ARTESYN CSU1300AP

1300 Watts Distributed Power System

Advanced Energy's Artesyn CSU1300AP power supply is housed in a 1U high rack-mount enclosure measuring just 2.89 x 7.28 inches (73.5 x 185.0 mm). This form factor is significantly narrower and shorter than that of similarly rated earlier generation power supplies — freeing up valuable system space — and is achieved by use of the latest power switching technology and high density component packaging techniques. This form factor conforms to the standard market's Common Redundant Power Supplies.

DATA SHEET

Front-end Bulk Power

Total Output Power:

1300 W continuous

Wide Input Voltage:

90 - 264 Vac; 180 - 300 Vdc

SPECIAL FEATURES

- 1300 W output power
- High power and short form factor
- 1U power supply
- High density design: 39 W/in^3
- Active Power Factor Correction
- EN61000-3-2 Harmonic compliance
- Inrush current control
- 80 PLUS® Platinum efficiency
- N+M redundant N+M ≤ 4
- Hot-pluggable
- Active current sharing
- Full digital control
- PMBus® compliant
- EN61000-4-5 surge level 1 kV/2 kV
- DM/CM
- Compatible with Artesyn's Universal PMBus GUI

COMPLIANCE

- Conducted/Radiated EMI Class A
- EN61000-4-11

SAFETY

- UL/cUL
- UL + CB Report
- CE Mark
- CCC
- BSMI
- KC
- TÜV

80 PLUS PLATINUM

PMBus® Power Management. Defined.

ELECTRICAL SPECIFICATIONS

Input						
Input range	90 - 264 Vac / 180 - 300 Vdc					
Frequency	47 Hz to 63 Hz					
Efficiency	80 PLUS® Platinum efficiency					
Max input current	8.5 Arms @ 180 Vac; 12.5 Arms @ 100 Vac					
Inrush current	25 Apk					
Conducted EMI	Class A					
Radiated EMI	Class A					
Power factor	>0.9 beginning at 10% load					
ITHD	20% beginning at 10% load; 8% at 20% load					
Leakage current	1.75 mA					
Hold-up time	11 ms at full load					
Output						
	Main DC Output			Standby DC Output		
	MIN	NOM	MAX	MIN	NOM	MAX
Nominal setting (12 V / 1 A, 12 VSB / 0.1 A)	12.1	12.2	12.3	11.9	12.0	12.1
Total output regulation range	11.8 V		12.6 V	11.4 V		12.6 V
Dynamic load regulation range	11.6 V		12.6 V	11.4 V		12.6 V
Output ripple			120 mV			120 mV
Output current	1		Hi line: 108.3 A Lo line: 83.3 A	0		3 A
Current sharing	beginning at 20% loading			N/A		
Capacitive loading	2200 µF		22000 µF	100 µF		3100 µF
Start-up from AC to output			3000 ms			1500 ms
Output rise time	NA		25 ms	NA		70 ms

Protections (Main Output)					
	Minimum	Nominal	Maximum	Units	Comment
Peak current		115		%	
Output OCP	120		140	%	
Dynamic loading setup			±5	%	60% rated load step, 1.0 A/µs slew rate; 2200 µF / 1 A min
Output OVP	13.5		15	V	Latch
Output UVP	9.5		11.0	V	Recovery
Overtemperature protection		Yes			
Fan fault protection		Yes			
Standby Output					
Output OCP	4.0		5.0	A	
Output OVP	13.5		15	V	
Dynamic loading setup			±5	%	1 A rated load step Slew rate: 0.5 A / µs / 1000 µF

ELECTRICAL SPECIFICATIONS (CONTINUED)

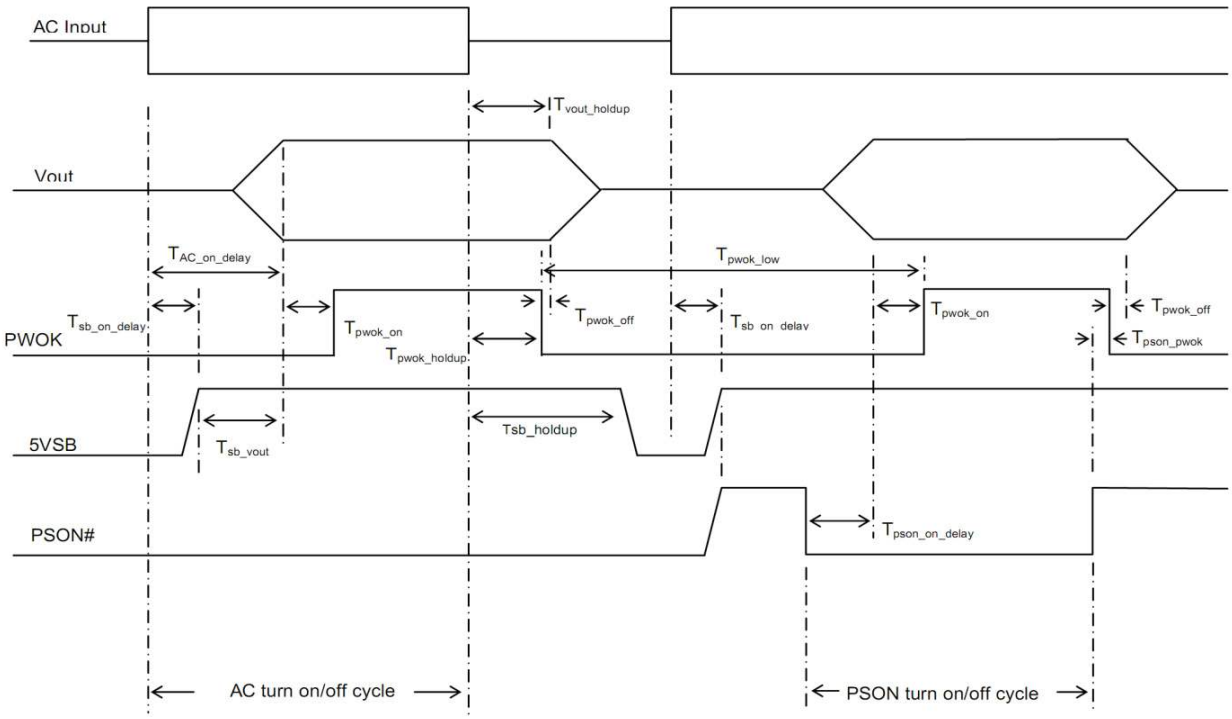
LED Indicators	
POWER SUPPLY CONDITION	LED STATE
Normal work	GREEN
No AC power to all power supplies	OFF
AC present / Only 12 VSB on (PS off) or PS in CR state	1 Hz Blink GREEN
AC cord unplugged; with a second power supply in parallel still with AC input power	RED
Power supply warning events where the power supply continues to operate; high temp, high power, high current, slow fan, input voltage lower than 90 Vac (not warning above 90 V condition, must be warning state below 85 V condition)	1 Hz Blink RED
Power supply critical event causing a shutdown; failure, OCP, OVP, fan fail	RED

Firmware Reporting And Monitoring			
	Accuracy Range		
Output loading	10% to 20%	> 20% to 50%	> 50% to 100%
READ_PIN and READ_EIN	±5 W	±2%	±2%
READ_IOUT	±5%	±2%	±2%
READ_TEMPERATURE	±3 °C		

TIMING SPECIFICATIONS

	Description	Min	Max	Unit
T_{vout_rise}	12 V main output voltage rise time	5.0	25	ms
	12 VSB output voltage rise time	NA	70	ms
$T_{sb\_on\_delay}$	Delay from AC being applied to 12 Vsb being within regulation		1500	ms
$T_{ac\_on\_delay}$	Delay from AC being applied to all output voltages being within regulation		3000	ms
T_{vout_holdup}	Time 12 VI output voltage stay within regulation after loss of AC	11		ms
T_{pwok_holdup}	Delay from loss of AC to de-assertion of PWOK	10		ms
$T_{pson\_on\_delay}$	Delay from PSON# active to output voltages within regulation limits	5	400	ms
T_{pson_pwok}	Delay from PSON# deactivate to PWOK being de-asserted		5	ms
T_{pwok_on}	Delay from output voltages within regulation limits to PWOK asserted at turn on	100	500	ms
T_{pwok_off}	Delay from PWOK de-asserted to output voltages dropping out of regulation limits	1		ms
T_{pwok_low}	Duration of PWOK being in the de-asserted state during an off/on cycle using AC or the PSON signal	100		ms
T_{sb_vout}	Delay from 12VSB being in regulation to O/Ps being in regulation at AC turn on	50	1000	ms
T_{12VSB_holdup}	Time the 12VSB output voltage stays within regulation after loss of AC	70		ms

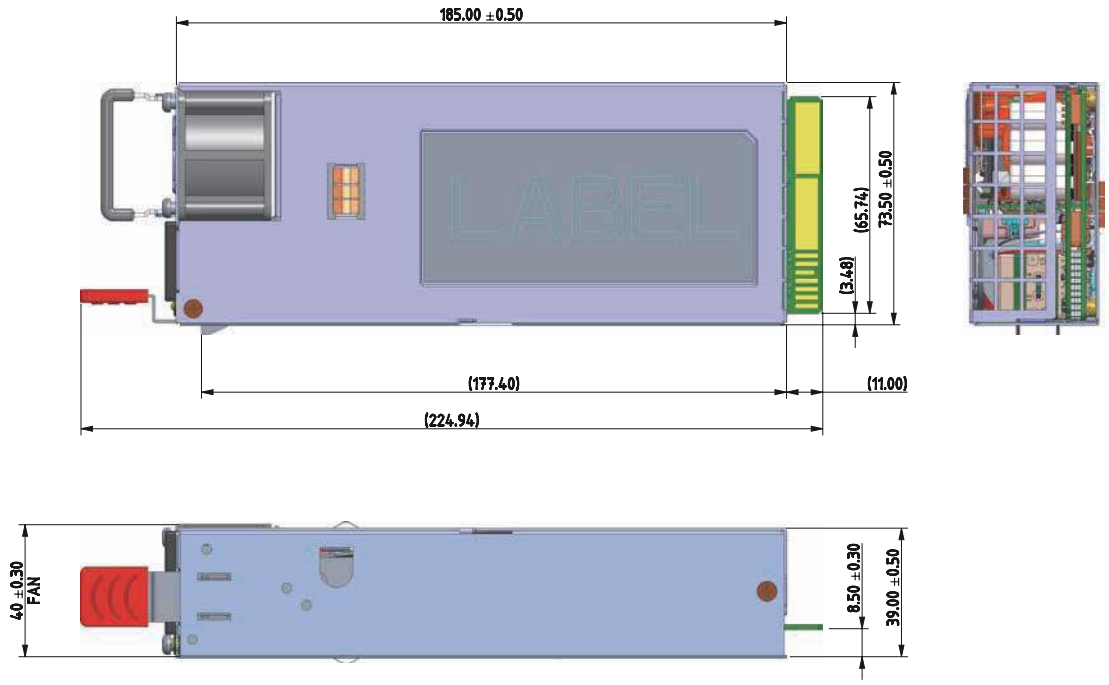
TIMING DIAGRAM



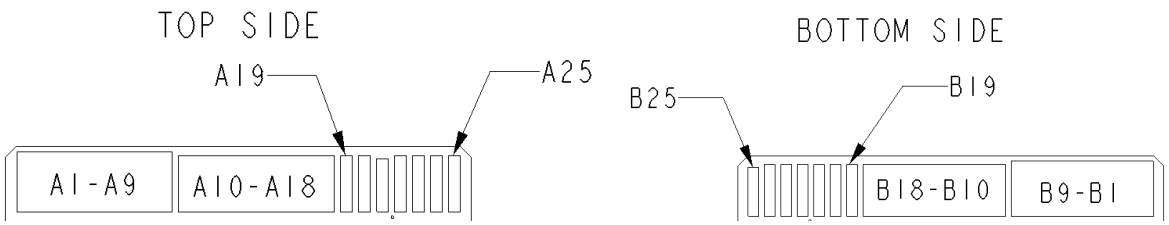
ENVIRONMENTAL SPECIFICATIONS

Operating temperature	0 to 55 °C
Operating altitude	up to 5000 m
Operating humidity	+5% to +90% non-condensing
Storage temperature	-40 °C to +85 °C, non-condensing
Storage humidity	+5% to +95% non-condensing
Non-operating altitude	up to 15,200 meters
Vibration and shock	Standard operating/non-operating random shock and vibration
RoHS compliance	Yes
MTBF	250,000 hours at 40 °C ambient at full load

MECHANICAL OUTLINE



POWER SUPPLY OUTPUT CARD EDGE



CONNECTOR DEFINITIONS

Output connector part number	Card-edge
Mating connector part number	2x25 pin configuration of the FCI power card connector 10035388-102LF

Output Connector Pin Configuration			
Pin	Name	Pin	Name
A1-A9	GND	B1-B9	GND
A10-A18	+12 V	B10-B18	+12 V
A19	SDA	B19	A0 (SMBus address)
A20	SCL	B20	A1 (SMBus address)
A21	PSON	B21	12 VSB
A22	SMBAlert#	B22	CR_BUS#
A23	-VSENSE	B23	12 V load share
A24	+VSENSE	B24	Present
A25	PWOK	B25	VIN-GOOD

ORDERING INFORMATION

Model number	Airflow	Nominal Output Voltage	Regulation Band	Minimum Current	Maximum Current	Output Ripple P/P	Standby
CSU1300AP-3-600	Normal fan	12.2 Vdc	11.6 - 12.6 Vdc	1 A	Hi line: 108.3 A Lo line: 83.3 A	120 mV	12.0 V @ 3 A

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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ENG-CSU1300AP-235-01 12.09