



# CFM130S SERIES 130 WATT OPEN FRAME AC-DC MODULES WITH PFC

## Features

- Universal Input Range 80~264VAC
- High Efficiency up to 94%
- 2"x 3" Open Frame Compact Size
- 100W with Natural Convection
- 130W with Fan-Cooled
- Active PFC Function
- Continuous Short Circuit Protection
- No Load Input Power Consumption<150mw
- Operating Altitude 5000m
- Meets IEC/EN/UL 60601-1 2 MOPP, IEC/EN60335-1
- Approved Safety IEC/EN/UL 62368-1
- EMI Safety Meets Class I & Class II (NOTE 8)



MODEL NUMBER	OUTPUT VOLTAGE	OUTPUT CURRENT		RIPPLE & NOISE NOTE2	VOLTAGE ACCURACY NOTE1	LINE REGULATION NOTE3	LOAD REGULATION NOTE4	%EFF. (Typ) NOTE5
		NATURAL CONVECTION	FAN COOLED NOTE7					
CFM130S120	12 V	8.34 A	10.8 A	1%	±2%	±0.5%	±1%	93%
CFM130S240	24 V	4.2 A	5.4 A	1%	±2%	±0.5%	±1%	93%
CFM130S360	36 V	2.8 A	3.6 A	1%	±2%	±0.5%	±1%	94%
CFM130S480	48 V	2.1 A	2.7 A	1%	±2%	±0.5%	±1%	94%

Note:

1. Voltage accuracy is set at full load.
2. Add a 0.1uF ceramic capacitor and a 10uF E.L. capacitor to output for ripple & noise measuring @20MHz BW.
3. Line regulation is measured from 100Vac to 240Vac with full load.
4. Load regulation is measured from 10% to 100% full load.
5. Typical efficiency at 230 VAC and full load at 25°C.
6. Standard input and output connectors (CN1 and CN2) wafer with TAIWAN KING PIN TERMINAL PVHI series and mate with JST housing VHR series or equivalent.
7. Requires 10CFM.
8. Conductive: Class I & Class II meets Class B Radiation: Class I meet Class B, Class II meet Class A

## PART NUMBER

Series	Number of Outputs	Nominal Output Voltage	Type
CFM130	O	XX	-Y (Option)
CFM130	S: Single	120: 12VDC	Blank: Wafer B: Base Cooling C: Cover
		240: 24VDC	
		360: 36VDC	
		480: 48VDC	

Part Number Example:

**CFM130S120-B:** Open Frame, 130W, Single 12Vdc Output, Base Cooling



# CFM130S Series

## TECHNICAL SPECIFICATIONS

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

### ABSOLUTE MAXIMUM RATINGS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Input Voltage		All	80		264	V <sub>ac</sub>
Operating Temperature	See Derating Curve	All	-30		70	°C
Storage Temperature		All	-40		85	°C
Input/Output Isolation Voltage	1 minute	All	4000			V <sub>ac</sub>
Operating Altitude		All			5000	m

### INPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Operating Voltage Range		All	100		240	V <sub>ac</sub>
Input Frequency Range		All	47		60	Hz
Maximum Input Current	100% Load, V <sub>in</sub> =100Vac	All			1.8	A
Leakage Current (Earth)		All			300	uA
Leakage Current (Touch)		All			100	uA
Under Voltage Protection		All	55	62	70	V

### OUTPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Output Voltage Set Point	V <sub>in</sub> =Nominal V <sub>in</sub> , I <sub>o</sub> =I <sub>o</sub> max., T <sub>c</sub> =25°C.	CFM130S120	11.76	12	12.24	V <sub>dc</sub>
		CFM130S240	23.52	24	24.48	
		CFM130S360	35.28	36	36.72	
		CFM130S480	47.04	48	48.96	
Operating Output Current Range	Safety Approvals do not Apply to the Base Plank & Cover Versions, Only to the Open Frame Versions.	CFM130S120			10.8	A
		CFM130S240			5.4	
		CFM130S360			3.6	
		CFM130S480			2.7	
Holdup Time	V <sub>in</sub> =115Vac	All		20		ms
Output Voltage Regulation						
Load Regulation	20% Load to Full Load	All			±1.0	%
Line Regulation	V <sub>in</sub> =High Line to Low Line	All			±0.5	%
Over Voltage Protection		CFM130S120		13.5		V <sub>dc</sub>
		CFM130S240		30		
		CFM130S360		42		
		CFM130S480		54		
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°C	CFM130S120			120	mV
		CFM130S240			150	
		CFM130S360			240	
		CFM130S480			480	
Load Capacitance	1. Ambient Temperature=25°C 2. Input Voltage is 115VAC and 230VAC 3. Output is max. Load	CFM130S120			8400	uF
		CFM130S240			4200	
		CFM130S360			2720	
		CFM130S480			2040	
Efficiency	Output is rated load Ambient temperature=25°C @ Input voltage is 230VAC	CFM130S120		93		%
		CFM130S240		93		
		CFM130S360		94		
		CFM130S480		94		



# CFM130S Series

## ISOLATION CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Input to Output	1 minute (without dielectric breakdown)	All			3000	V <sub>ac</sub>
Input to Earth(Ground)	1 minute (without dielectric breakdown)	All			1500	V <sub>ac</sub>
Output to Earth(Ground)	1 minute (without dielectric breakdown)	All			500	V <sub>ac</sub>
Isolation Resistance	Input to Output	All	100			MΩ

## FEATURE CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Switching Frequency		All		105		KHz

## GENERAL SPECIFICATIONS

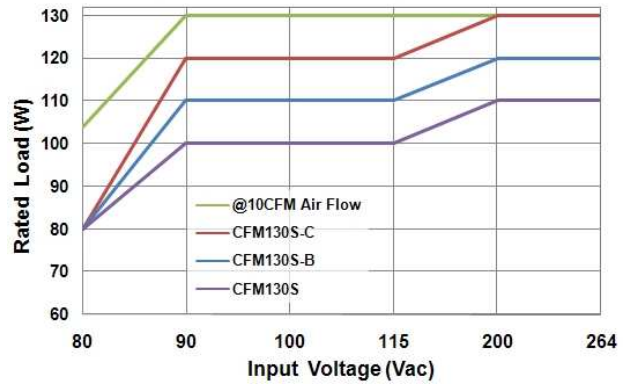
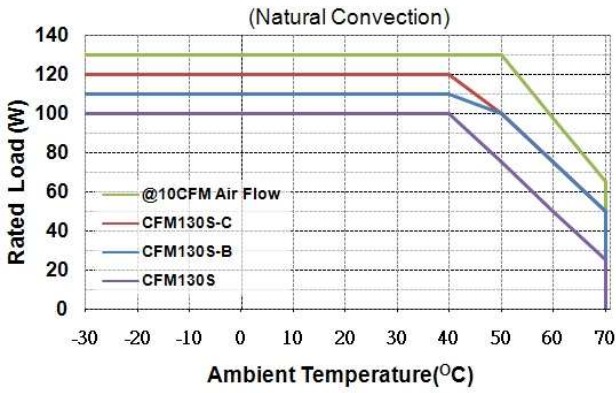
PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
MTBF	I <sub>o</sub> =100%; T <sub>a</sub> =25°C per MIL-HDBK-217F	All	400			K hours
Humidity	Nom-condensing	All			93	% RH
Shock	Mests MIL-STD-810F Table 516.5, TABLE 516.5-1 10ms, each axis 3 times(+X · Y · Z axis)	All		75		g
Vibration	Mests MIL-STD-810F Table 514.5C-VIII, 15~2000Hz, X · Y · Z axis, 1 hr(each axis),. total 3 hrs.	All		4		g
Weight		CFM130S CFM130S-B CFM130S-C		135 170 218		grams
Safety	Class I, Class II, IEC/EN/UL62368-1 Safety approvals do not apply to the base cooling & covered version only to the open frame versions					
EMC Emission	EN 55032: 2015+A1: 2016, 47 CFR FCC Part 15 Subpart B ,EN 61204-3: 2000, EN 6100-6-3: 2007+A1: 2011+AC: 2012, EN 6100-6-4: 2007+A1: 2011					Class B
Conducted Disturbance	EN 55032, 47 CFR FCC Part 15 (Class I & Class II meets Class B)					Class B
Radiated Disturbance	EN 55032, 47 CFR FCC Part 15 (Class I Meet Class B; Class II Meet Class A)					Class B
Harmonic Current Emissions	EN 61000-3-2:2014					Class A
Voltage Fluctuations & Flicker	EN 61000-3-3:2013					
EMC Immunity	EN 55024: 2010+A1: 2015, EN 61000-6-1: 2007, EN 61000-6-2: 2005+AC, EN 61204-3: 2000					
Electrostatic Discharge (ESD)	IEC 61000-4-2:2008 Air Discharge: ±8kV, Contact Discharge: ±4kV					Criterion A
Radio-Frequency, Continuous Radiated Disturbance	IEC 61000-4-3:2010					Criterion A
Electrical Fast Transient (EFT)	IEC61000-4-4:2012, ±1kV, ±2kV					Criterion A
Surge	IEC61000-4-5:2014, L-N: ±0.5kV, ±1kV, L-E(Ground): ±0.5kV, ±1kV, ±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 61000-4-11:2004, Dip: 30% Reduction, Dip >95% Reduction					Criterion A
Voltage Interruptions	IEC 61000-4-11:2004, >95% Reduction					Criterion B
Application Note Link						<a href="#">CFM130S Series App Notes</a>



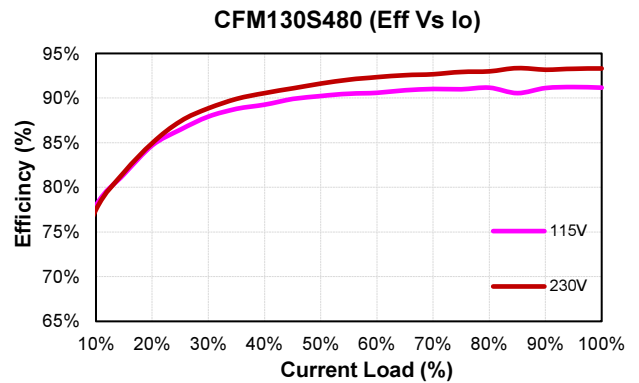
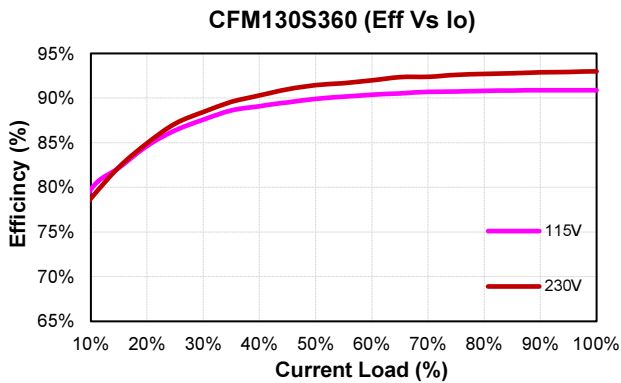
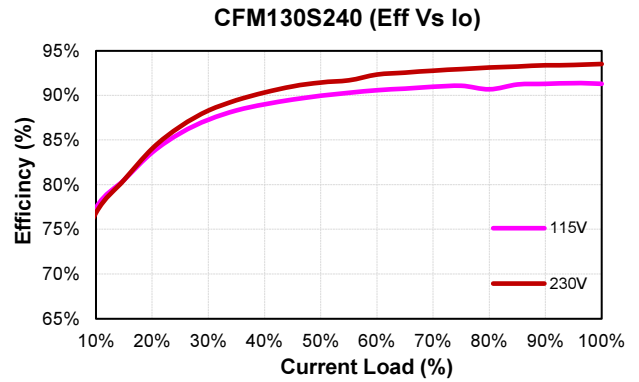
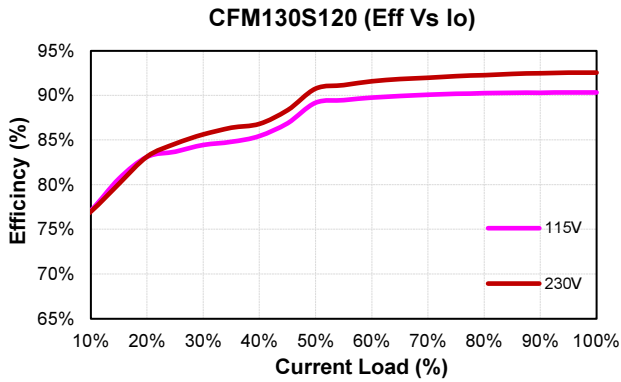
# CFM130S Series

## CHARACTERISTIC CURVE

### Power Derating Curve



### Performance Data

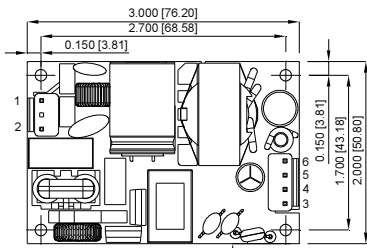




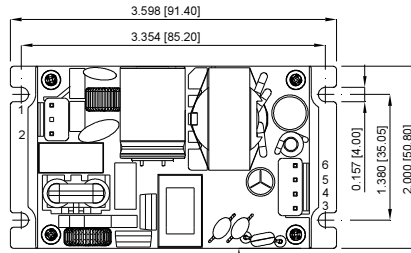
# CFM130S Series

## MECHANICAL SPECIFICATION

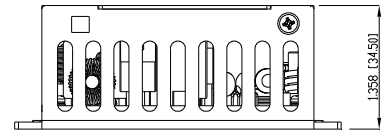
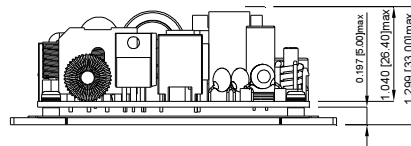
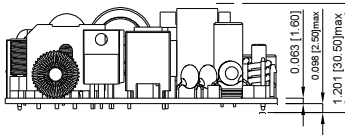
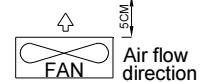
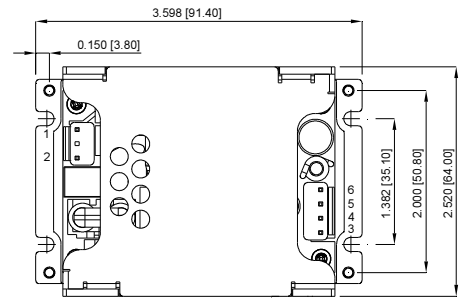
CFM130S



CFM130S-B



CFM130S-C



PIN CONNECTION	
Pin	Function
1	ACL
2	ACN
3	-Vout
4	-Vout
5	+Vout
6	+Vout

All Dimensions In Inches[mm]  
 Tolerance Inches: x.xxx = ± 0.02, x.xxx = ± 0.010  
 Millimeters: x.xx = ± 0.5, x.xx = ± 0.025

CINCON Electronics Co. Ltd.  
 Add: 14F, No. 306, Sec.4, Hsin Yi Rd., Taipei, Taiwan  
 Tel: 886-2-27086210  
 Fax: 886-2-27029852  
 E-mail: sales@cincon.com.tw  
 Web: [www.cincon.com.tw](http://www.cincon.com.tw)