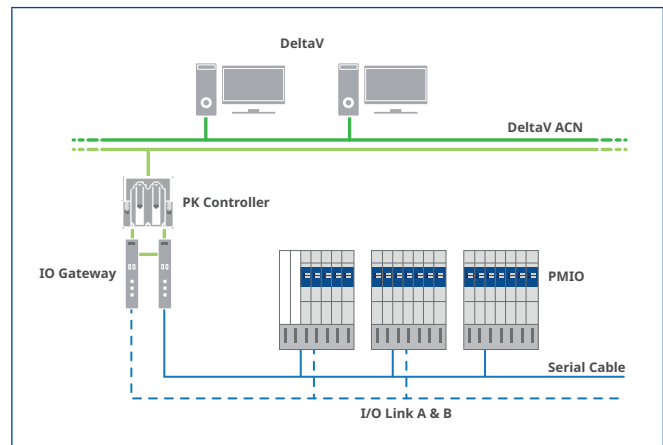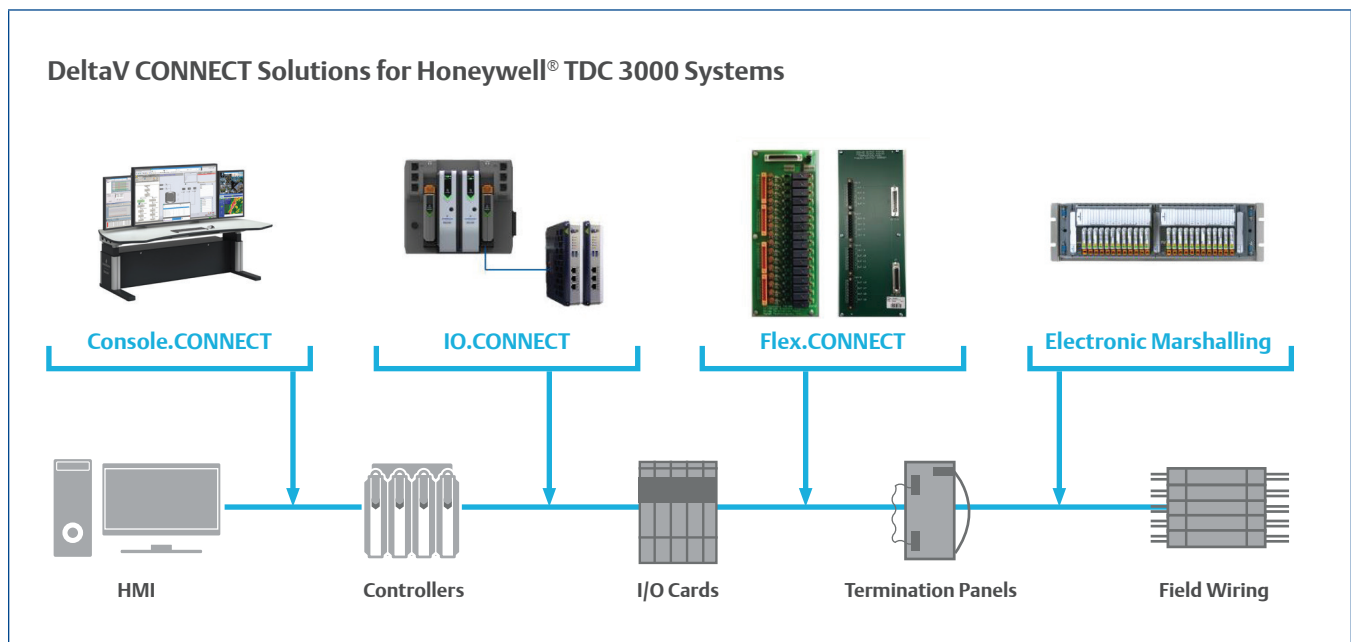# DeltaV™ IO. CONNECT for Honeywell® Systems

- Preserve your Honeywell I/O investment as you convert from TDC 3000 to DeltaV™ with the DeltaV IO.CONNECT solution

- Seamless connection with the Honeywell PMIO I/O Processors (IOPs) via existing I/O Link connections with no loss of native A/D resolution

- Reduce project capital and downtime by maintaining all PMIO, IOPs and field wiring

- Gain immediate benefit of the DeltaV system and begin integrating today's state of the art digital technologies like the DeltaV PK Controller and DeltaV Live Operator Interface

- Low-risk, easy path to a smart digital plant

- Product Support for DeltaV IO.CONNECT is included with your Product Subscription

DeltaV™ IO.CONNECT protects your I/O investment as you convert from Honeywell® TDC 3000™ to the DeltaV system.

DeltaV CONNECT Solutions for Honeywell® TDC 3000 Systems

Console.CONNECT	IO.CONNECT	Flex.CONNECT	Electronic Marshalling
HMI	Controllers	I/O Cards	Termination Panels / Field Wiring

DeltaV IO.CONNECT for Honeywell Systems is part of the portfolio of Emerson's suite of CONNECT modernization solutions.

DELTAV™

EMERSON™

Introduction

If you are a Honeywell TDC 3000 system user and find yourself wanting to modernize to a DeltaV™ system but are capital or downtime constrained, then DeltaV IO.CONNECT provides a pathway to easily modernize to DeltaV system while preserving the existing legacy I/O and wiring.

A significant portion of the DCS installed cost lies in the I/O, the associated documentation, and the labor to de-terminate and rewire when it comes to time to modernizing the system. With DeltaV IO.CONNECT, it is now possible to preserve your I/O investment by keeping the I/O in place for now, while opportunistically transitioning to DeltaV I/O over time and with minimal budgetary and production impact.

The DeltaV IO.CONNECT solution replaces the existing PM family of controllers and connects directly to the PMIO IOPs via the existing I/O Link connections. A DeltaV PK controller using EtherNet/IP integrates the DeltaV IO.CONNECT into the DeltaV system.

The existing system's analog and discrete I/O modules' data are converted to DeltaV function blocks, and the control configuration from the Honeywell controllers is transitioned to DeltaV configuration using Emerson's REVAMP configuration analysis and modernization software. This provides a seamless conversion process from the legacy TDC 3000 system to a state-of-the art DeltaV system.

With DeltaV installed, users can also 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

Reduce business risks by minimizing process downtime. By preserving existing I/O and leaving wiring intact this accelerates the new system transition by over 90%, enabling you to rapidly resume production. From DeltaV IO.CONNECT, cutover of I/O to native DeltaV I/O (whether M-series, or Electronic Marshalling - CHARMs) can be performed without changing the existing DeltaV control modules or operator interface HMI. Cutover to DeltaV I/O can be scheduled per staffing and fiscal availability in the future.

Save 40% of the capital required vs a full rip and replace. Eliminating new device wiring saves money and reduces risk of errors. DeltaV IO.CONNECT hardware can fit into the existing Honeywell cabinetry and does not require any new/additional cabinets or space.

State-of-the-Art Operator Interface. Operators can monitor and control the DeltaV system data from the latest DeltaV Operator Stations once the IO.CONNECT solution is in place. Features include HTML5 graphics using DeltaV Live, event reporting, history collection, and enhanced alarming. Predefined faceplates are designed to ease the transition for operators.

Direct Transition to a Smart Digital Plant. DeltaV controllers can be added at any time to take advantage of technologies such as predictive field device intelligence, wireless I/O and network communications, and integrated asset management. FOUNDATION Fieldbus, HART®, Profibus DP, DeviceNet, Modbus TCP and EtherNet/IP can be easily integrated with the DeltaV system.

High Performance Hardware, Greater Uptime, Low-Risk, Robust Solution. DeltaV IO.CONNECT utilizes industrial grade hardware, high performance design, and is engineered for reliability in harsh environments. It combines high performance with reliability, enhancing productivity and reducing cost of ownership though features such as compact size, reduced maintenance, low power consumption, and ease of future performance upgrades.

Product Support from Emerson. Product Support for DeltaV IO.CONNECT is included with the DeltaV IO.CONNECT Product Subscription. With your product subscription, Emerson will provide you access to the Guardian platform to manage subscriptions, 24/7 call support, hotfixes, patches, and minor and major releases. With DeltaV IO.CONNECT, no Honeywell software is required to configure and maintain the PMIO.

Product Description

DeltaV IO.CONNECT is an interface solution that replaces the Honeywell PM family of controllers and directly interfaces with the PMIO IOPs via the existing I/O Link connections with special serial link cables available in 6- and 15-foot lengths. With this solution there is no part of the TDC 3000 system left remaining aside from the I/O and the FTAs.

The DeltaV I/O Gateway is based on Emerson's RXi2-BP Industrial PC (IPC) device, which is the perfect platform for running the IO.CONNECT application software, even in the harshest environments. All aspects of the RXi2-BP IPC have been engineered for reliability in harsh environments. With high quality industrial components, a rugged design, and fanless operation, the RXi2-BP IPC is a highly reliable IPC with a long lifecycle.

Figure 1- DeltaV I/O Gateway.

Redundant DeltaV I/O Gateways connect via EtherNet/IP to a redundant DeltaV PK controller which is on the DeltaV Area Control Network (ACN). The standard configuration is one redundant set of DeltaV I/O Gateways connected to one redundant PK Controller pair. This replaces on a 1:1 basis the existing PM family of controllers. There is no loss of native IOP A/D resolution.
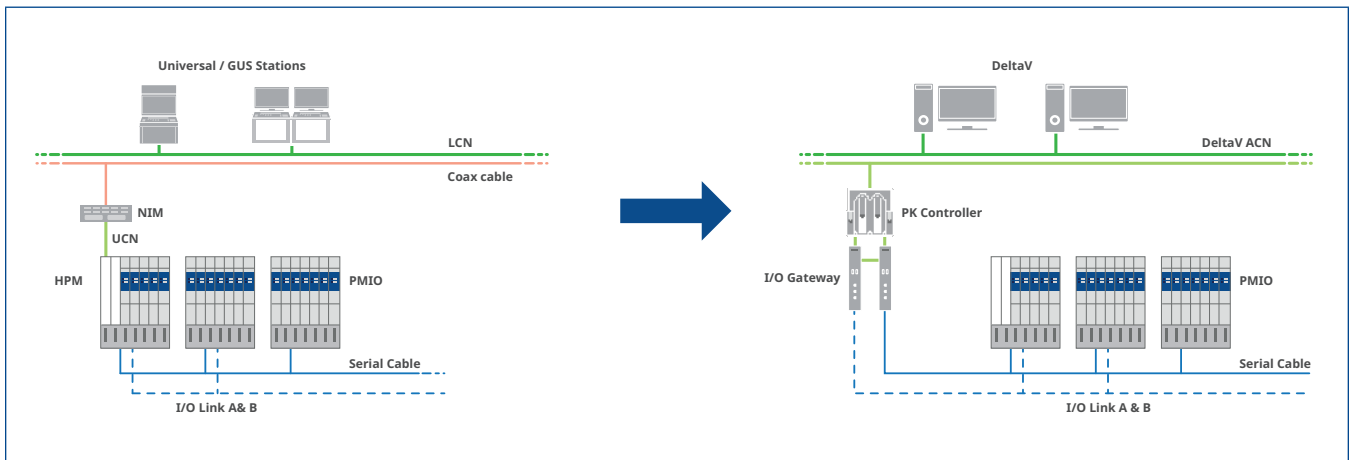
Transition Architecture

I/O Conversion, System Blocks and Module Templates

The existing Honeywell system's analog and discrete I/O point data are converted to DeltaV function blocks, and the control configuration from the Honeywell controllers is transitioned to DeltaV configuration using Emerson's REVAMP configuration analysis and modernization software. This provides a seamlessly conversion process from the legacy TDC 3000 system to a state-of- the art DeltaV system.

HMI Replacement

All existing Honeywell Universal Stations (US), Global User Stations (GUS), Experion consoles, and networking equipment are replaced with state-of-the art DeltaV Live Operator Interface. Existing obsolete LCN and UCN nodes and networks are eliminated.

Once DeltaV IO.CONNECT is installed, UCN and LCN networks, associated NIMs, and other UCN and LCN nodes are all removed.

Scalable, Flexible Architecture

There may be situations where you are constrained operationally and/or economically to only modernize a part of your plant or console from TDC 3000 to DeltaV, e.g. there are 5 HPMs and only one can be moved DeltaV IO.CONNECT.

DeltaV offers flexibility and scalability in these situations.

In particular, if you have a need to have two different operator interfaces running in parallel, Emerson is able to offer Console.CONNECT solutions to cater for these scenarios.

The iOps Workspace solution shown below in Figure 2 can integrate various HMI sources into a single workspace.

Figure 2 - iOps Workspace.

Alternatively, if you still have LCN infrastructure – see Figure 3 - a single HMI solution is available using the Console.CONNECT for Honeywell TDC 3000 systems solution, which seamlessly links the LCN with the DeltaV network and provides an avenue for controller-to-controller communication between the networks.

Our Modernization consultants will be happy to discuss these options with you in greater detail; please contact your Emerson sales representative to set up a consultation.

Predefined Operator Faceplates, Detail Faceplates, and Diagnostics

IO.CONNECT includes a set of diagnostic modules for each IOP, as well as one for the Gateway diagnostics itself. This provides operators and engineers with the ability to monitor, trend, and alert on any hardware or software diagnostics and easily troubleshoot PMIO hardware issues. In addition, DeltaV Live GEMs, faceplates and detail displays are provided to view diagnostic information within DeltaV Live and understand the health of the Gateway, the I/O Links, and each individual IOP.

In addition to the diagnostic modules, there are control module templates for each channel type. These have the same look and feel of the original control module library, but with updates to fit the requirements of each IOP, including an option so that when the system is ready to switchover to DeltaV I/O, it can be done at the module level from a selector switch built within the modules themselves.
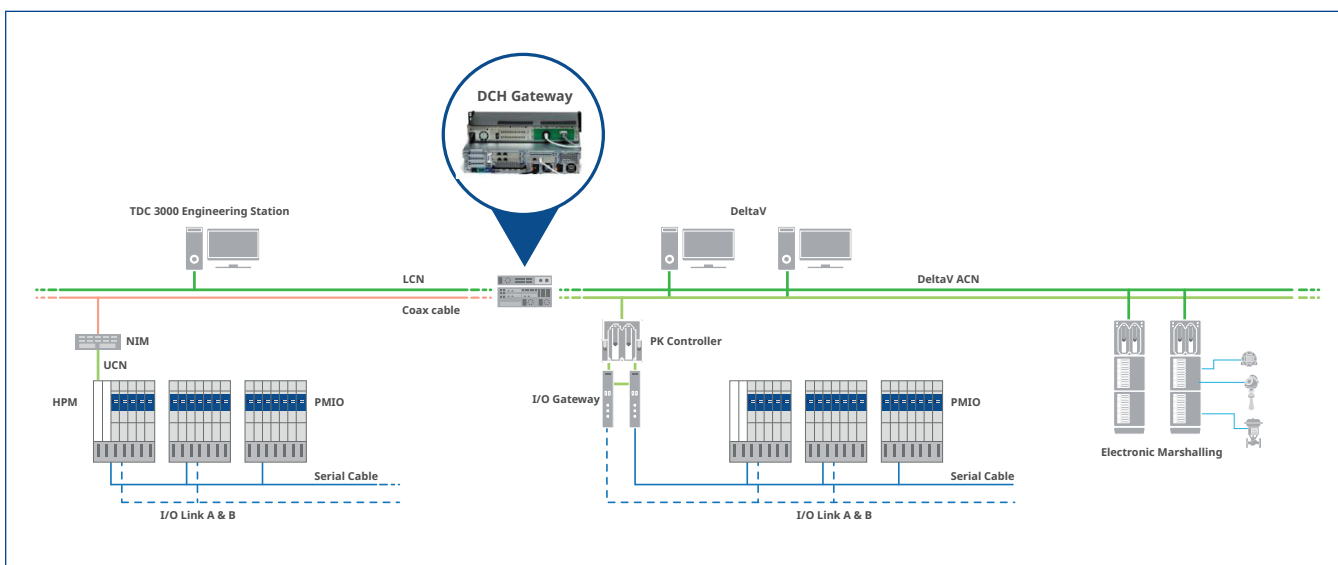

Figure 3 - Console.CONNECT for Honeywell TDC 3000 Systems.

These control modules will also include DeltaV Live GEMS, faceplates and detail displays to match Emerson-standard Human Centered Design principles, modified to fit the updates within the modules, and to support hot cutover to native DeltaV I/O from the HMI.

Modernizing to DeltaV I/O

Once the customer is ready to switch to DeltaV I/O, the update can occur without interruption at the module level. As the wiring is moved over, the requirement to make the switch would include:

- Configure the I/O on the system

- Complete the wiring requirement per individual CHARM

- Install the CHARM

- Download the I/O within DeltaV

- Update the parameter path to the CHARM online

- Use the built-in selector switch on the faceplate to enable the DeltaV I/O and disable the Honeywell I/O.

The only downloads required would be the I/O itself to bring it into the system, which is completed prior to the connection to the module, preventing system interruptions.

**If the customer decides to move to another standard template later, a quick module clean up can occur at that point to remove the cutover modules and replace with those standards.

Cutover Options

At this time, cold cutover is the recommended option for IO.CONNECT solution.

Mounting Options

The DeltaV I/O Gateway can be mounted in several ways, at a location to suit the existing system layout. A few examples are noted below.

One option could be for the DeltaV I/O Gateway to be mounted in the PM Controller card file in the slots vacated by the PM Controller modules in Figure 4 as shown below.

Figure 4 - *Vertical Mounting in I/O File.*

Figure 5 - *Vertical Mounting on Rails, Left & Right Sided.*

An alternative mounting option would be to locate the Gateway on rails in the legacy Honeywell cabinets or in a separate cabinet as shown in Figure 5 above.

Another mounting option could be to locate the Gateway(s) on the horizontal rails in the legacy Honeywell cabinets or in a separate cabinet as shown in Figure 5 above. Also, since there is a panel mount option for the Gateway, these could be mounted on 19-inch blanking panels.

Note that UCN cables, LCN cables, NIMs, and other TDC 3000 infrastructure may be eliminated in these projects, providing additional space in the legacy cabinets.

Also please note that mounting options shown above are for illustration only. The specific mounting for your IO.CONNECT solution will be developed with your Emerson sales/proposal team.

The DeltaV I/O Gateway is shipped with panel and DIN-rail mounting kits respectively.

Supported PMIO IOPs

DeltaV IO.CONNECT is currently compatible with the following PMIO IOPs:

HLAI: High Level Analog Input Processor (16 channel)
AO16 – Analog Output Processor (16 channel)
AO8 – Analog Output Processor (8 channel)
DI32 – Digital Input Processor (32 channel)
DO16 – Digital Output Processor (16 channel)
DO32 – Digital Output Processor (32 channel)
LLMUX – Low Level Analog Input Multiplexer (32 channel)
LLAI – Low Level Analog Input (8 channel)
PI – Pulse Input (8 channel)

The following PMIO IOP and feature will be supported in the next release of DeltaV IO.CONNECT:

STI: Smart Transmitter Processor (16 channel, single variable)
STIM: Smart Transmitter Multivariable Processor (16 variables total)
DISOE – Digital Input Sequence of Events (supported in DI-mode only)
I/O Link Extender (Fiber Optic Link)

Note: The Serial IOP is not supported by this interface; however, standard DeltaV serial cards will support communication to any serial devices currently interfaced to the TDC 3000 system.

System Compatibility

DeltaV IO.CONNECT is compatible with DeltaV release v14.LTS or higher, and is designed to work with the DeltaV PK controller and DeltaV Live Operator Interface.

Specifications

Environmental

Thermal performance is highly dependent on end application workload, pre-configured processor TDP value, and mounting orientation (vertical mounting is preferred). Values listed are measurements of the specific test cases.

Range	Operating	Storage
Standard	0°C up to +70°C	-40°C up to +85°C
Extended	-40°C up to +70°C	-40°C up to +85°C
Humidity	5-95% @ +40°C	5-95% @ +40°C
Altitude	6,600 ft. (2.0km)	40000 ft (12km)

Dimensions

158 X 191 X44.5 mm, weight 1.45kg

Mounting Hardware
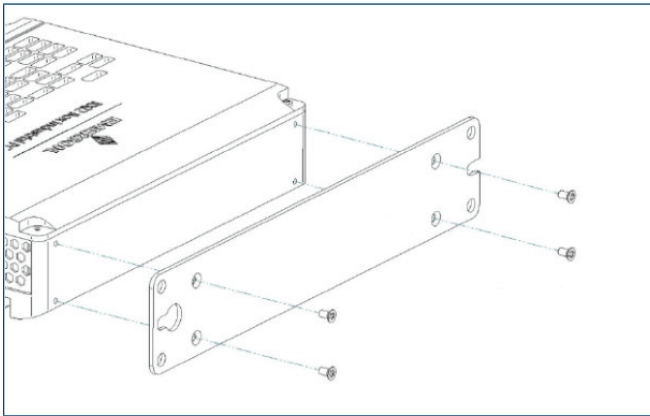
Panel Mount
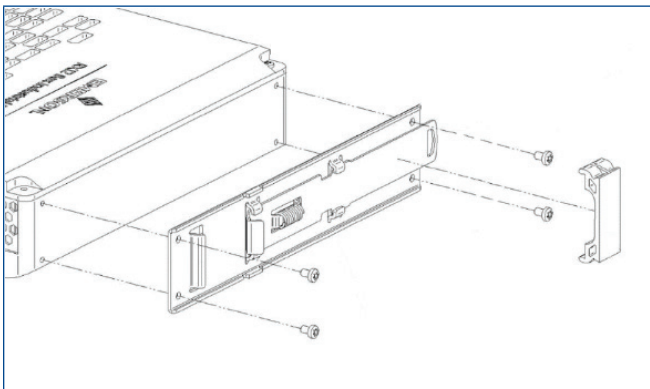
DIN Rail Mount

Related Products

- **DeltaV PK Controller**

- **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 v14.LTS or higher software.

- DeltaV PK Controller

- DeltaV ProfessionalPLUS PC and DeltaV ProfessionalPLUS software suite.

One or more DeltaV Operator Station PC(s) and DeltaV Operator Station software suite licenses, as required.

Ordering Information

Description	Model Number
X-Year Guardian Support for One System up to YYYY DST	VE9041SYYYY
DeltaV I/O Gateway (includes panel mount and DIN-rail mount hardware)	SE2629C01
DeltaV IO.CONNECT up to XXXX I/O, Annual price for Y years	VE9055SXXXX-Y
Serial Cable	CCM-P SEME-SXXTR

Services

For help in planning, justifying, or implementing your Honeywell 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.

Contact Us
⊕ www.emerson.com/contactus

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