

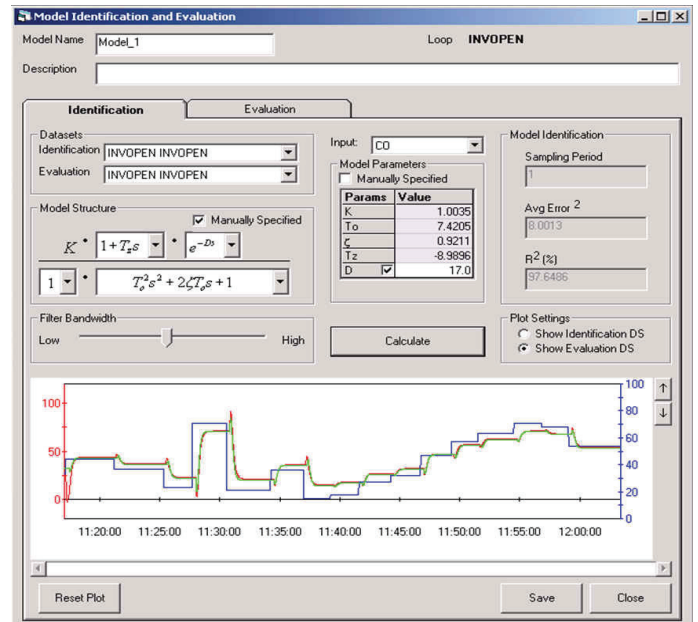
Loop Performance Manager (LPM)

Control loop optimization

Loop Performance Manager is the preferred tool for optimizing control loops in automation environments.

LPM provides an improved PI/PID controller tuning that can result in reduced quality variation, reduced downtime and higher productivity.

Improved control – more efficient production!



LPM – more than a control loop optimization software

The software package supports a wide variety of commercial and via OPC accessible PI/PID control block algorithms, both from ABB and other manufacturers.

Three tools under one roof

LPM provides the following three main components for process improvement with integrated report generation: the loop tuning and loop auditing tool and the plant-wide disturbance analysis.

Loop Tuning

The loop tuning tool is used to improve control loop performance and helps to search for the best tuning parameters for your PI/PID controllers.

Loop Auditing

Loop auditing works in the background of your plant without disturbances to the process, automatically monitoring the system behavior and loop performance. With loop auditing you are able to detect low performing control loops.

Plant-wide Disturbance Analysis

This tool detects the root causes of disturbances, when controller groups show low performance and provides a comprehensive disturbance classification.

How LPM works?

The first stage of control loop tuning is data collection of control loop changes and under damped behavior.

Next stage is the model identification. LPM also can determine the complexity of the model, or the user can manually select a preferred model structure.

Following the optimization algorithm computes the best tuning parameters for your control loop.

With the simulation of an input disturbance and a setpoint change you can evaluate the improved controller performance.

By combining data collection, control loop optimization and simulation in a single user interface, ABB delivers a complete tool for improving the safety and profitability of your DCS.

Possibilities of the practical LPM usage

- Loop Tuning „on demand“ as service in connection with Remote Diagnostic Services (RDS) for control loop optimization (without LPM license acquisition).
- LPM software acquisition and integration into the existing DCS, with extended services for consulting and usage.

Loop Performance Manager – functional overview

Data collection in LPM database

- Simultaneous data collection for multiple loops
- Data is saved and stored for future comparison

Model identification

- Automatic or manual selection of model structure
- Closed loop or open loop identification

Model evaluation

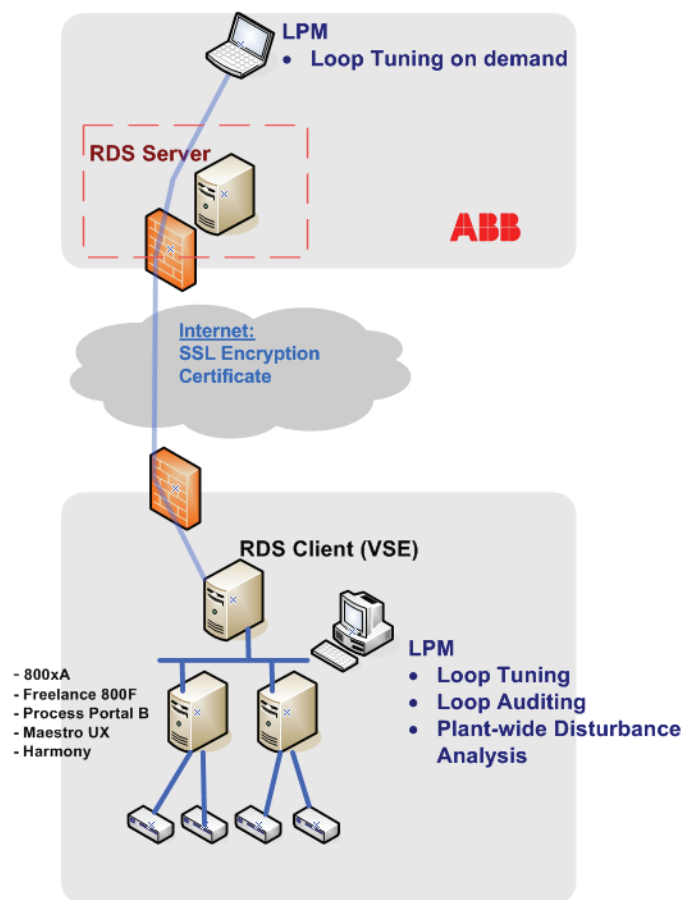
- Step response plots
- Frequency response plots
- Plot predicted data against actual data

Tuning evaluation

- Disturbance rejection
- Control output overshoot
- Maximum deviation
- Integral absolute error
- Frequency response plot
- Simulation plot
- Setpoint response
- Overshoot, rise time and setting time

Auditing

- Automatic data collection without any interference with the process
- Loop auditing based only on DCS internal signals (CO, PC, SP)
- Calculation of performance indices
- Automated reporting
- Problem diagnoses
- Detailed plot-based loop analysis



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