PRODUCTION ACCOUNTING AND RECONCILIATION

PRODUCT INFORMATION NOTE

Production Reconciliation with Confidence

Production data reconciliation is one of the most time and resource consuming business processes within oil and gas production, gas processing, petroleum refining and mineral processing.

Production reconciliation is often considered to be a complex and cumbersome process – a view reinforced by industry trends, such as:

- Increasingly complex production processes
- Pressure to make better decisions faster
- Rapid workforce churn
- Information silos, with most information contained in spreadsheets
- Support for legacy applications that have not kept pace with IT policies

Symphonite Production Accounting and Reconciliation (PAR) is built on a modern technology platform. Its intuitive design makes it easy to implement and use, while Honeywell's global support network ensures that its benefits can be realized faster and sustained longer.
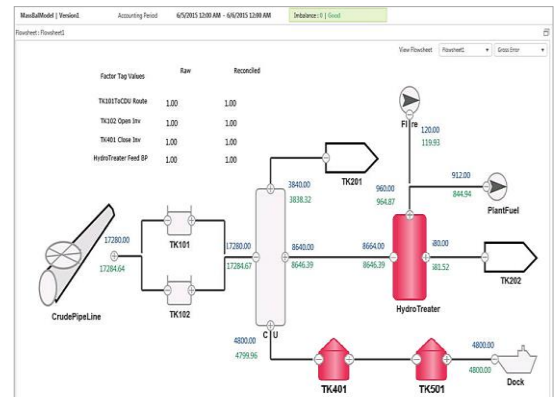
Over the past 20 years, Honeywell has been at the forefront of providing production accounting solutions to global customers in the refining, petrochemical, mineral processing, upstream oil and gas and chemicals industries.

Symphonite Production Accounting and Reconciliation (PAR) is the result of years of understanding user needs. PAR delivers an intuitive user experience and improved productivity, leading to efficient business results.

FEATURES & BENEFITS

Reduced losses – Up to 1% of throughput with efficient loss detection and early mitigation of custody transfer meter bias.

Support information transparency, auditability and availability – with improved compliance to reporting and reconciliation standards, such as the AMIRA P754 Metal Accounting Reconciliation Code of Practice and Sarbanes-Oxley.

Improved decision making capability – Up to 5% margin improvement through better tracking of plan versus actual, correction of planning yields, improved purchase decisions and maintaining optimum inventory levels.

Proactive meter maintenance – by uncovering bad or deteriorating meters.
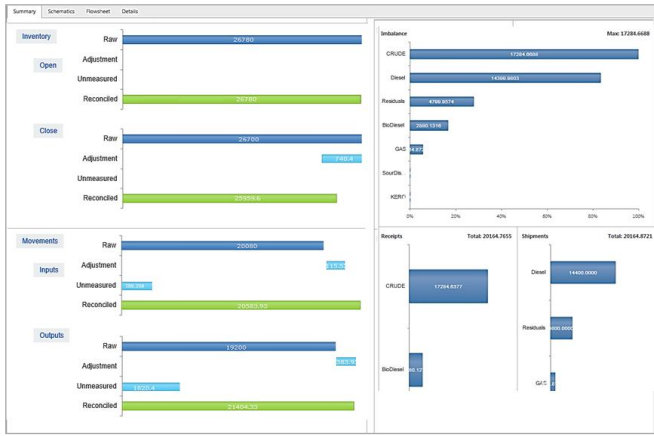
Clear insights using metrics, trends and schematics
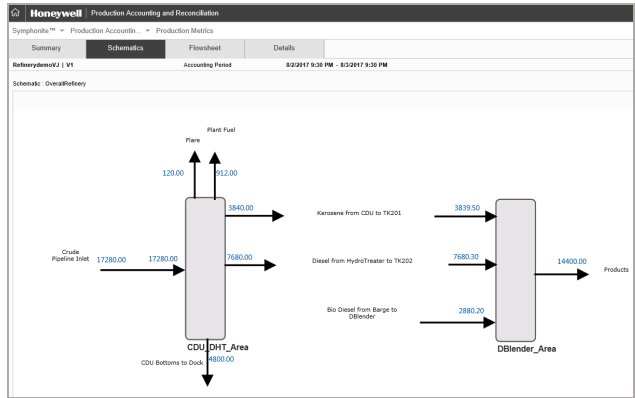
Configurable schematics to view key process information

Ease of Use

Symphonite PAR has been designed to ensure that analysts make the right decisions to close period balances faster.

To achieve this, PAR provides metrics, trends, and schematics that give users perspective of the overall imbalance in terms of accounting period shipments, receipts, and inventory gain and losses shown by equipment or material.

Intelligent data validation ensures that users can initiate the reconciliation process using accurate raw data. For example, the data validation process identifies meters with out-of-range measurements.

Simple Balance functionality draws the accountant's attention to equipment where the sum of the inputs differs significantly from the sum of the outputs, indicating either a missed movement or a bad measurement. It is important to solve problems like these early in the data reconciliation workflow.

The powerful Statistical Data Reconciliation (SDR) engine reveals gross errors in the system and presents them in a context-sensitive issue log. This provides analysts with a platform to eliminate gross measurement errors and improve balance quality, uncovering plant issues such as bad meters, incorrect measurements and missing movements.

Capitalizing on the speed of the SDR algorithm, users can review, modify and accept changes, and balance calculations in minutes. The balancing capability enables analysts to quickly run tests to determine changes that will improve the balance.

The HTML5-based user interface and graphical flow sheet creates a visual accounting environment for users to work in. The accounting model can be split into different graphical flow sheets according to user-specified logical areas to facilitate model interaction.

Unlike the rule-based engine, which can be unwieldy for larger configurations, the SDR engine is a true statistical solver and executes industry-proven statistical tests to pinpoint gross errors.

Together with PAR's integrated graphical workflow environment, users are guided through each step of the reconciliation process to close balances faster and more accurately.
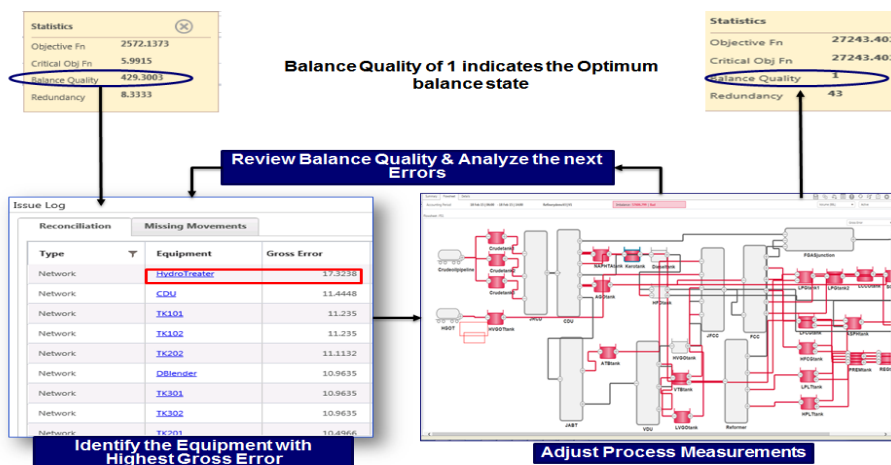
Integrated graphical workflow to help close balances faster

Several usability enablers are provided for faster analysis to facilitate the balance process. These include:

- Context-based navigation from issue log to the detailed flowsheet and from flowsheet to detail pages

- Node highlighting (with configurable sensitivity) where balance issues exist

- View of raw and reconciled historical trends

- Native case re-processing, and model/balance specific settings for metrics and charts.

PAR identifies the statistically-best adjustments to measurements -- flow values, density, inventory, and movements -- based on instrument accuracy, and provides an unbiased statistical method to estimate unmeasured streams.

To verify data before the reconciliation results are published to financial systems, Symphonite PAR provides a structured review and approval workflow integrated into the balance process. Email notifications are automatically sent to designated approvers to review and approve the accounting data.

From a compliance and review perspective, approvers can refer to the Audit Log, which automatically captures changes performed during the accounting period.

Powerful Statistical Data Reconciliation

At the heart of Symphonite PAR is its powerful Statistical Data Reconciliation (SDR) engine, designed to solve real-world problems.

The SDR engine supports multiple balance types, including:

- Volume balance

- Mass balance using mass or volume flow measurements
- Energy balances
- Simultaneous component balances (e.g., total ore, copper, zinc and water)
- Balances that require adjustments to quantities and qualities (e.g., energy balances using flow quantities and energy content)
- Balances that require adjustments between defined ranges
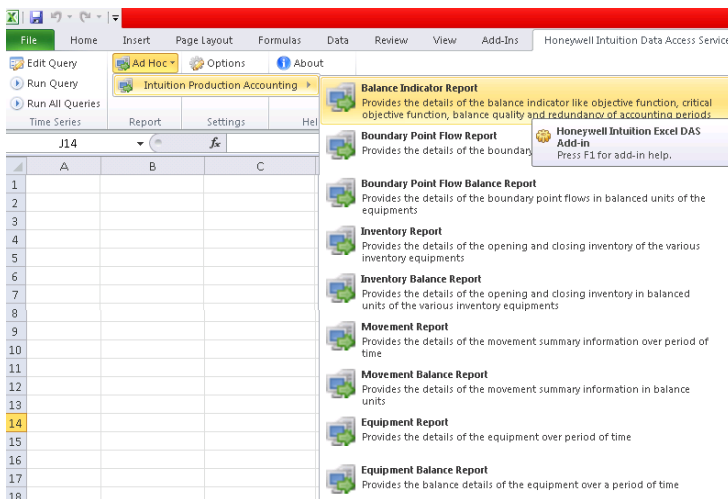
Additionally, the SDR engine:

- Identifies possible missing movements, ranked in order of how they improve the balance
- Helps users configure known loss ranges to nodes so that the balances provide a better view of the accounted loss and help to drive targeted initiatives

Manage Limit Violations is a powerful technique that identifies reconciled flows and densities exceeding configured limits and allowing them to be adjusted manually or in an automated way.

Inventory Calculation

Symphonite PAR enables sites to calculate net mass or volumes of saleable products. Various tank types are supported, including fixed and floating roof, bullet, horizontal tanks, spheres and caverns.

Calculations are performed to determine gross and net volume, or the mass of saleable

Predefined Excel views for ad-hoc analysis

Standard and customized reports

products. Volume correction is used to express the volume of the tank material under reference conditions. Calculations conform to API and ASTM standards and are configurable, based on customer requirements

Accounting individual tank inventories and their internal movements is cumbersome. Furthermore, there is often insufficient redundancy for individual tanks to support accurate reconciliation. To overcome this, PAR now comes with a Tank Pool feature that enables users to combine multiple tanks with similar service into a single virtual tank, and aggregate their inventories and movements. This significantly reduces balance closure times and configuration effort.

Share Reconciled Information

Reconciled production data forms the "single version of truth" on which business decisions are made, and it is therefore essential to share it in a timely and flexible manner.

Symphonite PAR offers a standard set of web reports for consistent, timely access to balance results. Reports rendered using the Microsoft SQL Server Reporting Services engine can be accessed simultaneously by multiple users. Standard reports can be customized, or new reports added based on site requirements. Configurable material hierarchies ensure that production reports aggregate materials and products into logical groups. Movement Types such as shipments, receipts and rundowns ensure appropriate classification and reporting of facility movements.

For ad-hoc reporting and analysis, Symphonite PAR provides a Microsoft Excel add-in that can pull data directly into an Excel spreadsheet.

Reconciled data can be written back to historians with full visibility of status of write-back as well as diagnostics.

Ease of Maintenance

Symphonite PAR incorporates features to keep site models up-to-date and understandable, facilitating faster and more precise accounting processes. Key features include:

> **Combined Graphical and Excel-based bulk configuration** – simplifies maintenance

- **Model Configuration Enhancements**, such as port reordering, equipment search and configuration audits to simplify the tasks of building and maintaining an accounting model
- **Use and manage multiple models** – allows easier handling of special cases
- **Offline model tuning** – helps refine model robustness and reconciliation accuracy
- **Partition the model into multiple active flowsheets** – improves understanding and usability
- **Model Versioning & Auditing** – helps track model evolution and allows models to be tested before production deployment
- **Availability of demo models for refinery, mineral processing, and energy balance scenarios** – enhances the learning experience

Reduce Total Cost of Ownership

IT professionals will appreciate that PAR operates as part of an integrated plant information system, allowing them to:

- Minimize administration costs with a web-based user interface
- Avoid costs to setup custom screens for information capture. Integrated Data Entry Forms are available for operators to enter movements or inventory.
- Native management of manual flow switches to manage route line-ups, without the need for additional historian tags
- With the built-in Excel Add-In for reporting, avoid costs for setting up many different reports
- Obtain process data from different systems, such as the Honeywell Uniformance® PHD or OSISoft PI historian, using industry standard OPC connectivity
- Run on virtualized systems
- Work with Honeywell's global support organization and application experts, for on-line support and problem resolution, and monthly newsletters

Simplify maintenance and reduce Total Cost of Ownership through a unique combination of technology and world-class local support.

- Rely on Honeywell to test and qualify Microsoft security patches and hotfixes
- Get the advantage of regular, no-cost upgrades that provide new capabilities and support the latest technologies.

Work with Honeywell's global support organization and application experts, for on-line support and problem resolution.

Evolve from Production Balance while Protecting your Investments

Symphonite PAR adopts the best features of Production Balance (PB) and provides some unique enhancements. Migration from PB to PAR is enabled by a simple 3 step process to ensure that historical records are retained and your investments protected.

Seamless Data Integration

Honeywell's Data Access Service (DAS) provides automated access to web services and data retrieval from diverse systems. Out-of-the-box read/write integration with OPC-HDA is provided, as is ability to read data from Honeywell Profit® Blending and Movement Management.

Symphonite™ Supply Chain and Production Management Suite

Symphonite Production Accounting and Reconciliation is part of the Symphonite portfolio of software and services, which provides an end-to-end solution for supply chain and production management (SCPM) processes. From integrated planning to post-execution reconciliation and analysis, we offer comprehensive, scalable resolution to your challenges. Built on deep domain knowledge, our tools help you make better business decisions and drive continuous improvement for supply chain and production management excellence.

Other Symphonite™ Products

- Symphonite Capacity and Distribution Planner (CDP)
- Symphonite Refining and Petrochemical Modeling System (RPMS)
- Symphonite BLEND
- Symphonite ASSAY2
- Symphonite SAND
- Symphonite Production Manager
- Symphonite Port and Marine Manager
- Symphonite Downtime Reporter

Symphonite™ SCPM Support Services

This product comes with worldwide, premium support services through our Benefits Guardianship Program (BGP). BGP is designed to help our customers improve and extend the usage of their applications and the benefits they deliver, ultimately maintaining and safeguarding their advanced applications.

Honeywell provides a complete portfolio of service offerings to extend the life of your plant and provide a cost-effective path forward to the latest application technology. Honeywell services include:

- Software installation services
- On-site engineering services
- Migration services
- Scope expansion services
- Assessment services
- Performance baseline and tuning services
- Customized training

For More Information

Learn more about how Honeywell Forge Advanced Process Control Visit Honeywell Connected Industrial or contact your Honeywell Account Manager.

Honeywell Connected Enterprise

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