Predict-It Pathway

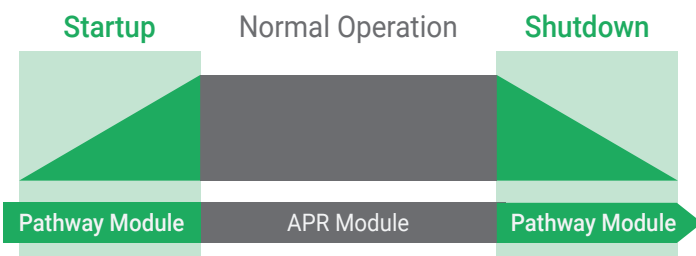## Anomaly Detection for equipment start-up and shutdown analysis

Part of the **ECG Asset Monitoring Suite**

For more than a decade, OSIsoft PI System® customers have been using ECG's Predict-It to successfully monitor and manage the health of their critical process equipment during normal operation.

Predict-It's new Pathway module expands upon Predict-It's earlier success by using new techniques that enable PI System users to monitor their most vulnerable stages of operation: transient processes, such as asset start-ups, shutdowns, or any processes with defined start and end parameters.

Startup	Normal Operation	Shutdown
Pathway Module	APR Module	Pathway Module

The Pathway module expands upon the functionality of Predict-It's Advanced Pattern Recognition (APR) steady-state Anomaly Detection module by adding equipment-monitoring capabilities to complex startup, shutdown, and other repetitive transient-state processes.

Predict-It Pathway identifies each instance of a start-up or shutdown, compares current performance data with historical operation, and alerts operations teams to any detected anomalies—i.e., readings that are outside of expected ranges. These alerts enable your team to identify developing equipment issues early, take corrective actions, and fix problems efficiently via planned mainte-nance. Pathway is asset and process agnostic and can be adopted in any type of generating environment, including combined cycle, Rankin cycle, and renewable energy production environments.

What can you do with Pathway?

Find equipment issues during start-ups and shutdowns.

1. Quickly identify equipment issues and interactions of process variables.

2. Review, plot, and explore data interac-tively to identify standard operation.

3. Examine relationships among variables.

4. Drill down on individual data points to reveal underlying contributions.

5. Investigate and analyze probable cause of developing issues.

Reduce your engineering workload from start to finish.

Pathway alarms feed into Predict-It's Diagnostic Reasoner, identify probable causes of faults and accelerate resolution.

Document and track equipment issues, and manage all actions taken by the plant team with Predict-It Case Management.
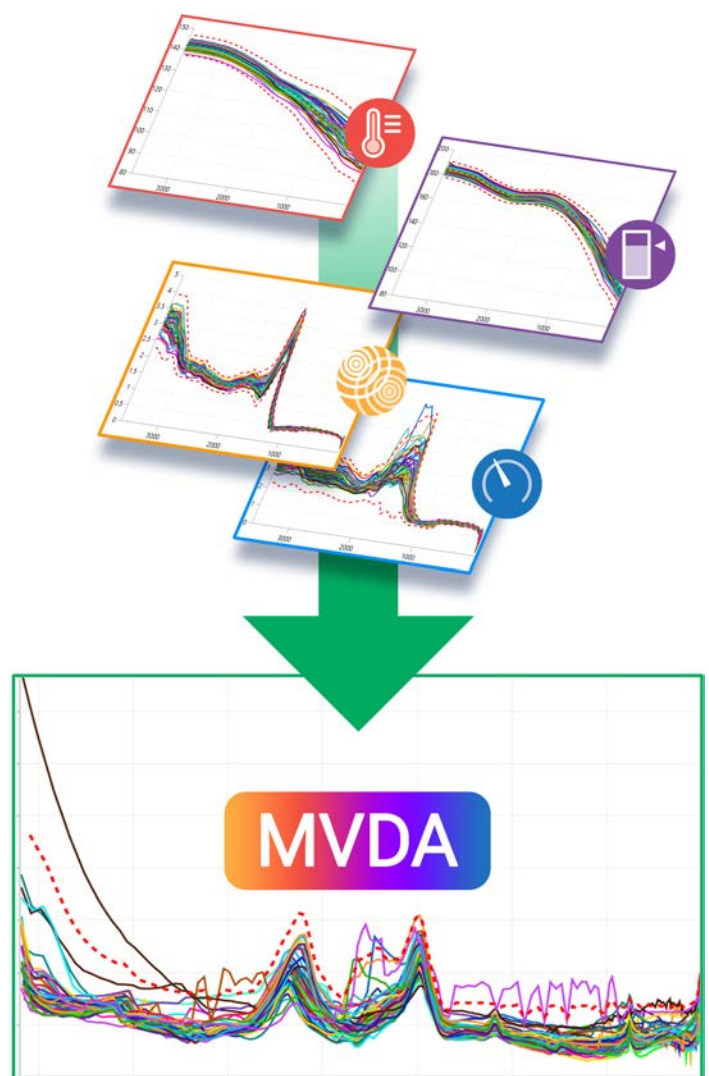
How is Pathway's Equipment Analysis Different?

Pathway lets customers automate finding and evaluating equipment start up and shutdown processes and dramatically reduce the manhours and effort associated with exception-based analysis. For each transient process, Pathway uses univariant analytics to study each key variable's historical data and condenses all the variables' data into one Multivariate Data Analysis (MVDA) model. The model inte-grates expected changes with a maturity variable, such as time or speed, analyzes the variables simultaneously, compares actual with expected performance, flagging deviations on an exception basis—enabling quick and easy interpretation and interrogation of large datasets.

Each of the flagged issues can then be clicked on to drill down and identify the specific variable/s that are irregular, thus permitting efficient troubleshooting.

Challenged to maximize profitability with tight operating budgets?

Industrial asset owners are under mounting pressure to make their operations nimble, cost predictable and reliable. To tackle this challenge, advanced Condition Based Maintenance programs are being adopted to handle a new wave of available, real-time instrumentation data. Advanced CBM allows operators to actively preserve equipment integrity at the lowest operating cost.

For a given piece of critical equipment, Pathway uses univariant analytics to understand the history of each critical variable over a maturity timeline and condenses all variables into one Multivariate Data Analysis (MVDA) model, allowing for quick and easy identification of anomalies via triggered alarms.

What Pathway can do for you

Identify

- Identify impending problems during increased-risk and vulnerable processes, like startups and shutdowns.

- Distinguish between normal or optimal batch processes, vs. abnormal or sub-optimal batches.

- Focus on fixing problems, not looking for them in large, complicated sets of start-ups or shutdown data.

Monitor

- Monitor any industrial process with a defined start and end to the process. Pathway is process-agnostic.

- Stabilize and improve complex batch production processes

- Prevent Batch fouling or diminished product quality through advanced Condition Based Maintenance (CBM).

Reduce Costs

- Lower maintenance costs through early repairs of developing issues (planned maintenance vs. emergent unplanned maintenance.)

- Reduce the risks of expensive unplanned downtime and lost revenue.

- Lessen the monitoring burden on lean workforces and operate with increased confidence.

Schedule a demo today
Let us show you how our software can help

Visit **www.ecg-inc.com/letstalk**

Engineering Consultants Group, Inc.

3394 West Market Street, Fairlawn, OH 44333 USA

TEL   +1 330.869.9949

EMAIL   sales@ecg-inc.com

WEB   www.ecg-inc.com