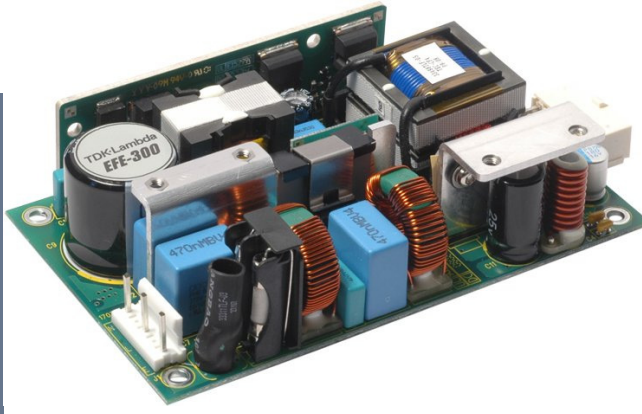




- High Efficiency
- 5 in x 3 in / 6 in x 3 in footprint
- High Power Density (up to 22W/in³)
- No minimum load
- Fits 1U applications
- 400/530 Watts peak power for 10 seconds
- 3 Year Warranty

EFE-300/EFE-400

300/400 Watts, digital power solution

Key Market Segments & Applications

Instrumentation	Broadcast
Automation	ATE
Security	Industrial Computing
Network Servers and Routers	Lifesciences/Laboratory

Features and Benefits

Feature	Benefit
◆ Full Digital Control	◆ Improves Product Performance
◆ High Efficiency	◆ Minimises heat in system
◆ Low Profile	◆ Fits 1U applications
◆ High Power Density	◆ Less Space
◆ Temperature controlled fan option	◆ Quieter operation

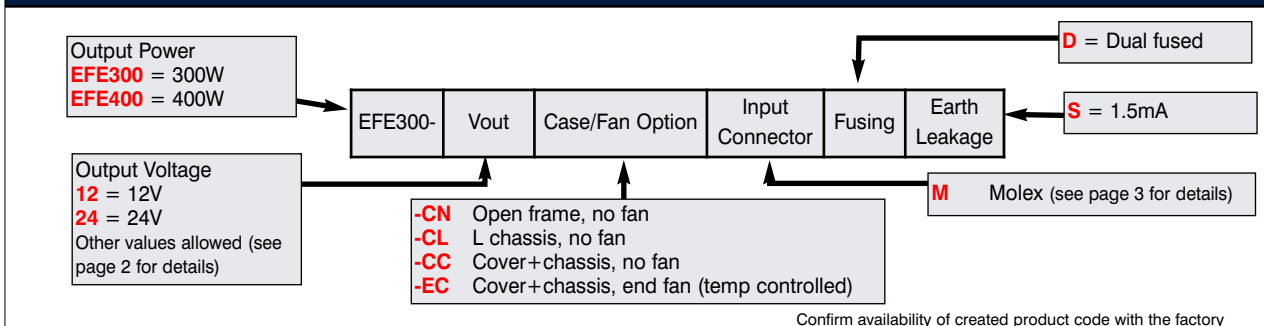
INPUT

Input Voltage	90 - 264Vac / 120 - 350Vdc	Input Frequency	45 - 63Hz (440Hz with reduced PFC - consult factory)
Input Harmonics	EN61000-3-2 compliant	Power Factor	0.97 typical
Input Fuse	Dual fuses (Live + Neutral) Fast acting (not user accessible)	Inrush Current	<20A at 25°C and 230Vac, (cold start) (meets EN61000-3-3)
Earth Leakage Current	1.5mA at 264Vac, 63Hz (normal condition, 3.5mA Single Fault Condition)		

QUICK SELECTOR

Output	Units without fan		Units with end fan
	Open Frame	Cover + Chassis	Cover + Chassis
12V / 25A	EFE300-12-CNMDs	EFE300-12-CCMDS	EFE300-12-ECMDS
24V / 12.5A	EFE300-24-CNMDs	EFE300-24-CCMDS	EFE300-24-ECMDS
12V / 33.3A	EFE400-12-CNMDs	EFE400-12-CCMDS	EFE400-12-ECMDS
24V / 16.7A	EFE400-24-CNMDs	EFE400-24-CCMDS	EFE400-24-ECMDS

HOW TO CREATE A PRODUCT CODE



ISOLATION				
Input to Output	Reinforced	3kV (ac), 4.3kV (dc)		
Input to Earth	Basic	1.5kV (ac), 2.3 kV (dc)	Output to Earth	200 V (dc)

OUTPUT SPECIFICATION			
	EFE300	EFE400	
Output Power	300W	400W	Continuous
Peak Power	400W	530W	for 10 seconds (300W RMS for EFE300, 400W RMS for EFE400)
Total Regulation	better than 4%	Including Line (for 90-264Vac input change) and Load (for 0-100% load change)	
Ripple & Noise	1%	pk-pk, using EIAJ test method & 20MHz bandwidth	
Voltage Setting Range	+10% / -5%	To be specified at time of ordering (chosen in 'Output Voltage' part of product code)	
Voltage Setting Accuracy	±1%	at 50% load	
Turn on Time	1.5s max	at 90 Vac & 100% rated output power	
Efficiency	90%	typical	
Hold up	16ms min	at 90 Vac, 75% load	
Min Load	None		
Transient Response	<5%	of set voltage for 50% load change (in 50µs within the range 25 - 100% load)	
Recovery	<1000µs	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 / 250mA	Available if 'no fan' is specified, otherwise used by PSU fan.	

ENVIRONMENT	
Temperature	0 to 50°C operational, -40°C to 85°C storage (max 12 months). Full load, with 2m/s air blown from input to output (approximately 10CFM)
Convection Rating	TBC
Derating	50 to 70°C derate each output by 2.5% per °C
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 514.4, Pro I, Cat 1,9
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 516.5, Pro I, IV, VI
Altitude	-200 to 3,000 metres operational (-200 to 5000m storage/transportation)
Pollution	Degree 2, Material group IIIb

IMMUNITY EN61000-6-2:2005				Criteria
Electrostatic Discharge	EN61000-4-2	Level 4	Air discharge 15kV Contact discharge 8kV Not applicable to open frame units	A
Electromagnetic Field	EN61000-4-3	Level 3	12V/m	A
Fast / Burst Transient	EN61000-4-4	Level 4	tested to 4.4kV	A
Surge Immunity	EN61000-4-5	Level 3	Common mode - 2.2kV Differential - 1.1kV	A
Conducted RF Immunity	EN61000-4-6	Level 3	12V	A
Power Frequency Magnetic Field	EN61000-4-8	Level 4	30A/m	A
Voltage Dips, Variations, Interruptions	EN61000-4-11	Class 3	Criteria B for 5 sec interruption EFE-300, criteria B for 1 cycle interruption	A
Ring Wave	EN61000-4-12	Level 3	Common mode - 2.2kV Differential - 1.1kV	A
Voltage Fluctuations	EN61000-4-14	Class 3		A

EMISSIONS EN61000-6-3:2007, EN60601-1-2:2001

Radiated Electric Field	EN55011, EN55022	(as per CISPR.11/22) Class B, FCC47 part 15 subpart B see application note for details
Conducted Emissions	EN55011, EN55022	(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

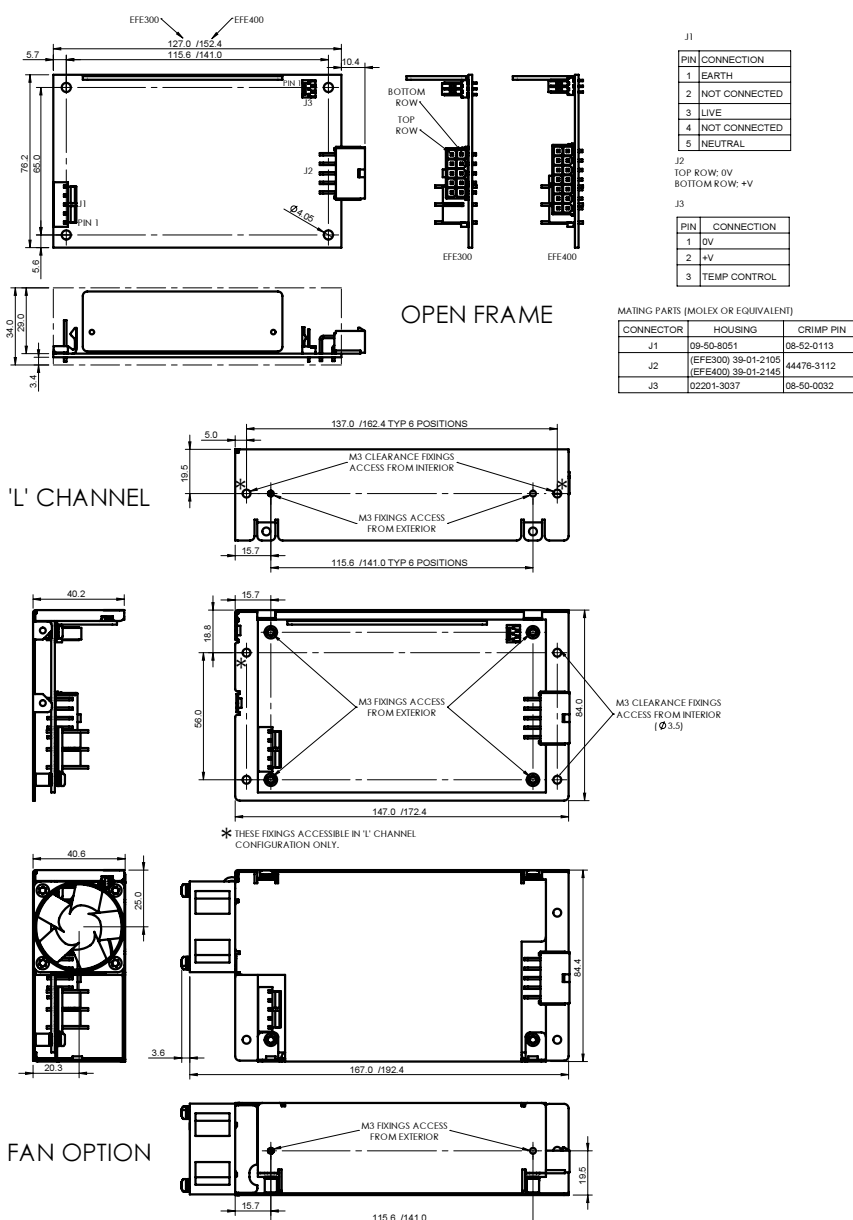
SAFETY APPROVALS

	Date	Amendments		Date	Amendments
EN 60950-1	2006		IEC 60950-1*	2005	
UL 60950-1	2007		CSA 22.2 No 60950-1	2007	
EN 61010-1	2001		IEC 61010-1*	2007	
CE Mark	LV Directive 2006/95/EC (EN60950-1)				

* CB certificate and Report available on request

Check with factory for status of approvals

OUTLINE & CONNECTION DRAWINGS



Notes 1. All customer fixings M3 2. Maximum Penetration 4.5mm 3. Maximum torque 0.9Nm 4. All tolerances +/-0.5mm

TDK-LAMBDA EMEA

AUSTRIA

TDK-LAMBDA GERMANY GmbH
Aredstraße 22
A-2544 Leobersdorf

Telephone: +43 (0) 2256 655 84
Facsimile: +43 (0) 2256 645 12
Web: www.lambda-austria.com

FRANCE

TDK-LAMBDA FRANCE SAS
ZAC des Delaches, BP1077 - Gometz le Chatel
91940 Les Ulis

Telephone: +33 (0) 1 60 12 71 65
Facsimile: +33 (0) 1 60 12 71 66
Web: www.lambda-f.com

GERMANY

TDK-LAMBDA GERMANY GmbH
Karl-Bold-Straße 40
D-77855 Achern

Telephone: +49 (0) 78 41 666 0
Facsimile: +49 (0) 78 41 5000
Web: www.lambda-germany.com

ISRAEL

NEMIC LAMBDA LTD
Kibbutz Givat
Hashlosha 48800

Telephone: +972 (0) 3 902 4333
Facsimile: +972 (0) 3 902 4777
Web: www.nemic.co.il

ITALY

TDK-LAMBDA ITALY s.r.l.
Via dei Lavoratori 128/130,
20092, Cinisello Balsamo (Mi)

Telephone: +39 (0) 02 61 29 38 63
Facsimile: +39 (0) 02 61 29 09 00
Web: www.lambda-italy.com

SWEDEN

TDK-LAMBDA SCANDINAVIA
PO Box 546, Rallervägen 41
SE-184 25. Åkersberga

Telephone: +46 (0) 8 598 94 090
Facsimile: +46 (0) 8 540 66 096
Web: www.lambda-scandinavia.com

UK

TDK-LAMBDA UK
Kingsley Avenue
Ilfracombe Devon EX34 8ES

Telephone: +44 (0) 1271 856666
Facsimile: +44 (0) 1271 864894
Web: www.lambda-gb.com

TDK-LAMBDA NORTH AMERICA

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