AEF600-2B-xx Series

DESCRIPTIONS

600W, AC/DC Converter

RoHS

CE Report UKCA Report cULus

EN62368-1 BS EN62368-1 UL62368-1

FEATURES

- Universal 80 - 277VAC or 110- 390VDC Input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -40℃ to +70℃
- Low standby power consumption, high efficiency, active PFC
- High I/O isolation test voltage up to 4000VAC
- The base plate with conformal coating
- Output short circuit, over-current, over-voltage over-temperature protection
- Remote sense compensation, remote ON/OFF function
- DC_OK function
- Suitable for BF application
- With 5V/1A standby power
- Operating altitude up to 5000m
- Safety according to IEC62368, EN60335, EN61558

APPLICATIONS

- Industrial control
- Power
- Instrumentation
- Communication
- Home appliances
- Civil applications

Selection Guide

Certification	Part No*	Output Power (W)	Nominal Output Voltage and Current (Vo/Io)*	Output Voltage Adjustable Range (V)	Efficiency at 230VAC (%) Typ.	Max. Capacitive Load (μF)	Remote Sense Compensation (mV)	Standby (Vo/Io)*
UL/EN/BS EN	AEF600-2B-12	600	12V/50A	11.8-12.6	92	50000	500	5V/1A
	AEF600-2B-15		15V/40A	14.7-15.8				
	AEF600-2B-24		24V/25A	23.5-25.2	94			
	AEF600-2B-27		27V/22.3A	26.4-28.5				
	AEF600-2B-36		36V/16.7A	35.3-37.8				
	AEF600-2B-48		48V/12.6A	47.0-50.4				

Note: 1. *Under any conditions, the total power of the product should not exceed the 600W rated power, and the output current cannot exceed the rated output current;

2. *Standby power: provide 5V/1A independent output, it is recommended to use with the main circuit.

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		80	--	277	VAC
		DC input		110	--	390	VDC
	Input Voltage Frequency			47	--	63	Hz
	Input Current	115VAC		--	--	7.5	A
		230VAC		--	--	3.5	
	115VAC/230VAC	Cold start		--	--	15	
	Power Factor	115VAC	Full load	--	0.99	--	--
		230VAC		--	0.99	--	
	Leakage Current	240VAC/50Hz		< 0.1mA			
	Hot Plug			Unavailable			
Output Specifications	Output Voltage Accuracy	Full load range	12V/15V/24V/27V/36V/48V	--	±1	--	%
			5V Standby	--	±2	--	
	Line Regulation	Rated load	12V/15V/24V/27V/36V/48V	--	±0.3	--	
			5V Standby	--	±0.5	--	
	Load Regulation	0% - 100% load	12V/15V/24V/27V/36V/48V	--	±0.5	--	
			5V Standby	--	±2	--	
	Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	12V/15V	--	150	--	mV
			24V/27V/36V/48V	--	200	--	
	Minimum Load			--	0	--	%
	Stand-by Power Consumption	Room temperature, 230VAC, RC+/RC- add +5V signal		--	0.5	--	W

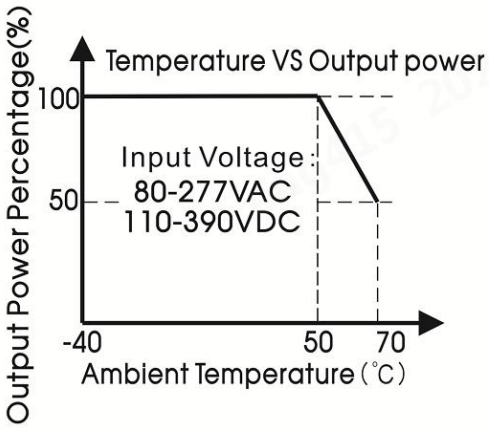
	Hold-up Time		230VAC	15	--	--	ms
	Short Circuit Protection		Recovery time 10s after the short circuit disappear.	Hiccup mode, constant current works 1s, turn off 10s, continuous, self-recover			
	Over-current Protection			110% - 250% Io, the output turned off after working normally for 1s, self-recover			
	Over-temperature Protection			Output voltage turn off, self-recover after the temperature drops.			
	Over-voltage Protection		12V	≤16VDC (Hiccup, self-recover)			
			15V	≤20VDC (Hiccup, self-recover)			
			24V	≤32VDC (Hiccup, self-recover)			
			27V	≤35VDC (Hiccup, self-recover)			
			36V	≤47VDC (Hiccup, self-recover)			
			48V	≤60VDC (Hiccup, self-recover)			
General Specifications	Isolation Test	Input - ⏚	Electric strength test for 1min., leakage current <5mA	1500	--	--	VAC
		Input - output		4000	--	--	
		Output - ⏚		1500	--	--	
	Insulation Resistance	Input - ⏚	Environment temperature: 25 ± 5℃ Relative humidity: <95%RH, non-condensing Testing voltage: 500VDC	50	--	--	MΩ
		Input - output		50	--	--	
		Output - ⏚		50	--	--	
	Isolation level	Input - output		2 × MOPP			
		Input - ⏚		1 × MOPP			
	Operating Temperature			-40	--	70	℃
	Storage Temperature			-40	--	85	
	Operating Humidity		Non-condensing	20	--	95	%RH
	Storage Humidity			10	--	95	
	Power Derating		Operating temperature derating: +50℃ to +70℃	2.5	--	--	%/℃
			Input voltage derating: 80VAC-85VAC	2.0	--	--	%/VAC
			Input voltage derating: 85VAC-100VAC	1.33	--	--	
	MTBF		MIL-HDBK-217F@25℃	≥300,000 h			
Mechanical Specifications	Case Material		Metal (AL1100, SGCC)				
	Dimensions		101.60mm x 203.10mm x 40.60mm				
	Weight		950g (Typ.)				
	Cooling Method		Forced air convection				

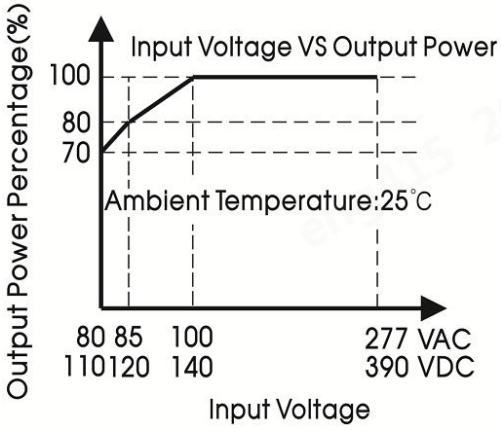
Note: *The "Tip and barrel method" is used for ripple and noise test, output parallel 47uF electrolytic capacitor and 0.1uF ceramic capacitor, please refer to Enclosed Switching Power Supply Application Notes for specific information.

Electromagnetic Compatibility (EMC)

Electromagnetic Compatibility (EMC)	Emissions	CE	CISPR32/EN55032 CLASS B	
		RE	CISPR32/EN55032 CLASS B	
		Harmonic current	IEC/EN61000-3-2 CLASS A and CLASS D	
		Voltage flicker	IEC/EN61000-3-3	
	Immunity	ESD	IEC/EN 61000-4-2 Contact ±8KV/Air ±15KV	perf. Criteria A
		RS	IEC/EN 61000-4-3 10V/m	perf. Criteria A
		EFT	IEC/EN 61000-4-4 ±4KV	perf. Criteria A
		Surge	IEC/EN 61000-4-5 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

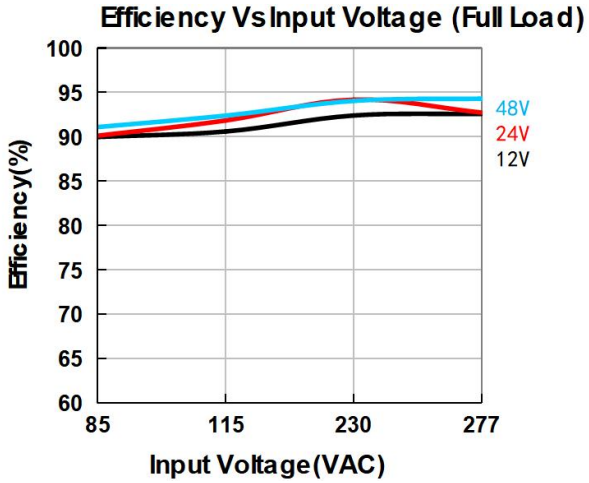
Characteristic Curve

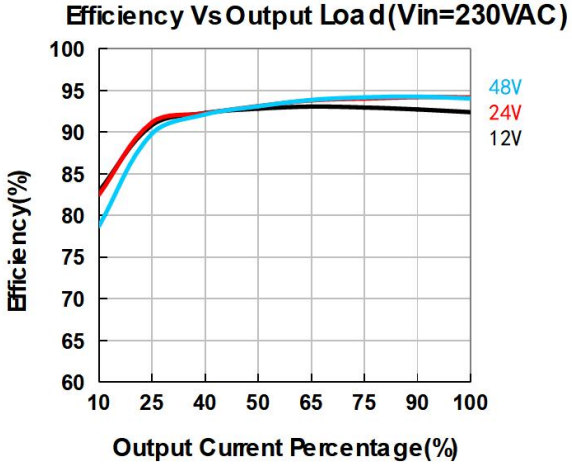




Note: 1. With an AC input voltage between 80-100VAC and a DC input between 110-140VDC the output power must be derated as per the temperature derating curves;

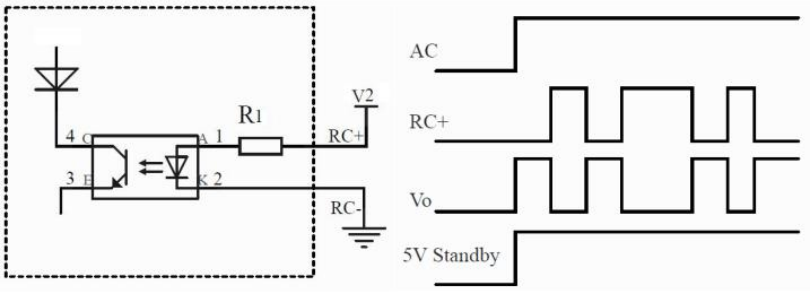
2. This product is suitable for applications using forced air cooling.





Design Reference

1. Remote ON/OFF

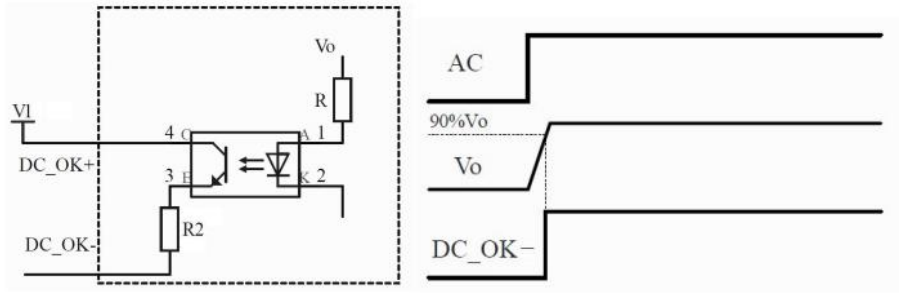


R1 (Product inside)	2KΩ, $\frac{1}{12}$ W
V2 (User side)	5V-15V

Note: 1. When the product is working normally, apply voltage (5-15V) to RC+ and RC- to trigger the remote ON/OFF function, and the output voltage will be off. Withdraw the voltage, the output voltage will be re-established;

2. 5V standby power supply is not controlled by remote ON/OFF function.

2.DC_OK

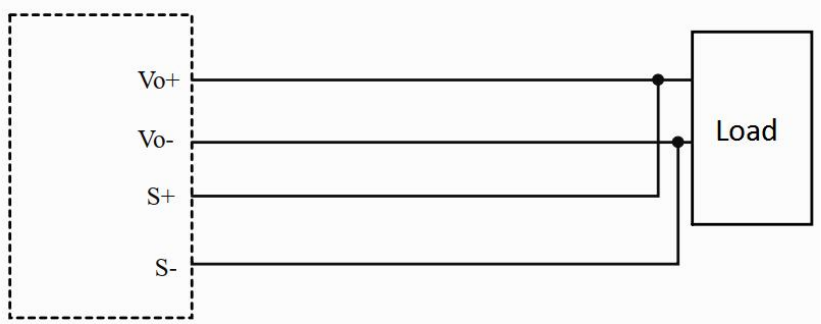


R1 (Product inside)	2KΩ, $\frac{1}{12}$ W
V2 (User side)	5V-15V

Note: 1. When the output voltage of the product reaches 90% of the rated value, DC_OK+ will be connected to DC_OK- ;

2. It is recommended that users apply a certain voltage between DC_OK+ and DC_OK- to detect the signal.

3.Remote Sense Compensation

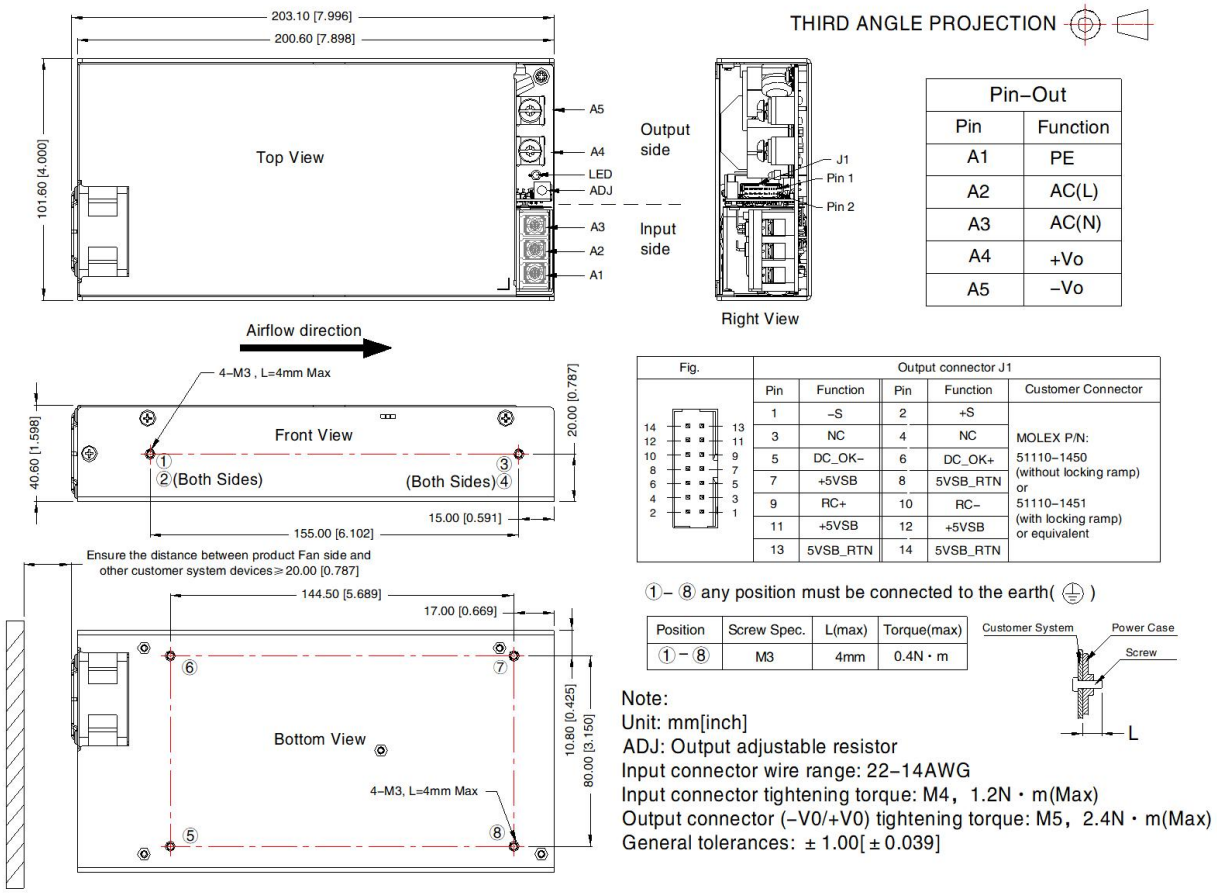


Note: 1. The left side represents the internal schematic diagram of the product, the right side represents the customer system;

2. Twisted pair wires are needed for S+/S-;

3.If the Pin14 terminal function is used for long-term matching, please glue to secure it.

Dimensions and Recommended



Pin-Out	
Pin	Function
A1	PE
A2	AC(L)
A3	AC(N)
A4	+Vo
A5	-Vo

Fig.	Output connector J1				
	Pin	Function	Pin	Function	Customer Connector
14 12 10 8 6 4 2 / 13 11 9 7 5 3 1	1	-S	2	+S	MOLEX P/N: 51110-1450 (without locking ramp) or 51110-1451 (with locking ramp) or equivalent
	3	NC	4	NC	
	5	DC_OK-	6	DC_OK+	
	7	+5VSB	8	5VSB_RTN	
	9	RC+	10	RC-	
	11	+5VSB	12	+5VSB	
	13	5VSB_RTN	14	5VSB_RTN	

①- ⑧ any position must be connected to the earth(⏚)

Position	Screw Spec.	L(max)	Torque(max)
①-⑧	M3	4mm	0.4N · m

Note:
Unit: mm[inch]
ADJ: Output adjustable resistor
Input connector wire range: 22-14AWG
Input connector tightening torque: M4, 1.2N · m(Max)
Output connector (-V0/+V0) tightening torque: M5, 2.4N · m(Max)
General tolerances: ± 1.00[± 0.039]

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. In order to improve the efficiency at high input voltage, there will be audible noise generated, but it does not affect product performance and reliability;
4. Products are related to laws and regulations: see "Features" and "EMC";
5. The out case needs to be connected to PE (⏚) of system when the terminal equipment in operating;
6. The output voltage can be adjusted by the ADJ, clockwise to increase;
7. CAUTION: Double pole, neutral fusing. Disconnect mains before servicing.