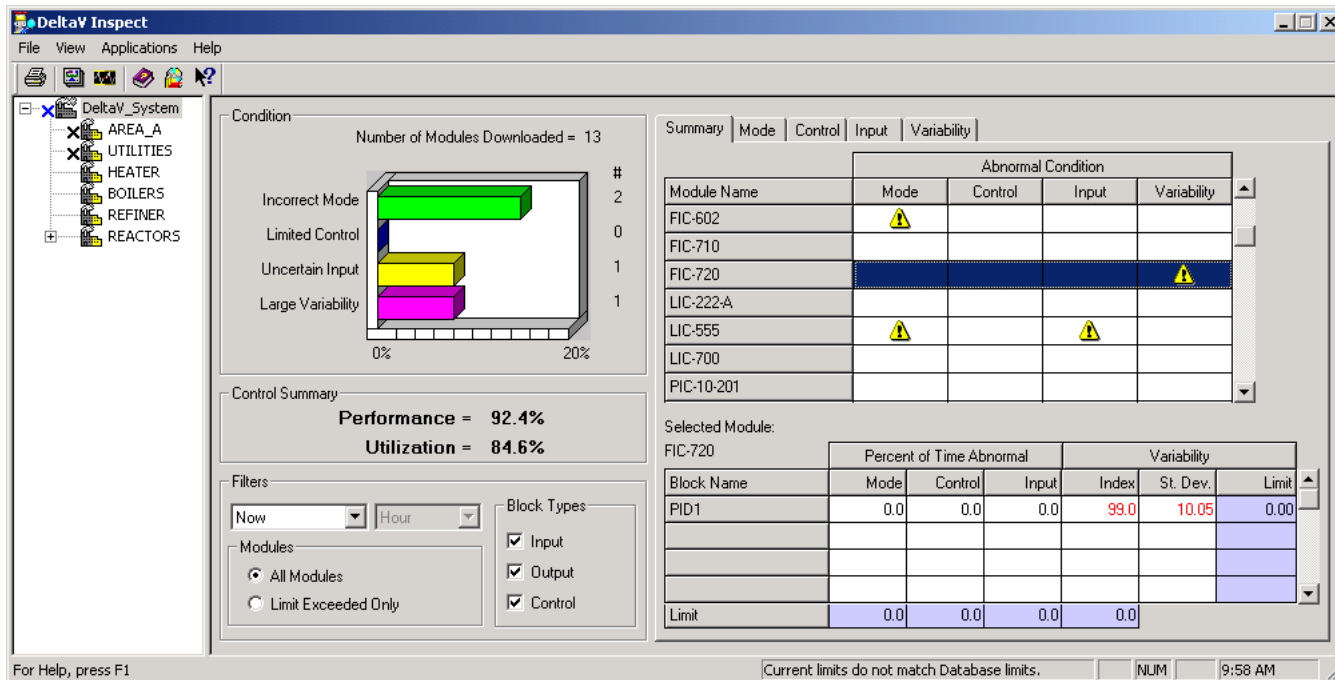


DeltaV Inspect*



Let DeltaV Inspect help keep your plant's control healthy.

- Keeps tabs on the health of process equipment and instrumentation
- Automatically Identifies problem areas
- Monitors the pulse of your plant
- This is a bulleted list of key selling points
- Requires no configuration

Introduction

Don't let poorly tuned loops and malfunctioning field devices compromise control quality and safety at your plant. *DeltaV Inspect* is an advanced process-monitoring system that instantly identifies under-performing loops.

DeltaV Inspect identifies and quantifies the following conditions and presents them graphically: loop utilization; bad, uncertain and limited measurement status; control limited; and abnormal process variability. This functionality, combined with an easy-to-use, no configuration required interface, ensures a finely tuned process that produces on spec products at optimal cost.

* Starting in DeltaV release v9.3, DeltaV Inspect has been replaced by DeltaV InSight, which includes all the functionality of DeltaV Inspect plus much more. See DeltaV InSight product data sheet for more information.



Benefits

Keeps tabs on the health of process equipment.

Use DeltaV Inspect variability indexes to monitor plant control performance for all input/output, and control blocks. Know immediately when the process variability increases from its normal value, signifying that a measurement or control element may need attention or a loop may need tuning.

Identifies problem areas. DeltaV Inspect automatically displays abnormal conditions, so you can easily identify the problem control or input/output block. Using the tree structure it is possible to browse abnormal conditions for just a single loop, for a unit or process area, or for the entire system.

Monitors the pulse of your plant. Plant-wide control performance and control utilization indices are calculated automatically. The performance index is a measure of how close loop performance is to minimum variance control. The control utilization value is based on the percentage of time that control loops are in the correct mode.

Requires no configuration. DeltaV Inspect automatically recognizes input/output and control blocks as they are added to or deleted from any DeltaV controller. Default limits are automatically provided and can be easily reset either individually or system wide.

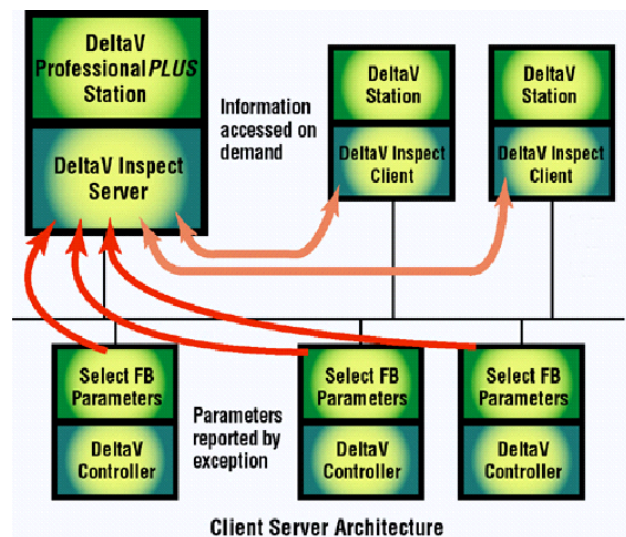
Product Description

To allow process variability to be accurately assessed by DeltaV Inspect, total standard deviation (S_{tot}) and capability standard deviation (S_{cap}) are automatically calculated by each input, output and control function block in the DeltaV controller. The value determined after 100 executions of each block is communicated from the controller to the DeltaV Inspect server in the DeltaV ProfessionalPLUS Station. This information is automatically used to calculate a variability index for each block. Block status-and-mode information is reported to the server using exception reporting, i.e. reporting when the value changes. The server uses these mode and status values to detect any abnormal conditions associated with the block operation.

In the case of control blocks, the variability index calculated by the DeltaV Inspect server indicates how close loop performance is to minimum variance control. Based on this measurement of variability, individual modules that contain blocks with excessive variability are automatically flagged for display in DeltaV Inspect.

By selecting a displayed module, you can view the variability index calculated for each input, output, or control block in that module. To prevent false indication caused by short-term changes in throughput, this detection is based on the average variability over a selected timeframe: hour, shift or day.

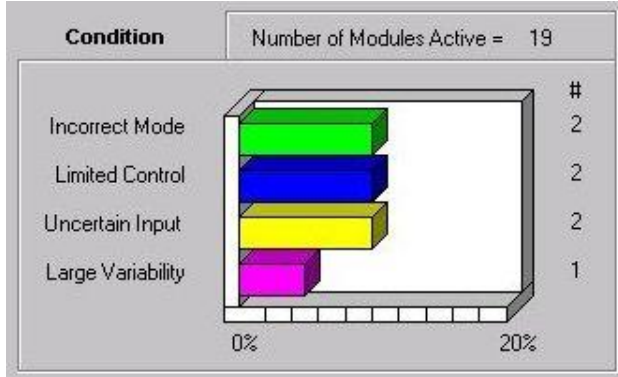
DeltaV Inspect uses a total standard deviation and capability standard deviation, calculated in the DeltaV input/output and Control Function Blocks, to calculate a variability index. This indicates the possible improvement for control blocks as compared to minimum variance control.



Based on block mode and parameter status, DeltaV Inspect automatically identifies abnormal conditions and graphically displays them on a DeltaV workstation. The conditions detected are:

- **Bad I/O.** The block process variable is bad, uncertain, or limited.
- **Limited control action.** A downstream condition that limits the control action taken by the block has developed.
- **Mode not normal.** The actual mode of the block does not match the normal mode configured for the block.

The percentage of time that these conditions exist over an hour, shift, or day is computed for each block and compared to a configured global limit for each condition. When one of these limits is exceeded, a graphical module summary is generated, which includes the associated module, as shown in the graph below.



The modules included in this summary are also individually listed. By selecting one of these modules, you get a detailed view of the input/output, or control blocks in the modules that are malfunctioning. You can also view the calculated variability and percentage of time an abnormal condition existed.

From this detail display, you may change time percentage and variability limits.

Selected Module: LIC165

| Block Name | Percent of Time Abnormal | | | Variability | |
|------------|--------------------------|---------|-------|-------------|-------|
| | Mode | Control | Input | Index | Limit |
| AI1 | 0.0 | 0.0 | 0.0 | 14.2 | 10.0 |
| AO1 | 0.0 | 0.0 | 0.0 | 13.9 | 10.0 |
| PID1 | 5.0 | 100.0 | 0.0 | 89.5 | 10.0 |
| Limit | 1.0 | 1.0 | 1.0 | | |

When the DeltaV Inspect capability is enabled on a controller, all input/output, and control blocks from that DeltaV controller and connected Emerson Process Management FOUNDATION fieldbus devices will be automatically monitored. From the file menu, you can select individual controllers for monitoring by DeltaV Inspect.

DeltaV Inspect automatically configures itself as control strategies are added to or deleted from the system. No communications interface or mapping of tags is required for DeltaV Inspect to run, which means no extra engineering work for you.

Although DeltaV Inspect provides default limits for the variability index and for system incorrect mode, limited and bad percent time, you can change these default values based on your specific knowledge of your process.

If you have a non-continuous process or are subject to intermittent out of service periods DeltaV Inspect calculations can even be configured to stop and start programmatically based on the state of your process.

Using the Inspect function block it's possible to make inspect disable calculations for a specific area based on the running state of the process.



The Inspect block also allows you to historically trend and even alarm on the performance or utilization parameters for a given process area or the entire system.

Ordering Information

| Description | Model Number |
|-----------------|---|
| DeltaV Inspect* | Standard functionality included in every DeltaV system, and installed on every DeltaV workstation running v8.4 and earlier. |

** Starting in DeltaV release v9.3, DeltaV Inspect has been replaced by DeltaV InSight, which includes all the functionality of DeltaV Inspect plus much more. See DeltaV InSight product data sheet for more information.*

Related Products

- **DeltaV InSight.** Control performance monitoring and loop tuning application embedded in DeltaV. Identifies control problems and improves control performance with automatic process learning, loop diagnostics, on-demand and adaptive tuning, and automatic report generation.

Prerequisites

- The DeltaV Inspect client application can be run from any DeltaV workstation running release v8.4 or earlier

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