

CERTIFICATE OF COMPLIANCE

Certificate Number E133400
Report Reference E133400-A6001-UL
Issue Date 2020-MARCH-18

Issued to: TDK-LAMBDA AMERICAS INC
401 Mile of Cars Way, Suite 325
National City CA 91950

**This certificate confirms that
representative samples of**

COMPONENT - POWER SUPPLIES FOR USE WITH
AUDIO/VIDEO, INFORMATION AND COMMUNICATION
TECHNOLOGY EQUIPMENT

Power Supply
TPF45000-385-XXX, where "X" is any alphanumeric
character or blank, denoting number of modules, minor
cosmetic changes or for marketing purposes, not affecting
safety.

Have been investigated by UL in accordance with the
component requirements in the Standard(s) indicated on
this Certificate. UL Recognized components are incomplete
in certain constructional features or restricted in
performance capabilities and are intended for installation in
complete equipment submitted for investigation to UL LLC.

Standard(s) for Safety: UL 62368-1, Audio/video, information and communication
technology equipment Part 1: Safety requirements.

Additional Information: See the UL Online Certifications Directory at
<https://iq.ulprospector.com> for additional information.

This *Certificate of Compliance* does not provide authorization to apply the UL Recognized Component Mark. Only
the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Recognized Component Mark should be considered as being UL Certified
and covered under UL's Follow-Up Services.

Look for the UL Recognized Component Mark on the product.



Bruce Mahrenholz, Director North American Certification Program
UL LLC

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contact a local UL Customer Service Representative at <http://ul.com/aboutul/locations/>



UL TEST REPORT AND PROCEDURE

Standard:	UL 62368-1, 2nd Ed, 2014-12-01 (Audio/video, information and communication technology equipment Part 1: Safety requirements) CAN/CSA C22.2 No. 62368-1-14, 2nd Ed-(Audio/video, information and communication technology equipment Part 1: Safety requirements)
Certification Type:	Component Recognition
CCN:	QQJQ2, QQJQ8 (Power Supplies for Use in Audio/Video, Information and Communication Technology Equipment)
Complementary CCN:	N/A
Product:	Power Supply
Model:	TPF45000-385-XXX, where "X" is any alphanumeric character or blank, denoting number of modules, minor cosmetic changes or for marketing purposes, not affecting safety.
Rating:	INPUT: 3-Phase, ~400 - 480 V (4W+PE), 80A / PHASE, 50-60 HZ INPUT POWER: 46400W MAX. OUTPUT POWER: 45000 W MAX. 385 VDC @ 117A MAX. Rev. P1-P4: See Misc. Enclosure 7-01 for Output Ratings/derating per load.
Applicant Name and Address:	TDK-LAMBDA AMERICAS INC 401 MILE OF CARS WAY, SUITE 325 NATIONAL CITY CA 91950 UNITED STATES

This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up Service under the indicated Test Procedure. The manufacturer is authorized to use the UL Mark on such products which comply with this Test Report and any other applicable requirements of UL LLC ('UL') in accordance with the Follow-Up Service Agreement. Only those products which properly bear the UL Mark are considered as being covered by UL's Follow-Up Service under the indicated Test Procedure.

The applicant is authorized to reproduce the referenced Test Report provided it is reproduced in its entirety.

UL authorizes the applicant to reproduce the latest pages of the referenced Test Report consisting of the first page of the Specific Technical Criteria through to the end of the Conditions of Acceptability.

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Prepared By: Gregory Ray / Project Handler Reviewed By: Dean Baker / Reviewer

Supporting Documentation

The following documents located at the beginning of this Procedure supplement the requirements of this Test Report:

- A. Authorization - The Authorization page may include additional Factory Identification Code markings.
- B. Generic Inspection Instructions -
 - i. Part AC details important information which may be applicable to products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of this Test Report.
 - ii. Part AE details any requirements which may be applicable to all products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of each Test Report.
 - iii. Part AF details the requirements for the UL Certification Mark which is not controlled by the technical standard used to investigate these products. Products are permitted to bear only the Certification Mark(s) corresponding to the countries for which it is certified, as indicated in each Test Report.

Product Description

The equipment is a Class I, 3-phase power supply intended for building-in as a component used in information technology equipment.

The equipment provides basic and reinforced insulation between Primary and Protective Earth (PE) and Primary and Secondary Circuits respectively.

Model Differences

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Test Item Particulars

Classification of use by	Instructed person
Supply Connection	AC Mains ES3
Supply % Tolerance	+10%/-10%
Supply Connection – Type	For building-in
Considered current rating of protective device as part of building or equipment installation	provided in the end system A;
Equipment mobility	for building-in
Over voltage category (OVC)	OVC II
Class of equipment	Class I
Access location	for building-in
Pollution degree (PD)	PD 2
Manufacturer’s specified maximum operating ambient (°C)	60°C or 70°C depending on loading conditions and orientation of power supply. See output rating table
IP protection class	IPX0
Power Systems	N/A
Altitude during operation (m)	up to 4000 m m
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	Fully loaded with 10 PS Modules 29 kg; Chassis without PS Modules: 14kg; Single PS module: 1.5 kg

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (T_{ma}) permitted by the manufacturer's specification of : Rev. P1-P4: 60°C or 70°C depending on loading conditions and orientation of power supply. See output rating table, . , Rev. YY, where Y is any alphanumeric character or blank, not including P1-P4.: 60°C
- The product is intended for use on the following power systems : TT, TN
- The equipment disconnect device is considered to be : to be considered in the end product
- The following are the output loading conditions used in the entire testing of the power supply.
- Rev. P1-P4: Refer to MISCELLANEOUS output rating attachment for more details.

Engineering Conditions of Acceptability

For use only in or with complete equipment where the acceptability of the combination is determined by UL LLC. When installed in an end-product, consideration must be given to the following:

- The following product-line tests are conducted for this product : Earthing Continuity, Electric Strength
- The end-product Electric Strength Test is to be based upon a maximum working voltage of : 403 Vrms, 544 Vpk
- The maximum investigated branch circuit rating is : Considered at the end system.
- The investigated Pollution Degree is : 2
- Proper bonding to the end-product main protective earthing termination is : Required
- An investigation of the protective bonding terminals has : Not been conducted and should be considered in end system, PE Test must be carefully considered in the end system.
- The following end-product enclosures are required : Fire, Electrical
- The following magnetic devices (e.g. transformers or inductor) are provided with an OBJ2 insulation system with the indicated rating greater than Class A (105°C) : T401 and T402 (Class F)
- The power supply has been evaluated for use in Class I equipment as defined in UL 60950-1 Second Edition and CAN/CSA C22.2 No. 60950-1-07. An additional evaluation shall be made if the power supply is intended for use in other than Class 1 equipment.
- The equipment was not evaluated for end system mounting. When installed in the end system, proper evaluation should be considered that all relevant standards must be fulfilled.
- The equipment contains outputs (+385Vdc) exceeding 240VA. When installing into the end system, care shall be taken that the output busbars and the appropriate wires of equipment may not be touched.
- Suitable enclosure, grounding connection and disconnection device shall be provided by the end system. the power supply has not been evaluated as the main bonding/ earthing for end product.
- When installing into the end system, care shall be taken that the primary wires must be properly isolated from the secondary output busbars of this equipment.
- Power supply chassis is to be reliably bonded to protective earthing in the end system before the equipment is energized.
- This power supply has high leakage. The need for additional warning markings shall be considered in the end system.


Additional Information

The model number for TPF45000-385-XXX remains unchanged but a construction change is present on revisions denoted as YY, where Y is any alphanumeric character or blank, not including P1-P4. The previous model revision is noted in the report as P1-P4.

Additional Standards

The product fulfills the requirements of: --

Markings and Instructions

Clause Title	Marking or Instruction Details
Protective conductor current	"CAUTION – High touch current. Connect to earth before connecting to supply."/"ATTENTION - Courant de contact élevé. Connecter à la terre avant de connecter à l'alimentation."
Equipment identification marking – Manufacturer identification	Listees or Recognized companys name, Trade Name, Trademark or File Number
Equipment identification marking – model identification	Model Number
Equipment rating marking – ratings	"Input Ratings (voltage, frequency/dc, current/power)", "Output Ratings (voltage, frequency/dc, current/power)"
See Installation Instructions	The symbol 
Special Instructions to UL Representative N/A	