AMEOF450-HAMJZ

Click to ORDER samples

Open Frame/ Enclose

AMEOF450-HAMJZ series is one of Aimtec's compact size (3"x5"x1.52") 450W AC/DC converter with active PFC and suitable for medical system equipment. It features universal AC input and at the same time accepts DC input voltage, cost-effective, high efficiency, high reliability and double or reinforced isolation.

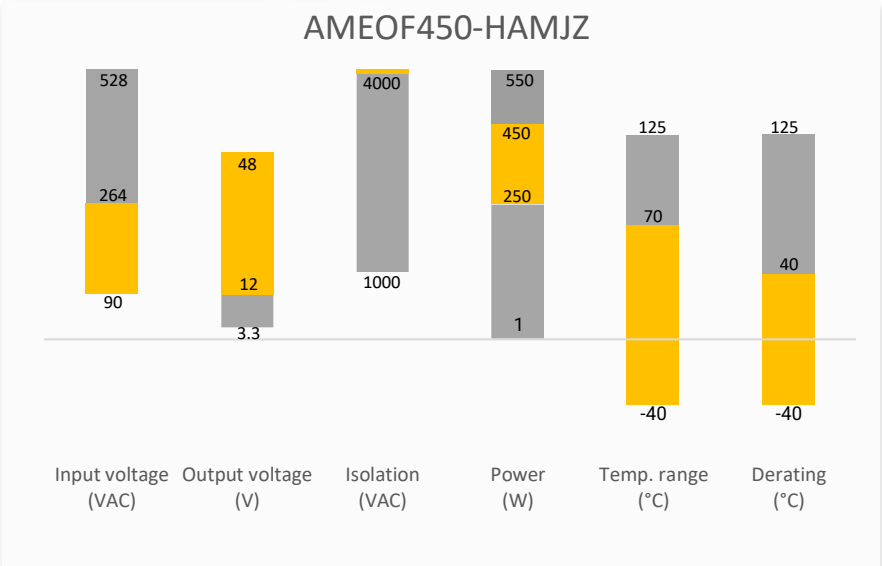
These converters offer excellent EMC and safety performance, which with UL60601-1, EN/UL62368-1 approval and meet IEC62368-1, GB4943, IEC/EN60335, IEC/EN61558, IEC/EN60601-1 standards and they are widely used in areas of industrial, LED, street light control, electricity, security, telecommunications, smart home, medical, etc.

Features

- Universal Input: 90 - 264VAC/127 - 370VDC
- Operating Temp: -40 °C to +70 °C
- High isolation voltage: 4000VAC
- Active PFC
- Output short circuit, over-current, over-voltage, over temperature protection
- Low no-load power consumption of 0.5W
- Suitable for Type BF application
- Certified : ES60601-1, EN/UL62368-1
- Designed to meet IEC62368-1, GB4943, IEC/EN60335, IEC/EN61558, IEC/EN60601-1 2xMOPP

RoHS · 3yr Warranty · c UL us · CE · With PFC

Summary



Training

Product Training Video (click to open)

Press Release

Coming Soon!

Application Notes

Applications

Power Grid · Industrial · Telecom · Medical

Models & Specifications

Single Output

Model	Input Voltage (VAC/Hz)	Input Voltage (VDC)	Cooling method / package	Max Output wattage (W)	Output Voltage (V)	Output Voltage Adjustable Range (V)	Output Current (A)*	Maximum capacitive load (µF)	Efficiency @230VAC Typ. (%)**
AMEOF450-12SHAMJZ◎	90-264/47-63	127-370	Free air convection	250	12	11.4 -12.6	20.8	6000	91
			25CFM or -FB option	400			33.3		
AMEOF450-15SHAMJZ◎	90-264/47-63	127-370	Free air convection	250	15	14.25 -15.75	16.7	6000	92
			25CFM or -FB option	400			26.7		
AMEOF450-24SHAMJZ◎	90-264/47-63	127-370	Free air convection	250	24	22.8 -25.2	10.5	6000	93
			25CFM or -FB option	450			18.75		
AMEOF450-27SHAMJZ	90-264/47-63	127-370	Free air convection	250	27	25.65 - 28.35	9.3	4000	93.5
			25CFM or -FB option	450			16.7		
AMEOF450-36SHAMJZ	90-264/47-63	127-370	Free air convection	250	36	34.2 - 37.8	6.95	3000	93
			25CFM or -FB option	450			12.5		
AMEOF450-48SHAMJZ◎	90-264/47-63	127-370	Free air convection	250	48	45.6 - 50.4	5.3	2000	94
			25CFM or -FB option	450			9.4		

Add suffix -F for enclosed package. (ex. AMEOF450-12SHAMJZ-F is enclosed package version)
Add suffix -FB for enclosed package with built-in fan. (ex. AMEOF450-12SHAMJZ-FB is enclosed package with built-in fan version)
*** The output current must not exceed the rated value when the output voltage is trimmed down.**
**** Tested under forced air convection. Fan power consumption is not included.**
Models marked with ◎ have an alternate part number option with shorter lead time. This option has different short circuit protection (SCP) and increased no load power consumption when compared to the standard model. Use the suffix "-002" for the shorter lead time option. (ex. AMEOF450-48SHAMJZ-002 is the shorter lead time version)

Input Specifications

Parameters	Conditions	Typical	Maximum	Units
Input current	90/115VAC		5.2	A
	230VAC		2.6	A
Inrush current	115VAC, cold start	40		A
	230VAC, cold start	80		A
Leakage	264VAC, contact leakage		0.1	mA
	264VAC, earth leakage		0.5	mA
Power factor	115VAC, 100% load	≥0.98		
	230VAC, 100% load	≥0.95		
ON/OFF control	On	≥2	5	V
	Off	≥0	0.5	V

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	12, 15, 24V	±2		%
	27, 36, 48V	±1		%
Line regulation	Full load	±0.5		%
Load regulation	0-100% load	±1		%
Ripple & Noise*			200	mV p-p
Hold up time	115VAC, 25°C	12		ms
	230VAC, 25°C	16		ms

Power good signal**	High	≥2	6	V
	Low	≥0	0.6	V
Standby output	Output voltage	5		V
	Output current, free air convection		0.6	A
	Output current, 25CFM		1	A
	Voltage accuracy	±2		%
	Ripple and noise		120	mV p-p

* Ripple and Noise are measured at 20MHz bandwidth with a 47µF electrolytic capacitor and a 0.1µF ceramic capacitor. Please refer to the application note for specific details.
** TTL high signal will delay 10-500ms after power on the converter. TTL low signal will be sent at least 1ms before the output voltage drops to 90% of the rated output.

Isolation Specification

Parameters	Conditions	Typical	Maximum	Units
Tested I/O voltage	60 sec, leakage ≤ 5mA	≥4000		VAC
Tested I/PE voltage	60 sec, leakage ≤ 5mA	≥2000		VAC
Tested O/PE voltage	60 sec, leakage ≤ 5mA	≥1500		VAC
Resistance I/O, I/PE, O/PE *	500VDC	>100		MΩ
MOP I/O		2xMOPP		
MOP I/PE		1xMOPP		
MOP O/PE		1xMOPP		

* Tested under 25±5°C ambient temperature with relative humidity <95% and no condensation.

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Protection class	Class I			
Over current protection	Auto recovery, hiccup	≥ 105		% of Iout
Over voltage protection	12Vout, shut down, disconnect the input for recovery		15.6	VDC
	15Vout, shut down, disconnect the input for recovery		19.5	VDC
	24Vout, shut down, disconnect the input for recovery		31.2	VDC
	27Vout, shut down, disconnect the input for recovery		35.1	VDC
	36Vout, shut down, disconnect the input for recovery		46.8	VDC
	48Vout, shut down, disconnect the input for recovery		60	VDC
Short circuit protection	Hiccup, Continuous, Auto recovery time < 5S			
Short circuit protection for shorter lead time option (◎)	Supports short-circuit constant current 1S			
Over temperature protection	Auto recovery after the temperature drops below the threshold			
Fan power		12V/0.5A		
No-load power consumption	Ambient temperature 25°C, 230VAC, OFF state		0.5	W
No-load power consumption for shorter lead time option (◎)	Ambient temperature 25°C, 230VAC, OFF state		0.6	W
Operating altitude			5000	m
Operating temperature	See derating graph	-40 to +70		°C
Storage temperature		-40 to +85		°C
Temperature coefficient		±0.03		%/°C
Cooling	Free air convection, forced air convection 25CFM			
Humidity	Non-condensing, storage	>10	95	% RH
	Non-condensing, operating	>20	90	% RH
Case material	Enclosed package	Metal (5052 Aluminum, SUS304)		
Weight	Open frame	400		g
	Enclosed, -F option	605		g
	Enclosed, -FB option	645		g

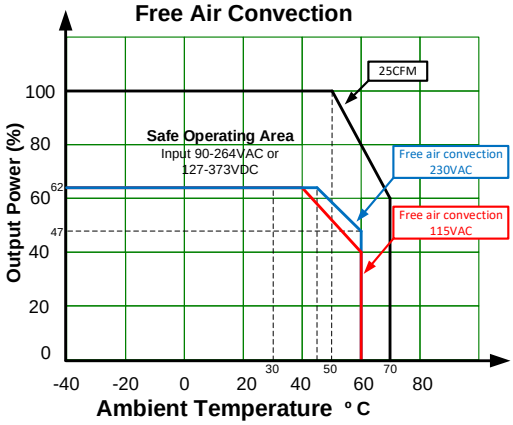
Dimensions (L x W x H)	Open frame	5.00 x 3.00 x 1.52 inches (127.0 x 76.2 x 38.5 mm)
	Enclosed, -F option	5.12 x 3.39 x 1.70 inches (130.0 x 86.0 x 43.0 mm)
	Enclosed, -FB option	6.30 x 3.39 x 1.70 inches (160.0 x 86.0 x 43.0 mm)
MTBF	> 200 000 hrs (MIL-HDBK -217F, t=+25°C)	
NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.		

Safety Specifications

Parameters		
Agency approvals	CE: EN62368-1 cULus: UL62368-1; UL60601(ANSI/AAMI ES60601-1 V3.1) with exception of models marked ◎	
Standards	Design to meet IEC62368-1, IEC/EN60601-1 V3 2xMOPP, GB4943.1, IEC/EN61558, EN60601-1-2 Ed4, IEC60601-1-2:2014 V4, IEC/EN60335-1, CAN/CSA-C22.2 No.60601-1:14 Ed3	
	EMC - Conducted and radiated emission*	CISPR32 / EN55032, CISPR11 / EN55011, conducted class B CISPR32 / EN55032, CISPR11 / EN55011, radiated class B
	EMC - Harmonic current emissions*	IEC 61000-3-2 class D for open frame models IEC 61000-3-2 class A for enclosed models
	EMC - Voltage fluctuations and flicker *	IEC 61000-3-3
	Electrostatic Discharge Immunity *	IEC 61000-4-2 Contact ±8KV, Air ±15KV, Criteria A
	RF, Electromagnetic Field Immunity *	IEC 61000-4-3 10V/m, Criteria A
	Electrical Fast Transient/Burst Immunity *	IEC 61000-4-4 ±2KV, Criteria A
	Surge Immunity *	IEC 61000-4-5 L-L ±2KV L-G ±4KV, Criteria A
	RF, Conducted Disturbance Immunity *	IEC 61000-4-6 10Vr.m.s, Criteria A
	Voltage dips, Short Interruptions Immunity *	IEC 61000-4-11 0%, 70%, Criteria B
* The power supply is considered as a component and will be installed in an end-product. All the EMC tests are performed with the power supply mounted on a 1mm thick 360mm x 360mm metal plate. The EMC compliance of the end-product must be reconfirmed.		

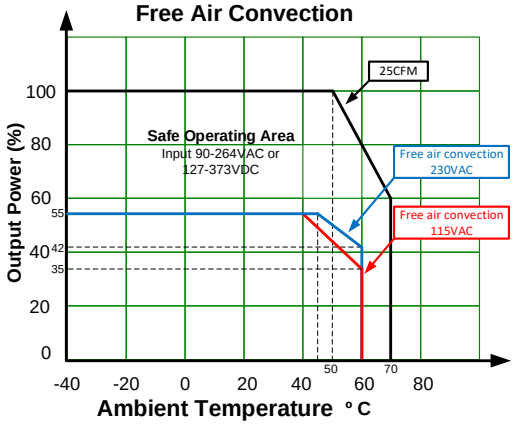
Derating

12, 15Vout open frame models

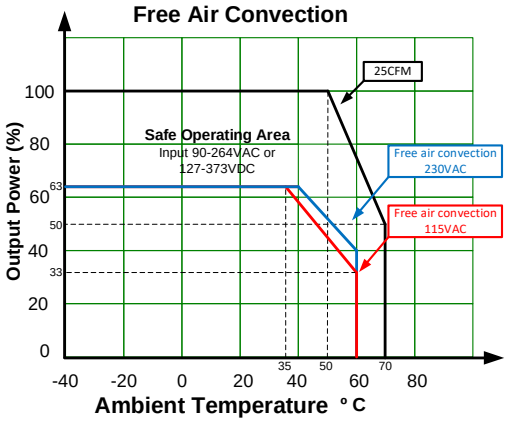


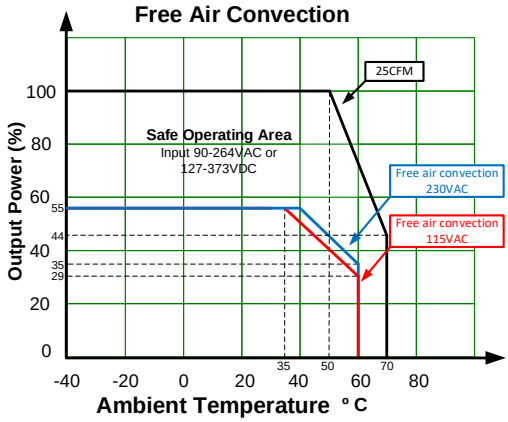
12, 15Vout enclosed -F models

24, 27, 36, 48Vout open frame models

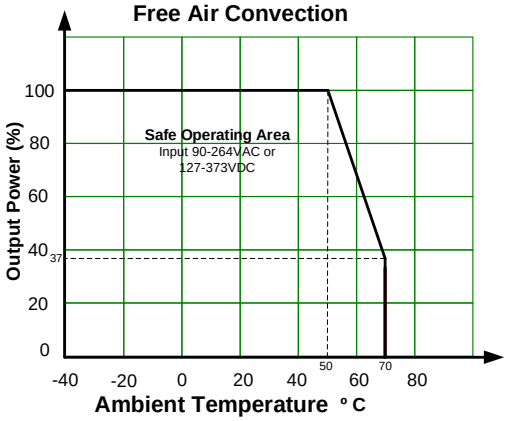


24, 27, 36, 48Vout enclosed -F models

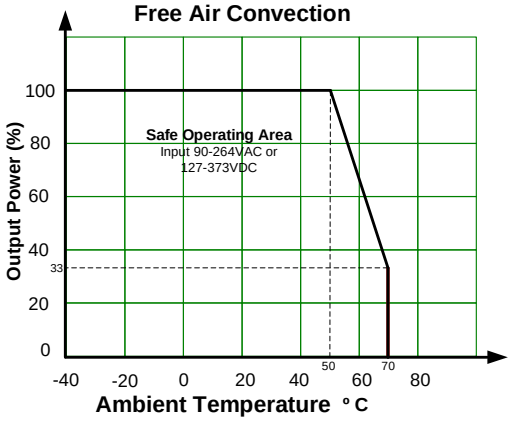


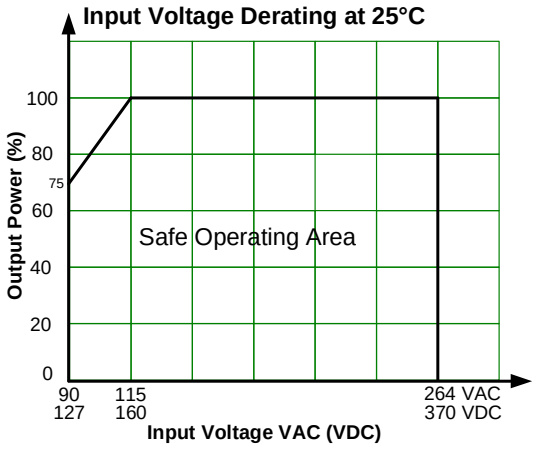


12, 15Vout enclosed -FB models



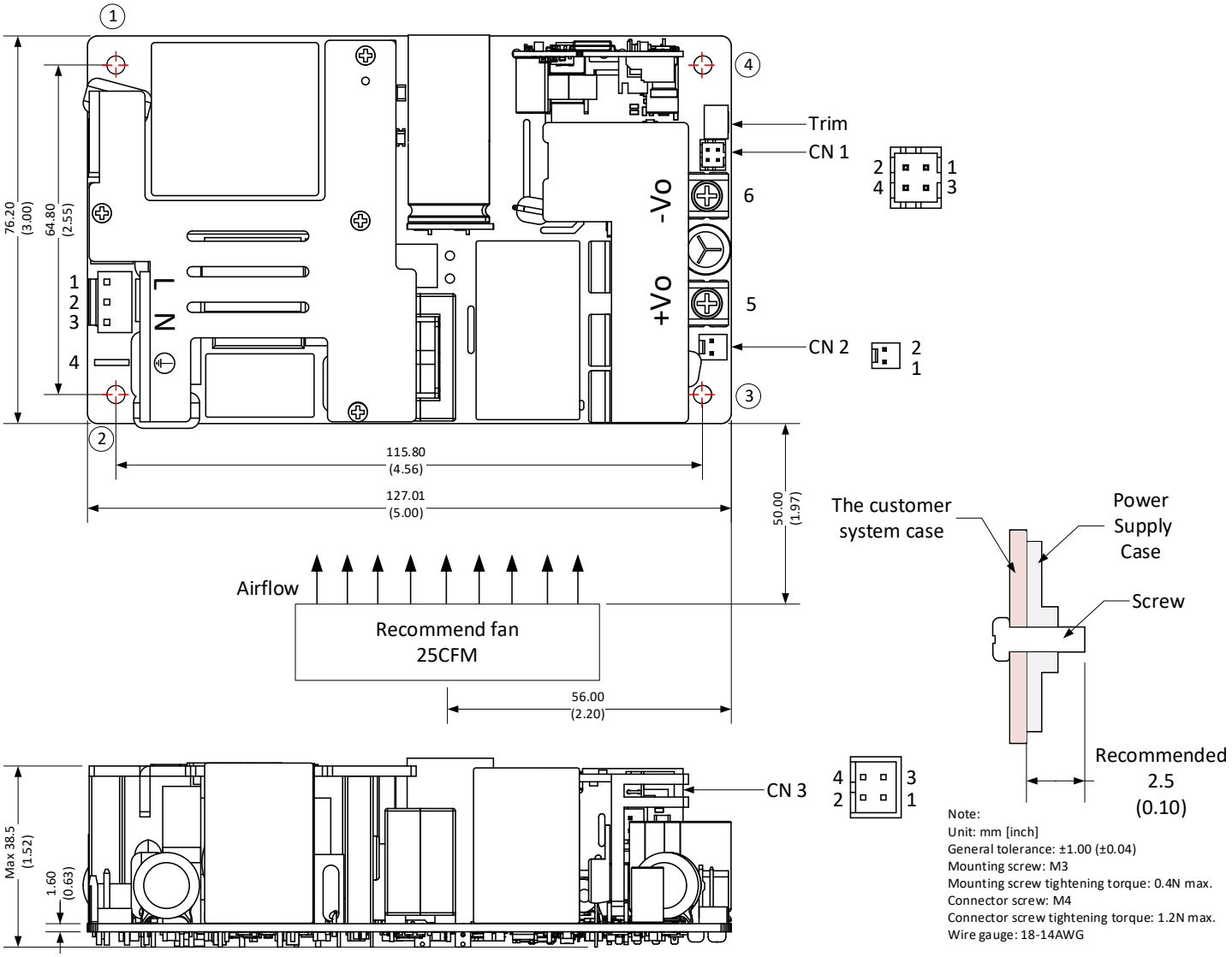
24, 27, 36, 48Vout enclosed -FB models





Dimensions

Open frame model



Note:
Unit: mm [inch]
General tolerance: ±1.00 (±0.04)
Mounting screw: M3
Mounting screw tightening torque: 0.4N max.
Connector screw: M4
Connector screw tightening torque: 1.2N max.
Wire gauge: 18-14AWG

Note:

1. It is needed to have ≥ 10mm distance between the product and external components for safety.
2. Connect mounting point 1, 2 and 3 to protective earth for Class I system.
3. Disconnect the power before servicing.

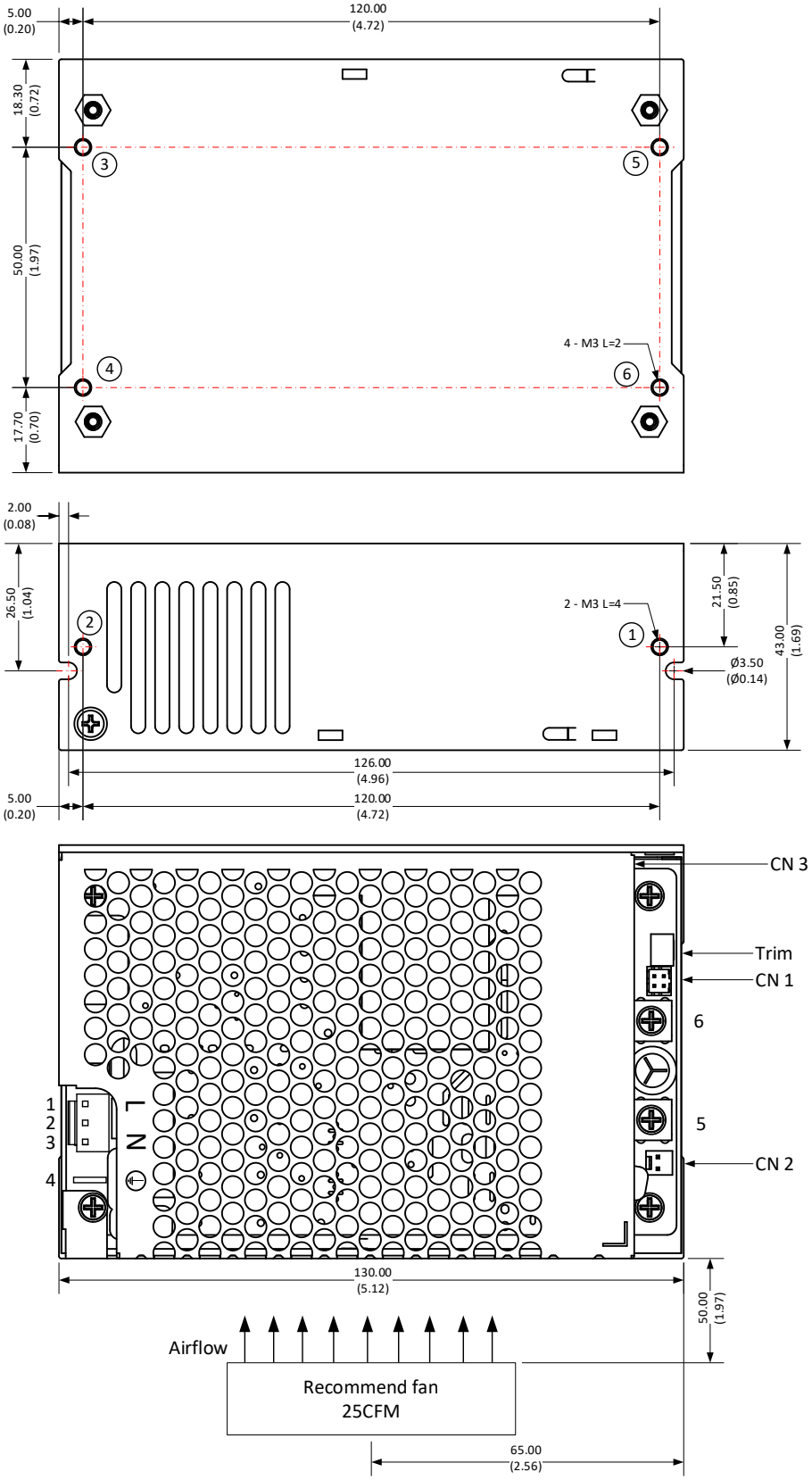
Pin Output Specifications			
Pin	Function	Connector	Recommended connector
1	AC Input (L)	JST SVH-21T-P1.1 or equivalent	JST VHR or equivalent
2	NC		
3	AC Input (N)		
4	Earth ⏚	-	
5	+V Output		
6	-V Output		

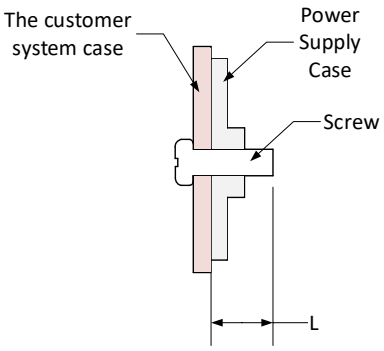
CN1 Pin Output Specifications			
Pin	Function	Connector	Recommended connector
1	Sense -	JST PHD or equivalent	JST PHD or equivalent
2	Sense +		
3	GND		
4	Power good signal		

CN2 Pin Output Specifications			
Pin	Function	Connector	Recommended connector
1	+ Fan Output	TKP 8811 or equivalent	TKP 2502 or equivalent
2	- Fan Output		

CN3 Pin Output Specifications			
Pin	Function	Connector	Recommended connector
1	5V	JST PHD or equivalent	JST PHD or equivalent
2	GND		
3	On/off		
4	GND		

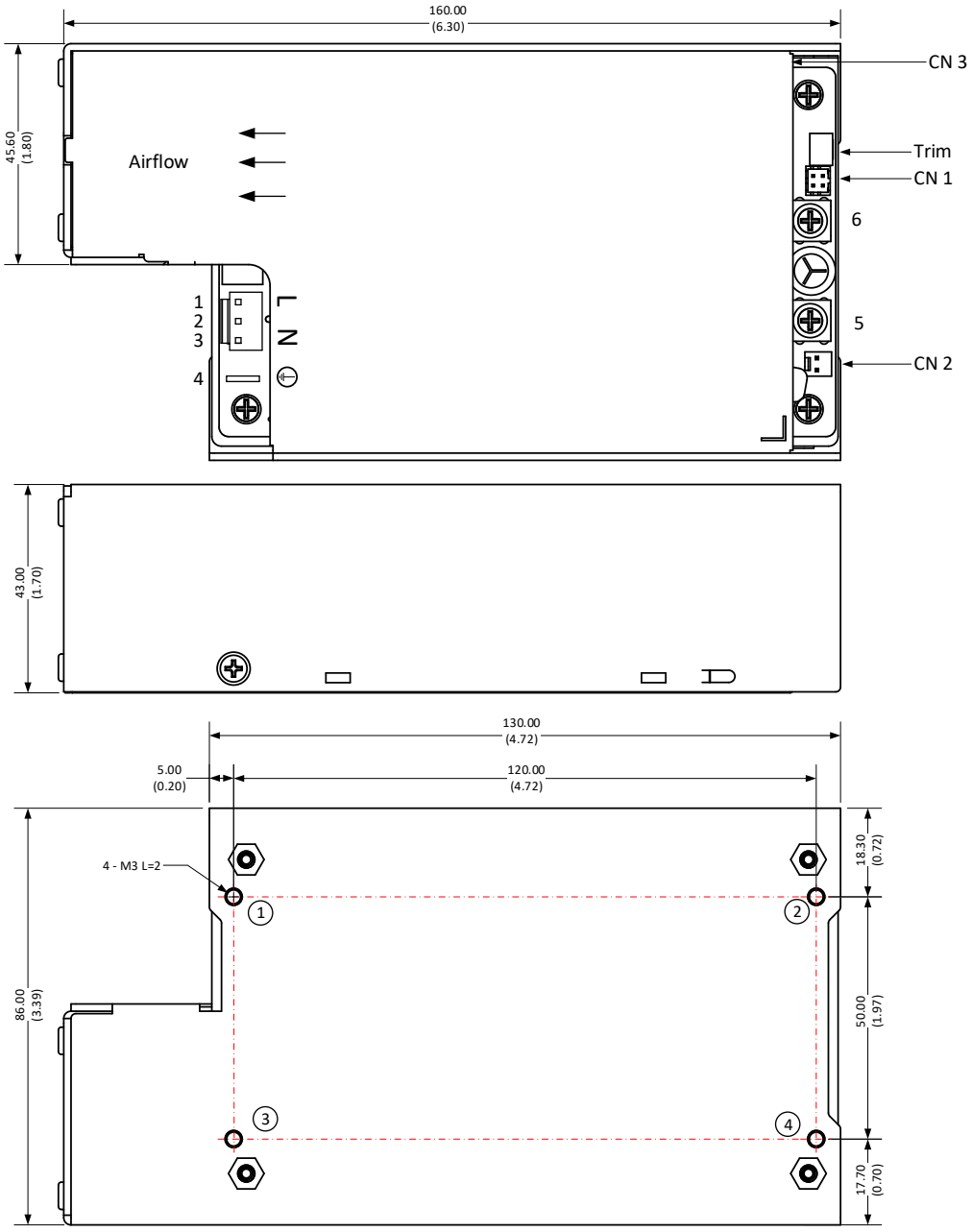
Enclosed -F model

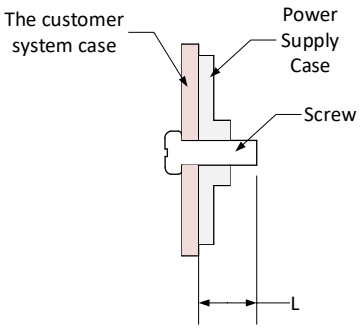




Note:
Unit: mm [inch]
General tolerance: ±1.00 (±0.04)
Mounting screw: M3
Mounting screw tightening torque: 0.4N max.
Connector screw: M4
Connector screw tightening torque: 1.2N max.
Case must be connected to PE

Enclosed with built-in fan -FB model





Note:
Unit: mm [inch]
General tolerance: ±1.00 (±0.04)
Mounting screw: M3
Mounting screw tightening torque: 0.4N max.
Connector screw: M4
Connector screw tightening torque: 1.2N max.
Case must be connected to PE