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# S-Series DeltaV™ Controller Interface for PROVOX™ I/O



*The S-Series DeltaV Controller Interface for PROVOX I/O.*

- 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 S-Series DeltaV™ Controller Interface for PROVOX I/O and DeltaV SQ or SX 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 SQ or SX 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.



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# DeltaV Controller Interface for PROVOX I/O

## Benefits

**Provides an easy upgrade for PROVOX IFC, UOC, 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.

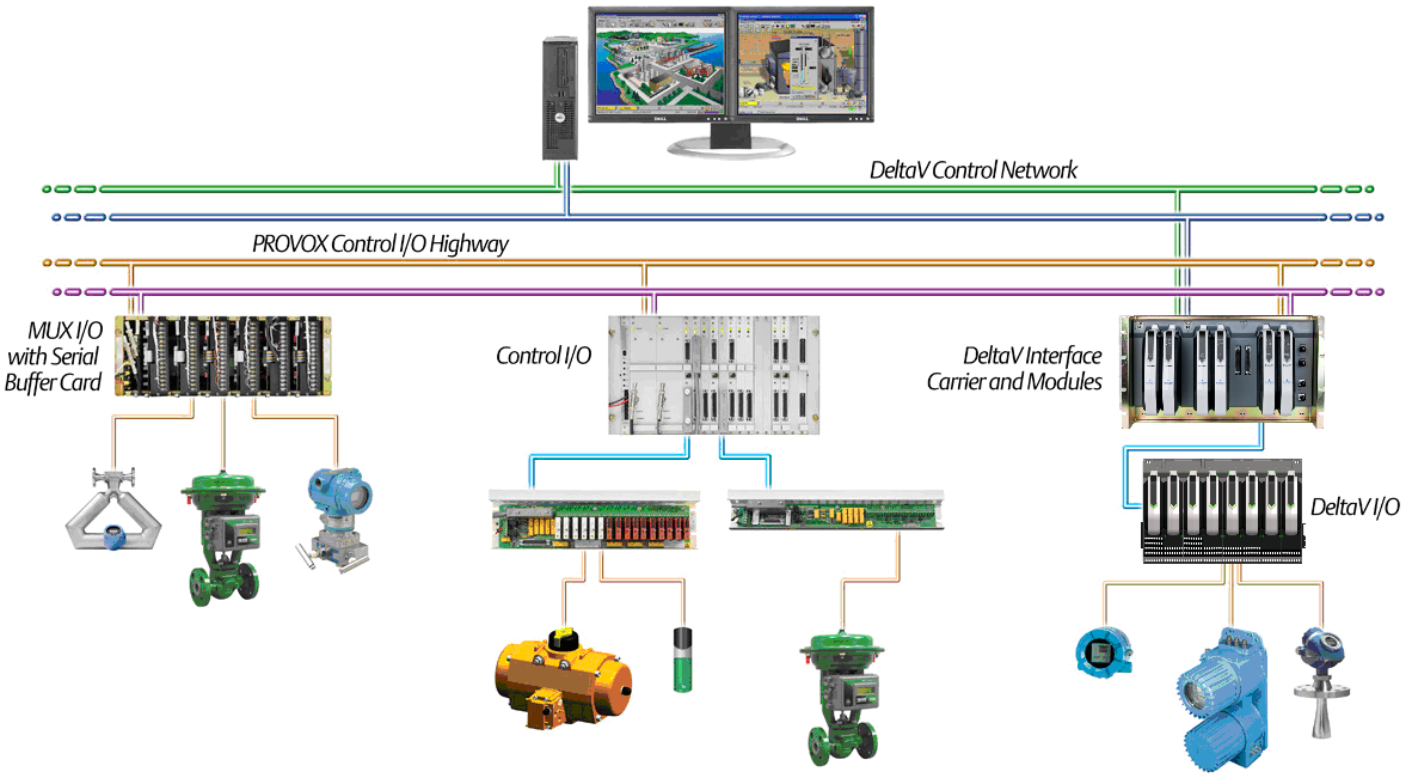
**Maximizes investment in PROVOX I/O.** Using your PROVOX I/O with a DeltaV controller maximizes your investment in PROVOX I/O, extending its useful life andsaving the cost of new I/O.

**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.




*The S-Series DeltaV Controller Interface for PROVOX I/O.*

## Product Description

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

**DeltaV SQ or SX Controller.** Mount one DeltaV SQ or SX controller on the carrier for a simplex installation. Mount two SQ or SX controllers for a redundant installation. and SQ controllers can handle up to 750 DSTs, while SX controllers can handle up 1500 DSTs.

**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 SQ or SX 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 25 pin redundant VerticalPLUS railbus connections may be used to interface with additional DeltaV S-Series I/O modules. Standard VerticalPLUS DeltaV interface cables are used to connect the PROVOX I/O Controller Interface Carrier to traditional DeltaV I/O horizontal carriers. This feature let 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 SQ or SX 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.

**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

## System Compatibility

The S-Series PROVOX I/O Carrier is not compatible with the DeltaV VIM, VIM2, Zone 2 Remote I/O card, SLS 1508, the Smart Wireless Gateway and the WIOC.

The S-Series PROVOX I/O Carrier can also communicate to DeltaV CIOC & CHARMs for easy in-situ migration from the PROVOX termination panels directly to DeltaV CHARMs Electronic Marshalling I/O.

The S-Series PROVOX I/O Carrier is not compatible with DeltaV M-Series I/O Products.

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## PROVOX I/O Products Supported

### Control I/O cards

| Supported | |
|---|---|
| **Type No.** | **Description** |
| CL6821 | Analog I/O Card |
| CL6824 | Analog Input Card |
| CL6822<br>CL6825<br>CL6827 | HART Input Card |
| CL6826<br>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 Interface Option |
| CL6922<br>CL6923 | Intelligent Device Interface |

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

### 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,<br>DM6005 | Virtual I/O Coupler |
| DM6391 | **ac$^2$** Interface Card |

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# DeltaV Controller Interface for PROVOX I/O

| PROVOX I/O Interface Module Specifications | |
|---|---|
| **Power requirement** (DeltaV system power supply) | +12.0 VDC at 350 mA maximum |
| **Fuse protection** | 3.0 A, non-replaceable fuses |
| **Power dissipation** | 3.6 W typical, 4.2 W maximum |
| | |
| **Dimensions** | |
| Height | 19.7 cm |
| Depth | 13.8 cm |
| Width | 4.2 cm |
| 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 conditio | 10 g ½-sine wave for 11 ms |
| Vibration (operative limit) | 1 mm peak-to-peak from 5 Hz to 13.2 Hz,<br>0.7 g from 13.2 Hz to 150 Hz |
| Electromagnetic Compatibility | Per EN61326-1016 |
| | |
| **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. |

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| 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 | 15.0 A (includes maximum current for 8-wide I/O Interface if extended) |
| Output | 15.0 A (only if extended) |
| **Dimensions** | |
| Height | 26.39 cm (6 EIA rail units) |
| Depth | 10.90 cm |
| Width | 48.00 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) |

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## Ordering Information

DeltaV Controller Interface for PROVOX I/O consists of four types of components: a DeltaV SQ or SX 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 S-Series Controller Interface for PROVOX I/O (Simplex) comes with Carrier Blank Caps | **SE3021C6R1** (Using the SQ controller) |
| DeltaV S-Series Controller Interface for PROVOX I/O (Redundant) | **SE3021C6R2** (Using the SQ controller) |
| DeltaV S-Series Controller Interface for PROVOX I/O (Simplex) Comes with Carrier Blank Caps | **SE3021C5R1** (Using the SX controller) |
| DeltaV S-Series Controller Interface for PROVOX I/O (Redundant) | **SE3021C5R2** (Using the SX 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 SQ Controller | **SE3008** |
| DeltaV SX Controller | **SE3007** |
| | |
| S-Series Carrier Blank Cap (for PROVOX I/O Carrier) | **SE6102** |
| S-Series PROVOX I/O Carrier | **KJ2101X1-CK1** |
| S-Series PROVOX I/O Interface Module | **KJ2101X1-BK1** |
| DeltaV S-Series System Power Supply | **SE5009** 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. |

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## Spare Part ordering Information

| Spare Parts | |
|---|---|
| **Description** | **Model Number** |
| Power Terminal Plug for S-Series PROVOX I/O Carrier | KJ4005X1-BF1 |
| Power Terminal Plugs for S-Series PROVOX I/O Carrier; package of 8 plugs | SE6197 |

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## Prerequisites

- For the SX Controller, DeltaV software release v11.3.1 or later is required.
- For the SQ Controllers, DeltaV software release v12.3 or later is required.
- The SQ Controller can be used on a v11.3.1 System by applying an HotFix to the DeltaV system.

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