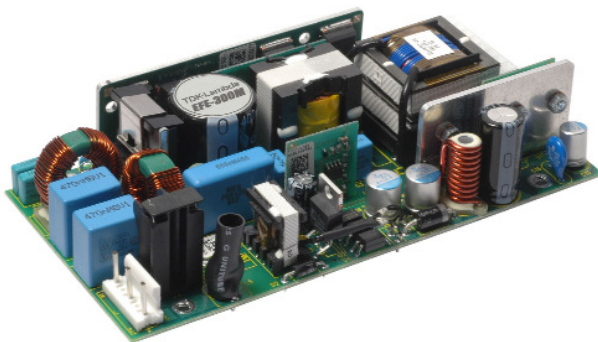




EFE-300M

300 Watts, digital, medical (BF rated)
power solution

- Designed for Medical Equipment (BF rated)
- High Efficiency
- 6 in x 3 in footprint
- High Power Density (up to 18W/in³)
- No minimum load
- Fits 1U applications
- 400 Watts peak power for 10 seconds
- 3 Year Warranty

Key Market Segments & Applications

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

Features and Benefits

Feature

- ◆ Reinforced isolation
- ◆ Full Digital Control
- ◆ High Efficiency
- ◆ Low Profile
- ◆ High Power Density
- ◆ Temperature controlled fan option

Benefit

- ◆ Simplifies equipment design
- ◆ Improves Product Performance
- ◆ Minimises heat in system
- ◆ Fits 1U applications
- ◆ Less Space
- ◆ Quieter operation

INPUT

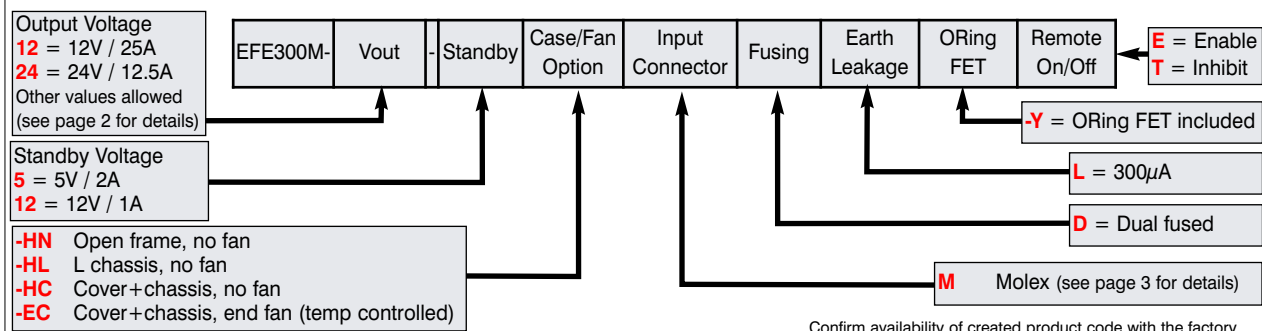
Input Voltage	90 - 264Vac / 120 - 350Vdc	Input Frequency	45 - 63Hz (440Hz with reduced PFC - consult factory)
Input Harmonics	EN61000-3-2 compliant	Power Factor	0.97 typical
Input Fuse	Dual fuses (Live + Neutral) Fast acting (not user accessible)	Inrush Current	<40A at 25°C and 230Vac, (cold start) (meets EN61000-3-3)
Earth Leakage Current	123µA max at 120Vac (60Hz), 257 µA max at 240Vac (60Hz) Worst case leakage current is less than 300µA at 264Vac, 63Hz (normal condition, 0.5mA Single Fault Condition)		

QUICK SELECTOR

Output	Units without fan		Units with end fan
	Open Frame	Cover + Chassis	Cover + Chassis
12V / 25A	EFE300M-12-5-HNMDL-YT	EFE300M-12-5-HCMDL-YT	EFE300M-12-5-ECMDL-YT
24V / 12.5A	EFE300M-24-5-HNMDL-YT	EFE300M-24-5-HCMDL-YT	EFE300M-24-5-ECMDL-YT

Additional variants available 'Build to Order' - see below

HOW TO CREATE A PRODUCT CODE



ISOLATION				
Input to Output	Reinforced	4kV (ac), 5.7kV (dc) type tested to 4kVac (equivalent to 5.7kVdc), production tested to 4.3kVdc.		
Input to Earth	Basic	1.5kV (ac), 2.3 kV (dc)	Output to Earth	1500 V (ac)

OUTPUT SPECIFICATION		
Output Power	300W	Continuous
Peak Power	400W	for 10 seconds (300W RMS)
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 / 1A	Available if 'no fan' is specified, otherwise used by PSU fan.

GLOBAL SIGNALS	
Remote on/off	Enable - TTL logic level low enables channel 1 and fan supply Inhibit - TTL logic level low inhibits channel 1 and fan supply
Standby Supply	5V / 2A or 12V / 1A, isolated supply, not affected by remote on/off.
Power Good	Logic high indicates ac supply is good and Ch1 is within regulation
ORing FET	Allows redundant connection of power supplies with no additional diodes required.

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 3000 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 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

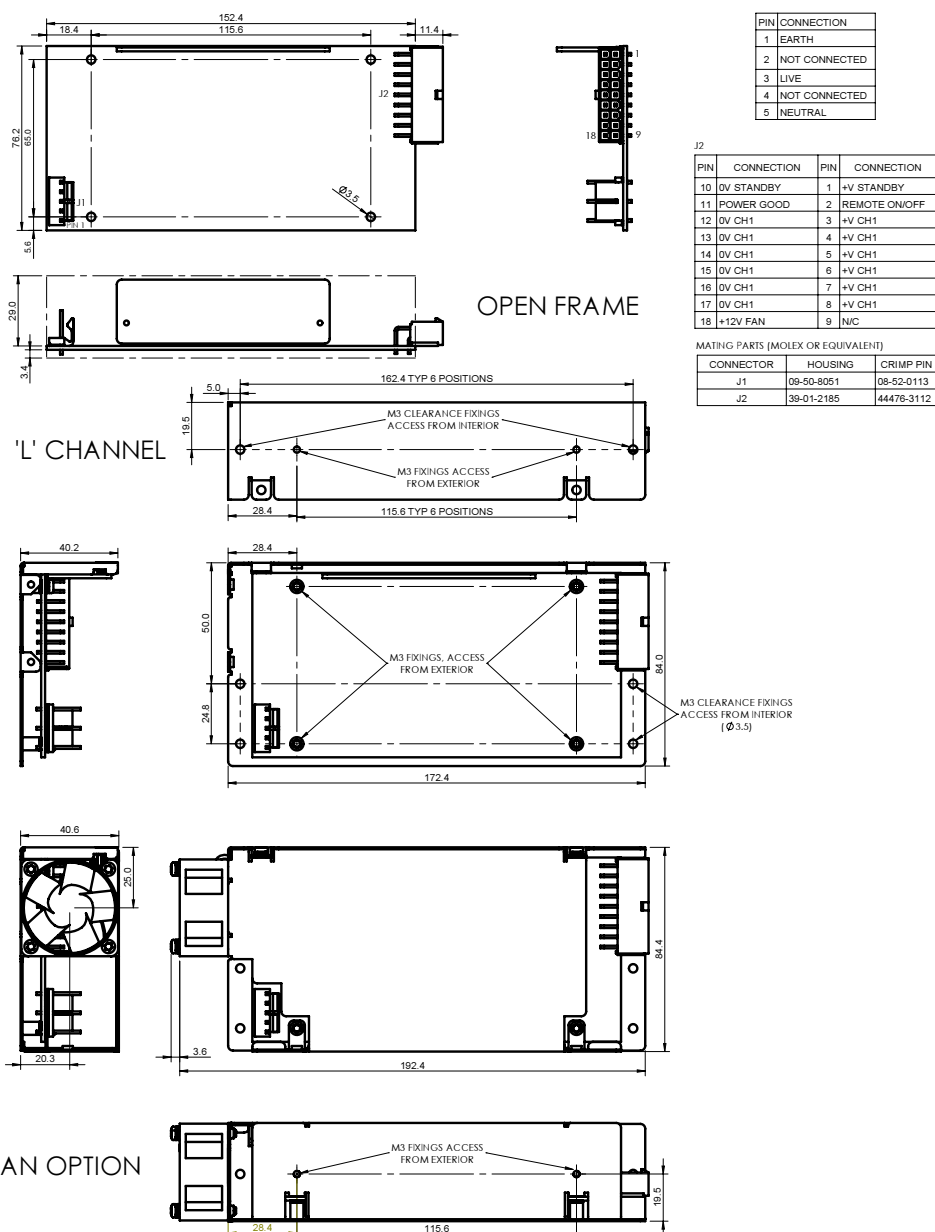
SAFETY APPROVALS

	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	
EN60601-1	1990	A1, A2, A13	IEC60601-1*	2005	
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

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