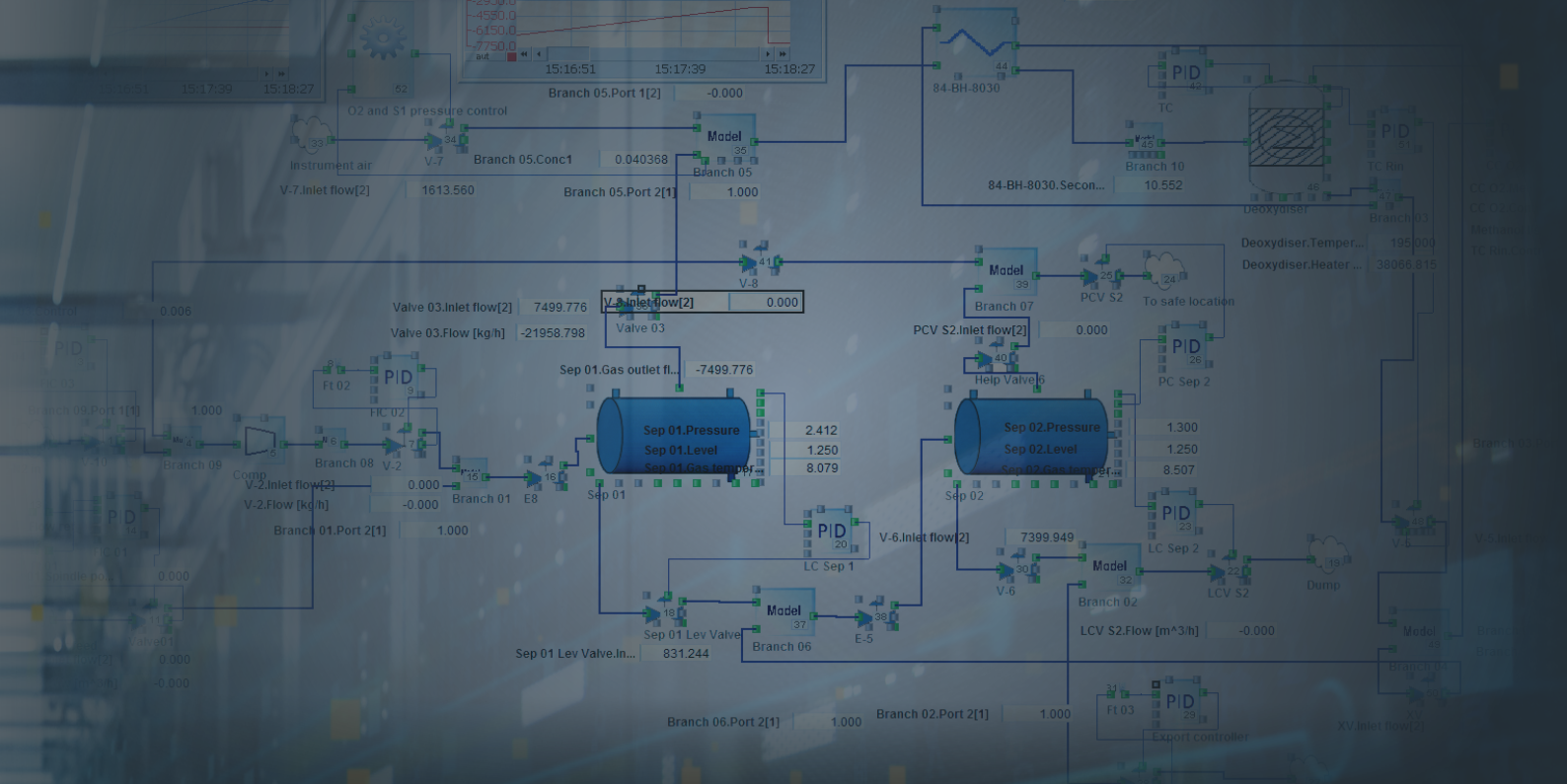


APIS MODFRAME

THE REALTIME MODELLING FRAMEWORK





Flexible and easy-to-use graphical tool for real-time mathematical modelling and realization of process control, support logic and model-based systems. Easily create even complex models such as Kalman Filters and MPC systems Fully OPC DA enabled

Module-based graphical interface

ModFrame provides configuration of numerical process models, process topologies and computational and control algorithms by dragging and connecting modules in a graphical environment. This enables block-oriented programming of transfer functions, linear algebra, arithmetic expressions and typical PLC logic operations. Modframe also contains other specialized modules, e.g. modules for process unit simulation, Kalman-filtering and online model adoption. Users may create their own specialized models or computational algorithms. Modules support inheritance, which means that new modules may inherit behaviour from existing modules. For instance, if you are creating a new reactor module, you can modify an existing tank module instead of designing the reactor module from scratch.

Model Predictive Control (MPC) and Kalman filters

Modframe may also be used to create advanced MPC-based control systems and Kalman-filters. MPC is a multivariable control algorithm that can predict change in dependent variables of a system that will be caused by changes in other independent variables. This enables more accurate control of complex dynamical systems than traditional PID-based control systems.

A Kalman-filter is a very effective estimator (i.e. virtual sensor) and is normally used as part of MPC algorithms. Applications span from modelling chemical reactions in chemical plants, to simulating musical instruments in Virtual Reality to GPS-signal filtering.

Modframe includes a specialized Kalman-filter module that includes:

- Linear Kalmanfilter with constant or time-varying gain (full covariance computations).
- Extended Kalmanfilter.
- Online linearization of nonlinear models for use in analysis, MPC or for other applications.
- Online bias- and parameter estimation, thereby enabling adaptive control.

Configuration and Interfaces

ModFrame is very easy to configure. By utilizing OPC namespace browsing, a system can be installed and configured in less than 30 minutes. Models are created by connecting different Modframe modules together. Modframe parameters are then configured by using special dialogs in the Modframe user interface. The Modframe user interface is designed to be flexible but at the same time easy to use, thereby making it easy to create even quite complex models. For instance, a Kalman-filter linearized model may easily be connected to an MPC module for use in a Model Predictive Controller.

OPC Data Access is Modframe's native interface to connect to other systems, such as PLCs, DCSs, fieldbuses or SCADA systems. ModFrame also exposes an OPC Data Access interface, which can be used to connect third party tools to this application. For systems not capable of exposing their signals through OPC, Prediktor delivers modules that connect to these systems. Examples of such modules are DDE, Interbus, Modbus and MMS. In addition, Prediktor can tailor-make interface modules for any system.