CFM300M SERIES
300 WATT MEDICAL
AC-DC POWER SUPPLY WITH PFC

Features

- Universal Input Range 90~264Vac
- High Efficiency up to 94%
- 3"x 5" Compact Size
- Meets Class I
- No Load Input Power Consumption<0.3W
- Approval Safety IEC/EN/UL 60601-1 2MOPP
- Meets EN 55011 Class B
- Active PFC Meets EN 61000-3-2
- Operating Altitude 3000m
- High Power Density 14.1W/Inches^3
- Over Temperature Protection
- Continuous Short Circuit Protection
- Remote Voltage Sense
- PS On/Off Remote Control
- Power Good & Power Fail Signal
- +5V Stand-by, 12V Fan Output





MODEL NUMBER	OUTPUT VOLTAGE	OUTPUT CURRENT		RIPPLE& NOISE NOTE2	VOLTAGE ACCURACY NOTE3	VOLTAGE ADJ. RANGE	LINE REGULATION NOTE4	LOAD REGULATION NOTE5	% EFF. (Typ.) NOTE6
		FAN COOLED NOTE1	NATURAL CONVECTION						
CFM300M120	12 V	25 A	16.67 A	120 mV	±1%	11.4~12.6	±0.5%	±1%	92.5%
CFM300M240	24 V	12.5 A	8.34 A	150 mV	±1%	22.8~25.2	±0.5%	±1%	93.5%
CFM300M360	36 V	8.34 A	5.56 A	150 mV	±1%	34.2~37.8	±0.5%	±1%	93.5%
CFM300M480	48 V	6.25 A	4.17 A	150 mV	±1%	45.6~50.4	±0.5%	±1%	94%
Stand-by Output Voltage									
All	+5 V	1A	0.6A	100 mV	±3%	--	±1%	±5%	
Fan Output Voltage									
All	+12 V	--	0.5A	--	--	--	--	--	--

Note:

1. Requires 10CFM.
2. Add a 0.1uF ceramic capacitor and a 10uF E.L. capacitor to output for ripple & noise measuring @20MHz BW.
3. Voltage accuracy is set at full load.
4. Line regulation is measured from 100V_{ac} to 240Vac with full load.
5. Load regulation is measured from 10% to 100% full load.
6. Typical efficiency at 230 V_{ac} and 100% full load at 25℃.
7. No load power consumption<0.3W by PS on/off remote control.
8. PS-ON and GND short, I_{PS-ON} =4.5 mA typical.
9. Input connector (CN1) wafer with TAIWAN KING PIN TERMINAL PVHI series and mate with JST housing VHR series or equivalent.
10. Optional input connector (CN1) wafer with LONG CHU P3060 series and mate with MOLEX housing 5195 series or equivalent.
11. Output connector CN4 wafer with JST PH series and mate with JST housing PH series or equivalent.
12. Output connector CN5 wafer with TAIWAN KING PIN TERMINAL P110I series and mate with JST housing PH series or equivalent.
13. Output connectors (Vo+ & Vo- with M3 screw) mate with round terminal and round terminal of the max. outer diameter is 6.75mm, max. inner diameter is 3.9mm.

PART NUMBER

Series	Number of Outputs	Nominal Output Voltage	Type
CFM300	O	XXX	Y
CFM300	M：Medical	120：12V 240：24V 360：36V 480：48V	None：With Baseplate C：With Cover

Part Number Example:

CFM300M120: With Baseplate, 300W, 12Vdc Output

CFM300M120C: With Case, 300W, 12Vdc Output

TECHNICAL SPECIFICATIONS

(All specifications are typical at nominal input, full load at 25℃ unless otherwise noted.)

ABSOLUTE MAXIMUM RATINGS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Input Voltage		All	90 120		264 370	V_{ac} V_{dc}
Operating Temperature	See Derating Curve	All	-40		80	℃
Storage Temperature		All	-40		85	℃
Operating Altitude		All			3000	m

INPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Operating Voltage Range		All	100		240	V_{ac}
Input Frequency Range		All	47		63	Hz
Maximum Input Current	100% Load, V_{in}=100V_{ac}	All			4	A
Leakage Current (Earth)		All		180	300	uA
Leakage Current (Touch)		All			100	uA
Inrush Current	V_{in}=240V_{ac}, Cold start @25℃	All			30	A
Power Factor	230V_{ac} @ Full load	All	0.95			

OUTPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Output Voltage Set Point	V_{in}=Nominal V_{in}, I_o=I_o max., T_c=25℃	CFM300M120 CFM300M120C	11.4	12	12.6	V_{dc}
		CFM300M240 CFM300M240C	22.8	24	25.2	
		CFM300M360 CFM300M360C	34.2	36	37.8	
		CFM300M480 CFM300M480C	45.6	48	50.4	
Operating Output Current Range	Vin=90V_{ac}~264V_{ac}, **See Derating Curve**	CFM300M120 CFM300M120C	0		25	A
		CFM300M240 CFM300M240C	0		12.5	
		CFM300M360 CFM300M360C	0		8.34	
		CFM300M480 CFM300M480C	0		6.25	
Holdup Time	V_{in}=115V_{ac}	All		20		ms
Output Voltage Regulation						
Load Regulation	10% Load to full load	All			±1.0	%
Line Regulation	V_{in}=High line to low line	All			±0.5	%
Output Voltage Adjustment	P_o≦max. rated power, I_o≦$I_{o_max.}$	All	-5		+5	%
Over Voltage Protection	Latch off (AC recycle to reset)	CFM300M120 CFM300M120C		15		V_{dc}
		CFM300M240 CFM300M240C		30		
		CFM300M360 CFM300M360C		43		
		CFM300M480 CFM300M480C		56		
Over Current Protection	Auto recovery (hiccup mode)	All	130	150	180	%

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Short Circuit Protection	Auto recovery	All				
Over Temperature Protection	Auto recovery (the temperature of C37)	All			110	℃
Output Ripple and Noise	1. Add a 0.1uF ceramic capacitor and a 10uF aluminum electrolytic capacitor to output 2. Oscilloscope is 20MHz band width 3. Ambient Temperature=25℃	CFM300M120 CFM300M120C			120	mV
		CFM300M240 CFM300M240C			150	
		CFM300M360 CFM300M360C			150	
		CFM300M480 CFM300M480C			150	
Load Capacitance	1. V_{in}=115V_{ac} and 230V_{ac} 2. Output is max. load 3. Ambient temperature=25℃	CFM300M120 CFM300M120C			25000	uF
		CFM300M240 CFM300M240C			12500	
		CFM300M360 CFM300M360C			5000	
		CFM300M480 CFM300M480C			3750	
Efficiency	1. Input Voltage is 230V_{ac} 2. Output is rated load 3. Ambient temperature=25℃	CFM300M120 CFM300M120C		92.5		%
		CFM300M240 CFM300M240C		93.5		
		CFM300M360 CFM300M360C		93.5		
		CFM300M480 CFM300M480C		94.0		
PS-On Signal	Power on Power off (PS-ON and GND open)	All	0 11		2 16	V_{dc}
	Power on (PS-ON and GND short) Power-off (PS-ON and GND open)		Source Current 4.5 0			mA
Power Good (PG)	1. Input Voltage is 90 V_{ac} ~230V_{ac} 2. Output is max. load 3. The TTL goes high after power set up	All	50		250	ms
Power Fail (PG)	1. Input Voltage is 90 V_{ac} ~230V_{ac} 2. Output is max. load 3. The TTL goes low before Vo below 90% rated value	All	5		20	ms

ISOLATION CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Input to Output	1 Minute (without dielectric breakdown)	All			4000	V_{ac}
Input to Earth (Ground)	1 Minute (without dielectric breakdown)	All			1800	V_{ac}
Output to Earth (Ground)	1 Minute (without dielectric breakdown)	All			1800	V_{ac}
Isolation Resistance	Input to output	All	100			MΩ

FEATURE CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Switching Frequency	P_{out}=max. rated power	All		70		kHz

GENERAL SPECIFICATIONS

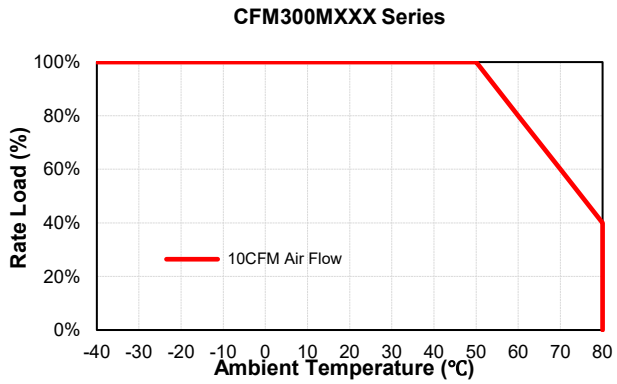
PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
MTBF	I_o=100%; T_a=25℃ per MIL-HDBK-217F I_o=100%; T_a=25℃, Telcordia SR332	All	1295	160		k hours
Life Time	@75% Load, 40℃ with fan	All	128			k hours
Humidity	Non-condensing	All			93	% RH
Shock	Meet MIL-STD-810F Table 516.5,Table 516.5-I 10ms, each axis 3 times(±X、±Y、±Z axis)	All		75		g

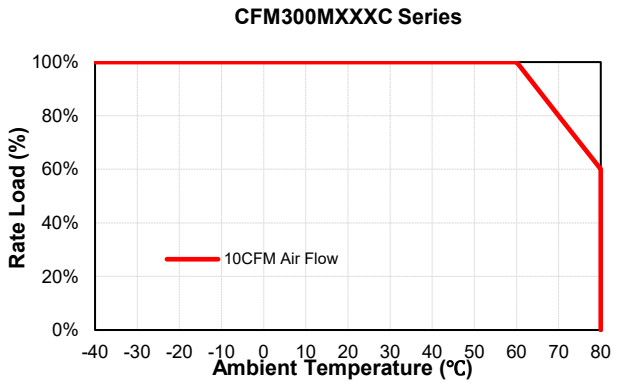
GENERAL SPECIFICATIONS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Vibration	Meet MIL-STD-810F Table 514.5C-VIII,15~2000Hz, X、Y、Z axis, 1 hour (each axis),. Total 3 hrs.	All		4		g
Weight		CFM300MXXX CFM300MXXXC		420 550		grams
Dimensions	With Baseplate	All		5.000x3.000x1.421 Inches (127.00x76.20x36.10 mm)		
	With Cover			5.354x3.425x1.591 Inches (136.00x87.00x40.40 mm)		
Safety	Class I ANSI/AAMI ES 60601-1:2005 & A1:2012 & A2:2021 IEC 60601-1:2005+A1+A2 EN 60601-1:2006+A1+A12+A2					Ed. 3.2
EMC Emission	EN 55011: 2016+A11: 2020, Class B, IEC/EN 61000-3-2: 2019, EN 61000-3-3: 2013+A1: 2019, 47 FCC CFR Part 18					
Conducted Disturbance	EN 55011: 2016+A11: 2020, 47 FCC CFR Part 18					Class B
Radiated Disturbance	EN 55011: 2016+A11: 2020, 47 FCC CFR Part 18					Class B
Harmonic Current Emissions	IEC/EN 61000-3-2: 2019					Class D
Voltage Fluctuations & Flicker	EN 61000-3-3:2013+A1: 2019					Criterion A
EMC Immunity	EN 60601-1-2: 2015+A1:2021, IEC 61000-4-2, 3, 4, 5, 6, 8, 11					Ed 4.1
Electrostatic Discharge (ESD)	IEC 61000-4-2:2008, Contact Discharge: ±2kV, ±4kV, ±6kV					Criterion A
Radio-Frequency, Continuous Radiated Disturbance	IEC 61000-4-3: 2020					Criterion A
Electrical Fast Transient (EFT)	IEC 61000-4-4:2012, ±2kV					Criterion A
Surge	IEC 61000-4-5:2014+A1:2017, L-N: ±1kV, L-PE, N-PE: ±2kV					Criterion A
Conducted Disturbances, Induced by RF Fields	IEC 61000-4-6: 2013					Criterion A
Power Frequency Magnetic Field	IEC 61000-4-8: 2009					Criterion A
Voltage Dips	IEC 61000-4-11: 2020, Dip: 30% Reduction, Dip >95% Reduction					Criterion A
Voltage Interruptions	IEC 61000-4-11: 2020, >95% reduction					Criterion B
Application Note Link	CFM300M Series App Notes					

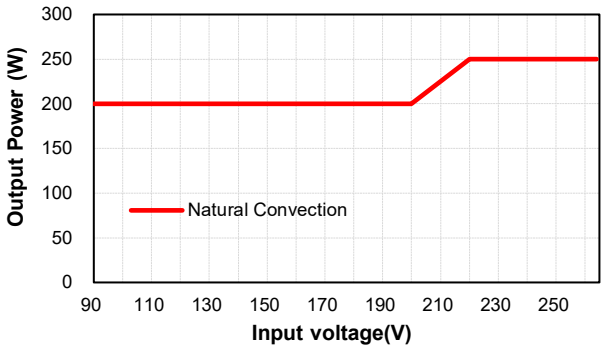
CHARACTERISTIC CURVE

Power Derating Curve

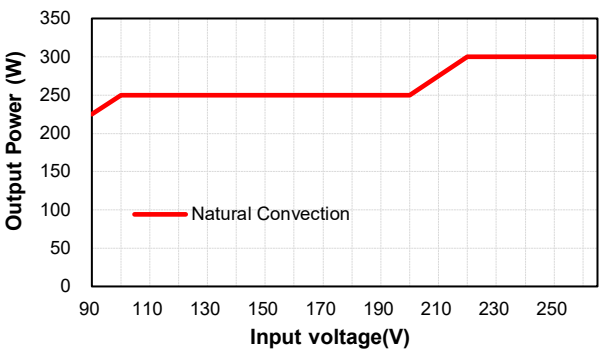




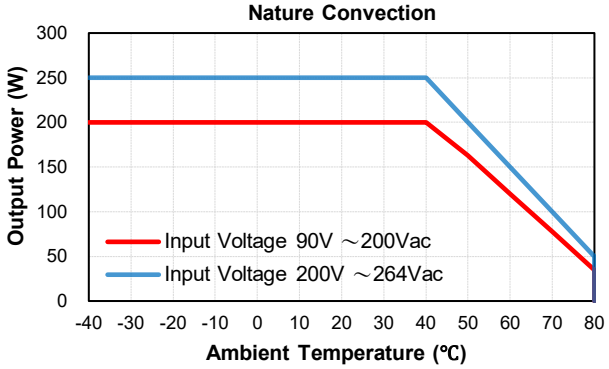
CFM300MXXX Series



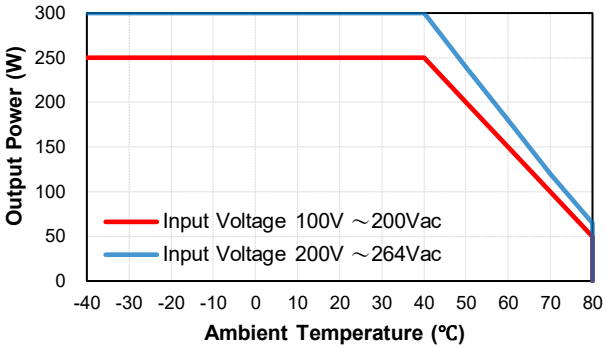
CFM300MXXXC Series



CFM300MXXX Series
Nature Convection

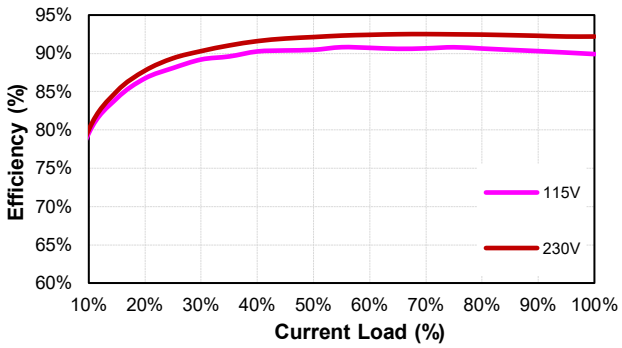


CFM300MXXXC Series
Nature Convection

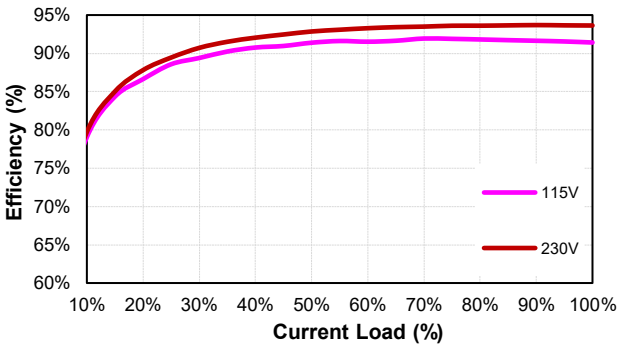


Performance Data

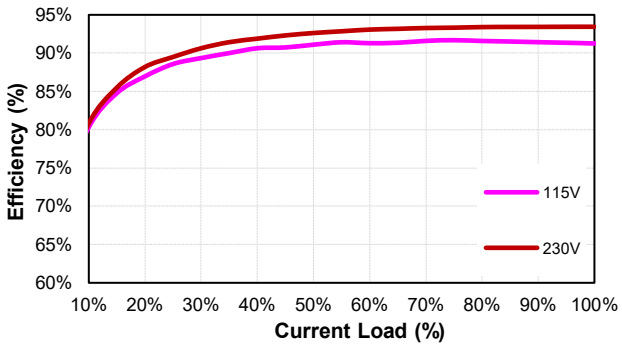
CFM300M120 (Eff Vs Io)



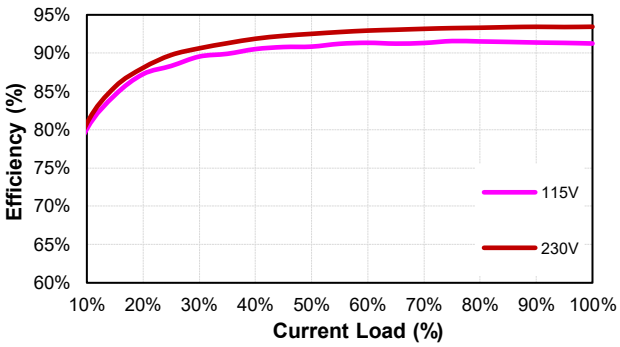
CFM300M240 (Eff Vs Io)



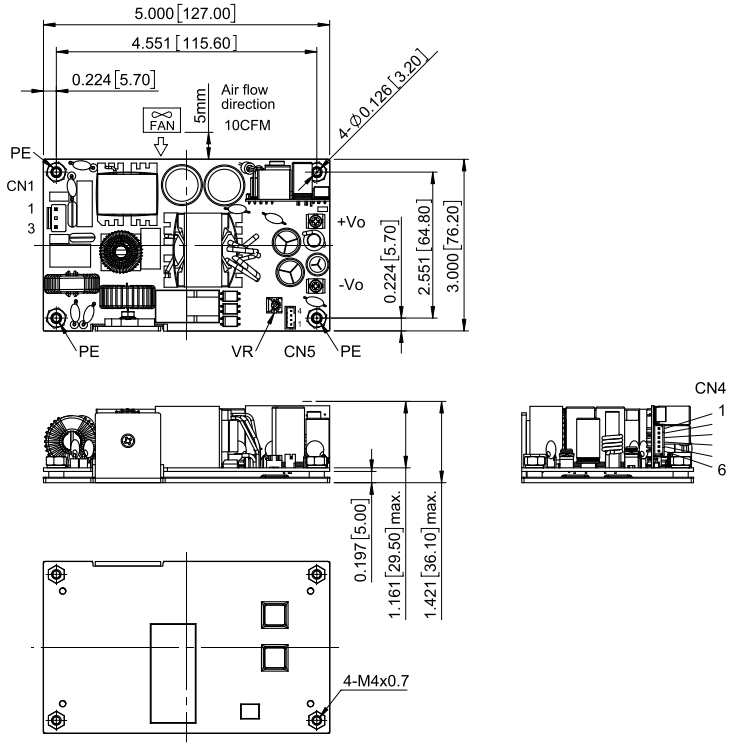
CFM300M360 (Eff Vs Io)



CFM300M480 (Eff Vs Io)



MECHANICAL SPECIFICATION



All Dimensions in Inches[mm]
Tolerance Inches: x.xxx=±0.020
Millimeters: x.xx=±0.50

CFM300MXXX

AC Input Connector(CN1):TKP PVHI-03N2 or equivalent

Pin	Function	Mating Housing	Terminal
1	ACL	JST VHR-3N or equivalent	JST SVH-21T-P1.1 or equivalent
2	-		
3	ACN		

DC Output Connector(CN4):JST S6B-PH-K-S(LF)(SN) or equivalent

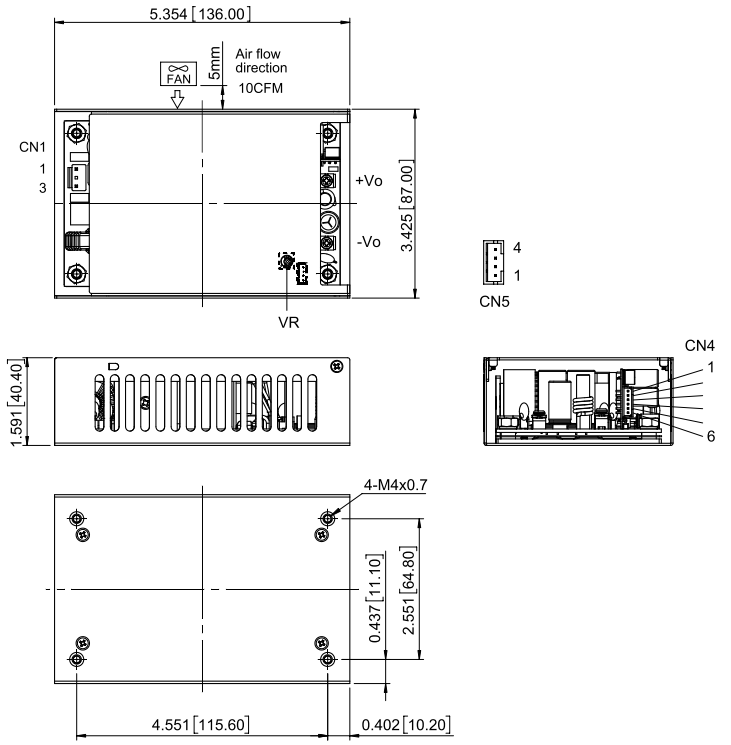
Pin	Function	Mating Housing	Terminal
1	FAN Output-	JST PHR-6 or equivalent	JST SPH-002T-P0.5L or equivalent
2	FAN Output+		
3	GND		
4	+5VSB		
5	GND		
6	PS-ON		

DC Output Connector(CN5):TKP P110I-04 or equivalent

Pin	Function	Mating Housing	Terminal
1	GND	JST PHR-4 or equivalent	JST SPH-002T-P0.5L or equivalent
2	PG		
3	-Sense		
4	+Sense		

DC Output Connector:KANG YANG PCB-17AB-1 or equivalent

Function	The screw locked torque
+Vo	M3 3kgf-cm
-Vo	



All Dimensions in Inches[mm]
Tolerance Inches: x.xxx=±0.020
Millimeters: x.xx=±0.50

CFM300MXXXC

AC Input Connector(CN1):TKP PVHI-03N2 or equivalent

Pin	Function	Mating Housing	Terminal
1	ACL	JST VHR-3N or equivalent	JST SVH-21T-P1.1 or equivalent
2	-		
3	ACN		

DC Output Connector(CN4):JST S6B-PH-K-S(LF)(SN) or equivalent

Pin	Function	Mating Housing	Terminal
1	FAN Output-	JST PHR-6 or equivalent	JST SPH-002T-P0.5L or equivalent
2	FAN Output+		
3	GND		
4	+5VSB		
5	GND		
6	PS-ON		

DC Output Connector(CN5):TKP P110I-04 or equivalent

Pin	Function	Mating Housing	Terminal
1	GND	JST PHR-4 or equivalent	JST SPH-002T-P0.5L or equivalent
2	PG		
3	-Sense		
4	+Sense		

DC Output Connector:KANG YANG PCB-17AB-1 or equivalent

Function	The screw locked torque
+Vo	M3 3kgf-cm
-Vo	

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