

DeltaV Connect™ Solution for Bailey® Systems



For improved operator consoles and a platform for today's digital technologies, DeltaV consoles easily connect to your Bailey systems

- Operate your Bailey® system more easily and intuitively with a modern operator console
- Reduce operating risk from console outages and lower your maintenance costs
- Install and commission with no downtime
- Accelerate operator training with side-by-side DeltaV™ and Bailey consoles
- Easily integrate today's state of the art digital technologies

Introduction

Emerson Process Management's DeltaV Connect™ Solution for Bailey® Systems upgrades your INFI 90® or NET 90 system user interface while the Bailey controllers and IO continue running your process. This extends the useful life of the Bailey system and provides the basis for eventual transition to digital plant architecture with the DeltaV system.

Bailey 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 more easily and intuitively with a modern operator console.

The DeltaV Connect Solution for Bailey Systems provides state-of-the-art DeltaV features such as event reporting, history collection, and enhanced alarming for the Bailey system. DeltaV Connect Solution for Bailey Systems seamlessly transfers analog I/O, digital I/O, process control loops, multi-state device control, Bailey node operating status, configuration information, 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 Bailey controller. Any operator data changes made from existing Bailey consoles are also automatically updated in the DeltaV system.

Reduce operating risk of console outages and lower your maintenance costs.

Older Bailey consoles have components that are difficult and/or expensive to acquire. Losing the primary window to your process is a real risk that needs to be addressed. The DeltaV Connect Solution for Bailey Systems removes the need to maintain the aging console electronics and increases the availability of your Bailey system user interface.

Install and commission with no downtime.

The DeltaV Connect Solution for Bailey Systems interface attaches to an available CIU without requiring Bailey system configuration changes. An existing Bailey console can be removed and the DeltaV Connect Solution for Bailey Systems can use its CIU connection to immediately begin reading Bailey data, recording alarms, history and

updating new DeltaV displays. An alternative to removing a console is to connect the DeltaV Connect Solution for Bailey Systems to any available CIU on the network or to the CIU for the Bailey engineering workstation. The engineering workstation connects through the DeltaV Connect Solution for Bailey Systems workstation, so the two applications share a CIU.

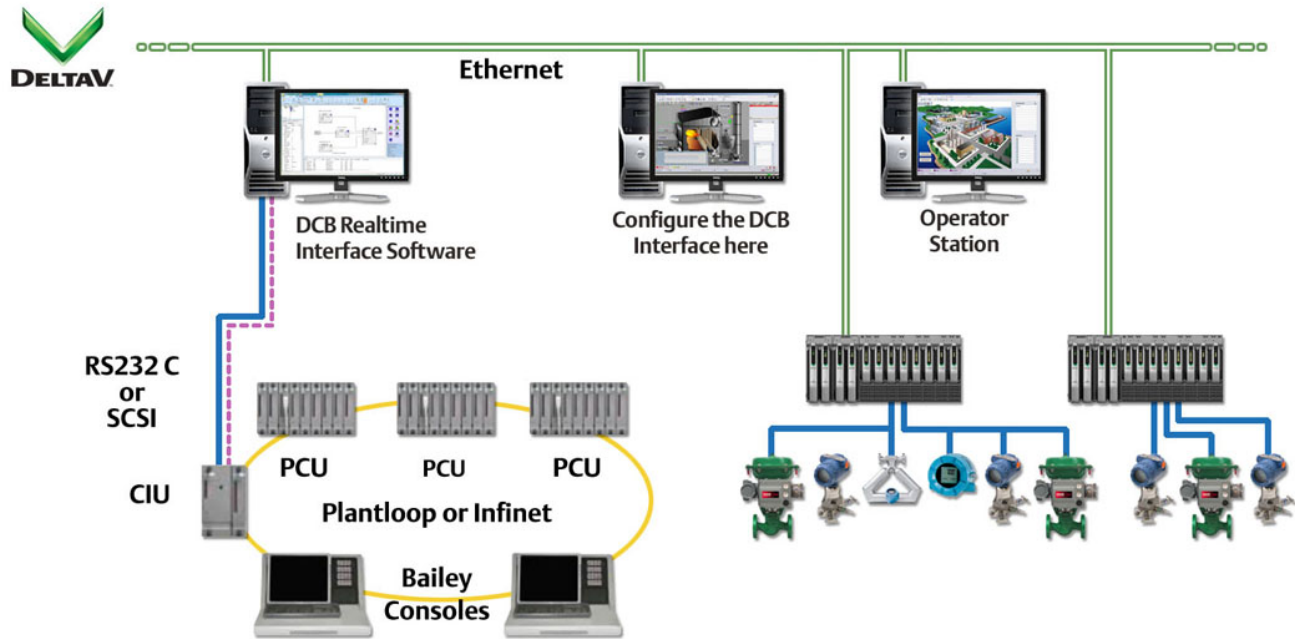
Accelerate operator training with side-by-side DeltaV and Bailey consoles.

Setting up the DeltaV Connect Solution for Bailey Systems interface beside a Bailey 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.

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

With the DeltaV Connect Solution for Bailey Systems interface, you have all the tools needed for expanding the DeltaV system to include DeltaV hardware controllers and IO. These can be added at any time. You can easily share data from the DeltaV Connect Solution for Bailey Systems interface and from new DeltaV I/O and controllers on the same graphic displays.

All configuration work can be done prior to the actual installation of the hardware, including operator display building. Once the DeltaV controllers are installed, the cutover from the Bailey 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.



The DeltaV Connect Solution interface updates the Bailey system user interface and allows for further expansion with DeltaV controllers and digital bus I/O.

A wealth of information

Replace proprietary Bailey consoles with a state-of-the-art Windows-based operator interface. DeltaV ProfessionalPLUS Stations and DeltaV Operate workstation are used in place of, or in conjunction with, Bailey consoles. Your operators can run history view applications, system diagnostics, event viewers, and control strategy diagnostics right on the DeltaV Operate workstation. Additional workstations can be added to the DeltaV system, allowing multiple operators access. Optional DeltaV Dual-Monitor Workstations and Touchscreens provide an expanded field of view for the operator and easy-to-use touch access to the system.

Easy access to Bailey data

DeltaV Connect Solution for Bailey Systems makes the Bailey function block data conveniently accessible on DeltaV workstations. From Bailey-oriented DeltaV faceplates and detail displays, operators can change modes, adjust setpoints, and even modify tuning parameters in the Bailey controllers.

Alarms	Priority	Enab	Supp
Hi Hi	CRITICAL	<input type="checkbox"/>	<input type="checkbox"/>
Hi	WARNING	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Dev Hi	ADVISORY	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Dev Lo	ADVISORY	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lo	WARNING	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lo Lo	CRITICAL	<input type="checkbox"/>	<input type="checkbox"/>

Station (STN) block detail display gives access to PID tuning parameters.

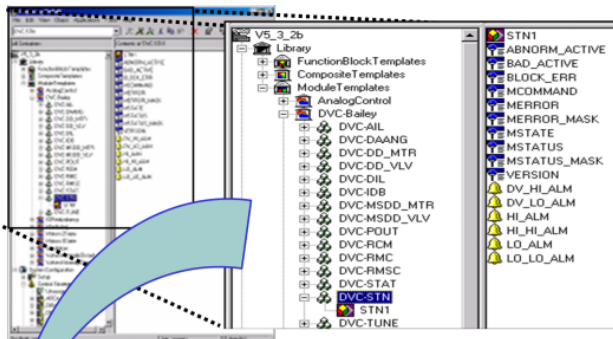
Product Description

The DeltaV Connect Solution for Bailey Systems interface allows complete access to all Bailey control and system information within the DeltaV system.

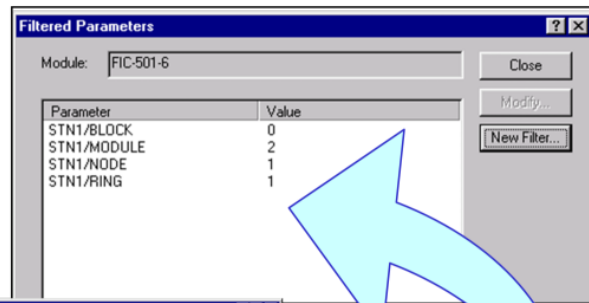
The DeltaV Connect Solution for Bailey Systems uses special-purpose, standard DeltaV control modules, called connect blocks, running in a PC-based software controller. In the interface, these modules mirror the equivalent blocks running in the Bailey controller. The connect blocks make the data reported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

Configuration

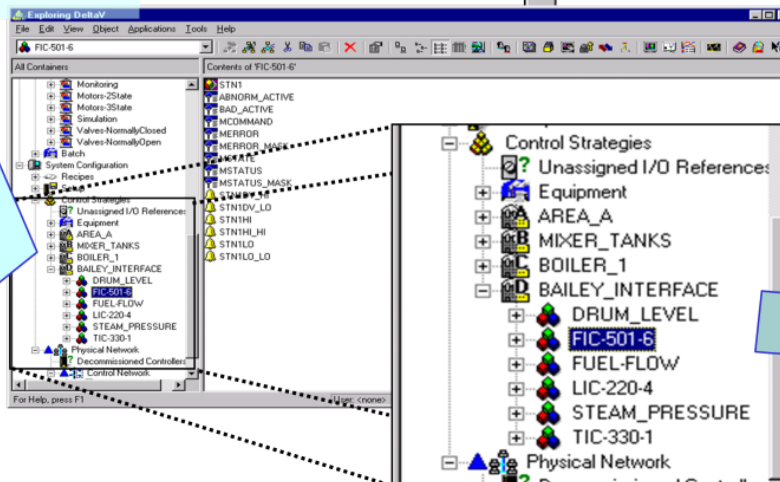
Configuring the interface is easy. The interface is maintained, configured, and can be operated from the DeltaV ProfessionalPLUS Station. The DeltaV engineering environment provides a standard set of Bailey block module templates for easy drag-and-drop configuration. Simply drag the module template corresponding to the Bailey block to a control strategy area in the DeltaV Explorer, enter the module's address in the Bailey controller and the configuration is complete. The predefined modules contain all of the parameters necessary to interface with the Bailey controller blocks. They are also preconfigured to call up the correct faceplate and detailed display on the Operator Station. There can be an unlimited number of special sections in the product Description.



Drag predefined module template to control area & rename to match Bailey tag.



Click on the new module; enter the Bailey system module address, and the module is ready to communicate!



DeltaV Connect Solution for Bailey Systems configuration is easy.

DeltaV Connect Solution for Bailey Systems

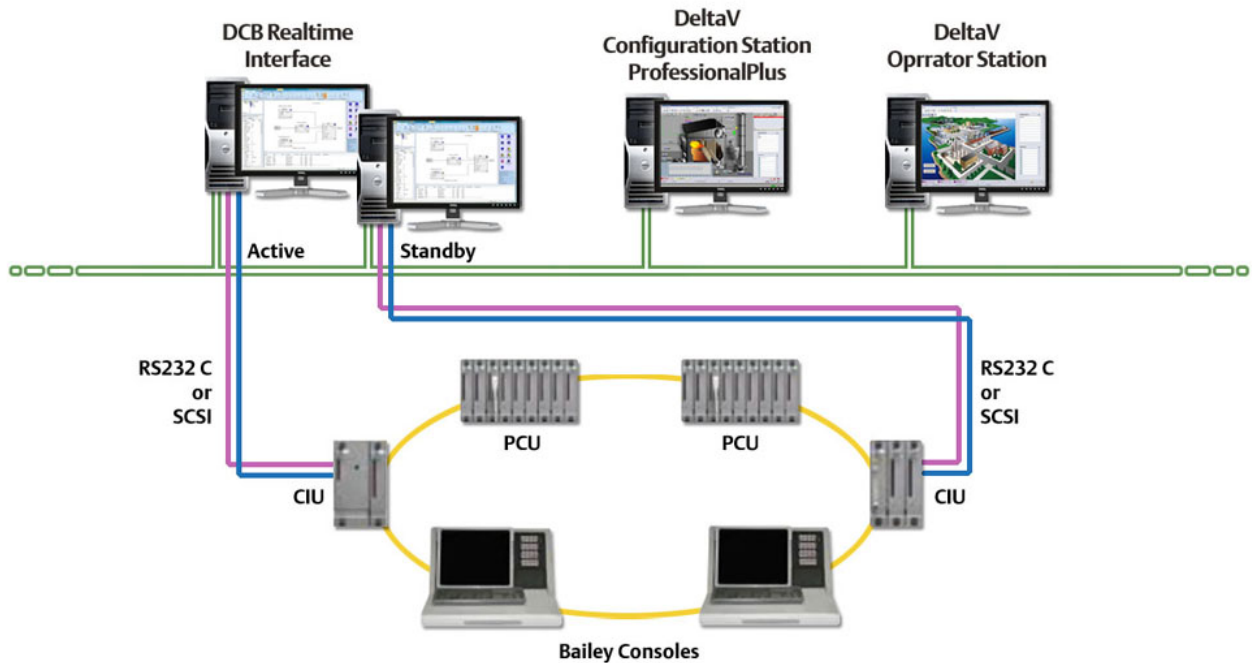
DeltaV Connect Architecture

The CIU maintains the connection between the Bailey controllers and the DeltaV system. A ProfessionalPLUS Station provides both engineering and operator interface functions. DeltaV Operate workstations can be added, giving additional operators access to the system.

A single connection to the CIU provides data throughput speeds to match the original Bailey consoles. Connecting the second channel from the Computer Interface Unit (CIU) to the second serial port on the Application Station provides significant throughput improvement. This second connection also provides a redundant communication path to the Application Station.

For additional consoles, you can use the DeltaV Operate workstation to view graphics, alarm screens, and faceplate control.

The interface also provides predefined faceplates for analog values, digital values, device drivers, multi-state device drivers, remote control memory, remote manual set constant, station (PID control loop), and communication status. Refer to the Function Blocks table in this product data sheet for a complete listing of the supported Bailey blocks.



Bailey controller information is available in DeltaV workstations for operator interface, events, and history collection, in either simplex or redundant configuration of the DeltaV Connect Solution for Bailey Systems interface.

Function Blocks

The interface includes the following function blocks that integrate with the Bailey system:

DeltaV Connect Solution for Bailey Systems Block	Bailey Block or <i>DeltaV Connect Solution for Bailey Systems</i> Block Functionality
AIL	Analog Output / Loop: AOL (FC 30, 70, 158, 177)
AOL	Analog Input / Loop: AIL (FC 26, 121)
<i>BLK</i>	<i>Any block specification reading and tuning</i>
<i>BLKVAL</i>	<i>Works with BLK function to display and tune block attributes</i>
DADIG	Data Acquisition Digital: DADIG (FC 211)
DANG	Data Acquisition Analog: DANG (FC 177)
DD	Device Driver: DD (FC 123)
DOL	Digital Input / Loop: DI/L (FC 45, 122)
DIL	Digital Output / Loop: DO/L (FC 42)
MSDD	Three state device control: MSDD (FC 129)
<i>MUXCIU</i>	<i>Allows Bailey engineering workstation to safely share a CIU with the real-time interface</i>
<i>POUT</i>	<i>Poll output of any Bailey function block output.</i>
RCM	Remote Control Memory: RCM (FC 62)
RMC	Remote Motor Control: RMC (FC 136)
RMSC	Remote Manual Set Constant: RMSC (FC 68)
<i>STAT</i>	<i>Status reports status of any Bailey system module (node) on the ring</i>
STN	Station exchanges data with Bailey Station used for PID control (FC 18,19, 21, 22, 23, 80, 156)
TEXT	TEXT reads message number, color and blink indicators from Bailey Text (FC 151)

Table 1. DeltaV Connect Solution for Bailey Systems Function Blocks

Most DeltaV Connect Solution for Bailey Systems Block names correspond directly to Bailey exception report block names. The other DeltaV Connect Solution for Bailey Systems blocks, italicized above, provide capabilities such as Bailey loop tuning and Bailey node status display from the DeltaV system.

Performance

Connections	Exception reports /sec
Single channel CIU connection	280-320
Dual channel CIU connection	360-420
SCSI CIU	800+

Table 2. DeltaV Connect Solution for Bailey Systems Performance

Compatible Bailey Systems/Consoles

DeltaV Connect Solution for Bailey Systems interfaces the following Bailey systems to the DeltaV system:

- Command Series
- Network 90
- Infi 90
- Symphony

It replaces the following consoles:

- Operator Interface Unit (OIU)
- Management Command System (MCS)
- Operator Interface Station (OIS)
- Process Control View (PCView)
- Conductor VMS, Conductor NT
- Process Portal B

Communication Devices

The Bailey CIU provides RS232 or SCSI access to the Bailey system. A full list of supported CIU models appears at the end of this data sheet in Table 5.

While you will need to keep an engineering workstation for the Bailey control configuration functions, it does not require a dedicated CIU. The Bailey interface can share a CIU with an engineering workstation by applying a special block called the MUXCIU. This enables you to apply all available CIUs to the real-time interface, while maintaining your Bailey engineering functions for control and I/O.

Easy Display Configuration

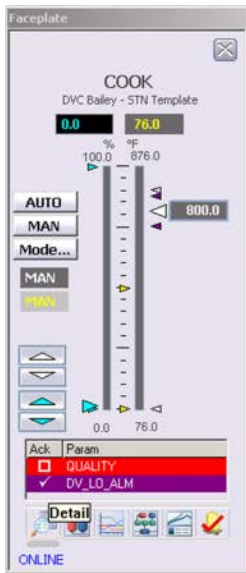
The operator interface is highly integrated with the DeltaV system. Prebuilt faceplates, with all DeltaV standard features, provide access to the Bailey controller operating and tuning parameters. Engineers use the same graphic and data entry tools as our standard DeltaV display development. No new display configuration methods are required to support this interface.

Predefined Operator Faceplates

DeltaV Connect Solution for Bailey Systems includes predefined faceplates for DeltaV Operate:

- Analog values
- Digital values
- Device driver
- Multi-state device driver
- Remote control memory
- Remote manual set constant
- Station (PID control loop)
- Communication status
- Configuration data and tuning

Example Bailey style faceplates available with the DeltaV Connect Solution interface



STN Loop Faceplate



Three-State Discrete Control



Two-State Discrete Control



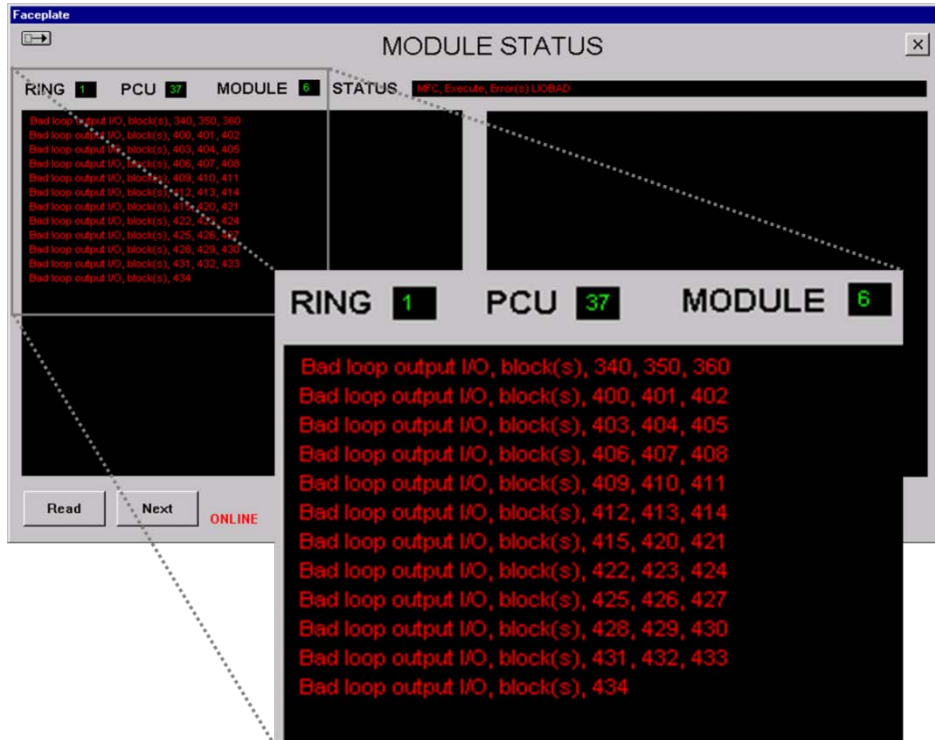
Digital Value



Block Configuration Display

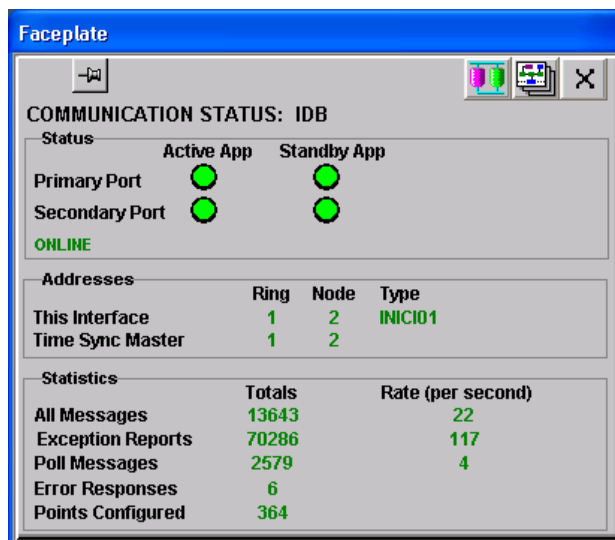
Called from any process display using a toolbar button. It allows viewing/modification of Bailey block configuration information and online tuning of specific parameters directly from DeltaV workstations.

Special blocks and block faceplates provide online status information about the specific Bailey controller blocks and interface performance.



Module Status Display

Called from a toolbar button, the module status faceplate provides information about the individual blocks inside the Bailey controllers for easy internal block troubleshooting.



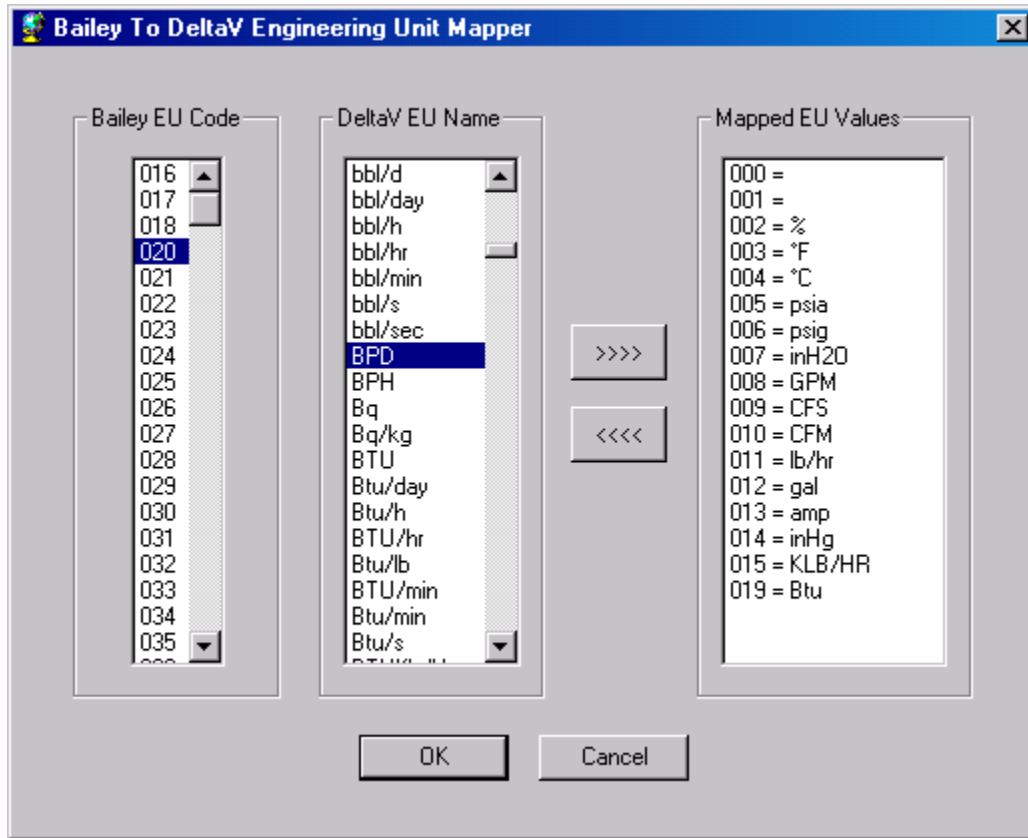
Communications Status Faceplate

Called from a toolbar button, the communications status faceplate provides detailed information about the health and performance of the interface.

Translation of Bailey to DeltaV Engineering Units

The DeltaV Connect Solution for Bailey Systems can be configured to automatically translate Bailey Engineering Unit (EU) codes to corresponding DeltaV engineering descriptors. The Bailey EU codes are received as part of the exception reporting mechanisms for Bailey blocks that communicate analog values. The Bailey interface can automatically translate these codes to the appropriate DeltaV engineering descriptors associated with the OUT_SCALE attribute in the DeltaV module.

The Bailey to DeltaV Engineering Unit Mapper, EUMAP program allows the user to map Bailey EU codes to the equivalent DeltaV EU descriptors. The EUMAP program displays the following configuration screen:



Bailey systems have predefined definitions for the first 16 EU codes (0-15). The EU map for those codes has been pre-configured and loaded in the ProfessionalPLUS database library. Codes 16 and up can be configured to match the specific user configuration as necessary. The first list box, Bailey EU Code, contains those codes that have not been mapped. The middle list box, DeltaV EU Name, is automatically filled with the available DeltaV engineering unit names that the user can map to the Bailey EU codes. The third list box shows Mapped EU values with each mapped Bailey code number and its corresponding DeltaV engineering units.

System Compatibility

The DeltaV Connect Solution for Bailey Systems v1.3 is compatible with DeltaV releases v9.3.1 and v10.3.1. The DeltaV Connect Solution for Bailey Systems v1.4 is compatible with DeltaV release v11.3.1 (see Table 3).

Table 3. DeltaV version compatibility with DeltaV Connect Solution for Bailey Systems

DeltaV Connect Solution for Bailey Systems and DeltaV Version Compatibility	DeltaV v9.3.1	DeltaV v10.3.1	DeltaV v11.3.1
DeltaV Connect for Bailey Systems v1.3	Yes	Yes	No
DeltaV Connect for Bailey Systems v1.4	No	No	Yes

The DeltaV system hardware and software requirements depend on the implementation of the DeltaV Connect Solution for Bailey Systems as simplex, redundant or single workstation (see Table 4).

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

DeltaV Connect Solution for Bailey Systems Requirements	Simplex Interface	Redundant Interface	Single Station Interface
DeltaV ProfessionalPLUS 25 DST license	Yes	Yes	Yes
DeltaV Application Station 250 data value license	Yes	Yes, One ¹	No
Minimum number of DeltaV PC workstations ⁵	Two ²	Three ³	One ⁴

¹ 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.

² One ProfessionalPLUS and one Application Station.

³ One ProfessionalPLUS and two Application Stations.

⁴ One ProfessionalPLUS.

⁵ To add DeltaV Operator Stations, add one DeltaV Operate 100 DST license and one Dell PC (workstation or server as desired) for each Operator Station

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

Table 5. DeltaV Connect Solution for Bailey Systems-supported communication devices

Bailey Device	Points	Exception Reports	Control
NSPM01	500	No	No
IMSPM01	500	No	No
IMCPM02	500	No	No
IMCPM03	500	Yes	Yes
NCIC01	500	Yes	Yes
NCIU01	500	Yes	Yes
NCIU02	2,500	Yes	Yes
NCIU03	10,000	Yes	Yes
NCIU04	10,000	Yes	Yes
INPCI01	500	Yes	Yes
INPCI02	5,000	Yes	Yes
INICI01	10,000	Yes	Yes
INICI12 ^{1,2}	10,000	Yes	Yes
INICI03 ^{1,2,3}	10,000	Yes	Yes
INICI13 ^{1,2,3}	10,000	Yes	Yes
OIU, MCS or OIS	The DCB interface can reuse the Bailey 5000-tag OIU, MCS, or OIS embedded CIU for further cost savings.		

¹ DCB does not require the ABB Bailey semAPI software environment.

² These devices support one serial port.

³ The DCB interface supports either the SCSI or serial port connection of this device.

NOTE: The DeltaV Connect Solution for Bailey Systems interface does not increase the DeltaV Device Signal Tag (DST) quantity unless you apply the Bailey information within DeltaV I/O, Alarm or Calc/Logic function blocks. Only in such cases are additional DSTs required.

NOTE: For SCSI interface, a dedicated SCSI card must be purchased and installed in the DeltaV Application Station for the connection to the CIU. The internal SCSI card that also controls the PC's hard drive should not be used for the DeltaV Connect Solution for Bailey Systems interface.

NOTE: DeltaV Connect Solution for Bailey Systems does not provide the ability to operate DeltaV controllers from a Bailey console.

Services

For help in planning, justifying or implementing your Bailey 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 or later software. See Table 3 for DeltaV system version compatibility.
- DeltaV ProfessionalPLUS workstation. See Table 4 for DeltaV workstation requirements.

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

www.EmersonProcess.com/DeltaV

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