Overview

Paper Machine (PM) Drives Performance is a digital service that captures and continuously updates performance indices to provide maintenance and production teams with up-to-date drive performance status, advanced warnings on potential failures and predictive root cause insights. Runnability and quality improve with better coordinated drive control performance while availability increases through predictive monitoring.

PM Drives Performance is the only drives monitoring performance service that creates a digital twin of your system drive controls by utilizing critical system data (captured down to the millisecond) in an advanced calculation engine to model and evaluate the control performance. The digital twin can be used to assess the number of deviations/errors impacting performance and define what the limits should be to form predictive alerts.

With better root cause analysis (i.e. knowing if the drive is causing the sheet break or deviation, or vice versa), mills can focus attention where it is most critical, resulting in improved runnability and high drive reliability.

Features

- Advanced analytics with ABB’s proprietary data analysis tools
- Online monitoring of control performance for web tension, speed control, draw and load sharing
- Sheet break analytics related to drive performance
- Drive health status
- Alarm and event log analytics
- Predictive maintenance alerts
- Operator-friendly interface with configurable diagnostic displays
- Industry-proven remote connectivity for expert support and monitoring

Mills achieving superior drive control and high availability can significantly reduce sheet breaks and improve machine runnability. ABB Paper Machine Drives Performance provides millisecond monitoring with continuous analytics to create predictive alerts on paper machine runnability and drive system control performance for a precise understanding of drives’ health and culpability. Mills can then optimize control and leverage predictive maintenance practices to increase availability, quality and throughput.
Overview dashboard provides a summary of drives performance, production, web breaks and quality. Users can navigate to the corresponding dashboards for detailed information on these performance indicators.

After installation of PM Drives Performance, the service follows ABB’s proven three-step diagnose, implement, and sustain service methodology. First, a diagnostic assessment of the paper machine system drives health and performance is completed, followed by implementation of data-based prioritized improvement actions to close the gap between results and baseline performance as a collaborative effort between customer and ABB’s experts. The performance is sustained with continuous control performance monitoring. An online dashboard available both on site and remotely provides real-time status and analysis, including automatic notifications for predictive maintenance and control optimization.

Benefits

- Improves paper machine runnability, reliability of drives, and paper quality
- Facilitates faster troubleshooting and more informed asset decisions
- Reduces number of sheet breaks
- Lowers maintenance costs
- Enables predictive maintenance actions
- Increases availability and utilization by avoiding unscheduled downtime due to drive failure

How it works

After installation of PM Drives Performance, the service follows ABB’s proven three-step diagnose, implement, and sustain service methodology. First, a diagnostic assessment of the paper machine system drives health and performance is completed, followed by implementation of data-based prioritized improvement actions to close the gap between results and baseline performance as a collaborative effort between customer and ABB’s experts. The performance is sustained with continuous control performance monitoring. An online dashboard available both on site and remotely provides real-time status and analysis, including automatic notifications for predictive maintenance and control optimization.

Key Performance Indicators

Online Key Performance Indicators (KPIs) and detailed analytics provide information needed to proactively optimize paper machine runnability, paper quality and drives availability while also baselining historical paper machine data for root cause analysis. KPIs include:
- **Drives control performance**: Speed, tension, draw and load share, as well as sheet break details
- **Productivity**: Production, OEE, unplanned downtime, and average running speed and time
- **Availability**: Drive current, drive voltage, drive loading, drive temperatures and start/ stops
- **Alarms and events**: Drive alarms and faults, drive events, and top 10 issues
Digital platform
Pulp and paper companies are looking to digital solutions for new ways to automate and optimize their mills. ABB Ability™ is a unified, digital platform that extends from device to edge to cloud. It securely collects data from devices at mills, applies advanced analytics, generates actionable insights and provides advanced automation for customer operations at all levels of the enterprise.

Delivery method
Collaborative Operations, an ABB Ability™ offering, connects services that leverage the availability and transparency of data from the Ability platform into a data ecosystem. By connecting ABB and customer experts to actionable data, advanced analytics tools and predictive monitoring in a collaborative environment, advanced automation solutions can be implemented and optimized. Problems can also be quickly diagnosed, and corrective actions implemented, with continuous improvement efforts prioritized.

Digital services available for delivery under this model, such as Paper Machine Drives Performance, focus on maximizing equipment and process performance and can be used to help maintain the process variables within allowable limits of their targets, which are reviewed by ABB experts.

Our ABB Ability™ solutions enable mills to know more, do more, do better, together.

Requirements
- 24/7 Internet connectivity
- PMC800 5.0 and above control system