

SPECIFIC TECHNICAL CRITERIA

UL 60950-1:2005 (2nd Edition) Information technology equipment - Safety - Part 1: General requirements	
Report Reference No.....	E122103-A69-UL-1
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Standards	UL 60950-1, 2nd Edition, 2007-03-27 (Information Technology Equipment - Safety - Part 1: General Requirements) CSA C22.2 No. 60950-1-07, 2nd Edition, 2007-03 (Information Technology Equipment - Safety - Part 1: General Requirements)
Test procedure	Component Recognition
Non-standard test method	N/A
Test item description	AC to DC Power Supplies
Trademark	<i>TDK-Lambda</i>
Model and/or type reference	PFE1000F Series; May be followed by suffix /T, and/or suffix /FG. Only 48Vdc output model may be followed by suffix "OV".
Rating(s)	Input: 100-240 VAC, 16 A Max, 50/60Hz See Additional Information for output ratings.

Particulars: test item vs. test requirements

Equipment mobility : for building-in
Connection to the mains : permanent connection
Operating condition : continuous
Over voltage category : OVC II
Mains supply tolerance (%) : +6%, -10%; and +10%, -10% (for PFE1000F-48/OV)
Tested for IT power systems : No
IT testing, phase-phase voltage (V) : N/A
Class of equipment : Class I (earthed)
Mass of equipment (kg) : .5
Pollution degree : PD 2
IP protection class : IP X0

Possible test case verdicts:

- test case does not apply to the test object : N / A
- test object does meet the requirement : Pass
- test object does not meet the requirement : Fail (acceptable only if a corresponding, less stringent national requirement is "Pass")

General remarks:

- "(see Enclosure #)" refers to additional information appended to the Test Report
- "(see appended table)" refers to a table appended to the Test Report
- Throughout the Test Report a point is used as the decimal separator

GENERAL PRODUCT INFORMATION:	
CA1.0	Report Summary
CA1.1	N/A
CB1.0	Product Description
CB1.1	This product is an AC to DC power module converter.
CC1.0	Model Differences
CC1.1	See Additional Information.
CD1.0	Additional Information
CD1.1	<p>Output Ratings:</p> <p>Model PFE1000F-12: 12 Vdc, 60 A max. Model PFE1000F-28: 28 Vdc, 36 A max. Model PFE1000F-48: 48 Vdc, 21 A max.</p> <p>All models may include suffix /T which indicates no threads in the corner.</p> <p>All models may include suffix /FG which indicates the removal of secondary to earth capacitors to allow an electric strength test of 1500 Vdc between the secondary output and earth.</p> <p>Only 48Vdc output model may be followed by suffix "OV".</p> <p>Any combination of suffix maybe used.</p>
CE1.0	Technical Considerations
CE1.2	The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 25°C
CE1.4	The product is intended for use on the following power systems: TN
CF1.0	Engineering Conditions of Acceptability
CF1.1	<p>For use only in or with complete equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc.</p> <p>When installed in an end-product, consideration must be given to the following:</p>
CF1.2	The following Production-Line tests are conducted for this product: Electric Strength, Earthing Continuity
CF1.5	The following secondary output circuits are SELV: PFE1000F-12: 12Vdc, 60A max, PFE1000F-28: 28Vdc, 36A max, PFE1000F-48/OV: 48Vdc, 21A max.

CF1.6	The following secondary output circuits are at hazardous energy levels: PFE1000F-12: 12Vdc, 60A max PFE1000F-28: 28Vdc, 36A max PFE1000F-48: 48Vdc, 21A max,
CF1.12	The maximum investigated branch circuit rating is: 20 A
CF1.13	The investigated Pollution Degree is: 2
CF1.15	Proper bonding to the end-product main protective earthing termination is: Required
CF1.16	An investigation of the protective bonding terminals has: Not been conducted
CF1.19	The following end-product enclosures are required: Mechanical, Fire, Electrical
CF2.0	As a component part, compliance with the standard will be based upon installation in the final application. This product must be installed within a host equipment. These AC to DC converters have reinforced insulation between the input and the output. The outputs of these products are energy hazards. All models with an output greater than 28V are considered to be non-SELV except models with suffix "OV". As such, the instructions for use must refer to these energy hazardous outputs and non-SELV outputs in that the outputs must not be accessible to the operator, except models for with suffix "OV". The installer must also provide protection against inadvertent contact by a service engineer.
CF2.1	All dynamic testing was conducted with the units loaded to their specified output current. All external components were fitted in accordance with the manufacturers instructions.
CF2.2	These products can be used in any orientation providing the baseplate temperature does not exceed 100 degrees C with the following exception. PFE1000-28 and 48 rating is 90 degrees C baseplate temperature at input voltages below 170Vac, see derating curve within the handbook specification. This temperature limit governs the maximum working ambient temperature.
CF2.3	The input and output connectors are not acceptable for use as field wiring terminals.
CF2.4	The baseplate must be properly bonded to the main protective earthing contact in the end use product.
CF2.5	The fuse rating used for testing was F25AH, 250V. The handbook recommends an input fuse rating of F25AH, 250V. The breaking capacity and voltage rating may be subject to the end use application.
CF2.6	To maintain the SELV output under fault conditions for outputs less than 28V, the output must be connected to earth in the final application.
CF2.7	Maximum attitude for the model, PFE1000F-48/OV is 3000m.