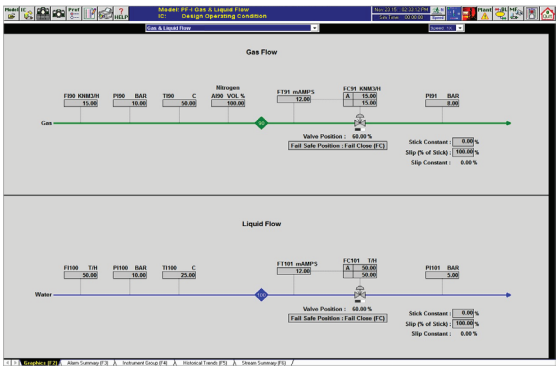
EnVision
e-Learning & Universal Simulation

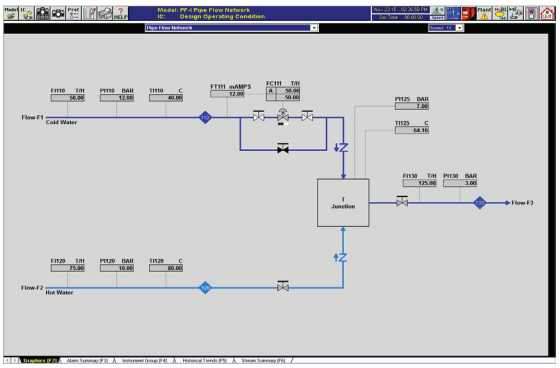
Process Fundamentals–I Simulation

The Process Fundamentals simulation is a series of rigorous and high-fidelity process equipment models that provide a realistic response for process dynamics, equipment principles, operating principles and process control.

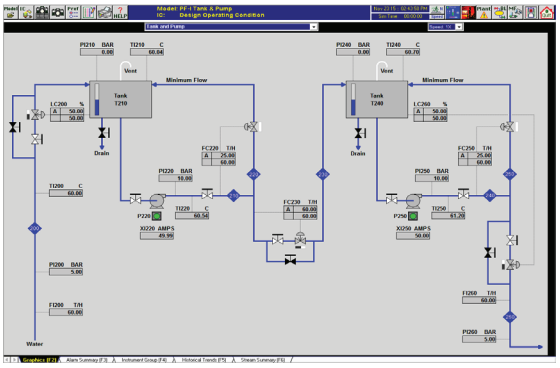
Gas & Liquid Flow: This simulation model helps in understanding the dynamics of gas flow and liquid flow through a valve in a pipeline and various control valve failures, including Stick and Slip. The Gas consists of two elements namely Nitrogen and Hydrogen. Water is used as a liquid medium.



Pipe Flow Network: This model consists of two pipes connected via a T-Junction to a single pipe. Water is used as the fluid medium. The trainee learns about the dynamics of flow, pressure, temperature, mass and heat balance and process control.



Tank and a Pump: This model consists of two tanks and pumps. Water is used as the fluid medium. Water enters the first tank under tank level control and leaves the first tank under flow control, to enter the second tank. Water leaves the second tank under second tank level control. The trainee learns about pump and motor dynamics and fluid transfer.



- Simulation comes with a Learning Management System (LMS) called SimAdmin that allows an instructor to register trainees and monitor their performance
- Simulation is available as Standalone (Single or Dual Monitor) and Instructor-Trainee versions

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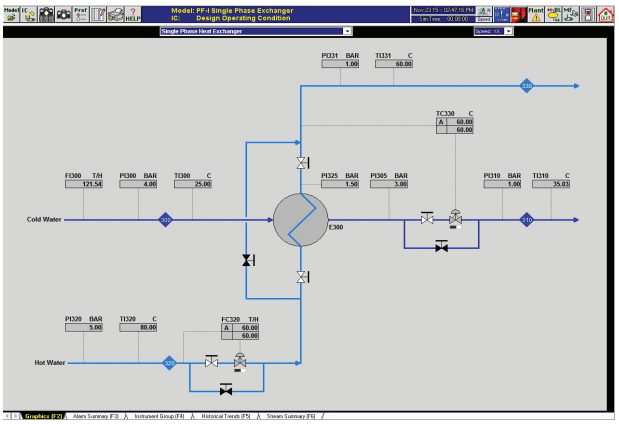
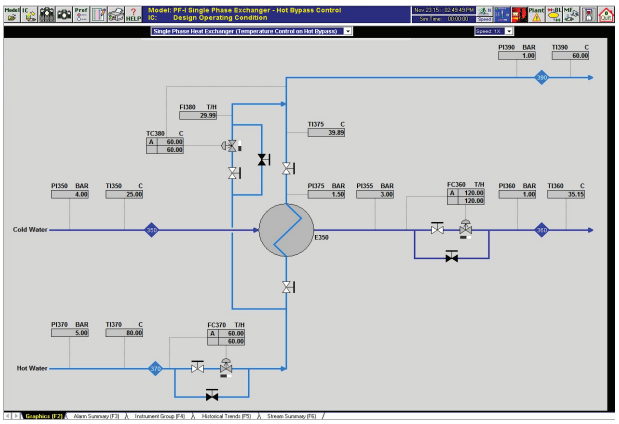
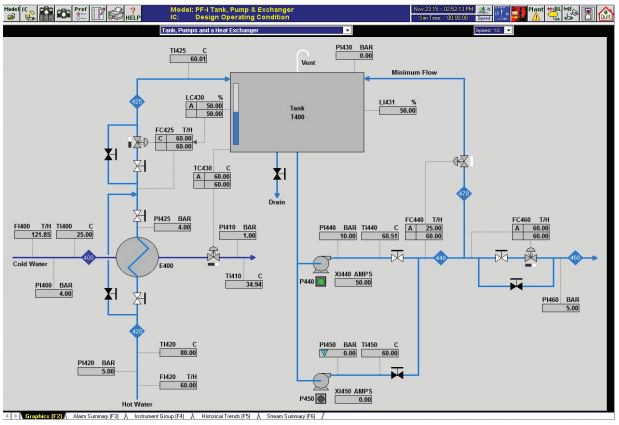
Single Phase Heat Exchanger: This model consists of a typical single-phase heat exchanger with a bypass line on one flow. Hot and cold Water are used as fluid medium. The trainee learns about heat exchanger principles and commonly used temperature control strategies.



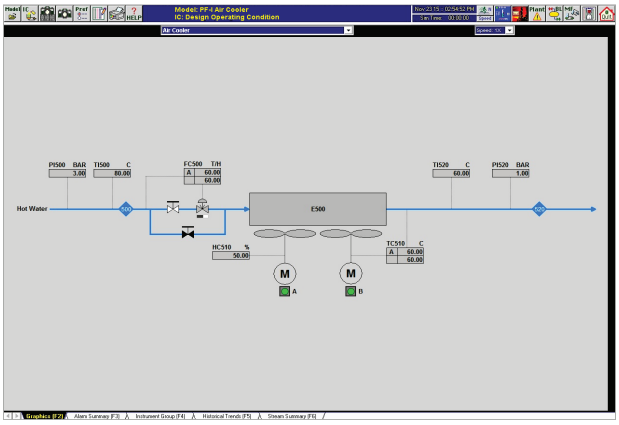
Single Phase Heat Exchanger – Hot Bypass Control: This model consists of a single phase heat exchanger with hot bypass control. Hot and cold water are used as fluid medium. The trainee learns about heat exchanger principles and a variation in the temperature control strategy.



Tank, Pumps and a Heat Exchanger: This integrated model consists of tank, pumps and heat exchanger with various control strategies. Hot water is cooled by cold water at a heat exchanger before entering the tank with a level-flow cascade control. Flow leaving the tank is pumped under a flow control. The trainee learns about normal, startup, shutdown and troubleshooting operations.



Air Cooler: This model consists of a typical air cooler. The process fluid is hot water and the cooling medium is air. The trainee learns about air cooler principles and temperature control strategies.



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