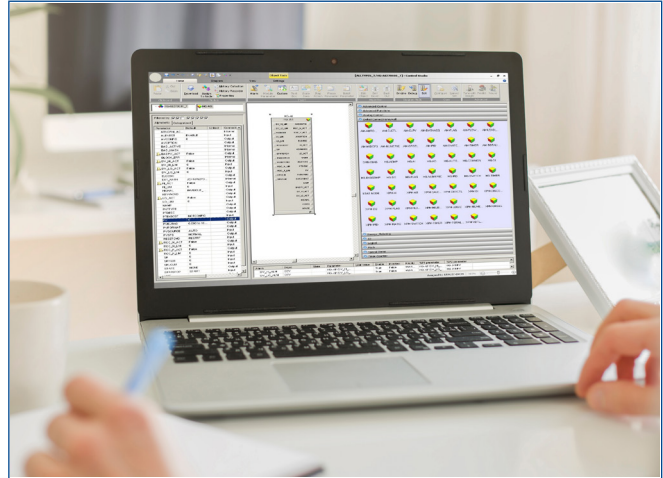


DeltaV™ Console.CONNECT Solution for Honeywell® TDC 3000 Systems

- Provide a single modern Operator Interface to run DeltaV™ and TDC 3000 Systems during phased migration to DeltaV
- Make cutover from TDC 3000 to DeltaV invisible to Operators
- Provide a modern, safe high-performance experience to Operations sooner rather than later



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

Introduction

Emerson's DeltaV Console.CONNECT Solution for Honeywell TDC 3000 Systems provides a pathway for Honeywell TotalPlant® Solution (TPS) systems to easily transition to a DeltaV system.

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

The DeltaV Console.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.

Benefits

Modern, built-for-purpose DeltaV Live Operator Interface.

Operators can monitor and control both Honeywell and DeltaV System data from the DeltaV Live Operator Interface. DeltaV Live provides a complete set of high-performance tools: operator graphics, sophisticated alarm management and presentation, embedded historical trending and system-wide security. DeltaV Live supports industry standards like ISA 101.01 and industrial best practices like those defined by the Center for Operator Performance (COP). Predefined faceplates are designed to ease the transition for operators. Honeywell consoles can be replaced or used in conjunction with DeltaV Operator Stations with DeltaV Live.

Seamless integration with the LCN. The DeltaV Console.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 with the Honeywell system online and used side-by-side with existing Honeywell consoles while the process continues to run. There are no required Honeywell hardware, software, or configuration (Network Configuration File - NCF) changes.

Operator Training while Moving to DeltaV is Simplified. DeltaV Operator Stations provide new capabilities yet show Honeywell control data in a common format that operators are already used to viewing.

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.

Reduce Islands of Automation. Easily integrate FOUNDATION Fieldbus, HART, Profibus DP, DeviceNet, Modbus TCP and Ethernet/IP protocols by using modern connection options such as Modbus-TCP, OPC UA, Ethernet-TCP, etc.

Cost-effective, Low-Risk, 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 Console.CONNECT Solution for Honeywell TDC 3000 Systems is an interface solution that provides the ability to operate both Honeywell TPS equipment and DeltaV equipment from common integrated DeltaV Operator Stations.

The DeltaV Console.CONNECT Solution for Honeywell TDC 3000 Systems interface enables access to Honeywell LCN-based control and monitoring “tag.parameter” information within the DeltaV system.

The DeltaV Console.CONNECT Solution for Honeywell TDC 3000 Systems uses special-purpose standard DeltaV control modules called connect blocks, running in a server-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 Console.CONNECT Solution for Honeywell TDC 3000 Systems consists of both hardware and software. An external LCN interface kit provide the physical connection to the Honeywell LCN. 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 Console.CONNECT Solution for Honeywell TDC 3000 Systems is compatible with LCN series R4xx, R5xx and R6xx.
- Interface data exchange is limited by the LCN data handling capability. If the LCN bandwidth is already considered “high,” adding DCH to the LCN is not recommended until the interface data exchange is reduced. There are methods available 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.
- This is a transitional “single piece of glass” console solution for a phased system modernization and not intended to replace US or GUS stations permanently in a Honeywell system.
- At least one US or GUS must be left on the Honeywell system for engineering and diagnostic functions.
- It is recommended that the LCN software revision should remain fixed after installation of Console.CONNECT.
- At least one LCN hardware address must be available. Addresses 65 – 96, which are not normally used on LCN systems, may be used.

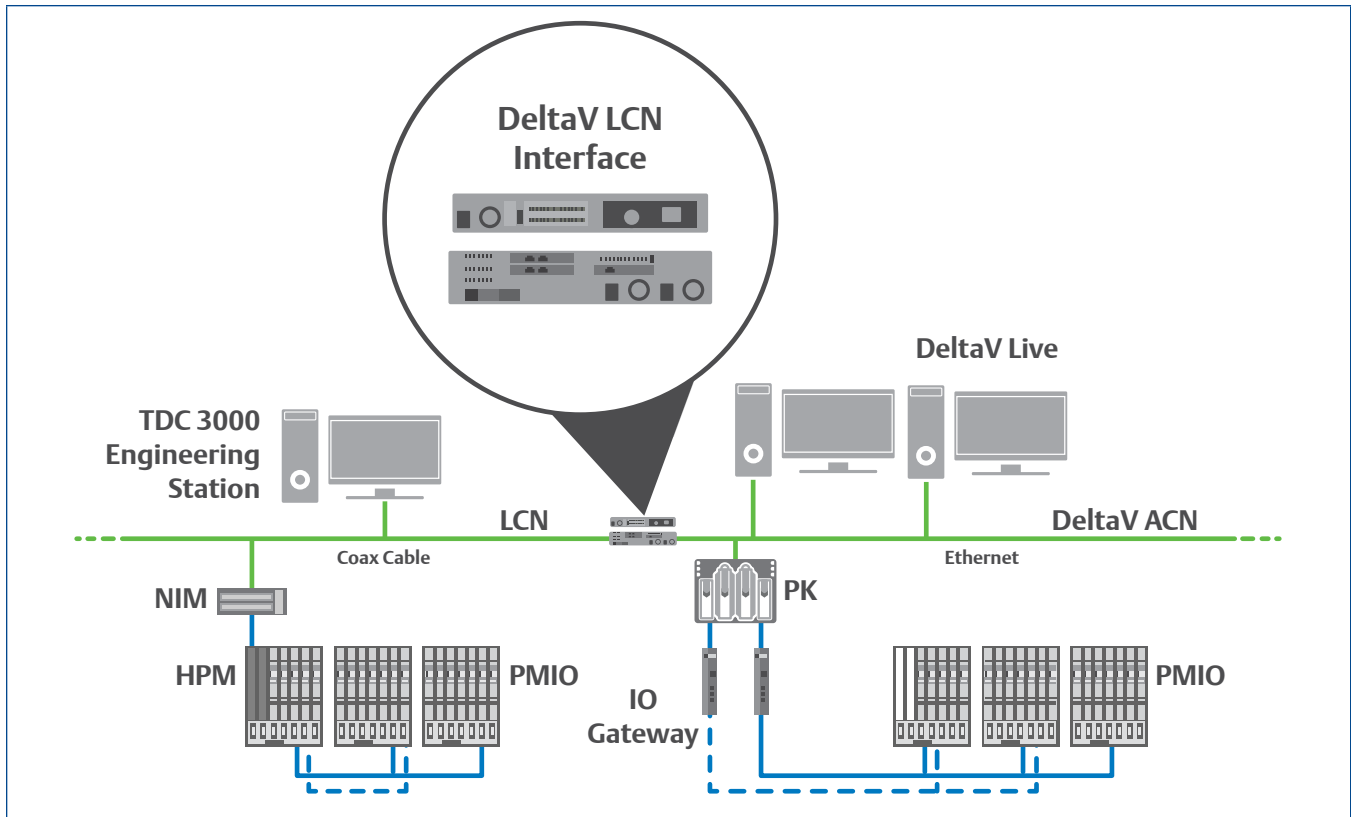


Figure 1. DeltaV Console.CONNECT Solution for Honeywell Systems architecture.

Architecture

The DeltaV Console.CONNECT Solution for Honeywell TDC 3000 Systems LCN interface kit is a rack-mounted (1.5U sized) box which normally resides adjacent to a DeltaV Application Station. It is connected to the Application Station by a standard Ethernet cable and to a Media Access Unit (MAU) box which has connections for both LCN A and B 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 its own interface kit 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 1 for an architecture diagram.

Scalable, Flexible Architecture

DeltaV Console.CONNECT for Honeywell TDC 3000 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.

Each LCN interface Application Station requires the purchase of a DeltaV Console.CONNECT Solution for Honeywell TDC 3000 Systems license from Emerson.

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 specific LCN nodes for data exchange and alarm generation instead of with all LCN nodes.

Configuration

The DeltaV Console.CONNECT for Honeywell TDC 3000 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 2).

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 Console.CONNECT Solution for Honeywell TDC 3000 data transferred through 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.

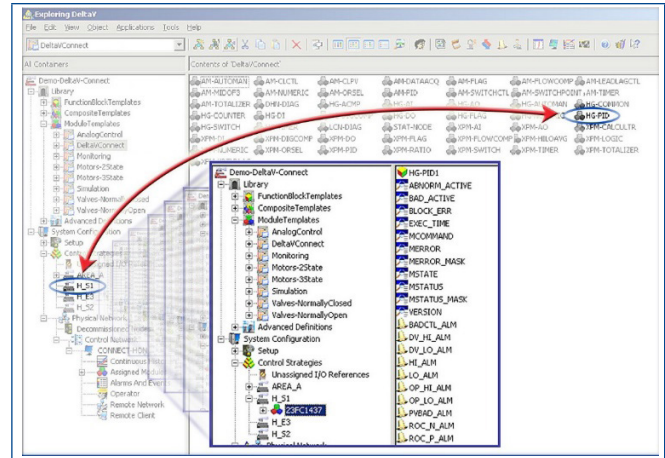


Figure 2. DeltaV Explorer view of drag-and-drop configuration of DeltaV Connect Solution for Honeywell Systems module templates.

DeltaV Console.CONNECT for Honeywell TDC 3000 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 3 for a sample HG-AI function block in the DeltaV Control Studio engineering environment. Please also refer to Table 1 for a complete list of all supported DCH modules showing their counterpart Honeywell point types or algorithms.

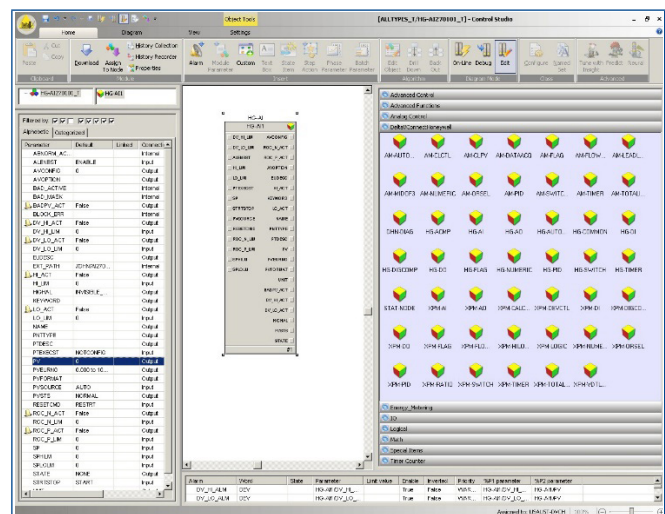


Figure 3. HG-AI DeltaV Connect solution function block in the DeltaV Control Studio™ engineering environment. Function blocks use the same familiar parameters as Honeywell TPS systems.

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	AM-ORSEL	ORSEL
	PIDERSQG	PID	SUMMERCTL		
	PIDERSQI	XPM-HILOAVG	HILOAVG		INCRSUMCTL
	PIDEXFB		MIDOF3	AM-MIDOF3	MIDOF3
	PIDGAP		SUMMER		HILOAVG
	PIDNONLN	XPM-AO	AO		VDTLFLAG
	PIDPL50	XPM-CALCULTR	CALCULTR		CALC
	PIDPL50C	XPM-DEVCTL	DEVCTL	SUMMERPV	
	PIDRATIO	XPM-DI	DI	SUMPROD	
	PIDSPC	XPM-DIGCOMP	DIGCOMP	AM-AUTOMAN	AUTOMAN
	AUTOBIAS	XPM-DO	DO	AM-CLCTL	CLCTL
	AUTORATIO	XPM-FLAG	FLAG	AM-CLPV	CLPV
	LEADLAG	XPM-FLOWCOMP	FLOWCOMP	AM-DATAACQ	DATAACQ
HG-COMMON	CBSUMR	XPM-LOGIC	LOGIC	AM-FLAG	FLAG
	SUMRWMAN	XPM-NUMERIC	NUMERIC	AM-FLOWCOMP	FLOWCOMP
	ECSUMR	XPM-ORSEL	ORSEL	AM-NUMERIC	NUMERIC
	MASSFLOW	XPM-RATIO	RATIO	AM-SWITCHCTL	SWITCHCTL
	DAS	XPM-SWITCH	SWITCH	AM-TIMER	TIMER
	DEADTM	XPM-TIMER	TIMER	AM-LEADLAGCTL	LEADLAGCTL
	HISEL	XPM-TOTALIZER	TOTALIZER	AM-TOTALIZER	TOTALIZER
	LOSEL	XPM-VDTLFLAG	VDTLFLAG		
	MIDOF3				
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				

Table 1. DeltaV Console.CONNECT for Honeywell TDC 3000 Systems module templates and function blocks with corresponding Honeywell Hiway Gateway (HG), Process Manager® (xPM), and Application Module (AM) point types or algorithms.

DeltaV Console.CONNECT for Honeywell TDC 3000 Systems Module Configuration Service

Part of the DeltaV Console.CONNECT for Honeywell TDC 3000 Systems is a service for converting Honeywell Exception Build (EB) configuration files to DeltaV Console.CONNECT for Honeywell TDC 3000 Systems modules. EB exported text files are translated to a format that is imported into the DeltaV System, illustrated in Figure 4 (below).

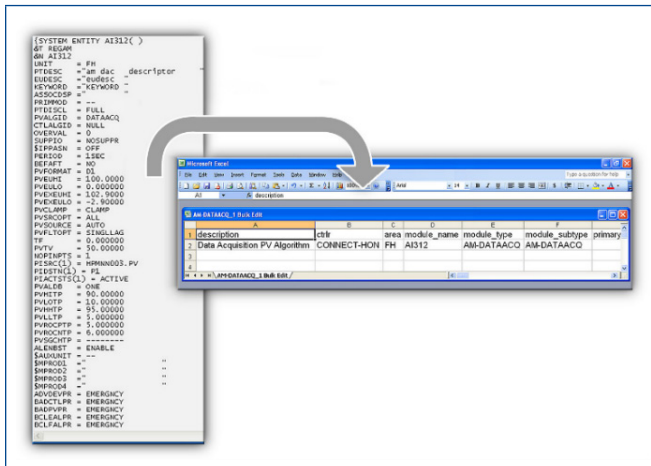


Figure 4. Honeywell EB files convert to an importable DeltaV system format for DeltaV Console.CONNECT for Honeywell TDC 3000 Systems modules.

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 5, 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 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.

DeltaV Live Faceplates & Detail Displays

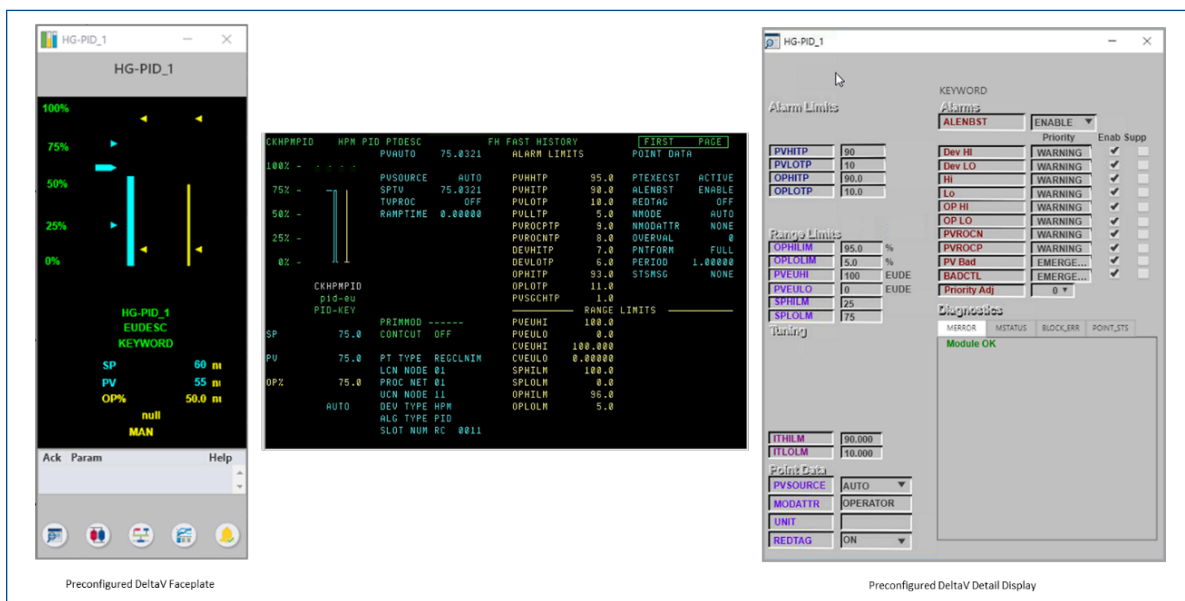


Figure 5. DeltaV faceplates call up Honeywell system data (native HMI from Honeywell shown in center).

System Compatibility

The DeltaV Console.CONNECT for Honeywell TDC 3000 Systems may be simplex or redundant (see Table 2).

DeltaV Console.CONNECT for Honeywell TDC 3000 Systems hardware and software includes the license for the Honeywell interface software applications and appropriate LCN interface kits. Other DeltaV items are required for the interface to be operational. Please contact your local Emerson sales office for details.

DeltaV Console.CONNECT for Honeywell TDC 3000 Systems v2.3 Compatibility	Simplex Interface	Redundant Interface
DeltaV v12.3.1	Yes	Yes
DeltaV v13.3.1	Yes	Yes
DeltaV Console.CONNECT for Honeywell TDC 3000 Systems v2.4 Compatibility	Simplex Interface	Redundant Interface
DeltaV v14.LTS	Yes	Yes

Table 2. DeltaV Console.CONNECT for Honeywell TDC 3000 Systems Compatibility.

The DeltaV system hardware and software requirements depend on the implementation of the DeltaV Console.CONNECT for Honeywell TDC 3000 Systems as simplex or redundant (see Table 3).

DeltaV Console.CONNECT for Honeywell TDC 3000 Systems Requirements	Simplex Interface^{1,3}	Redundant Interface^{2,3}
DeltaV ProfessionalPLUS software suite license	1	1
DeltaV ProfessionalPLUS PC hardware	1	1
DeltaV Application Station software suite license	1	1
DeltaV Application Station PC hardware	1	2
DeltaV Console.CONNECT for Honeywell TDC 3000 Systems function block license	1	1
DeltaV Console.CONNECT for Honeywell TDC 3000 Systems redundancy license	N/A	1

Table 3. DeltaV hardware and licenses required to support DeltaV Console.CONNECT for Honeywell TDC 3000 Systems.

1 Each simplex DeltaV Console.CONNECT for Honeywell TDC 3000 Systems 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 Console.CONNECT for Honeywell TDC 3000 Systems function block license.

2 Each redundant DeltaV Console.CONNECT for Honeywell TDC 3000 Systems interface requires one ProfessionalPlus PC, one ProfessionalPlus software suite license (25 DST), two Application Station PCs, one Application Station software suite license, one DeltaV Connect for Honeywell function block license, and one DeltaV Console.CONNECT for Honeywell TDC 3000 Systems redundancy license.

3 To add DeltaV Operator Stations to a simplex or redundant DeltaV Console.CONNECT for Honeywell TDC 3000 Systems, add one PC and one DeltaV Operate software suite license for each Operator Station.

The DeltaV Console.CONNECT for Honeywell TDC 3000 System is compatible with several revisions of the Honeywell LCN (see Table 4).

Honeywell TDC 3000 LCN release # ¹	DeltaV Console.CONNECT Solution for Honeywell TDC 3000 Systems Compatibility
R4xx	Yes
R5xx	Yes
R6xx	Yes

Table 4. DeltaV Console.CONNECT for Honeywell TDC 3000 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 R680.

The DeltaV Console.CONNECT for Honeywell TDC 3000 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.

Prerequisites

- DeltaV v12.3.1 or older system software. See Table 2 for DeltaV system version compatibility.
- DeltaV ProfessionalPLUS PC and DeltaV ProfessionalPlus software suite. See Table 3 for DeltaV workstation requirements.
- One or more DeltaV Application Station PC(s) and DeltaV Application Station software suite licenses, as required. See Table 3 for DeltaV workstation requirements.
- One or more DeltaV Operator Station PC(s) and DeltaV Operator Station software suite licenses, as required. See Table 3 for DeltaV workstation requirements.

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