Honeywell

Process Digital Twin

PRODUCT INFORMATION NOTE

A powerful, comprehensive, and end user focused software offering, Honeywell Process Digital Twin creates, maintains, and drives value out of online process models. It turns data into key performance indicators (KPIs), provides insights into process constraints, optimal operating points, and capabilities for in-depth monitoring, soft-sensing, and troubleshooting. It allows users to try out scenarios in a virtual environment before implementing the improvement in the actual plant. It expands the utilization of simulation tool, provides a consistent and up-to-date view of the plant capabilities across all functions and skill levels. It unlocks significant value as a standalone solution and also functions as the key enabler for plant wide optimization.

The Challenge: Maintaining profitability in rapidly changing supply/demand/regulatory dynamics

In today's world, a disruption in any location of the world may rapidly impact supply/demand in another location. When these market dynamics are coupled with constant regulatory changes, plants are put in a position to make decisions on production and investment plans in an agile way. Those decisions involve taking stock of incoming changes, optimizing unit operations, minimizing conservative and siloed sub optimal operations, increasing workforce productivity and by democratizing specialized tools.
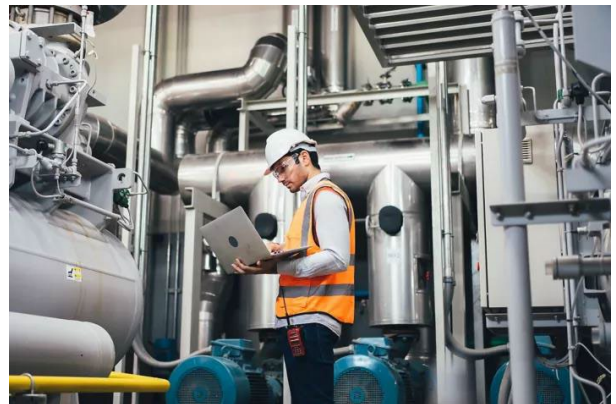
The Opportunity: Unlocking the Next Level of Value

Process Digital Twin plays a pivotal role in delivering operational excellence by providing granular insights on optimizing unit operations, tracking KPIs, monitoring true process capabilities/constraints, serving as a soft sensing solution and breaking down organizational silos that exist between planning, engineering, and operations. Using tuned and calibrated models, it also provides cross functional teams at all modeling skill levels the platform to run various scenarios analysis in a virtual representation of the manufacturing/industrial process. It provides an unparalleled view into the past (troubleshooting and diagnosis), present (KPIs and soft sensing) and future ("What-if", "Look Ahead' and optimization) of the process and associated assets, all in one virtual environment that does not risk costly downtime in real plant.

The Solution: Honeywell Process Digital Twin

Honeywell Process Digital Twin is a comprehensive software solution that manages, contextualizes and curates real-time data, utilizes robust first principles-based models, calculations and analytics and provides actionable insight for in-depth performance monitoring, troubleshooting, soft sensing, what-if analysis and updates to planning and advanced process control (APC).

The insights are delivered via a web browser-based interface with customizable graphics, flexible reporting, and role-based access. It can leverage existing simulations, models, and graphics for faster deployment. It's built with years of Honeywell domain experience in Oil & Gas, Refining, Mining and Metals, Petrochemicals, Renewables, and industrial software.
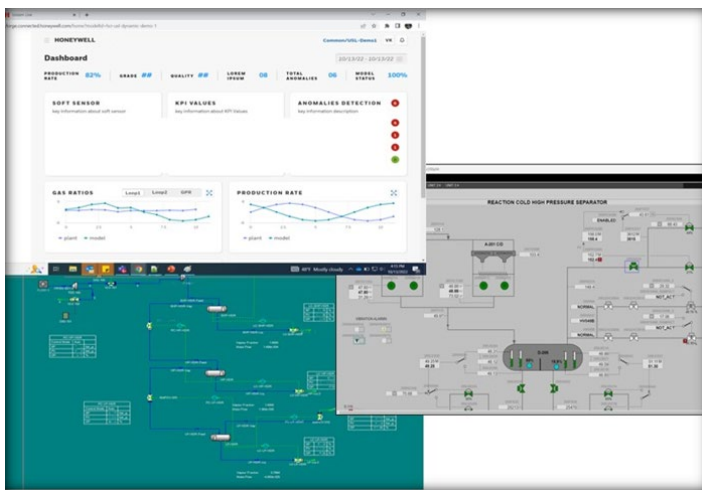

Process industry plants are faced with maximizing profitability while maintaining reliability

Honeywell Process Digital Twin Features

- **Real-time Performance Management:** KPIs, soft sensors, model, and calculation management for performance monitoring, asset management and informed decision making

- **Steady State & Dynamic Process Digital Twin**: Systematically tuned digital replica of physical plant based on actual operating conditions

- **Data Preprocessing & Reconciliation Routines**: Promotes better data quality and accuracy of Process Digital Twin

- **Scenario Analysis:** Powerful what-if analysis to understand the impact of changes in a safe virtual replica of physical plant

- **Updates to Linear Programming (LP), APC, Plantwide Optimizer (PWO) models:** improve consistency across planning, operation, and optimization functions

- **Browser-based Access, Customizable Graphics & Reporting:** Role-based access and flexible UI facilitate broader utilization by cross functions at all modeling skill levels

- **Model Management & Extensible Capability:** Smooth integration and execution of custom ML models, leverage existing simulation models and Process Flow Diagrams style graphics

- **Flexible Deployment:** Customer cloud or Honeywell cloud deployment and on prem options

Honeywell Process Digital Twin Benefits

✓ **Improved operational efficiency**

- Data-driven decisions via powerful and fast what-if scenario analysis

- Real-time prediction of key properties via soft sensing capabilities

- Planning and scheduling teams can set targets based on current plant capabilities

- Help align LP and APC to actual plant capabilities and constraints

- Broader utilization of online digital twin for informed decision making by cross functions

✓ **Improved margins**

- Improve yields

- Operate closer to actual constraints

- Reduce utility usage

✓ **Reduced operational risk**

- Insight on process and key equipment constraints

- Faster root cause analysis for troubleshooting

- Enable predictive maintenance through early detection of performance deterioration and abnormality

Leveraging domain knowledge, operational data and AI/ML, Honeywell Process Digital Twin provides near-real time actionable insights to help plants operate more efficiently, reliably, and make better decisions based on current plant capabilities and market dynamics

For More Information

Learn more about how Honeywell Process Digital Twin can improve your operational performance and plant safety contact your Honeywell Account Manager, Distributor or System Integrator.

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