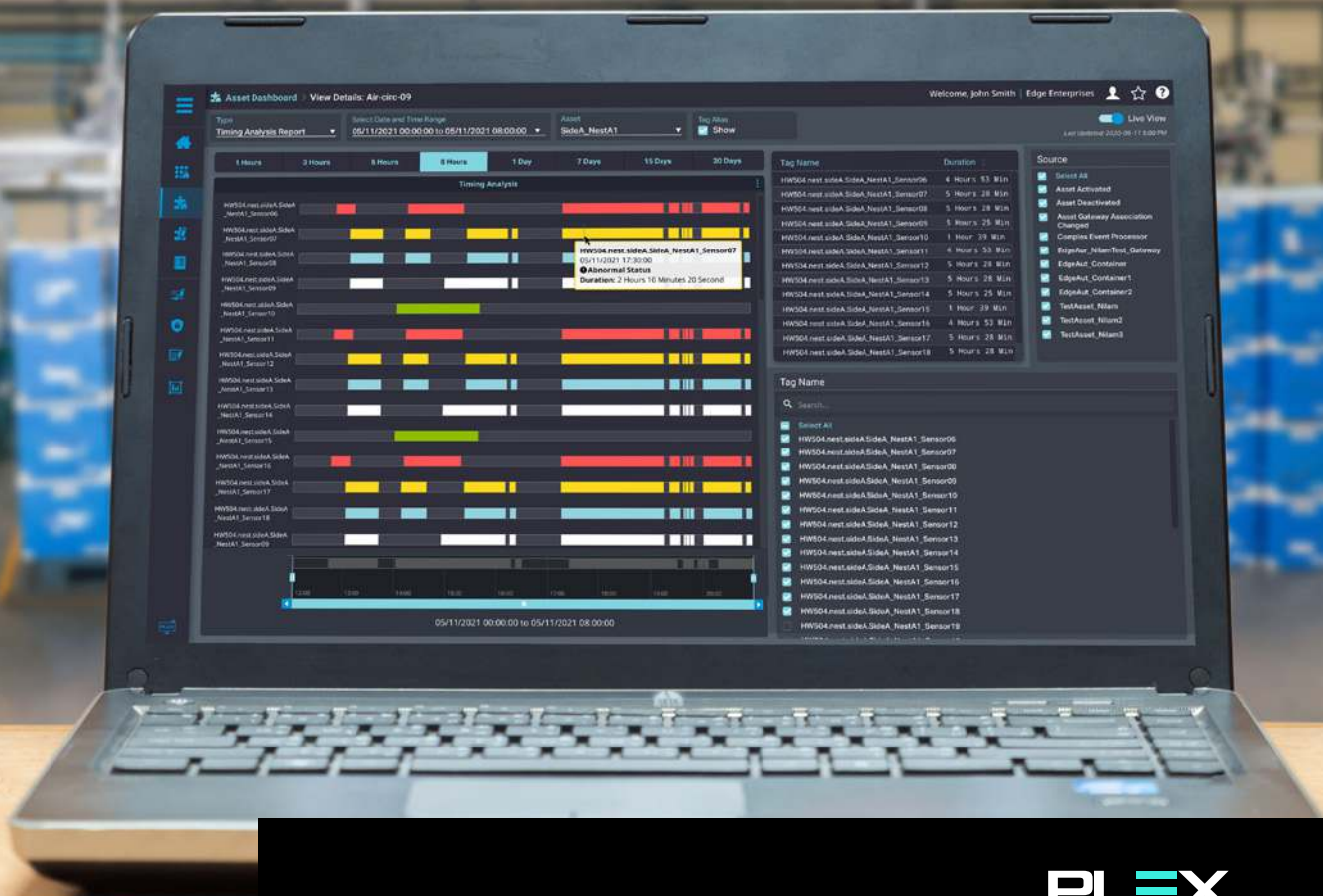
By collecting machine performance data automatically and receiving real-time notifications when pending issues arise, you'll pave the way to fewer downtime incidences, better maintenance management, fewer compliance violations, and lower costs.

## Predictive Quality

With real-time insight into production processes, you'll be alerted as soon as critical parameters drift into a "warning" zone. And if, at any time, faulty parts actually make it into the field, you'll be able to easily correlate operational data in Plex MES to process data in Plex APM in order to identify the parts.

# 6 Steps to Asset Performance Management Success

- 1. Determine your business goals.** Don't get caught up in the hype of IIoT technology; focus on the specific benefits like measuring machine health.
- 2. Define success.** Link your goals to specific metrics.
- 3. Create a plan.** You don't have to perform a "Big Bang" implementation to reap the benefits of APM.
- 4. Get organizational buy-in.** Engage the right decision makers and stakeholders to secure approval.
- 5. Implement.** Transform your factories into connected plants.
- 6. Rinse and repeat.** Think of IIoT technology implementations as part of a company-wide digital transformation, not a one-off project.



# Future proof your business with the Plex Smart Manufacturing Platform.

The Plex Smart Manufacturing Platform was born on the plant floor and is purpose built for smarter manufacturing—today and tomorrow.

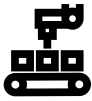
In a single digital system of record and engagement, Plex makes it possible for manufacturers to reach new levels of visibility, quality, and control throughout their operation.





## The Plex Smart Manufacturing Platform Applications

With the Plex Smart Manufacturing Platform you've got options that range from stand-alone MES to a fully integrated, end-to-end solution that will power your entire enterprise.



**Plex Manufacturing Execution Suite (MES)** is a comprehensive manufacturing software solution that provides real-time, paperless production management to drive enterprise-wide compliance, quality, and efficiency.



**Plex Enterprise Resource Planning (ERP)** is a full-featured, scalable, cloud-based ERP that automates front- and back-office processes.



**Plex Quality Management System (QMS)** is a cloud-based digital quality solution for manufacturers that standardizes and automates quality documentation, processes, and measurements.



**Plex DemandCaster Supply Chain Planning (SCP)** combines data from multiple departments across your business to sync up demand and supply forecasting to improve inventory accuracy and production management.



**Plex Production Monitoring** provides seamless connectivity to machines on the plant floor, delivering transparent, real-time operational KPIs and dashboards to drive continuous improvements.



**Plex MES Automation & Orchestration** connects your Plex MES to the plant edge to control information flow, processes, and workcenter setup adding efficiency, saving costs, and eliminating manual errors.



**Plex Asset Performance Management (APM)** combines process, operational, and machine-level data through highly visual dashboards to proactively monitor machine and plant health to ensure optimal uptime, throughput, and maintenance needs.

# UNLOCK A NEW LEVEL OF VISIBILITY ...

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