

UL TEST REPORT AND PROCEDURE

Standard:	UL 60950-1, 2nd Edition, 2019-05-09 (Information Technology Equipment - Safety - Part 1: General Requirements) CAN/CSA C22.2 No. 60950-1-07, 2nd Edition, 2014-10 (Information Technology Equipment - Safety - Part 1: General Requirements)
Certification Type:	Component Recognition
CCN:	QQGQ2, QQGQ8 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)
Complementary CCN:	N/A
Product:	Switching Power Supply
Model:	PC12U-200Pabcdex and PC12U-220Pabcdex
Rating:	(Model PC12U-200Pabcdex) Input: 100-240 Vac, 2.5-1.1 A, 50/60 Hz Outputs: +5 Vdc, 10 A; +3.3 Vdc, 7.5 A (Optional); +12 Vdc, 8 A; -12 Vdc, 0.3 A; +5 VSB, 1 A. Maximum: +5 Vdc, 11 A; +3.3 Vdc, 9 A (Optional); +12 Vdc, 10 A; -12 Vdc, 0.3 A; +5 VSB, 1.5 A (Model PC12U-220Pabcdex) Input: 100-240 Vac, 2.6-1.1 A, 50/60 Hz Outputs: +5 Vdc, 10 A; +3.3 Vdc, 8.5 A (Optional); +12 Vdc, 9.2 A; -12 Vdc, 0.4 A; +5 VSB, 1 A. Maximum: +5 Vdc, 11 A; +3.3 Vdc, 9 A (Optional); +12 Vdc, 11 A; -12 Vdc, 0.4 A; +5 VSB, 1.5 A
Applicant Name and Address:	NIPRON CO LTD 2-57 OHAMA-CHO AMAGASAKI-SHI HYOGO-KEN 660-0095 JAPAN

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.

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

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Handler

Reviewed By: Bruce A. Mahrenholz / Reviewer

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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 product cover is a Switching Power Supply intended for IT equipment.

Model Differences

All model number nomenclature is as follows:

"abcd" can be replaced with any alphanumeric characters and/or hyphens, which denote output configuration (AT or ATX), w/wo +3.3V output, and customer code.

"e" can be replaced with either an H or V depending upon fan size.

"x" can be replaced with any alphanumeric characters, hyphens, and/or blanks (maximum 50 letters), which denote control number for destination.

Model PC12U-220Pabcdex is identical to Model PC12U-200Pabcdex except for model designation, Inductor (L101), Shield Board, output, tolerance for rated voltage and dilating.

- Tolerance for rated voltage is as follows:

PC12U-200Pabcdex: +10%, -10%

PC12U-220Pabcdex: +10%, -15%

- Dilating is as follows:

PC12U-200PabcdVx: 40°C at 100% Load, 50°C at 90% Load.

PC12U-200PabcdHx: 30°C at 100% Load, 50°C at 70% Load.

PC12U-220Pabcdex: 40°C at 100% Load, 60°C at 60% Load.

Test Item Particulars

Equipment mobility	for building-in
Connection to the mains	not directly connected to the mains
Operating condition	continuous
Access location	N/A (for building-in)
Over voltage category (OVC)	OVC II
Mains supply tolerance (%) or absolute mains supply values	Model PC12U-200P-ABCDabcdex: +10%, -10%. Model PC12U-220P-ABCDabcdex: +10%, -15%

Tested for IT power systems	No
IT testing, phase-phase voltage (V)	-
Class of equipment	Class I (earthed)
Considered current rating of protective device as part of the building installation (A)	20
Pollution degree (PD)	PD 2
IP protection class	IP X0
Altitude of operation (m)	Up to 2000
Altitude of test laboratory (m)	Up to 2000
Mass of equipment (kg)	< 18

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : PC12U-200PabcdVx: 40°C at 100% Load, 50°C at 90% Load. PC12U-200PabcdHx: 30°C at 100% Load, 50°C at 70% Load. PC12U-220Pabcdex: 40°C at 100% Load, 60°C at 60% Load.
- The means of connection to the mains supply is : Detachable power cord
- The product is intended for use on the following power systems : TT, TN
- The equipment disconnect device is considered to be : Appliance inlet

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 Production-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 : 424 Vrms, 851 Vpk
- The following secondary output circuits are SELV : All outputs
- The following secondary output circuits are at hazardous energy levels : Model PC12U-220Pabcdex: +12 Vdc
- The following secondary output circuits are at non-hazardous energy levels : Model PC12U-200Pabcdex: All outputs. Model PC12U-220Pabcdex: +5 Vdc, +3.3 Vdc, -12 Vdc, +5 VSB
- The power supply terminals and/or connectors are : Suitable for factory wiring only (Output Connectors)
- The maximum investigated branch circuit rating is : 20 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 : Electrical and Fire
- The equipment is suitable for direct connection to : AC mains supply (Appliance Inlet)
- The Earthing Test is shall be evaluated in the end-product.

Additional Information

N/A

Additional Standards

The product fulfills the requirements of:

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Markings and Instructions	
Clause Title	Marking or Instruction Details
Power rating - Company identification	Listee's or Recognized companys name, Trade Name, Trademark or File Number
Power rating - Model	Model Number
Special Instructions to UL Representative Inspect the Transformer(s) listed in below "Production-Line Testing Requirements" per AA 1.1 - C. When the tests are conducted at other location, inspect test record and specification sheet provided by the component manufacturer. Verify the specification sheet indicates 100% routine test specified in below "Production-Line Testing Requirements" be conducted at the component manufacturer.	

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BD1.0	TABLE: Production-Line Testing Requirements					
BD1.1	Electric Strength Test Special Constructions – Refer to Generic Inspection Instructions, Part AC for further information.					
Model	Component	Removable parts	Test probe location	Test V rms	Test V dc	Test Time, s
All models in this test report	Transformer T101	--	Primary to Secondary	3000Vac	--	1sec
BD1.2	Earthing Continuity Test Exemptions – This test is not required for the following models:					
	N/A					
BD1.3	Electric Strength Test Exemptions – This test is not required for the following models:					
	N/A					
BD1.4	Electric Strength Test Component Exemptions – The following solid-state components may be disconnected from the remainder of the circuitry during the performance of this test:					
	N/A					

BE1.0	Sample and Test Specifics for Follow-Up Tests at UL				
Model	Component	Material	Test	Sample (s)	Test Specifics
N/A	--	--	--	--	--