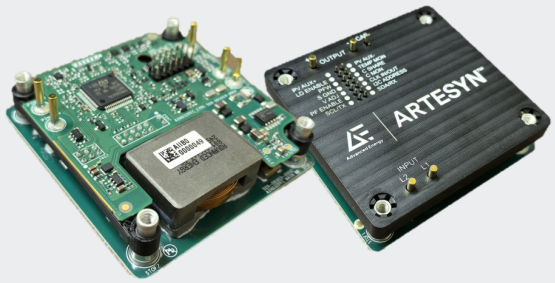
ARTESYN AIH03ZPFC SERIES

1100 Watt Half Brick PFC Converter



AIH03ZPFC series is a half-brick power factor correction module which accepts a wide 90 to 264 VAC input and presents a unity power factor. Rated at 1100 Watts, the module has a high conversion efficiency of 97.3% minimum at 230 VAC and provides a nominal non-isolated output voltage of 390 VDC. Featuring an industry standard 2.3 (L) x 2.4 (W) x 0.52 in(H) in half-brick form factor and power density of 383 W/in^3.

AT A GLANCE

Total Power:

1100 Watts

Input Voltage:

90 to 264 VAC
127 to 373 VDC

Output Voltage:

390 VDC (350 to 420 VDC)

SPECIAL FEATURES

- 1100 W continuous power high-line
- Ultra high efficiency: 97.3%
- 90 to 264 VAC input range
- Baseplate optimized for contact cooling or heatsink mounting
- Pre-bias startup capability
- High reliability
- RoHS 6 compliant
- PMBus® communication
- Non-isolated PFC
- Feature rich control functions
- Standard half brick outline
- Internal inrush limit control
- 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

ELECTRICAL SPECIFICATIONS

Input	
Input Voltage	90 to 264 VAC, 127 to 373 VDC
Input Surge	300 VAC / 100 mS, 420 VDC / 100 mS
Ac Input Frequency	47 to 63 Hz, single phase
Efficiency	97.3% (full load @ 230 VAC), 96.0% (full load @ 115 VAC)
Total Harmonic Distortion	10% max., 20% - 100% of Load, Vin = 240VAC, Vo = 390VDC (EN61000-3-2 Class A @ full Load)
Power Factor	0.95 min. (Vin = 230VAC, > 50% load), 0.95 min. (Vin = 115VAC, > 20% load)
Output	
Output Voltage	390 VDC Typ. 350 to 420 VDC adjustable
Output Voltage Total Regulation	2% maximum of Vo_rms (390 VDC) Includes set-point, line, load, temperature change, warm-up drift. Tested with 560uF min. output capacitor.
Max Output Power & Current	1100 W, Iomax = 2.82 A @ Vo = 390 VDC 1000W @ 100°C baseplate temperature
Overvoltage Protection	440 VDC max
Overtemperature Protection	108 °C max (internal sense point). Auto recover.
Overcurrent Protection	3.5 A typ. (3.2 to 3.8 A). Retry 5 times and latch off if the fault is still present.
Transient Loading	Vo regulation: 390VDC ± 12.5%. Settling time: 1mS. Minimum Load: 0%. Step Load: 25% $I_{OMAX.}$ Slew Rate: 1A/uS. 50 to 5KHz. (With ADVANCED ENERGY recommended external output capacitors below)
Output Capacitance	Low ESR high ripple current E-cap, 475VDC, 560 to 1000uF. Plus 3pcs 630V 220nF MLCC X7R for 1100W full load applicaton.
Auxiliary Output Voltage	11.6 V @ 20 mA
Output Ripple and Noise	30Vpk-pk, 20MHz bandwidth. Vin = 115VAC / 230VAC, Vo = 390V, Io = 2.82A. Measure with 560uF/1000uF bulk capacitor plus 3pcs x MLCC 630V X7R 220nF cap.
Ride Through Time	Main output stay above output UVP point during 20ms ride through during AC drop-out event
Turn-On Voltage Time	1S max. Test with 475V 1000uF cap. (Measured from PF_ENABLE to output voltage rise up to 390VDC)
Output Voltage Overshoot	12.5% of Nominal. Test with 475V 1000uF cap.
Control	
Cmon Output	0.6 V/A
LD Enable	Drive output via opto-isolator
PF Enable	TTL compatiable (and CMOS compatible)

ENVIRONMENTAL SPECIFICATIONS

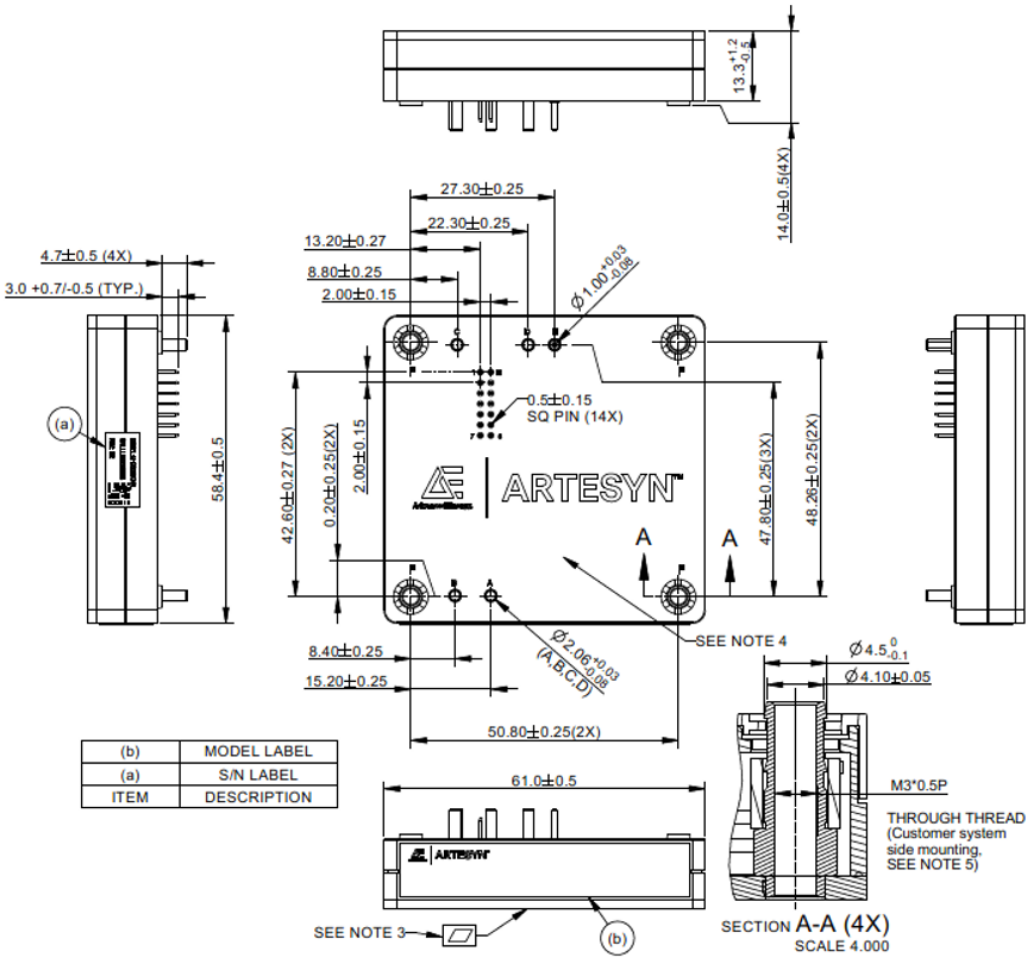
Operating Ambient Temperature[1]	-40 to 85 °C (-40°C startup, -25°C operation)
Operational Baseplate Temperature	-40 to 100 °C
Storage Temperature	-40 to 105 °C
Operational Altitude	5,000 M maximum (16,404 feet)
Non-Operating Altitude	12,192 M maximum (40,000 feet)
Operating Humidity	5% to 90% RH 6 to 10 °C: 5 to 85% RH 10 to 28 °C: 10 to 90% RH 29 to 50 °C: 15 to 50% RH Meet ASHRAE Class 2 requirements

ENVIRONMENTAL SPECIFICATIONS (CON'T)

Non-Operating Humidity	5 to 95% RH at 650C for 24 hours, non-condensing
Operating Shock	30G, 11ms, Half sine, 3 times in each of 3 axes
Non-Operating Shock	40G, 15ms, Half sine, all 6 faces, 3 times in each face
Operating Vibration	2.4grms, 30Minutes/Axes, 3 mutually perpendicular axis
Non-Operating Vibration	3.8grms, 30Minutes/Axes, 3 mutually perpendicular axis
Weight	140g typ., 160g max.

Note 1: The PSU may not meet spec during the PSU warm-up period when it cold starts at -40°C.

MECHANICAL DRAWINGS (Unit: mm)



Label Information	Agency Label Advanced Energy Product Id: AIH03ZPFC -01L Serial Number Advanced Energy Logo ESD Warning Logo
Max Screw Torque For Mounting	8 Kgf-Cm
Surface Flatness	Concave Inwards : 0.2mm Max. Convex Outwards : 0.38mm Max.

PIN ASSIGNMENTS

Input (AC)		Output (DC)	
Pin Number	Signal Name	Pin Number	Signal Name
A	L1 (L) / DC Input +	C	Vout+
B	L2 (N) / DC Input -	D	Vout-
F	EARTH (E)	E	CAP-

Control Pin							
Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name
1	PV AUX +	5	V ADJ	9	I^2C ADDRESS	13	TEMP MON
2	LD ENABLE	6	PF ENABLE	10	CLK IN/OUT	14	PV AUX-
3	PFW	7	SCL / TX	11	C MON		
4	S GND	8	SDA / RX	12	Reserved		

ORDERING INFORMATION

Model Number	Input Voltage	Output Voltage	Output Current	Efficiency
AIH03ZPFC-01L	90 to 264 VAC	390 VDC (350 to 420 VDC)	2.82 A @ 390 VDC	97.3% @ 230 VAC full load

ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than four 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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