

DeltaV Connect™ Solution for Honeywell® Systems



For a pathway to today's digital technologies, easily connect enhanced DeltaV workstations to your Honeywell system

- Operate your process easily and intuitively from a state-of-the-art operator interface
- Integrate seamlessly with the Honeywell® Local Control Network™ (LCN)
- Install and commission with zero downtime and no Network Configuration File changes
- Easily integrate today's state-of-the-art digital technologies
- Low-risk, easy path to a smart digital plant

Honeywell TPS system 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.

The DeltaV Connect solution upgrades Honeywell LCN-based consoles such as the Universal Station or Global User Station while Honeywell controllers and I/O continue to run the process.

The Honeywell TPS system's analog and discrete I/O, process control loops, and online tuning parameters are seamlessly viewed and operated from a state-of-the-art DeltaV operator interface. This integrated DeltaV and Honeywell operator interface provides a basis for a low-risk, easy transformation towards a smart digital plant.

Introduction

Emerson Process Management's DeltaV Connect™ Solution for Honeywell® Systems provides a pathway for Honeywell TotalPlant® Solution (TPS) systems to easily transition to a PlantWeb® digital architecture with the DeltaV™ system.



Benefits

State-of-the-art operator interface. Operators can monitor and control both Honeywell and DeltaV systems from the latest DeltaV Operator Stations. Features include event reporting, history collection and enhanced alarming. Predefined faceplates are designed to ease the transition for operators. Honeywell consoles can be replaced, or used in conjunction with, DeltaV Operator Stations.

Seamless integration. The DeltaV Connect Solution for Honeywell systems seamlessly integrates with LCN-based systems. Honeywell system data is incorporated into DeltaV such that an installed Honeywell TPS system becomes an extension of the DeltaV system.

Install and commission with no downtime. DeltaV Operator Stations can be added online and be used side-by-side with existing Honeywell consoles while the process continues to run.

Easy 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, and AS-i can be easily integrated on DeltaV along with your Honeywell system data.

Cost-effective, robust solution. DeltaV Connect Solution for Honeywell Systems provides an affordable and flexible solution that maximizes current system investments while opening up options for future smart digital plant upgrades.

Product Description

DeltaV Connect Solution for Honeywell Systems is an interface solution that provides the ability to operate both Honeywell TPS equipment and DeltaV equipment from a common integrated DeltaV Operator Station.

The DeltaV Connect Solution for Honeywell Systems interface enables access to Honeywell LCN-based control and monitoring “tag.parameter” information within the DeltaV system.

The DeltaV Connect Solution for Honeywell Systems uses special-purpose standard DeltaV control modules called connect blocks, running in a PC-based software controller (virtual controller). These modules mirror the equivalent points running in a Honeywell system. The connect blocks make data reported to DeltaV workstations look as if it is coming from a standard DeltaV controller. This allows the interface to use standard DeltaV controller features such as event reporting, history collection, and enhanced alarming.

DeltaV Connect Solution for Honeywell Systems consists of both hardware and software. An LCN interface card provides a physical connection to the Honeywell Local Control Network. Software components consist of interface software, connect blocks, control module templates based on the connect blocks, faceplates, and detail windows for the connect blocks.

Notes:

- DeltaV Connect Solution for Honeywell Systems is **only** compatible with LCN series R4xx, R5xx and R6xx. Note that Emerson does **not** (and cannot) test every specific minor LCN release; Emerson also cannot **guarantee** that an explicit release will work correctly. As of the publication date of this Product Data Sheet, Emerson has found no compatibility issues with standard, **common** LCN releases up to and including R670.
- Interface data exchange is limited by the LCN data handling capability. Note that if the customer LCN bandwidth is already considered “high”, Emerson will likely not consider adding DCH to the LCN, unless the current interface data exchange is reduced. There are methods to perform this reduction; contact your local Emerson sales office for more details.
- The interface will add additional communication traffic to the LCN unless US or GUS nodes are removed. US or GUS nodes should be removed in a one-to-one relationship to DeltaV Operator Stations being added.
- DeltaV Connect Solution for Honeywell Systems is foremost a **temporary** transition solution providing a method to bridge between a Honeywell LCN system and a DeltaV system. As such, it’s sold to work “as is” on the currently existing revision of LCN software on the Honeywell system. Emerson cannot commit that the installed version of DeltaV Connect Solution for Honeywell Systems will work on a **newer** revision/release of LCN software, whether the LCN software exists at the time of installation of DeltaV Connect Solution for Honeywell Systems or if it is upgraded after installation by a newer Honeywell system hardware and/or software release. The expectation is the LCN software release is fixed at whatever revision it is when the DeltaV Connect Solution for Honeywell Systems is installed.
- At least one LCN hardware address must be available. Addresses 65 – 96, which are not normally used on LCN systems, may be used.
- At least one US or GUS must be left on the Honeywell system for engineering and diagnostic functions.

Architecture

The DeltaV Connect Solution for Honeywell Systems LCN interface card resides in a DeltaV Application Station and has connections for both LCN A and B network cables, as shown in Figure 1.



Figure 1. Application Station with LCN interface card and LCN network cables

This Application Station becomes the dedicated interface for sending and receiving data with the LCN. No other applications are allowed on this machine.

The interface can be implemented in a redundant architecture, which adds a second Application Station with an interface card and redundancy application software.

The Application Station's virtual controller hosts the control modules containing the connect blocks used for the data exchange with the Honeywell LCN.

The DeltaV ProfessionalPLUS Station maintains the configuration database while the DeltaV Operator Stations are the nodes used to monitor and perform operator interactions with the Honeywell LCN-based data. Refer to Figure 2 for an architecture diagram and Figure 3 for a schematic of the data flow.

*DeltaV Connect™ Solution
for Honeywell® Systems Architecture*

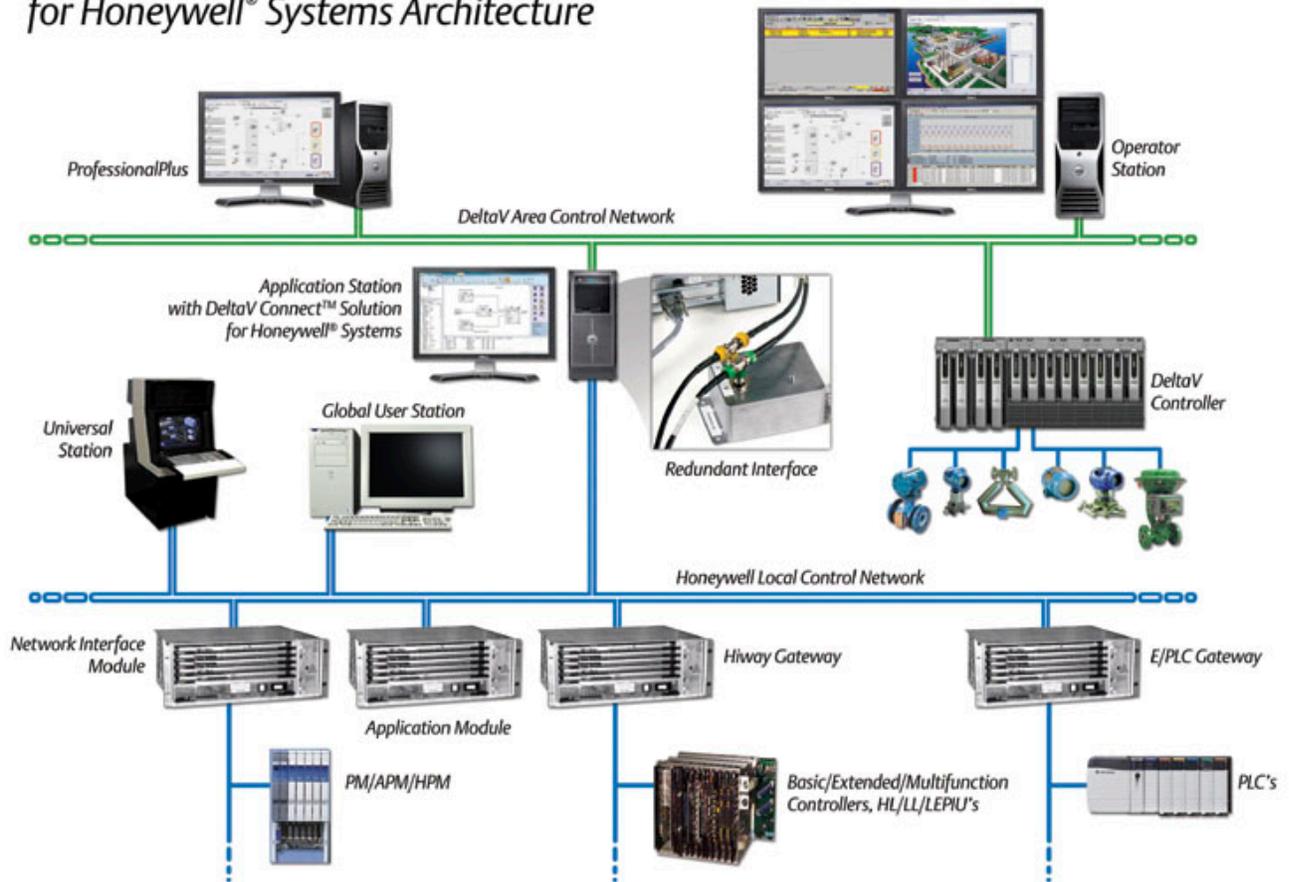


Figure 2. The DeltaV Connect Solution for Honeywell Systems architecture

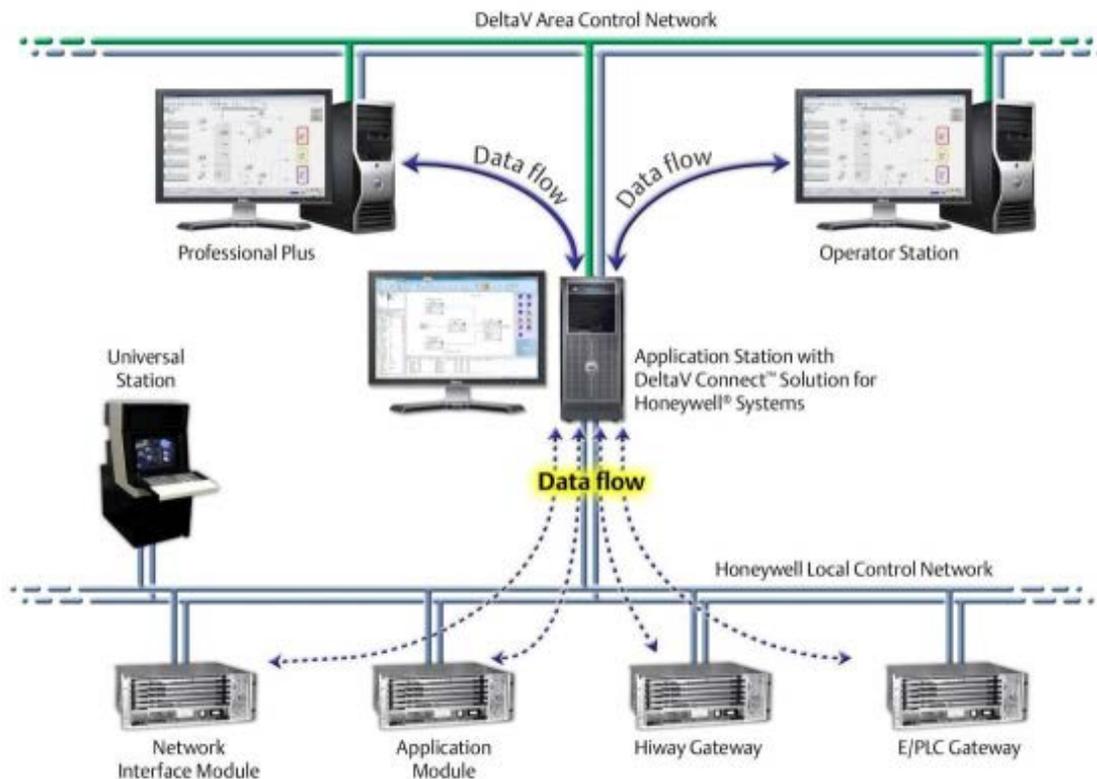


Figure 3. The Application Station with DeltaV Connect Solution for Honeywell Systems becomes the interface for sending and receiving data between the DeltaV system and the Honeywell LCN.

Scalable, Flexible Architecture

DeltaV Connect Solution for Honeywell Systems provides the ability to have more than one real-time LCN interface per DeltaV system. The number is limited to the maximum number of Application Stations recommended for a DeltaV system. This allows the flexibility of having multiple Application Stations for interfacing to an LCN to segregate data flow paths.

Also, one DeltaV system can be the integration platform for multiple, independent LCNs. When connecting multiple LCNs, the DeltaV system would have at least one LCN interface Application Station for each LCN.

Each LCN interface Application Station requires the purchase of a DeltaV Connect Solution for Honeywell Systems license from Emerson Process Management.

LCN Connectivity Setup

The interface on the DeltaV Application Station requires minimal setup in order to establish communication with the LCN and enable LCN data reading and writing.

LCN information required for interface setup:

- LCN hardware address: Hardware address for identification of the interface card on the LCN. The address must be an unassigned address. In the redundant interface architecture each interface has a unique hardware address.

LCN node identification for connectivity setup:

- The list of LCN nodes: The list of nodes the interface will establish communication with for data exchange. This targets data exchange and alarm generation to the nodes listed instead of with all the LCN nodes.

Configuration

The DeltaV Connect Solution for Honeywell Systems interface is configured, maintained, and can be operated from the DeltaV ProfessionalPLUS Station. The DeltaV engineering environment provides a standard set of Honeywell block module templates for drag-and-drop configuration. Simply drag the module template corresponding to the Honeywell block to a control strategy area in the DeltaV Explorer (See Figure 4).

The modules contain the appropriate function block and preconfigured alarms and conditions and preconfigured

call up of the correct faceplate and detailed display on the Operator Station.

For user defined modules, the library of Honeywell blocks is provided. To support user-defined modules, predefined faceplates and detail blocks are easily modified.

Each DeltaV Connect Solution for Honeywell Systems block contains data transferred via the interface and configuration data contained in the block but not transferred through the interface. The configuration of the modules is also available via the standard DeltaV bulk edit functionality.

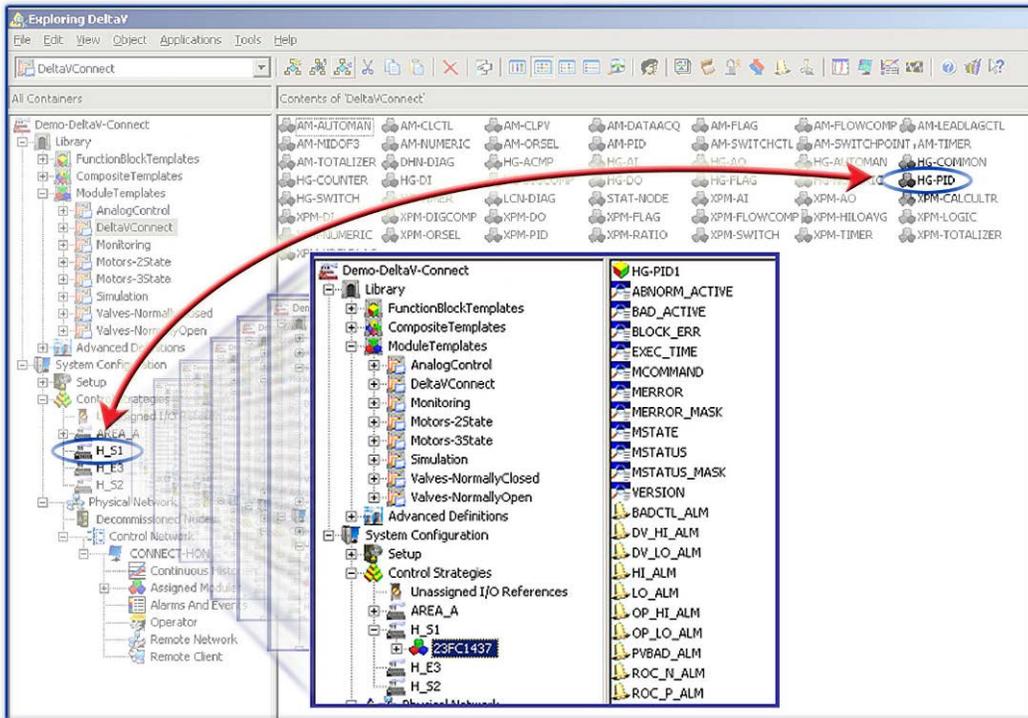


Figure 4. DeltaV Explorer view of drag-and-drop configuration of DeltaV Connect Solution for Honeywell Systems module templates

DeltaV Connect Solution for Honeywell Systems Blocks and Module Templates

Blocks and module templates have been developed for a set of the point types sourced by the Network Interface Module / UCN-based family of controllers, the Application

Module, and the Hiway Gateway / Data Hiway process connected boxes. Refer to Figure 5 for a sample HG-AI function block in the DeltaV Control Studio engineering environment.

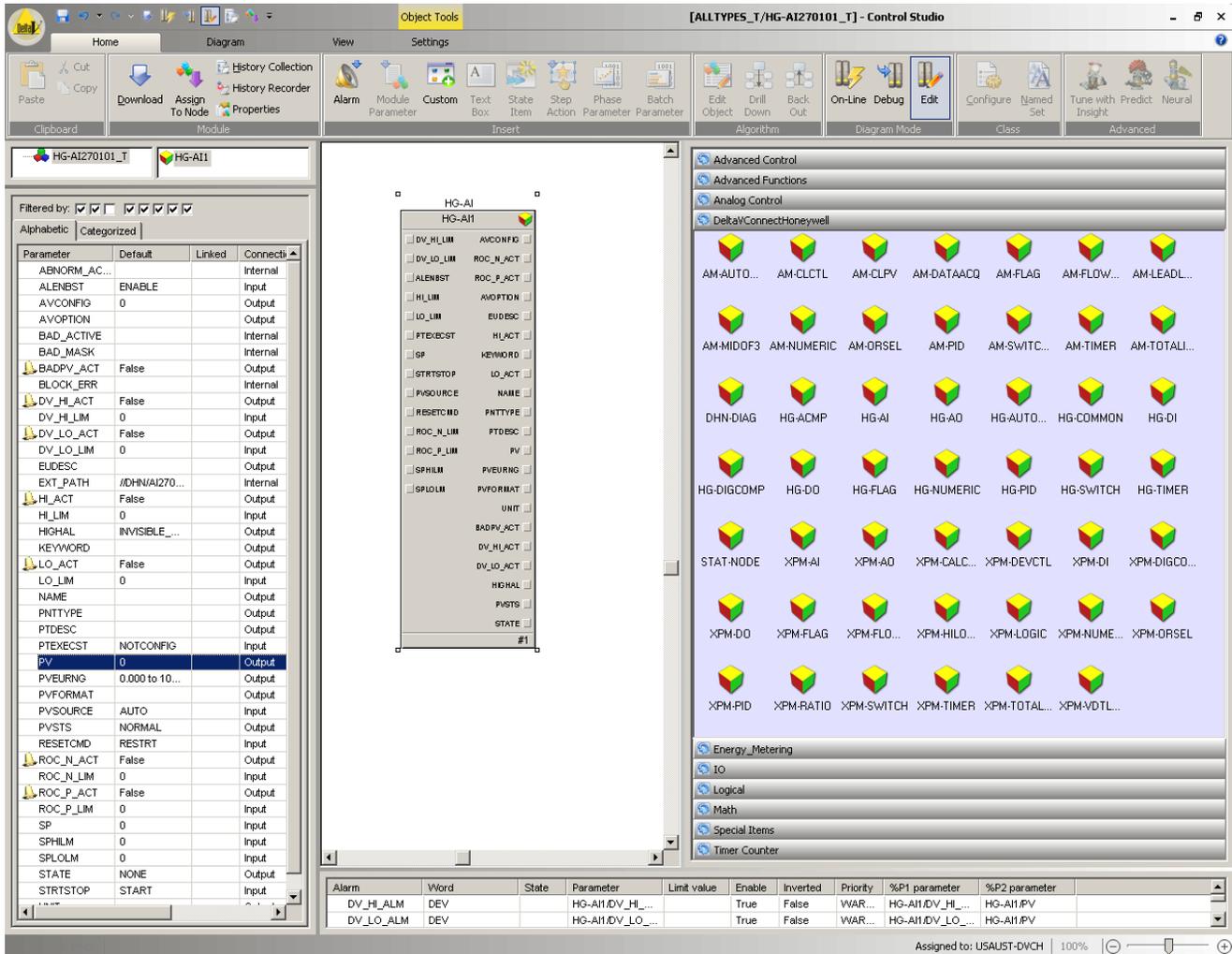


Figure 5. HG-AI DeltaV Connect solution function block in the DeltaV Control Studio™ engineering environment. Function blocks use the same familiar parameters as Honeywell TPS systems.

DeltaV Module	HG point type	DeltaV Module	xPM point type	DeltaV Module	AM point type
HG-PID	PIDNORM	XPM_AI	AI	AM-PID	PIDERFB
	PIDCM		DATAACQ		PIDERFB
	PIDCMA	XPM-PID	AUTOMAN		PID
	PIDDDC		PIDERFB		RATIOCTL
	PIDDDCSP		PIDFF		
	PIDERSQG		PID	AM-ORSEL	ORSEL
	PIDERSQI	XPM-HILOAVG	HILOAVG		SUMMERCTL
	PIDEXFB		MIDOF3	INCRSUMCTL	
	PIDGAP		SUMMER		
	PIDNONLN	XPM-AO	AO	AM-MIDOF3	MIDOF3
	PIDPL50	XPM-CALCULTR	CALCULTR		HILOAVG
	PIDPL50C	XPM-DEVCTL	DEVCTL		VDTLDLAG
	PIDRATIO	XPM-DI	DI		CALC
	PIDSPC	XPM-DIGCOMP	DIGCOMP		SUMMERPV
	AUTOBIAS	XPM-DO	DO		SUMPROD
	AUTORATIO	XPM-FLAG	FLAG	AM-AUTOMAN	AUTOMAN
	LEADLAG	XPM-FLOWCOMP	FLOWCOMP	AM-CLCTL	CLCTL
HG-COMMON	CBSUMR	XPM-LOGIC	LOGIC	AM-CLPV	CLPV
	SUMRWMAN	XPM-NUMERIC	NUMERIC	AM-DATAACQ	DATAACQ
	ECSUMR	XPM-ORSEL	ORSEL	AM-FLAG	FLAG
	MASSFLOW	XPM-RATIO	RATIO	AM-FLOWCOMP	FLOWCOMP
	DAS	XPM-SWITCH	SWITCH	AM-NUMERIC	NUMERIC
	DEADTM	XPM-TIMER	TIMER	AM-SWITCHCTL	SWITCHCTL
	HISEL	XPM-TOTALIZER	TOTALIZER	AM-TIMER	TIMER
	LOSEL	XPM-VDTLDLAG	VDTLDLAG	AM-LEADLAGCTL	LEADLAGCTL
	MIDOF3			AM-TOTALIZER	TOTALIZER
HG-AUTOMAN	AUTOMAN				
HG-SWITCH	SWITCH				
HG-ACMP	ACMP				
HG-AI	AI				
HG-AO	AO				
HG-DI	DI				
HG-DO	DO				
HG-DIGCOMP	DIGCOMP				
HG-FLAG	FLAG				
HG-NUMERIC	NUMERIC				
HG-TIMER	TIMER				

Table 1. DeltaV Connect Solution for Honeywell Systems module templates and function blocks with corresponding Honeywell Hiway Gateway (HG), Process Manager® (xPM) and Application Module (AM) point types or algorithms.

DeltaV Connect Solution for Honeywell Systems Module Configuration Service

Part of the DeltaV Connect solution is a service for converting Honeywell Exception Build (EB) configuration

files to DeltaV Connect Solution for Honeywell Systems modules. EB exported text files are translated to a format that is imported into the DeltaV system, illustrated in Figure 6 (below).

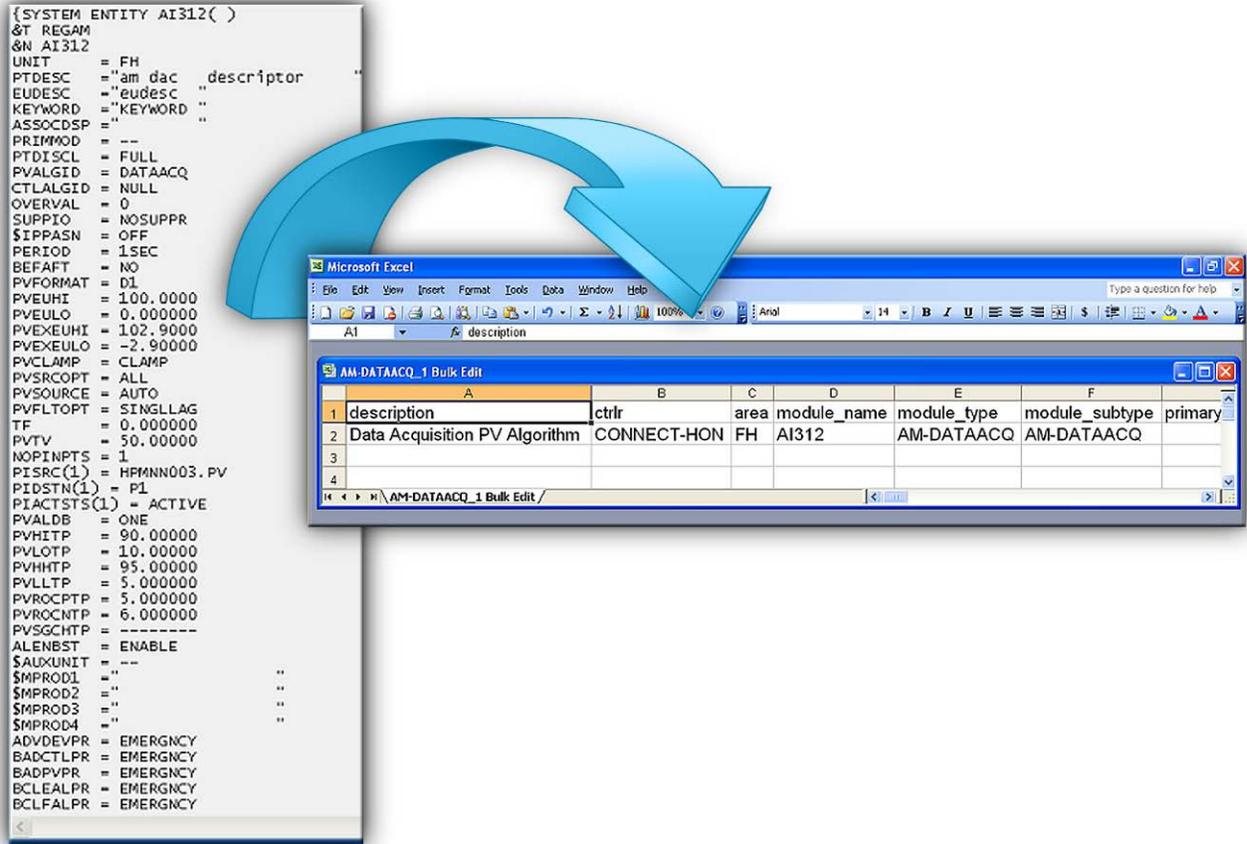


Figure 6. Honeywell EB files convert to an importable DeltaV system format for DeltaV Connect Solution for Honeywell Systems modules.

Predefined Operator Faceplates and Detail Windows

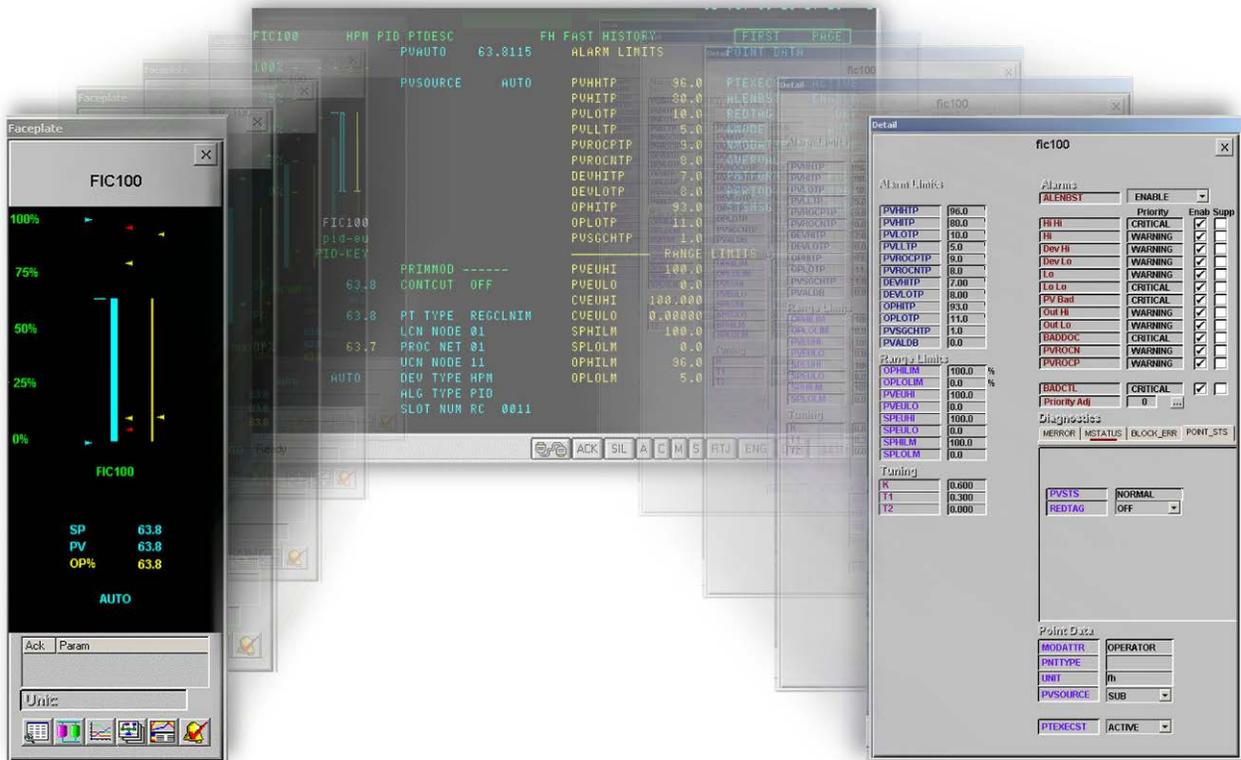
The DeltaV Connect module templates are preconfigured to call up the associated faceplate and detailed display (where applicable) on the DeltaV Operator Station.

These faceplates and detail windows, shown in Figure 7, are designed to reduce the transition time in the ability to operate Honeywell LCN-sourced data on the DeltaV

system. The design and layout of the faceplates and detail windows provide operators with data views similar to the data presented on a Honeywell Universal Station (US). Additionally, descriptors for the data use familiar wording which operators are accustomed to on the Honeywell US.

This enables operators to ease and accelerate their transition to the new solution with little re-learning.

Honeywell Universal Station view



Preconfigured DeltaV faceplate

Preconfigured DeltaV detail display

Figure 7. DeltaV faceplates call up Honeywell system data.

System Compatibility

DeltaV Connect Solution for Honeywell Systems v1.3 is compatible with DeltaV releases v9.3.1, v10.3.1 and v11.3.1. The DeltaV Connect Solution for Honeywell Systems may be simplex or redundant (see Table 2).

DeltaV Connect Solution for Honeywell Systems hardware and software includes the license for the Honeywell interface software applications and appropriate LCN interface cards. Other DeltaV items are required for the interface to be operational. Please contact your local Emerson sales office for details.

DeltaV Connect Solution for Honeywell Systems v1.3 Compatibility	Simplex Interface	Redundant Interface
DeltaV v9.3.1	Yes	Yes
DeltaV v10.3.1	Yes	Yes
DeltaV v11.3.1	Yes	Yes

Table 2. DeltaV Connect Solution for Honeywell Systems Compatibility

The DeltaV system hardware and software requirements depend on the implementation of the DeltaV Connect Solution for Honeywell Systems as simplex or redundant (see Table 3).

DeltaV Connect Solution for Honeywell Systems Requirements	Simplex Interface	Redundant Interface
DeltaV ProfessionalPLUS 25 DST license	Yes	Yes
DeltaV Application Station 250 data value license ¹	Yes	Yes, One ²
Minimum number of DeltaV PC workstations ⁵	Two ³	Three ⁴

Table 3. DeltaV items required to support DeltaV Connect Solution for Honeywell Systems

¹ Each simplex DeltaV Connect Solution for Honeywell System installed on an Application Station requires an Application Station suite license. Each redundant interface installed on an Application Station pair requires one Application Station suite license.

² For a redundant interface, purchase two workstations for the Application Station redundant pair. A single Application Station license and a single Redundancy License are required for the Application Station pair.

³ One ProfessionalPLUS and one Application Station.

⁴ One ProfessionalPLUS and two Application Stations.

⁵ To add DeltaV Operator Stations, add one DeltaV Operate license and one Dell PC (workstation or server as desired) for each Operator Station.

The DeltaV Connect Solution for Honeywell Systems is compatible with several revisions of the Honeywell LCN (see Table 4).

Honeywell TDC 3000 LCN release # ¹	DeltaV Connect Solution for Honeywell Systems v1.3 Compatibility
R4xx	Yes
R5xx	Yes
R6xx	Yes

Table 4. DeltaV Connect Solution for Honeywell Systems compatibility with known LCN releases

¹ Emerson does **not** test every individual “minor” LCN release; Emerson also cannot **guarantee** that an explicit release will work correctly. As of the publication date of this Product Data Sheet, Emerson has found no compatibility issues with standard, common LCN releases up to and including R670. For LCN releases later than R670, Emerson may be willing to provide the services to test the newer release on an appropriate schedule.

The DeltaV Connect Solution for Honeywell Systems includes the licenses for the Honeywell interface engineering and real-time software applications. For this interface to be operational, other DeltaV items are required. Please contact your local Emerson sales office for details.

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 and Ordering Information

For inquiries and ordering information, please contact your local Emerson sales office

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.

Prerequisites

- DeltaV v9.3.1, v10.3.1, or v11.3.1 system software. See Table 2 for DeltaV system version compatibility.
- DeltaV ProfessionalPLUS workstation, Application Station, and Operator Stations, as needed. See Table 3 for DeltaV workstation requirements.

To locate a sales office near you, visit our website at:

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