

## Data Sheet

# DS460S

460 Watts

**Total Output Power:** 460 Watts  
**+12 Vdc Stand-by Output**  
**Wide Range Input Voltage:**  
 90 - 264 Vac

## SPECIAL FEATURES

- Active power factor correction
- EN61000-3-2 harmonic compliance
- Active AC inrush control
- 1U X 2U form factor
- +12 Vdc output
- +12 Vdc stand-by
- Hot plug operation
- N + 1 redundant
- Active current sharing
- Built-in cooling fan
- I<sup>2</sup>C communication interface bus
- PMBus compliant
- EEPROM for FRU data
- Two years warranty

## SAFETY

- UL/cUL 60950 (UL Recognized)
- NEMKO 60950
- Cb Certificate and report
- CE Mark (LVD)



## Electrical Specifications

### Input

|                  |                                   |
|------------------|-----------------------------------|
| Input range:     | 90 - 264 Vac                      |
| Frequency:       | 47 - 63 Hz, single phase AC       |
| Inrush current:  | 30 Apk maximum inrush current     |
| Efficiency:      | 92% typical at high line 50% load |
| Conducted EMI:   | FCC Subpart J EN55022 Class A     |
| Radiated EMI:    | FCC Subpart J EN55022 Class A     |
| Power factor:    | 0.99 typical                      |
| Leakage current: | 1.0 mA @ 240 Vac                  |
| Hold up time:    | 10 ms minimum                     |

### Output

|                        |                                                                                                      |
|------------------------|------------------------------------------------------------------------------------------------------|
| Main DC voltage:       | +12.3 V @ 36.0 A                                                                                     |
| Stand-By:              | +12 V @ 2.3 A                                                                                        |
| Adjustment range:      | Factory Set                                                                                          |
| Regulation:            | 11.85 - 12.45 Vdc<br>11.40 - 12.6 Vdc                                                                |
| Overcurrent:           | +12 Vdc; latches off if overcurrent lasts over 1 second,<br>Trip point 120% - 150% of rated current. |
| Overvoltage:           | +12 Vdc; 13.6 - 15.0 Vdc<br>+12 Vsb; 13.6 - 15.0 Vdc                                                 |
| Turn-on delay:         | 1 - 1.5 seconds                                                                                      |
| Main output rise time: | 10 - 30 mS, monotonic rise                                                                           |

## Logic Control

|                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PS_PRESENT (S4):   | Used to sense the number of power supplies in the system (operational or not) and provide hot plug insertion and removal functionality by controlling main outputs during hot plug insertion and removal by employing following circuitry. When the unit is removed from the system the fast shut down signal quickly turns OFF main outputs and discharges output capacitors. This signal is the shortest gold finger pin on the signal connector to allow for last make, first break configuration. |
| PSOK (S6):         | Combined indicator of AC input and main 12 V DC output. This is a three level signal to indicate different stages as follows.                                                                                                                                                                                                                                                                                                                                                                         |
|                    | AC not OK and DC not OK – Signal status shall be LOW (< 0.6 V)<br>AC OK and DC not OK – Signal status shall be LOW (< 0.6 V)<br>AC OK and DC OK – Signal status shall be HIGH (> 3.0 V)<br>AC not OK and DC OK – Signal status shall be Middle Level (Between 2 V and 2.5 V)<br><br>DC OK threshold is defined as when the 12 V output is greater than 11.5 V.<br>DC not OK threshold is defined as when the 12 V output is less than 11.4 V & greater than 11.3 V.                                   |
| I-Mon (S7):        | Provides both the load sharing function (as a feedback for output regulation droop function) and 12 V output current information.                                                                                                                                                                                                                                                                                                                                                                     |
| PS INTERRUPT (S4): | The signal behavior in response to certain operating condition changes in the power supply as defined in the Firmware Specification section. This signal shall be pulled up to maximum 5 V logic level external to the PS.                                                                                                                                                                                                                                                                            |
| PS ON (S8):        | Required to remotely turn on/off the power supply. PS_ON# is an active low signal that turns on the main 12 V DC output. When this signal is not pulled low by the system, or left open, the 12 V output is turned off. This signal is pulled to a standby voltage by a pull-up resistor internal to the power supply. Refer to On/Off Timing for timing diagram in TRN. When in off or standby condition, the main 12 V DC output will be less than 50 mV with respect to output return.             |

## Environmental Specifications

|                                                  |                                                         |
|--------------------------------------------------|---------------------------------------------------------|
| Operating temperature:                           | -10 °C to 50 °C                                         |
| Storage temperature:                             | -40 °C to +85 °C                                        |
| Altitude, operating:                             | 10,000 ft.                                              |
| Electromagnetic susceptibility/Input transients: | -EN61000-3-2<br>-EN61000-4-2, 4-3, 4-4, -4-5, 4-6, 4-11 |
| RoHS & lead-free compliant                       | No tantalum caps.                                       |
| Humidity:                                        | 5 to 90% RH, non-condensing                             |
| Shock and vibration specifications:              | Complies with Astec Std. Specifications                 |
| MTBF (Demonstrated):                             | 500K Hrs at full load, 50 °C                            |

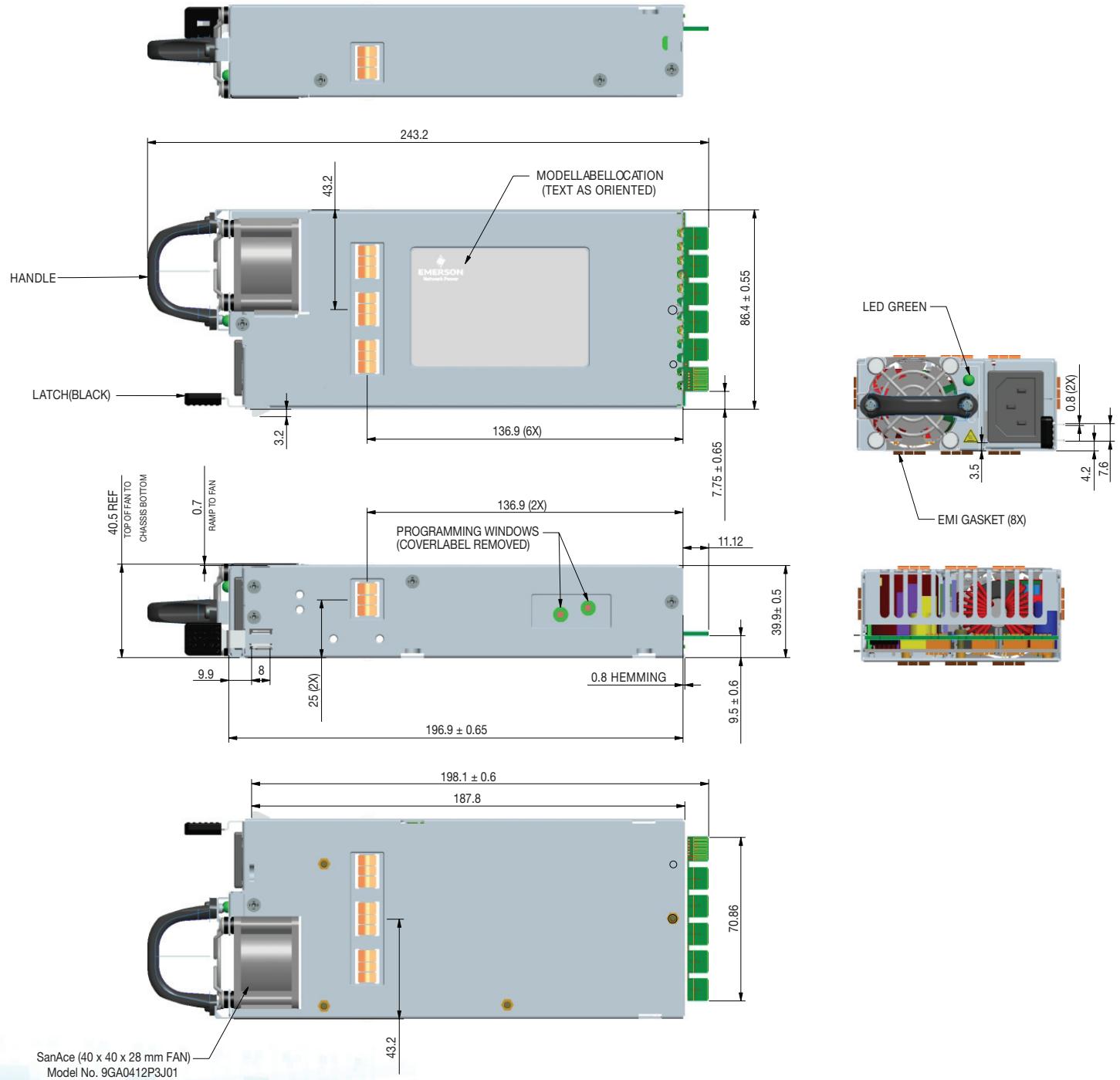
## Ordering Information

| Model Number              | Nominal Output Voltage Set Point | Set Point Tolerance | Total Regulation | Minimum Current | Maximum Current | Output Ripple P/P | Over Current     | Stand-by       | Air Flow |
|---------------------------|----------------------------------|---------------------|------------------|-----------------|-----------------|-------------------|------------------|----------------|----------|
| DS460S-3-002              | 12.3 Vdc                         | ± 0.2%              | +5%              | 1 A             | 36.0 A          | 120 mV            | 45.9 A - 57.5 A* | 12.0 V @ 2.3 A | STD      |
| DS460S-3-003              | 12.3 Vdc                         | ± 0.2%              | +5%              | 1 A             | 36.0 A          | 120 mV            | 45.9 A - 57.5 A* | 12.0 V @ 2.3 A | REV      |
| DS460S-3-004<br>(5,000 m) | 12.3 Vdc                         | ± 0.2%              | ± 5.0%           | 1.0 A           | 36.0 A          | 120 mV            | 45.9 A - 57.5 A* | 12.0 V @ 2.3 A | STD      |
| DS460S-3-005<br>(5,000 m) | 12.3 Vdc                         | ± 0.2%              | ± 5.0%           | 1.0 A           | 36.0 A          | 120 mV            | 45.9 A - 57.5 A* | 12.0 V @ 2.3 A | REV      |

\*Overcurrent latches off if overcurrent lasts over 1 second, otherwise it is auto recovery.

## Mechanical Drawings

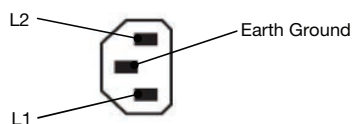
Weight: 1.88 lbs



## Connector Definitions

### AC Input Connector

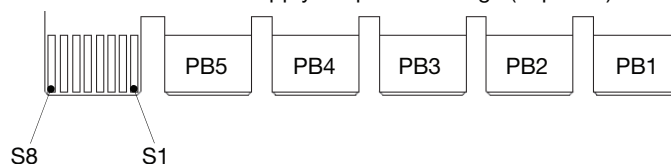
|       |              |
|-------|--------------|
| Pin 1 | Line         |
| Pin 2 | Neutral      |
| Pin 3 | Earth Ground |



### Output Connector - Power Blades

|      |       |
|------|-------|
| PB1  | $V_o$ |
| PB2  | $V_o$ |
| PB3  | $V_o$ |
| PB4  | RTN   |
| PB5  | RTN   |
| PB6  | RTN   |
| PB7  | RTN   |
| PB8  | RTN   |
| PB9  | $V_o$ |
| PB10 | $V_o$ |

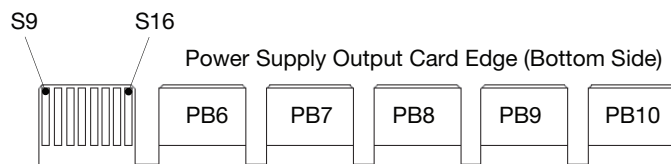
Power Supply Output Card Edge (Top Side)



### Output Connector - Signal Blades

|     |              |
|-----|--------------|
| S1  | VSB          |
| S2  | VSB          |
| S3  | Reserved     |
| S4  | PS INTERRUPT |
| S5  | PS PRESENT   |
| S6  | PSOK         |
| S7  | I-MON        |
| S8  | PSOEN#       |
| S9  | SCL*         |
| S10 | SDA          |
| S11 | GND          |
| S12 | ADD0         |
| S13 | ADD1         |
| S14 | ADD2         |
| S15 | RTN          |
| S16 | RTN          |

Power Supply Output Card Edge (Bottom Side)



\*Supports I<sup>2</sup>C standard mode (100 kHz) only



## Power/Signal Mating Connectors and Pin Types

| Reference          | On Power Supply        | Mating Connector or Equivalent |
|--------------------|------------------------|--------------------------------|
| AC Input Connector | IEC320-C13             | IEC320-C14                     |
| Output Connector   | PCB card edge (0.062") | Molex 459840007 (top mount)    |
|                    |                        | Molex 459841122 (bottom mount) |

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