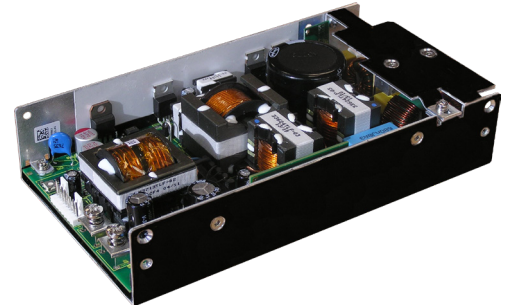


300W convection / 400W fan cooled, AC-DC power supply



Features	Benefits
• Convection cooled	Silent operation
• Reinforced isolation	Simplifies equipment design
• Full digital control	Improves Product Performance
• ErP and Climate Savers Gold level	Minimises heat in system
• 5 year warranty	Low cost of ownership

Input			
Input Voltage	85-264Vac (100-240Vac nominal)	Input Frequency	47 - 63Hz (440Hz with reduced PFC - consult sales office)
Input Harmonics	EN61000-3-2 compliant	Inrush Current	<25A at 25°C and 230Vac (cold start) (meets EN61000-3-3).
Input Fuse	Dual fuses (Live + Neutral) Fast acting (not user accessible)		
Earth Leakage Current	140µA at 120Vac (60Hz), 280µA max at 240Vac (60Hz) Worst case leakage current is less than 300µA at 240Vac, 63Hz (normal condition, 0.5mA Single Fault Condition) Touch Current is <100µA NC, <500µA SFC at 264Vac, 60Hz		

Quick Selector (Standard models). Additional variants available - see below							
Output		Convection cooled units / units without fan				Units with top fan	
Volts	Current (fan/conv)	U-Chassis		Cover + Chassis		Cover + Chassis	
		Description	Order Code	Description	Order Code	Description	Order Code
12V	33.3A / 25A	CFE400M-12-5C-N1UML-NT	U7Y0032	CFE400M-12-5C-N1CML-NT	U7Y0087	CFE400M-12-5C-TFCML-NT	U7Y0098
24V	16.7A / 12.5A	CFE400M-24-5C-N1UML-NT	U7Y0054	CFE400M-24-5C-N1CML-NT	U7Y0101	CFE400M-24-5C-TFCML-NT	U7Y0112
48V	8.3A / 6.25A	CFE400M-48-5C-N1UML-NT	U7Y0123	CFE400M-48-5C-N1CML-NT	U7Y0134	CFE400M-48-5C-TFCML-NT	U7Y0145

How To Create A Product Description

Output	Adjustment range	Fan Option		Other Options			
12	10.8 - 14.4 V	-NN	No fan, no fan supply	M	Molex	-Y	ORing FET included
24	21.6 - 28.8 V	-N1	No fan, 12V / 0.25A fan supply			-N	ORing FET not included
48	43.2 - 50 V	-TF	Top fan, no additional fan supply (needs 'C' cover)				

Adjustable by potentiometer

Standby Supply
NN = None (only with 'N' remote on/off)
5C = 5V / 80mA (0.5W standby mode power)

Chassis Options
U = Chassis only
C = Chassis + cover (also for 'TF' fan)

Earth Leakage
L = 300µA

Remote On/Off
N = none
E = Enable
T = Inhibit

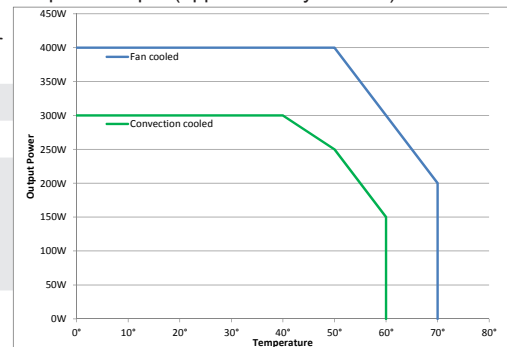
Confirm availability of created product with sales office

Isolation			
Input to Output	Reinforced	2 x MOPPs (3rd edition 60601) 4kVac, 5.7kVdc type tested to 4kVac (equivalent to 5.7kVdc), production tested to 4.3kVdc.	
Input to Earth	Basic	1.5kVac, 2.3kVdc	Output to Earth 1.5kVac

Output Specification		
	Fan cooled Convection	
Output Power	400W 300W	Continuous (including fan supply) or RMS (including Peak power) See handbook for details.
Peak Power	450W 450W	for 10 seconds. RMS power not to exceed Output Power stated above
Total Regulation	better than 2.25%	Including Line regulation of 0.25% (for 90-264Vac input change), Load regulation of 1% (for 0-100% load change) and thermal regulation of 0.02%/°C (0-50°C)
Ripple & Noise	1%	pk-pk, using EIAJ test method & 20MHz bandwidth
Voltage Setting Accuracy	±1%	at 50% load
Turn on Time	1.5s max	at 90 Vac & 100% rated output power
Efficiency	up to 94%	for 48V and 24V (up to 91% for 12V). At 230Vac, 75% load
Hold up	13ms	minimum at 100% of 400W load
Min Load	None	
Transient Response	<5%	of set voltage for 50% of 300W load change (in 500µs within the range 25 - 100% load)
Recovery	2ms max	for recovery to 2% of set voltage
Short circuit protection	Yes	Auto recovery after removal of short circuit
Over Temperature protection	Yes	Primary - auto recovers, secondary - cycle power to restart
Over Voltage Protection	Yes	Latching, need to cycle ac to restart unit.
Fan supply	12V / 0.25A	Depending on 'Fan Option' selected. See 'how to create a product description' for details
Parallel connection	Possible	For N+1 redundancy with ORing FET option. To increase output power requires optional droop share (contact sales office for details)

Global Signals	
Remote on/off	Enable - TTL logic level low (relative to Standby 0V) enables channel 1 and fan supply Inhibit - TTL logic level low (relative to Standby 0V) inhibits channel 1 and fan supply
Standby Supply	5V / 80mA isolated supply, not affected by remote on/off.
Power Good	Logic high indicates ac supply is good and Ch1 is within regulation. Not available on units with no standby supply.
ORing FET	Allows redundant connection of power supplies with no additional/external diodes required.

Environment	
Temperature	See derating chart. Fan cooled is with 1.5m/s air blown from input to output (approximately 12CFM) -40°C to 70°C storage. Fan cooling required if the unit is mounted with no free air circulation above (see handbook for mounting details)
Low Temp Startup	-20°C
Humidity	5 - 95% RH non condensing
Shock	±3 x 30g shocks in each plane, total 18 shocks 30g shock = 11ms (+/-0.5msec), half sine Conforms to EN60068-2-27, EN60068-2-47, IEC68-2-27, IEC68-2-47, JIS C0041-1987. Conforms to MIL-STD-810E/F, Method 516.5, Pro I, IV, VI
Vibration	Single axis 10 - 500 Hz at 2g (sweep and endurance at resonance) in all 3 planes Conforms to EN60068-2-6, IEC68-2-6 Conforms to MIL-STD-810E, Method 514.4, Pro I, Cat 1,9
Altitude	Medical approval = -200 to 5000 metres operational (-200 to 3000m for 2nd edition 60601) Non medical approval = -200 to 5000 metres operational -200 to 5000m storage/transportation
Pollution	Degree 2, Material group IIIb



Emissions EN61000-6-3:2007, EN60601-1-2:2007		
Radiated Electric Field	EN55011, EN55032	(as per CISPR.11/22) Class B, FCC47 part 15 subpart B see application note for details
Conducted Emissions	EN55011, EN55032	(as per CISPR.11/22) Class B, FCC47 part 15 subpart B
Conducted Harmonics	EN61000-3-2	Class A
Flicker	EN61000-3-3	Compliant - d _{max} only

Immunity EN61000-6-2:2005					Criteria
Electrostatic Discharge	EN61000-4-2	Level 4	Level 3 for Fan supply Not applicable to open frame units	A	
Electromagnetic Field	EN61000-4-3	Level 3		A	
Fast / Burst Transient	EN61000-4-4	Level 4		A	
Surge Immunity	EN61000-4-5	Level 3		A	
Conducted RF Immunity	EN61000-4-6	Level 3		A	
Power Frequency Magnetic Field	EN61000-4-8	Level 3		A	
Voltage Dips, Variations, Interruptions	EN61000-4-11	Class 3	Criteria B for 5 sec interruption Criteria B for 1 cycle interruption Criteria B for dip to 40% for 5 cycles below 154Vac (300W convection) or 176Vac (400W forced air cooled)	A	
Ring Wave	EN61000-4-12	Level 3		A	
Voltage Fluctuations	EN61000-4-14	Class 3		A	

Approvals / Accreditations	
IEC/EN 62368-1, UL62368-1 / CSA 22.2 No 62368-1	File E135494
IEC/EN 60950-1, UL60950-1 / CSA 22.2 No 60950-1	File E135494
IEC/EN 60601-1, UL/CSA 60601-1, ANSI/AAMI ES60601-1 CAN/CSA-C22.2 No 60601-1-08	File E349607
IEC/EN 61010-1 (designed to meet)	
CE Mark (EN62368-1)	Low Voltage Directive (LVD), electromagnetic compatibility (EMC) and Restriction of Hazardous Substances (RoHS)
UKCA (EN62368-1)	Electrical Equipment (Safety) Regulations, electromagnetic compatibility (EMC) and Restriction of Hazardous Substances (RoHS)
CB certificate and Report available on request	<i>Please check with technical sales for status of approvals</i>
Designed and manufactured under the control of ISO9001 and ISO13485 (including risk management).	

Outline & Connection Drawings

CHASSIS WITH COVER

Dimensions: 177.80 x 100.00 x 48.70 mm

CHASSIS WITH TOP MOUNTED FAN

Dimensions: 177.80 x 100.00 x 71.20 ± 0.05 mm

CONNECTOR PINOUT

J1	J2
PIN CONNECTION	PIN CONNECTION
1 EARTH	1 FAN SUPPLY
2 NOT CONNECTED	2 REMOTE ON/OFF
3 LIVE	3 PWR GOOD
4 NOT CONNECTED	4 FAN SUPPLY RTN
5 NEUTRAL	5 STANDBY RTN
	6 STANDBY
	7 - SENSE
	8 + SENSE

MATING PARTS

CONNECTOR	HOUSING	CRIMP PIN	MANUFACTURER
J1	09-50-8051	08-52-0113	MOLEX
J2	22-01-2085	0850-0032	MOLEX
J5 & J6	N/A	TAG 19073-0165	MOLEX

Connectors are not included with the product but they are available from TDK-Lambda
 † 1 off input connector and 3 crimps are available as part number is 94910.
 † 1 off feature connector and 8 crimps are available as part number 95109.

NOTE:
 A 6 OFF FIXING HOLES FOR M3, MAXIMUM PENETRATION 3.3mm,
 MAXIMUM TORQUE 0.9Nm.
 ALL TOLERANCES ±0.5mm (unless otherwise specified).

All specifications at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.



TDK-Lambda France SAS

Tel: +33 1 60 12 71 65
 tif.fr-powersolutions@tdk.com
 www.emea.lambda.tdk.com/fr



Italy Sales Office

Tel: +39 02 61 29 38 63
 tif.it-powersolutions@tdk.com
 www.emea.lambda.tdk.com/it



Netherlands

tif.nl-powersolutions@tdk.com
 www.emea.lambda.tdk.com/nl



TDK-Lambda Germany GmbH

Tel: +49 7841 666 0
 tig.powersolutions@tdk.com
 www.emea.lambda.tdk.com/de



Austria Sales Office

Tel: +43 2256 655 84
 tig.at-powersolutions@tdk.com
 www.emea.lambda.tdk.com/at



Switzerland Sales Office

Tel: +41 44 850 53 53
 tig.ch-powersolutions@tdk.com
 www.emea.lambda.tdk.com/ch



Nordic Sales Office

Tel: +45 8853 8086
 tig.dk-powersolutions@tdk.com
 www.emea.lambda.tdk.com/dk



TDK-Lambda UK Ltd.

Tel: +44 (0) 12 71 85 66 66
 tlu.powersolutions@tdk.com
 www.emea.lambda.tdk.com/uk



TDK-Lambda Ltd.

Tel: +9 723 902 4333
 tli.powersolutions@tdk.com
 www.emea.lambda.tdk.com/il-en



TDK-Lambda Americas

Tel: +1 800-LAMBDA-4 or 1-800-526-2324
 tla.powersolutions@tdk.com
 www.us.lambda.tdk.com



TDK Electronics do Brasil Ltda

Tel: +55 11 3289-9599
 sales.br@tdk-electronics.tdk.com
 www.tdk-electronics.tdk.com/en



TDK-Lambda Corporation

Tel: +81-3-6778-1113
 www.jp.lambda.tdk.com



TDK-Lambda (China) Electronics Co. Ltd.

Tel: +86 21 6485-0777
 tlc.powersolutions@tdk.com
 www.lambda.tdk.com.cn



TDK-Lambda Singapore Pte Ltd.

Tel: +65 6251 7211
 tfs.marketing@tdk.com
 www.sg.lambda.tdk.com



TDK India Private Limited, Power Supply Division

Tel: +91 80 4039-0660
 mathew.philip@tdk.com
 www.sg.lambda.tdk.com

