



A new “licensed” version of the Control Loop Asset Monitor (CLAM) is available with the System 800xA Extended Automation version SV5.0, SP2. It will identify any performance changes, or other monitored and enabled condition, that might represent operational issues or degradation of control loop equipment monitored within an 800xA System. Simple installation and configuration, followed by automatic training, permit CLAM to continuously monitor loop performance over the long term, indicating when degradation or operational changes have affected the performance of process equipment. Resulting notifications can alert operations and maintenance staff to situations which are making control loop operation significantly more costly and inefficient.

Functional description

The purpose of the ABB Control Loop Asset

Monitor (CLAM) is to assess the performance of a control loop, and report significant problems related to the controller and / or Final Control Element (FCE) to the ABB Asset Optimization (AO) system. The reported condition generates an alarm in the 800xA Alarm and Event system. Additionally, if a Computerized Maintenance Management System (CMMS), is configured, it is possible to quickly generate a Work Order for a maintenance request on the control loop equipment, as might be required when a loop is mistuned or a valve is exhibiting stiction.

The CLAM requires only simple data from any controller, usually acquired via an OPC connection to any control network. The basic inputs are Setpoint (SP), Process Value (PV), and Control Output (CO). Loop type is preset at installation, and loops of simple as well as cascade varieties are easily handled.

CLAM Condition Assessment

At every scheduled evaluation execution, CLAM evaluates the recently collected array of process values. Using these values, the Asset Monitor assesses the current performance of the controller and FCE, using unique ABB-proprietary algorithms.

If performance declines to a noticeable degree, a condition report is sent to AO for further handling. Maintenance issues related to loop tuning or valve problems, for example, can be automatically forwarded to an available CMMS.

Diagnostic Conditions Monitored by CLAM:

- Final Control Element (FCE) Stiction
- FCE Leakage
- FCE Size
- Excessive FCE Action
- Tuning Problem
- Loop Oscillations
- External Disturbances
- Loop Nonlinearity
- Data Reliability
- Insufficient Travel
- No Response to Signal Change
- Noisy or Unstable Output
- Sluggish Response
- Valve Body/Seat Wear

Asset Monitor dependencies

The following ABB software is required for installation, configuration and operation of the CLAM:

- 800xA Core System
- Asset Optimization
- Optional System Extensions:
 - Maximo or SAP / PM Integration (CMMS connectivity)
 - Messenger (e-mail / paging for maintenance needs)

Setup

Run setup for Asset Optimization, which will include CLAM as part of the standard library of Asset Monitors.

CLAM Configuration

There is a small set of values, parameters and operating limits which CLAM uses to perform its evaluations. Process values should be available via an OPC server. Setpoint (SP), Process Value (PV), and Control Output (CO) are all that is required for live data.

Every CLAM evaluation will be executed, at a recommended interval, by the Asset Monitoring Server Engine, and its input records will be subscribed to the CLAM Data Source. This interval is based on the type of loop and expected loop response time. Nominally, this interval is recommended to be approximately every 5-15 seconds for data acquisition, and analysis performed on data sets of 400 to 2000 samples.

For the latest information on Asset Optimization at ABB, visit us at www.abb.com/controlsystems.



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