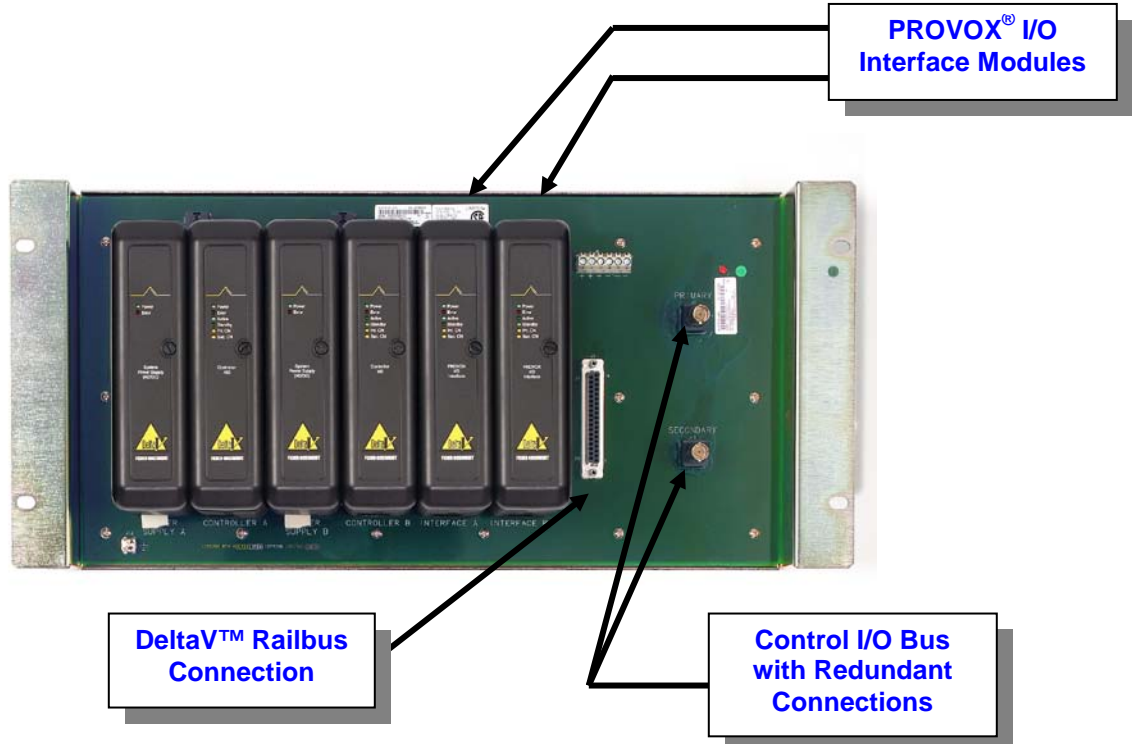




DeltaV™ Controller Interface for PROVOX® I/O



Upgrade your PROVOX® controllers with the DeltaV™ Controller Interface for PROVOX I/O and retain your installed PROVOX I/O. (Showing redundant configuration)

- Provides a fast and easy upgrade for PROVOX® IFC, UOC, 20 Series, SR90 and SRx Controllers
- Maximizes investment in PROVOX I/O
- Saves wiring costs—no rewiring!
- Redundancy in controllers
- Redundancy in Control I/O connections
- Retains the I/O redundancy in Control I/O

Introduction

Emerson Process Management continues its long-standing excellence in providing solid control solutions with the M-Series DeltaV™ Controller

Interface for PROVOX® I/O and DeltaV MD Plus or MX Controllers. You can transition to DeltaV controllers and connect to PROVOX I/O already installed in your plant, continuing to maximize your original PROVOX I/O investment.

The DeltaV Controller Interface for PROVOX I/O can be used with both Control I/O and Distributed (MUX) I/O, which connects using the serial buffer card. The interface to PROVOX I/O uses an MD Plus or MX controller and a DeltaV power supply installed on the PROVOX I/O Carrier.

With this solution, PROVOX I/O support is integrated into standard DeltaV engineering and diagnostics, including DeltaV Explorer and Control Studio.



Benefits

Provides an easy upgrade for PROVOX IFC, UOC, 20 Series, SR90 and SRx Controllers

You can easily upgrade your UOC, IFC, 20 Series, SR90 or SRx controller to a DeltaV controller, and continue to use PROVOX I/O by connecting it to the DeltaV controller carrier.

Maximizes investment in PROVOX I/O

Using your PROVOX I/O with a DeltaV controller maximizes your investment in PROVOX I/O, extending its useful life and saving the cost of new I/O.

Saves wiring costs

The DeltaV Controller Interface for PROVOX I/O enables you to greatly reduce wiring costs and

shorten turnaround time, because you don't have to re-wire field devices to new I/O.

Redundancy in controllers

Two DeltaV controllers and power supplies can be mounted on the carrier for full controller redundancy.

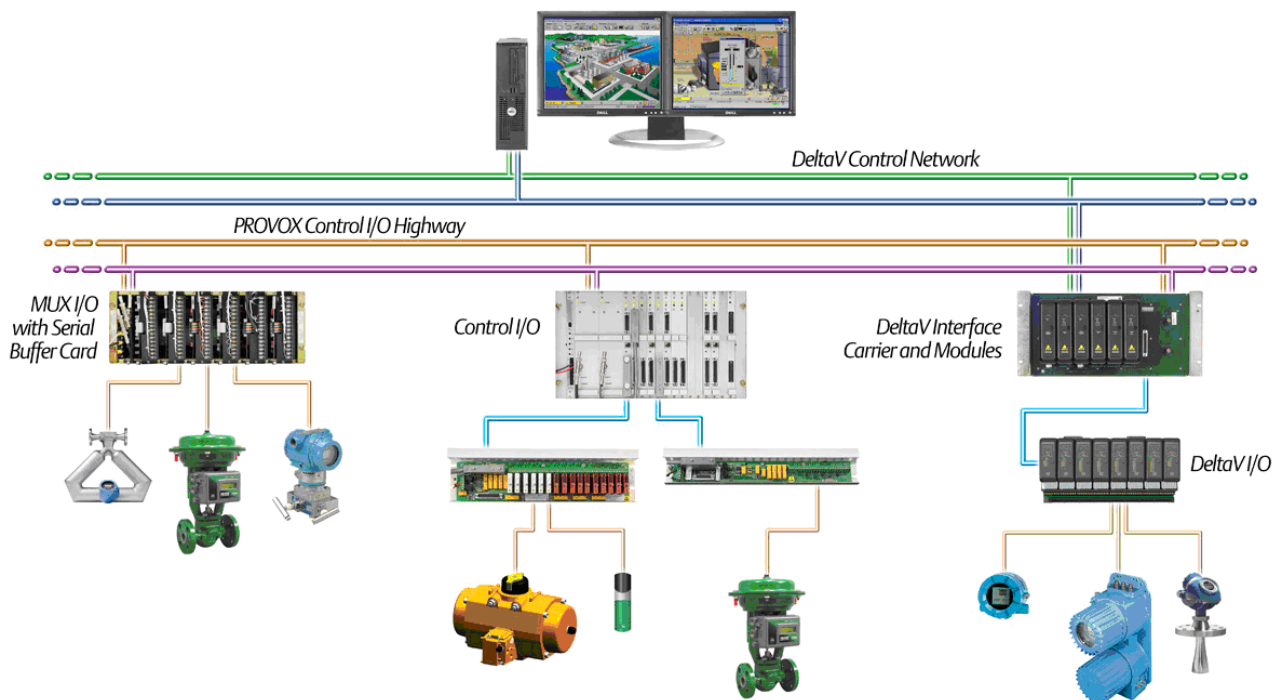
Redundancy in Control I/O connections

The DeltaV Controller for PROVOX I/O carrier provides for redundant connections to Control and Distributed I/O files.

Retains I/O redundancy in Control I/O

The DeltaV Controller Interface for PROVOX I/O allows use of flexible redundancy arrangements possible with Control I/O, including 1:1 and 1:N card redundancy.

DeltaV™ Controller Interface for PROVOX® I/O





Product Description and Specification

The DeltaV Controller Interface for PROVOX I/O consists of a 19 inch rack mountable controller carrier, simplex or redundant DeltaV MD Plus or MX controllers with power supplies, and a PROVOX I/O Interface for each controller.

DeltaV MD Plus or MX Controller. Mount one DeltaV MD Plus controller (with DeltaV v7.2 or later firmware) or MX controller (with DeltaV v10.3 or later firmware) on the carrier for a simplex installation. Mount two MD Plus or MX controllers for a redundant installation. MD Plus and MX controllers can handle up to 750 and 1500 DSTs, respectively.

PROVOX I/O Interface Module. The PROVOX I/O Controller Interface supports redundant Control I/O communications and connections to Control I/O and Distributed I/O. Distributed I/O is MUX I/O connected to the controller through the CP6601 serial buffer card.

Controller Carrier. DeltaV controllers mount on a 19 inch rack specifically designed to accommodate:

- Two DeltaV MD Plus or MX controllers (one in a simplex installation)
- Two PROVOX I/O Interface modules (one in a simplex installation)
- Two DeltaV system power supplies (one in a simplex installation)

Railbus Connection. The PROVOX I/O Interface Carrier 37 pin railbus connection may be used to interface with additional DeltaV M-Series I/O modules. Standard 37 pin DeltaV interface cables are used to connect the PROVOX I/O Controller Interface Carrier to traditional DeltaV I/O horizontal carriers. This feature lets you easily expand your system with DeltaV I/O to fully utilize your DeltaV controller investment.

DeltaV Programmable Serial Cards can connect PLCs and other serial devices formerly connected to PROVOX IDIs or EICs (non weigh scale interface option on the EIC).

Complete Integration. The DeltaV Controller Interface for PROVOX I/O control solution is fully supported by DeltaV Explorer, Control Studio, and Diagnostic applications. You can configure and integrate PROVOX I/O as easily as DeltaV I/O.

DeltaV Explorer fully supports configuration, commissioning and assignment of PROVOX I/O (Control I/O and MUX I/O) cards. You can auto-sense Control I/O cards, and use DeltaV Explorer to enable and configure all I/O channels.

The DeltaV Diagnostic application supports all PROVOX I/O diagnostic messages. You can easily and thoroughly monitor I/O integrity.

HART® Data Availability. The DeltaV Controller Interface for PROVOX I/O solution can read smart information from field devices connected to PROVOX HART® input and output cards. All of the HART information available in your PROVOX controller is maintained in the DeltaV MD Plus or MX controller.

The interface can pass HART information to a DeltaV application station, enabling you to use applications such as Asset Management Solutions (AMS) to manage the field devices.

Asset Management Solutions. AMS uses the process control network, while DeltaV controllers and the PROVOX I/O Interface provide communications access to smart field devices. This provides a seamless solution to manage your plant assets.

Products Included

- DeltaV MD Plus or MX Controller
- DeltaV Power Supply
- PROVOX I/O Carrier
- PROVOX I/O Interface



Maximize your display engineering efficiency. Emerson offers services for generating your new DeltaV displays. Learn how PROVOX configuration can be automatically converted or how new display and control designs can optimize effectiveness of your new DeltaV Controller Interface for PROVOX.

For more information, see these data sheets:

[Control Configuration Transition Services](#)

[Display Transition Services](#)

Ordering Information

DeltaV Controller Interface for PROVOX I/O consists of four types of components: a DeltaV MD Plus or MX controller, a DeltaV system power supply, a PROVOX I/O Carrier, and a PROVOX I/O Interface. Order entry numbers given in the following table include all components required for a solution. For **simplex** interface solutions, model numbers include one of each component and model numbers for **redundant** solutions include one PROVOX I/O Carrier and two each of the other components (controller, power supply, and I/O interface).

| Description | Model Number |
|--|--|
| DeltaV Controller Interface for PROVOX I/O (Simplex) | VE3021C3R1 (Using the MX controller) |
| DeltaV Controller Interface for PROVOX I/O (Redundant) | VE3021C3R2 (Using the MX controller) |
| DeltaV Controller Interface for PROVOX I/O (Simplex) | VE3021C2R1 (Using the MD Plus controller) |
| DeltaV Controller Interface for PROVOX I/O (Redundant) | VE3021C2R2 (Using the MD Plus controller) |

Order entry numbers and requirements for individual components of the DeltaV Controller Interface for PROVOX I/O solution are given in this table:

| Description | Model Number |
|---------------------------------|--|
| DeltaV MD Plus or MX Controller | VE3006 or VE3007 |
| PROVOX I/O Carrier | VE4056 (KJ2101X1-CA1) |
| PROVOX I/O Interface | VE4018R11 (KJ2101X1-BA1) |
| DeltaV System Power Supply | VE5008 (Final assembly P/N 12P2186) or VE5009 (Final assembly P/N 12P3935) is required with PROVOX CP6103 System Power Supply. For other power supply combinations, match source output voltage range to input voltage range of DeltaV Power Supply. |

Prerequisites

- For the MD Plus Controllers, DeltaV software release v7.2 or later is required.
- For the MX Controllers, DeltaV software release v10.3 or later is required.
- One DeltaV ProfessionalPLUS Station is required for each system.



Control I/O cards

| Supported | |
|----------------------------|--|
| Type No. | Description |
| CL6821 | Analog I/O Card |
| CL6824 | Analog Input Card |
| CL6822 CL6825 CL6827 | HART Input Card |
| CL6826 CL6828 | HART Output Card |
| CL6721 | Discrete I/O Card |
| CL6921 | External Interface Card – Weigh Scale Interface Option |
| NOT Supported | |
| Type No. | Description |
| CL6921 | External Interface Card - Allen-Bradley Option |
| CL6922 CL6923 | Intelligent Device Interface |

Any I/O card not listed here is not supported.

System Compatibility

- The custom migration PROVOX I/O Carrier used in this solution is not compatible with a DeltaV Virtual I/O Module (VIM) from MYNAH Technologies.
- This solution is not compatible with DeltaV M-Series Zone 2 Remote I/O products.
- This migration controller solution does not support assignment of native Smart Wireless Gateways.
- This M-Series solution is not compatible with the >=v11 S-Series products either on the railbus connector or installed on the PROVOX I/O carrier.

Distributed I/O (Multiplexer I/O) cards

| Supported (using Serial Buffer Card) | |
|--------------------------------------|--|
| Type No. | Description |
| DM6311 | Analog Input SE 0-10 V Card |
| DM6311 | Analog Input SE 1-5 V Card |
| DM6312 | Isolated Analog Input 0-10 V Card |
| DM6312 | Isolated Analog Input 1-5 V Card |
| DM6321 | Analog Current Input Card (single-ended) |
| DM6322 | Analog Current Input Card (isolated) |
| DM6331 | RTD Input Card |
| DM6341 | Analog Input Low mV Card |
| DM6341 | Analog Input Low Special 1 Card |
| DM6341 | Analog Input Low Special 2 Card |
| DM6351 | Analog Input Thermocouple Type J High |
| DM6351 | Analog Input Thermocouple Type J Low |
| DM6352 | Analog Input Thermocouple Type K High |
| DM6352 | Analog Input Thermocouple Type K Low |
| DM6353 | Analog Input Thermocouple Type T |
| DM6354 | Analog Input Thermocouple Type E |
| DM6355 | Analog Input Thermocouple Type R |
| DM6361 | Discrete Input Card |
| DM6362 | Discrete Input Card (dry contacts) |
| DM6363 | Discrete Input Card (120 Vac) |
| DM6371 | Pulse Count Input Card |
| DM6372 | Pulse Count Input Card (Dry Contacts) |
| DM6373 | Pulse Count Input Card (Vortex) |
| DM6381 | Weigh Scale Interface Card |
| DM6411 | Analog Voltage Output Card |
| DM6421 | Analog Current Output Card |
| DM6431 | Time Proportional Output Card |
| DM6461 | Discrete Output Card |
| DM6462 | Discrete Output Card (internal relay) |
| DM6463 | Discrete Output Card (external relay) |
| NOT Supported | |
| Type No. | Description |
| DM6004, DM6005 | Virtual I/O Coupler |
| DM6391 | ac ² Interface Card |



| PROVOX I/O Interface Module Specifications | |
|--|---|
| Power requirement (DeltaV system power supply) | +12.0 VDC at 500 mA maximum |
| Fuse protection | 3.0 A, non-replaceable fuses |
| Power dissipation | 3.6 W typical, 6.0 W maximum |
| Dimensions | |
| Height | 15.9 cm |
| Depth | 10.7 cm |
| Width | 4.1 cm |
| Torque limits | 0.11 Nm (1 in-lb) |
| Mounting | Assigned slots of carrier |
| Environmental specifications | |
| Operating temperature | 0 to 60 °C (32 to 140 °F) |
| Storage temperature | -40 to 85 °C (-40 to 185°F) |
| Relative humidity | 5 to 95%, non-condensing |
| Airborne contaminants | ISA-S71.04-1985 Airborne Contaminants Class G3 |
| Shock (normal operating conditions) | 10 g ½-sine wave for 11 ms |
| Vibration (operative limit) | 1 mm peak-to-peak from 5 Hz to 16 Hz, 0.5 g from 16 Hz to 150 Hz |
| Electromagnetic Compatibility | Per EN61326-1 |
| I/O Module LED Indicators | |
| I/O Module LED Indicators | ON Status Indicates |
| Green – Power | DC power is applied. |
| Red – Error | An error condition. |
| Green – Active | I/O Driver is in active state. |
| Green – Standby | I/O Driver is in standby state. |
| Yellow – Pri. CIO | Communication status of Primary Control I/O bus |
| Yellow – Sec. CIO | Communication status of Secondary Control I/O bus |
| All except power flashing, alternating even and odd | Firmware upgrade in progress. |



| Specifications for the PROVOX I/O Carrier | |
|---|---|
| Capacity | Two system power supplies, two controllers, and two PROVOX I/O Interface cards (for redundant controller application) |
| LocalBus Current (Maximum) | |
| Input | 10.8 A (includes maximum current for 8-wide I/O Interface if extended) |
| Output | 8.0 A (only if extended) |
| Dimensions | |
| Height | 22.15 cm (5 EIA rail units) |
| Depth | 5.08 cm |
| Width | 48.26 cm |
| Mounting | 19 inch EIA rails |
| Mounting | Assigned slots of carrier |
| Environmental specifications | |
| Operating temperature | 0 to 60 °C (32 to 140 °F) |
| Storage temperature | -40 to 85 ° C (-40 to 185°F) |

To locate a sales office near you, visit our website at: www.EmersonProcess.com/DeltaV

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