



Test Report issued under
the responsibility of:



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

Report Reference No: E113160-A5-CB-8

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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

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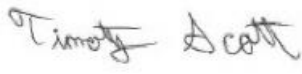
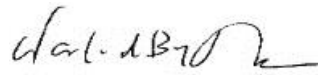
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This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

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.

Test item description:	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 Model: GEN AAA-BBBB-KKK-Z,
	QS 3U Series Model: QS AAA-BBBB-KKK-Z
	Where:
	AAA is the output voltage ranging from 0 to 600V. (additionally marked with 00530XXXX or 00531XXXX number)
	-BBBB is the output current ranging from 0 to 1000A depending on voltage.
	-KKK represents other non-safety related options. See General Product Information - Additional Information.
	-Z represents the 3 phase input voltage.
	See General Product Information - Additional Information for additional suffixes that indicate special options/markings.
Ratings:	Input Ratings:
	Models GEN AAA-BBBB-KKK-Z, QS AAA-BBBB-KKK-Z: 208Vac, 45A, 50-60Hz (For 7.5kW and 10kW Units); 208Vac, 58A, 50-60Hz (For 15kW Units); 400Vac, 24A, 50-60Hz (For 7.5kW and 10kW Units); 400Vac, 32A, 50-60Hz (For 15kW Units); 480Vac, 20A, 50-60Hz (For 7.5kW and 10kW Units); 480Vac, 28A, 50-60Hz (For 15kW Units).

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

<p>List of Attachments National Differences (57 pages) Enclosures (96 pages)</p>
<p>Summary of Testing: All Applicable tests according to the referenced standard(s) have been carried out</p>
<p>Summary of Compliance with National Differences: Countries outside the CB Scheme membership may also accept this report.</p>

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 the 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)	230V
Class of equipment	Class I (earthed)
Considered current rating of protective device as part of the building installation (A)	-
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)	40.91

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	2013-01-17
Date(s) of Performance of tests	2013-01-17

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

7.5kW, 10 kW & 15 kW Switch Mode Power Supplies, Model Series GEN AAA-BBBB-KKK-Z , where AAA represents the output voltage, BBBB represents the output current, KKK represents other non-safety related options and Z represents the mains voltage rating. See General Product Information - Additional Information.

Model Differences

The only difference between the Power Supplies of Model Series GEN AAA-BBBB-KKK-Z are the input voltage and current ratings. Model QS AAA-BBBB-KKK-Z is identical to GEN AAA-BBBB-KKK-Z and is for marketing purposes only.

Marking label is representative of all models and ratings.

Voltage range of 10-600 V. Maximum Current 1,000 Amps.

GEN AAA-BBBB-KKK-Z and QS AAA-BBBB-KKK-Z models covered are 7.5kW, 10kW and 15kW ranges where:

AAA is the output voltage ranging from 0 to 600V. (additionally marked with 00530XXXX or 00531XXXX number)

-BBBB is the output current ranging from 0 to 1000A 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

-Z represents the 3 phase input voltage.

Suffixes at the end of model numbers that indicate special options:

-1602 Analog front panel (instead of digital)

-1653 Units with 240/25A breaker p/n IELK111-36196-1-V manufactured by Airpax. These units will be down rated to 25A input current.

-1665 400V Units with higher switching frequency, lower output capacitance and output power. Input current rated at 18A.

- 1667 208V 10kW Units with 400V input choke.
 - 1687 ROHS Models.
 - 1688 Capacitor Charging Models.
 - 1689 indicates alternate OVP programming only.
 - 1690 indicates 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.
 - 1697 to represent models which use interface board for parallel operation.
 - 1702 to represent models which have been evaluated for use with 380Vac 3 phase input and includes 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.
 - 1760 indicates use of alternate fans with lower speed. Used on Models GEN50-200-KKK-3P208-1760
- The following four optional suffixes represent minor changes to secondary circuitry, non-critical components, non-safety related changes.
- 1733 : for Different LAN programming.
 - 1737 : Different Remote Sensing.
 - 1738 : Similar to 1697 but with logos.
 - 1739 : Optimized for parallel operation with IS510.
 - 1751 to represent models for 380-400 Vac input operation only.

Additional Information

This report is a reissue of CBTR Ref. No. E113160-A5-CB-7, CB Test Certificate Ref. No. US-20053-A2-UL to upgrade to IEC 60950-1 2nd Ed./2005, +A1/2011 +A2/2013. Based on the previously conducted testing and the review of product technical documentation including photos, schematics, wiring diagrams and similar, has been determined that the product continues to comply with the standard.

No tests conducted under this investigation due to reissue of CB Test Report, all required tests were carried out under the original investigation. Based on the previously conducted testing and the review of product

technical documentation including photos, schematics, wiring diagrams and similar, has been determined that the product continues to comply with the standard.

The components were submitted and tested for a maximum manufacturer's recommended ambient (Tmra) of 50°C except for Models GEN AAA-BBBB-KKK-Z-1602, QS AAA-BBBB-KKK-Z-1602. The maximum manufacturer's recommended ambient (Tmra) for these models is 40°C.

Technical Considerations

- Model GEN 60-250-3P400 has been evaluated for use with 380V input and may be followed by any optional suffix. --
- 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: For Models GEN AAA-BBBB-KKK-Z-1602, QS AAA-BBBB-KKK-Z-1602. Tma=40°C. For all other models Tma=50°C --

Engineering Conditions of Acceptability

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

- The following secondary output circuits are at hazardous energy levels: All --
- The power supply terminals and/or connectors are: Suitable for field wiring --
- The investigated Pollution Degree is: 2 --
- The following Production-Line tests are conducted for this product: Electric Strength Earthing Continuity --
- The maximum investigated branch circuit rating is: 60A --
- 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)