

# 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.



## 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.

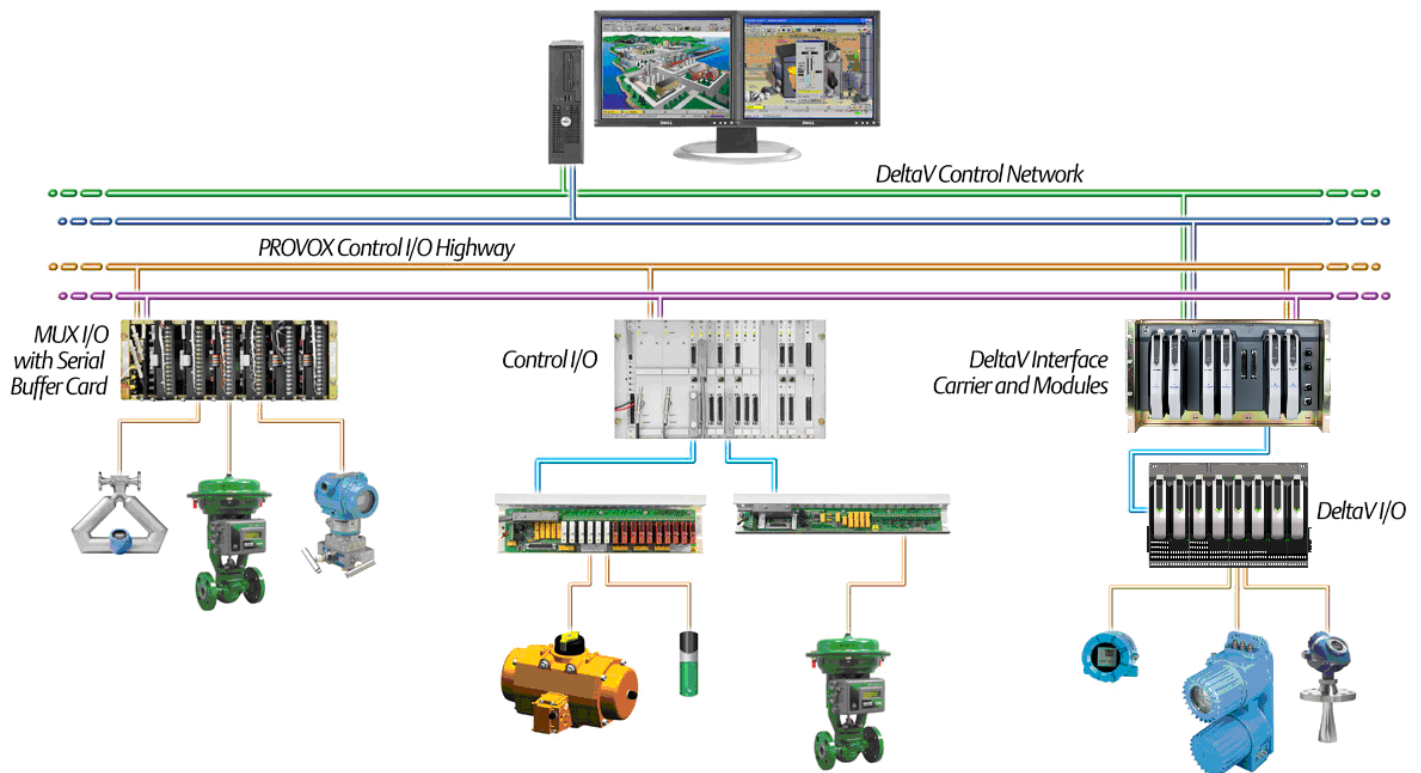
**Maximizes investment in PROVOX I/O.** Using your PROVOX I/O with a DeltaV controller maximizes your investment in PROVOX I/O, extending its useful life and saving the cost of new I/O.

**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.



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## 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 to 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.

## PROVOX I/O Products Supported

## 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 Interface Option
CL6922 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, DM6005	Virtual I/O Coupler
DM6391	ac <sup>2</sup> Interface Card

PROVOX I/O Interface Module Specifications	
<b>Power requirement</b> (DeltaV system power supply)	+12.0 VDC at 350 mA maximum
<b>Fuse protection</b>	3.0 A, non-replaceable fuses
<b>Power dissipation</b>	3.6 W typical, 4.2 W maximum
<b>Dimensions</b>	
Height	19.7 cm
Depth	13.8 cm
Width	4.2 cm
Mounting	Assigned slots of carrier
<b>Environmental specifications</b>	
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 condition)	10 g ½-sine wave for 11 ms
Vibration (operative limit)	1 mm peak-to-peak from 5 Hz to 13.2 Hz, 0.7 g from 13.2 Hz to 150 Hz
Electromagnetic Compatibility	Per EN61326-1016
<b>I/O Module LED Indicators</b>	
<b>ON Status Indicates</b>	
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	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)

## 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	<b>SE3021C6R1</b> (Using the SQ controller)
DeltaV S-Series Controller Interface for PROVOX I/O (Redundant)	<b>SE3021C6R2</b> (Using the SQ controller)
DeltaV S-Series Controller Interface for PROVOX I/O (Simplex) Comes with Carrier Blank Caps	<b>SE3021C5R1</b> (Using the SX controller)
DeltaV S-Series Controller Interface for PROVOX I/O (Redundant)	<b>SE3021C5R2</b> (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	<b>SE3008</b>
DeltaV SX Controller	<b>SE3007</b>
S-Series Carrier Blank Cap (for PROVOX I/O Carrier)	<b>SE6102</b>
S-Series PROVOX I/O Carrier	<b>KJ2101X1-CK1</b>
S-Series PROVOX I/O Interface Module	<b>KJ2101X1-BK1</b>
DeltaV S-Series System Power Supply	<b>SE5009</b> 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.

**Spare Part ordering Information**

<b>Spare Parts</b>	
<b>Description</b>	<b>Model Number</b>
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



## **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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