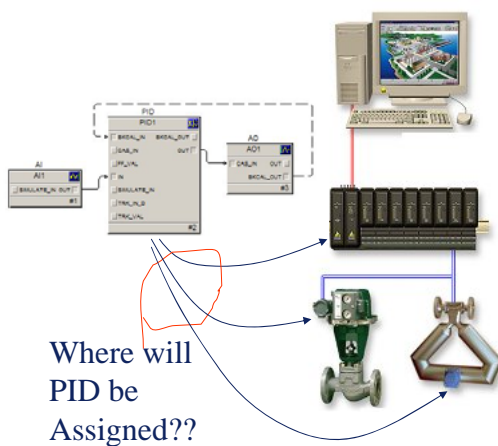


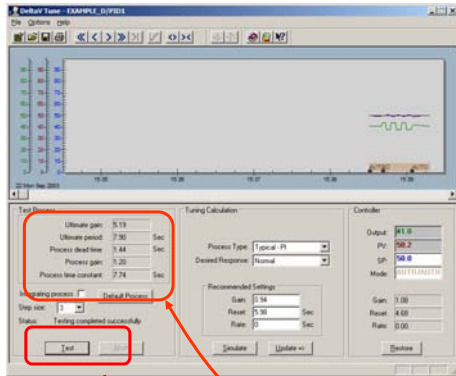
Minimizing Communications Delay/Jitter in PID Tuning

Control Loop Tuning

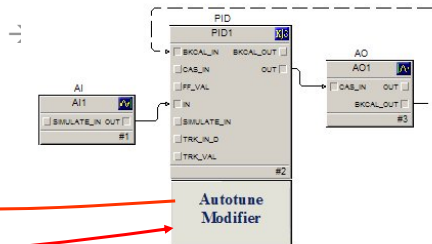


- *When an installation includes fieldbus devices, then the control loop may be assigned to the controller or done in fieldbus devices.*
- Independent of where control is done, to accurately tune the control the process dynamics must be captured without the distortion of communication delay and jitter

Tuning PID Assigned to the Controller



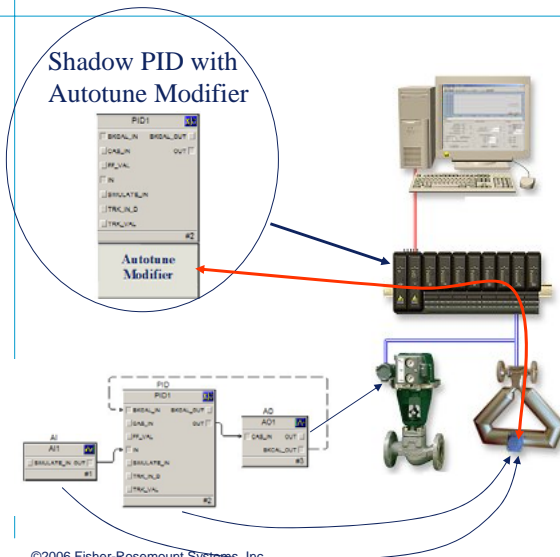
- Process dynamics may accurately captured using a function block Modifier.
- Modifier executes with the PID so results are not skewed by communication delay/jitter



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Tuning PID Assigned to Field Devices

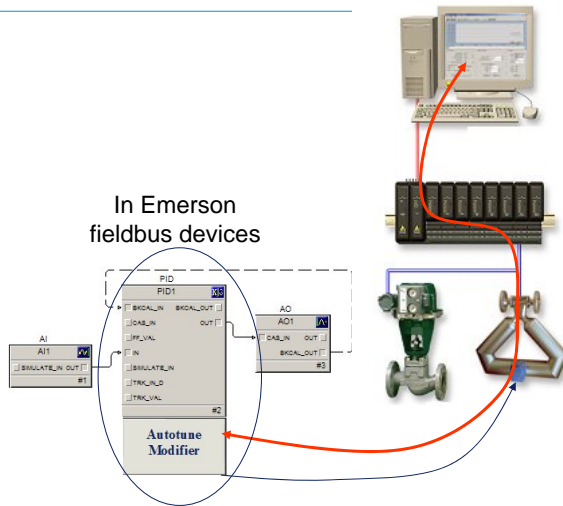


- A proxy (shadow block) may be used in the controller to make the PID appear to the tuning application as though the PID is assigned to the controller.
- A function block modifier may be added to the proxy to capture the process dynamics needed for tuning but results may be skewed by communication between the controller and the field device.
- Allows tuning support to be provided for all field device supplier.

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Tuning Support at The Fieldbus Devices

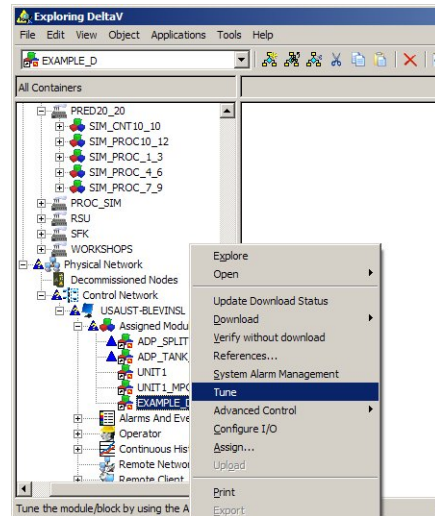


- All new Emerson fieldbus devices include an Autotune modifier as part of the PID. Initially available on 3244, 3051, 3144
- No communications delay or jitter in identified dynamics.
- Patent pending

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Minimizing Communications Delay/Jitter in PID Tuning

Example - Tuning Application



- The DeltaV Tune application may be launched in context by right clicking on the module or fieldbus block
- Testing of the process and capture of process dynamics is done using a function block modifier

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Testing the Process

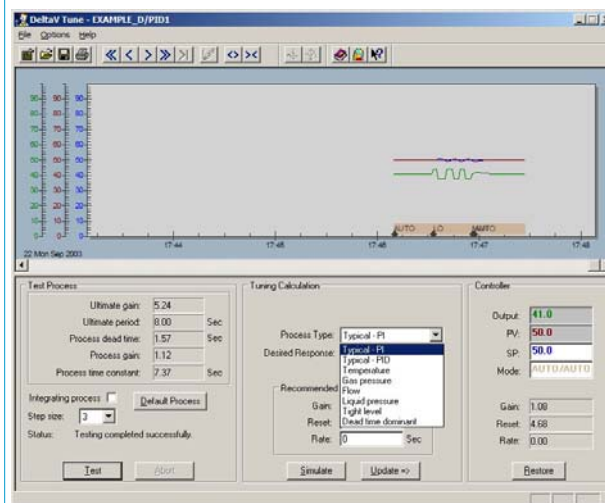


→ When “test” is selected, the PID Autotune block modifier changes the PID output by the amount specified and captures the process response.

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Minimizing Communications Delay/Jitter in PID Tuning

Select Tuning Rule



→ The default (“normal” user) tuning rules be used with fieldbus PID.

→ The “normal” rules apply to all process dynamics

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