ARTESYN DS650DC-3/ DS850DC-3

Distributed Power Bulk Front-End



Advanced Energy's Artesyn DS650DC and DS850DC series bulk front end power supplies are the DC-input versions of their DS650 and DS850 AC-input counterparts. Mechanically identical to the AC versions, these products allow system operation from a Telco style 48 Vdc input. Rated at 650 and 850 watts respectively, the power supplies provide a choice of 12 V, 24 V or 48 V output. Each model also provides a 3.3 V or optional 5.5 V standby output. Standard features include active current sharing, internal ORing FETs and an EEPROM for storing service data to facilitate efficient field replacement. An I^2C communication interface is provided for FRU EEPROM data.

DATA SHEET

Total Output Power:

650 - 850 Watts
+3.3vdc Stand-by Output
Standard Telco input range
-39 V to -72 VDC

SPECIAL FEATURES

- 1U X 2U form factor
- 15.4W/ in^3
- +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% to100%
- Built-in cooling fan (40mm x 28mm)
- I^2C communication Interface bus
- EEPROM for FRU data
- Amber/green bi-color LED status
- Internal fan speed control
- Fan fail tach output signal
- One year warranty

SAFETY

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

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ELECTRICAL SPECIFICATIONS

Input	
Input range:	-40 Vdc to -75 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 +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% +3.3 Vsb; +5%/-5%
Overcurrent:	+12 Vdc; 77A - 105A - DS850DC; +12 Vdc 57.75 A - 78.75 A; DS650DC latches off if overcurrent lasts over 1 second, otherwise it is auto recovery. +3.3 vsb, 9A max (hiccup mode)
Overvoltage:	+12 Vdc; 13.2 - 14.4 Vdc +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 HiIGH 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

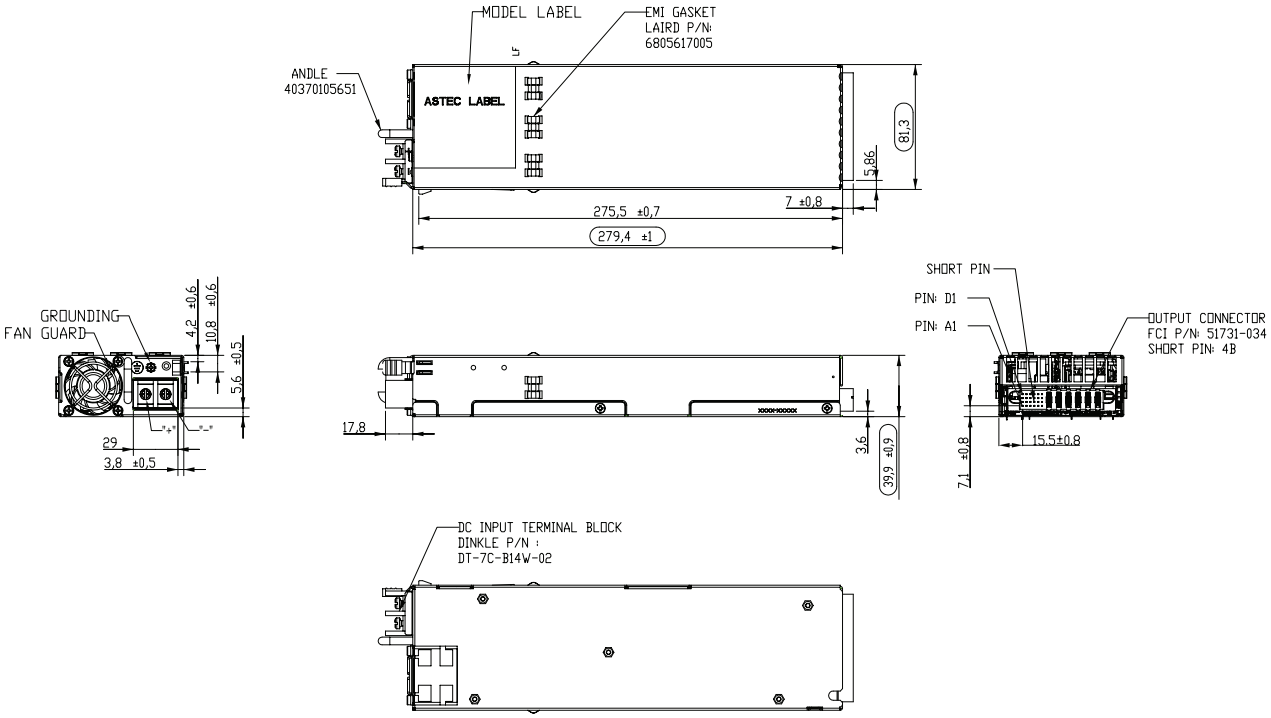
Operating temperature:	0 to 50 °C, unimpeded airflow
Storage temperature:	-40 °C to +85 °C
Altitude, operating:	10,000 ft
Electromagnetic susceptibility/Input transients:	-EN61000-3-2, -3-3 -EN61000-4-2, 4.3, 4-4, -4-5, 4-11 -EN55024:1998
RoHS & lead-free compliant (no tantalum caps.)	
Humidity:	20 to 90% RH, non-condensing
Shock and vibration specificatons complies with Astec Std. Specifications.	
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 3.3 Vsb*	± 0.2% ± 1%	± 5% ± 5%	0 A 0 A	70 A 6.0 A	120 mV 50 mV
DS850DC-3-003	12.0 Vdc 5 Vsb*	± 0.2% ± 1%	± 5% ± 5%	0 A 0 A	70 A 4.0 A	120 mV 50 mV
DS850DC-3-004 (Reverse airflow)	12.0 Vdc 3.3 Vsb*	± 0.2% ± 1%	± 5% ± 5%	0 A 0 A	70 A 6.0 A	120 mV 50 mV
DS650DC-3	12.0 Vdc 3.3 Vsb*	± 0.2% ± 1%	± 5% ± 5%	0 A 0 A	52.5 A 6.0 A	120 mV 50 mV
DS650DC-3-002	12.0 Vdc 5 Vsb*	± 0.2% ± 1%	± 5% ± 5%	0 A 0 A	52.5 A 4.0 A	120 mV 50 mV
DS650DC-3-003 (Reverse airflow)	12.0 Vdc 3.3 Vsb*	± 0.2% ± 1%	± 5% ± 5%	0 A 0 A	52.5 A 6.0 A	120 mV 50 mV

MECHANICAL DRAWING

Power Supply Condition	LED Green/Amber
No AC power to all PSU	OFF
AC present/Standby outpus ON, 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	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 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 ASSIGNMENTS

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 (I^2C Data Signal)
C2	SCL (I^2C Clock Signal)*
C3	POWER GOOD
C4	FAN FAIL (Fan Fail Signal)
C5	+3V3 STAND-BY
C6	+3V3SB RETURN
D1	A0 (I^2C Address BIT 0 Signal)
D2	A1 (I^2C Address BIT 1 Signal)
D3	S_INT (Alarm)
D4	+3V3 STAND-BY RMT SENSE
D5	+3V3 STAND-BY
D6	+3V3SB RETURN

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

ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than three decades to perfecting power for its global customers. AE designs and manufactures highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

Our products enable customer innovation in complex applications for a wide range of industries including semiconductor equipment, industrial, manufacturing, telecommunications, data center computing, and medical. With deep applications know-how and responsive service and support across the globe, we build collaborative partnerships to meet rapid technological developments, propel growth for our customers, and innovate the future of power.

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Artesyn Embedded Technologies:

DS850-9