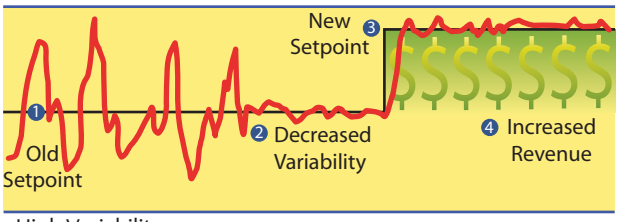
SmartProcess® Fractionator Optimization

A Fast and Easy Path to the Benefits of APC

APC benefits

Oil fractionator columns are often highly constrained, with significant controller interactions and long time constants. Advanced Process Control (APC) is an ideal method for optimizing fractionator performance. Emerson's SmartProcess® Fractionator Optimizer takes the effort of implementing APC on these units to a new level of ease and cost effectiveness. Now even small-capacity units can capture the benefits of APC that larger refiners have been enjoying for years:

- 3-5% higher throughput
- 30-80% reduction in product quality variability
- 2-5% improvement in distillate yields
- 2-5% reduction in energy costs



APC benefits include reduced variability, energy costs, and increased yield and throughput.

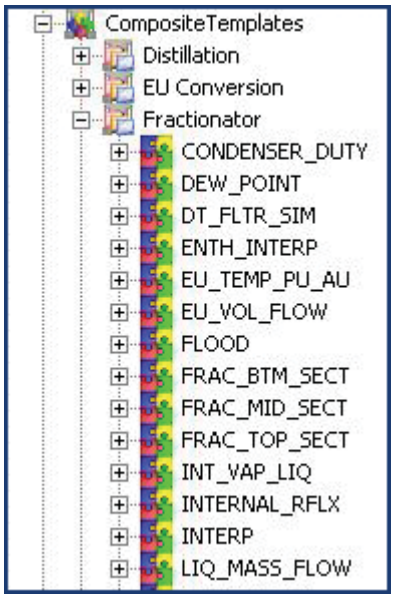
Flexibile application

Using flexible, pre-engineered templates, process control engineers can configure an advanced control application to accommodate a variety of process units including:

- Crude atmospheric distillation
- Vacuum distillation
- FCC main fractionators
- Hydrocracker fractionators
- Coker fractionators
- Hydrotreater fractionators

Based on solving the column heat and material balance, the templates can be made to match any configuration of product draws, pumparounds, external feeds, heaters and refluxes. Standard calculation results include:

- Column vapor/liquid traffic, per section
- Pumparound exchanger duty
- Pressure-compensated temperatures
- Dew point of top tray
- Hydrocarbon and steam enthalpy correlations
- Jet flooding
- Mass balance error



Standard SmartProcess Fractionator Modules

The SmartProcess Fractionator Optimizer includes:

- One multivariable controller with up to 15 manipulated variables
- Four Neural blocks to infer important product qualities
- Library of composite blocks and templates for all calculations and control functions
- Example configuration with built-in simulation
- Example operator control graphics
- Engineering services as needed to design, configure, install, train, step-test and commission the applications

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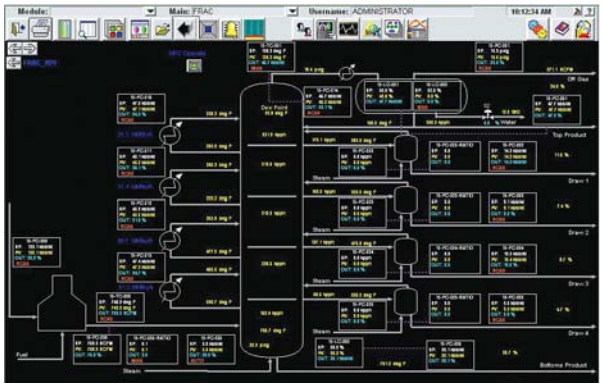

Example Fractionator Configuration w/Built-In Simulation

Fractionator experience

Our experts are there to help lead your team through the entire implementation process. Emerson industry consultants have implemented advanced control solutions on a broad range of fractionators. They have the experience to help design and implement APC technology so that you achieve maximum operating benefit.

This solution of technology and expertise allows you to reduce overall life-cycle costs and enables your project to start paying back benefits months earlier than traditional, supervisory APC technologies. Using SmartProcess optimization can reduce traditional implementation time by more than two-thirds.

SmartProcess project methodology

Emerson's industry consultants are available to assist with any stage of a Fractionator APC project. The methodology typically includes:

- Evaluation of existing plant operations and objectives
- Pre-step tests to ID preliminary dynamics & issues with regulatory control loops
- Functional Design Spec to outline how SmartProcess will be configured
- Configuration and installation
- Process step-testing where on-line data is analyzed
- Models developed to match observed responses
- Controller generated and tested in the off-line simulation
- Downloading tested controller to the control system

Our industry experts can help you design, justify, implement, audit and support APC applications that will add immediately to your company's bottom line. Call us to find out how.

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