

# POWER

## DS2900

2900 Watts

Distributed Power System

### Data Sheet

#### Distributed Power Bulk Front-End

**Total Output Power:** 2900 Watts

+3.3 Vdc Stand-by Output

**Wide Range Input Voltage:**

180 - 264 Vac

### SPECIAL FEATURES

- Active power factor correction
- EN61000-3-2 harmonic compliance
- Active AC inrush control
- 2U X 3U form factor
- 24.8 W / in<sup>3</sup>
- +12 Vdc Output
- +3.3 Vdc stand-by (5 V 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 fan (40 mm x 40 mm)
- I<sup>2</sup>C communication interface bus
- PMBus compliant
- EEPROM for FRU data
- 2 LED (Green and Amber)
- Internal fan speed control
- INTEL, SSI Std. logic timing
- INTEL, SSI Std. FRU data format PSMI V2.12
- Full digital control
- Two year warranty
- Compatible with Universal PMBus GUI

### SAFETY

- UL/cUL 60950 (UL Recognized)
- NEMKO+ CB Report EN60950
- EN60950
- CE Mark
- China CCC



### Electrical Specifications

#### Input

Input range:	180 - 264 (2900 W)
Frequency:	47-63 Hz, single phase AC
Inrush current:	50 Apk maximum inrush current
Efficiency:	> 91% typical at nom line 50% load
Conducted EMI:	FCC Subpart J EN55022 Class A
Radiated EMI:	FCC Subpart J EN55022 Class A. Meets intent of NEBS, Bellcore GR-1089
Power factor:	0.99 typical
Leakage current:	1.40 mA @ 240 VAC
Hold up time:	10 mS minimum

## Electrical Specifications

Output	
Main DC voltage:	+12 V @ 240 A (high line)
Stand-By:	+3.3 Vsb @ 3 A
Adjustment range:	± 4% on +12V only using I <sup>2</sup> C
Regulation:	+12 Vdc; +4% / -4%; +3.3 Vsb; +5% / -5%
Over current:	Constant current type for both the 12 VDC and 3.3V standby. See Figure 1 below
Over voltage:	+12 Vdc; 14.4 - 15.6 Vdc (110 - 130%); +3.3 Vsb; 3.63 V - 4.29 (110 - 130%)
Under voltage:	+12 Vdc; 9 - 10 V nominal (latch off)
Turn-on delay:	2 second max, 5 - 200 mS, monotonic rise
Main output rise time:	5 - 300 mS, monotonic rise

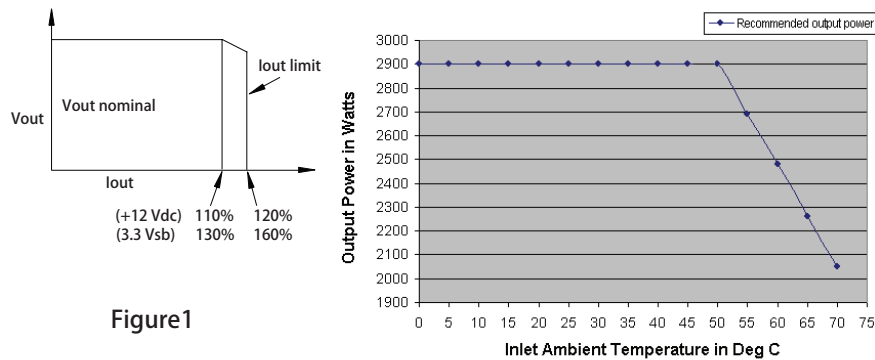


Figure 1

## Logic Control

### Remote ON/OFF (PSON#)

The PSON# signal is required to remotely turn on/off the power supply. PSON# is an active low signal that turns on the +12 Vdc power rail. When this signal is not pulled low by the system, or left open, the +12 Vdc output turns off. The 3.30 Vsb output remains on. This signal is pulled to a standby voltage by a pull-up resistor internal to the power supply. The power supply fan(s) shall operate at the lowest speed

Signal Type	Accepts an open collector/drain input from the system. Pulled-up to the 3.30 Vsb located in the power supply	
PSON# = Low	ON	
PSON# = Open	OFF	
	<b>MIN</b>	<b>MAX</b>
Logic level low (power supply ON)	0 V	0.8 V
Logic level high (power supply OFF)	2.0 V	4.125 V
Source Current, Vpson = low		4 mA
Power up delay: T <sub>pson on delay</sub>	5 msec	400 msec

Table 1 PSON# Signal Characteristics

### Power Good (PWOK#)

PWOK# is a power good signal and will be pulled LOW by the power supply to indicate that both the outputs are above the regulation limits of the power supply. When an output voltage falls below regulation limits or when AC power has been removed for a time sufficiently long so that power supply operation is no longer guaranteed, PWOK will be de-asserted to a HIGH state. The start of the PWOK# delay time shall be inhibited as long as the +12 Vdc output is in current limit or the 3.30 Vsb output is below the regulation limit.

Signal Type:	Open collector/drain output from power supply. Pull-up to 3.30Vsb external to the power supply	
PWOK = High	Power not good	
PWOK = Low	Power Good	
	<b>MIN</b>	<b>MAX</b>
Logic level low voltage, Isink = 4 mA	0 V	0.8 V
Logic level high voltage, Isource = 200 A	2.0 V	4.125 V
Sink current, PWOK = low		4 mA
Source current, PWOK = high		2 mA
PWOK delay: $T_{pwok\ on}$	100 ms	1000 ms
PWOK rise and fall time		100 sec
Power down delay: $T_{pwok\ off}$	1 ms	1000 msec

Table 2 PWOK# Signal Characteristics

### Power Supply Present Indicator (PRESENT#)

The PRESENT# signal is primarily used to provide a mechanism by which the host system can sense the number of power supplies physically present (operational or not). This pin is connected to ground in the power supply.

### AC Input Present Indicator (ACOK#)

The AC OK# signal is used to indicate presence of AC input to the power supply. This signal shall be connected to 3.3 Vsb through a resistor on the host system side. A logic "Low" level on this signal shall indicate AC input to the power supply is present. A Logic "High" on this signal shall indicate a loss of AC input to the power supply.

Signal Type	Pull-up to 3.30 Vsb through a resistor in the host system
PRESENT# = Low	Present
PRESENT# = High	Not Present

Table 3 ACOK# Signal Characteristics

## Environmental Specifications

Operating temperature:	0° to 50 °C (70 °C derated power)
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 specifications:	Complies with Astec Std. Specifications, QP3205
MTBF (Calculated):	300K Hrs Bellcore TR-332, Issue 6 @ 25 °C and 40 °C full load
MTBF (Demonstrated):	> 500k Hrs

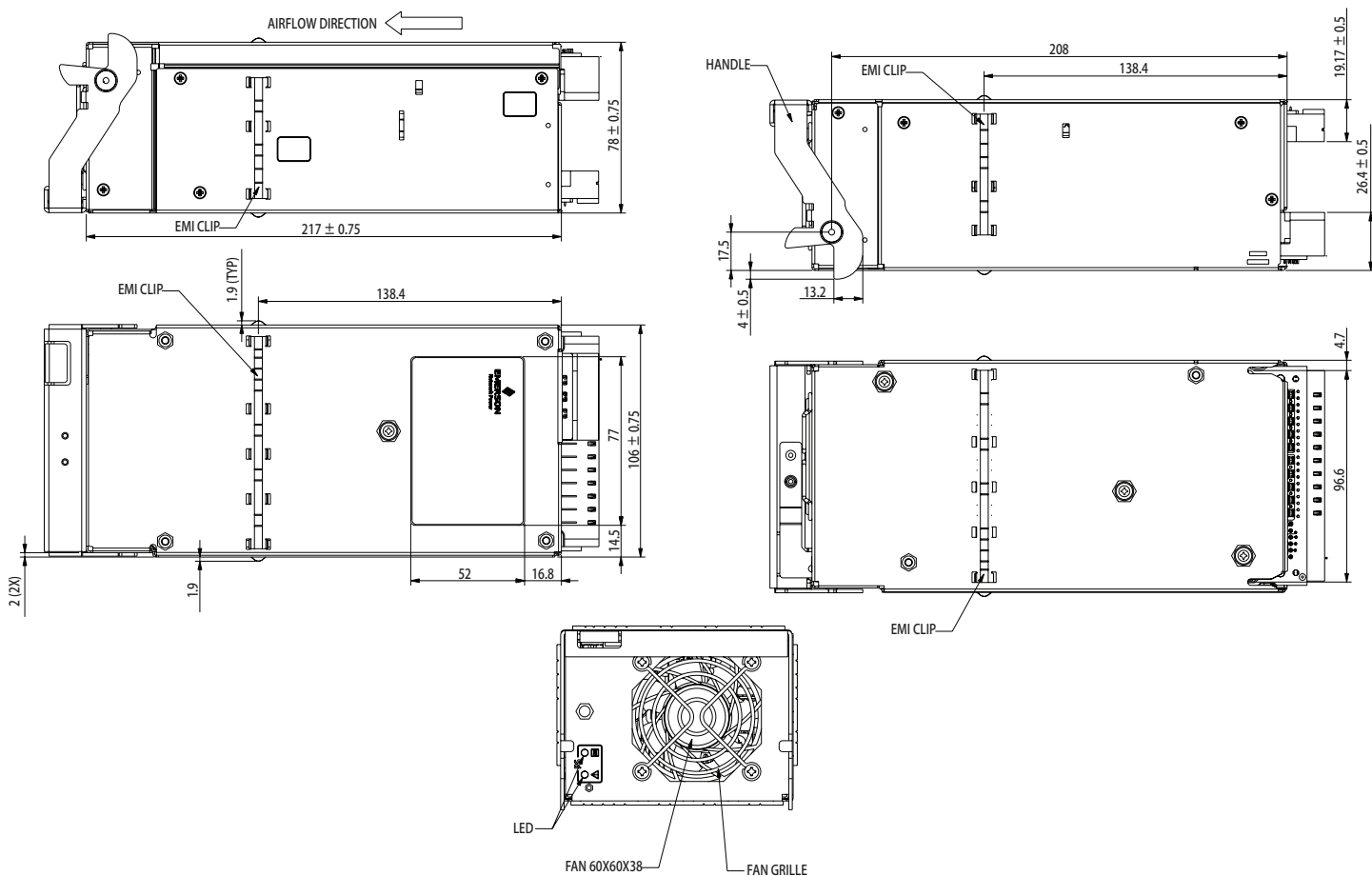
## Ordering Information

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
DS2900-3	12.0 Vdc	± 0.2%	± 4%	0 A	240 A	120 mV	276 A nominal	3.3 V @ 3 A	Standard
DS2900-3-002	12.0 Vdc	± 0.2%	± 4%	0 A	240 A	120 mV	276 A nominal	5.0 V @ 2 A	Standard
DS2900-3-003	12.0 Vdc	± 0.2%	± 4%	0 A	240 A	120 mV	276 A nominal	5.0 V @ 2 A	Reversed
DS2900-3-004	12.0 Vdc	± 0.2%	± 4%	0 A	240 A	120 mV	276 A nominal	3.3 V @ 3 A	Reversed

\*Overcurrent latches off if overcurrent lasts over 2 seconds



Mechanical Drawing



Condition	LED Status
Stand-by - ON; Main output - OFF; AC PRESENT	Blinking green
Stand-by - ON; Main output - ON;	Solid green
Main output OCP, UVP, OVP	Blinking Amber
FAN_FAULT; OTP; Stand-by OCP/UVP	Amber

## Output Connector Pin Configuration

### DC Output Connector

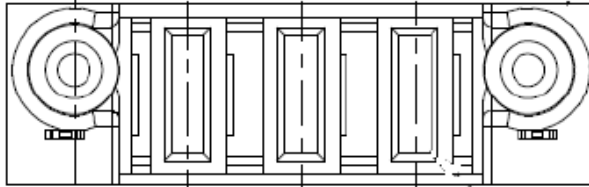
FCI HCI Series Plug (10 Blades, 24 Signal pins). Power Supply; FCI P/N; SK10065864-003LF

FCI HCI Series Receptacle (10 Blades, 24 Signal pins). Mating; FCI P/N; SK10065866-003LF

P1 - System	Pin	Signal Name	Amps per pin <sup>1</sup>	
Internal to power supply	PB1	+ Vout	100	
	PB2	+ Vout	100	
FCI HCI Series Connector 10 Power Blades 24 Signal pins P/N SK10085236-003LF	PB3	+ Vout	100	
	PB4	+ Vout	100	
	PB5	+ Vout	100	
	PB6	+ Vout Return	100	
	PB7	+ Vout Return	100	
	PB8	+ Vout Return	100	
	PB9	+ Vout Return	100	
	PB10	+ Vout Return	100	
	FCI HCI Series Connector Molex Power Dock Senior 10 Power Blades 24 Signal pins P/N SK10065866-003LF	A1	PS_KILL	1.5
		A2	+PS_ON	1.5
A3		+VoutI_Share	N/A	
A4		S_INT	N/A	
A5		+STBY	N/A	
A6		+STBY Return	N/A	
B1		PS_SEATED	1.5	
B2		ACOK	1.5	
B3		PWR_GOOD	N/A	
B4		A2	N/A	
B5		+STBY	N/A	
B6		+STBY Return	N/A	
C1		SDA	1.5	
C2		SCL*	1.5	
C3		A1	N/A	
C4		A0	N/A	
C5		+STBY	N/A	
C6		+STBY Return	N/A	
D1		Reserve	1.5	
D2		WP	1.5	
D3		+Vout_RS	N/A	
D4		+Vout_RS_RETURN	N/A	
D5		+STBY	N/A	
D6		+STBY Return	N/A	

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

Connector Definition

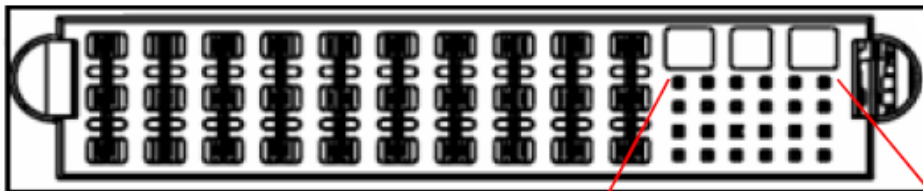


Pin3 Pin2 Pin1

AC Neutral	Earth Ground	AC Line
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View from power supply AC connector end

<b>Power Supply Input Connector</b>
FCI P/N 51939-081LF
Tyco P/N 6600100-2
<b>System Mating Connector</b>
FCI P/N 51915-022LF or 51940-059



										D6	D5	D4	D3	D2	D1
										C6	C5	C4	C3	C2	C1
PB1	PB2	PB3	PB4	PB5	PB6	PB7	PB8	PB9	PB10	B6	B5	B4	B3	B2	B1
										A6	A5	A4	A3	A2	A1

View from power supply output connector end

WORLDWIDE OFFICES

**Americas**

2900 S.Diablo Way  
 Tempe, AZ 85282  
 USA  
 +1 888 412 7832

**Europe (UK)**

Waterfront Business Park  
 Merry Hill, Dudley  
 West Midlands, DY5 1LX  
 United Kingdom  
 +44 (0) 1384 842 211

**Asia (HK)**

14/F, Lu Plaza  
 2 Wing Yip Street  
 Kwun Tong, Kowloon  
 Hong Kong  
 +852 2176 3333



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 For support: [productsupport.ep@artesyn.com](mailto:productsupport.ep@artesyn.com)