
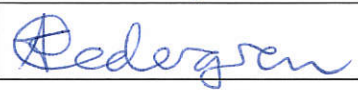




Test Report issued under the responsibility of:



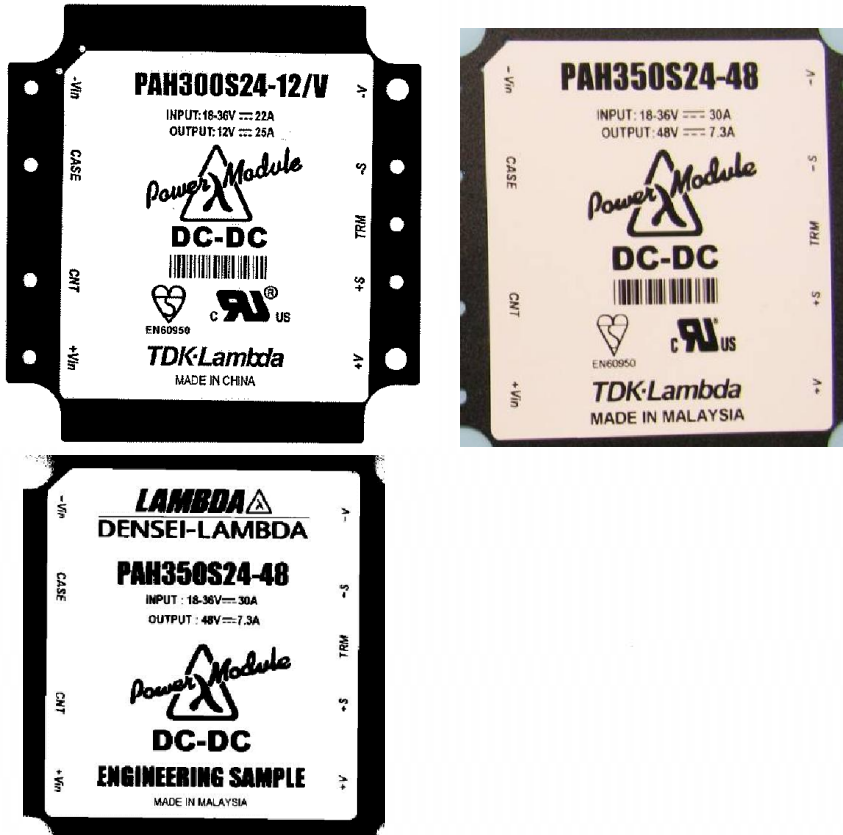
<b>TEST REPORT</b> <b>IEC 60950-1</b> <b>Information technology equipment – Safety –</b> <b>Part 1: General requirements</b>	
Report Number.....	1510053STO-001
Date of issue.....	2 November 2015
Total number of pages .....	80
Applicant's name .....	TDK-Lambda Corporation
Address.....	2704-1 Settaya-machi, Nagaoka-shi, Niigata 940-1195 JAPAN
<b>Test specification:</b>	
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
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<b>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.</b>	
<b>General disclaimer:</b>	
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.	

<b>Test item description</b> ..... :	DC-DC Converter	
<b>Trade Mark</b> ..... :	TDK-Lambda	
<b>Manufacturer</b> .....	TDK-Lambda Corporation	
<b>Model/Type reference</b> .....	PAH300S24-**, PAH350S24-**	(See page 7)
<b>Ratings</b> .....	DC 18-36V	(See page 7)
<b>Testing procedure and testing location:</b>		
<input checked="" type="checkbox"/> <b>CB Testing Laboratory:</b>	Intertek Semko AB	
<b>Testing location/ address</b> ..... :	Torshamnsgatan 43 P.O.Box 1103 SE-164 22 Kista, SWEDEN	
<input type="checkbox"/> <b>Associated CB Testing Laboratory:</b>		
<b>Testing location/ address</b> ..... :		
<b>Tested by (name + signature)</b> .....	Kim Engvall	
<b>Approved by (name + signature)</b> ..... :	Anna Karin Cedergren	
<input type="checkbox"/> <b>Testing procedure: TMP/CTF Stage 1:</b>		
<b>Testing location/ address</b> ..... :		
<b>Tested by (name + signature)</b> .....		
<b>Approved by (name + signature)</b> ..... :		
<input type="checkbox"/> <b>Testing procedure: WMT/CTF Stage 2:</b>		
<b>Testing location/ address</b> ..... :		
<b>Tested by (name + signature)</b> .....		
<b>Witnessed by (name + signature)</b> ..... :		
<b>Approved by (name + signature)</b> ..... :		
<input type="checkbox"/> <b>Testing procedure: SMT/CTF Stage 3 or 4:</b>		
<b>Testing location/ address</b> ..... :		
<b>Tested by (name + signature)</b> .....		
<b>Witnessed by (name + signature)</b> ..... :		
<b>Approved by (name + signature)</b> ..... :		
<b>Supervised by (name + signature)</b> .....		

<p><b>List of Attachments (including a total number of pages in each attachment):</b>          European group differences and national differences (19 pages)          Photos (3 pages)          Transformer specifications (3 pages)          Measurement uncertainty (1 page)</p>	
<p><b>Summary of testing:</b></p>	
<p><b>Tests performed</b> (name of test and test clause):          See test report.</p>	<p><b>Testing location:</b>          Torshamnsgatan 43          P.O.Box 1103          SE-164 22 Kista, SWEDEN</p>
<p><b>Summary of compliance with National Differences:</b>  <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.</p>	

**Copy of marking plate:**

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.



<b>Test item particulars</b> .....:	
<b>Equipment mobility</b> .....:	<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
<b>Connection to the mains</b> .....:	<input type="checkbox"/> pluggable equipment <input type="checkbox"/> type A <input type="checkbox"/> type B <input checked="" type="checkbox"/> permanent connection <input type="checkbox"/> detachable power supply cord <input type="checkbox"/> non-detachable power supply cord <input type="checkbox"/> not directly connected to the mains
<b>Operating condition</b> .....:	<input checked="" type="checkbox"/> continuous <input type="checkbox"/> rated operating / resting time:
<b>Access location</b> .....	<input type="checkbox"/> operator accessible <input type="checkbox"/> restricted access location <input checked="" type="checkbox"/> for building into host equipment
<b>Over voltage category (OVC)</b> .....	<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:
<b>Mains supply tolerance (%) or absolute mains supply values</b> .....	18-36 VDC
<b>Tested for IT power systems</b> .....	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>IT testing, phase-phase voltage (V)</b> .....	N/A
<b>Class of equipment</b> .....	<input checked="" type="checkbox"/> Class I <input type="checkbox"/> Class II <input type="checkbox"/> Class III <input type="checkbox"/> Not classified
<b>Considered current rating of protective device as part of the building installation (A)</b> .....	N/A (for building-in)
<b>Pollution degree (PD)</b> .....	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
<b>IP protection class</b> .....	IPx0
<b>Altitude during operation (m)</b> .....	<2000
<b>Altitude of test laboratory (m)</b> .....	Sealevel
<b>Mass of equipment (kg)</b> .....	< 0.110

<b>Possible test case verdicts:</b>	
- 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)
<b>Testing</b> .....:	See "Additional information"
<b>Date of receipt of test item</b> .....	See "Additional information"
<b>Date (s) of performance of tests</b> .....	See "Additional information"





**General product information: (continued)**

- d) The input to the units must be isolated from the mains by reinforced insulation in accordance with IEC 60950-1:2005, EN 60950-1:2006  
The SELV output is classed as an energy hazard and must not be accessible to the operator in the final end product. This product provides basic insulation at working voltage between the input and output. All short circuit faults across the basic insulation barrier were conducted to ensure SELV output.  
When the outputs are earthed in the end use equipment they are SELV. If the outputs are not earthed they must be considered hazardous, as a single fault in the secondary may make them exceed the SELV limits.
- e) The recommended input fuse rating within the instructions and that used for all tests is as follows:-250V, F30A (PAH300S24) F40A (PAH350S24) HBC fast acting fuse. The breaking capacity and voltage rating of this fuse may be subject to the end use application.

These products have been assessed for Class 1, Pollution Degree 2, Material Group IIIB, Overvoltage Category II. Altitude up to 2000 metres, maximum base plate temperature 100°C.

**Testing Environment:**

Ambient temperature: 15°C to 30°C  
Relative humidity: 25% to 75%  
Air pressure: 86 kPa to 106 kPa

Models	Input		Output	
	Vdc	A (max)	VDC	A (max)
PAH300S24-12	18-36	22	12	25
PAH300S24-28	18-36	22	28	11
PAH350S24-12	18-36	30	12	29.2
PAH350S24-28	18-36	30	28	12.5
PAH350S24-48	18-36	30	48	7.3

Suffix /T – Indicates that the four corner studs are not threaded (standard models, without suffix /T, include four, threaded corner studs)

Suffix /P – Indicates positive logic on/off control, negative logic for standard model.

Suffix /PT – Indicates a combination of the above.

Suffix /TFR – Non safety critical changes.

Suffix /V – Indicates auto re-start OVP function.

**Additional information:**

Test results in this report are based on the previously issued test reports from BSI with ref. Nos. 249/4482485/2 of 2. Based on reports from SET Laboratory with report number SMTN0089 and SMTN0135. and test report ref. no. 249/4844337 (SMTN0135) issued by BSi Product Services dated 13 October 2006.

This Test Report replaces previously report 1218086, dated 29 August 2012, issued by Intertek Semko AB. No additional tests performed.

This new test report has been issued due to updating of the standard according to EN 60950-1:2006+A11+A1+A12+A2.

**Abbreviations used in the report:**

- normal conditions	<b>N.C.</b>	- single fault conditions	<b>S.F.C</b>
- functional insulation	<b>OP</b>	- basic insulation	<b>BI</b>
- double insulation	<b>DI</b>	- supplementary insulation	<b>SI</b>
- between parts of opposite polarity	<b>BOP</b>	- reinforced insulation	<b>RI</b>

**Indicate used abbreviations (if any)**

**Revision table** (this test report replaces previously issued, see table below)

<b>Date</b>	<b>Report ref.</b>	<b>Clause</b>	<b>Modification</b>
2 Nov. 2015	1510053STO-001	–	Basic test report