AOF750-2B-xx Series

DESCRIPTIONS

750W, AC/DC Open Frame Power Supply



RoHS

3 Years Warranty

CE Report UKCA Report

EN62368-1 BS EN62368-1

FEATURES

- Universal 90 - 264VAC or 127 - 370VDC input voltage
- Compact size 5” × 3”
- Operating ambient temperature range: -40℃ to +70℃
- Built-in active PFC function
- Operating altitude up to 5000m
- Output short circuit, over-current, over-voltage, over-temperature protection
- 450W with air cooling, 750W with 25CFM
- 5VDC standby output, 5VDC fan supply
- PG signal and remote sensing function
- Design to meet medical approvals and be suitable for BF type applications
- The base plate with conformal coating
- Installing in system of Safety Class I/II is available
- Safety according to IEC62368, ES60601, EN60335, GB4943

APPLICATIONS

- Industrial
- LED
- street light control
- Electricity
- Security
- Telecommunications
- smart home
- Medical

Selection Guide

Certification	Part No.	Cooling Method	Output Power (W) *	Nominal Output Voltage and Current (Vo/Io)	Output Voltage Adjustable Range ADJ (V)	Efficiency at 230VAC (%) Typ. *	Capacitive Load (μF) Max.	Capacitive Load (uF) Max.
EN/BS EN	AOF750-2B-12	Air cooling	Full voltage range	399.6	12V/33.3	11.4-12.6	92	5000
		25CFM		699.6	12V/58.3			
	AOF750-2B-15	Air cooling	Full voltage range	400.5	15V/26.7	14.25-15.75	92	5000
		25CFM		700.5	15V/46.7			
	AOF750-2B-24	Air cooling	115VAC	400.8	24V/16.7	22.8-25.2	94	3000
			230VAC	451.2	24V/18.8			
		25CFM	Full voltage range	748.8	24V/31.2			
	AOF750-2B-27	Air cooling	115VAC	399.6	27V/14.8	25.65-28.35	94	3000
			230VAC	450.9	27V/16.7			
		25CFM	Full voltage range	750.6	27V/27.8			
	AOF750-2B-36	Air cooling	115VAC	399.6	36V/11.1	34.2-37.8	94.5	2000
			230VAC	450.0	36V/12.5			
		25CFM	Full voltage range	748.8	36V/20.8			
	AOF750-2B-48	Air cooling	115VAC	398.4	48V/8.3	45.6-50.4	95	2000
			230VAC	451.2	48V/9.4			
		25CFM	Full voltage range	748.8	48V/15.6			
	AOF750-2B-54	Air cooling	115VAC	399.6	54V/7.4	51.3-56.7	95	1000
			230VAC	449.8	54V/8.33			
		25CFM	Full voltage range	750.0	54V/13.89			

Notes: 1.*Under any conditions, the total power of the product should not exceed the rated power. When the output voltage is increased, the total output power cannot exceed the rated output power, when the output voltage is decreased, the output current cannot exceed the rated output current;
2.*When measuring the full load efficiency, the fan should be connected to an external power supply. Fan loss is not included in the input power;
3. The product picture is for reference only. For details, please refer to the actual product.

Specifications

Product Specifications	Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Specifications	Input Voltage Range	AC input		90	--	264	VAC
		DC input		127	--	370	VDC
	Input Frequency			47	--	63	Hz
	Input Current	115VAC		--	--	8	A
		230VAC		--	--	4	
	Inrush Current	115VAC	Cold start	--	50	--	

Input Specifications		230VAC		--	80	--	
	Power Factor	115VAC	Full load	0.98	--	--	--
		230VAC		0.95	--	--	
	Leakage Current	264VAC	Contact leakage current	< 0.1mA			
			Earth leakage current	< 0.5mA			
	Hot Plug			Unavailable			
Output Specifications	Output Voltage Accuracy*	Full load	12V/15V/24V/27V	--	±2.0	--	%
			36V/48V/54V	--	±1.0	--	
	Line Regulation	Rated load		--	±0.5	--	
	Load Regulation	0%-100% load		--	±1.0	--	
	Ripple & Noise*	20MHz band width (peak-to-peak value)		--	--	200	mV
	Temperature Coefficient			--	±0.03	--	%/℃
	Minimum Load			0	--	--	%
	Hold-up Time	25℃, 115VAC/230VAC		10	--	--	ms
	Stand-by Power Consumption	Room temperature, 230VAC input (PS_ON Low and 5Vsb without load (including fan))		--	--	0.5	W
	Short Circuit Protection	Recovery time <5s after the short circuit disappear		Hiccup, continuous, self-recover			
	Over-current Protection			≥105%Io, hiccup, self-recover			
	Over-voltage Protection	12V		≤15.6V		Output voltage turn off, re-power on for recover	
		15V		≤19.5V			
		24V		≤31.2V			
		27V		≤35.1V			
		36V		≤46.8V			
		48V		≤60.0V			
		54V		≤64.0V			
	Over-temperature Protection			Protection when over-temperature, recover automatically after the temperature drops			
	Fan Power*			The 5Vsb serves as the standby power supply and also supplies power to the fan, the maximum output current of the fan and 5Vsb is 2A			
	PS_ON Input Signal*	Power on	PS_ON High	2	--	5	V
		Power off	PS_ON Low	0	--	0.6	
	PG Signal*	Power on	The PG signal goes high with 10ms to 500ms delay after power set up	10	--	500	ms
		Power off/Power fail	The TTL signal goes low at least 1ms before output below 90% of rated value	1	--	--	
		High level	High	2	--	6	V
		Low level	Low	0	--	0.6	

	Remote Sense		When RS+ and RS- are connected to the system, with function of remote voltage compensation, if not needed, left RS+ and RS- open					
	5V Standby		5Vsb: The load capacity is 1A without fan, the load capacity is 2A with fan 25CFM; tolerance 2%, ripple: 120mVp-p (max.)					
General Specifications	Isolation Test	Input - output	Electric strength test for 1min, leakage current <10mA			4000	--	--	VAC
		Input - ⏚				2000	--	--	
		Output - ⏚				1500	--	--	
	Insulation Resistance	Input - output	Environment temperature: 25±5℃ Relative humidity: <95%RH, non-condensing Testing voltage: 500VDC			100	--	--	MΩ
		Input - ⏚				100	--	--	
		Output - ⏚				100	--	--	
	Isolation level	Input - output				2 × MOPP			
		Input - ⏚				1 × MOPP			
		Output - ⏚				1 × MOPP			
	Operating Temperature					-40	--	+70	℃
	Storage Temperature					-40	--	+85	
	Storage Humidity		Non-condensing			10	--	95	%RH
	Operating Humidity					20	--	90	
	Power Derating		Operating temperature derating	25CFM	12V/15V(700W)	+50℃ to +70℃	2.0	--	--	%/℃
					24V/27V/36V/48V/54V(750W)	+50℃ to +70℃	2.0	--	--	
				Air cooling	12V/15V(400W)	+45℃ to +70℃	7.9	--	--	W/℃
					24V/27V/36V/48V/54V (450W)	90-175 VAC (400W) +45℃ to +70℃	7.0	--	--	
						176-264VAC (450W) +45℃ to +70℃	9.0	--	--	
			Input voltage derating		90VAC - 115VAC		0.8	--	--	%/VAC
					127VDC - 162VDC		0.57	--	--	%/VDC
	Safety Class						CLASS I (with PE and must be connected)/ CLASS II (without PE)			
	MTBF		MIL-HDBK-217F@25℃				>200,000 h			
Mechanical Specifications	Case Material		Open frame							
	Dimension		127.00mm × 76.20mm × 43.00mm							
	Weight		625g (Typ.)							
	Cooling Method*		Air cooling(400W/450W) / 25CFM (700W/750W)							

Note: 1. *Output Voltage Accuracy: including setting error, line regulation, load regulation;
2. *The "Tip and barrel method" is used for ripple and noise test, output parallel 47uF electrolytic capacitor (Low ESR) and 0.1uF ceramic capacitor;
3. *For fan power supply, please refer to CN5 in the external dimension drawing;
4. *For PS_ON, 5V standby connection method, please refer to CN6 in the external dimension drawing;
5. *For PG connection method, please refer to CN2 in the external dimension drawing;
6. *Cooling method and power derating refer to typical characteristic curves.

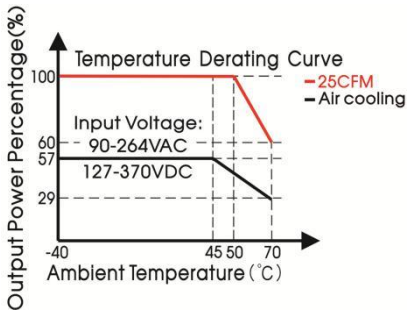
Electromagnetic Compatibility (EMC)

Electromagnetic Compatibility (EMC)	Emissions (EMI)	CE	CISPR32/EN55032 CLASS B	
		RE	CISPR32/EN55032 CLASS B	
		Harmonic current	IEC/EN61000-3-2 CLASS A and CLASS D	
	Immunity (EMS)	ESD	IEC/EN61000-4-2 Contact ±8KV/Air ±15KV	Perf. Criteria A
		RS	IEC/EN61000-4-3 10V/m	Perf. Criteria A
		EFT	IEC/EN61000-4-4 ±2KV	Perf. Criteria A
		Surge	IEC/EN61000-4-5 line to line ±2KV/line to ground ±4KV	Perf. Criteria A
		CS	IEC/EN61000-4-6 10 Vr.m.s	Perf. Criteria A
		Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11 0%, 70%	Perf. Criteria B

Characteristic Curve

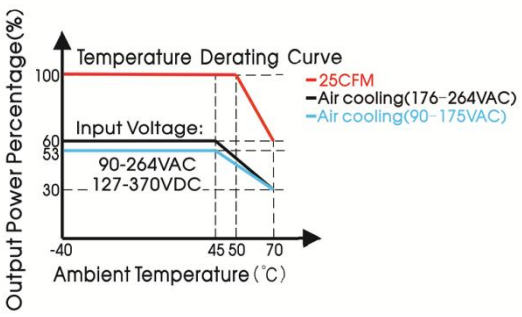
12/15V

(full load 700W with 25CFM)

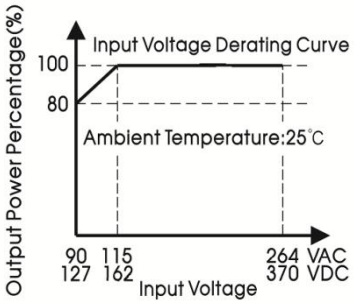


24/27/36/48/54V

(full load 750W with 25CFM)

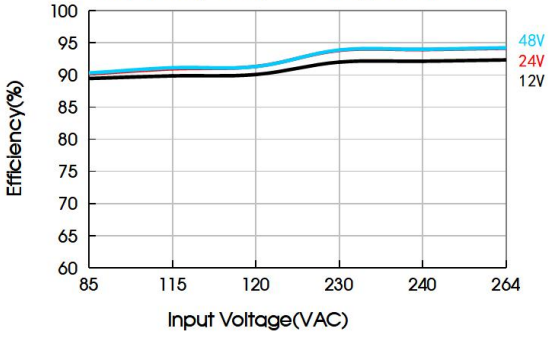


Input Voltage Derating Curve

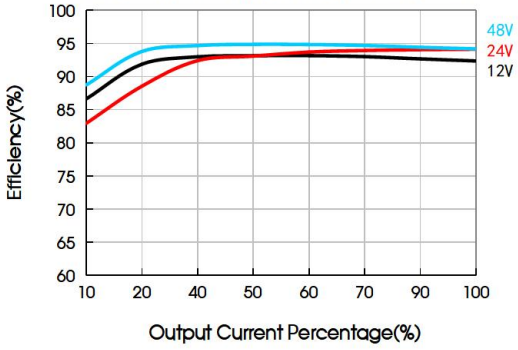


Note: With an AC input voltage between 90 - 115VAC and a DC input between 127 - 162VDC the output power must be derated as per the temperature derating curves.

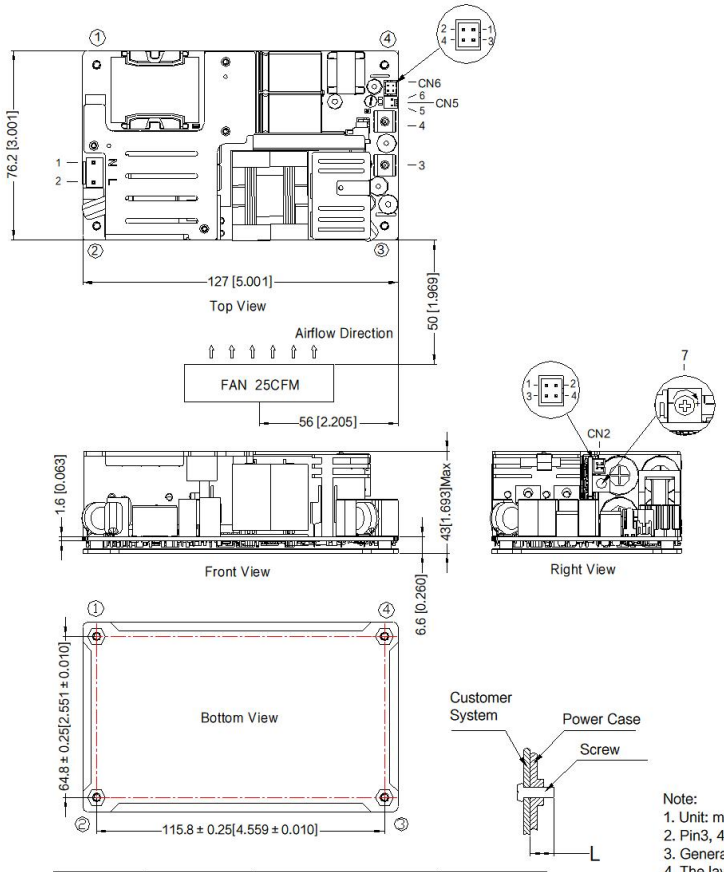
Efficiency Vs Input Voltage (Full Load)



Efficiency Vs Output Load (Vin=230VAC)



Dimensions and Recommended Layout



THIRD ANGLE PROJECTION

Pin-Out		Customer Connector	
Pin	Mark	Housing: JST VHR-3 or equivalent Contact: JST SVH-21T-P1.1 or CPJ-016(Optional Accessory)	
1	AC(N)		
2	AC(L)		
3	+Vo	Output connector (Optional Accessory)	CPJ-021(Red wire)
4	-Vo		CPJ-020(Black wire)
5	FAN+	CN5: Fan power output port Housing: TKP 2502 or Molex0511910200 or equivalent Contact: TKP 54T or Molex0508028100 or equivalent	
6	FAN-		
7	ADJ Output adjustable resistor		

CN6: PS_ON signal input port(3-4)
5VDC Standby output(1-2)

Pin-Out		Customer Connector
Pin	Mark	Housing: TKP DH2-4P or HRS DF11-4DS-2C or equivalent Contact: TKP DHT or HRS DF11-22SC or equivalent
1	+5V	
2	GND	
3	PS-ON	
4	GND	

CN2: Remote sensing signal input port(1-2)
PG signal(3-4)

Pin-Out		Customer Connector
Pin	Mark	Housing: TKP DH2-4P or HRS DF11-4DS-2C or equivalent Contact: TKP DHT or HRS DF11-22SC or equivalent
1	RS-	
2	RS+	
3	GND	
4	PG	

Position	Screw Spec.	L(Recommend)(MAX)	Torque(max)
① - ④	M3	2.5mm	0.4N · m

Note:
1. Unit: mm[inch]
2. Pin3, 4 connector tightening torque: M4, 1.2N · m(max)
3. General tolerances: ± 1.00[± 0.039]
4. The layout of the device is for reference only, please refer to the actual product
5. It is recommended 10mm distance between the PCB and other components for safety purpose
6. Class I system①②④ positions must be connected to the earth (⏚)
7. Class II system①②④ positions not must be connected together

Note:

1. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75%RH with nominal input voltage and rated output load;
2. The room temperature derating of 5℃/1000m is needed for operating altitude greater than 2000m;
3. All index testing methods in this datasheet are based on our company corporate standards;
4. In order to improve the efficiency, there will be audible noise generated when work at light load, but it does not affect product performance and reliability;
5. We can provide product customization service, please contact our technicians directly for specific information;
6. Products are related to laws and regulations: see "Features" and "EMC";
7. CAUTION: Double pole, neutral fusing. Disconnect mains before servicing." /" ATTENTION: Double pôle/fusible sur le neutre. Débrancher lalimentation avant lentretien;
8. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
9. The power supply is considered a component which will be installed into a terminal equipment. All EMC tests should be confirmed with the final equipment;
10. The surface of product should keep a safe distance from the customer system (recommended ≥3mm).