

## DS650-3

650 Watts 12V

Distributed Power System

**Distributed Power Bulk Front-End**

**Total Output Power: 650 Watts**

**+12Vdc main Output**

**+3.3vdc Stand-by Output**

**Wide Range Input voltage: 90 - 264VAC**



## Special Features

- Active Power Factor Correction
- EN61000-3-2 Harmonic Compliance
- Active AC Inrush Control
- 1U X 2U Form Factor
- 11.76W / in<sup>3</sup> (DS650)
- +12Vdc Output
- +3.3vdc Stand-By (5V standby - consult factory)
- No Minimum Load Required
- Hot Plug Operation
- N + 1 Redundant
- Internal OR'ing Fets
- Active Current Sharing (10 - 100% load)
- Built-in Cooling Fans (40mm x 28mm)
- I<sup>2</sup>C Communication Interface Bus
- EERPOM for FRU Data
- Red/Green Bi-Color LED Status
- Internal Fan Speed Control
- Fan Fail Tach Output Signal
- INTEL, SSI Std. Logic Timing
- INTEL, SSI Std. FRU Data Format
- 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	47-53 Hz, single phase AC
Inrush current	55A maximum inrush current
Efficiency	>82% typical at full load, high line
Conducted EMI	FCC Subpart J EN55022 Class B
Radiated EMI	FCC Subpart J EN55022 Class B
Power factor	0.99 typical
Leakage current	1.40mA @ 240VAC
Hold up time	20ms minimum

### Output

Main DC voltage	+12V @ 52.5A
Stand-By	+3.3vsb @ 6A (5V @ 4A available)
Adjustment range	Factory Set, no pot adjustments
Regulation	+12Vdc; +5%/-5% +3.3vsb; +5%/-5%
Over current	+12Vdc; latches off if overcurrent lasts over 1 second, otherwise it is auto recovery (See Table 1 next page) +3.3vsb, 9A max (hiccup mode)
Over voltage	+12Vdc; 13.2 - 14.4vdc +3.3vsb; 3.76 - 4.30vdc
Under voltage	+12Vdc; 9 - 10.8V (latch off)
Turn-on delay	2 Second max, 5 - 50mS, Monotonic Rise
+12VOutput Rise Time	5 - 50mS, Monotonic Rise



## Logic Control

PS_SEATED	TTL logic LOW if power supply is seated into system connector. This is a short pin. A logic HIGH if the PSU is removed
PWR GOOD	Active TTL LOW when output is within regulation limits.
AC OK	A HIGH logic level if the input voltage is within allowable limits. A TTL logic HIGH level, and a 5mS early warning signal before 12.0v DC output loss of regulation.
Temp OK	A TTL logic HIGH, when operating within allowable temperature range.
PS_INHIBIT/PS_KILL	This signal is connected to a short pin on the PSU When left open power supply operation will be inhibited. When the power supply is inserted into the system, this pin will be pull low by the system and turn the power supply on only after all other power supply pins have seated.

## Environmental Specifications

Operating temperature:	-10° to 50°C ; 50% power derating at 70°C
Storage temperature:	-40°C to +85°C
Altitude, operating	10,000ft.
Electromagnetic susceptibility / Input transients:	-EN61000-3-2, -3-3 -EN61000-4-2, 4.3, 4-4, -4-5, 4-11 Level -EN55024:1998
RoHS & lead-free compliant (no tantalum caps.)	
Humidity:	20 to 90% RH, non-condensing
Shock and vibration specifications	complies with Astec Std. Specifications, Q3205
MTBF (Demonstrated)	500K Hrs at full load, 40°C

## Ordering Information

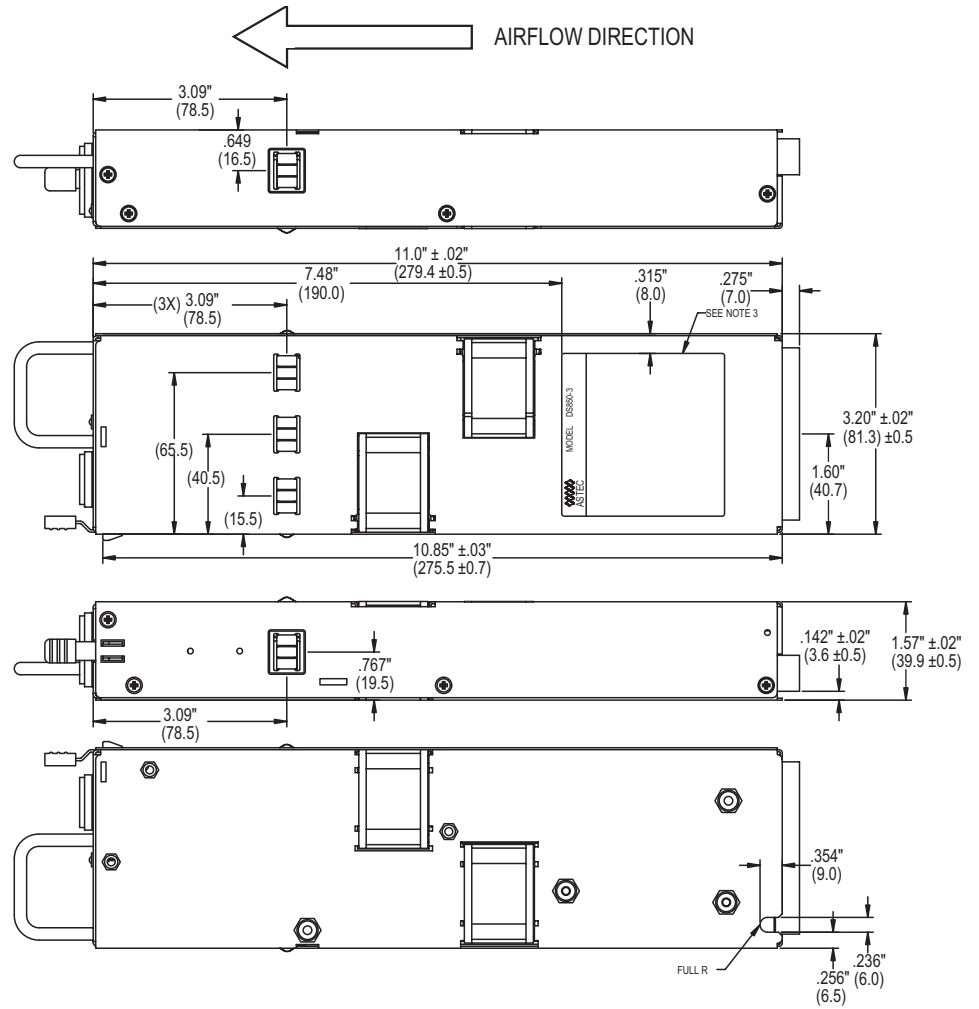
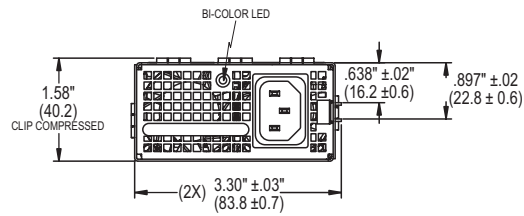
Output	Nominal Output Voltage Set Point	Set Point Tolerance	Total Regulation	Minimum Current	Maximum Current	Output Ripple P/P	Over Current
DS650-3	12.0vdc 3.3vsb	±0.2% ±1%	±5% ±5%	13.2A 0A	52.5A 6.0A	480mV 60mV	57.5A - 78.5A* 7A max

\* Over current latches off if overcurrent lasts over 1 seconds, otherwise it is auto recovery.

\* For 5vsb, consult marketing.

## Mechanical Drawing

Condition	LED Status
+3V3SB-ON; +12VOUT-OFF; AC PRESENT	Blinking Green
+3V3SB-ON; +12VOUT-ON	Solid Green
+12V_OCP, +12V_UVP, +48OVP	Blinking Red
FAN_FAULT, OTP, 3V3 OCP/UVP	Solid Red



## DC Output Connector Pinout Assignment

Male connector as viewed from the rear of the supply:

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

### P1 - Power Supply Side

1. FCI Power Blade 51721 series  
51721-10002406AA

2. Molex Power Connector  
SD-87667 series  
87667-7002

### Mating Connector (System side)

1. FCI Power Blade  
51741-10002406CC  
Strait Pins

2. FCI Power Blade  
51761-10002406AA  
Right Angle

Pin	Signal Name
PB 1	+12V RETURN
PB 2	+12V RETURN
PB 3	+12V RETURN
PB 4	+12V
PB 5	+12V
PB 6	+12V
A1	PS_ON
A2	+12V RMT SENSE RETURN
A3	TEMP_OK
A4	PS_SEATED ( Power Supply Seated)
A5	+3V3 STAND-BY
A6	+3V3SB RETURN
B1	AC_OK (AC Input Present)
B2	+12V RMT SENSE
B3	+12V CURRENT SHARE
B4	PS_INHIBIT
B5	+3V3 STAND-BY
B6	+3V3SB RETURN
C1	SDA (I2C Data Signal)
C2	SCL (I2C Clock Signal)
C3	POWER GOOD
C4	FAN FAIL (Fan Fail Signal)
C5	+3V3 STAND-BY
C6	+3V3SB RETURN
D1	A0 (I2C Address BIT 0 Signal)
D2	A1 (I2C Address BIT 1 Signal)
D3	S_INT (Alarm)
D4	+3V3 STAND-BY RMT SENSE
D5	+3V3 STAND-BY
D6	+3V3SB RETURN

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