

DeltaV Connect™ Solution for 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



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

Introduction

Emerson's DeltaV Connect™ Solution for Bailey® Systems ("DeltaV Connect for Bailey") 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 transitioning to a 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, electronic marshalling, and plug-and-play business integration, without completely starting from scratch.

Benefits

Operate more easily and intuitively with a modern operator console. DeltaV Connect for Bailey provides state-of-the-art DeltaV features such as event reporting, history collection, and enhanced alarming for the Bailey system. DeltaV Connect for Bailey 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. DeltaV Connect for Bailey 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 for Bailey interface attaches to an available CIU without requiring Bailey system configuration changes. An existing Bailey console can be removed and DeltaV Connect for Bailey 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 DeltaV Connect for Bailey to any available CIU on the network or to the CIU for the Bailey engineering workstation. The engineering workstation connects through the DeltaV Connect for Bailey workstation, so the two applications share a CIU.

Accelerate operator training with side-by-side DeltaV and Bailey consoles. Setting up the DeltaV Connect for Bailey 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.

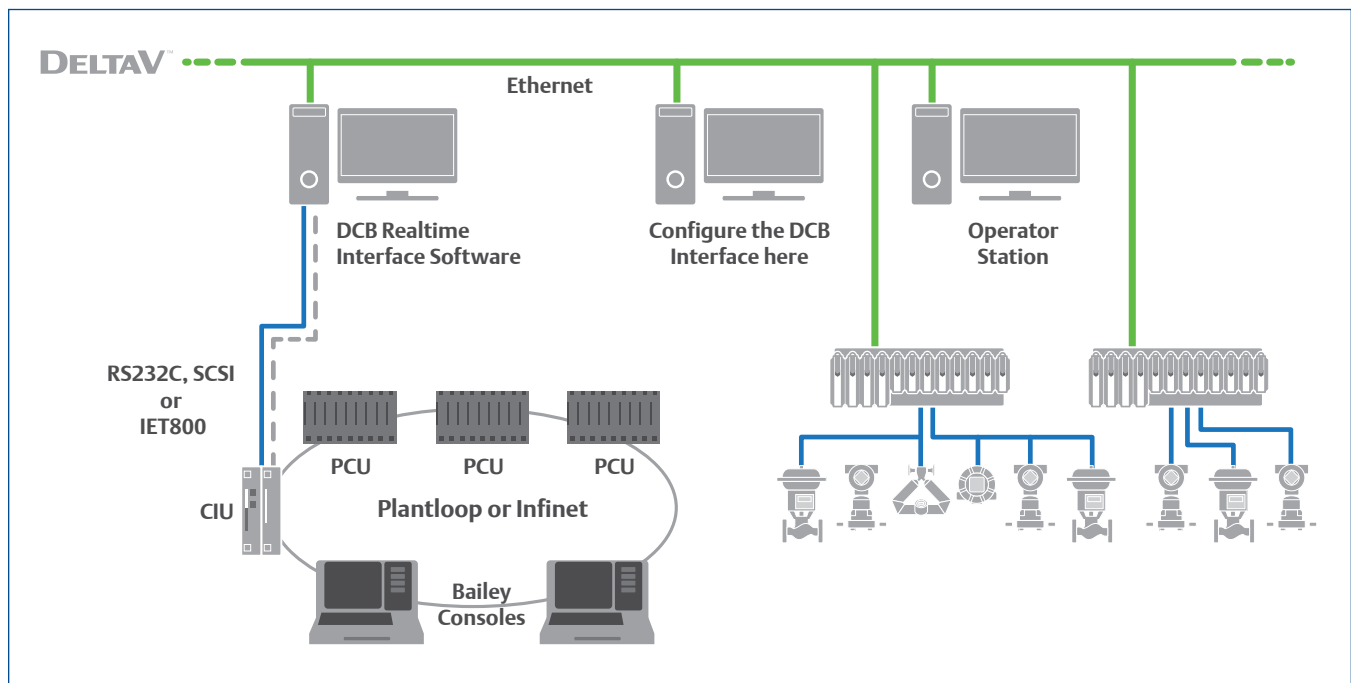
Easily integrate today's state-of-the-art digital technologies. With the DeltaV Connect for Bailey interface, you have all the tools needed for expanding the DeltaV system to include DeltaV hardware controllers and IO. These can be added at any time. You can easily share data from the DeltaV Connect for Bailey interface and from new DeltaV I/O and controllers on the same graphic displays.

Adding DeltaV controllers allows you to take advantage of technologies such as predictive field device intelligence, wireless I/O, electronic marshalling, and integrated asset management. FOUNDATION Fieldbus, HART, Profibus DP, DeviceNet, and AS-i can be easily integrated on the DeltaV system along with your Bailey system.

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.

A wealth of information

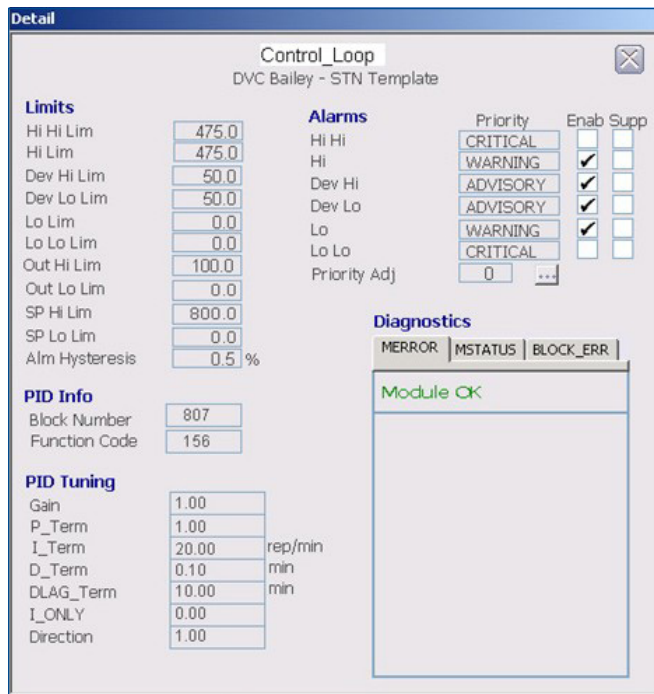
Replace proprietary Bailey consoles with a state-of-the-art Windows-based operator interface. DeltaV ProfessionalPLUS Stations and DeltaV Operate workstation are used in place of, or in conjunction with, Bailey consoles. Your operators can run history view applications, system diagnostics, event viewers, 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.



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

Easy access to Bailey data

DeltaV Connect for Bailey 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.



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

Product Description

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

DeltaV Connect for Bailey 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.

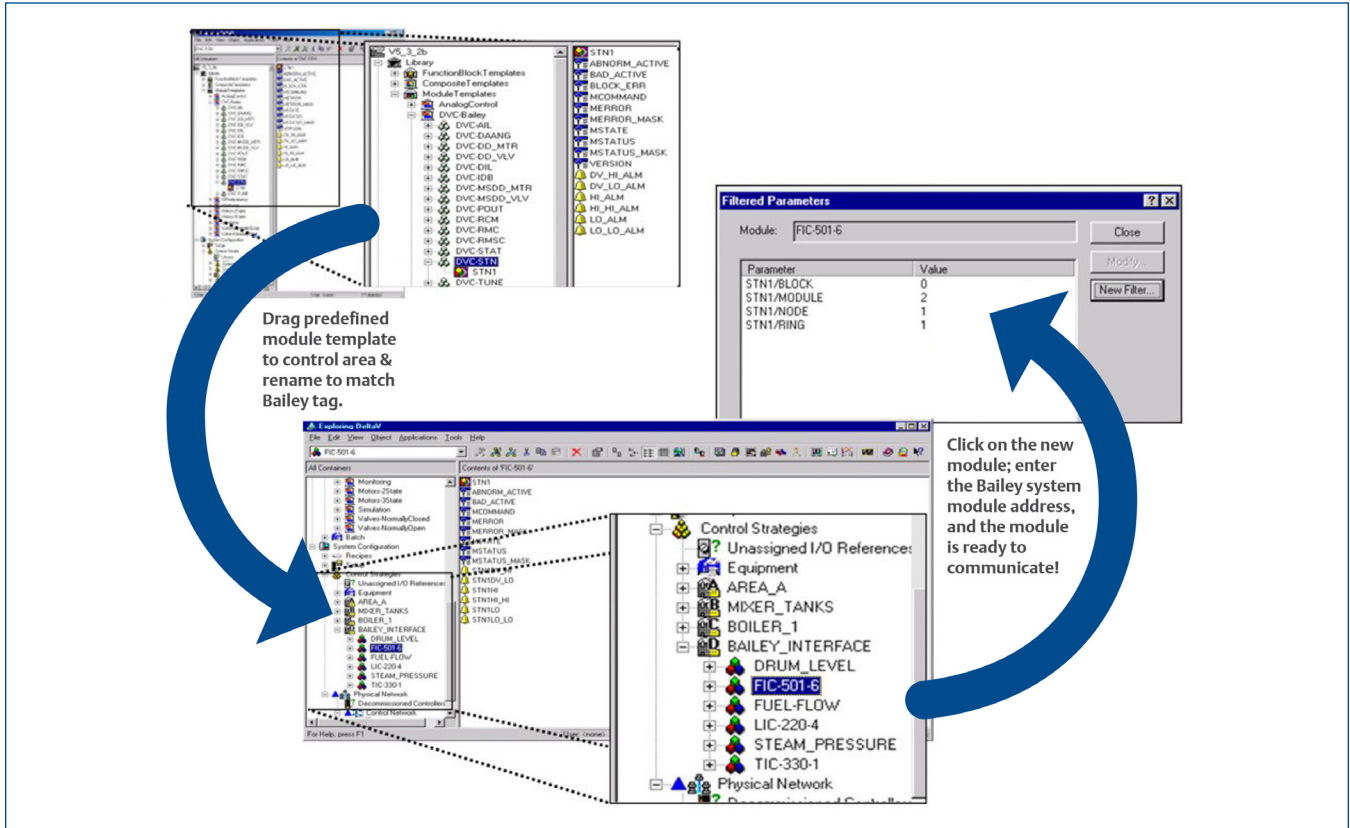
DeltaV Connect Architecture

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.

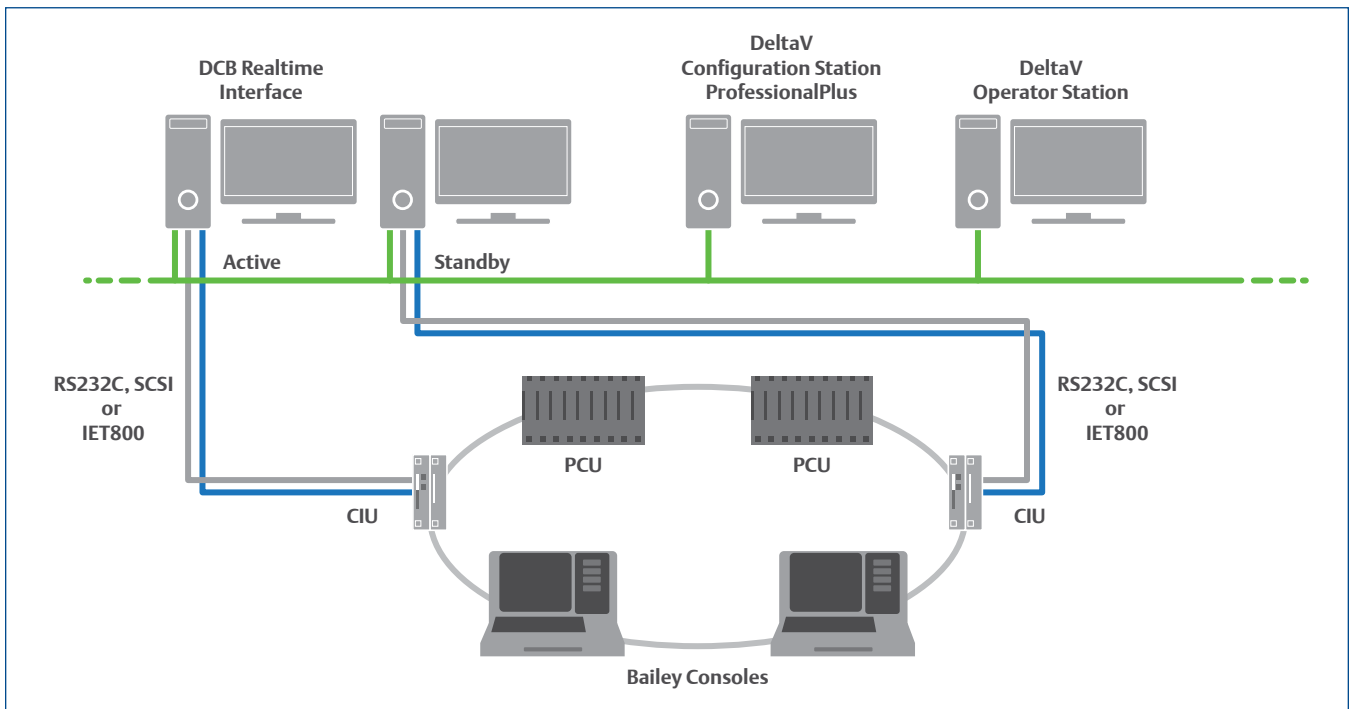
A single connection to the CIU provides data throughput speeds to match the original Bailey consoles. For older type CIU's, connecting the second channel from the Computer Interface Unit (CIU) to the second serial port on the Application Station provides significant throughput improvement. Connecting the second serial port on the newest type of CIU (IET800) improves startup time but does not noticeably affect speed. The 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.



DeltaV Connect for Bailey configuration is easy.



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 for Bailey interface.

Function Blocks

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

DeltaV Connect for Bailey Block	Bailey Block or DeltaV Connect for Bailey 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: DIL (FC 42, 122)
DIL	Digital Output / Loop: DOL (FC 45)
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)
TXT	TEXT reads message number, color and blink indicators from Bailey Text (FC 151)

Table 1. DeltaV Connect for Bailey Function Blocks.

Most DeltaV Connect for Bailey Block names correspond directly to Bailey exception report block names. The other DeltaV Connect for Bailey 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+
IET800 CIU	800+

Compatible Bailey Systems/Consoles

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

- Command Series
- NET 90 / INFI 90
- Symphony Harmony INFI 90
- Symphony Plus S+

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
- Symphony Plus S+ Operations

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

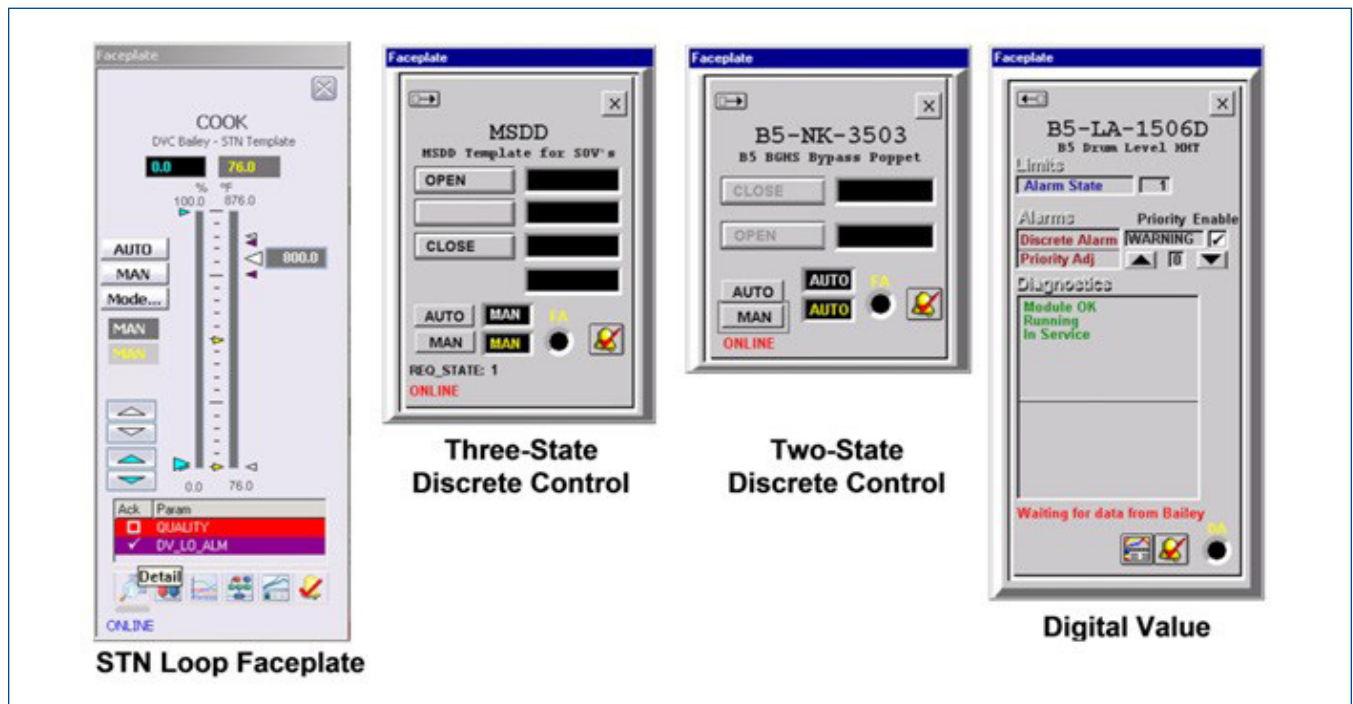
The operator interface is highly integrated with the DeltaV system. Prebuilt faceplates, with all DeltaV standard features, provide access to the Bailey controller operating and tuning parameters. Engineers use the same graphic and data entry tools as our standard DeltaV display development. No new display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

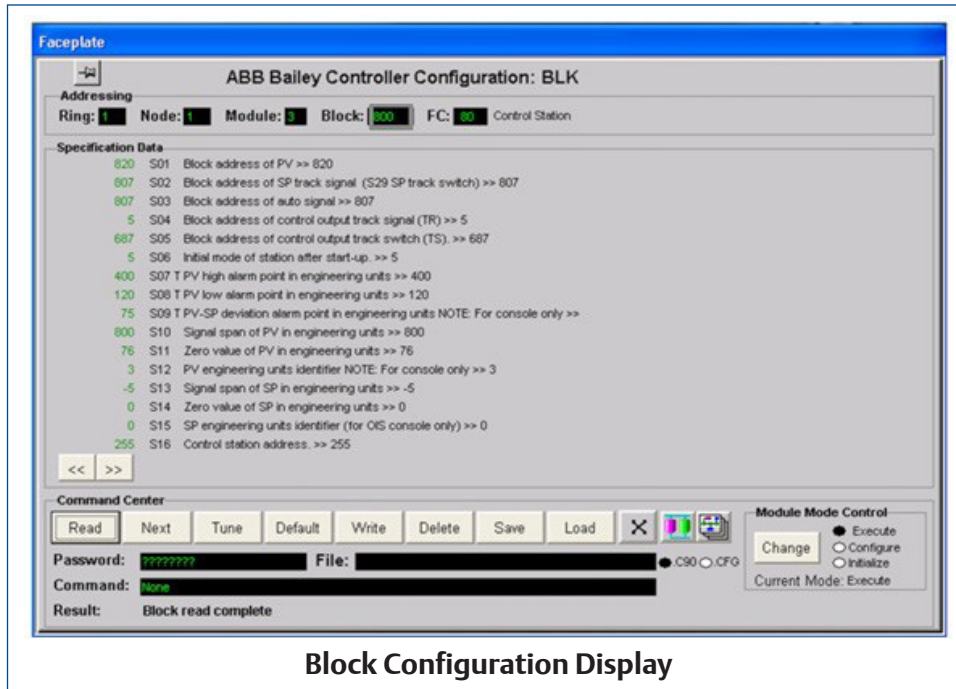
Predefined Operator Faceplates

DeltaV Connect for Bailey 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

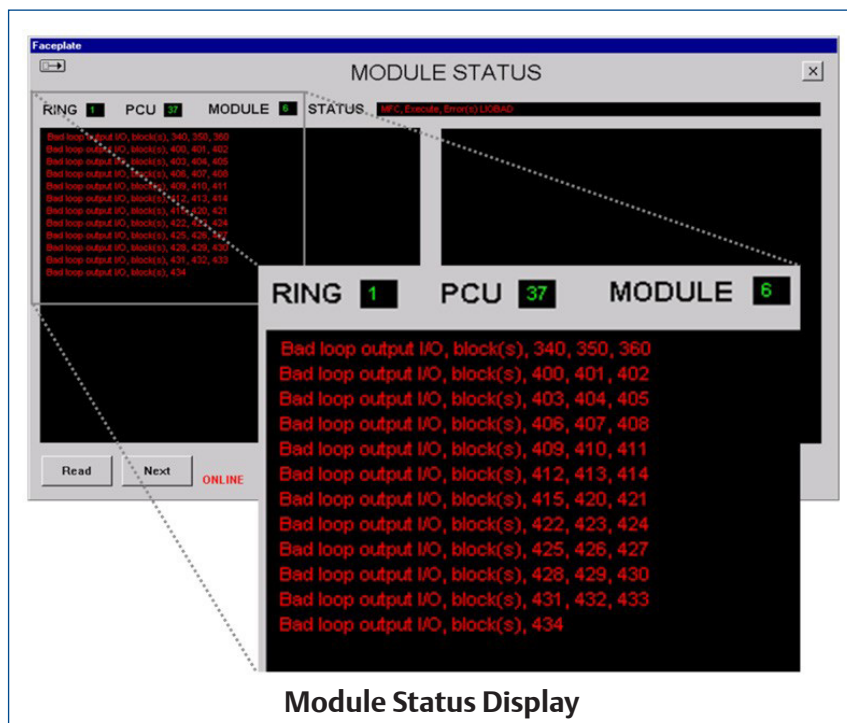
Example Bailey style faceplates available with DeltaV Connect for Bailey



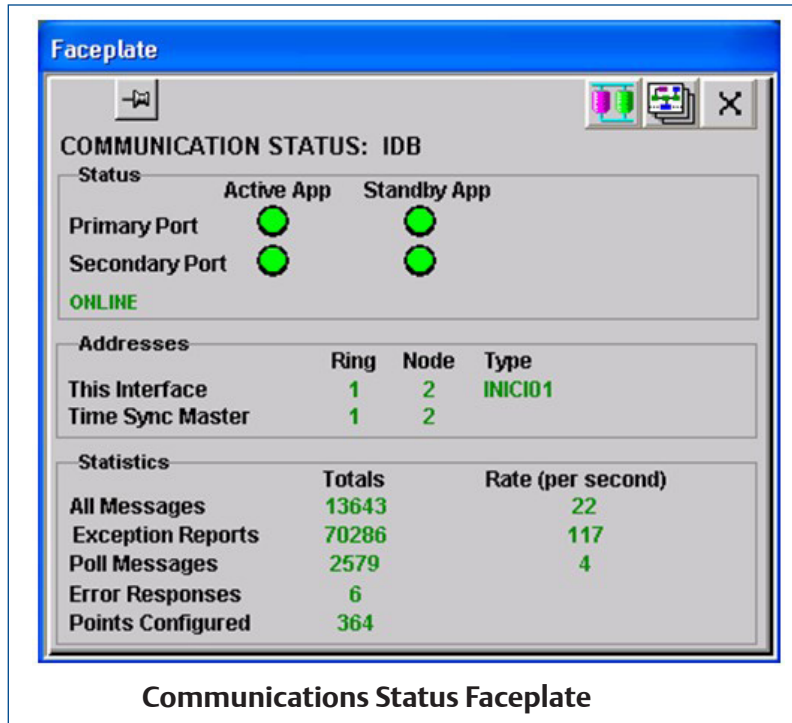


Called from any process display using a toolbar button. It allows viewing/modification of Bailey block configuration information and online tuning of specific parameters directly from DeltaV workstations.

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



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

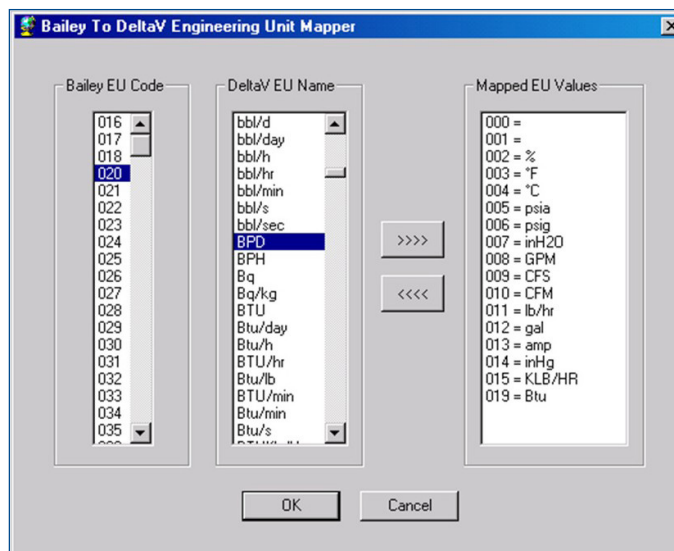


Called from a toolbar button, the communications status faceplate provides detailed information about the health and performance of the interface.

Translation of Bailey to DeltaV Engineering Units

DeltaV Connect for Bailey 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

DeltaV Connect for Bailey is compatible with the DeltaV versions as shown in Table 3.

DeltaV Connect for Bailey and DeltaV Version Compatibility	DeltaV v12.3.1	DeltaV v13.3.1	DeltaV v14.3.1
DeltaV Connect for Bailey Systems v1.4*	Yes	No	No
DeltaV Connect for Bailey Systems v1.5**	No	Yes	Yes

Table 3. DeltaV Connect for Bailey version compatibility.

*v1.4 only support RS232 C and SCSI. Does not support IET800 Interface.

**v1.5 does not support SCSI interface in Windows 10 and Server 2016.

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

DeltaV Connect for Bailey Interface Requirements	Simplex Interface ^{1,3}	Redundant Interface ^{2,3}	Single Station Interface ⁴
DeltaV ProfessionalPLUS software suite license	One	One	One
DeltaV ProfessionalPLUS PC hardware	One	One	One
DeltaV Application Station software suite license	One	One	N/A
DeltaV Application Station PC hardware	One	Two	N/A
DeltaV Connect for Bailey function block license	One	One	One
DeltaV Connect for Bailey redundancy license	N/A	One	N/A

Table 4. DeltaV items required for a DeltaV Connect for Bailey Interface.

1 Each simplex DeltaV Connect for Bailey 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 DeltaV Connect for Bailey function block license.

2 Each redundant DeltaV Connect for Bailey 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 Bailey function block license, and one DeltaV Connect for Bailey redundancy license.

3 To add DeltaV Operator Stations to a simplex or redundant DeltaV Connect for Bailey solution, add one PC and one DeltaV Operate software suite license for each Operator Station.

4 The preferred architecture is to run the DeltaV Connect for Bailey interface on a DeltaV Application Station, but the DeltaV Connect for Bailey interface may be implemented on a ProfessionalPlus as a single workstation solution, as required. Each single workstation DeltaV Connect for Bailey interface requires one ProfessionalPlus PC, one ProfessionalPlus software suite license (25 DST), and one DeltaV Connect for Bailey function block license.

DeltaV Connect for Bailey 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.

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
(IN)IET800	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.		

Table 5. DeltaV Connect for Bailey supported communication devices.

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 use of the DeltaV Connect for Bailey function blocks does not increase the DeltaV Device Signal Tag (DST) quantity of the DeltaV system.

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 for Bailey interface.

NOTE: DeltaV Connect for Bailey 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 new DeltaV Connect Solution for Bailey Systems sales, please contact your local Emerson sales office.

To scale up the function block license capacity on existing DeltaV Connect Solution for Bailey systems, see below.

Description	Model Number
DeltaV Connect Solution for Bailey Systems, 500 Block Scaleup	VE22UPS015

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.
- DeltaV Operator Station Software Suite.** Centralized operations and diagnostics on a DeltaV workstation.

Prerequisites

- DeltaV v12.3.1 for v1.4 and DeltaV v13.3.1 or v14.3.1 for v1.5. See Table 3 for DeltaV system version compatibility.
- DeltaV ProfessionalPLUS PC and DeltaV ProfessionalPlus software suite. See Table 4 for DeltaV workstation requirements.
- One or more DeltaV Application Station PC(s) and DeltaV Application Station software suite licenses, as required. See Table 4 for DeltaV workstation requirements.
- One or more DeltaV Operator Station PC(s) and DeltaV Operator Station software suite licenses, as required. See Table 4 for DeltaV workstation requirements.

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