M-series DC to DC System Power Supply

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



The DeltaV™ M-series Enhanced 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 power supply suite provides power to the system electronics and to the field. 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 any power supply carrier, both horizontal 2-wide and vertical 4-wide carriers. These carriers 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 DeltaV DC/DC system power supply accepts both 12V DC and 24V 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 5V DC power supply. The power supplies are compliant with EMC and CSA standards; there is immediate notification of power failure; and system and field power provisions are completely isolated.

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

Product Description

The DC/DC system power supply is used to power the DeltaV controllers and I/O interfaces from either 12 or 24V DC bulk power and can be mounted next to the controller on a Power/Controller carrier and provide the 5 and 3.3V DC required by the controller. It also provides 12V DC power to the I/O interfaces and supplies up to 8 Amps when powered from a 24V DC Bulk power supply.

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.

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 wide range of power inputs and translate the inputs into 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.

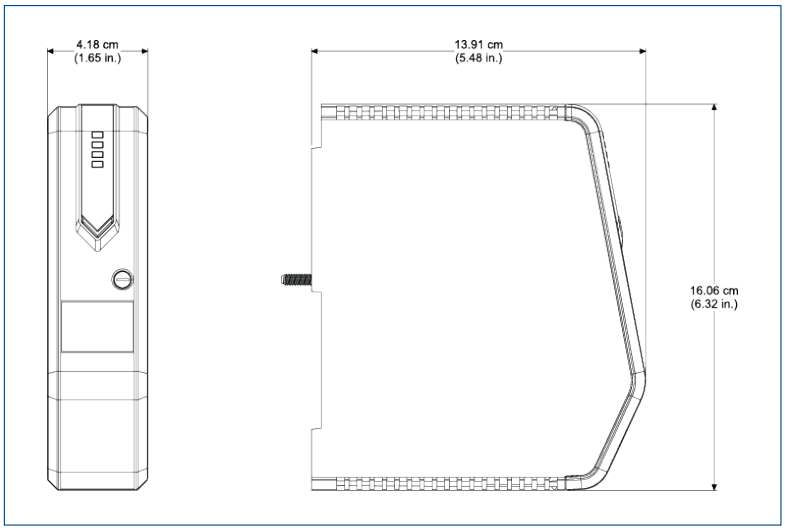
Fault detection. Both under and over-voltage conditions are detected and recorded to protect the controller and I/O subsystem, and to enable automatic cold restart of the controller in case of bulk power supply failures.

Standard compliance. The power supplies are compliant with EMC and CSA standards. Their design meets the 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 24V DC bulk power supply system.

Power supply removal. System power supplies are easy to remove/replace. Bulk power wires are attached to an easy mount connector rather than screw terminals.



M-series Enhanced DC/DC System Power Supply hardware dimensions.

24/12V DC Enhanced System Power Supply

Description	24/12V DC System Power Supply Specifications
Input	12V DC (-4-+5%) at 14.8 A 24V DC ± 20% at 6.1A
Inrush (soft start)	12 A peak maximum for 5 ms over 12V DC input range (excluding 12V DC output) 20 A peak maximum for 5 ms over 24V DC input range (including 12V DC output)
Output Power Rating -40 to 60°C	+ 12V DC at 13 A (12V DC Input) + 12V DC at 8.0 A (24V DC Input) + 5V DC at 2.0 A + 3.3V DC at 2.0 A (10 W total for combined outputs of +5V DC and +3.3V DC)
Output Power Rating 60 to 70°C	+ 12V DC at 10 A (12V DC Input) + 12V DC at 6.0 A (24V DC Input) + 5V DC at 2.0 A + 3.3V DC at 2.0 A (10 W total for combined outputs of +5V DC and +3.3V 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 12V DC current with 12V 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 Conformal coating

Description	24/12V DC System Power Supply Specifications
Shock	10 g ½-sine wave for 11 ms
Vibration	1 mm peak-to-peak from 5 Hz to 16 Hz, 0.5 g from 16 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 +5V DC and +3.3V 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 5V DC outputs are within ±4% of nominal; 2.0 A at 30V DC, 2.0 at 250V 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.

Certifications

The following certifications are available for M-series Enhanced DC / DC system power supply (see actual certificates for exact certifications):

- **CE**
  EMC: EN 61326-1
- **FM**
  FM 3600
  FM 3611
- **CSA**
  CSA C22.2 No. 213-M1987
  CSA C22.2 No. 1010-1
- **ATEX**
  EN60079-0
  EN60079-15
- **IEC-Ex**
  IEC60079-0
  IEC60079-15
- **Marine Certifications:** IACS E10
  ABS Certificate of Design Assessment
  DNV-GL Marine Certificate

Hazardous Area/Location

M-series Enhanced 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 nC IIC T4 Gc
- **IEC-Ex**
  II 3G Ex nA nC IIC T4 Gc

Regarding the Installation instructions please refer to the following Documents:
Class 1 Division 2 Installation Instructions DeltaV M-series 12P1293
Zone 2 Installation Instructions DeltaV M-series 12P2046

Power Calculations

One system power supply provides up to 8.0 amps, which is the maximum rating for horizontal I/O interface carriers.

Refer to the DeltaV hardware installation manual for details on system power calculations and how to inject additional I/O interface power. If you are adding I/O cards to the system, be sure that your Bulk Power supplies are able to meet the increased demand resulting from the additional I/O cards.