DeltaV Console.CONNECT™ Solution for Moore® Systems

- Operate your process easily and intuitively

- Install and commission with no downtime

- Accelerate operator training with side-by-side DeltaV™ workstations and APACS® and QUADLOG® consoles

- Easily integrate today's state-of-the-art digital technologies

- Future-proof your investment

For enhanced operator workstations and a platform for today's digital technologies, DeltaV workstations easily connect to your APACS or QUADLOG system.

Introduction

Emerson's DeltaV Console.Connect™ Solution for Moore® Systems upgrades your user interface while APACS or QUADLOG controllers and I/O continue running your process. DeltaV Console.CONNECT Solution for Moore Systems provides a transition path to a digital plant architecture with the DeltaV system.

Moore Systems users can take advantage of today's performance enhancing technologies such as digital busses, embedded advanced control, self-diagnosing instrumentation, on-the-fly scalability, wireless communications and plug-and-play business integration, without completely starting from scratch.

Benefits

Operate your process easily and intuitively. The DeltaV Console.CONNECT Solution for Moore Systems provides capabilities such as event reporting, history collection, and enhanced alarming for the Moore system. The interface seamlessly transfers analog and discrete I/O, process control loops, device control, resource operating status, and online tuning to the DeltaV system.

Operating (mode, setpoint and output) and tuning changes made from the DeltaV workstations are automatically sent to the APACS or QUADLOG controller.

Install and commission with no downtime. Installing the DeltaV Console.CONNECT Solution for Moore Systems is no more invasive than installing an APACS or QUADLOG Human-Machine- Interface (HMI). The connection is to an Industrial Ethernet Module (IEM) running NIM32 software (see Figure 1).

Once you install the DeltaV Console.CONNECT Solution for Moore Systems software on DeltaV workstations and the required 3rd party software and physical connections, the interface can immediately communicate with APACS or QUADLOG controllers.

Accelerate operator training with side-by-side DeltaV workstations and APACS or QUADLOG consoles. The DeltaV Console.CONNECT Solution for Moore Systems communicates with standard DeltaV Operator Stations. Placing the DeltaV Operator Station beside an APACS or QUADLOG console can be highly effective for operator training. This affords operators a gradual transition to the DeltaV user interface, increasing their confidence day by day.

DELTAV™

EMERSON™

Take advantage of state-of-the-art digital technologies.
With the DeltaV Console.CONNECT Solution for Moore Systems, you have all the tools needed for expanding the DeltaV system to include DeltaV hardware controllers and I/O. You have the ProfessionalPlus Station, which includes libraries of templates for configuration of various bus types and approved digital devices from various vendors. You can configure Foundation Fieldbus, DeviceNet, AS-i bus or Profibus DP I/O for your new DeltaV controller at any time.

All configuration work—on control strategies, I/O and displays—can be completed prior to the actual installation of the hardware. Once the DeltaV controllers are installed, the cutover from the Moore system to the DeltaV system can be done at your pace—from one loop at a time to as much I/O as you need.

Through the interface, you can easily share APACS or QUADLOG controller data with DeltaV controller data on the same graphic display.

Future-proof your investment. You can invest in the future today. With DeltaV Console.CONNECT Solution for Moore Systems, you broaden the options for future expansion. You preserve the most durable components of the APACS system, while positioning your plant for on-going enhancements.

For example, with DeltaV embedded advanced controls, you may discover control strategy improvements that dramatically reduce variability. Other DeltaV tools examine loop usage and performance, to highlight underperforming loops. Auto-tuning is another built-in feature for DeltaV controllers that may add significant value in improving the performance of your process. You will gain many opportunities to generate and measure real returns on your investment.

A Wealth of Information

The DeltaV ProfessionalPLUS Station and the DeltaV Operator Station are used in place of or in conjunction with APACS and QUADLOG consoles. Your operators can run history view applications, system diagnostics, event viewers, and control strategy diagnostics right on the DeltaV Operator Station.
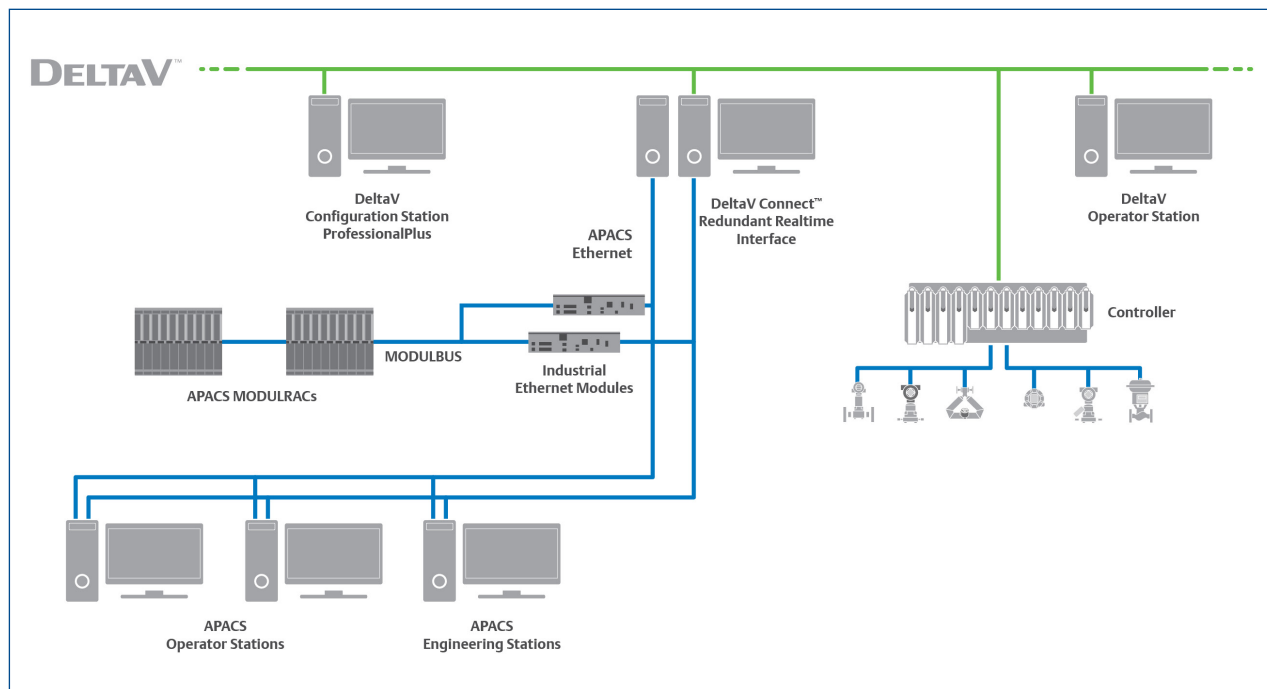
Figure 1. DeltaV Console.CONNECT Solution for Moore Systems paves the way for future expansion with DeltaV controllers and I/O (IEM option shown).

Additional workstations can be added to the DeltaV system, allowing multiple operator access. Optional DeltaV Dual-Monitor and Touchscreens provide an expanded field of view for the operator and easy-to-use touch access to the system.

Easy Access to APACS and QUADLOG Data

The DeltaV Connect Solution for Moore Systems makes APACS function block data accessible on DeltaV workstations. From APACS-oriented DeltaV faceplates and detail displays, operators can change modes, adjust setpoints and even modify tuning parameters in the APACS controllers (see Figure 6).

Product Description

DeltaV Console.CONNECT Solution for Moore Systems consists of engineering and real-time interface software applications. The engineering software includes templates for the DeltaV database "control modules" and faceplates. Once downloaded to the real-time interface, these database points mirror the APACS function block data across an OPC connection, providing real-time data transfer between the DeltaV and Moore systems.

The interface modules communicate directly with APACS or QUADLOG function blocks. The data is brought in as "APACS blocks" data, such as: Setpoint & Setpoint Limits, Process Variable (PV) and PV Limits, Outputs & Output Limits; Loop and Device Modes; Device Discrete Statuses; Alarms, and so on.

The DeltaV Console.CONNECT solution is fully scalable, supporting systems with fewer than 8,000 APACS connect block references to systems with 80,000 APACS connect block references.

Up to 8,000 OPC references per second can be updated with a single DeltaV Console.CONNECT Solution for Moore Systems interface. Support for up to 80,000 references per interface is based on the report by exception design.
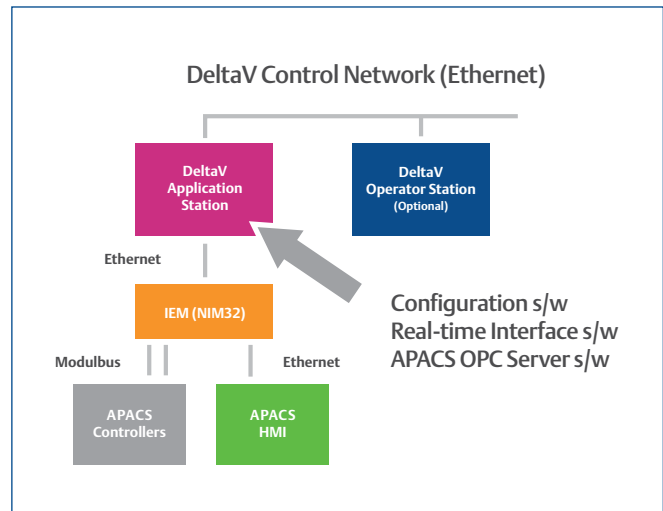
Architecture

The DeltaV Console.CONNECT Solution for Moore Systems interface works with IEM (NIM32) devices. Installing the DeltaV Console.CONNECT Solution for Moore Systems with an IEM (NIM32) device requires a dedicated DeltaV Application Station for the real-time interface—for 8,000 or more connect block references—and a DeltaV ProfessionalPLUS Station for configuration (see Figure 2). This interface is redundancy-capable and supports up to 80,000 connect block references.
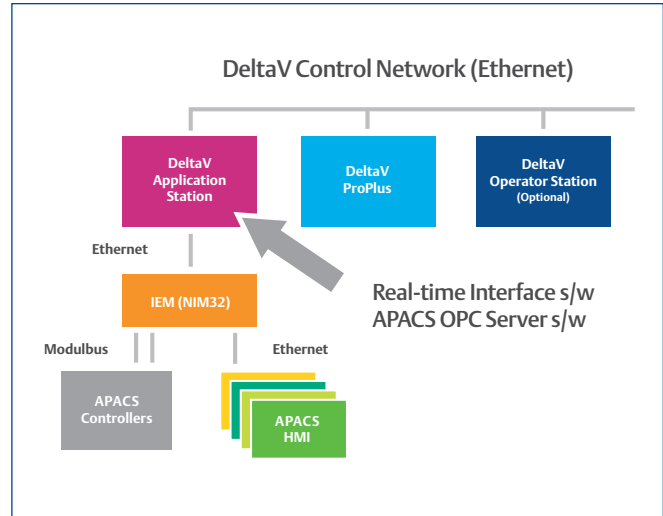
Figure 2. DeltaV Console.CONNECT Solution for Moore Systems with IEM (NIM32) device.

IEM (NIM32) Option for Small Systems. For smaller system interfaces of less than 8,000 connect block references, you can install both engineering and real-time interface software applications on a single ProfessionalPLUS Station (see Figure 3). This interface is not redundancy-capable.

Figure 3. DeltaV Console.CONNECT Solution for Moore Systems on a single workstation.

Configuration

The DeltaV Console.CONNECT Solution for Moore Systems modules and their building blocks, called "function blocks" have a one-to-one correspondence with APACS function block data for PID loops, motor and valve devices, monitoring points, discrete alarms and global variables.

The interface software includes templates for these APACS-specific modules and function blocks (see Tables 1 & 2).

Once these modules are downloaded to the DeltaV interface station's "virtual controller," they are ready to communicate.

Each module is composed of function blocks that mirror specific parameters of the APACS function blocks into the DeltaV Operator Interface. The DeltaV Console.CONNECT solution function blocks shown in Table 2 are the essential elements of the communications interface. Configuring the interface is easily done by drag-and-dropping the module templates.

Module configuration on the DeltaV ProfessionalPLUS Station applies standard DeltaV engineering methods, as follows. In the DeltaV Explorer:

1. Select a module template that matches an APACS derived block type.

2. Drag the module to a Control Strategies Area. (See Figure 4).

3. Enter a tag name and a descriptor.

4. Enter the 4-mation sheet name or its alias, which you define in another module.

To configure the interface for QUADLOG, modify APACS-specific templates to match the QUADLOG derived blocks. Then follow steps 2-4 above.

Module	Descriptor
DCA-AAI	Analog Alarm Input
DCA-CPID	Cascaded PID
DCA-DAI	Discrete Alarm Input
DCA-ESPID	External Set PID
DCA-MOTOR1	Motor, 1 Output
DCA-MOTOR2	Motor, 2 Output
DCA-PRIPID	Primary Loop PID
DCA-PTCOMP	Pressure Temperature Compensation
DCA-RPID	Ratio PID
DCA-SECPID	Secondary Loop PID
DCA-SPID	Single Loop PID
DCA-VALVE1	Block Valve, 1 Output
DCA-VALVE2	Block Valve, 2 Output
DCA-ACM	APACS Resource Summary
DCA-ALIAS	Alias for 4-mation Sheet Name
DCA-IDB	Interface Definition Block

Table 1. DeltaV Connect Solution for Moore Systems module templates.

Function Block	Descriptor
OPCIDB	Interface Definition Block
OALIAS	Alias Block
OBASE	Base Tag Block
OD	Discrete Block
ODA	Discrete Alarm Block
OFP	Floating Point Block
OFPA	Floating Point Alarm Block
OFPL	Floating Point Limit Block
OI	Integer Block
OIL	Integer Limit Block
OMD	Mode Block
OS	String Block

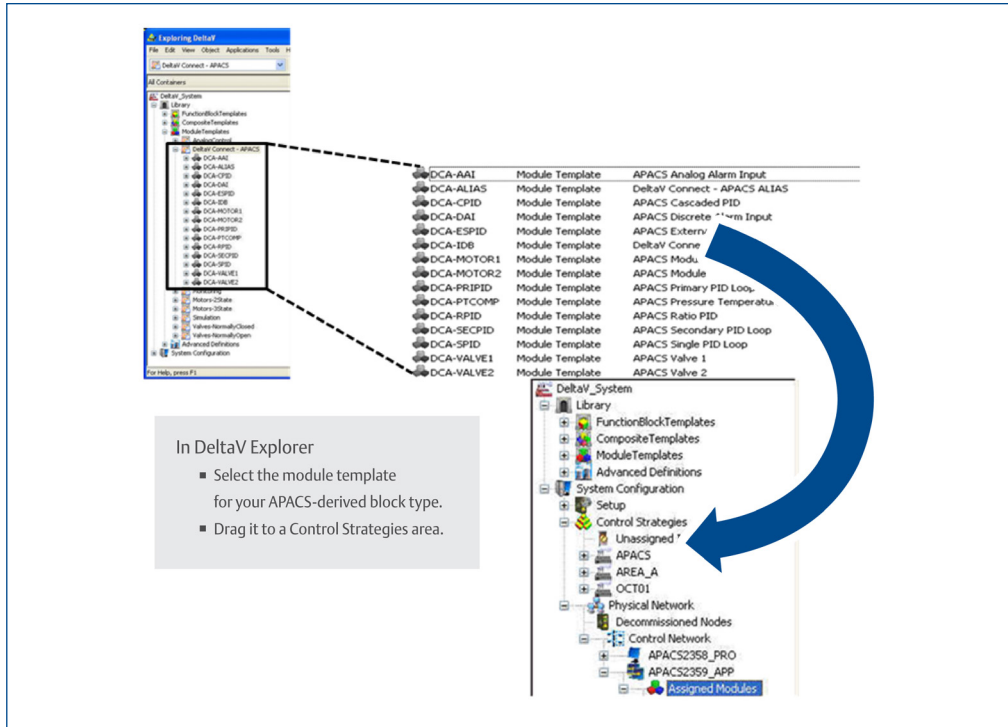*Table 2*. DeltaV Console.CONNECT Solution for Moore Systems function block templates.

Figure 4. DeltaV Explorer view of interface module templates.

Predefined Operator Faceplates

DeltaV Console.CONNECT Solution for Moore Systems module templates are preconfigured to call up the correct faceplate and detailed display (where applicable) on the DeltaV Operator Station. To make any adjustments to the faceplates, simply edit them using the DeltaV Graphic Studio.

The interface software includes predefined faceplates for DeltaV Live for each of the modules identified above in Table 1. Device faceplate examples are shown in Figure 5.
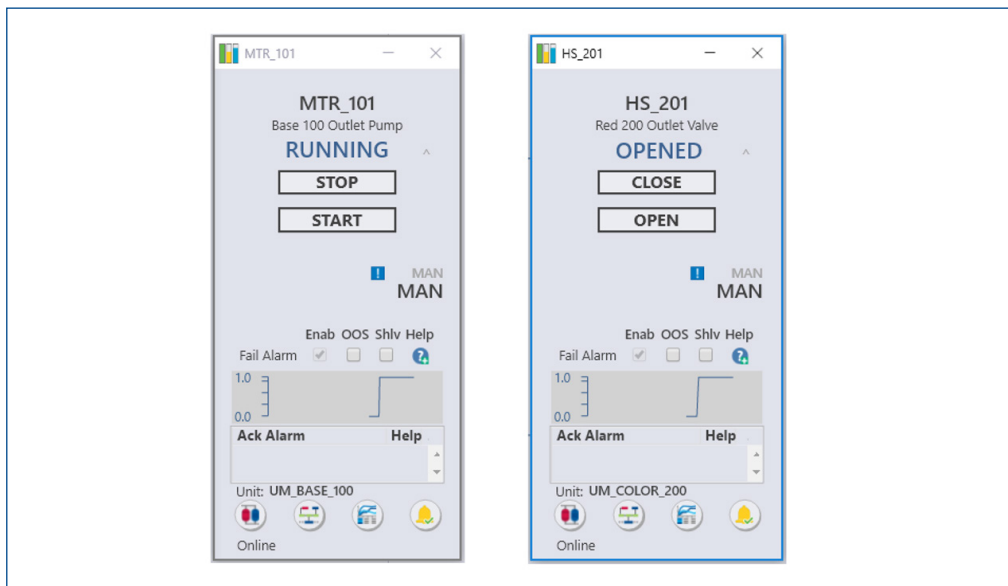

Figure 5. DeltaV Console.CONNECT Solution for Moore Systems VALVE & MOTOR faceplates.

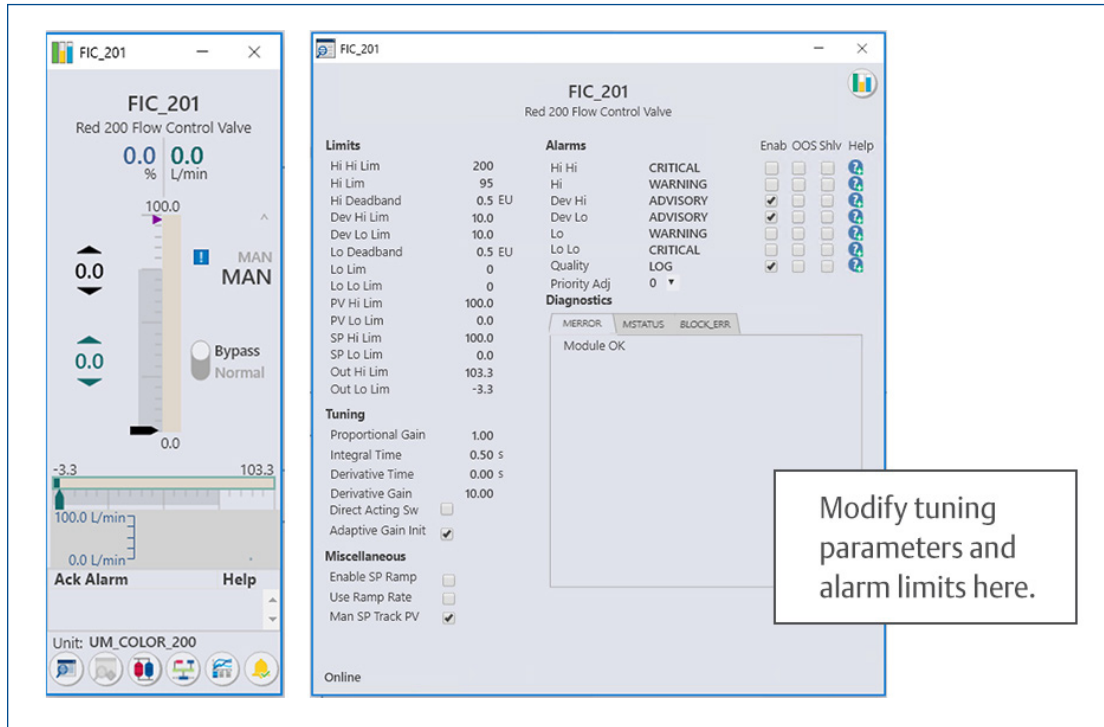PID loop faceplate and detail displays are shown in Figure 6.

Figure 6. *DeltaV Console.CONNECT Solution for Moore Systems SPID faceplate and SPID detail display.*

System Compatibility

The DeltaV Console.CONNECT Solution for Moore Systems v1.4 is compatible with DeltaV releases v13.3.1 and older (see Table 3).

DeltaV Console.CONNECT Solution for Moore Systems and DeltaV Version Compatibility	DeltaV v13.3.1	DeltaV v14.LTS	DeltaV v14.FPx[1]
DeltaV Console.CONNECT Solution for Moore Systems v1.4	Yes	Yes	Yes

Table 3. *DeltaV version compatibility with DeltaV Console.CONNECT Solution for Moore Systems.*

[1] *FP or feature packs that are installed on top of the DeltaV v14.LTS, including FP1, FP2, and FP3.*

DeltaV Console.CONNECT Solution for Moore System Requirements	Simplex Interface[1, 3]	Redundant Interface[2, 3]	Single Station Interface[4]
DeltaV ProfessionalPLUS software suite license	One	One	One
DeltaV ProfessionalPLUS PC hardware	One	One	One
DeltaV Application Station software suite license	One	One	N/A
DeltaV Application Station PC hardware	One	Two	N/A
DeltaV Connect for Moore function block license	One	One	One
DeltaV Connect for Moore redundancy license	N/A	One	N/A

Table 4. DeltaV items required to support DeltaV Connect Solution for Moore Systems.

[1] Each simplex DeltaV Console.CONNECT for Moore interface requires one ProfessionalPlus PC, one ProfessionalPlus software suite license (25 DST), one Application Station PC, one Application Station software suite license (250 data values), and one DeltaV Console.CONNECT for Moore function block license.

[2] Each redundant DeltaV Console.CONNECT for Moore interface requires one ProfessionalPlus PC, one ProfessionalPlus software suite license (25 DST), two Application Station PCs, one Application Station software suite license, one DeltaV Console.CONNECT for Moore function block license, and one DeltaV Console.CONNECT for Moore redundancy license.

[3] To add DeltaV Operator Stations to a simplex or redundant DeltaV Console.CONNECT for Moore solution, add one PC and one DeltaV Live software suite license for each Operator Station.

[4] The preferred architecture is to run the DeltaV Console.CONNECT for Moore interface on a DeltaV Application Station, but the DeltaV Console.CONNECT for Moore interface may be implemented on a ProfessionalPlus as a single workstation solution, as required. Each single workstation DeltaV Console.CONNECT for Moore interface requires one ProfessionalPlus PC, one ProfessionalPlus software suite license (25 DST), and one DeltaV Console.CONNECT for Moore function block license.

The DeltaV Console.CONNECT Solution for Moore Systems interface is sized based on the number of DeltaV Console.CONNECT function block references required for the associated APACS or QUADLOG system I/O. Table 5 shows a general guideline for sizing a DeltaV Console.CONNECT Solution for Moore Systems interface license based on the I/O count. To determine the exact number of references present on the current operator interface, it is recommended that controller and HMI database backups be sent to Emerson for analysis.

APACS or QUADLOG System I/O	Number of Connect Block References
<800	8000
800 – 1500	16000
1500 – 3000	32000
3000 – 8000	80000

Table 5. DeltaV Console.CONNECT Solution for Moore Systems I/O-Based Sizing Chart.

The DeltaV Console.CONNECT Solution for Moore Systems includes the license for the APACS interface engineering and real-time software applications. For this interface to be operational, 3rd party hardware and software components are required (see Table 6). Please contact your local Emerson sales office for details.

DeltaV Console.CONNECT Solution for Moore Systems v1.4 3rd Party Requirements	Simplex Interface	Redundant Interface
Matrikon OPC Server for Siemens APACS Direct software and license[1]	One	Two
IEM with spare capacity	One	Two

Table 6. 3rd party components required to support DeltaV Console.CONNECT Solution for Moore Systems.

[1] For information on the Matrikon OPC Server version required for the DeltaV Console.CONNECT Solution for Moore Systems interface, please contact your local Emerson sales office.

Services

For help in planning, justifying or implementing your Moore system migration, contact your local Emerson representative. Expert consultants are willing and able to advise you on a variety of concerns, including safety system design, implementation and standards compliance; digital buses, wireless applications, control performance and process optimization.

Inquiries and Ordering Information

For inquiries and new DeltaV Console.CONNECT Solution for Moore Systems sales, please contact your local Emerson sales office.

To scale up the function block license capacity on existing DeltaV Console.CONNECT Solution for Moore systems, see below.

Description	Model Number
DeltaV Console.CONNECT Solution for Moore Systems, 8000 Block Scaleup	VE22UPS045

Related Products

- **DeltaV ProfessionalPLUS Station Software Suite.** Centralized operations, engineering, configuration database and diagnostics on a DeltaV workstation.

- **DeltaV Application Station Software Suite.** Integrate your DeltaV system with 3rd party systems and applications on a DeltaV workstation. Includes a scalable DeltaV Continuous Historian and DeltaV OPC Data Access server.

- **DeltaV Operator Station Software Suite.** Centralized operations and diagnostics on a DeltaV workstation.

Prerequisites

- DeltaV v13.3.1 or newer system software for v1.4. See Table 3 for DeltaV system version compatibility.

- DeltaV ProfessionalPLUS workstation, Application Station, and Operator Station(s), as needed. See Table 4 for DeltaV workstation requirements.

- One or more DeltaV Application Station PC(s) and DeltaV Application Station software suite licenses, as required. See Table 4 for DeltaV workstation requirements.

- One or more DeltaV Operator Station PC(s) and DeltaV Operator Station software suite licenses, as required. See Table 4 for DeltaV workstation requirements.

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