

# M-series AC to DC Power Supply

- Easy to use
- Flexible and cost-effective
- Secure



*The DeltaV™ power supplies are modular, easy to install, and secure.*

## Introduction

Power—your system won't operate without it. Delta 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 AC/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 AC/DC system power supply accepts both 115 and 220V AC 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; there is immediate notification of power failure; and system and field power provisions are completely isolated.

## Product Description

**Easy to use:** The DeltaV AC/DC system power supply is used to power the DeltaV controllers and I/O interfaces from either 115 or 220V AC directly, eliminating the need for bulk power supplies. The VE5001 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 a limited number of 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.<sup>1</sup>

**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 carriers contain 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.

**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 and field power provisions are completely isolated. For example, if the bulk AC to 24V DC power supply providing power to the field fails, the system power supply (AC/DC) is unaffected.

**Power supply removal:** You don't need to unscrew connections to remove the system power supplies. Simply unplug the connectors.

<sup>1</sup>Refer to Zone 2 installation instructions (12P2046) and/or Class 1 Division 2 installation instructions (12P1293) for details.

The VE5001 AC/DC system power supply directs DC power to the controller and I/O subsystem. It resides on either slot of the power/controller carrier. Power is isolated from the field.

Description	AC/DC System Power Supply Specifications
Input	100V AC to 264V AC, 47 Hz to 63 Hz, single-phase
Inrush (soft start)	35 A peak maximum for one cycle or less at 230V AC input
Output power	25 W total at 60°C
Output voltages	+12V DC at 2.1 A maximum
	+5V DC at 2.0 A maximum
	+3.3V DC at 0.5 A maximum
	Combined 5V DC and 3.3V DC output = 10 W maximum
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 155V AC input for 20 ms
Operating temperature	0 to 60°C (32 to 140°F) without derating
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 G2
Hazardous areas	Class I, Div. II approval
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
<b>LED Indicators</b>	
Green—AC power	Input AC power is applied and internal fuse is sound
Red—Error	Outputs are not within ±4% of nominal (normal conditions).
<b>External Connectors</b>	
Primary power	AC input: 3-wire
Alarm contact	2-wire normally open relay; relay is closed when outputs are within ±4% of nominal; 2.0 A at 30V DC, 2.0 A at 250V AC
<b>Environmental Rating</b>	FM Class 1 Div 2, GP. A, B, C, D, Hazardous location, T4

*Redundant power is provided for the controller and I/O subsystem by installing a second 2-wide carrier and a second system power supply. These two-system power supplies provide redundant power to the simplex controller in the right-most slot, as well as redundant power to the I/O subsystem. Additional power supplies to the left provide supplementary power to the I/O subsystem only.*

## Power Calculations

### System Power Supplies

One VE5001 AC/DC system power supply is sufficient for many small DeltaV installations. The power supply provides 1.75 A to the I/O subsystem. This is enough for:

- 8 discrete I/O cards
- 8 analog I/O cards
- 4 serial I/O cards
- 4 Series 2 H1 cards

## Ordering Information

Description	Model Number
115/220 V AC AC to DC System Power Supply	VE5001

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