DeltaV™ IO.Connect for ABB® S800 I/O

- Preserve your ABB® S800 I/O investment as you convert from an ABB system to a DeltaV™ system with the DeltaV IO.Connect solution
- Reduce project capital and downtime by maintaining cabinets with ABB S800 I/O and field wiring
- Gain immediate benefit from the DeltaV system and begin integrating today's state of the art digital technologies like DeltaV PK Controller and DeltaV Live Operator Interface
- Low-risk, easy path to a smart digital plant
- Affordable DeltaV system support from Emerson

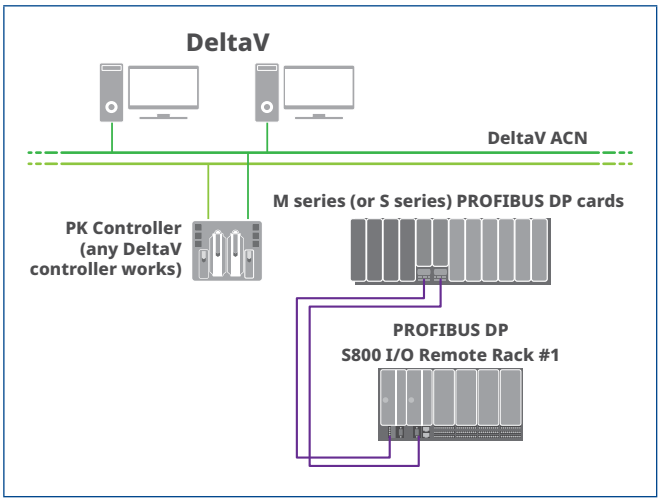


Figure 1. *DeltaV™ IO.Connect protects your I/O investment as you convert from ABB S800 I/O to a DeltaV system.*

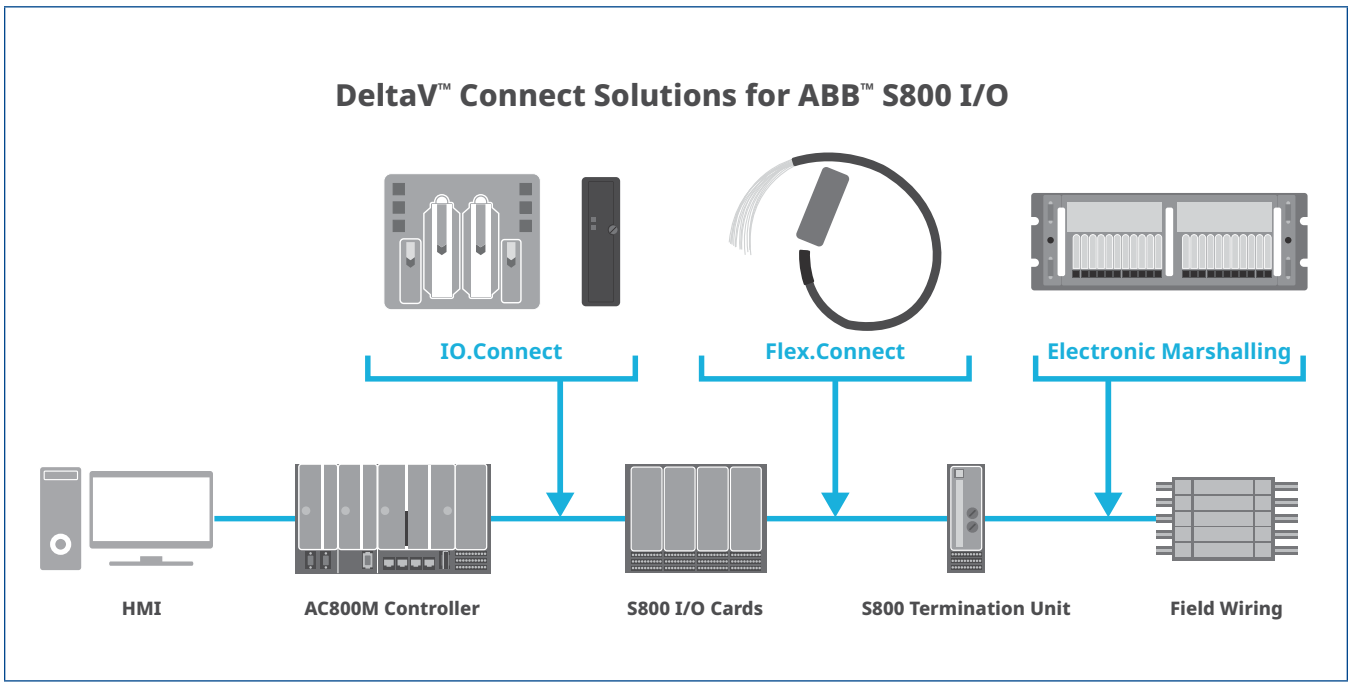


Figure 2. *DeltaV IO.Connect for ABB S800 I/O is part of Emerson's DeltaV Connect modernization soltuions.*

Introduction

If you are currently running on an ABB system that contains S800 I/O and want to upgrade to a DeltaV system but face capital or downtime constraints, DeltaV IO.Connect offers an efficient modernization solution, allowing you to transition to a DeltaV system while preserving your existing legacy I/O and wiring.

A significant portion of the Distributed Control System (DCS) installed costs lie in I/O components, related documentation, and the labor required for de-termination and rewiring during system upgrades. DeltaV IO.Connect enables you to retain your investment in these components during the initial phase, offering the flexibility to gradually transition to DeltaV I/O over time. This minimizes both budgetary and production impacts.

The DeltaV IO.Connect system replaces ABB controllers by directly interfacing with remote interface cards for PROFIBUS DP. Within DeltaV, PROFIBUS DP is configured to handle the configuration, communication, and connections with supported ABB S800 remote I/O cards.

Legacy analog and discrete data is then converted into DeltaV function blocks, and the ABB control configuration is transitioned to DeltaV using Emerson's DeltaV Revamp configuration analysis and modernization software. This provides a smooth and efficient conversion process from legacy ABB systems to a state-of-the-art DeltaV system.

Once DeltaV is installed, users gain access to advanced technologies, including:

- Alarm management
- Embedded advanced control
- Self-diagnosing instrumentation
- On-the-fly scalability
- Wireless communications
- Plug-and-play business integration

These features deliver cutting-edge operational capabilities without the need for a complete system overhaul, preserving your investment while modernizing your operations.

Benefits

Reduce Business Risks by Minimizing Process Downtime. Reduce process downtime by preserving existing I/O and leaving wiring intact. This approach accelerates the transition to a new system by over 90%, enabling you to resume production quickly. When ready, I/O can be seamlessly migrated from IO.Connect to native DeltaV (M-series or CHARMs) without modifying control modules or operator displays. Wiring transitions can be scheduled at your convenience, ensuring minimal disruption.

Save 40% of the Capital Required vs a Full Rip and Replace. By eliminating the need for new device wiring, DeltaV IO.Connect significantly reduces costs and minimizes the risk of errors. In many cases, DeltaV IO.Connect hardware can fit within the existing ABB footprint, though further investigation may be required based on prior infrastructure.

State-of-the-art Operator Interface. Operators gain access to the latest DeltaV Operator Stations, offering advanced monitoring and control capabilities. Features include:

- HTML5 graphics with DeltaV Live
- Event reporting and history collection
- Enhanced alarming

Predefined faceplates are designed to simplify the transition for operators, ensuring a smooth adoption process.

Direct Transition to a Smart Digital Plant. DeltaV controllers can be added at any time, unlocking advanced technologies such as:

- Predictive field device intelligence
- Wireless I/O and network communications
- Integrated asset management

The DeltaV system supports seamless integration with FOUNDATION™ Fieldbus, HART®, PROFIBUS DP, PROFINET®, DeviceNet®, Modbus TCP®, and EtherNet/IP™.

High-Performance Hardware for Greater Uptime and Reliability. DeltaV IO.Connect is built with industrial-grade hardware, engineered for reliability in harsh environments. Key features include:

- Compact size and reduced maintenance
- Low power consumption
- High performance and ease of future upgrades

This robust solution enhances productivity while reducing the total cost of ownership.

Supported by Emerson. DeltaV IO.Connect is backed by Emerson's lifecycle services, ensuring long-term reliability and support. No ABB software is required to configure or maintain the I/O, simplifying system management and reducing complexity.

Product Description

DeltaV IO.Connect is an interface solution that replaces any ABB controllers that have S800 I/O attached, interfacing using the ABB's PROFIBUS DP interface cards, either a CI801 or CI840/CI840A pair DeltaV PROFIBUS DP Cards. Any DeltaV controller can be used.

Each ABB CI801 or CI840/CI840A (pair) interface card on each remote I/O rack is configured as a PROFIBUS device in DeltaV. The PROFIBUS DP devices are structured with slots that correspond to the interface card and each I/O card found on the remote I/O rack. HART data can be pulled into DeltaV and AMS using a Softing TH LINK™ Gateway.

For redundant setups, the CI840/CI840A interface cards are required. Full redundancy is achieved by using a redundant PROFIBUS DP card and selecting the appropriate parameter on the CI840/CI840A PROFIBUS slot for redundancy.

A .GSD (General Station Description) file is used to identify a PROFIBUS DP device. It contains data making it possible to have manufacturer-independent configuration tools. Typical information in a .GSD file includes:

- Vendor details
- Supported baud rates
- Timing information
- Options and features
- Available I/O signals

The DeltaV system uses this information to set up the communications to the slave devices. GSD files can be imported into the DeltaV system to add the new slave device to the library. These files are specific to the interface card and hardware version and are typically available on the vendor's website.

I/O Conversion, System Blocks, and Module Templates

The existing ABB analog and discrete I/O point data is seamlessly converted to DeltaV tags, and the control logic from the ABB DCS system is transitioned to DeltaV configuration using Emerson's Revamp configuration analysis and modernization software. This provides a smooth and efficient conversion process from the legacy ABB system to a state-of-the art DeltaV system.

HMI Replacement

All existing ABB native or third-party HMIs are replaced with state-of-the-art DeltaV Live operator interface, and can use Emerson's high-performance standardized GEMs, faceplates, and detailed displays with no updates required. When you are ready to transition to DeltaV native I/O, the same graphic screens and GEMs can be used without further updates required.

Scalable, Flexible Architecture

DeltaV offers unparalleled flexibility and scalability, accommodating scenarios where operational or economic constraints limit modernization to specific parts of the plant. For example, if a facility has five remote I/O racks but can only transition one to DeltaV IO.Connect, the system adapts seamlessly to enable phased upgrades.

If you want to remove the I/O cards in addition to the controllers, DeltaV Flex.Connect provides an innovative option. DeltaV Flex.Connect uses an interface component that integrates into the existing S800 termination unit, allowing users to connect the wiring harness into native DeltaV I/O (including both traditional I/O and CHARMs) to bring in the data without needing to redo the wiring.

Emerson's Modernization Consultants are available to discuss these options in detail. Please contact your Emerson sales representative to schedule a consultation.

Sizing and Performance

Each interface card (or pair) on the remote I/O rack is treated as a device (or node) coming into DeltaV, with each I/O card on that node coming in as a PROFIBUS slot. Depending on the I/O card type, each slot may include numerous signals within process variables (PV), outputs and statuses required.

In DeltaV v12 and later, each device or node will consume 1 DST for the first 16 signal references, and 1 DST for each additional signal reference beyond the 16th signal reference.

Transition Architecture

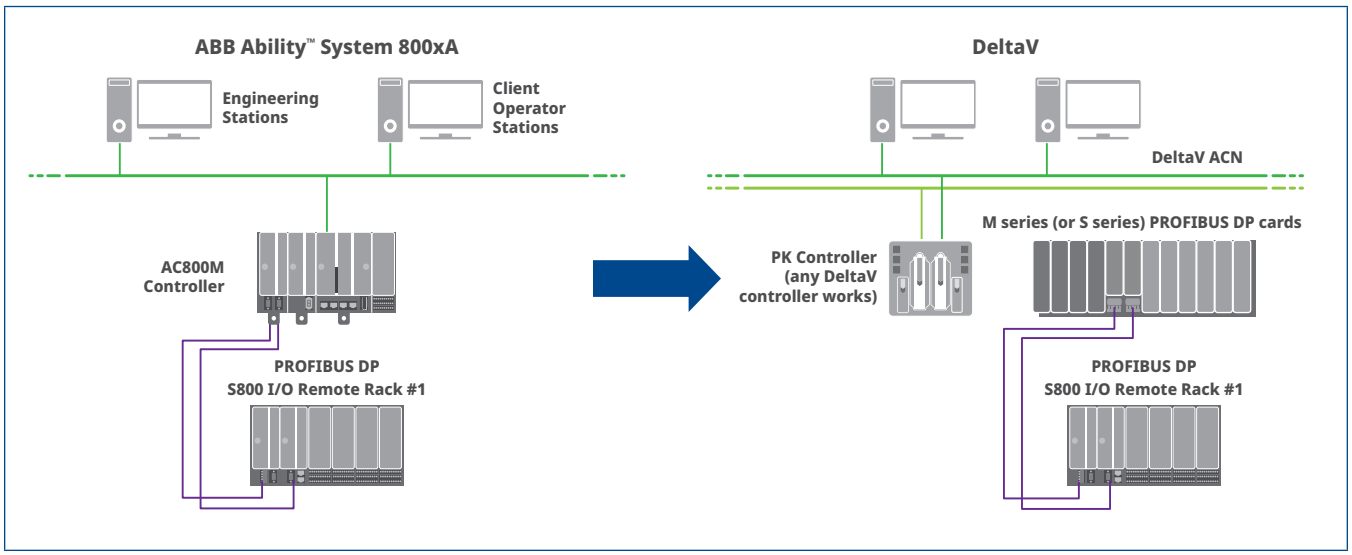


Figure 3. *Once DeltaV IO.Connect is installed, all ABB controllers and HMIs are removed. Note that figure only shows the latest ABB architecture — other ABB legacy systems may also include S800 I/O.*

Modernizing to DeltaV I/O

Once you are ready to switch to DeltaV I/O, modernizing can occur with minimal interruption. As the wiring is moved over, the requirement to make the switch might include:

- Completing the wiring cutover
- Remapping the I/O in DeltaV
- Downloading the I/O
- Downloading the control module

Supported Interface Cards

DeltaV IO.Connect is compatible with the following ABB communication interface cards:

- **CI801** (simplex only)
- **CI840/CI840A** (redundant options)

If other interface cards are present in the S800 I/O system, they must be replaced with one of the supported communication interface cards to enable communication with the remote S800 I/O.

For S800 I/O on the main chassis with the ABB controller, the controller can be removed, and a CI801 or CI840/CI840A pair can be added in its place. This transforms the previously local I/O into a remote I/O node as well.

System Compatibility

DeltaV IO.Connect for ABB S800 I/O is compatible with DeltaV v14.LTS[1] and is designed to work with both M and S-series PROFIBUS DP cards interfacing to any DeltaV Controller and DeltaV Live Operator Interface.

[1] Earlier versions of DeltaV may also be supported, but IO.Connect is not supported or tested on earlier versions as of 2025.

Related Products

- **Flex.Connect for ABB S800 I/O.** A modernization solution that removes the I/O cards while retaining termination and wiring, offering another efficient upgrade path.
- **DeltaV PK Controller.** A powerful, scalable controller for distributed control applications.
- **DeltaV M-series PROFIBUS DP Series 2 Plus Interface Card.** High-performance interface card for seamless PROFIBUS DP integration.
- **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 third 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 ProfessionalPLUS PC** and **DeltaV ProfessionalPLUS Software Suite**
- One or more **DeltaV Operator Station PCs** and corresponding **DeltaV Operator Station Software Suite** license, as required.

Services

For help in planning, justifying, or implementing your 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

For inquiries and detailed quotation, please contact your local Emerson sales office.

Ordering Information

Description	Model Number
Simplex M-series PROFIBUS DP Interface Card (includes 1 Interface Card and a simplex Terminal Block)	VE4022
Redundant M-series PROFIBUS DP Interface Card (includes 2 Interface Cards and a redundant Terminal Block)	VE4038

Note: This order information does not include controller ordering details since it is not specific to any specific DeltaV controller.

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