ARTESYN CSU SERIES
1800W to 2400W

12V 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.

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 Limits
- RoHS
- IEC 60950/62368

SAFETY

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

AT A GLANCE

Front-end Bulk Power

Total Output Power

1800W, 2000W, 2400 W

Input Voltage

90 to 127VAC, 180 to 264 VAC

80 PLUS PLATINUM

PMBus® Power Management. Defined.

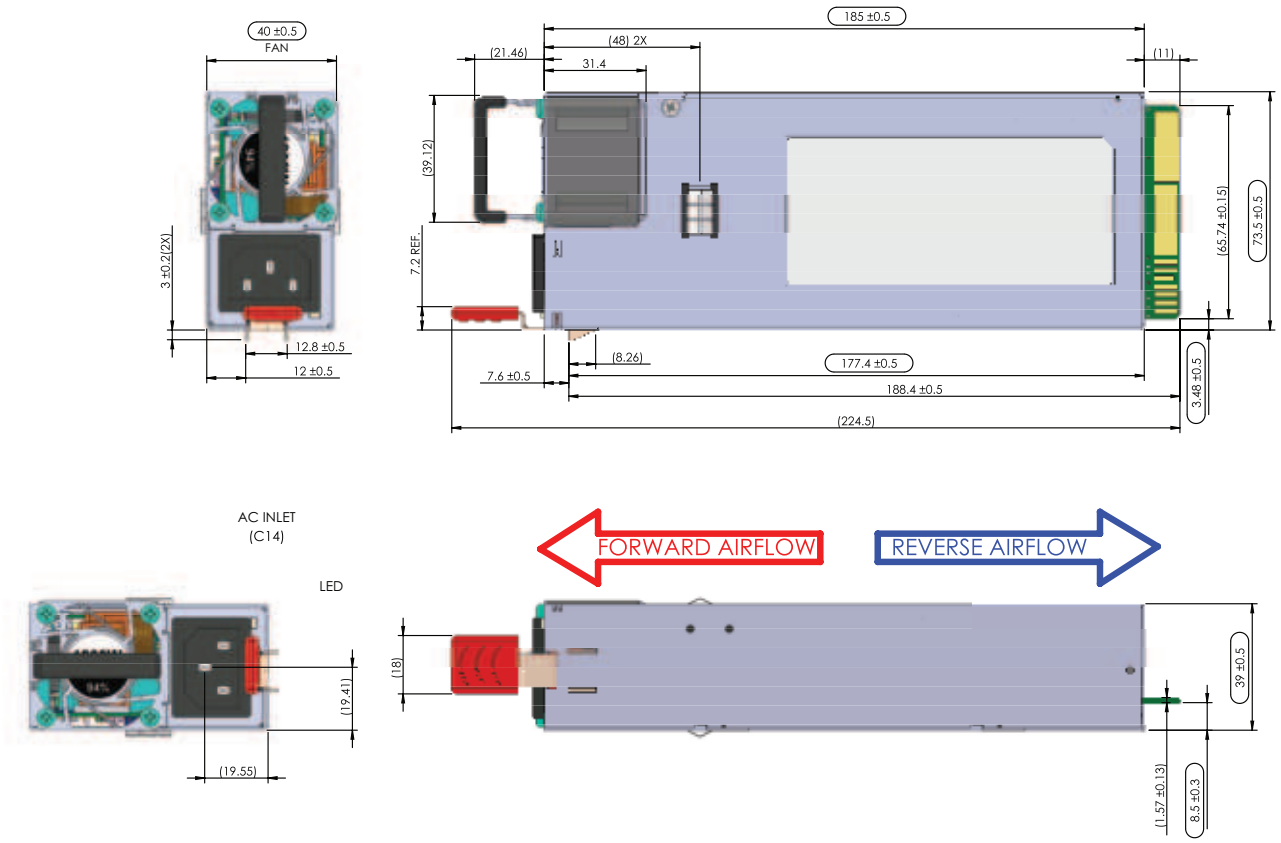
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ELECTRICAL SPECIFICATIONS

Input						
Input Range and Output Power			CSU1800AP	CSU2000AP	CSU2400AP	
	90-127 Vac		1000W	1400W[1]	N/A	
	180-264 Vac		1800W	2000W[2]	2400W	
Frequency	47 Hz to 63 Hz					
Efficiency	94.0% peak, platinum efficiency rating					
Max Input Current	100/200Vac		11.3A/10A	C14 14.4A/10A	13.8A	
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%	12.2V	0.20%	-3.5%	12.0	+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	0.1 A		3.5 A
	CSU2000AP			163.9			
	CSU2400AP			196.7			
Current Sharing		Within ±6% of full load rating, starting at 25% of PSU rated load			N/A		
Capacitive Loading		2,000		50,000	10		3,100
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-3-200/201 only. CSU2000AP-3-100/101 output power rating limited by 10 A input current.
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

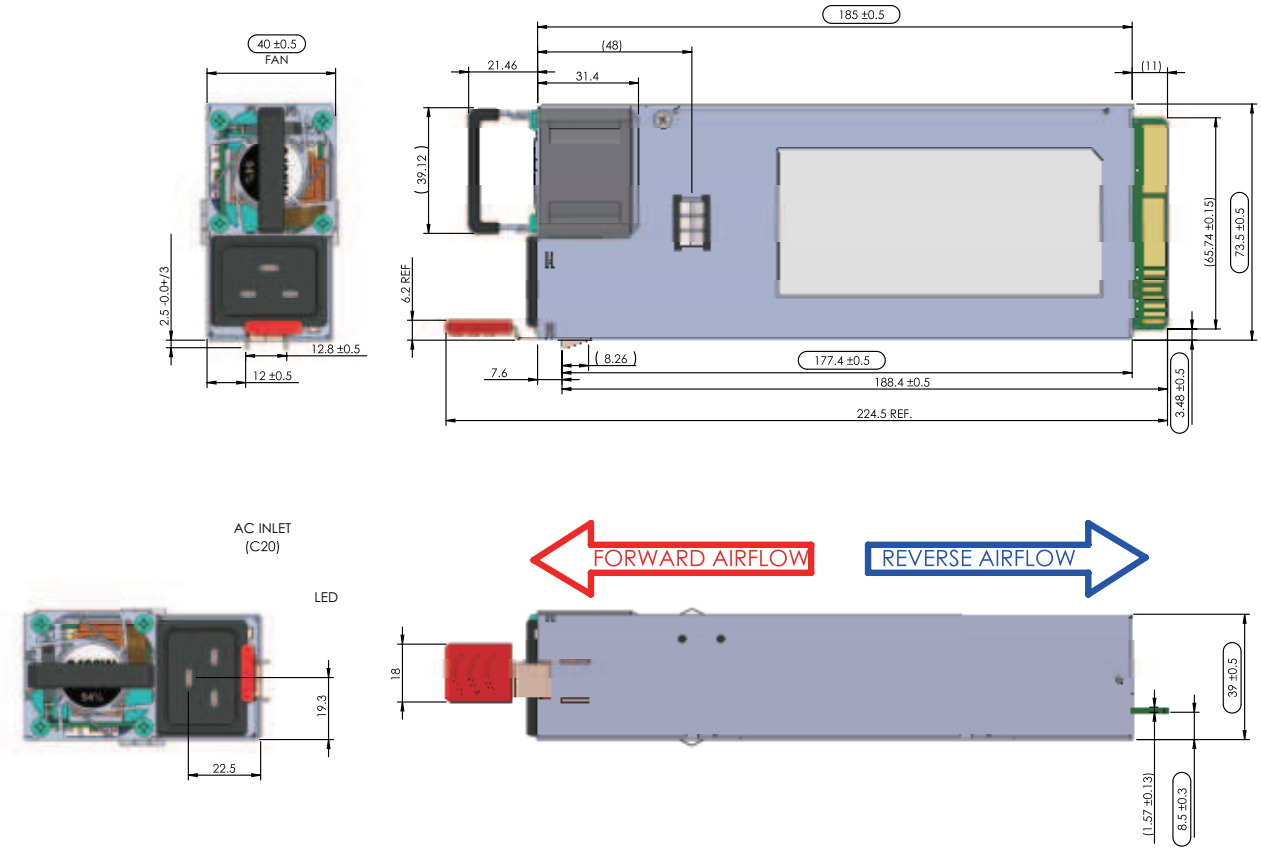


ENVIRONMENTAL SPECIFICATIONS

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 5,000m altitude for CQC

MECHANICAL OUTLINE CSU2000AP-3-201 AND CSU2400AP-3-100/101



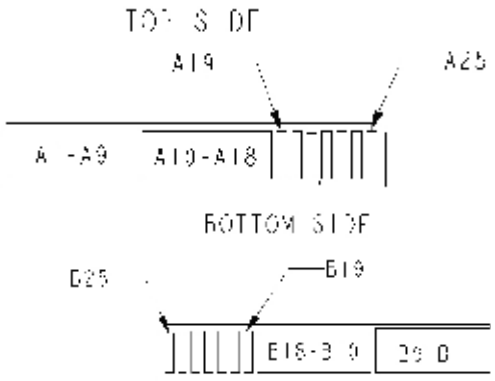
ORDERING INFORMATION

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

CONNECTOR DEFINITION

Reference	On Power Supply	Mating Connector
AC Input Connector	IEC320-C14 (CSU1800AP-3-XXX) IEC320-C14 (CSU2000AP-3-100/111) IEC320-C20 (CSU2000AP-3-200/211 IEC320-C20 (CSU2400AP-3-XXX)	IEC320-C13 IEC320-C13 IEC320-C19 IEC320-C19
Output Connector	Card-edge	Right Angle FCI Amphenol GPCEF4361411HHR FCI Amphenol 10147875-001LF Vertical FCI Amphenol HPG36P14SVP011T

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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For international contact information,
visit advancedenergy.com.

powersales@aei.com (Sales Support)
productsupport.ep@aei.com (Technical Support)
+1 888 412 7832

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