GE Energy’s Distributed Control System (DCS) provides total plant control at a single level, combining the gas turbine, steam turbine, generator, boiler or HRSG, and balance-of-plant equipment control in a single distributed architecture. Built on our years of experience of providing superior turbine controls, GE Energy can help you operate your entire power plant from one, integrated control with a custom-engineering DCS solution.

GE Energy’s DCS is a flexible solution for today’s power plants. Able to be built on the Mark VI or the Mark VIe platforms, local or remote I/O and controllers can be provided in any redundancy configuration. Monitoring and control of the power plant are accomplished through common operator Human-Machine Interfaces (HMI) that run on the Microsoft* Windows* operating system and utilize CIMPLICITY** graphic software. HMI screens and navigation are common among all components of the power plant, with each HMI having access to all plant equipment, enabling full functionality from any point in the plant.

Distributed data can be obtained quickly and reliably from any part of the plant through redundant Ethernet networks. The plant-wide Historian provides time coherent data collection and analysis, fully integrating the turbine, generator, and BOP equipment. Additionally, GE’s robust ToolboxST*** serves as a single software configuration and diagnostic tool on all DCS-controlled equipment, providing powerful plant performance analysis capabilities.

GE Energy’s DCS is more than just cutting edge controls technology. We offer the knowledge and industry expertise to develop a reliable answer for your plant, from utilizing patented controller software algorithms to incorporating the latest GE hardware for customized configurations. Using an integrated approach that includes consultative design and engineering services, spare parts, maintenance and repairs, training, and personalized project management, GE Energy delivers the results to help your plant achieve success.

From combined-cycle to fossil to nuclear, improve your power plant operations with better data, where you need it, when you need it. Standardize on a common DCS platform for an integrated, reliable solution to reduce supplier interfaces, improve plant data quality, and increase profitability. Turn to GE Energy for plant-wide control of your power plant.
Benefits of a True Plant Solution

Compared to the traditional DCS approach to plant control, GE Energy’s DCS solution offers a variety of benefits to the controls engineer and power plant operator. Benefits are realized from plant integration, improved plant operation, and reduced costs.

Integrating Plant Control
(single system plant control)

- Unified plant control, monitoring, and data collection
- Full control from each operator station for all equipment through the HMI; one interface to monitor and control plant equipment
- Common screens and navigation for turbines and BOP
- Single vendor responsibility for gas turbine, steam turbine, HRSG, and BOP controls
- Eliminates turbine control and DCS interfaces

Improving Plant Operation
(improve the quality of your plant data)

- Single configuration and diagnostic tool improves programming and troubleshooting, decreasing operator and maintenance training expenses
- Common alarm system with SOE capability for all digital inputs
- One time coherent database for all plant equipment
- Plant-wide Historian with OSI Pi and Pi-to-Pi system interface options

Reducing Costs
(increase your profitability)

- Common hardware minimizes spare parts, training costs, and time and expenses associated with start-up
- Increased availability and reduced downtime through flexible redundancy
- Eliminates engineered gateways, hard-wired interfaces, and duplication which lowers engineering and installation costs
- Performance optimization and maintenance management software
- Central or remote I/O options provide flexibility in plant design and reduces installation costs

Specifications

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Mark VI or Mark Vle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Networks</td>
<td>100MB Ethernet (cat 5 &amp; fiber)</td>
</tr>
<tr>
<td>Redundancy</td>
<td>Simplex, dual, triple</td>
</tr>
<tr>
<td>System speed</td>
<td>10ms in any configuration</td>
</tr>
<tr>
<td>Operating System</td>
<td>QNX [Controllers &amp; I/O]</td>
</tr>
<tr>
<td>Repair</td>
<td>Online repair, downloads, hot-swap</td>
</tr>
<tr>
<td>Temperature</td>
<td>-30°C to 65°C (sensor on each I/O block)</td>
</tr>
<tr>
<td>Accuracy</td>
<td>Specified over entire operating range</td>
</tr>
<tr>
<td>Software</td>
<td>Fully programmable w/multiple block libraries</td>
</tr>
<tr>
<td>Format</td>
<td>Function blocks &amp; ladder diagrams</td>
</tr>
</tbody>
</table>

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www.gepower.com/controlsystems

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*** ToolboxST is a trademark of the General Electric Company.