

## DS650DC-3 / DS850DC-3

650 - 850 Watt  
Distributed Power System

**Distributed Power Bulk Front-End**  
Total Output Power: 650 - 850 Watts  
+3.3Vdc Stand-by Output  
Standard Telco input range -39 V to  
-72 VDC



Connector input shown

### Special Features

- 1U X 2U Form Factor
- 15.4W/ in<sup>3</sup>
- +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  
2PSU Shared from 30% to 100%  
4PSU Shared from 20% to 100%
- Built-in Cooling Fan (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
- CE Mark
- China CCC

### Electrical Specifications

| Input                 |                                                                                                                                                                                             |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Input range:          | -39 V to -72 Vdc                                                                                                                                                                            |
| Efficiency:           | > 80% typical                                                                                                                                                                               |
| Conducted EMI:        | FCC Subpart J EN55022 Class B                                                                                                                                                               |
| Radiated EMI:         | FCC Subpart J EN55022 Class B                                                                                                                                                               |
| Hold up time:         | 1 ms @48 Vdc                                                                                                                                                                                |
| Output                |                                                                                                                                                                                             |
| Main DC voltage:      | +12 V @ 70 A; DS850DC<br>+12 V @ 52.5 A; DS650DC                                                                                                                                            |
| Stand-By:             | +3.3 Vsb @ 6A (5V @ 4A available)                                                                                                                                                           |
| Adjustment range:     | Factory Set, no pot adjustments                                                                                                                                                             |
| Regulation:           | +12 Vdc; +5%/-5%<br>+3.3 Vsb; +5%/-5%                                                                                                                                                       |
| Over current:         | +12 Vdc; 77A - 105A - DS850DC;<br>+12 Vdc 57.75 A - 78.75 A; DS650DC<br>latches off if overcurrent lasts over 1 second,<br>otherwise it is auto recovery.<br>+3.3 vsb, 9A max (hiccup mode) |
| Over voltage:         | +12 Vdc; 13.2 - 14.4 Vdc<br>+3.3 Vsb; 3.76 - 4.30 Vdc                                                                                                                                       |
| Under voltage:        | +12 Vdc; 9 - 10.8V (latch off)                                                                                                                                                              |
| Turn-on delay:        | 2 Second max                                                                                                                                                                                |
| +12VOutput Rise Time: | 10 - 300 mS, 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 HiGH when output is within regulation limits.                                                                                                                            |
| DC Input OK        | A LOW 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 | When left open power supply operation will be inhibited. When the power supply is inserted into the system, this pin will be pulled low by the system and turn the power supply on. |

## Environmental Specifications

|                                                    |                                                                                 |
|----------------------------------------------------|---------------------------------------------------------------------------------|
| Operating temperature:                             | -5° to 50 °C                                                                    |
| Storage temperature:                               | -40 °C to +85 °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 Level<br>-EN55024:1998 |
| RoHS & lead-free compliant (no tantalum caps.)     |                                                                                 |
| Humidity:                                          | 20 to 90% RH, non-condensing                                                    |
| Shock and vibration specifikatons                  | complies with Astec Std. Specifications, Q3205                                  |
| MTBF (observed)                                    | 500K Hrs at 80% load                                                            |

## Ordering Information

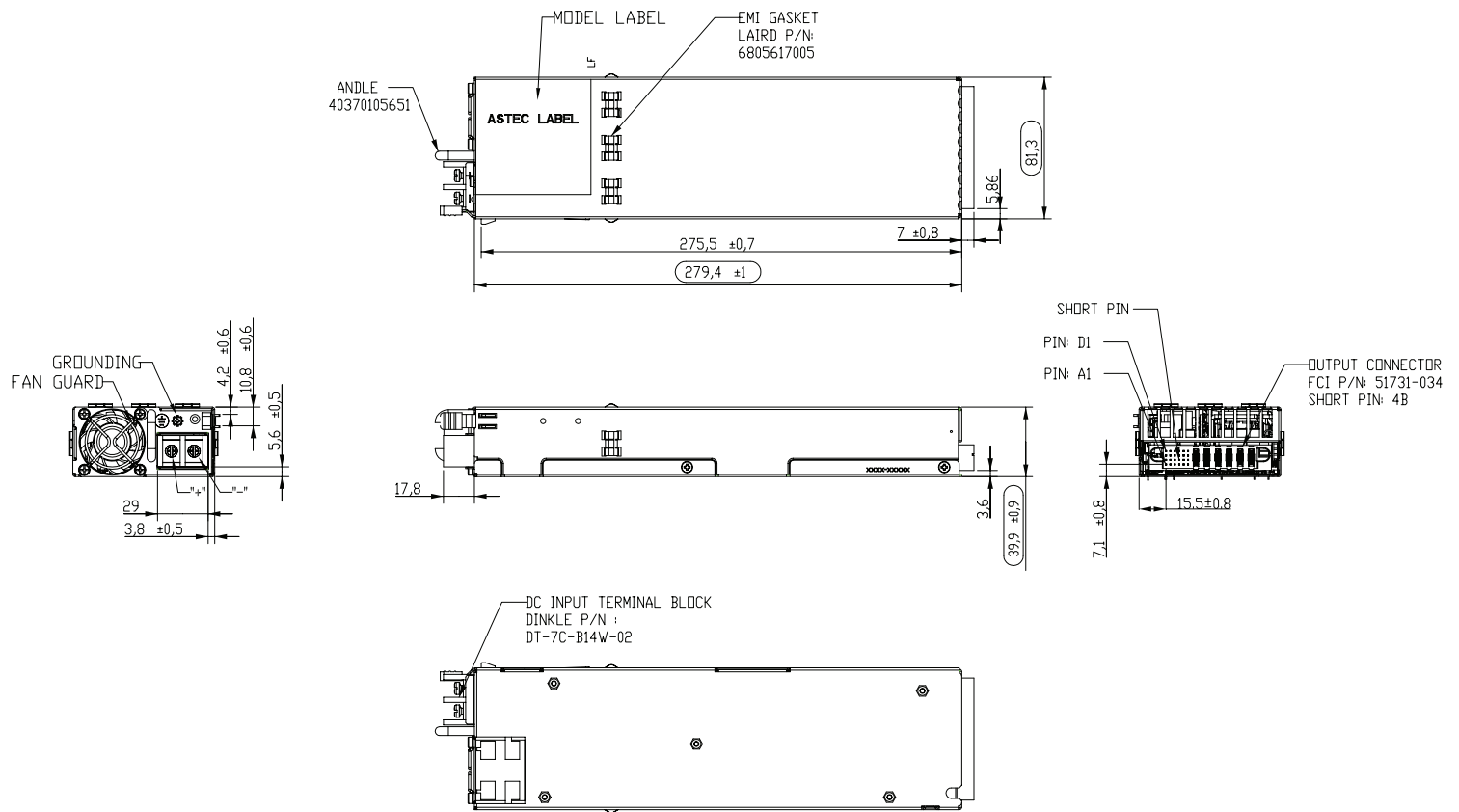
| Output    | Nominal Output Voltage Set Point | Set Point Tolerance | Total Regulation | Minimum Current | Maximum Current | Output Ripple P/P |
|-----------|----------------------------------|---------------------|------------------|-----------------|-----------------|-------------------|
| DS850DC-3 | 12.0 Vdc                         | ± 0.2%              | ± 5%             | 0 A             | 70 A            | 120 mV            |
|           | 3.3 Vsb*                         | ± 1%                | ± 5%             | 0 A             | 6.0 A           | 50 mV             |
| DS650DC-3 | 12.0 Vdc                         | ± 0.2%              | ± 5%             | 0 A             | 52.5 A          | 120 mV            |
|           | 3.3 Vsb*                         | ± 1%                | ± 5%             | 0 A             | 6.0 A           | 50 mV             |

\*For 5 Vsb, consult marketing.

## Mechanical Drawing

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| Power Supply Condition                           | LED<br>Green/Amber |
|--------------------------------------------------|--------------------|
| No AC power to all PSU                           | OFF                |
| AC present/Standby output ON,<br>Main output OFF | Blinking Green     |
| Power supply DC outputs ON and OK                | Solid Green        |
| Main output failure (OCP, OVP, UVP)              | Blinking Amber     |
| Fan Fail, OTP, Standby output OCP/UVP            | Solid Amber        |



Terminal block input shown

## 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   | DC input OK                      |
| B2   | +12V RMT SENSE                   |
| B3   | +12V CURRENT SHARE               |
| B4   | PS_INHIBIT / PS_KILL             |
| 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                    |

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

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