Introduction to DeltaV System
A new DCS whose formers are PROVOX, RS3 in Emerson
DeltaV System Architect
DeltaV Control Network

The DeltaV Control Network is a standard Ethernet network interconnecting the DeltaV workstations and the controllers. CAT 5 screened (ScTP) twisted-pair cable connects each node to the hub or switch.

The Control Network is a dual-speed 10/100BaseT network. The standards-based, high-performance DeltaV Control Network is easy to install and maintain.
**LocalBus** that consists of an internal power bus on the Power Controller Carrier, busses on the associated I/O interface carriers, and connecting cables. The LocalBus supplies power to the controller and the I/O subsystem and provides communications connections between cards. System power (12 VDC) can be shared along the length of the LocalBus. The length of the LocalBus, including all cabling, cannot exceed 6.5 m (21.3 ft.) as shown in the following figure. The length requirement is the same for vertically mounted systems.
DeltaV Cabinet

### Enclosure Description

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cabinet</td>
<td>Single Door, Wall Mount, NEMA 12 Enclosure, 40&quot;Hx32&quot;Wx12&quot;D</td>
</tr>
<tr>
<td>Sub-panel</td>
<td>Sub-panel 38&quot;Hx29&quot;W</td>
</tr>
<tr>
<td>Material</td>
<td>Body: 16 gauge carbon steel body, Door: 14 gauge carbon steel door</td>
</tr>
<tr>
<td>Finish Color</td>
<td>Enclosure / Door: E-coat primer and powder painted</td>
</tr>
<tr>
<td></td>
<td>Outside: RAL 7032 pebble grey</td>
</tr>
<tr>
<td>Sub Panel</td>
<td>Galvanized</td>
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<tr>
<td>Cabinet</td>
<td>Single Door, Free Standing, NEMA 12 Enclosure, 73&quot;Hx31&quot;Wx24&quot;D, including 1 Full Mount Panel, Dual Access, 2 Side Walls, Plinth Base, Rear Full Mount Panel</td>
</tr>
<tr>
<td>Material</td>
<td>Body: 16 gauge carbon steel body, Door: 14 gauge carbon steel door</td>
</tr>
<tr>
<td>Finish Color</td>
<td>Enclosure / Door: E-coat primer and powder painted</td>
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<tr>
<td>Cabinet</td>
<td>Dual Door, Free Standing, NEMA 12 Enclosure, 79&quot;Hx48&quot;Wx24&quot;D, Full Mount Sub-Panel, Front Access, 2 Side Walls, and Plinth Base</td>
</tr>
<tr>
<td>Material</td>
<td>Body: 16 gauge carbon steel body, Door: 14 gauge carbon steel door</td>
</tr>
<tr>
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<td>Enclosure / Door: E-coat primer and powder painted</td>
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</table>
DeltaV Power Supply

The DeltaV power supplies are modular, easy to install, and secure.
DeltaV Controller (MD, MD plus)

The DeltaV Controller and the DeltaV I/O subsystem make rapid installation easy.

<table>
<thead>
<tr>
<th>Specifications for the MD Plus Controller</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power requirement</td>
</tr>
<tr>
<td>Fuse protection</td>
</tr>
<tr>
<td>Power dissipation</td>
</tr>
</tbody>
</table>

Environmental specifications:

| Operating temperature                   | -40° to 70° C (-40° to 158° F) |

Hazardous area/location:
- Refer to Zone 2 installation instructions (12P2046) and/or Class 1 Division 2 installation instructions (12P1293) for information on installing in hazardous areas.
  - ATEX EEx nA IIC T4
  - Class 1, Div 2, Groups A, B, C, D, T4

Vibration (operative limit):
- 1 mm peak-to-peak from 5 Hz to 16 Hz, 0.5 g from 16 Hz to 150 Hz

User Memory:
- MD-PLUS Controller 48 MB

External connections:
- Primary Control Network 8-pin RJ-45 connector
- Redundant Control Network 8-pin RJ-45 connector
DeltaV IO Cards

The DeltaV I/O subsystem is easy to install and maintain.

- I/O cards plugged into an 8-wide carrier
- Additional I/O
- Redundant power supplies and controllers plugged into 2-wide carriers

A Classic I/O card easily plugs into an I/O carrier.

Classic I/O terminal block.

Redundant I/O Cards and Term Block
DeltaV Software (MMI)

Toolbar for quick navigation

Main display

Alarm banner shows highest-priority alarms

Prebuilt graphics and a library of faceplates and dynamos facilitate a quick start.

Double your operational view with the DeltaV Dual Monitor option.
DeltaV Software (Config)

Configuration Software Suite is an integrated, modular, and graphical approach to system configuration.
DeltaV Software (Control Studio)

Tune and debug the

Breakpoints stop execution at a function block

Complete set of on-line troubleshooting capabilities.
DeltaV Software (Diagnostic Explorer)
DeltaV Software (Advanced Control)

1 Introduction
The DeltaV system delivers precision control for better plant performance—easy.

2 Advanced Control
Embedded, easy-to-use, sophisticated advanced control.

4 DeltaV Inspect
Provides key plant metrics for at-a-glance performance and abnormal condition monitoring.

6 DeltaV Tune
Makes loop tuning easy—whether it's PID or fuzzy logic control.

8 DeltaV Fuzzy
Provides improvement over classic PID control for those tough applications.

10 DeltaV Predict
Gives you state-of-the-art constrained multivariable model predictive control to tackle the most difficult control problems—easy.

12 DeltaV Neural
Provides accurate virtual sensors based on neural net technology.

14 DeltaV Simulation Suite
Provides a complete engineering and operating environment, plus virtual controller to develop and test control strategies on a PC.

16 DeltaV Simulation Suite - Professional
Add Simulate Pro for more power and advanced functionality such as global enable/disable of simulation and faster/slower than real-time execution of control and logic.

17 DeltaV Simulation Suite - Multinode
For multiple user offline development or full scale operator training systems, use Simulate Multinode.

18 DeltaV Simulation Suite - mlmc
A complete process modeling package that interfaces with the DeltaV system or with DeltaV Simulate.

20 HYSYS.Plant
State-of-the-art dynamic simulation technology that helps you design, manage and operate processes efficiently and effectively.

20 HYSYS Operator Training System (HYSYS OTS+)
Enables you to effectively use HYSYS process simulation in the DeltaV system for operator training.

21 Real Time Optimization (RTO+)
Model-based performance monitoring and optimization application that helps you make informed, up-to-date decisions.

21 Multivariate Statistical Process Control (MSPC+)
Provides online process performance monitoring of continuous, batch and semi-batch processes.

22 e-efficiency
Maximize efficiency and minimize shutdowns. A web-based equipment performance monitoring solution.

24 Emerson Can Help
projects ranging from 8 I/O up to 30,000 I/O.

built for busses. open, interoperable bus technologies like FOUNDATION fieldbus, AS-i bus, Profibus DP, and DeviceNet

Only the DeltaV system is built with AMSinside so all of the device diagnostics are right at your fingertips in the control room and the maintenance shop
Digital plants made easy

PlantWeb® is a digital plant architecture that delivers proven results, and the DeltaV system makes it easy.

Built for digital busses

- FOUNDATION fieldbus
- HART
- AS-i Bus
- DeviceNet
- Profibus.

Only the DeltaV system is built with AMSinside so all of the device diagnostics are right at your fingertips in the control room and the maintenance shop.
Any size you want

The DeltaV system scales in both size and functionality. It’s the first fully digital system to offer you a single architecture with full functionality ranging from 8 I/O up to 30,000 I/O,
Availability

You can choose the level of redundancy your application requires, including:

- Redundant Ethernet network communications
- Redundant controllers
- Redundant power supplies
- Redundant H1 FOUNDATION fieldbus interface and bus power
- Redundant digital HART I/O
- Redundant MODBUS and other RS485 serial communications
- Backup workstations.
Rugged control and field interfaces

Built to mount anywhere—minimizing your installation costs and ensuring safety. Meets:

- Class 1, Div. 2
- Zone 1 and 2
- Intrinsically safe options
- G3 corrosion resistance
- -40 to 70°C.
Key system services built into the DeltaV software include:

- Peer-to-peer communications
- History services
- Event services
- Alarm services
- Time handling
- Hot expansion services
- Tag look-up services
- Diagnostic services
- On-line upgrades.
Easy, flexible installation

Installation is easy since I/O is automatically auto-sensed when added to the system. No-value engineering is liminated. DeltaV control hardware is built rugged and flexible to mount almost anywhere. It’s built for:

- Class 1, Division 2 areas
- CENELEC Zone 1/2 areas
- ISA-S71.04-1985 Airborne Contaminants Class G3.