

State Based Control Services

- Reduction in unplanned events
- Reduction in operator error
- Improvements in asset utilization with reduced equipment failure and process disturbances
- Reduction in startup/shutdown duration



Reduce unplanned events with Emerson's State Based Control Services

Introduction

State Based Control, a form of Procedural Automation, uses automation and dynamic alarm management to provide a solution that reduces unplanned events, which results in a safer facility. With State Based Control, your facility can stay in automatic for startup, shutdown and abnormal situations, keeping within the operational boundaries and away from alarms and trips. When a trip occurs, the unit will have a coordinated response to minimize operator interventions.

State Based Control maximizes the investment return in the control system by capturing knowledge in the form of operating discipline, that can be leveraged with greatly reduced training costs in a dynamic workforce.

Safety and operability are enhanced through the uses of safe states in units and the communication between units to optimize the response to degradation scenarios.

Operators are in a position to manage the process through state changes, avoiding problems and optimizing performance.

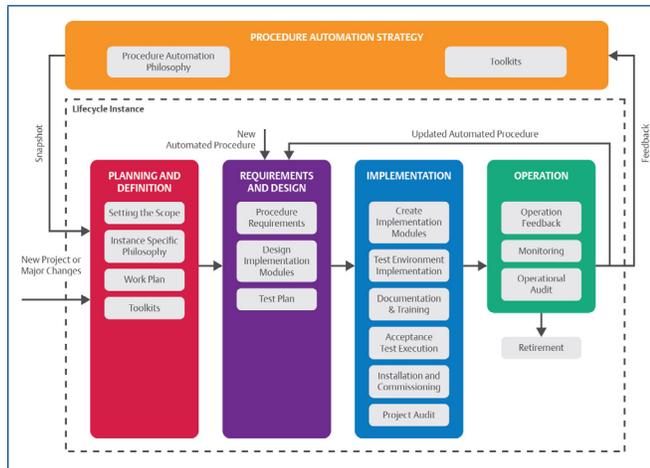
Modular architecture with State Based Control enables cost effective capture, transfer and continuous improvement of operating discipline.

Benefits of State Based Control

- **Reduction in unplanned events** – State Based Control can provide a coordinated and consistent response to abnormal situations. Through proper automation, your facility will have fewer environmental and safety incidents.
- **Reduction in operator error** – State Based Control will capture the best practices of operators, which is like having the best operator on the board at all times. By embedding these best practices and procedures in the control system, operators will have fewer opportunities to make mistakes and better visibility to the current state of the process.
- **Improvements in asset utilization** – By reducing the chance of trips due to operator error, equipment will be on-line a higher percentage of the time with State Based Control. Plant excursions from normal operation will be minimized, and an overall smoother and safer operation will be realized.

- Reduction in startup/shutdown duration** – State Based Control can execute several functions in parallel, as compared to an Operator who can only execute one task at a time. This provides an opportunity to improve your facility’s time to reach steady state during startup, which has often led to a 2-4% increase in plant capacity.

Service Description



ISA 106 Lifecycle

Emerson has the capability to execute end-to-end State Based Control projects, in accordance with ISA 106.

- Procedural Automation Strategy** – Emerson can help start your journey in digitally transforming operations by assisting in developing a Procedural Automation Strategy. This includes a philosophy that defines work processes, owners and indicators from inception through retirement of a process’s automation requirements fit for your unique organization. Utilize a standard measure to identify and justify automation opportunity that improves safety, reliability and profitability of operations.
- State Based Control Toolkits** – Use a standard building methodology to reduce complexity of automating, capture of knowledge, and reuse. Emerson has standard toolkits available that use the technology of DeltaV to deliver the benefits of State Based Control. Emerson can provide expertise to ensure a consistent approach across all automation platforms.

- State Based Control Assessment** – This assessment selects which Unit Operations are candidates for State Based Control and provides the high-level design to meet business objectives and mitigate process problems. The assessment determines the appropriate level of automation to maximize value.

- Operational Specification Development** – Capture best practices in operating discipline into the specification for the State Based Control. Leverage the high-level design from the assessment into detailed specification that is used in the Control Application phase and as the basis for checkout and FAT.

- State Based Control Implementation** – Using the final, approved specification from the above step, Emerson will conduct the automation system configuration with site personnel actively involved in verification and approval of design.

- State Based Control Application Development** – Automation configuration is generated from the approved specification maximizing the use of the toolkit to ensure standardization.

- State Based Control Checkout** – Verify that the control applications meet the requirements of the specifications. This step requires a Digital Twin (Dynamic Simulation) of the process to adequately test the configured State Based Control strategies.

- Operator Training** – Emerson will perform operator training, ideally with an Operator Training System (OTS) using the same Digital Twin referenced above. This will verify Operator competency with the State Based Control.

- Commissioning** – Finally, a commissioning plan will be developed to insure proper tuning and operation.

Ordering Information

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

Related Products

- DeltaV
- AgileOps
- Mimic Simulation Software

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