

# I/O and Device Feedback

## Improved safety and productivity

- A product within ABB Ability™ Simulation models

The purpose of I/O and Device Feedback is to conduct an efficient software Factory Acceptance Test for the customer to verify implementation according to specification.

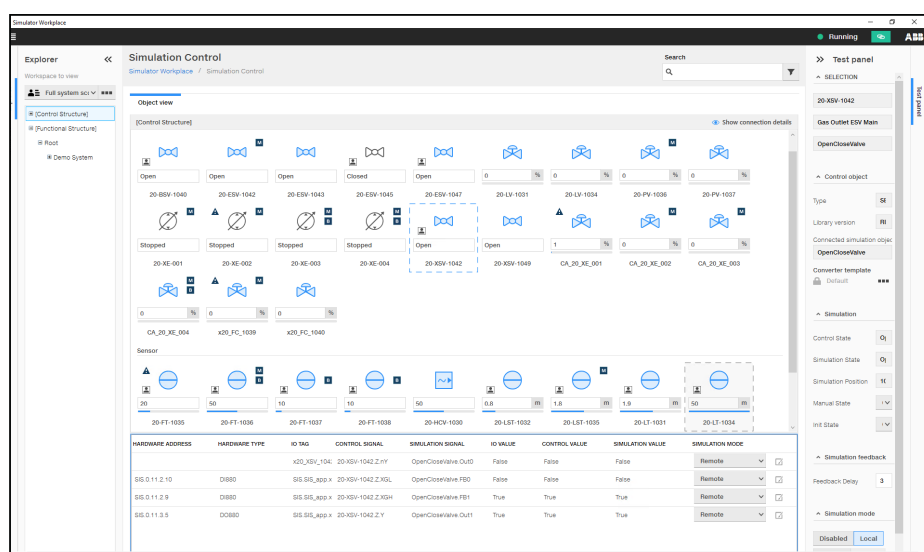


ABB Process Model Engine includes I/O and Device Feedback and Loop Feedback. This product suite is recommended for engineering and testing of 800xA systems in combination with 800xA Simulator as well as for operator training.

By creating a digital twin of the automation system, I/O and Device Feedback allow automation engineers to implement and test system updates, new control applications and operator displays prior to commissioning.

I/O and Device Feedback offers efficient testing of control system logic and operator displays. The main focus is to offer a cost-efficient simulation product that quickly and automatically sets up simulation towards a control system with a minimum need for engineering and configuration and to use this simulation for engineering testing of the control system, internal acceptance test (IAT), factory acceptance test (FAT) and operator familiarization.

This software and other options in ABB Process Model Engine offers simple signal feedback for sensors, actuators and drives in a control system and has an efficient user interface for engineers, testers and instructors.

It works like a traditional I/O test rack, while this tool is software-based. This improves control application quality, reduces HMI and configuration errors and shortens commissioning of the control system. ABB Process Model Engine can be extended with other products within the ABB Ability™ Simulation models portfolio.

I/O and Device Feedback generates simulated objects of the control equipment and sensors. These simulator objects can be further used in the Loop Feedback option, providing extended dynamic simulation.

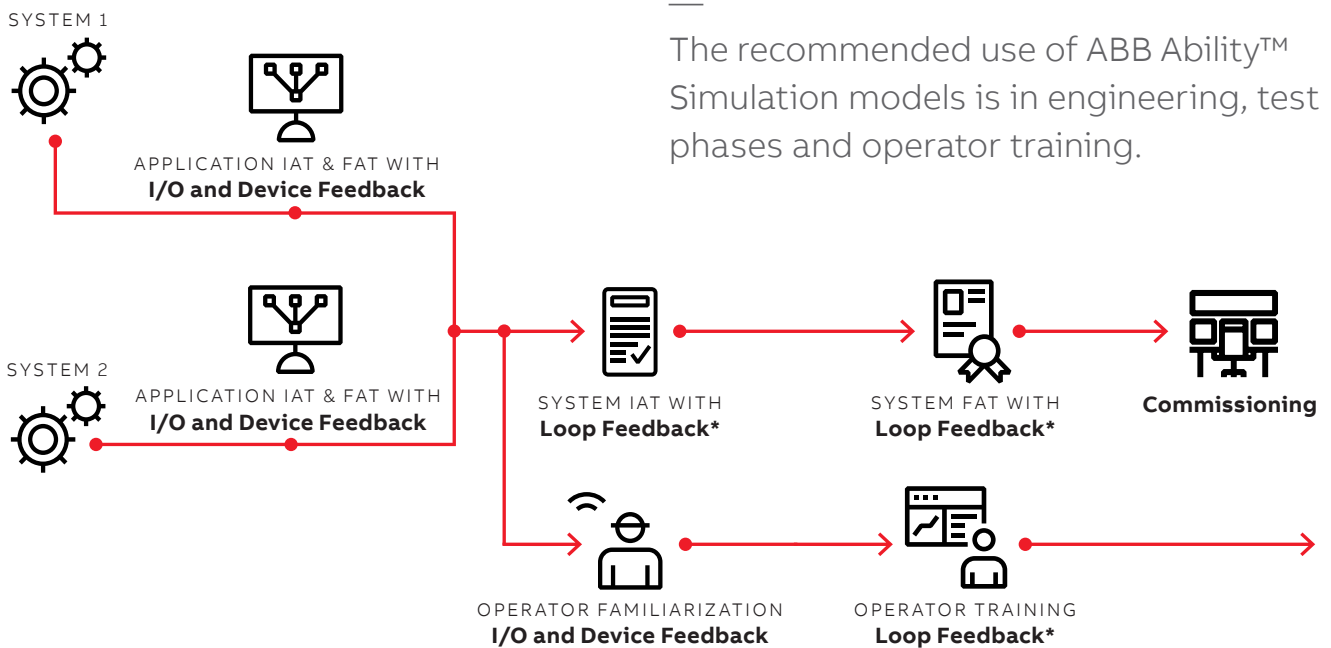
Some use cases are:

- Control system testing.
- Initialization of control signals to good default values.
- Fire & Gas applications.
- Utility systems that only need simple feedback simulation.
- Operator familiarization.

An 800xA Simulator system will be delivered with I/O and Device Feedback.

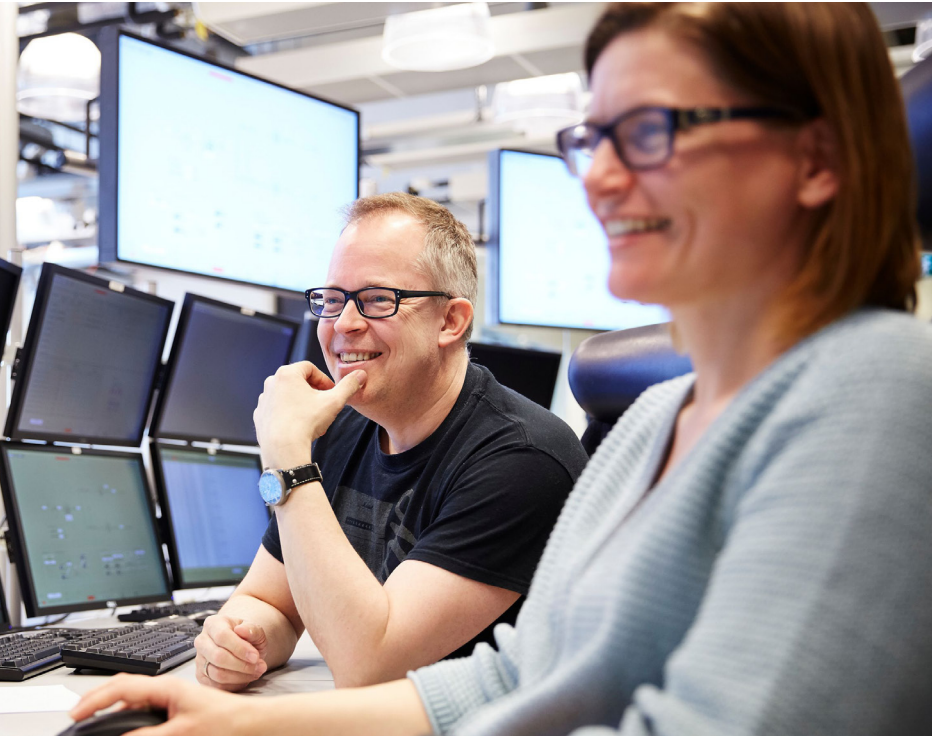
# What is I/O and Device Feedback simulation?

- Automatic population of simulation objects, reflecting control devices and sensors in the control system.
- Automatic OPC communication between simulation objects and control objects to exchange data and stimulate I/O back to the control system.
- Automatic feedback simulation of control devices (motors, drives, valves and actuators).
- Automatically initiates the sensors in the control system to good production state values.
- Engineer, tester or instructor can set manual feedback values to control devices or sensors.
- Early testing of protocol communication (Modbus, Profibus etc.).
- Manual I/O simulation.
- Ramping analog sensors from user input values and trigger alarm limit values.
- User can force one-by-one IO/hardware signal.



\* Note: Loop Feedback is an option in ABB Process Model Engine, extending the I/O and Device Feedback features.





#### The situation

There is an increased focus on health and safety, project savings and operational benefits on plants.



#### The problem

How to conduct an efficient software Factory Acceptance Test for the customer to verify implementation according to specification.

How to implement and test system updates, new control applications and operator displays prior to commissioning.



#### The solution

I/O and Device Feedback is a cost-efficient product that quickly and automatically sets up simulation towards a control system with a minimum need for engineering and configuration, providing efficient testing and operator familiarization of control system logic and operator displays.

## The benefits

- Reduce up to 40% costs by testing and fixing applications in a very early stage.
- Reduce engineering hours and commissioning time.
- Easy to set up.
- Early operator familiarization with the control system.
- Replaces test code in control applications and manual forcing.
- Increases quality by testing implementation before commissioning, reducing on site work and risk.
- Increases safety and reliability.
- Helps ensure compliance with regulatory testing.





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## Contact

Sales Support:  
[simulator.sales@no.abb.com](mailto:simulator.sales@no.abb.com)

Technical Support:  
[contact.center@no.abb.com](mailto:contact.center@no.abb.com)

**[www.abb.com](http://www.abb.com)**