



A Yokogawa Company

KBC Acuity™ Process Twin Pro

KBC Acuity Process Twin Pro is an AI-powered application designed to maximize asset profitability in downstream oil and gas operations. Seamlessly integrated with our leading Petro-SIM® digital twin solution, Process Twin Pro continuously monitors the accuracy of predictions and updates the digital twin, maximizing the asset's value.

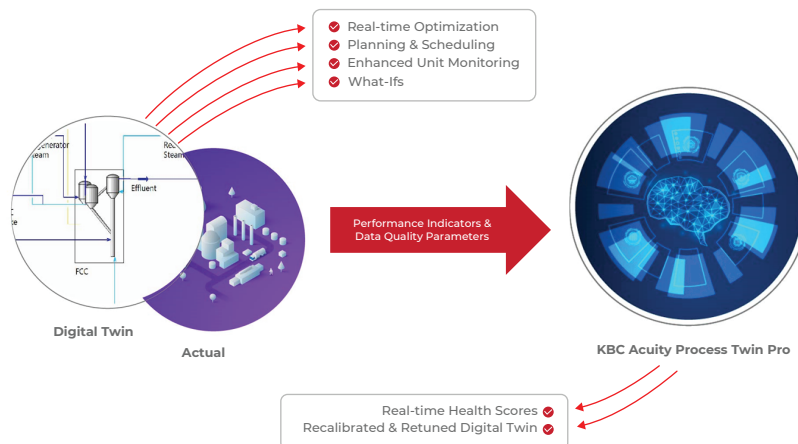
This technology bridges knowledge gaps between specialists and process engineers. This technology empowers them to identify missed opportunities, expand the scope of their operations, and discover new revenue streams. In addition to improving accuracy and optimizing production, this solution cuts manual maintenance time by 50% -- resulting in estimated annual savings up to USD 10 million.

Bringing
DECARBONIZATION
to Life



Automated Workflows and Centralized Monitoring

KBC's Acuity Process Twin Pro application automates workflows and centralizes asset monitoring and analysis. By continuously monitoring the health index of digital twin models and orchestrating recalibration and retuning with just a few clicks, KBC Acuity Process Twin Pro technology streamlines operations and enhances decision-making.



Data Modeling and AI/ML Algorithms

KBC Acuity Process Twin Pro is a powerful tool that allows users to effortlessly monitor and analyze multiple assets across refinery sites. By consolidating data and using robust data modeling and AI/ML algorithms, it provides deep insights and real-time optimization capabilities. With enhanced unit monitoring and the ability to conduct "what-if" scenarios, it empowers users to make informed decisions and drive process improvements. The recalibration, cross-prediction, tuning, and maintenance of models further enhance planning tools and processes with minimal effort and expertise required.

Asset Overview Dashboard

3 Assets need calibration, 2 LP Submodels need update, 2 Assets need tuning

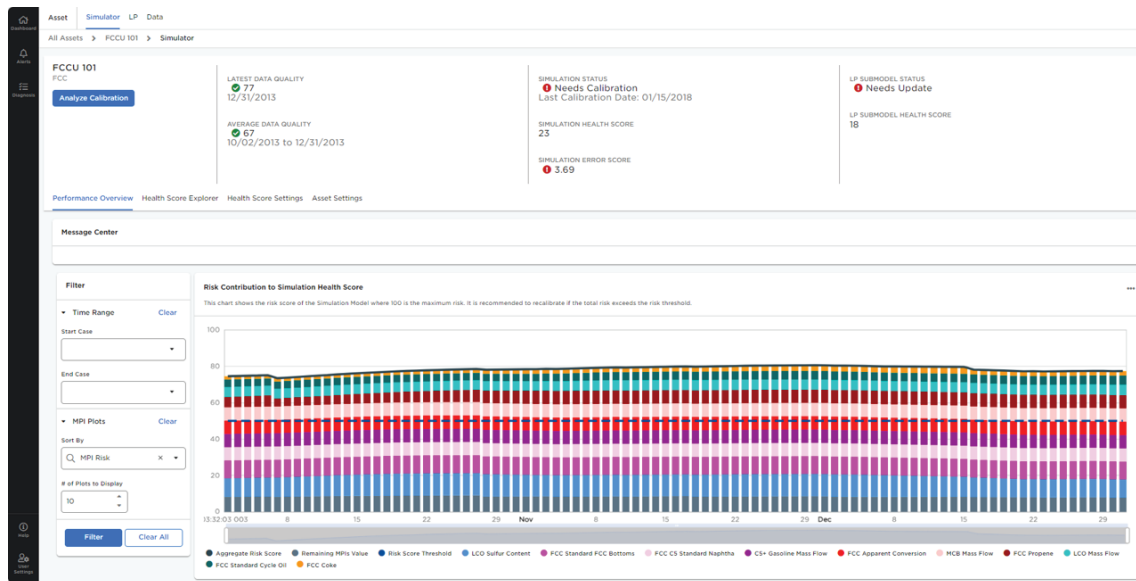
Assets

Asset Name	Asset Type	Simulation Status	Days below...	Last Simulati...	Tuning Status	Avg Total Simulati...	LP Status	Last LP Health...	Avg Total LP Error	Avg Data Quality...
FCCU 101	FCC	Calibration Required 01-15-2018	12 years ago	23	Tuning Required	3.7	Needs Update	18	2.2	67
FCCU 401	FCC	Calibration Required	Insufficient Number of Cases	66	Tuned	1.2	N/A	N/A	N/A	89
FCC 501	FCC	Calibration Required 01-15-2018	11 years ago	21	Tuning Required	4	Needs Update	18	2.1	67

1 - 3 of 3 items

Paradigm Shift in Asset Management

KBC Acuity Process Twin Pro application streamlines asset management by harnessing the power of cloud infrastructure and AI/ML techniques. By monitoring assets in real time, Process Twin Pro enhances scalability, data security, and data analysis, thereby empowering asset managers to make real-time data-driven decisions and ultimately improve operational performance.



Refiners need rigorous systems, domain expertise, and advanced technology to maintain accurate digital twins. Without reliable systems, discrepancies between models and data cause miscommunication and poor decision-making. KBC Acuity Process Twin Pro improves efficiency in refineries and petrochemical plants. Seamlessly integrating with global operations, it offers clients the opportunity to drive growth, scalability, sustainability, and profitability in the digital age. Following are the key features and benefits provided by this technology.

Market Problems		Product Features	
Health Index Monitor			
No single metric gauges a digital twin model's health or identifies data issues, which require consistent updates to match predicted outcomes. Additionally, delayed communication to request recalibration negatively impacts decision-making and setting business targets.		Consistently analyses measured and simulated data, transforming model indicators into health indices to build a single health score that tracks consistent under- or over-predictions. Health indices are automatically updated with new data. When health deteriorates, timely alerts are sent, suggesting actions to be taken on the asset.	
Data Quality Analyzer			
Analyzing multiple datasets and KPIs manually is time-consuming, overwhelming, and prone to measurement errors, leading to judgment errors that complicate data examination.		Leverages data quality parameters to weigh information from the digital twins to prioritize best cases with highest overall data quality. Excludes poor data quality from the analysis.	
Guided Calibration			
Selecting top calibration cases is challenging and time-consuming due to the large number of datasets. Extensive data analysis and comparative cross-predictions are also required, adding to the complexity and time requirements.		Uses data analytics tools and techniques to determine the optimal set of calibration cases by running cross-predictions and analyzing errors.	
Perfect Digital Twin			
Tuning is only for experts and requires isolating datasets for individual changes. Frequent recalibrations lead to inaccurate and untrustworthy digital twin models.		Employs expert-guided optimization strategies to run iterative optimizations to identify impactful tuning factors. Fine tuning a digital twin expand the model's region of trust to boost accuracy, allowing it to mimic actual unit responses to operational changes.	
Cloud Collaboration			
Digital twins are available across business units, but their inconsistencies create dependencies. Troubleshooting individual assets is challenging due to a lack of expertise.		Users can collaborate on assets across sites to ensure a single, trusted version is used across business units. This digital twin is consistently monitored, updated, and used in planning, scheduling, and refinery-wide profitability studies.	