POWER

CSU1300AP

1300 Watts Distributed Power System

Data Sheet

Front-end Bulk Power
Total Output Power:
1300 W continuous
Wide Input Voltage:
90 - 264 Vac; 180 - 300 Vdc

80 PLUS PLATINUM

PMBus® Power Management. Defined.

SPECIAL FEATURES

- 1300 W output power
- High power and short form factor
- 1U power supply
- High density design: 39 W/in³
- 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

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

ARTESYN™
An Advanced Energy Company

Electrical Specifications

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

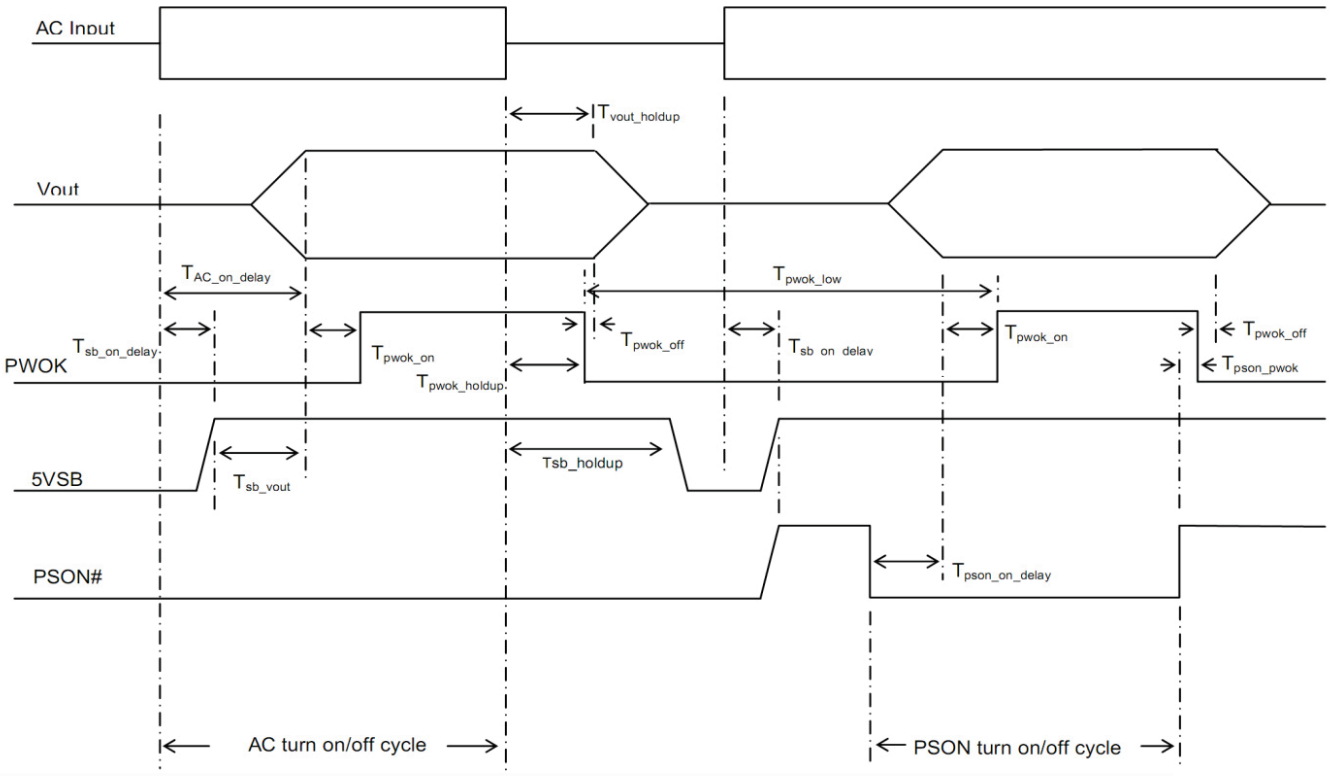
LED Indicators	
POWER SUPPLY CONDITION	**LED STATE**
Normal work	GREEN
No AC power to all power supplies	OFF
AC present / Only 12 VSB on (PS off) or PS in CR state	1 Hz Blink GREEN
AC cord unplugged; with a second power supply in parallel still with AC input power	RED
Power supply warning events where 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

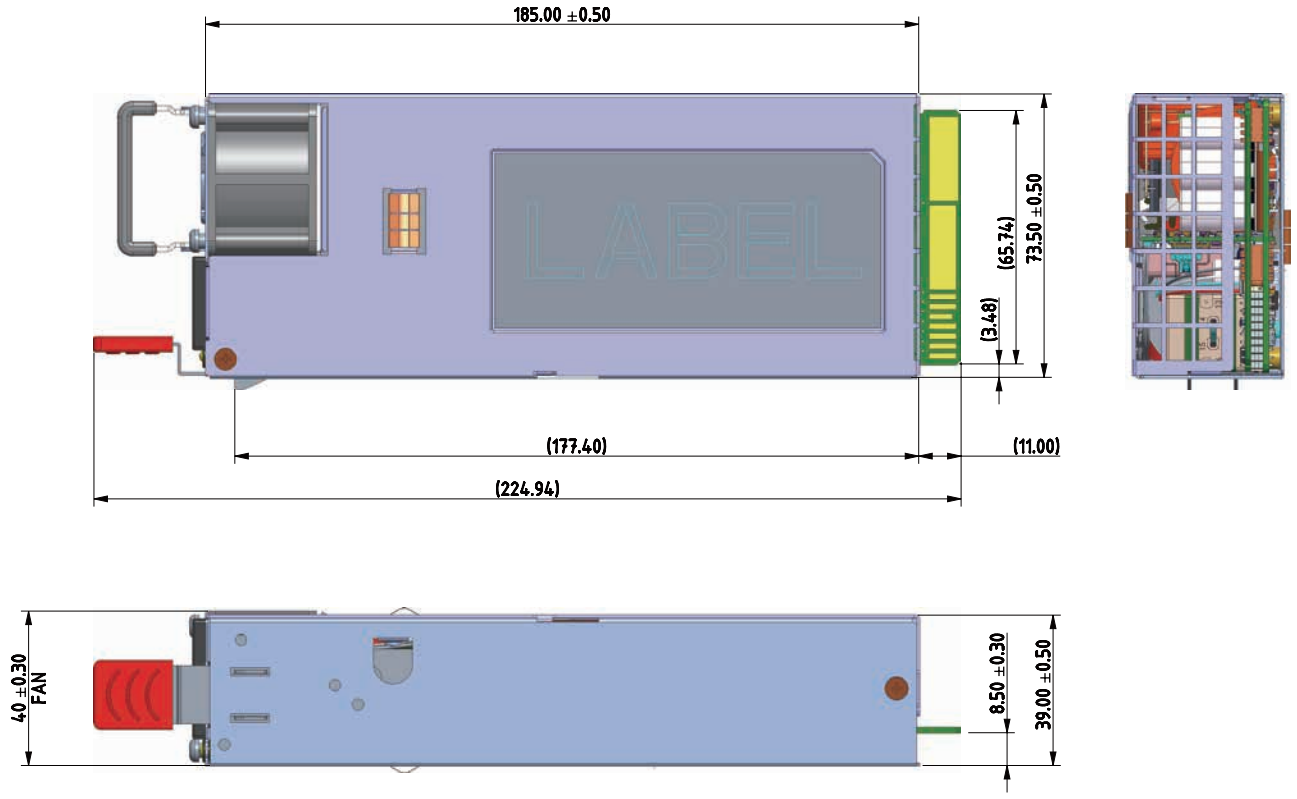
Timing Diagram



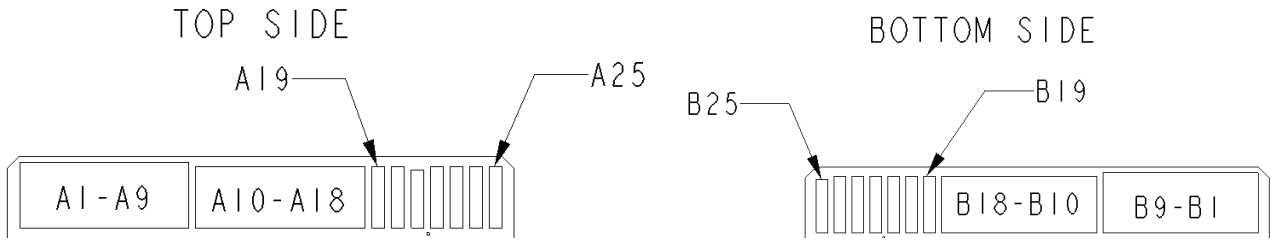
Environmental Specifications

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

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