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

PMBus

## SPECIAL FEATURES

- Active power factor correction
- EN61000-3-2 harmonic compliance
- Active AC inrush control
- 2U X 3U form factor
- 24.8 W / $in^3$
- +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)
- $I^2C$ 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 |

ARTESYN™
EMBEDDED TECHNOLOGIES

## 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 $I^2C$ |
| Regulation: | +12 Vdc; +4% / -4%; +3.3 Vsb; +5% / -5% |
| Over current: | Constant current type for both the 12 VDC and 3.3V standby.<br>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 |

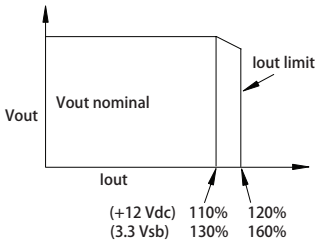
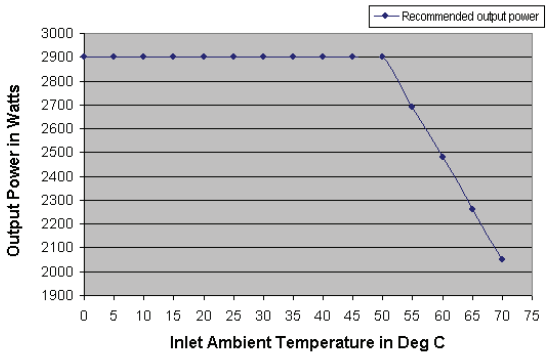



Figure1




## 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 stanby 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 | |
| | **MIN** | **MAX** |
| 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: $T_{pson\ on\ delay}$ | 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 | |
| | **MIN** | **MAX** |
| 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 indiciate a loss of AC input to the power supply.

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

Table 3 ACOK# Signal Characteristics

## Environmental Specifications

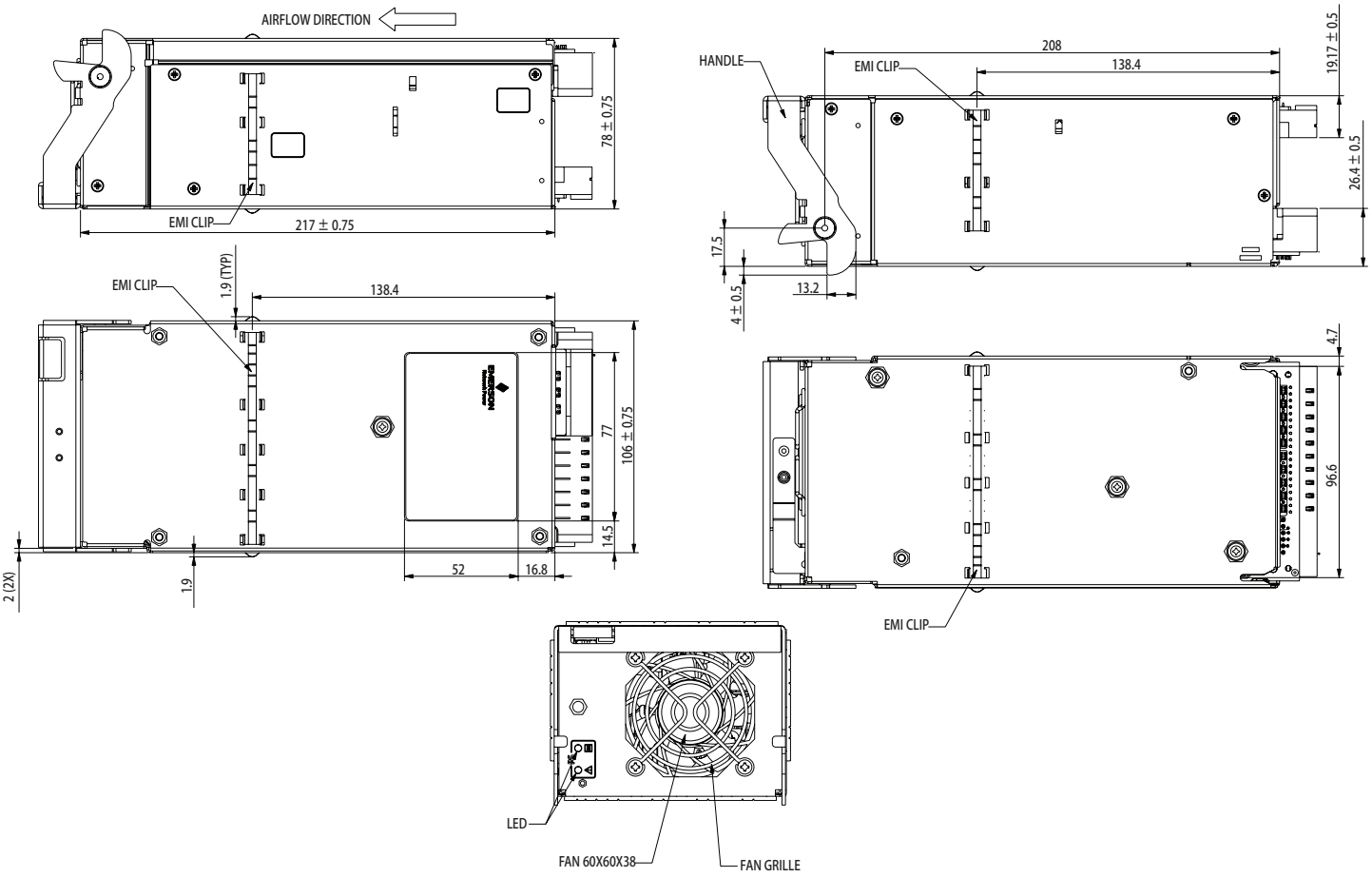
| | |
|---|---|
| Operating temperature: | 0° to 50 °C (70 °C derated power) |
| Storage temperature: | -40 °C to +85 °C |
| Altitude, operating: | 10,000 ft |
| Electromagnetic susceptibility / Input transients: | -EN61000-3-2, -3-3<br>-EN61000-4-2, 4-3, 4-4, -4-5, 4-11<br>-EN55024:1998 |
| RoHS & lead-free compliant: | No tantalum caps. |
| Humidity: | 20 to 90% RH, non-condensing |
| Shock and vibration specificatons: | Complies with 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 |

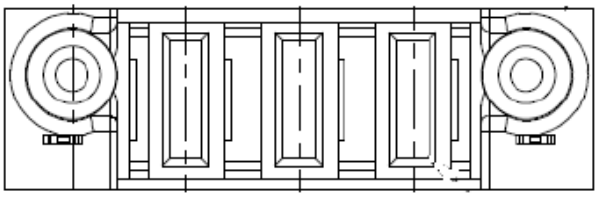
## Output Connector Pin Configuration

**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 pin1 |
|---|---|---|---|
| Internal to power supply | PB1 | + Vout | 100 |
| | PB2 | + Vout | 100 |
| FCI HCI Series Connector<br>10 Power Blades<br>24 Signal pins<br>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 |
| FCI HCI Series Connector<br>Molex Power Dock Senior<br>10 Power Blades<br>24 Signal pins<br>P/N SK10065866-003LF | PB10 | + Vout Return | 100 |
| | 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 $I^2C$ standard mode (100 kHz) only

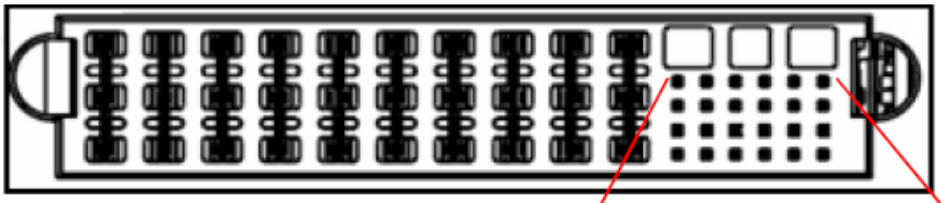
## Connector Definition



| Pin3 | Pin2 | Pin1 |
|---|---|---|
| AC Neutral | Earth Ground | AC Line |

View from power supply AC connector end

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



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

View from power supply output connector end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