ARTESYN AIF06ZPFC SERIES

2400 Watt Full Brick PFC Converter



The AIF06ZPFC series full-brick power factor correction module accepts a wide 85–264 Vac input and presents a unity power factor. Rated at 2400 watts, the module has a high conversion efficiency of 97.3% and provides a nominal non-isolated output voltage of 400 Vdc. Featuring an industry-standard 2.4 x 4.6 full-brick form factor and a height of only 0.55 inch, they have a power density of 395 watts per cubic inch.

DATA SHEET

Total Power:

2400 Watts 230 Vac
(400 V @ 6 A)
1400 Watts 115 Vac
(400 V @ 3.5 A)

Input Voltage:

85 - 264 Vac

SPECIAL FEATURES

- 2400 W continuous power high-line
- 1400 W continuous power low-line
- Ultra high efficiency; 97%
- 85-264 Vac input range
- Baseplate optimized for contact cooling or heatsink mounting
- Fixed switching frequency
- Pre-bias startup capability
- Programmable phase shift angle in parallel application
- High reliability
- RoHS 6 compliant
- UL94 V-0 materials
- PMBus® communication
- Non-isolated PFC
- Feature rich control functions
- Standard full brick outline
- Parallel and current share version
- Internal inrush limit control (01 Version only)
- No external diodes required for two units sharing (external diodes required for >2)
- -40 °C startup, -25 °C operation
- Two-year warranty (consult factory for extended terms)

SAFETY

- CSA C22.2. No.62368-1
- CE EN62368-1
- UL 62368-1

TYPICAL APPLICATIONS

- Industrial
- Medical

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TECHNICAL DATA

Electrical Specifications	
Input	
Input voltage	85 - 264 Vac
Input surge	290 Vac / 1s
Input frequency	50/60 Hz
Efficiency	97% (full load @ 230 Vac)
Total harmonic distortion	IEC 61000-3-2 for 1 module; IEC 61000-3-12 for 2 or more modules in parallel
Power factor	0.99 typical (Po > 1400 W) 0.97 typical (Po > 700 W)
Output	
Output voltage	400 V Typ Vin pk must be < Vout -10 V
Output voltage load regulation*	2% maximum
Max Output power & current	Vin < 180 Vac, Pmax = 1400 W Iomax = 3.5 A 180 ≤ Vin < 200 Vac, Pmax = 2200 W, Iomax = 5.5 A Vin ≥ 200 Vac, Pmax = 2400 W Iomax = 6 A
Overvoltage protection	450 Vdc max
Overtemperature protection - baseplate	110 °C max
Overcurrent protection method/OCP operation**	4.2 A typ @ Vin = 115 Vac 7.2 A typ @ Vin = 230 Vac
Peak surge power	17.5 A for 1 mSec
Output capacitanc	2000 µF max per module
Aux O/P	11-13 V @ 20 mA
Control	
Tmon (0.5 V @ 25 °C)	10 mV / °C
LD enable	Drive output via opto-isolator
PFC enable	TTL compatiable (and CMOS compatible)
Voltage adjust*	330 V to 400 V
Clock input***	280 kHz ± 5%
Clock output	280 kHz ± 5%
Cmon output	0.3 V/A
Unit startup time	2 seconds max (01 Version only)

* V_ADJ set with 0.1% accuracy resistor
** OCP latching at 230 Vac; OCP auto-recovery at 115 Vac
*** CLK_IN signal is 3.3 V logic

TECHNICAL DATA (CONTINUED)

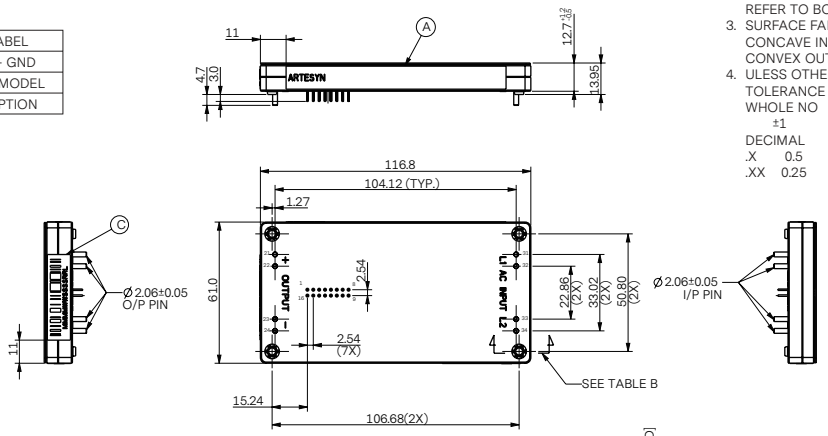
General Specifications	
Unit weight	9.4 oz/ 266 g typical and 11.3 oz / 320 g maximum
Ambinet temperature - low Startup Operational	 -40 °C min -25 °C min
Maximum operational baseplate temperature	100 °C
Storage temperature	-40 °C to 110 °C max
Operational altitude according to IEC62368-1	4,000 M maximum (pollution degree II, basic insulation, 240 Vrms)

MECHANICAL DRAWINGS

C	S/N LABEL
B	LABEL - GND
A	LABEL - MODEL
ITEM	DESCRIPTION

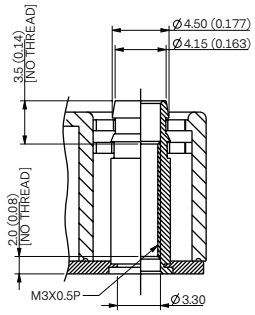
TABLE A

NOTES:
1. PARTS MUST BE COMPLETELY ASSEMBLED.
2. LISTED PART NUMBERS ARE GIVEN FOR REFERENCE ONLY. REFER TO BOM FOR UPDATED PART NUMBERS.
3. SURFACE FALTNESS :
   CONCAVE INWARDS : TBD
   CONVEX OUTWARDS : 0.38MM MAX.
4. ULESS OTHERWISE SPECIFIED
   TOLERANCE AS BELOW
   WHOLE NO ANGLE
   ±1 ±0.5°
   DECIMAL
   .X 0.5
   .XX 0.25

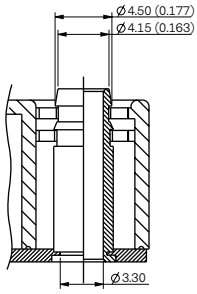


AIF06ZPFC-01L	SECTION A-A
MODEL NUMBER	STANDOFF CROSS SECTION

TABLE B



SECTION A-A



SECTION B-B

Pin Assignments							
Input (AC)				**Output (DC)**			
31		L1		21		Positive	
32		L1		22		Positive	
33		L2		23		Negative	
34		L2		24		Negative	
Control Pin							
1	PV AUX -	5	CLK OUT	9	SCL	13	S GND
2	TEMP MON	6	CLK IN	10	I^2C ADDRESS	14	PFW
3	C MON	7	PV AUX +	11	V ADJ	15	LD ENABLE
4	C SHARE	8	SDA	12	PFW ADJ	16	PF ENABLE

MECHANICAL DRAWINGS (CONTINUED)

Ordering Information				
Model Number	**Input Voltage**	**Output Voltage**	**Output Current**	**Efficiency**
AIF06ZPFC-01***L	85 - 264 Vac	400 Vdc	6 A	97% @ 230 Vac full load
AIF06ZPFC-02***L	85 - 264 Vac	400 Vdc	6 A	97% @ 230 Vac full load

AIF06ZPFC-01L	Single module operation and 2-module power sharing operation (TBC), Positive enable, RoHS-6, Threaded-inserts for mounting
AIF06ZPFC-01NL	Single module operation and 2-module power sharing operation (TBC), Negative enable, RoHS-6, Threaded-inserts for mounting
AIF06ZPFC-02L	3 to 10 module power sharing operation, external diodes required, Positive enable, RoHS-6, Threaded-inserts for mounting
AIF06ZPFC-02NL	3 to 10 module power sharing operation, external diodes required, Negative enable, RoHS-6, Threaded-inserts for mounting
AIF06ZPFC-01NTL	Single module operation or 2-module power sharing operation (TBC), Positive enable, RoHS-6, Non-Threaded-inserts for mounting
AIF06ZPFC-01NNTL	Single module operation or 2-module power sharing operation (TBC), Negative enable, RoHS-6, Non-Threaded-inserts for mounting
AIF06ZPFC-02NTL	3 to 10 module power sharing operation, external diodes required, Positive enable, RoHS-6, Non-Threaded-inserts for mounting
AIF06ZPFC-02NNTL	3 to 10 module power sharing operation, external diodes required, Negative enable, RoHS-6, Non-Threaded-inserts for mounting

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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