



300W and 400W, High Density AC-DC, digital power solution

Features	Benefits
• High peak power rating	Reduces size of power supply needed
• Full Digital Control	Improves Product Performance
• High Efficiency	Minimises heat in system
• Temperature controlled fan option	Reduces noise in system
• 5 Year Warranty	Low cost of ownership



Input			
Input Voltage	90-264Vac	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). <30A for EFE400
Earth Leakage Current	410µA at 120Vac (60Hz), 858µA max at 240Vac (60Hz) Worst case leakage current is less than 1.0mA at 264Vac, 63Hz (normal condition, 1.8mA Single Fault Condition)		

Quick Selector (Standard models). Additional variants available - see below							
Output Voltage	Current	Units without fan				Units with end fan	
		Open Frame		Cover + Chassis		Cover + Chassis	
		Description	Order Code	Description	Order Code	Description	Order Code
12V	25A	EFE300-12-CNMD5	U2Y002G	EFE300-12-CCMDS	U2Y001F	EFE300-12-ECMDS	U2Y003H
	33.3A	EFE400-12-CNMD5	U4Y002H	EFE400-12-CCMDS	U4Y001G	EFE400-12-ECMDS	U4Y003J
24V	12.5A	EFE300-24-CNMD5	U2Y005K	EFE300-24-CCMDS	U2Y004J	EFE300-24-ECMDS	U2Y006L
	16.7A	EFE400-24-CNMD5	U4Y005L	EFE400-24-CCMDS	U4Y004K	EFE400-24-ECMDS	U4Y006M

How To Create A Product Description

Output	Factory Setting Range		Case / Fan Option			
	EFE300	EFE400				
12	11.4 - 13.2V	11.4 - 13.2V	CN	Open frame, no fan, with 12V / 0.25A fan supply		
24	22.8 - 26.4V	22.8 - 26.4V	CU	U chassis, no fan, with 12V / 0.25A fan supply		
Required output voltage must be specified at time of ordering			CC	Cover+chassis, no fan, with 12V / 0.25A fan supply		
			EC	Cover+chassis, end fan (temp controlled)		

EFE300- or EFE400- | **Vout** - | **Case/Fan Option** | **Input Connector** | **D - Dual Fused** | **Earth Leakage** | **Output Connector**

M = Molex (see connection drawings for details) | **L = 300µA**

blank = right angled
-V = vertical

Confirm availability of created product with the factory

Isolation

Input to Output	Reinforced	3kVac, 4.3kVdc		
Input to Earth	Basic	1.5kVac, 2.3kVdc	Output to Earth	200Vdc

Output Specification

	EFE300	EFE400	
Output Power	300W	400W	Continuous or RMS (including Peak power)
Peak Power	400W	530W	EFE300M - for 10 seconds EFE400M - for 10 seconds
Total Regulation	better than 4%		Including Line (for 90-264Vac input change), Load (for 0-100% load change) and temperature (0-50°C)
Ripple & Noise	1.5%		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	90%		typical
Hold up	16ms		typical 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	<1ms		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		Available if 'no fan' is specified, otherwise used by PSU fan. No access to connector with -CC (cover + chassis) variant.

Environment

Temperature	0°C to 50°C operational, -40°C to 70°C storage (max 12 months). Full load, with 2m/s air blown from input to output (approximately 10CFM)
Derating	50°C 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 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	-200 to 5000 _a metres operational (-200 to 5000m storage/transportation)
Pollution	Degree 2, Material group IIIb

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 Class C - EFE300 at 100W and above, EFE400 at 200W and above
Flicker	EN61000-3-3	Compliant - d _{max} only

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	ac input tested to 4.4kV dc output tested to 2.2kV	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 EFE300, 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

Safety Approvals		Notes
IEC/EN 60950-1, UL60950-1 / CSA 22.2 No 60950-1		File E135494
IEC/EN 61010-1		File E331788
CE Mark (EN60950-1)		LV Directive 2006/95/EC
CB certificate and Report available on request		<i>Please check with technical sales for status of approvals</i>

Outline & Connection Drawings

EFE300 (not -V version)

J1 PIN CONNECTION

1	EARTH
2	NOT CONNECTED
3	LIVE
4	NOT CONNECTED
5	NEUTRAL

TOP ROW: 0V PINS 6 - 10
BOTTOM ROW: +V PINS 1 - 5
*FAN DRIVE (OPEN FRAME/TV CHANNEL ONLY)

J2 PIN CONNECTION

1	0V
2	+V
3	DO NOT CONNECT

MATING PARTS (MOLEX OR EQUIVALENT)

CONNECTOR	HOUSING	CRIMP PIN
J1	09-50-8051	08-52-0113
J2	39-01-2105	44-476-3112
J3	02201-3037	08-50-0032

NOTE:
A 4 OFF HOLES Ø3.5mm CLEARANCE FOR M3 FIXINGS.
B 8 OFF FIXING HOLES FOR M3, MAXIMUM PENETRATION 4.5mm,
MAXIMUM TORQUE 0.9Nm.
ALL TOLERANCES +/-0.5mm.

EFE400 (not -V version)

J1 PIN CONNECTION

1	EARTH
2	NOT CONNECTED
3	LIVE
4	NOT CONNECTED
5	NEUTRAL

TOP ROW: 0V PINS 8 - 14
BOTTOM ROW: +V PINS 1 - 7
J3

J2 PIN CONNECTION

1	0V
2	+V
3	DO NOT CONNECT

MATING PARTS (MOLEX OR EQUIVALENT)

CONNECTOR	HOUSING	CRIMP PIN
J1	09-50-8051	08-52-0113
J2	39-01-2145	44-476-3112
J3	02201-3037	08-50-0032

NOTE:
A 4 OFF HOLES Ø3.5mm CLEARANCE FOR M3 FIXINGS.
B 8 OFF FIXING HOLES FOR M3, MAXIMUM PENETRATION 4.5mm,
MAXIMUM TORQUE 0.9Nm.
ALL TOLERANCES +/-0.5mm.

Note, connection details and outline drawings for -v (vertical) connector are different See handbook for details

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

Connectors are not included with the product. They are available from TDK-Lambda

- 1 off input connector and 3 crimps are available as part number is 94910.
1 off output connector and 10 crimps are available as part number 94750. (EFE300)
1 off output connector and 14 crimps are available as part number 94751 (EFE400)