

The D/3® Distributed Control System (DCS) is a completely scalable solution to meet your current and future process control needs. NovaTech D/3 products are currently employed by customers with as few as 50 and as many as 40,000 tags — with room to grow to over 100,000 tags. The D/3 consists of four major components: OCMs, DCMs, PCMs, and I/O.

**OCMs**

The D/3® Operator Console Module (OCM) is designed to put the operator in control of the process. It provides a tightly integrated set of windows connecting to the process through the Display Control Module (DCM).

The operator uses custom, fully scalable TotalVision® graphics, containing process and system information, to interact with control loops and application programs controlling the process. These powerful, yet easy to create, graphics display process values, text messages, information from the sequence programs, buttons for accessing standard operating procedures (SOPs) in Word, maintenance records in Excel, and many other types of information. Graphics can be linked together and support a large library of pop up objects such as controller faceplates.

The operator can click on the InstAlarm™ button within the graphic and automatically see preformatted alarm pages. Automatic filtering presents only alarms related to process tags on the graphic – with no engineering configuration required. Select points on any graphic or alarm display and click the VersaTrend button to view historical or current trends of the selected points or call up any configured trend group. The console software accepts process control commands from the hardware process keyboard, annunciator panel and/or 'point and click' entry, and forwards them to the DCM. The OCM computer is a small workstation class computer running a Windows Desktop Operating System.



**D/3® System Architecture**  
Scalable, Efficient, & Redundant

**DCMs**

A Display Control Module serves/stores the process data used by multiple operator consoles. It provides all the information needed by the operator, from customizable alarm and trend displays to fully interactive custom graphics displays to control the plant. It also provides access to the process instrumentation located at the various PCMs and supports up to eight OCMs.

**The DCM**

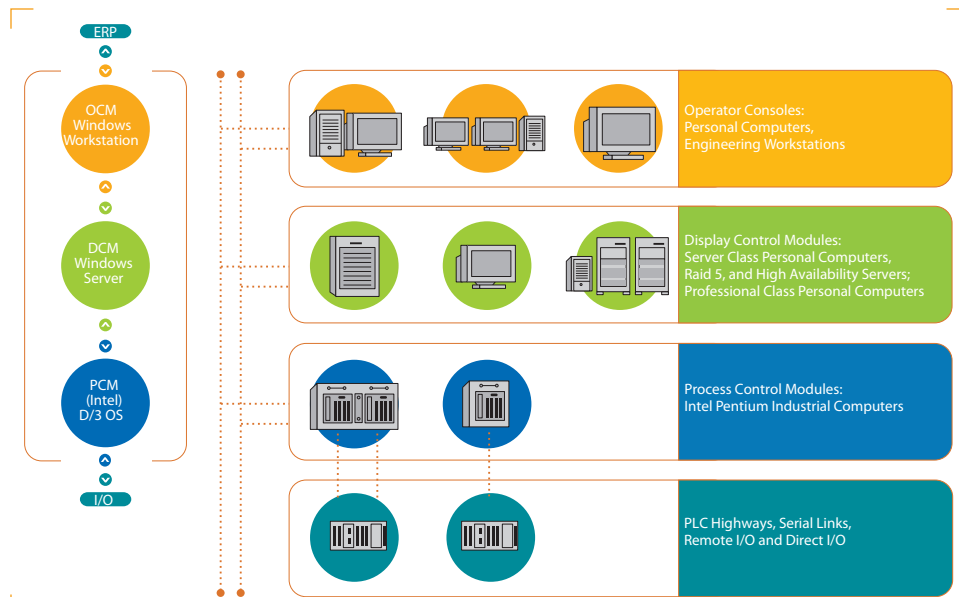
- provides the operator a view of the process,
- allows real time access to process instrumentation information,
- supports redundant operation of Operator Consoles,
- provides trended and real-time data, and
- provides alarm data.

The DCM computer used in a large production environment is typically a small server class computer with multiple disk drives and runs a Windows Server Operating System. The DCM and OCM software can both reside on the same computer.

**CDCM**

In addition to all the functions of a DCM, the Configurator Display Control Module (CDCM) is the primary configuration computer for the D/3® DCS. Each D/3 system requires one node to be the CDCM. System configuration software installed on this node is used to

- configure the D/3 system,
- develop continuous & sequence databases,
- design sequence programs,
- build console display groups, and
- create HMI process graphics.



D/3® System Architecture



## D/3® System Architecture

Scalable, Efficient, & Redundant

Because of its power and larger storage capacity, in addition to performing the configuration functions and being able to support up to eight operator consoles, the CDCM is often the computer system used to

- archive alarms,
- trend process data,
- support HMI functionality, and
- perform advanced control applications.

The CDCM supports multiple concurrent users connected to the CDCM, using Terminal Services Clients, to perform engineering and configuration functions at the same time. The OCM software can also be installed on the same computer and provide all the functionality of both an engineering and operation station.

The CDCM computer used in a large production environment is usually a powerful server class computer with multiple disk drives configured in a RAID set and running a Windows Server Operating System. The server may be a multi-processor machine and incorporate other features to improve the overall computer performance.

CDCMs are also available using fault tolerant Stratus ftServers. These servers provide 99.999% and greater uptime using specially designed hardware and modifications to “harden” the Windows operating system.

For smaller production, laboratory automation, pilot plant automation, development, and training systems the CDCM software is often installed on less powerful and less expensive computer hardware. NovaTech offers a range of private labeled computers to meet the needs of all levels of CDCMs, DCMs and OCMs.

### PCMs

The Process Control Module (PCM) is a real-time, microprocessor-based industrial computer that performs continuous, sequential, and batch control functions. It also communicates with other D/3® nodes to support alarm, trending, and display functionality.

Each PCM can connect to a variety of I/O and field devices using a number of available protocols. The PCM can be used for applications ranging from less than a hundred to several thousand I/O points. Just install the 250, 500, 1000, 1500, or max tag license you need. There is no need to upgrade controllers for increased functionality. Licenses can be easily upgraded as your application grows by simply adding a license file to your D/3® system.

PCM redundancy is automatic with the addition of the redundant hardware and license and the enabling of that PCM in the configuration utility. This means you can easily add a redundant PCM to a rackmount chassis. All the same databases and control programs run in both PCMs with no special programming required. The controllers communicate information required for synchronization with each other over a dedicated high-speed Ethernet connection between the redundant PCMs.

### Superior I/O Support

NovaTech 8000 Series I/O includes a full range of remote I/O modules with a -40°C to +70°C temperature range and ISA's stringent G3 corrosion resistance. HART® information passes through the modules without additional field wiring and intrinsically safe modules are available for hazardous locations. In addition to the redundant Ethernet communication modules, NovaTech 8000 I/O is available in a 1 to 6 I/O module redundant configuration. D/3 also directly supports I/O families from Schneider and Siemens and a wide variety of I/O protocols including Modbus/TCP, EtherNet/IP, Foundation Fieldbus, and DF-1.

### Reliable Ethernet Communications

D/3® uses reliable Ethernet communications to all D/3 nodes. It fully supports redundant Ethernet highways to eliminate any single point of failure in the communication system. Peer-to-peer communications between PCMs and DCMs speed across the high-speed 100 Mbit Ethernets.

### Open Architecture

The open architecture design of D/3® ensures that all process information is available to a variety of industry standard applications. D/3 process information is available to other applications through such powerful industry standard tools as ODBC, DCE, OPC, and standard C database access techniques. Process data is made available to a vast number of applications, including Microsoft Word, Excel, and Access, to present information in the most meaningful way possible for your individual plant operation.

### Modular System Design

The modular nature of D/3® ensures that the 250-point D/3 Compact® you install today will be capable of supporting over 100,000 points that you may need in the future. Backward compatibility is always a major consideration with all new products introduced for D/3. Hundreds of D/3 systems installed over a decade ago continue to expand, modernize and utilize the latest product features.

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