



NAPCON CONTROLLER

NAPCON Controller maximizes both production rate and quality by providing tight control over the process despite difficult process dynamics or disturbances. Fast implementation process and the reliable operation of NAPCON Controller guarantee early return on investment.



MAIN FEATURES

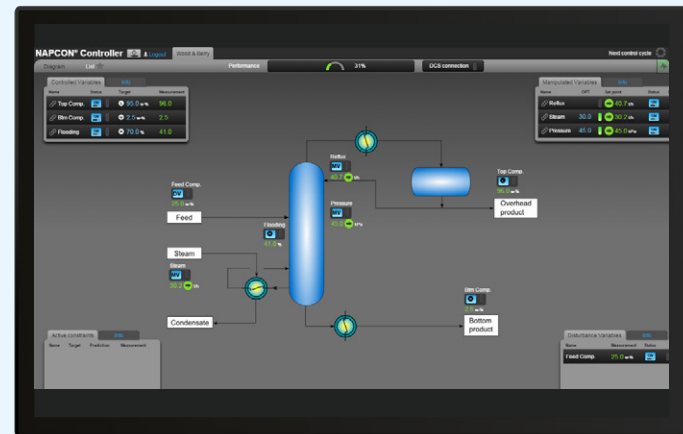
- Flexible structure of the NAPCON Controller allows implementation of small or large control applications from just a few controlled and manipulated variables up to several hundred.
- NAPCON Controller is applicable to both linear and non-linear processes and also supports cascade control structure.
- Efficient optimization algorithm allows fast control cycles of only a few seconds.

MAIN BENEFITS

- NAPCON Controller elegantly handles complex process behavior and difficult process dynamics.
- Robust solution architecture ensures low susceptibility to process disturbances and low maintenance needs.
- Scalable, modular design allows easy expansion from single unit to multi-unit control to support investment and expansion programs.



NAPCON APC Dashboards provide extensive reporting and visualization capabilities for control performance reporting and monitoring.

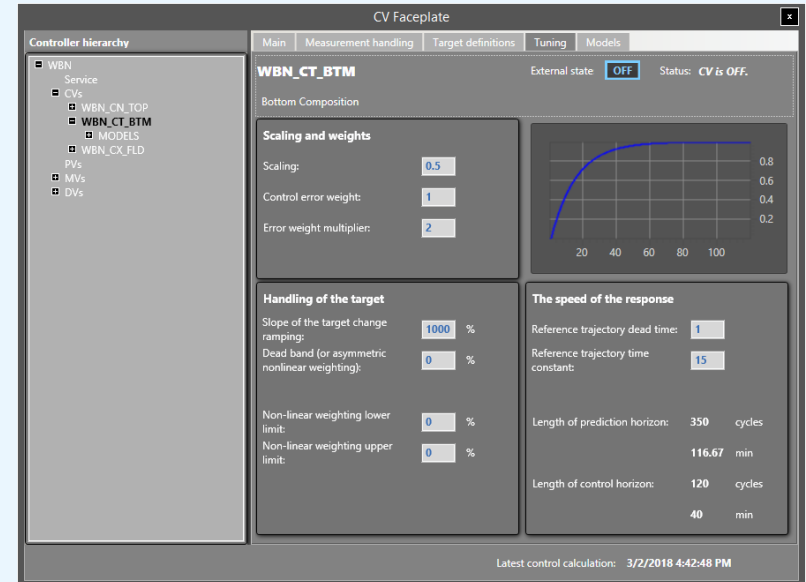


NAPCON Controller is operated through APC displays which are based on the latest web technology.

WIDE APPLICATION AREA

Maximization of economic performance by fine tuning of the NAPCON Controller is made especially easy and versatile:

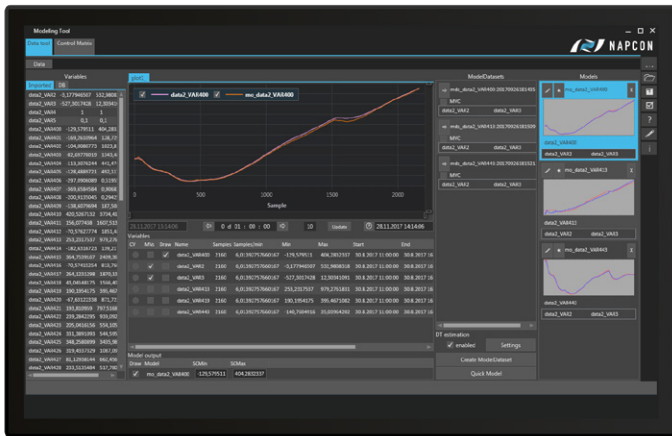
- Several controlled variable (CV) types: maximization and minimization CVs, target, asymmetric, dead band, asynchronous analyzer with fault checking as well as maximum and minimum constraints
- Feedforward disturbance variables (DV) to compensate for measured and estimated disturbances
- Online model adaptation
- Online MV optimization if extra degrees of freedom are available to achieve maximum potential
- Flexibly handles varying raw material and product grades



NAPCON Controller faceplates provide access to full spectrum of control parameters for best control performance.

USABILITY AND CONFIGURATION

- NAPCON Controller can be operated either through web displays which are based on the latest technology or the controller faceplates which provide access to full spectrum of control parameters.
 - Control models used by NAPCON Controller are identified with NAPCON Modeling Tool with just a few clicks. For maximum robustness of control models, NAPCON Modeling Tool features regularization, variable bounds and partial model identification. If needed, Modeling Tool, provides tools to remove outliers and other undesired data features.
 - Maximum control performance of NAPCON Controller is ensured by NAPCON Model Validator. Model Validator continuously analyzes the quality of model predictions and alerts user should model accuracy degrade.
- NAPCON Controller Configuration Tool offers easy configuration process which is facilitated by an intuitive user interface.
 - NAPCON APC Dashboards provide extensive reporting and visualization capabilities for control performance reporting and monitoring. Flexible Dashboard architecture allows a straightforward addition of user defined KPIs to meet any demands for the detail level of controller performance report. Dashboard is based on the latest web technology and offers full customization of the UI elements for great usability.
 - Full integration with NAPCON Analytics, a powerful calculation and reporting platform whose features allow to:
 - create on demand calculations and data visualization with a web application to be used for analytics, monitoring, big data etc.
 - support for 3rd party data analysis libraries



Control models used by NAPCON Controller are identified with NAPCON Modeling Tool with just a few clicks.

Model	Film PV	Film SV	Film DV	FILM_FIL214	FILM_FIL21400	FILM_FIL21401	FILM_FIL21402	FILM_FIL21403	FILM_FIL21404	FILM_FIL21405
FILM_A7700	-0.02 / -0.02			1.7938109 / 0.00727105				541.00000 / 541.00000	0.00000 / 0.00000	-2.00000 / -2.00000
FILM_A7700_0	-0.02 / -0.02			1.7938109 / 0.00727105				541.00000 / 541.00000	0.00000 / 0.00000	-2.00000 / -2.00000
FILM_LK7700	0.0 / 0.0	-0.0 / -0.0		0.0 / 0.0				0.0 / 0.0	-2.0 / 2.0	2.0 / 0.0
FILM_LK7700_0	0.0 / 0.0	-0.0 / -0.0		0.0 / 0.0				0.0 / 0.0	-2.0 / 2.0	2.0 / 0.0
FILM_LK7710				4.17 / 4.17				-0.0 / -0.0		
FILM_LK7710_0				4.17 / 4.17				-0.0 / -0.0		
FILM_A7710								-0.1 / 0.1	0 / 0	2.22000 / 2.22000 / 2.22000 / 2.22000
FILM_A7710_0								-0.1 / 0.1	0 / 0	2.22000 / 2.22000 / 2.22000 / 2.22000
FILM_FIL300	0.00000 / 0.00000			-5.1187967 / -5.1187967				0.00000 / 0.00000	0 / 0	-8.00000 / 8.00000 / 8.00000 / 8.00000
FILM_FIL300_0								0.0 / 0.0		0.0 / 0.0
FILM_LK370								4.00 / 4.00		2.0 / 2.0
FILM_LK370_0								4.00 / 4.00		2.0 / 2.0
FILM_LK7700_2	0.0 / 0.0	-0.0 / -0.0		0.0 / 0.0				-2.0 / 2.0		2.0 / 0.0
FILM_LK7710_2				4.17 / 4.17				-0.0 / -0.0		0 / 0

NAPCON Controller Configuration Tool featuring intuitive user interface offers easy configuration process of NAPCON Controller.

COMMUNICATION

- NAPCON Controller operates on ISA95 levels 2 and 3 on top of a process control system (DCS) ensuring that all operation occurs at maximum level of cyber security.
- The communication between NAPCON Controller and DCS is run through NAPCON Informer which is OPC UA certified database, NAPCON Informer which provides the following features:
 - OPC UA Certified, certified profiles: Standard Server / Data Access Server / Method Server
 - OPC UA Gateway functionality (e.g., connectivity to DCS systems)
 - OPC UA standard compatible data aggregation for Improved history services
 - OPC UA standard diagnostics
 - Intuitive and flexible reporting
 - Integration of accurate and up-to-date data for users from different sources and levels of production
 - Advanced data manipulation and export in multiple formats e.g. csv, xls, xlsx
 - Common interface for accessing data stored in separate existing databases
- Several controllers can be linked together also from other vendors through secure OPC UA interface featured by NAPCON Informer.
- Full integration with NAPCON Analytics provides custom online process calculation and soft-sensing capabilities.

OPERATIONAL SAFETY AND RELIABILITY

- NAPCON Controller undergoes rigorous automatic testing before deployment at the client site.
- NAPCON Controller operates on top of the existing safety loops to ensure maximum safety and reliability of the control solution.
- NAPCON Informer goes above and beyond to ensure reliable operation of NAPCON Controller and provides:
 - Excellent scalability with high data throughput
 - Wide support for security features: Encrypted OPC UA communication, Antivirus software, Whitelisting, User identification, Encrypted data transport, Certificates



NAPCON PRODUCTS



UNDERSTAND

NAPCON Understand solutions will turn the data provided by your plant into relevant information that help optimize your company's production.

[NAPCON Informer](#)
[NAPCON Analytics](#)



IMPROVE

NAPCON Improve solutions will bring out the maximum potential of your operations and help you ensure that your investments meet your strategic goals.

[NAPCON Controller](#)
[NAPCON Optimizer](#)



TRAIN

NAPCON Train solutions will bring the real life plant into the virtual world, making training operators and testing the limits of your plant safe and exciting.

[NAPCON Simulator](#)
[NAPCON Games](#)



DECIDE

NAPCON Decision support enables you to make the right decisions, even in complex conditions.

[NAPCON Energy Performance](#)
[NAPCON Performance Analysis](#)
[NAPCON Flow Dynamics](#)
[NAPCON Business Optimizer](#)

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