

720-1000W Conduction Cooled Power Supplies

<https://product.tdk.com/en/power/cpfe>
<https://www.emea.lambda.tdk.com/uk/products/cpfe1000fi>



The CPFE1000Fi series industrial AC-DC power supplies offer output power up to 1008W in a conduction cooled low profile package. Features include voltage and current programming, remote on/off, remote sense, a standby supply, i²C communication, and wide operating temperature range of -40°C to +70°C. The CPFE1000Fi is designed to meet MIL-STD-810F vibration and shock.

Features	Benefits
• Smaller Size Than CPFE1000F	• Easier Integration For Industrial Systems
• Base Plate Cooled, No Fan Required	• Quiet Operation, Long Field Life
• Protective Coating Option	• Enables Use In Harsh Environments
• I ² C Interface	• Allows Remote Monitoring

Model Selector				
Model	Nominal Output Voltage (V)	Adjustment Range (V)	Maximum Current (A)	Max Power (W) @ 45°C
CPFE1000Fi-12	12	9.6 - 14.4	60	720
CPFE1000Fi-28	28	22.4 - 33.6	36	1008
CPFE1000Fi-48	48	38.4 - 57.6	21	1008

Part Numbering Scheme

CPFE1000Fi	-	28	-
Series Name		12, 28, 48V	blank U channel, no cover or coating /C U channel and cover, no coating /P Pcb only, no U channel or cover /H Pcb coating

Example: CPFE1000Fi-28/CH

Output Power vs. Ambient Temperature ⁽¹⁾							
Model	Input Voltage	Output Power (W)					
		30°C	40°C	45°C	50°C	60°C	70°C
CPFE1000Fi-12/H, /P, /PH, /C, /CH	90V - 135Vac	720	720	720	720	720	720
	170V - 265Vac	720	720	720	720	720	720
CPFE1000Fi-28/H, /P, /PH	90V - 135Vac	1008	1008	1008	1008	952	896
	170V - 265Vac	1008	1008	1008	1008	1008	1008
CPFE1000Fi-28/C, /CH	90V - 135Vac	1008	952	952	896	840	784
	170V - 265Vac	1008	1008	1008	1008	1008	1008
CPFE1000Fi-48/H, /P, /PH	90V - 135Vac	1008	1008	1008	1008	960	864
	70V - 265Vac	1008	1008	1008	1008	1008	1008
CPFE1000Fi-48/C, /CH	90V - 135Vac	1008	960	960	912	864	816
	170V - 265Vac	1008	1008	1008	1008	1008	1008

Specification					
Model		CPFE1000FI-12		CPFE1000FI-28	CPFE1000FI-48
Input					
Input Voltage Range (Operating)	Vac	90 - 265			
Nominal Input Voltage Range	Vac	100 - 240 (Note: Safety certified for 90-264Vac only)			
Input Frequency	Hz	47 - 63			
Input Current (110 / 220Vac)	A	13.6 / 6.6 (Model dependent)			
Inrush Current (110 / 220Vac)	A	23 / 46 peak			
Leakage Current (at 230Vac, 50Hz)	mA	<1.5			
Power Factor	-	0.95 typical (meets EN61000-3-2)			
Hold Up Time (typ) at 230Vac Input	ms	20 @ 25°C and warmer			
Efficiency (Typical, 100% load, 110 / 220Vac)	%	83 / 86	85 / 88	86 / 89	
Conducted & Radiated EMI	-	Conducted: EN55032/EN55011 Class B, Radiated: Class A			
Immunity	-	See Immunity table			
Line Dip	-	Complies with SEMI F47 (200Vac line only)			
Safety Certifications and Markings	-	IEC/UL/CSA/EN62368-1, 60950-1, CE Mark and UKCA Mark			

Immunity				
Test	Standard	Test Level	Criteria	Notes
ESD	IEC 61000-4-2	±8 kV air discharge, ±4 kV contact discharge	B	See test report
Radiated Susceptibility	IEC 61000-4-3	10 V/m from 80-1000 MHz (80% AM at 1kHz)	A	
Electrical Fast Transient Burst	IEC 61000-4-4	Power line pulses of ± 2kV; I/O line pulses of ± 1kV	B	
Surge	IEC 61000-4-5	±2kV common mode, ±1kV differential mode	B	
Conducted Susceptibility	IEC 61000-4-6	10 Vrms, 150 kHz - 80 MHz 1 kHz 80% AM	B	
Magnetic fields	IEC 61000-4-8	Inductive loop at 50 Hz, to 1.0 amps (rms) per meter	A	
Voltage Dips and Input Interruptions	IEC 61000-4-11	Voltage Dips of 30% and >95%; Interruptions of >95%.	B / C	
Ring Wave	IEC 61000-4-12	±1kV, ±2kV common mode surges. ±0.5kV, ±1kV differential mode surges.	B	
Voltage Fluctuation	EN 61000-4-14	Level 3 ΔU=12% Un	A	

Specification				
Model		CPFE1000FI-12	CPFE1000FI-28	CPFE1000FI-48
Output				
Line Regulation	mV	48	56	96
Load Regulation	mV	48	56	96
Temperature Coefficient	ppm/°C	200		
Ripple & Noise (20MHz BW) (2)	%	1 (2 below 0°C)		
Minimum Load	A	None		
Overcurrent Protection	%	105 - 140 (Automatic Recovery)		
Overvoltage Protection	%	125 - 145 (Automatic Recovery)		
Overtemperature Protection	°C	Shuts down between 90 - 115 (Auto Recovery)		
Remote Sense	-	Yes, compensates up to 500mV cable drop		
Remote On/Off (Opto Isolated)	-	High = ON		
Power On Signal (ENA)	-	Open Collector (10mA sink current). Low (on) when output is present		
Auxiliary Supply	-	10 - 14V, 20mA		
Parallel Operation	-	Yes, single wire		
Series Operation	-	Possible, see installation manual		

Specification

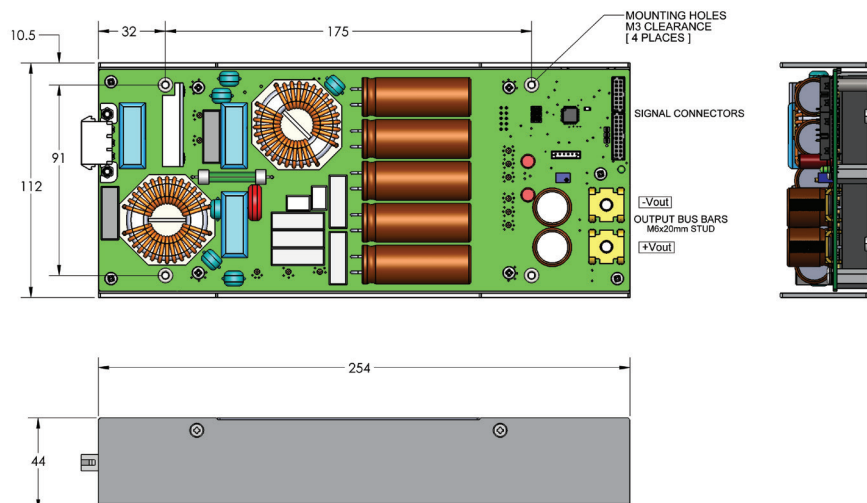
Model		CPFE1000FI-12	CPFE1000FI-28	CPFE1000FI-48
Environmental				
Operating Temperature	°C	-40 to +70 ambient, (85 baseplate maximum) (see installation manual for derating)		
Storage Temperature	°C	-40 to +100		
Humidity (non condensing)	%RH	Operating: 20 - 90, Non operating: 10 - 95 (PCB assembly protective coated)		
Cooling	-	Conduction cooled		
Altitude	m	3000		
Withstand Voltage	Vdc	Input to Ground 2121, Input to Output 4242, Output to Ground 500		
Isolation Resistance	MΩ	>100 at 25°C, 70%RH & 500Vdc		
Vibration (Non operating)	-	MIL-STD-810F, Method 514.5, Proc I, Category 4, 10		
Shock	-	MIL-STD-810F, Method 516.5, Procedure I, IV & VI		
Other				
Weight (Typ)	g	1240 (without cover)		
Size (WxHxD)	mm	112 x 43 x 254 (262mm including AC connector)		
Size (WxHxD)	Inches	4.4 x 1.69 x 9.9		
MTBF - Telcordia	Hours	98,173 hours Method 1, Ground Benign, 25C, 100Vac input, 85C baseplate		
Warranty	Years	2		

I²C Interface

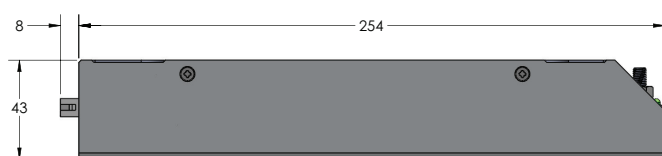
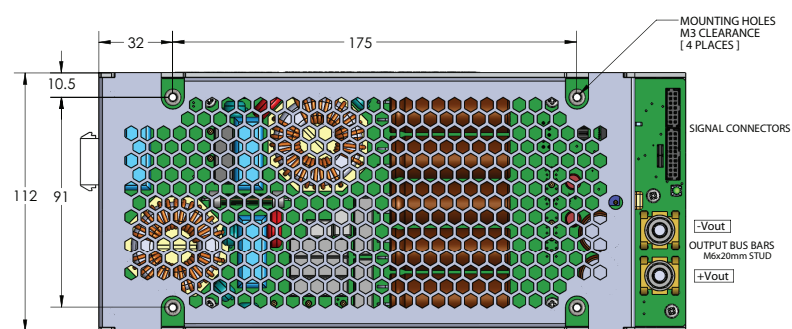
Output Voltage Monitoring
 Output Current Monitoring
 Base Plate Temperature Monitoring
 Remote On/Off Programming
 IOG, DC Good, over temperature warning
 Reading Manufacturing Related Data

- (1) Models mounted in the horizontal orientation. See instruction manual for alternative mounting positions and the corresponding derating guidelines.
- (2) Warm up period of 30 minutes below -30°C for ripple. Jeita RC-9131C Method, see instruction manual for test methods.

Outline Drawing U Channel

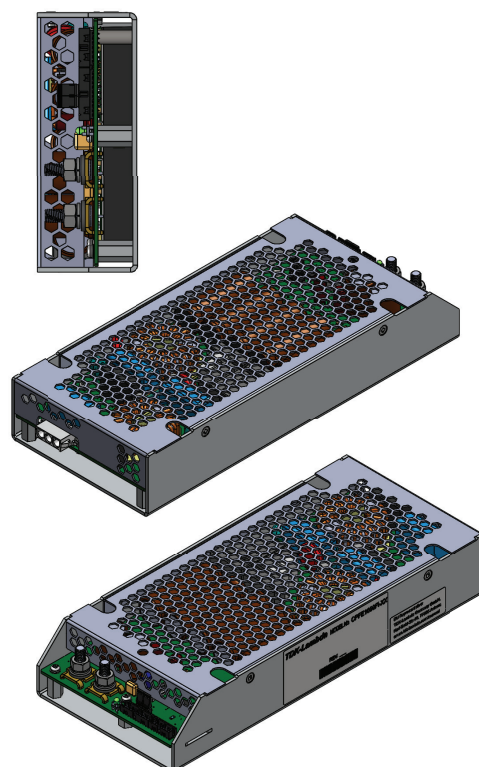


Outline Drawing with Cover (/C)

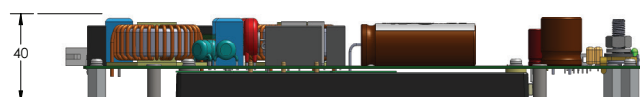
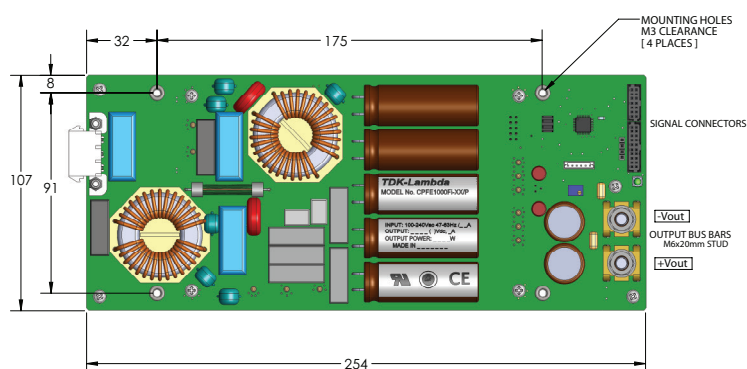


CONDUCTION COOLED POWER SUPPLY:
720W TO 1000W
(SHOWN WITH OPTIONAL COVER)

12V (9.6V - 14.4V) @ 60A MAX.
28V (22.4V - 33.6V) @ 36A MAX.
48V (38.4V - 57.6V) @ 21A MAX.

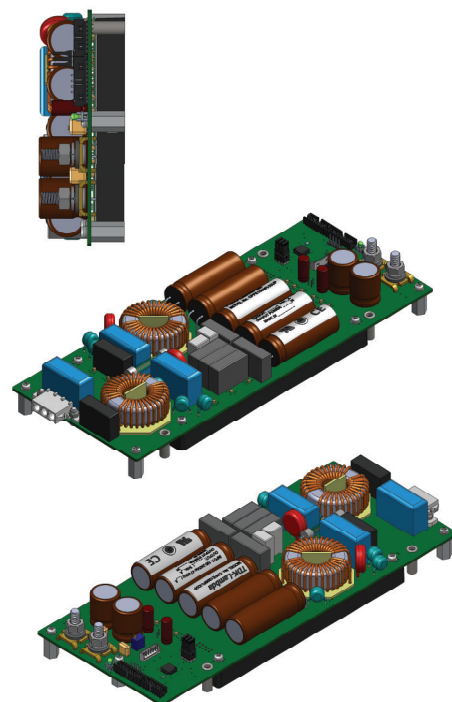


Outline Drawing Open Frame (/P)



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(/P OPTION SHOWN)

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