



Test Report issued under the responsibility of:



TEST REPORT
IEC 60950-1
Information technology equipment – Safety –
Part 1: General requirements

Report Number: 1510037STO-001
Date of issue: 5 August 2015
Total number of pages..... 69 pages

Applicant's name.....: TDK-Lambda Corporation Nagaoka Technical Center
Address: 2704-1 Settaya-machi, Nagaoka-shi, Niigata, 940-1195 JAPAN

Test specification:

Standard: IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013
Test procedure: CB Scheme
Non-standard test method: N/A

Test Report Form No.....: IEC60950_1F
Test Report Form(s) Originator: SGS Fimko Ltd
Master TRF.....: Dated 2014-02

Copyright © 2014 IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components (IECEE System). All rights reserved.

This publication may be reproduced in whole or in part for non-commercial purposes as long as the IECEE is acknowledged as copyright owner and source of the material. IECEE takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.

If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.


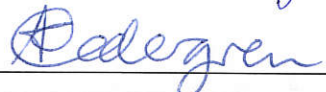
This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.



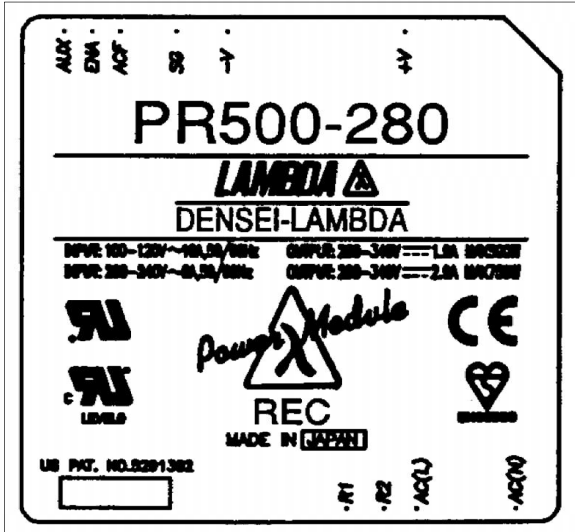
TEST REPORT issued by an Accredited Testing Laboratory. Accredited by Swedac, no 1003, ISO/IEC 17025.

General disclaimer:

The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test item description	AC/DC Converter
Trade Mark	TDK-Lambda
Manufacturer	TDK-Lambda Corporation
Model/Type reference	PF500*-***, PF1000*-***, PR500-280
Ratings	AC input: 100-240V~ alt. 200-240V~

Testing procedure and testing location:		
<input checked="" type="checkbox"/>	CB Testing Laboratory:	Intertek Semko AB
Testing location/ address		Torshamnsgatan 43, P.O. Box 1103, SE-164 22 Kista, SWEDEN
<input type="checkbox"/>	Associated CB Testing Laboratory:	
Testing location/ address		
Tested by (name + signature).....		Bedran Nergiz 
Approved by (name + signature)		Anna Karin Cedergren 
<input type="checkbox"/>	Testing procedure: TMP/CTF Stage 1:	
Testing location/ address		
Tested by (name + signature).....		
Approved by (name + signature)		
<input type="checkbox"/>	Testing procedure: WMT/CTF Stage 2:	
Testing location/ address		
Tested by (name + signature).....		
Witnessed by (name + signature)		
Approved by (name + signature)		
<input type="checkbox"/>	Testing procedure: SMT/CTF Stage 3 or 4:	
Testing location/ address		
Tested by (name + signature).....		
Witnessed by (name + signature)		
Approved by (name + signature)		
Supervised by (name + signature).....		

Summary of testing:	
Tests performed (name of test and test clause): See test report	Testing location: See page 2
Summary of compliance with National Differences: <input checked="" type="checkbox"/> The product fulfils the requirements of EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013. Group- and national differences for the CENELEC countries have been considered during the testing.	
Copy of marking plate: (example) The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.	
 	
	

Test item particulars.....:	
Equipment mobility.....:	<input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> stationary <input checked="" type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in
Connection to the mains.....:	<input type="checkbox"/> pluggable equipment <input type="checkbox"/> type A <input type="checkbox"/> type B <input type="checkbox"/> permanent connection <input type="checkbox"/> detachable power supply cord <input type="checkbox"/> non-detachable power supply cord <input checked="" type="checkbox"/> not directly connected to the mains
Operating condition.....:	<input checked="" type="checkbox"/> continuous <input type="checkbox"/> rated operating / resting time:
Access location	<input type="checkbox"/> operator accessible <input type="checkbox"/> restricted access location <input checked="" type="checkbox"/> for building into a host equipment
Over voltage category (OVC)	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other:
Mains supply tolerance (%) or absolute mains supply values	100-240Vac : +6%, -10%
Tested for IT power systems	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
IT testing, phase-phase voltage (V)	N/A
Class of equipment	<input checked="" type="checkbox"/> Class I <input type="checkbox"/> Class II <input type="checkbox"/> Class III <input type="checkbox"/> Not classified
Considered current rating of protective device as part of the building installation (A)	
Pollution degree (PD)	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
IP protection class	IPX0
Altitude during operation (m)	2000
Altitude of test laboratory (m)	2000
Mass of equipment (kg)	<0.25
Possible test case verdicts:	
- test case does not apply to the test object	: N/A
- test object does meet the requirement	: P (Pass)
- test object does not meet the requirement	: F (Fail)
Testing.....:	
Date of receipt of test item.....:	-
Date (s) of performance of tests.....:	See "General remarks" below

General remarks:			
<p>"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.</p> <p>The test results and all data in this report are derived from previously issued Test Report No. 1017545 dated 20 August 2010, and Test Report No. 1218115, dated 31 August 2012, issued by Intertek Semko AB.</p> <p>A new report has been issued due to update of the standard IEC 60950-1, to include Am 2: 2013.</p> <p>*Clause 4.7.3.4: No flammability tests were conducted on the polymeric materials used in the construction of this equipment.</p> <p>The client supplied information with regard to the flammability classification of the polymeric materials. Acceptance of the materials is based on this information, verified by reference to the UL Directory of Recognized Components or manufacturer's declaration.</p> <p>No additional test has been conducted.</p> <p>Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.</p>			
Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60950-1:			
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> Not applicable	
When differences exist; they shall be identified in the "General product information" section.			
Name and address of factories..... : TDK-Lambda (Malaysia) Sdn. Bhd. PLO33 Locked Bag No. 110 Kawasan Perindustrian Senai 81400 Senai Johor, Darul Takzim, MALAYSIA TDK-Lambda Corporation Nagaoka Technical Center 2704-1 Settaya-machi, Nagaoka, Niigata 940-1195, JAPAN Wuxi TDK-Lambda Electronics Co., Ltd. No.6 Xing Chuang Er lu Wuxi Jiangsu, 214028 CHINA			
Abbreviations used in the report :			
- normal conditions	N.C.	- single fault conditions	S.F.C
- functional insulation	OP	- basic insulation	BI
- double insulation	DI	- supplementary insulation	SI
- between parts of opposite polarity	BOP	- reinforced insulation	RI
Indicate used abbreviations (if any)			

This Test Report replaces previously issued, see table below.

REVISION TABLE

Date	Report ref.	Clause	Modification of the appliance
5 August 2015	1510037TO-001	-	Basic Test Report

TRF No. IEC60950_1F

General product information:

- a) These products shall be installed in accordance with the requirements of IEC 60950-1/EN 60950-1 for the end use application. The AC to DC converters were tested with the heatsink mounted below the baseplate of the converters (worst case).
- b) Basic insulation is provided between all circuits to baseplate. Earthing connection is not essential. The product is entirely primary. Accessibility of the baseplate is to be evaluated in the end equipment. This product was not evaluated for SELV circuits since the power supply has no safety-isolating barrier is entirely primary. This product is a non-isolating ac to dc converter.
- c) This product must be installed within a host equipment and only be accessible to authorised competent personnel.
- d) The operation of these AC to DC converters is subject to the end customer maintaining the baseplate at or below 85°C.
- e) The AC to DC converters have not been assessed for an IT power system.
- f) The input and output connectors are not acceptable for field wiring connections and are only intended for connection to a PCB inside the end use equipment.
- g) The recommended input fuse rating within the instructions and that used for all tests is as follows:- PF500 or PF500A, 250V, F10A HBC fast acting fuse, PF1000 or PF1000A, 250V, F20A HBC fast acting fuse. PR500-280, 250V, F15A HBC normal blow fuse. The breaking capacity and voltage rating of this fuse may be subject to the end use application. The external fuse must be fitted in the live side of the input to the ac to dc converter.
- h) Energy hazard evaluation shall be conducted in the end-use product.

Explanation of the “ *-* “ in the type designations.**

The last digits represent no impact on the safety of the products.

Models included	Input		Output		
	Model	AC V~	A	DC V---	A
	PF500-360	100-240	7	360	1.4
	PF500A-360	200-240	5	360	2.1
	PF1000-360	100-240	14	360	2.8
	PF1000A-360	200-240	10	360	4.2

All Models may be followed by suffix /PI, which indicates that the corner studs are non-threaded. In standard models, the corner studs are threaded.

All Models may be followed by suffix /T, which indicates that the corner studs are non-threaded and differ from the standard models in inside diameter size by 0.1 mm.

Models with the suffix /EM are the same as above except with addition of a reset function.

Models with suffix /SIM are same as above with non-safety critical changes.

Models with suffix /SOA Indicates component changes in enable circuit.

Models PF1000-360/PF1000A-360 shown above may include /S, which indicates a SMT, mounted version.

Model	AC V~	A	DC V---	A
PF500-280	100-120	10	260-340	1.9
	180-254	8	260-340	2.9