ARTESYN CSU SERIES
1800 to 2400 W

12 V Distributed Power System

Advanced Energy's Artesyn CSU front end series is designed to provide a flexible power conversion solution for compute, storage, and networking equipment in the common redundant power supply (CRPS) form factor. This series of AC-DC products is housed in the industry standard 1U x 73.5 mm x 185 mm CRPS form factor. Featuring individual power ratings from 550 W up to 2400 W, the choice for power supplies can cover cost-sensitive entry level systems, or power hungry applications where there are space constraints. Designed to provide the highest power in the smallest form factor, the series offers class-leading power density of 75 W/in³. The common form, fit, and function for all products in the family provides a path for power capacity flexibility, future-proofing your system designs.

AT A GLANCE

Total Output Power

1800 W, 2000 W, 2400 W

Input Voltage

90 to 127 VAC, 180 to 264 VAC, 164 to 320 VDC

80 PLUS PLATINUM

PMBus® Power Management. Defined.

SPECIAL FEATURES

- Ultra-high density
- 1U power supply
- Active power factor correction
- EN61000-3-2 Harmonic compliance
- Inrush current control
- 80PLUS® Platinum efficiency
- N+N, N+1 redundant
- Hot-pluggable
- Active current sharing
- PMBus® compliant
- Closed loop throttle
- Cold redundancy
- Two-year warranty

COMPLIANCE

- Conducted/Radiated EMI Class A
- RoHS
- IEC 60950/62368

SAFETY

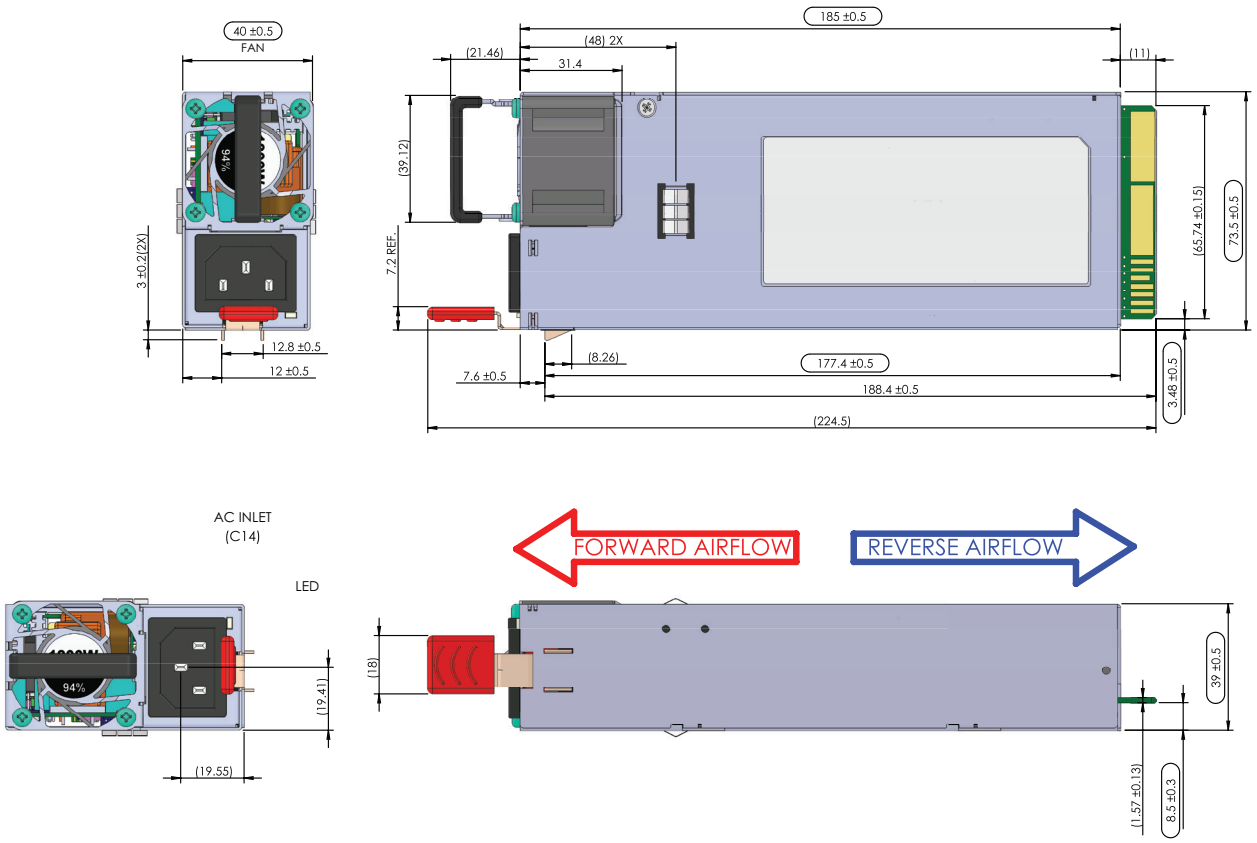
- UL/cUL
- CB Test Certificate
- CE Mark
- KC
- EAC
- BIS
- CQC
- UKCA Mark
- BSMI

ELECTRICAL SPECIFICATIONS

Input							
Input Range and Output Power			CSU1800AP		CSU2000AP		CSU2400AP
	90-127 VAC		1000 W		1400 W[1]		N/A
	180-264 VAC		1800 W		2000 W[2]		2400 W
Frequency	47 Hz to 63 Hz						
Efficiency	94.0% peak, platinum efficiency rating						
Max input current	100/200 VAC		11.3 A/10 A		C14 14.4 A/10 A		13.8 A
Inrush current	35 Apk, cold start						
Conducted EMI	Class A						
Radiated EMI	Class A						
Power factor	>0.9 beginning at 10% load						
Hold-up time	11 ms at full load						
Leakage current	<0.585 mA						
Output							
		Main DC Output			Standby DC Output		
		MIN	NOM	MAX	MIN	NOM	MAX
Nominal setting		-0.20%	12.2 V	0.20%	-3.5%	12.0 V	+3.5%
Total output regulation range		-5%		+5%	-5%		+5%
Dynamic load regulation range		-5%		+5%	-5%		+5%
Output ripple				1%			1%
Output current	CSU1800AP	1.0 A[3]		147.5 A	0.1 A		3.5 A
	CSU2000AP			163.9 A			
	CSU2400AP			196.7 A			
Current sharing		Within ±6% of full load rating, starting at 25% of PSU rated load			N/A		
Capacitive loading		2,000 µF		50,000 µF	10 µF		3,100 µF
Output rise time		10 ms		70 ms	10 ms		70 ms

1 Output power limited at 1400 W at 120 VAC; linearly derated to 1250 W at 100 VAC.
2 CSU2000AP-3-200/211 is only used for high line input range. Output power limited by 10 A input current from 200-240 VAC, typically 2000 W at 200 VAC.
3 Minimum current for transient load response testing only. Unit is designed to operate and be within output regulation range at zero load.

MECHANICAL OUTLINE CSU1800AP-3-100

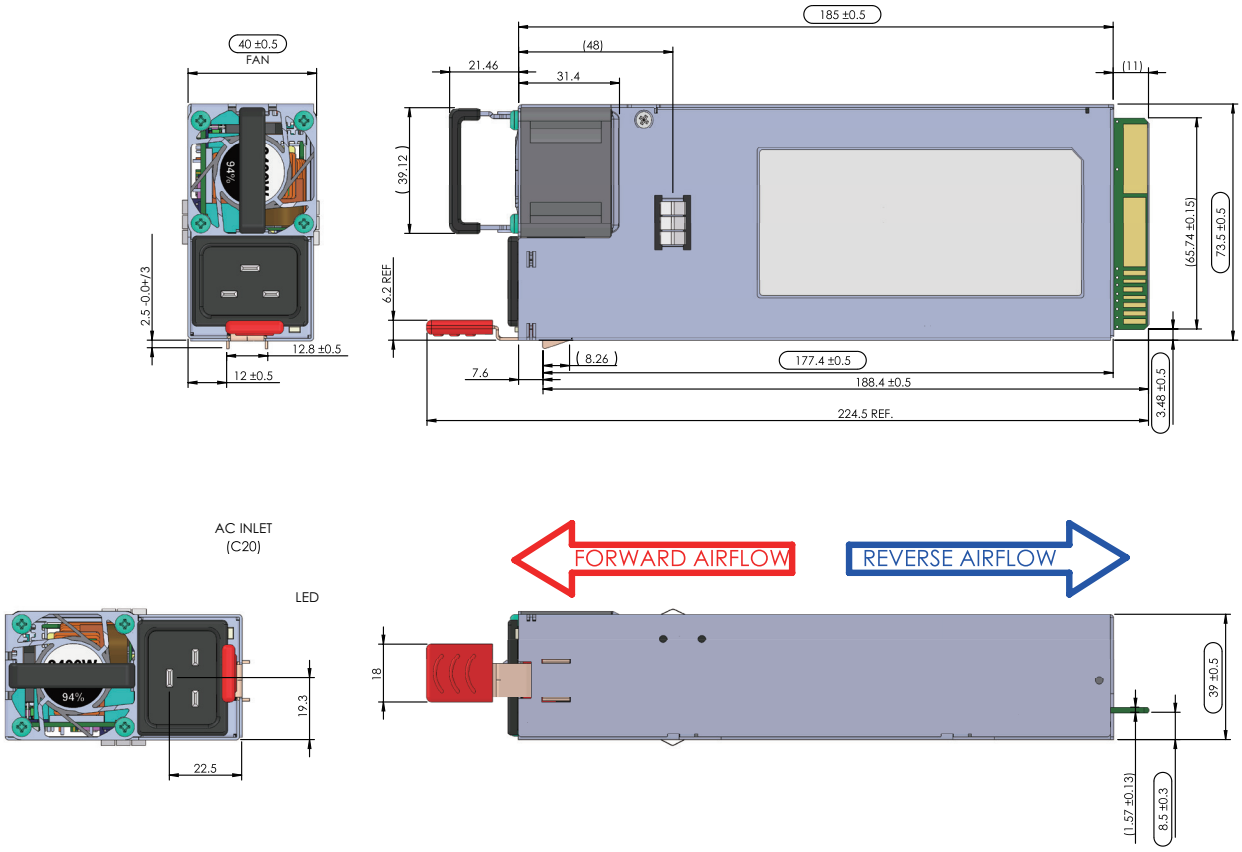


ENVIRONMENTAL SPECIFICATIONS

Operating temperature	Forward Airflow	CSU1800AP-3-100/CSU2000AP-3-100/CSU2000AP-3-200: -5 to 55°C full rated power Allowable up to 65°C at 60% load for short term operation
		CSU2400AP-3-100: -5 to 50°C full rated power, allowable up to 55°C at derated power Allowable up to 65°C at 60% load for short term operation
	Reverse Airflow	Continuous maximum 40°C, allowable up to 50°C at 60% load for short term duration
		TBD
Operating altitude		Up to 10,000 feet[1]
Operating relative humidity		+5% to 95%, non-condensing
Non-operating temperature		-40 to +70°C
Shipping and storage relative humidity		+5% to 95%, non-condensing
Non-operating altitude		Up to 50,000 feet
Vibration and shock		Standard operating/non-operating random shock and vibration
RoHS compliance		Yes
MTBF		500 k hours at 50°C, 85% load, nominal input
Operating life		Minimum of 5 years at 50°C, 85% load, nominal input

1 Safety creepage/clearance rated for 5,000 m altitude for CQC

MECHANICAL OUTLINE CSU2000AP-3-211 AND CSU2400AP-3-100/111



ORDERING INFORMATION

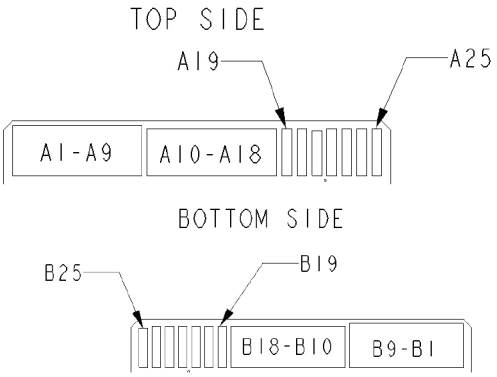
Model Number	Descrption	Outputs		Airflow Direction
CSU1800AP-3-100	1U x 73.5 x 185mm 1800W, Platinum efficiency, red, C14	12.2 V/147.5 A	12.0 V/3.5 A	Forward
CSU1800AP-3-111	1U x 73.5 x 185mm 1800W, Platinum efficiency, blue, C14	12.2 V/147.5 A	12.0 V/3.5 A	Reverse
CSU2000AP-3-100	1U x 73.5 x 185mm 2000W, Platinum efficiency, red, C14	12.2 V/163.9 A	12.0 V/3.5 A	Forward
CSU2000AP-3-111	1U x 73.5 x 185mm 2000W, Platinum efficiency, blue, C14	12.2 V/163.9 A	12.0 V/3.5 A	Reverse
CSU2000AP-3-200	1U x 73.5 x 185mm 2000W, Platinum efficiency, red, C20	12.2 V/163.9 A	12.0 V/3.5 A	Forward
CSU2000AP-3-211	1U x 73.5 x 185mm 2000W, Platinum efficiency, blue, C20	12.2 V/163.9 A	12.0 V/3.5 A	Reverse
CSU2400AP-3-100	1U x 73.5 x 185mm 2400W, Platinum efficiency, red, C20	12.2 V/196.7 A	12.0 V/3.5 A	Forward
CSU2400AP-3-111	1U x 73.5 x 185mm 2400W, Platinum efficiency, blue, C20	12.2 V/196.7 A	12.0 V/3.5 A	Reverse

CONNECTOR DEFINITION

Output connector part number	Card-edge
Recommended mating connector part number	FCI Amphenol 10035388*
	FCI Amphenol GPCEFX361411HHR (CSU1800AP-3-xxx and CSU2000AP-3-xxx)
	FCI Amphenol 10147875-001LF (CSU2400AP-3-xxx)

* Use with caution to maintain connector temperature rise and connector temperature

Output Connector Pin Configuration			
A1-A9	POWER GND	B1-B9	POWER GND
A10-18	+12V	B10-B18	+12V
A19	SDA	B19	A0 (addressing)
A20	SCL	B20	A1 (addressing)
A21	PSON#	B21	12VSB
A22	SMBAlert#	B22	CR_BUS
A23	RETURN_SENSE	B23	ISHARE
A24	+12V_REMOTE_SENSE	B24	GND (used by system for presence detect
A25	PWOK	B25	VIN_GOOD



ADDRESSING

PMBUS			
A1	A0	Write Adddress	Read Address
0	0	B0h	B1h
0	1	B2h	B3h
1	0	B4h	B5h
1	1	B6h	B7h

IPMI FRU			
A1	A0	Write Adddress	Read Address
0	0	A0h	A1h
0	1	A2h	A3h
1	0	A4h	A5h
1	1	A6h	A7h

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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