



How Real Users Benefited from Effective Asset Management
Improving Performance Across the Lifecycle of a Facility

AMS





Dupont Saves 20 Days During Commissioning

Chemical manufacturer (North America)

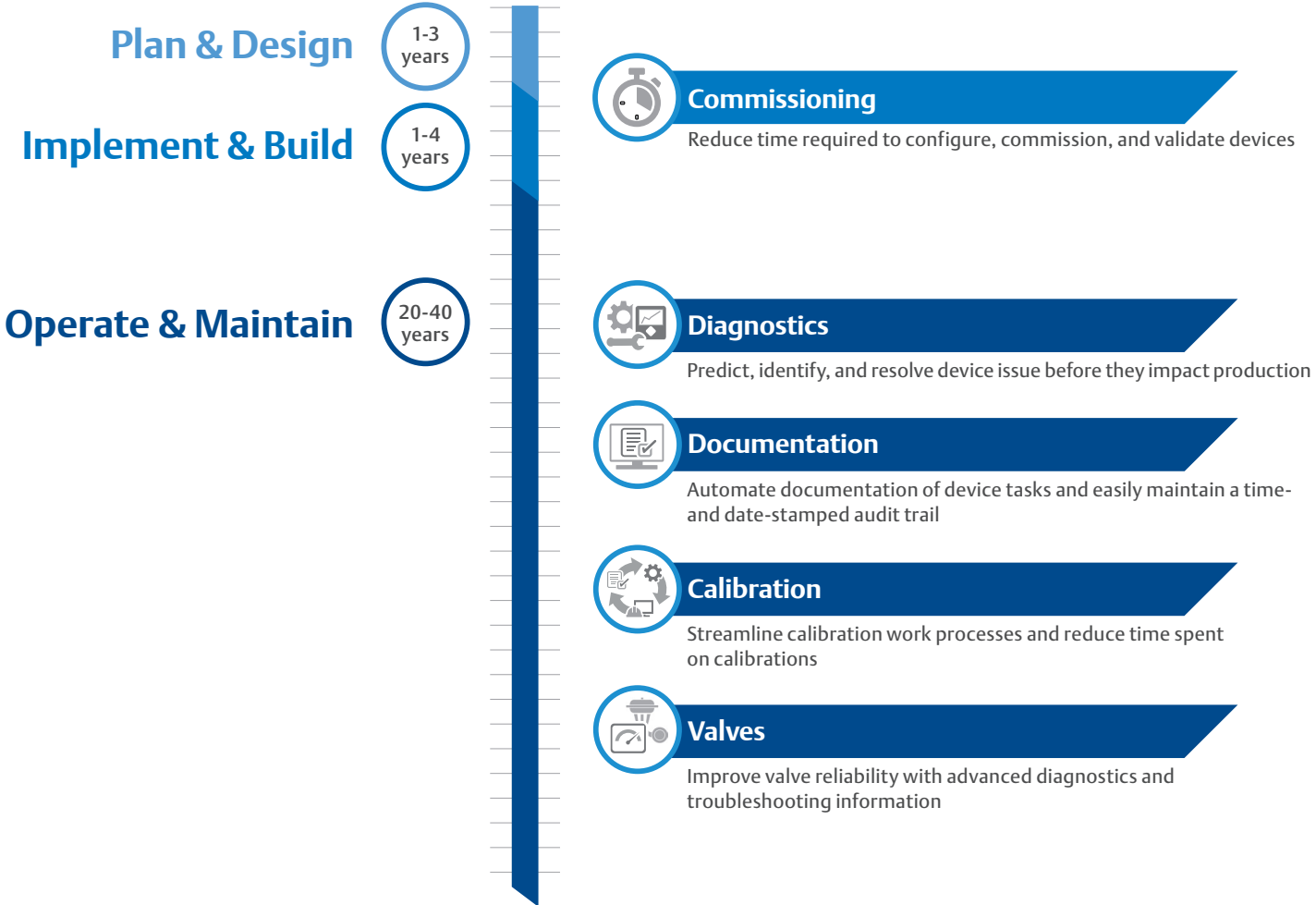
Across the globe, top quartile organizations are recognizing that digital transformation is critical to maximizing business results. By integrating work processes through improved asset management, organizations experience increased collaboration and faster workflow—enabling personnel to be more effective.

Emerson’s AMS Device Manager has a proven track record of delivering results across the lifecycle of a facility. From start up and commissioning to turnarounds and outages to daily operation, AMS Device Manager users have benefited from decision support through proactive and predictive diagnostics, resulting in millions of dollars in savings.

The value of effective asset management resonates through multiple areas of an organization. Often, users experience multi-faceted benefits from a single installation.



Commissioning



During two expansion projects at Dupont, technicians used AMS Device Manager to perform calibration checks, function checks, and loop checks. Warren Way, Control Systems Engineer at Dupont, said, “By a conservative estimate, we saved 20 days of technician time. Because this software communicates direction with each device in the field, our rigid loop checkout and interlock validation requirements could be satisfied without technicians having to physically locate some 250 newly installed transmitters, attach test instruments, and implement established test procedures.”

Efficient Loop Checkout

Instead of sending technicians out to the field, all field transmitters could be polled in sequence from the control. The integrity of each loop was confirmed in minutes – with just a single person. By eliminating the need to send a technician to the field to find and open each device, use a handheld to force outputs, and communicate with another technician in the control room, Dupont reduced their loop checkout process from 700 hours to 100 hours.

Simulated Interlock Validation

Technicians could confirm that safety interlocks were working properly while the process was in simulation mode. The technician systematically manipulated the output of each transmitter to exceed process conditions and then watched for the plant to respond. This process took place in the control room, alongside the control console, making the validation more efficient. Dupont estimated that they were able to start up 10 days sooner than they would have with traditional validation methods.

“We expect to reduce commissioning time and loop testing for Foundation fieldbus devices by 10,000-20,000 man-hours.”

- Shell

Lonza Experiences 2x ROI with Predictive Maintenance

Chemical manufacturer (Europe)



Commissioning



Documentation



Diagnostics



Synthomer Improves Batch Repeatability and Quality

Chemical manufacturer (Asia)



Commissioning



Diagnostics



During the modernization of their DeltaV distributed control system, Lonza also implemented AMS Device Manager to support their predictive maintenance goals. Because of the seamless integration with the DeltaV system, technicians quickly experienced a return on initial investment.

Faster Commissioning

As part of the site modernization, Lonza was installing 1,400 new devices in the facility. Using AMS Device Manager, Head of Automation Herman Hutter describes the savings, “If you consider that it [AMS Device Manager] saves one hour for each instrument, and the cost of an instrument technician is \$70 per hour, then the total savings in commissioning 1,400 instruments is an astounding \$98,000.” Lonza technicians were also pleased that they could set up the instruments remotely while achieving improved configuration accuracy and better documentation.

Ongoing Operational Benefits

During operation, Lonza continued to experience maintenance efficiencies through the predictive diagnostics in AMS Device Manager. Technicians commented on the user-friendly interface and the ease to identify relevant information for decision-making. With the Audit Trail feature, technicians were confident that their documentation was accurate and easy to access.

Due to a highly-competitive market, Synthomer (part of Yale Catto & Co plc) needed to implement a completely automated process optimization solution to help them meet market demands and ensure the consistency and accuracy of their batches.

Faster Commissioning

During implementation, Synthomer planned for 30 days to commission, loop test, and water test their new Foundation fieldbus devices. Using AMS Device Manager, all necessary work was completed in 8 days. Adrian Moody, Process Technology Manager at Synthomer, described the commissioning process as “extremely successful” and noted that even with the dramatic decrease in start up time, “the first batch was within specification.”

Improved Consistency and Quality

Using the DeltaV digital control system and AMS Device Manager together allowed Synthomer to reduce dead-time between recharging the reactor and enabled faster recipe-switching between products. Product quality improved through better batch-to-batch repeatability and reactor-to-reactor reproducibility. Non-conforming batches were reduced by 40% and the number of aborted batches was cut in half.

“Troubleshooting time has been cut by about 75 percent just by viewing the diagnostics from these smart devices. Everything is right there in front of you.”
- Nu-West Industries

“The ease with which potential instrument faults could be diagnosed took two weeks off the overall field instrumentation commissioning time.”
- INEOS Chlor

Petrobras Gains \$1.5M Annually Through Improved Reliability

Chemical manufacturer (South America)



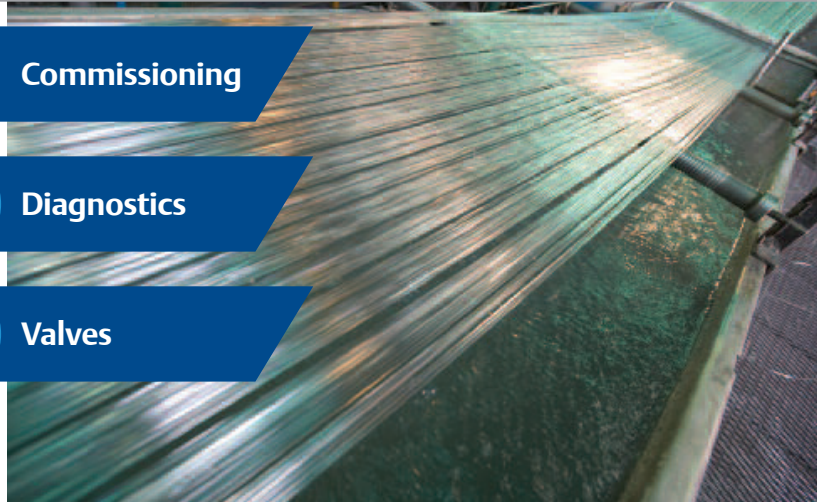
Commissioning



Diagnostics



Valves



Petrobras Zarate had seen productivity gains through automation of specific plant units. However, they still relied heavily on preventive maintenance, most often reacting to emergencies to keep the plant operational. They wanted a better maintenance strategy to take advantage of field-generated predictive diagnostics.

Greater Profitability

Using the predictive diagnostics in AMS Device Manager, Petrobras was able to achieve greater profitability. With more reliable devices and fewer reactive emergencies, production increased almost seven percent – or \$32,000 per week. In the first year, that amounted to an added income of \$1.5 million with no unexpected stoppages.

Extended Maintenance Intervals

Operators and production supervisors used the rich diagnostics to examine the overall condition of instruments and valves in ways they couldn't before. The diagnostics enable them to determine the best time to perform maintenance and help to eliminate unnecessary maintenance efforts. This helped reduce maintenance costs by more than 10%. Using predictive diagnostics, technicians were able to confidently extend the scheduled maintenance on several critical control valves to 2.5 year intervals, saving substantial costs and maximizing production.

“Management could not have imagined the importance of switching to digital automation and using diagnostics to increase reliability and productivity in this plant.” - Petrobras

Appleton Reduces Documentation Man-Hours by 50%

Paper manufacturer (North America)

Diagnostics



Calibration



Documentation



When upgrading a large paper coating machine, Appleton officials wanted to implement predictive diagnostics to better manage the machine's field instrumentation. The ultimate goals were improved reliability of the machine and more reliable documentation to support the company's ISO 14001 certification.

Proactive Maintenance

With AMS Device Manager, Appleton can collect, process, and store diagnostic information from their field devices. In addition to the device database and automatic documentation, AMS Device Manager alerts technicians when there is an issue, enabling them to practice predictive maintenance to reduce costs. According to Chris Van Sambeek, control systems technician, “the AMS Device Manager alerts are configured so that we are the first to know if there is an issue in the plant ... and we often fix them before anyone else knows.”

Easier Calibration and Documentation

Appleton also uses the AMS Device Manager database to store their calibration and configuration data. By using the online software, Appleton estimates that they save at least 15 minutes on every instrument calibration in the plant – with 3,000 instruments that are calibrated every six months. That amounts to an annual saving of 1,500 technician man-hours – just on calibration. Van Sambeek adds that “perhaps, even more important, documentation is automatic and error-free, which is essential for us to maintain our ISO certification.” By using the AMS Device Manager Audit Trail to document maintenance, Appleton has reduced their documentation efforts by over 50%.

“If you have the latest instrument technology and AMS Device Manager to monitor them, you don't even need preventive maintenance – or you can push it out from four to seven years.”

-Lyondell

Eli Lilly Improves Reliability with Predictive Maintenance

Pharmaceuticals manufacturer (Europe)



Calibration



Valves



Preventive maintenance was proving costly for one of Eli Lilly's biotech production facilities. More than 80% of calibration checks found the instruments to be within acceptable tolerance levels. And worse yet, 75% of control valves removed for full overhaul during shutdowns needed no maintenance at all. During a plant expansion, Eli Lilly wanted to implement an asset management program to improve instrument and valve reliability and reduce time-based maintenance.

Simplified Calibration

Almost immediately, maintenance managers noticed a reduction in time required for instrument calibration. Paperwork was simplified and fewer calibrations were required, resulting in a savings of more than 2,000 man-hour in the first year. Eli Lilly also estimated a reduction in instrument maintenance of about 405 percent, as well as savings from the elimination of documentation and transposition errors.

Reduced Valve Maintenance

Applying predictive maintenance to control valves was economically beneficial. By utilizing valve diagnostics in AMS Device Manager and pulling valves only when maintenance was needed, Eli Lilly was able to reduce the number of control valves removed each year from 28 to 7. The amount of time needed for an annual shutdown was cut in half, increasing plant availability and allowing for additional production batches.

"We saved 2,000 maintenance man-hours by streamlining instrument calibrations using AMS Device Manager." - Eli Lilly

We Energies Improves Control Valve Reliability

Power manufacturer (North America)

Diagnostics



Valves



We Energies needed to improve the reliability of their operation as loss of steam generating capabilities would leave much of the metropolitan area they supported without heat. The maintenance team was challenged by the age and condition of equipment in the plant, and control valves from a variety of manufacturers needed to perform despite chronic operating and maintenance problems.

Early Identification of Issues

We Energies implemented AMS Device Manager to give technicians a consolidated view of smart digital valve controllers (DVCs) from a single location. This view eliminated the need for personnel to physically go to six different locations to check out valves. This not only saved time, but was also instrumental in identifying problems earlier on those important valves.

Reduced Steam Loss

Plant personnel suspected that the sootblower system control valves were leaking steam. Using diagnostics from the DVCs mounted near each valve, technicians identified leaks that were losing as much as \$250,000 worth of steam each year. We Energies was able to eliminate the issue by replacing the valves and continuing to monitor the sootblower system.

"AMS Device Manager has dramatically reduced the time required to identify and rectify a wide range of faults. Efficiencies have improved and unplanned shutdowns have been reduced by 10%."

-Akzo Nobel

Chevron Improves Performance and Avoids Unnecessary Maintenance

Refining manufacturer (Europe)

 Diagnostics

 Valves



Step-by-step valve troubleshooting procedures for a Chevron refinery were burdensome and time-consuming. Once procedure could consume up to 10 hours from as many as eight individuals before a repair or replace decision was made. With an average to two such investigations occurring weekly, the annual cost for valve troubleshooting was high.

Continuous Valve Monitoring

Chevron's 100+ DVCs are continuously monitored using AMS Device Manager by the reliability analyst. Any operational change in one of these valves is sensed instantly and a device alert indicates where limits have been exceeded. The reliability analyst can interrogate the valves from his office – and the time required to troubleshoot the valve ranges from 20 minutes to 3 hours. Troubleshooting costs have dropped 80% using the online software and new process.

Eliminated Unnecessary Valve Repair

AMS Device Manager also helps technicians know when it is necessary to pull a valve or when repairs can be done inline. In the first year of the program, Chevron was able to fix 30 valves directly in the field that they previously would have pulled from service. They also have the confidence in their valve diagnostics to use a valve salvage program, resulting in an estimated savings of \$100,000 annually by reusing valves instead of buying new ones.

“We’ve eliminated 21,000 sheets of paper per year. And we streamlined our end-to-end workflow, which reduced our calibration time by about 15 minutes per calibration.”

-GlaxoSmithKline

TPC Improves Overall Reliability and Uptime

Chemical manufacturer (North America)

 Diagnostics

 Valves



Monthly field checks were not catching all of the valve problems that TPC Group wanted to remedy. Because the checks were short and intermittent, small problems could occasionally slip through the cracks. The company had a mechanical integrity program to protect the most critical control valves, but the reliability team wanted to make sure that even the smallest problems were detected and remedied before they could become serious issues.

New Approach to Reliability

By using AMS Device Manager and the AMS ValveLink SNAP-ON application, TPC changed their approach to reliability. The team set up remote clients on their anti-surge valves, eliminating the need to pull the valves into the shop as part of a scheduled maintenance process. This change allowed the team to eliminate a \$100,000 maintenance program and quickly discover poor performing valves. TPC Group also maintains a baseline of all their installed valves to use when diagnosing problems in the field. The baseline gives technicians the information they need to expedite device management in the field.

Insight into Valve Condition

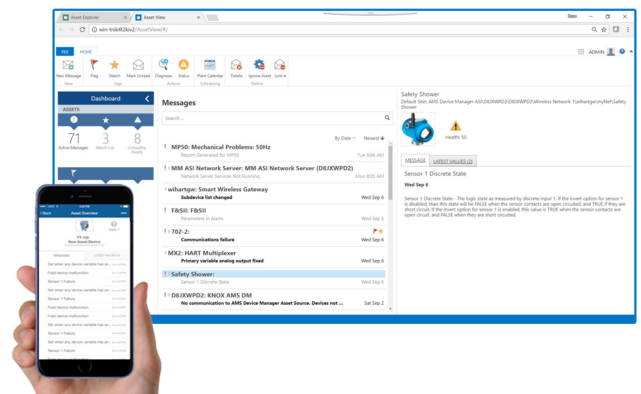
Almost immediately after AMS Device Manager was brought online, it flagged a program with a bypass control on a blower – that was stuck open at 52 percent. The valve had been operating with this misconfiguration for six weeks, costing the company tens of thousands of dollars. Once the problem was identified, it was a simple fix.



Connect IIoT and Reliability

Plantweb Optics collaboration software communicates asset health across the enterprise, combining data from multiple applications into asset-centric information. Plantweb Optics delivers persona-based alerts and KPIs for improving the reliability of your rotating equipment, instruments and valves.

Learn more at www.emerson.com/PlantwebOptics



Emerson
North America, Latin America:

+1 800 833 8314 or
+1 512 832 3774

Asia Pacific:
+65 6777 8211

Europe, Middle East:
+41 41 768 6111

www.emerson.com/ams

©2018, Emerson. All rights reserved.

The Emerson logo is a trademark and service mark of Emerson Electric Co. The AMS logo is a mark of one of the Emerson family of companies. All other marks are the property of their respective owners.

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available on request. We reserve the right to modify or improve the designs or specifications of our products at any time without notice.

AMS

