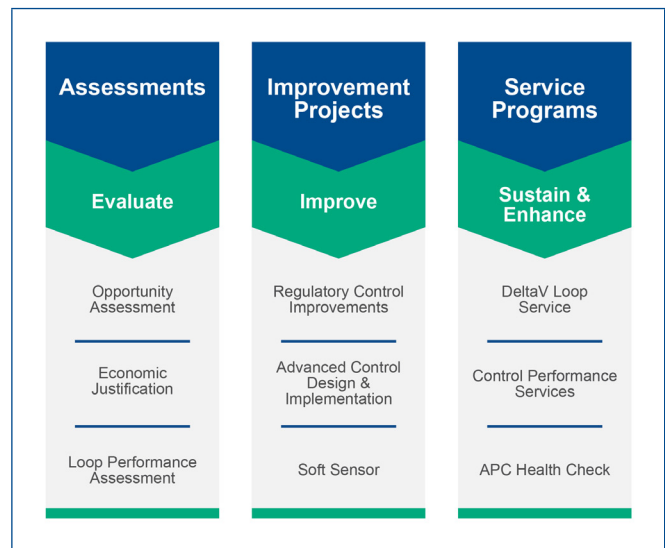


# Control Performance Service Programs

- Maximize the utilization of control loop diagnostic tools
- Sustain your operational performance through continuous process monitoring
- Maintain the benefits of an Advanced Process Control (APC) scheme



*Assess, improve, sustain, and enhance your process control strategies with Emerson's portfolio of Control Performance Solutions.*

## Introduction

Emerson's Control Performance Service Programs provide periodic reviews of actual process data, including assessing the health and effectiveness of the associated instrumentation and control valves. This service can be provided with Consultants onsite or through remotely connected services.

Emerson can provide hands-on training and mentoring of site personnel, ensuring that they are effectively utilizing the software tools that monitor the health status of your key automation assets. The performance of your control strategies may degrade over time, and frequent attention must be given to ensure that they keep yielding the operational benefits they were designed to achieve.

## Benefits

- **Maximize the utilization of control loop diagnostic tools**
  - Emerson has beneficial tools to help your staff maintain and improve upon the performance of the fundamental

automation assets within the control loops in your facility. The information in these tools is valuable but are often not fully utilized due to resource limitations. Enlist Emerson to "turn on" these tools for you and provide hands-on training of site personnel to properly set up the software, monitor your key loops, and generate and interpret reports.

- **Sustain your operational performance through continuous process monitoring** – In a typical process plant, almost two-thirds of control loops are underperforming, whether running in manual or exhibiting excessive variability. Many facilities do not have a formal, consistent approach to troubleshooting the root cause of poor control, leaving most problems uncorrected. Without routine and regular monitoring, problems may go undetected for weeks or even months before someone notices a problem. Through continuous monitoring, allow Emerson to help you understand when a faulty measurement, defective valve, or poor tuning is getting in the way of achieving your operational goals.

- **Maintain the benefits of an Advanced Process Control (APC) strategy** – APC projects often have a quick payback period; however, to sustain those benefits over a long period requires regular oversight by a qualified expert. After implementing a new control strategy, Emerson recommends periodic reviews to make sure the process is performing at its best. If not maintained, operators may turn off the APC and return to operating as before. Allow Emerson to ensure that your initial investment in APC is preserved and allow your facility to reap the benefits for years to come.

## Service Description

Emerson offers several service programs that can help you maintain, sustain, and enhance your Control Performance. For each of these programs, gain access to a team of expert Consultants with experience in many process industries including Refining, Chemical, Power, Pipelines, Pharmaceutical, Food & Beverage, Mining & Metals, Pulp & Paper and others. These programs can be tailored to fit your specific needs and requirements.

### DeltaV Loop Service

Determine how well your control loops are performing with Emerson's DeltaV Loop Service. A Control Performance Consultant will interpret the results of your Guardian Control Performance Score on a monthly basis and provide actionable recommendations to help maintain and improve your Control Performance for years to follow. An active Guardian Support subscription is required in addition to this service.

### APC Health Check

If APC solutions are not properly maintained, the advanced controls are eventually turned off and the operators go back to the "old way" of operating, thus losing the benefits from the technology investment. There are a number of reasons why APC performance degrades over time, such as poorly performing regulatory controls, sticking control valves, and process changes or constraints that are not reflected in the original APC models. Many of these can be easily resolved with the appropriate resources and attention.

Whether you have an Emerson SmartProcess™ application, a customized DeltaV Predict solution, or an Aspen DMC3™ Controller, Emerson can provide ongoing support to assure that you're receiving all the benefits from your APC investment. This support provides access to experts to help troubleshoot APC performance issues, as well as access to new releases,

upgrades, and documentation. On a scheduled and routine basis, Emerson can send a Consultant to your site to provide an APC Health Check which will include the following:

- Analysis of the overall performance of your APC strategy or SmartProcess application.
- Confirmation the optimizer is working as designed.
- Review of the performance of regulatory control loops.
- Tuning adjustments to process models and regulatory control loops (if necessary).
- A report documenting the findings and recommendations for further improvement.

## Control Performance Services

### Startup Services

Whether starting up a completely new greenfield process, an existing process after a major turnaround, or a brownfield control system migration, your control loops may exhibit oscillatory behavior as you ramp your production towards steady state. In the case of a greenfield startup, tuning of loops as they come online can help your operators put them in Automatic Mode sooner, allowing for a safer, quicker, and more profitable startup. In the case of a brownfield startup, modifications made during a turnaround may create different operating conditions that affect your process dynamics; what may have been tuned optimally before turnaround may be difficult to control post-turnaround.

Startups can be a stressful experience, and Emerson can help you stabilize the controls, tune loops as necessary, and troubleshoot any unforeseen control problems that arise. Let Emerson supplement your internal operations team, allowing them to focus on critical mechanical tasks while we focus on Control Performance and process stability tasks.

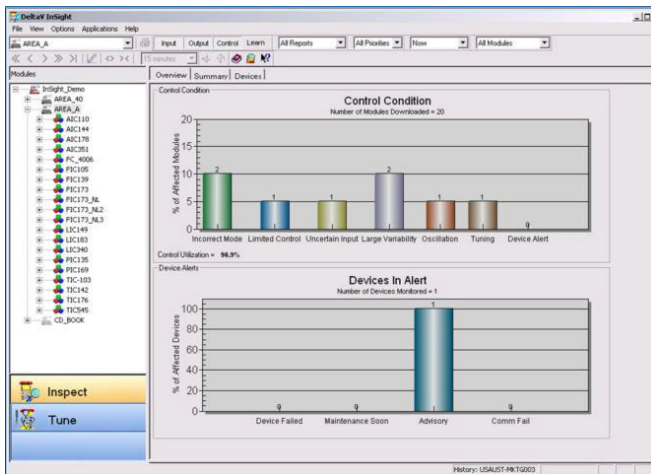
### Continuous Performance Monitoring Services

Engineers should be equipped with the latest software tools that provide a systematic way to monitor, diagnose, and improve process control performance. For DeltaV InSight users, Emerson can help you deploy the software properly and efficiently. With Emerson's Continuous Performance Monitoring Services, utilize the full capabilities of the software to maximize your return on investment.

This service includes setting up the software so that all parameters, performance indices limits, loop priorities, and suggested options are properly configured for each control loop in your DeltaV System. To ensure that the resulting performance dashboards and reports focus on

your most critical control assets, Emerson will consult your process and operations staff. Depending on the size of your system(s), this service can take between 1-5 days, or longer for very large and/or multiple systems.

Additionally, this service provides the actual configuration of your DeltaV InSight software and can be tailored to include additional off-site support as necessary. The Consultant will involve your key stakeholders, which includes hands-on training, to ensure that the software is properly maintained in the future and applied appropriately to new or changed control loops.



DeltaV InSight

### Dedicated Consultant

An Emerson Control Performance Consultant can supplement your staff by providing regularly scheduled onsite services to assist with your current Control Performance challenges. The frequency of site visits can be tailored to your ever-changing project demand and internal resource availability. Schedule weekly, monthly, quarterly, biannual, or annual visits. Typical services include maintenance of existing APC strategies, APC health checks, feasibility studies or audit of a process, troubleshooting a Control Performance problem, or implementing a new APC strategy.

### Training & Mentoring Services

Emerson Consultants can provide relevant industry expertise to train and mentor your Process Control Engineers. Training courses can be tailored to fit your specific needs and can include both classroom-style lectures and hands-on training using your actual process data on your DeltaV System. Topics can be combined, if necessary, to create a curriculum that covers many areas relevant to achieving better Control Performance. Some topics include:

- Use of APC tools such as DeltaV InSight, DeltaV Predict, and DeltaV Neural
- Applied Modern Loop Tuning using Lambda Tuning Techniques
- Use of Emerson's EnTech Toolkit (Collect, Tuner, and Analyze)
- Advanced Regulatory Control (Cascade, Feedforward, Ratio, Split Range, etc.)
- Process Control troubleshooting

### Ordering Information

Consult your local Emerson office or Emerson's Control and Operator Performance Center of Excellence for availability and quotation.

### Related Products and Services

- Control Performance Assessments
- Control Performance Improvement Projects
- DeltaV Loop Service
- DeltaV InSight
- DeltaV Predict
- SmartProcess Optimization Software
- Aspen DMC

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