FLOWNEX® SIMULATION ENVIRONMENT CONTROL

Flownex has a control system library that complements the main thermal-fluid capability, hereby making it possible to simulate entire systems that include the process and the control system.

TYPICAL USES:

ANALYSIS

- Simulation.
- Performance assessment.
- Modification assessment.
- Root cause failure analysis.

DESIGN

- System sizing.
- Component sizing.
- Determining operating ranges.
- Flow, temperature, pressure, power consumption, etc.
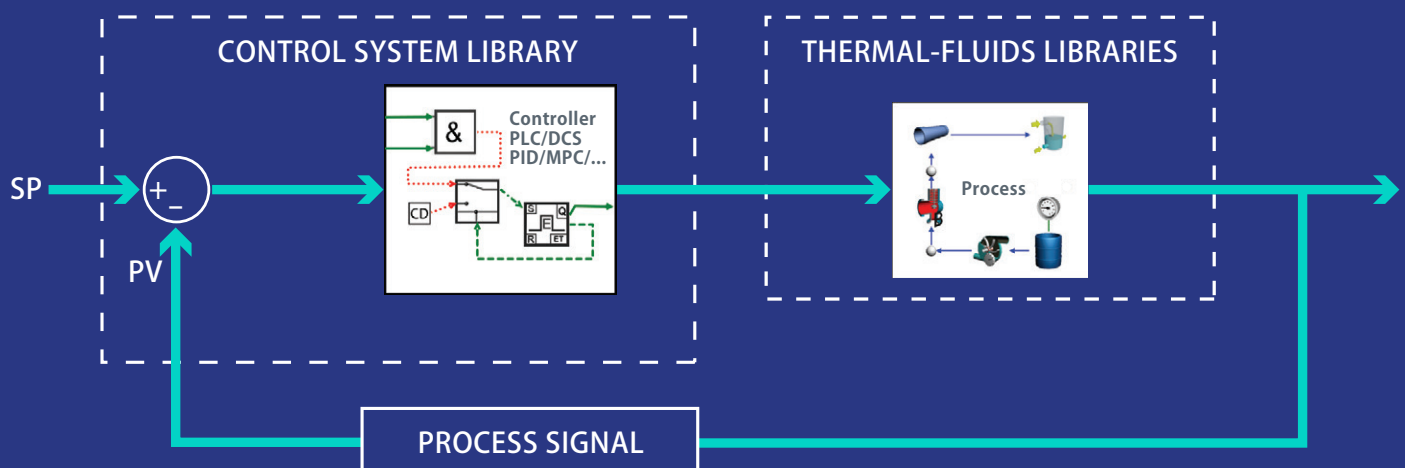- Testing of control philosophy.

TRAINING

- System behavior examination
- Performing basic flow and heat transfer calculations.
- Thermohydraulic principles and properties referencing.

BRINGING NUCLEAR QUALITY AND STANDARDS TO SYSTEM SIMULATION

Flownex® is developed in an ISO 9001:2008 quality assurance system and NQA1 supplier approved environment.

CLOSING THE LOOP: CONTROL & PROCESS IN ONE SIMULATION

CONTROL SYSTEM LIBRARY

Controller PLC/DCS PID/MPC/...

THERMAL-FLUIDS LIBRARIES

Process

SP

PV

PROCESS SIGNAL

See more at enginsoftusa.com/flownex-CFD.html

Control philosophy development.
- Normal operation
- Startup/shutdown
- Plant upset transients

Control element selection and sizing.
- Control valve sizing and range determination.
- Variable pump speed range determination.

Integrated control and process performance assessment.
- Assessment of design/operation.
- "What If" studies.
- Assist with control concept evaluation.
- Assist with HAZOP studies.

Control philosophy optimization for various goal functions.
- Minimal energy consumption
- Equal component loading
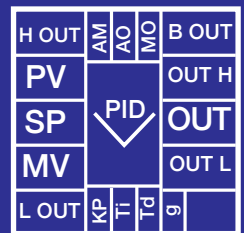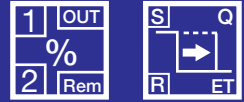- Maximal production rate

Testing of control & operating philosophies.

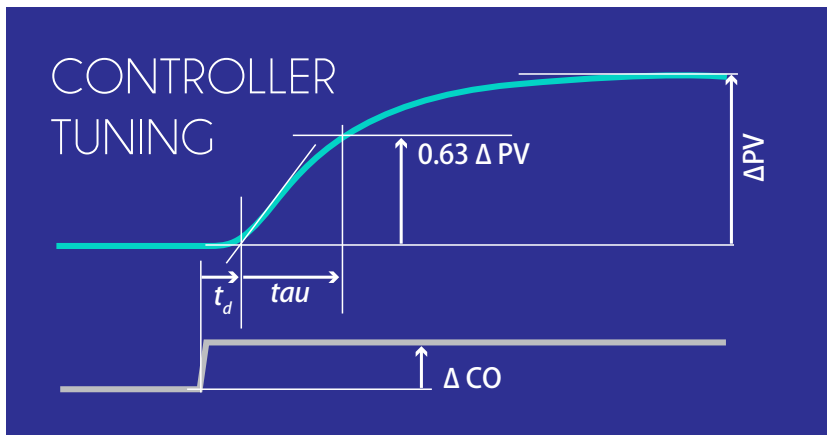**Test system response significantly faster than realtime.**

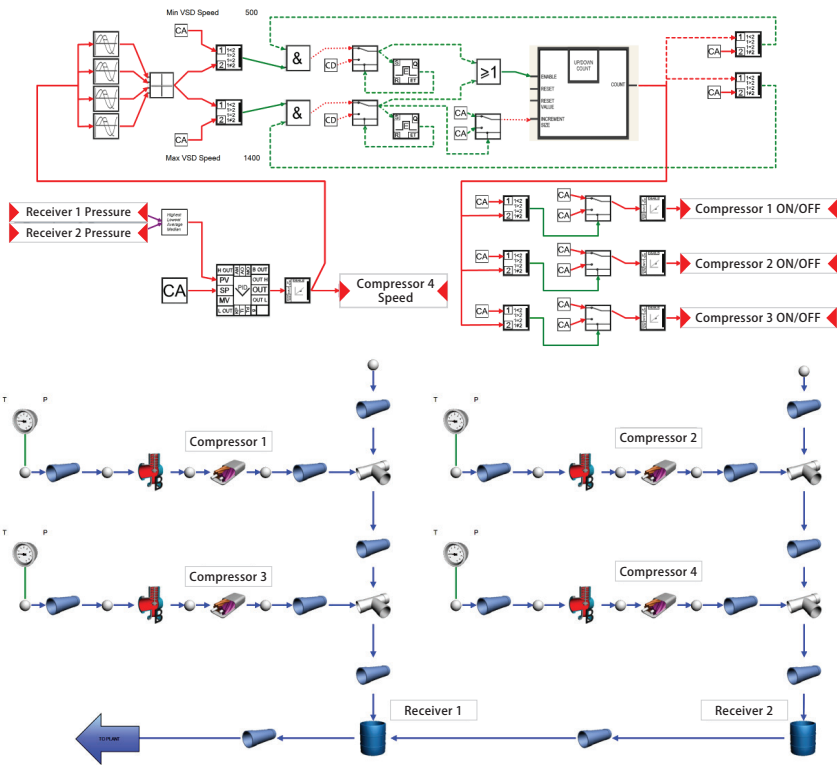**Estimation of plant response for pre-commissioning of control systems.**

Shorten commissioning time by pre-tuning controllers.

COMPRESSOR PLANT PRESSURE CONTROL

CONTROLLER TUNING

0.63 Δ PV

ΔPV

t_d tau

Δ CO

LINKS TO EXTERNAL SOFTWARE:

LabVIEW   Excel

MATLAB SIMULINK   OPC FOUNDATION

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