POWER

Data Sheet

# DS450-3/DS550-3

## Distributed Power Bulk Front-End

**Total Output Power:** 450 - 550 Watts
+12 Vdc Main Output
+3.3 Vdc Standby Output
**Wide Range Input Voltage:**
90 - 264 Vac

RoHS 6/6 COMPLIANT

## SPECIAL FEATURES

- Active power factor correction
- EN61000-3-2 harmonic compliance
- Inrush control
- 1U X 2U form factor
- 10.3 W/in$^3$ (DS550) 8.4 W/in$^3$ (DS450)
- +12 Vdc output
- +3.3 Vdc standby
- No minimum load required
- Hot plug operation
- N + 1 redundant
- Internal OR'ing fets
- Active current sharing
- Built-in cooling fans (40 mm x 28 mm)
- I$^2$C communication interface bus
- EEPROM for FRU data
- Amber LED status, fan_fail
- Green LED status, power good/AC_OK status
- Internal fan speed control
- Fan fail tach output signal
- One year warranty

## SAFETY

- UL/cUL 60950 (UL recognized)
- NEMKO+ CB report EN60950
- EN60950
- CE mark
- China CCC

## Electrical Specifications

| | |
|---|---|
| **Input** | |
| Input range | 90 - 264 Vac (wide range) |
| Frequency | 47 - 63 Hz, single phase AC |
| Inrush current | 15 A maximum |
| Efficiency | > 84% typical at full load, high line |
| Conducted EMI | FCC Subpart J EN55022 Class A |
| Radiated EMI | FCC Subpart J EN55022 Class A |
| Power factor | 0.99 typical |
| Leakage current | 1.30 mA @ 240 Vac |
| Hold up time | 20 ms minimum |
| **Output** | |
| Main DC voltage | +12 V |
| Standby | +3.3 Vsb |
| Adjustment range | Factory set, no pot adjustments |
| Regulation | +12 Vdc; +5%/-3%<br>+3.3 Vsb; +5%/-4% |
| Overcurrent | See Table 1 next page |
| Overvoltage | +12 Vdc; 13.5 - 15 Vdc<br>+3.3 Vsb; 3.76 - 4.30 Vdc |
| Undervoltage | +12 Vdc; 11.0 - 11.5 Vdc<br>+3.3 Vsb; 2.77 - 3.00 Vdc |
| Turn-on delay | 1 second max |
| +12 V output rise time | 2 - 20 mS, monotonic |

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EMBEDDED TECHNOLOGIES

## Logic Control

| | |
|---|---|
| PS Inhibit | When supply is inserted into the system the pin is pulled LOW and power supply is ON after all other pins are seated |
| PS_Status | I²C port P6. When the power supply is on and running normal P6 is low. When the power supply is off, either due to -PS_ON, PS_KILL, or a fault, then P6 is high. |
| AC_Pfail | I²C port P7. P7 is high except when the power supply turns the main outputs, not +3.3 Vsb, off due to an AC failure (AC missing or too low for power supply operation). If the supply is turned off due to -PS_ON, PS_KILL, or a fault, then P7 remains high. |
| Fan_Fault | The PSU will provides an open collector Tach 1 output. |
| Tach_1 | This signal is generated from the fan. The signal should generate 2 pulses per revolution. The logic in the system will be operating at 3.3 V. |

## Environmental Specifications

| | |
|---|---|
| Operating temperature | -10 °C to 50 °C |
| Storage temperature | -40 °C to +70 °C |
| Altitude, operating | 10,000 ft. |
| Electromagnetic susceptibility/Input transients | -EN61000-3-2, -3-3<br>-EN61000-4-2, 4.3, 4-4, -4-5, 4-11<br>-EN55024:1998 |
| RoHS & lead-free compliant (no tantalum caps) | |
| Humidity | 20 to 90% RH, non-condensing |
| Shock and vibration specificatons complies with Artesyn Embedded Technologies Std. Specification. | |
| MTBF (Demonstrated) | 400 K Hrs at full load, 40 °C |

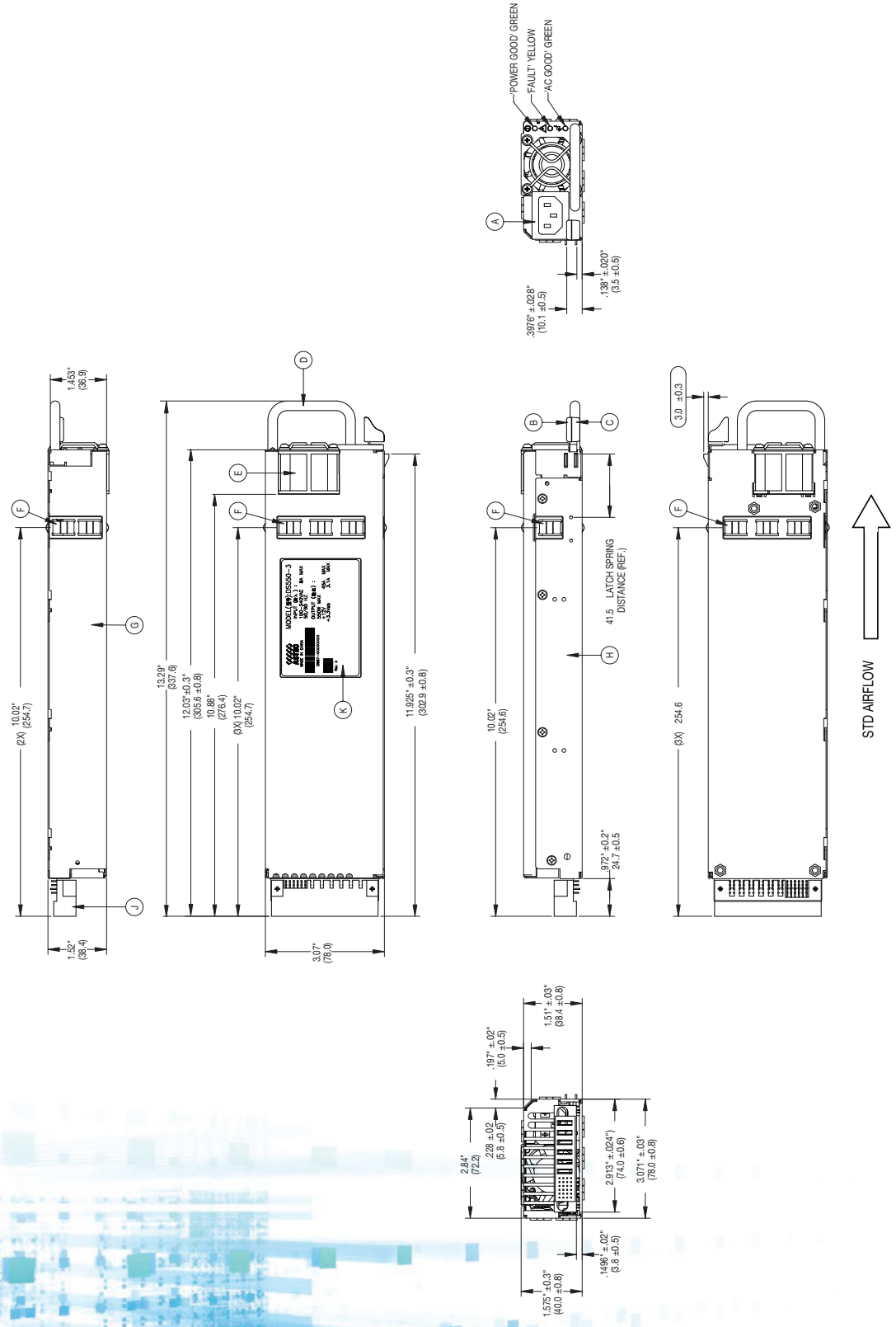
## Ordering Information

| Output | Nominal Output Voltage Set Point | Set Point Tolerance | Total Regulation | Minimum Current | Maximum Current | Output Ripple P/P | Overcurrent | Options |
|---|---|---|---|---|---|---|---|---|
| DS450-3 | 12.0 Vdc<br>3.3 Vsb | ± 0.2%<br>± 1% | +5/-3%<br>+5/-4% | 0 A<br>0 A | 37.0 A<br>3.0 A | 120 mV<br>60 mV | 39.5 A - 44.4 A<br>4.9 A Avg, 7 A max | Standard |
| DS450-3-002 | 12.0 Vdc<br>3.3 Vsb | ± 0.2%<br>± 1% | +5/-3%<br>+5/-4% | 0 A<br>0 A | 37.0 A<br>3.0 A | 120 mV<br>60 mV | 39.5 A - 44.4 A<br>4.9 A Avg, 7 A max | Reverse Air |
| DS550-3 | 12.0 Vdc<br>3.3 Vsb | ± 0.2%<br>± 1% | +5/-3%<br>+5/-4% | 0 A<br>0 A | 45.0 A<br>3.0 A | 120 mV<br>60 mV | 48.0 A - 54.0 A<br>4.9 A Avg, 7 A max | Standard |

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

*For 5 Vsb, please contact marketing department.

## Mechanical Drawings



## DC Output Connector Pinout Assignment

Male connector as viewed from the rear of the supply:

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D1 | D2 | D3 | D4 | D5 | D6 | PB1 | PB2 | PB3 | PB4 | PB5 | PB6 |
| C1 | C2 | C3 | C4 | C5 | C6 | | | | | | |
| B1 | B2 | B3 | B4 | B5 | B6 | | | | | | |
| A1 | A2 | A3 | A4 | A5 | A6 | | | | | | |

## P1 - Power Supply Side

| | |
|---|---|
| 1 | FCI Power Blade 51721 series<br>51721-10002406AA |
| 2 | Molex Power Connector<br>SD-87667 series<br>87667-7002 |

## Mating Connector (System Side)

| | |
|---|---|
| 1 | FCI Power Blade<br>51741-10002406CC<br>Strait Pins |
| 2 | FCI Power Blade<br>51761-10002406AA<br>Right Angle |

## Pin Assignments

| Pin | Signal Name |
|---|---|
| PB 1 | +12 V Return |
| PB 2 | +12 V Return |
| PB 3 | +12 V Return |
| PB 4 | +12 V |
| PB 5 | +12 V |
| PB 6 | +12 V |
| A1 | PS_KILL |
| A2 | +12 V_Current Share |
| A3 | Logic Return |
| A4 | +3.3 V Stand-By |
| A5 | A0 ($I^2C$ Address BIT 0 Signal) |
| A6 | +3.3V Stand-By |
| B1 | Logic Return |
| B2 | Spare |
| B3 | Logic Return |
| B4 | +3.3 V Stand-By |
| B5 | SDA ($I^2C$ Data Signal) |
| B6 | PSON (Power Enable Signal) |

## Pin Assignments

| Pin | Signal Name |
|---|---|
| C1 | Logic Return |
| C2 | Tach_1 (Fan Fail Signal) |
| C3 | Logic Return |
| C4 | +3.3 V Stand-By |
| C5 | SCL ($I^2C$ Clock Signal)* |
| C6 | VIN_GOOD (AC Input present) |
| D1 | -PS_Present (Power Supply Seated) |
| D2 | Spare |
| D3 | Logic Return |
| D4 | +3.3 V Stand-By |
| D5 | S_INT (Alert) |
| D6 | POK (Output Power Ok) |

*Supports $I^2C$ standard mode (100 kHz) only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