



Test Report issued under the responsibility of:



<b>TEST REPORT</b> <b>IEC 61010-1</b> <b>Safety requirements for electrical equipment for measurement, control, and laboratory use</b> <b>Part 1: General requirements</b>	
<b>Report Number</b> .....	31581223.003
<b>Date of issue</b> .....	10/9/2020
<b>Total number of pages</b> .....	109 pages + Attachments
<b>Name of Testing Laboratory preparing the Report</b> .....	TÜV Rheinland of North America, Inc.
<b>Applicant's name</b> .....	TDK-Lambda Ltd.
<b>Address</b> .....	56 Haharoshet St., P.O.B. 500 Karmiel Industrial Zone Karmiel 2161401, Israel
<b>Test specification:</b>	
<b>Standard</b> .....	IEC 61010-1:2010 (Third Edition)
<b>Test procedure</b> .....	CB Scheme
<b>Non-standard test method</b> .....	N/A
<b>Test Report Form No.</b> .....	IEC61010_1M
<b>Test Report Form(s) Originator</b> .....	VDE Testing and Certification Institute
<b>Master TRF</b> .....	2018-08-16
<b>Copyright © 2018 Worldwide System for Conformity Testing and Certification of Electrotechnical Equipment and Components (IECEE), Geneva, Switzerland. All rights reserved.</b> 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. <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>	Programmable power supply
<b>Trade Mark .....</b>	TDK-Lambda <b><i>TDK-Lambda</i></b>
<b>Manufacturer.....</b>	TDK-Lambda Ltd., 56 Haharoshet St., P.O.B. 500 Karmiel Industrial Zone Karmiel 2161401, Israel
<b>Model/Type reference.....</b>	1. ZUP200 series; 2. ZUP400 series; 3. ZUP800 series configuration code: ZUPxxx-yyy, with: xxx=any number between 006 to 120 (ZUP200, ZUP400), 06-60 (for ZUP800) yyy=any number between 1.8 to 66 (ZUP200, ZUP400), 14 to 132 (for ZUP800)
<b>Ratings .....</b>	Input: 1: ~100-240V, 4A, 50/60Hz; 2: ~100-240V, 7A, 50/60Hz; 3: ~100-240V, 12A, 50/60Hz; Output: 1. ZUP200: from 0-6VDC/0-33A to 0-120VDC/0-1.8A, 220W max. 2. ZUP400: from 0-6VDC/0-66A to 0-120VDC/0-3.6A, 432W max. 3. ZUP800: from 0-6VDC/0-132A to 0-60VDC/0-14A, 864W max.

<b>Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):</b>		
<input checked="" type="checkbox"/>	<b>CB Testing Laboratory:</b>	TUV Rheinland of North America
<b>Testing location/ address.....:</b>		1279 Quarry Ln # A Pleasanton, CA 94566 USA
<b>Tested by (name, function, signature) .....</b>		Umar Sohi  Digitally signed by Umar Sohi DN: cn=Umar Sohi, email=usohi@us.tuv.com Date: 2020.11.05 18:17:08 -08'00'
<b>Approved by (name, function, signature) ...:</b>		Chan Wang 
<hr/>		
<input type="checkbox"/>	<b>Testing procedure: CTF Stage 1:</b>	
<b>Testing location/ address .....</b>		
<b>Tested by (name, function, signature) .....</b>		
<b>Approved by (name, function, signature) ...:</b>		
<hr/>		
<input type="checkbox"/>	<b>Testing procedure: CTF Stage 2:</b>	
<b>Testing location/ address.....:</b>		
<b>Tested by (name, function, signature) .....</b>		
<b>Witnessed by (name, function, signature) ..:</b>		
<b>Approved by (name, function, signature) ...:</b>		
<hr/>		
<input type="checkbox"/>	<b>Testing procedure: CTF Stage 3:</b>	
<input type="checkbox"/>	<b>Testing procedure: CTF Stage 4:</b>	
<b>Testing location/ address.....:</b>		
<b>Tested by (name, function, signature) .....</b>		
<b>Approved by (name, function, signature) ...:</b>		
<b>Supervised by (name, function, signature).:</b>		

**List of Attachments (including a total number of pages in each attachment):**

ATTACHMENT 1	National Differences	<b>26</b>
ATTACHMENT 2	Photo-documentation	<b>5</b>
ATTACHMENT 3	Magnetics	<b>22</b>
ATTACHMENT 4	Schematics	<b>14</b>
ATTACHMENT 5	PCB	<b>20</b>

**Summary of testing:**

This report adds alternate transformer winding insulation (from ETFE to TIW-3 in Attachment 3 – Magnetics), addition of alternate Y-capacitor (RA series, by Murata, check CCL), plus additional typo corrections in the CCL. No tests were considered necessary as the previous transformer overload and short circuit data did not exceed the normal temperature ratings of the TIW-3 155C ratings.

The measurements recorded in this Report only relate to the tested items detailed on the first page of this Report and demonstrate conformity with the stated specifications. The items tested were selected by the manufacturer as the worst case representative samples of the product group detailed in the first page of this Report, with which it has design and constructional similarity and a commonality of materials and components.

The following power supplies were supplied as a representative sample of the ZUP200(1), ZUP400 (2) and ZUP800 (2) series:

1. ZUP6-33, ZUP120-1.8
2. ZUP6-66, ZUP120-3.6(\*)
3. ZUP6-132(\*), ZUP60-14

Models ZUP6-33, ZUP120-1.8, ZUP6-66 and ZUP60-14 subjected to partial testing to define worst case models (\*) for full testing.

Although the Standard requires testing for a 40° C ambient temperature the representative samples are rated for a maximum ambient operating temperature of 50° C and therefore were tested at this higher temperature.

**Test Report History:**

This report may consist of more than one report and is valid only with additional or previous issued reports:

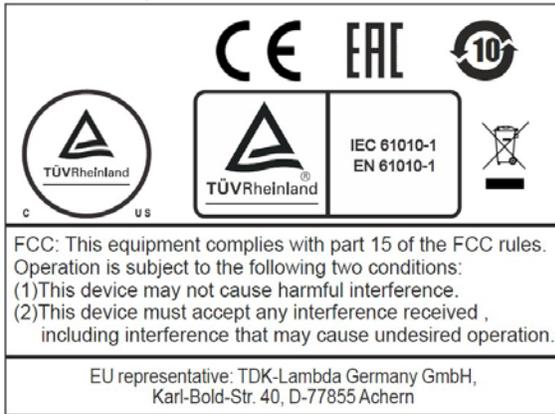
Ref. No.	Item
31581223.001	Original CB Report
31581223.002	Amendment 1. Addition of alternate optocoupler.
<b>31581223.003</b>	<b>Replacing transformer windings from ETFE to TIW-3 (see Attachment 3 – Magnetics), addition of alternate Y-capacitor (RA series, by Murata, check CCL), plus additional typo corrections in the CCL.</b>

Tests performed (name of test and test clause):	Testing location:
<p><b>31581223.003</b> <b>No Testing Performed</b></p> <p>31581223.002 No Testing Performed</p> <p>31581223.001</p> <p>4.4.2.2                   Single fault – protective conductor</p> <p>4.4.2.7                   Single fault – transformers (short / overload)</p> <p>4.4.2.8                   Single fault – outputs short</p> <p>4.4.2.10                  Single fault – cooling -ventilation openings blocked -fan(s) stopped</p> <p>4.4.2.12                  Single fault – bridging of basic insulation</p> <p>5.1.3                    Mains supply</p> <p>5.3                      Durability of markings</p> <p>6                        Values in normal condition (6.1.1 / 6.3.1)</p> <p>6.3                      Discharge tests (6.6.2 / 6.10.3c)</p> <p>6.3.2 b)                Accessible Current</p> <p>6.5.2./4                Bonding impedance of equipment</p> <p>6.8                      Dielectric strength tests + humidity</p> <p>7.4                      Stability tests</p> <p>8.2.1                    Static test</p> <p>8.2.2                    Dynamic test</p> <p>8.3                      Drop test</p> <p>10.1, 10.2, 10.3        Temperature measurements</p> <p>10.5.2                  Resistance to heat of non-metallic enclosures</p> <p>Annex D                Working voltages &amp; Creepage and Clearances</p>	<p>56 Haharoshet St., P.O.B. 500 Karmiel Industrial Zone Karmiel 2161401, Israel</p>
<p>Summary of compliance with National Differences</p> <p>List of countries addressed: CH (Switzerland), CA (Canada), US (United States)</p> <p><input checked="" type="checkbox"/> The product fulfils the requirements of IEC 61010-1:2010 (3rd Edition)</p>	

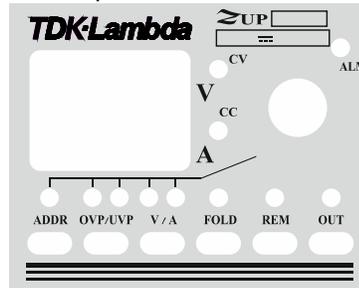
**Copy of marking plate:**

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.

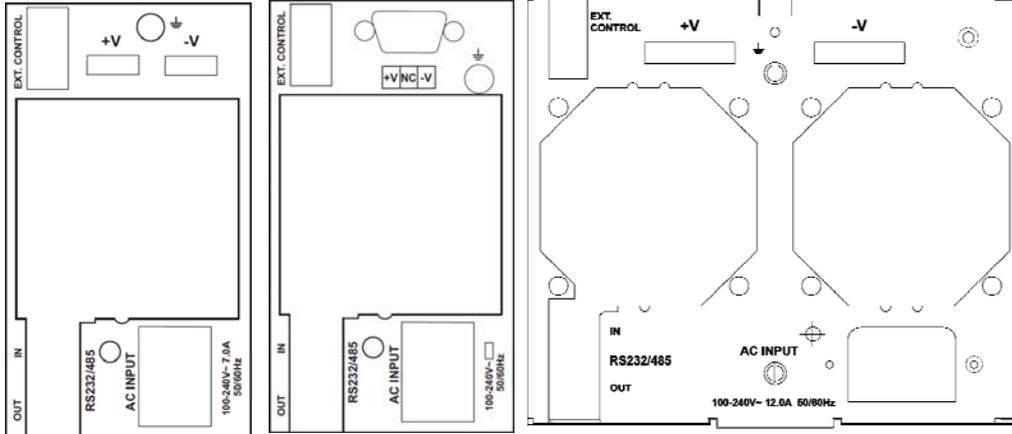
Main marking plate



Front panel



Rear panel (AC rating, markings)

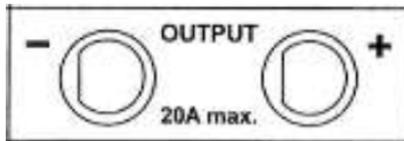


ZUP200/400 LV

ZUP200/400 HV

ZUP800

Lab. Option front panel



<b>Test item particulars:</b>	
Type of item .....	Laboratory
Description of equipment function.....	
Connection to MAINS supply .....	Detachable cord set
Overvoltage category .....	II
POLLUTION DEGREE .....	2
Means of protection.....	Class I (PE connected)
Environmental conditions .....	Extended: max. ambient-50°C, altitude-3000m
For use in wet locations.....	No
Equipment mobility .....	Portable
Operating conditions .....	Continuous
Overall size of equipment (W x D x H).....	ZUP200/ZUP400: 70x124x350 (mm) ZUP800: 140x124x350 (mm)
Mass of equipment (kg).....	ZUP200: ~2.9kg ZUP400: ~3.2kg ZUP800: ~5.8kg
Marked degree of protection to IEC 60529 .....	Not marked, IPX0
<b>Classification of installation and use</b> .....	Class I
<b>Supply Connection</b> .....	Appliance Inlet and Detachable cord set
.....	
<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> .....	
<b>Date of receipt of test item</b> .....	31581223.001 (March 06, 2015) 31581223.002 (N/A) <b>31581223.003 (N/A)</b>
<b>Date (s) of performance of tests</b> .....	31581223.001 (March 06, 2015 - April 28, 2015) 31581223.002 (N/A) <b>31581223.003 (N/A)</b>

**General remarks:**

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 testing laboratory.  
 "(see ENCLOSURE #)" refers to additional information appended to the report.  
 "(see Form A.xx)" refers to a table appended to the report.  
 Bottom lines for measurement tables Form A.xx are optional if used as record.

Throughout this report a  comma /  point is used as the decimal separator.

**Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60068-2-21:**

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 type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------

**When differences exist; they shall be identified in the general product information section.**

**Name and address of factory (ies).....:** TDK-Lambda Ltd., 56 Haharoshet St., P.O.B. 500 Karmiel Industrial Zone Karmiel 2161401, Israel

**General product information and other remarks:**

Description of unit:  
 ZUP200 series, ZUP400 series and ZUP800 series are family of switching mode programmable power supplies.  
 All series are Class I product and intended for:  
 -Indoor use;  
 -Overvoltage Category II;  
 -Pollution Degree 2;  
 -Max. altitude 3000m;  
 -Max. ambient 50°C.

ZUP200 and ZUP400 series have identical mechanical and electrical construction.  
 ZUP800 have wide enclosure and constructed of two identical ZUP400 series AC-DC modules.

**Description of model differences.**

ZUP200 series, ZUP400 series and ZUP800 series Configuration Code: ZUPxxx-yyy

where:

**ZUP200/ZUP400:**

xxx = max. output voltage, may be any between 6 and 120;  
 yyy = max. output current, may be any between 66 and 1.8;

**ZUP800:**

xxx = max. output voltage, may be any between 6 and 60;  
 yyy = max. output current, may be any between 132 and 14.

Description of special features.  
(HV circuits, high pressure systems etc.)

ZUP200/ZUP400/ZUP800 models with rated output voltage up to 60VDC may be equipped with Lab. Option module intended to provide output on the front side. Lab. option module consists of metal chassis with output leads routed to front side with two terminal posts on the front side.