



Test Report issued under  
the responsibility of:



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

**Report Reference No** .....: E113160-A11-CB-4

Date of issue .....: 2016-06-22

Total number of pages .....: 71

**CB Testing Laboratory** .....: UL RTP

Address .....: 12 Laboratory Drive, Research Triangle Park , NC, 27709, USA

**Applicant's name** .....: TDK-LAMBDA AMERICAS INC  
405 ESSEX RD

Address .....: TINTON FALLS NJ 07753-7701  
UNITED STATES

**Test specification:**

Standard .....: IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013

Test procedure .....: CB Scheme

Non-standard test method .....: N/A

**Test Report Form No.** .....: IEC60950\_1F

Test Report Form originator .....: SGS Fimko Ltd

Master TRF .....: Dated 2014-02

**Copyright © 2014 Worldwide System for Conformity Testing and Certification of Electrotechnical Equipment and Components (IECEE), Geneva, Switzerland. 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.

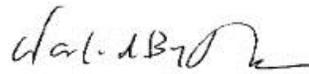
If this test Report is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

**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.**

**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.

<b>Test item description</b> .....	Power Supply
Trade Mark .....	
Manufacturer .....	TDK-LAMBDA AMERICAS INC 405 ESSEX RD TINTON FALLS NJ 07753-7701 UNITED STATES
Model/Type reference .....	GEN 3U Series  Models: GEN AAA-BBBB-KKK-Z GEN AAA-BBBB-KKK-Z-1725, GEN AAA-BBBB-KKK-Z-1900, GEN AAA-BBBB-CCC-KKK-Z-1900  Where: AAA is the output voltage ranging from 20 to 600V and 800 to 1500V.  -BBBB is the output current ranging from 0 to 500A depending on voltage.(Max power 15kW except 50V model rated Max power 16.5kW)  -CCC is the second output current ranging from 0 to 125A (40V Model only)  -KKK represents other non-safety related options. See General Product Information - Additional Information.  -Z represents the 3 phase input voltage.
Ratings .....	Input Ratings:  Models GEN AAA-BBBB-KKK-Z GEN AAA-BBBB-KKK-Z (followed by -1725 or -1900) GEN AAA-BBBB-CCC-KKK-Z-1900  208Vac, 45A, 50-60Hz (10kW models only) 208Vac, 58A, 50-60Hz 400Vac, 22A, 50-60Hz (10kW models only) 400Vac, 32A, 50-60Hz 400Vac, 34A, 50-60Hz (50V, 16.5kW Model Only) 480Vac, 19A, 50-60Hz (10kW models only) 480Vac, 28A, 50-60Hz

<b>Testing procedure and testing location:</b>	
<input checked="" type="checkbox"/>	<p><b>CB Testing Laboratory</b>                  Testing location / address .....: UL RTP 12 Laboratory Drive, Research Triangle Park ,                  NC, 27709, USA</p> <p><input type="checkbox"/> <b>Associated CB Test Laboratory</b>                  Testing location / address .....:                  Tested by (name + signature) .....: Timothy Scott</p> <p>Approved by (name + signature).....: Walid Beytoughan</p>
	 <hr style="width: 150px; margin-left: auto; margin-right: 0;"/>  <hr style="width: 150px; margin-left: auto; margin-right: 0;"/>
<input type="checkbox"/>	<p><b>Testing Procedure: TMP/CTF Stage 1</b>                  Testing location / address .....:                  Tested by (name + signature) .....:                  Approved by (name + signature).....:</p>
<input type="checkbox"/>	<p><b>Testing Procedure: WMT/CTF Stage 2</b>                  Testing location / address .....:                  Tested by (name + signature) .....:                  Witnessed by (name + signature) ...:                  Approved by (name + signature).....:</p>
<input type="checkbox"/>	<p><b>Testing Procedure: SMT/CTF Stage 3 or 4</b>                  Testing location / address .....:                  Tested by (name + signature) .....:                  Approved by (name + signature).....:                  Supervised by (name + signature) ..:</p>
<input type="checkbox"/>	<p><b>Testing Procedure: RMT</b>                  Testing location / address .....:                  Tested by (name + signature) .....:                  Approved by (name + signature).....:                  Supervised by (name + signature) ..:</p>

<p><b>List of Attachments</b>                  National Differences (57 pages)                  Enclosures (90 pages)</p>
<p><b>Summary of Testing:</b>                  All Applicable tests according to the referenced standard(s) have been carried out</p>
<p><b>Summary of Compliance with National Differences:</b></p>

Countries outside the CB Scheme membership may also accept this report.

List of countries addressed: AR, AT, AU, BE, BG, BY, CA, CH, CN, CS, CZ, DE, DK, ES, EU, FI, FR, GB, GR, HU, IE, IL, IN, IT, JP, KR, MY, NL, NO, NZ, PL, PT, RO, SA, SE, SG, SI, SK, UA, US, ZA

The product fulfills the requirements of: EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 + A2:2013

**Copy of Marking Plate** - Refer to Enclosure titled Marking Plate for copy.

**Test item particulars :**

Equipment mobility .....	for building-in
Connection to the mains .....	for building-in, to be determined in end product
Operating condition .....	continuous
Access location .....	to be determined in the end product
Over voltage category (OVC) .....	OVC II
Mains supply tolerance (%) or absolute mains supply values .....	+10%, -10%
Tested for IT power systems .....	Yes, Norway Only
IT testing, phase-phase voltage (V) .....	320 V
Class of equipment .....	Class I (earthed)
Considered current rating of protective device as part of the building installation (A) .....	75
Pollution degree (PD) .....	PD 2
IP protection class .....	IP X0
Altitude of operation (m) .....	2000
Altitude of test laboratory (m) .....	150
Mass of equipment (kg) .....	app. 40

**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(s) of receipt of test item .....	2012-07-18, 2013-04-24, 2014-04-30, 2014-08-13
Date(s) of Performance of tests .....	2012-07-18, 2012-08-15 to 2012-08-16, 2013-04-24, 2014-08-14

**General remarks:**

"(see Enclosure #)" refers to additional information appended to the report.  
 "(see appended table)" refers to a table appended to the report.

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

**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 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 .....

Not  
Applicable

When differences exist, they shall be identified in the General Product Information section.

**Name and address of Factory(ies):** TDK-LAMBDA AMERICAS INC  
 405 ESSEX RD  
 TINTON FALLS NJ 07753-7701  
 UNITED STATES

**GENERAL PRODUCT INFORMATION:****Report Summary**

All applicable tests according to the referenced standard(s) have been carried out.

**Product Description**

Switch Mode Power Supplies, Model Series GEN AAA-BBBB-KKK-Z optionally followed by -1725 or -1900, and GEN AAA-BBBB-CCC-KKK-Z-1900, where AAA represents the output voltage, BBBB represents the output current, CCC represents the second output current, KKK represents other non-safety related options and Z represents the mains voltage rating.

**Model Differences**

The only difference between the Power Supplies of Model Series GEN AAA-BBBB-KKK-Z-1725 are the input voltage and current ratings.

Marking label is representative of all models and ratings.

Voltage range of 20 to 600 V and 800 to 1500V.

GEN AAA-BBBB-KKK-Z models covered are 16.5kW max. ranges where:

AAA is the output voltage ranging from 20 to 600V and 800 to 1500V.

-BBBB is the output current ranging from 0 to 500A depending on voltage.

-KKK represents other non-safety related options. Optionally provided, when provided shall be one of the following:

RS-232/RS-485 Interface built-in Standard	-
GPIB (Multi-Drop Master) Interface	IEMD
Multi-Drop Slave Interface	MD
Voltage Programming Isolated Analog Interface	IS510
Current Programming Isolated Analog Interface	IS420
LAN Interface	LAN
USB Interface	USB
ECAT Interface	ECAT

-Z represents the 3 phase input voltage.

Optional suffixes at the end of model numbers that indicate special options:

The 1900 suffix is used for internal identification and is otherwise the same as the basic models.

The 1900 models are identical to the 1725 models except for a different interface card with or without dip switches.

-1602 Analog front panel (instead of digital)

-1665 Units with lower output capacitance and output power. Input current rated at 18A.

-1688 Capacitor Charging Models.

-1689 Indicates alternate OVP programming only.

- 1690 Indicated alternate OVP programming only.
  - 1691 Indicates alternate OVP programming only.
  - 1683 Indicates different LAN programming, not safety related. No physical changes to the unit.
  - 1696 Indicates lower output capacitance model.
  - 1702 To represent models with IS510 Voltage Programming Isolated Analog Interface.
  - 1704 To represent models with new LAN programming.
  - 1706 To indicate models with different customer specified label requirements.
  - Optional suffixes 1710 to 1719 may be added to indicate changes in software and/or color not affecting safety.
  - 1744 to -1749: Indicates logo/labeling change or removal not affecting safety.
- The following four optional suffixes represent minor change to secondary circuitry, non-critical components, non-safety related changes.
- 1733: For Different LAN programming.
  - 1737: Different Remote Sensing.
  - 1738: Similar to 1725 but without logos.
  - 1739: Optimized for parallel operation with IS510.
  - 1777: No front panel meters or controls.
  - 1781: Faster current and voltage programming response.
  - 1787: Different software programming.

#### **Additional Information**

This report is a reissue of CBTR Ref. No.E113160-A11-CB-3, CB Test Certificate Ref. No. US-27296-UL to upgrade to IEC 60950-1, 2nd Ed./2005 +A1/2011 +A2/2013. Based on previously conducted testing and the review of product technical documentation including photos, schematics and wiring diagrams, it has been determined that the product continues to comply with the standard. All required tests were carried out under the original investigation.

Due to reissue of CB Test Report Ref. No. E113160-A11-CB-3, no testing was conducted under this investigation. During this reissue, additional manufacturer, Trio, was added for inductors and transformers. The inductors and transistors are made to the same specification as TDK.

Marking plates attached represent all models and ratings.

#### **Technical Considerations**

- All 400Vac input models have additionally been evaluated for use with a 3 phase 380Vac input. --

- The means of connection to the mains supply is: Permanently connected (field wired) --
- The product is intended for use on the following power systems: TN --
- The following are available from the Applicant upon request: Installation (Safety) Instructions / Manual --
- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: The maximum manufacturer's recommended ambient (Tma) for these models is 50°C. --
- LEDs provided in the product are considered low power devices: Yes --

**Engineering Conditions of Acceptability**

When installed in an end-product, consideration must be given to the following:

- The following Production-Line tests are conducted for this product: Electric Strength, Earthing Continuity --
- The following secondary output circuits are at hazardous energy levels: All --
- The power supply terminals and/or connectors are: Suitable for field wiring --
- The maximum investigated branch circuit rating is: 75 A, --
- The investigated Pollution Degree is: 2 --
- Proper bonding to the end-product main protective earthing termination is: Required --
- The following end-product enclosures are required: Mechanical, Fire, Electrical --

Abbreviations used in the report:

- normal condition .....	N.C.	- single fault condition .....	S.F.C
- operational insulation .....	OP	- basic insulation .....	BI
- basic insulation between parts of opposite polarity:	BOP	- supplementary insulation .....	SI
- double insulation .....	DI	- reinforced insulation .....	RI

Indicate used abbreviations (if any)