## CUS150M Series

## 2 x 4" 150W AC-DC Power Supplies

https://product.tdk.com/en/power/cus-m www.emea.tdk-lambda.com/cus150m





The compact CUS150M is packaged in the industry standard 2x4" footprint. The series can deliver 150W with forced air in ambient temperatures of up to 50°C or 120W convection cooled at 40°C. Conduction cooled, the CUS150M can deliver 100W at 70°C and 50W at 80°C. With Medical & ITE certifications, the unit can used in both Class I & Class II (no ground wire) applications, and meets Class B Conducted and Radiated EMI. Enclosure options include baseplate, U channel, cover or top fan construction.

Benefits
Quiet Operation
Suitable for High Ambient Temperature Environments
Suitable for B and BF Type Medical Equipment
Easier System EMC Compliance
Flexible Utilisation
Space Saving in End Equipment
Versatile Application

#### Model Selector

Model	Nominal Output Voltage (V)	Factory Set <sup>(1)</sup> Output Voltage Capability (V)	Fan Supply (V)	Maximum Current Convection (A)	Maximum Current Forced Air (A)	Maximum Power Convection (W)	Maximum Power Forced Air (W)
CUS150M-12 or /B	12	12 - 13.2	11.6	10	12.5	120	150
CUS150M-12/A or /U	12	12 - 13.2	11.6	12.5	12.5	150	150
CUS150M-12/F	12	12 - 13.2	11.6	12.5	n/a	150	n/a
CUS150M-15 or /B	15	15 - 16.5	9.8	8	10	120	150
CUS150M-15/A or /U	15	15 - 16.5	9.8	10	10	150	150
CUS150M-15/F	15	15 - 16.5	9.8	10	Internal fan	150	Internal fan
CUS150M-18 or /B	18	18 - 19.8	11.6	6.66	8.33	120	150
CUS150M-18/A or /U	18	18 - 19.8	11.6	8.33	8.33	150	150
CUS150M-18/F	18	18 - 19.8	11.6	8.33	Internal fan	150	Internal fan
CUS150M-24 or /B	24	24 - 26.4	11.6	5	6.25	120	150
CUS150M-24/A or /U	24	24 - 26.4	11.6	6.25	6.25	150	150
CUS150M-24/F	24	24 - 26.4	11.6	6.25	Internal fan	150	Internal fan
CUS150M-28 or /B	28	28 - 30.8	10.8	4.28	5.36	120	150
CUS150M-28/A or /U	28	28 - 30.8	10.8	5.36	5.36	150	150
CUS150M-28/F	28	28 - 30.8	10.8	5.36	Internal fan	150	Internal fan
CUS150M-36 or /B	36	36 - 39.6	11.6	3.33	4.16	120	150
CUS150M-36/A or /U	36	36 - 39.6	11.6	4.16	4.16	150	150
CUS150M-36/F	36	36 - 39.6	11.6	4.16	Internal fan	150	Internal fan
CUS150M-48 or /B	48	48 - 50	11.6	2.5	3.12	120	150
CUS150M-48/A or /U	48	48 - 50	11.6	3.12	3.12	150	150
CUS150M-48/F	48	48 - 50	11.6	3.12	Internal fan	150	Internal fan



Examples: CUS150M-24/UE CUS150M-12V5/A.

Specifications				
Model		CUS150M		
Input				
Input Voltage range	V	85 - 264Vac <sup>(4)</sup>		
Input Frequency	Hz	47 - 63Hz <sup>(5)</sup>		
Input Current (100Vac)	А	2.2		
Inrush Current at 230Vac (typ) (Cold Start)	Α	<65A		
Leakage Current	uA	<250uA at 230Vac 63Hz		
Touch Current (Enclosure Leakage)	uA	<100uA		
Power Factor (115/230Vac)	-	>0.98 / 0.92 (100% load)		
Harmonic Compliance	-	Meets IEC61000-3-2 Class A, Class C >120W output		
No Load Power Consumption	W	<0.5W (230Vac)		
Hold Up Time (typ) at 115Vac Input	ms	>18ms		
Efficiency	-	Up to 94%		
Average Efficiency	-	>91%. Measured at 25%, 50%, 75% and 100% load conditions		
Conducted & Radiated EMI	-	EN55032/EN55011-B (See application notes for conditions)		
Immunity	-	Compliant with EN60601-1-2;2015 (Ed4), see immunity table		
Insulation Class	-	Construction suitable for Class I or Class II installation		
Safety Agency Certifications	-	IEC/EN/UL60950-1 and 60601-1. ES60601-1. IEC/EN/UL62368-1 Designed to meet IEC61010-1 EN60335-1 Compliant versions available (3). CE Mark (LVD, EMC and RoHS)		



Immunity					
Test	Standard	Test Level	Criteria	Notes (the power stated below is total power (main power + fan output))	
ESD	EN61000-4-2	4	А	-	
Radiated Susceptibility	EN61000-4-3	3	А	Includes proximity field requirements of EN60601-1-2:2015	
Electrical Fast Transient Burst	EN61000-4-4	4	А	(AC Port, 5kHz and 100kHz)	
Surge	EN61000-4-5	3	Α	-	
Conducted Susceptibility	EN61000-4-6	3	А	-	
Magnetic fields	EN61000-4-8	4	Α	-	
		0% for 1/2 cycle	А	-	
	EN61000-4-11	0% for 1 cycle	A/B	A up to 125W, B above 125W	
	Class 3 Industrial,	40% for 10/12 cycles	В	-	
	incl EN55024	70% for 25/30 cycles	А	-	
	(100Vac)	80% for 250/300 cycles	А	-	
		0% for 250/300 cycles	В	-	
		0% for 1/2 cycle	А	-	
	EN61000-4-11	0% for 1 cycle	A/B	A up to 125W, B above 125W	
Voltage Dips and	Class 3 Industrial,	40% for 10/12 cycles	A/B	A up to 120W, B above 120W	
Input Interuptions	incl EN55024	70% for 25/30 cycles	А	-	
	(240Vac)	80% for 250/300 cycles	А	-	
		0% for 250/300 cycles	В	-	
		0% for 1/2 cycle	А	-	
	EN60601-1-2:2015	0% for 1 cycle	A/B	A up to 125W, B above 125W	
	(100Vac)	70% for 25/30 cycles	А	-	
		0% for 250/300 cycles	В	-	
		0% for 1/2 cycle	А	-	
	EN60601-1-2:2015	0% for 1 cycle	A/B	A up to 125W, B above 125W	
	(240Vac)	70% for 25/30 cycles	А	-	
		0% for 250/300 cycles	В	-	
Ringwave Test	EN61000-4-12	3	А	-	
Voltage Fluctuations	EN61000-4-14	Class 3	А	-	
SEMI F47 Line Dip	SEMI F47	-	-	At input voltages > 200Vac	

### Specifications

Model CUS400M					
Output					
Line Regulation % <0.5% (90 - 264VAC)					
Load Regulation % <1% (0 - 100% load)					
Ripple & Noise % <1% of nominal output for operating temperatures above 0°C					
At -20°C: 12V model <4%, 15V & 18V model <3%, other models <2%					
Temperature Coefficient %/°C ±0.02%/°C					
Minimum Load - No minimum load required					
Overcurrent Protection % 110 to 170%. Hiccup mode, automatic recovery					
Overvoltage Protection - 115-140% of standard output voltage for each model, 48V model max 60V.					
Latching (unit shutdown), cycle AC input to reset					
Remote Sense - None					
Fan Supply - 10 - 12V (see model selector), 0.5A, +14/-6% regulation					
Parallel Operation - Not possible					
Series Operation - Possible, see installation manual					
Environmental					
Operating Temperature (-25°C start-up) °C -20°C to +85°C (70°C maximum for fan version /F), see derating curves below					
Storage Temperature °C -40°C to +85°C (70°C maximum for fan version /F)					
Operating Humidity (non condensing) %RH 5 - 95%RH (15 - 90%RH for /F fan version)					
Cooling - Convection, conduction or forced air cooling. See derating curves below					
Altitude m 5,000m. Operating, transportation and storage					
Withstand Voltage (For 1 minute) Vac Input to Ground 1.5kVAC (1xMOPP), Input to Output 4kVAC (2xMOPP),					
Output to Ground 1.5kVAC (1xMOPP)					
Isolation Resistance MΩ >100MΩ at 25°C, 70%RH & 500VDC					
Vibration (Operating) - 2G, 10-500Hz for 1 hour					
Shock - 30G, 11ms half sine					
Other					
Weight (Typ) g 185 (open frame version)					
Size (WxLxH) mm Open frame version: 50.8 x 101.6 x 31.5					
Size (WxLxH) Inches Open frame version: 2 x 4 x 1.24					
Connectors - Input: JST B2P3-VH, Output: JST B6P-VH, Fan: Molex 22-04-1021					
Warranty yrs 5					

Notes:

See website for detailed specifications, test methods and installation manual.

Specification parameters apply at 25°C ambient temperature unless otherwise stated.

(1) Output voltage is factory set and not user adjustable. Not applicable for /F (internal fan) version.

Non-standard output versions may be subject to minimum order quantities and variations to specification. For all non-standard output voltage settings please consult Sales.

(2) Please see curves below for ambient temperature ratings.

(3) Subject to Minimum Order Quantities. Please contact Sales

(4) Derate linearly to 90% load from 90 to 85VAC input.

(5) For operation at 440Hz please consult Technical Sales.

### Outline Drawing CUS150M Open Frame Unit



### Outline Drawing CUS150M/U (U Channel) Option



### Outline Drawing CUS150M/B (Baseplate) Option



### Outline Drawing CUS150M/A (U Channel with Cover) Option





#### Output Power vs Ambient Temperature (Open Frame & /B Units)



Note (\*1) 50mm above surface, see instruction manual for maximum component temperatures.

#### Output Power vs Ambient Temperature (/U and /A versions)





Note (\*4) 50mm above surface, orientation A, no additional cold plate. See application note. Note (\*5) U chassis or Baseplate fixed on a cold plate (system chassis). See application note.



Note (\*2) Limited by fan specification to maximum of 70°C. Note (\*3) See application note.

### CUS150M E-Cap Life vs Ambient Temperature



All models: Conduction cooling 150W, 100Vac, measured at 50°C, other points are calculated



### CUS150M E-Cap Life vs Ambient Temperature 12V model: Additional Cooling Options

Notes: CONV: Convection Cooling, CND: Conduction Cooling



### **CUS150M Efficiency Graph**



Critical component maximum allowable temperature table					
Circuit reference	Description	Maximum temperature (°C)			
1	Common mode choke	110 (130)			
L2	PFC choke	125 (130)			
L3	Differential mode choke	125 (130)			
C1	Film capacitor	105			
C2, C110	Electrolytic capacitors	86 (105)			
C6, C102, C104, C105	Electrolytic capacitors	92 (105)			
C3	X capacitor	100			
C5, C100, C101, C103	Y capacitor	105			
TX100	Transformer winding	110			
XU101, XU102	Opto-coupler	100 (110)			
XD8	Diode	130			
J1	Input connector	105			
J100	Output connector	105			



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