S-series DC to DC System Power Supply

- Easy to use
- Flexible and cost-effective
- Secure
- Simplified system power

The DeltaV™ S-series DC/DC system power supplies are modular, easy to install, and secure.

Introduction

Power—your system won't operate without it. DeltaV™ system power supplies offer you the most efficient and reliable power solution for your money.

The DeltaV S-series DC/DC power supply connects to your bulk 24 V DC power to provide power to the system electronics including the controller and associated I/O cards. This is all the power required for your DeltaV system.

Benefits

Easy to use. The DC/DC system power supplies are plug-and-play components. They fit into S- series power supply/ controller carriers that contain internal power buses to both the controller and I/O interfaces, eliminating the need for external cabling. The carrier mounts easily onto a T-type DIN rail—easy!

Flexible and cost-effective. The DC/DC system power supply accepts 24 V DC input power. The modular architecture and the power supply's load-sharing capabilities enable you to add more power or provide power redundancy to your system.

Secure. Your I/O is always accurate because the I/O subsystem and controller always receive a consistent and accurate 12 or 5 V DC power supply. The power supplies are compliant with EMC and CSA standards; they provide immediate notification of power failure; system and field power provisions are completely isolated.

Simplified system power. The system power supply delivers more current to the 12V DC I/O interface power bus and eliminates the need for injected power supplies. Now, all your controller and I/O power can be sourced from plant 24 V DC bulk power supplies.

Product Description

The S-series DC/DC system power supply is used to power the DeltaV controllers and I/O interfaces from 24 V DC bulk power. It can be mounted next to the controller on a Power/ Controller carrier and provide the 5 V DC required by the controller. It also provides up to 8 Amps of 12 V DC power to the I/O interfaces.

Plug-and play components. The system power supply components fit into any power supply slot of any DeltaV power/ controller carrier. This makes system design easy and the interchangeability reduces spares inventory.[1]

Rail mounted. Power supply installation is simple. Mount the power/controller carrier into place on a T-type DIN rail. Then plug the system power supplies into the carrier.

Internal power bus. The power/controller carrier contains internal power buses. You don't need to use external cabling to connect the system power supply to the DeltaV controller and the I/O interface carriers.

Modular power. You know your power requirements today, but what about the future? Lay a solid foundation now and build on it later. The modular power structure allows you to install additional power to the controller and I/O subsystems.

Accurate output. The system power supplies accept a variance in the input 24 V DC of +/- 20% and still generate accurate power output.

Power redundancy. DeltaV system power supplies can be redundant at 1-to-N versus 1-to-1 in other systems. This provides an economical solution to creating system redundancy.

Fault detection. Both under and over-voltage conditions are detected and recorded to protect the controller and I/O subsystem, and to enable automatic cold restart of the controller in case of bulk power supply failures.

Standard compliance. The power supplies are compliant with EMC and CSA standards. Their design meets the new European "power factor correction" standards.

Immediate notification of power failure. Internal relay outputs change status and alert the user if the incoming voltage fails or if the system power supply fails. Also, the LED on the power supply housing displays the power status.

System and field power isolation. The system power supply provides isolation between the system power and field power when both are powered from the same 24 V DC bulk power supply system.

Power supply removal. System power supplies are easy to remove/replace. Bulk power wires are attached to S-series carrier power terminals.

[1] *Refer to Zone 2 installation instructions (12P2046) and/or Class 1 Division 2 installation instructions (12P1293) for details.*

24-VDC System Power Supply

The system power supply eliminates the need for bulk 12 V DC power supplies by delivering up to 8 amps to the LocalBus. System power is isolated from the 24 V DC field power.

Description	24 VDC System Power Supply Specifications
Input	24 V DC ± 20% at 6.1A
Inrush (soft start)	20 A peak maximum for 5 ms over 24 V DC input range (including 12 V DC output)
Output Power Rating -40-60C	+12 V DC at 8.0 A (24 V DC Input) +5 V DC at 2.0 A (10 W total for combined outputs of +5V DC)
Output Power Rating 60-70C	+12 V DC at 6.0 A (24 V DC Input) +5 V DC at 2.0 A (10 W total for combined outputs of +5 V DC)
Input protection	Internally fused, non-replaceable
Overvoltage protection	Output protected at 110% to 120%
Hold-up time	Output: remains within 5% of nominal at full load and minimum input voltage for 5 ms (excluding 12 V DC current with 12 V DC input).
Operating temperature*	-40 to 60°C (-40 to 140°F) without de-rating 60 to 70°C (140 to 158°F) with de-rating
Storage temperature	-40 to 70°C (-40 to 158°F)
Relative humidity	5 to 95%, non-condensing
Airborne contaminants	ISA-S71.04-1985 airborne contaminants class G3
Shock	10 g ½-sine wave for 11 ms
Vibration	1 mm peak-to-peak from 5 Hz to 13.2 Hz, 0.7 g from 13.2 Hz to 150 Hz
Mounting	On either slot of 2-wide power/controller carrier, power slot of VerticalPlus 4-wide carrier, any slot of 4-wide power carrier.
LED Indicators:	
Green—DC Power	Input DC power is applied and internal fuse/diode is sound.
Red—Error	The +5 V DC outputs are out of tolerance.
External connectors:	
Primary power	DC input, 2-wire
Alarm contact	2-wire normally open relay; relay is closed when 3.3 and 5 V DC outputs are within ±4% of nominal; 2.0 A at 30 V DC, 2.0 at 250 V AC.

Operating any electronics at the higher end of its temperature range for long periods of time will shorten its expected lifetime, see* **Effects of Heat and Airflow Inside an Enclosure White Paper *for more information.*

Power Calculations

One system power supply provides up to 8.0 amps. Refer to the DeltaV hardware installation manual for details on system power calculations and how to inject additional I/O interface power.

Certifications

The following certifications are available on the S-series DC/DC System Power supply (see actual certificates for exact certifications):

- **CE**

  EMC- EN 61326-1

- **FM**

  3600

  3611

- **CSA**

  CSA-C22.2 No. 213-M1987

  CSA-C22.2 No. 1010-1

- **ATEX**

  EN 60079-0

  EN 60079-15

- **IEC-Ex**

  EN 60079-0

  EN 60079-15

- **Marine Certifications:** IACS E10

  ABS Certificate of Design Assessment
  DNV-GL Marine Certificate

Hazardous Area/Location

The S-series DC/DC System Power Supply can be installed and used based on the following Standards (see actual certificates for exact product markings):

- **FM (USA)**

  Class I, Division 2, Groups A, B, C, D, T4

- **cFM (Canada)**

  Class I, Division 2, Groups A, B, C, D, T4

- **ATEX**

  II 3G Ex nA IIC T4 Gc

- **IEC-Ex**

  II 3G Ex nA IIC T4 Gc

Regarding the Installation instructions please refer to the following Documents:
Class 1 Division 2 Installation Instructions DeltaV S-Series (12P5402)
Zone 2 Installation Instructions DeltaV S-Series (12P5404)

Ordering Information

Description	Model Number
DC to DC System Power Supply	SE5109

Prerequisites

- DeltaV v11.3 or later.
- Compatible with S-series Horizontal carriers.

Contact Us
www.emerson.com/contactus

DELTAV™

EMERSON™