



Ref. Certif. No.

US/8812/UL

IEC SYSTEM FOR CONFORMITY TESTING AND CERTIFICATION OF ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

SYSTEME CEI D'ESSAIS DE CONFORMITE ET DE CERTIFICATION DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

# CB TEST CERTIFICATE CERTIFICAT D'ESSAI OC

Product  
Produit

Built-in Power Supply

Name and address of the applicant  
Nom et adresse du demandeur

Condor D C Power Supplies Inc.  
2311 Statham Pky  
Oxnard, CA 93033, USA

Name and address of the manufacturer  
Nom et adresse du fabricant

Condor D C Power Supplies Inc.  
2311 Statham Pky  
Oxnard, CA 93033, USA

Name and address of the factory  
Nom et adresse de l'usine

1. Fuzhou Santron Electronics Corp., Gai Shan Investment Area, Fuzhou Fujian, China
2. Industrias S L S A de C V, Costa Rica #60, Col Cuahutemoc, Mexicali, Baja California N, Mexico
3. Flash Electronics Inc. (Shanghai), W E D Z, 2 Gutang Rd, Wujiang City, Suzhou Jiangsu, China
4. Shanghai Ges Information Technology Co. Ltd, Zhangjiang Hi Tech Park 668 Li Shi Zhen Rd, 201203 Shanghai, China

Rating and principal characteristics  
Valeurs nominales et caractéristiques principales

GPHP600-XX-YYY, Input: 100-240 V ac, 8.5 A, 50/60 Hz  
Output: 24 V dc min., 36 V dc max., 25 A max., 16.6 A min., 600 W max.  
GPHP700-48-YYY, Input: 100-240 V ac, 9.5 A, 50/60 Hz  
Output: 48 V dc, 14.6 A, 700 W max.  
Ambient: 50°C. (See CB Test Report for details on ratings).

Trademark (if any)  
Marque de fabrique (si elle existe)

CONDOR

Model / Type Ref.  
Ref. de type

GPHP600-XX-YYY Series, where XX is any number from 24 to 36, which Represents the output voltage rating and YYY represents front cover colors and mounting options not related to safety.  
GPHP700-48-YYY Series, where YYY represents front cover colors and mounting options not related to safety.

Additional information (if necessary)  
Information complémentaire (si nécessaire)

This report comprises 6 enclosures.

PUBLICATION EDITION

A sample of the product was tested and found to be in conformity with  
Un échantillon de ce produit a été essayé et a été considéré conforme à la

IEC 60950-1 (2001) First Edition,  
Additional evaluation to CENELEC Common Modifications also included.  
See Test Report for National Differences.

as shown in the Test Report Ref. No. which forms part of this Certificate  
comme indiqué dans le Rapport d'essais numéro de référence qui constitue partie de ce Certificat

E135803-A11-CB-1

This CB Test Certificate is issued by the National Certification Body  
Ce Certificat d'essai OC est établi par l'Organisme National de Certification



Underwriters Laboratories Inc. / Certification Programs Office  
333 Pfingsten Road, Northbrook, IL 60062-2096  
United States of America  
TEL INT\* 1-847-272-8800, Ext. 43008 FAX INT\* 1-847-272-9562  
email: jolanta.m.wroblewska@us.ul.com

Date:  
Issued: 2004 October 22

Signature:

Jolanta M. Wroblewska

## COVER PAGE FOR TEST REPORT

Test Item Description:	Built-in Power Supply
Model/Type Reference:	GPHP600-XX-YYY Series, where XX is any number from 24 to 36, which represents the output voltage rating and YYY represents front cover colors and mounting options not related to safety.
	GPHP700-48-YYY Series, where YYY represents front cover colors and mounting options not related to safety.
Rating(s):	GPHP600-XX-YYY Input: 100-240 V ac, 8.5 A, 50/60 Hz Output: 24 V dc minimum, 36 V dc maximum 25 A maximum, 16.6 A minimum, 600 W maximum with integral fans or with 54 CFM customer supplied airflow through the unit.
	GPHP700-48-YYY Input: 100-240 V ac, 9.5 A, 50/60 Hz Output: 48 V dc, 14.6 A 700 W maximum with integral fans or with 54 CFM customer supplied airflow through the unit.
	Ambient: 50°C
Standards:	IEC 60950-1:2001, First Edition
Applicant Name and Address:	CONDOR D C POWER SUPPLIES INC 2311 STATHAM PKY OXNARD CA 93033
Factory Location(s):	FUZHOU SANTRON ELECTRONICS CORP GAI SHAN INVESTMENT AREA FUZHOU FUJIAN, CHINA
	INDUSTRIAS S L S A DE C V COSTA RICA #60 COL CUAHUTEMOC MEXICALI BAJA CALIFORNIA N MEXICO
	FLASH ELECTRONICS INC (SHANGHAI) W E D Z 2 GUTANG RD WUJIANG CITY SUZHOU JIANGSU, CHINA
	SHANGHAI GES INFORMATION TECHNOLOGY CO LTD ZHANGJIANG HI TECH PARK 668 LI SHI ZHEN RD 201203 SHANGHAI, CHINA

This Report includes the following parts, in addition to this cover page:

1. Specific Technical Criteria
2. Clause Verdicts
3. Critical Components
4. Test Results
5. National Differences
6. Enclosures

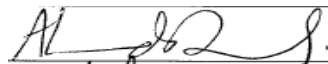
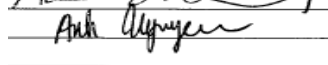
All applicable tests according to the above standard(s) have been carried out.

Test results are valid only for the tested equipment.

This Test Report can be reproduced only in whole.

Amendments and corrections can be reproduced only with the original CB Test Report.

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<b>TEST REPORT</b> <b>IEC 60950-1, First Edition</b> <b>Information technology equipment - Safety -</b> <b>Part 1: General Requirements</b>	
<b>Report Reference No</b> .....	E135803-A11-CB-1
Compiled by (+ signature).....	Ahmad Daoudi 
Reviewed by (+ signature).....	Anh Nguyen 
Approved by (+ signature) .....	N/A
Date of issue .....	2004-10-21
<b>CB Testing Laboratory</b> .....	Underwriters Laboratories Inc.
Address .....	1655 Scott Boulevard, Santa Clara, CA, 95050, USA
Testing location/procedure .....	CBTL [ ] SMT [x] TMP [ ] WMT [ ]
Address .....	CONDOR D C POWER SUPPLIES INC, 2311 STATHAM PKY, OXNARD CA 93033
<b>Applicant's name</b> .....	CONDOR D C POWER SUPPLIES INC 2311 STATHAM PKY
>Address .....	OXNARD CA 93033
<b>Test specification:</b>	
Standard .....	IEC 60950-1:2001, First Edition
Test procedure :	CB Scheme
Non-standard test method .....	N/A
Test Report Form No. ....	IEC60950__1A
TRF originator .....	SGS Fimko Ltd
Master TRF .....	dated 2002-03
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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.	
<b>Test item description</b> .....	Built-in Power Supply
Trade Mark .....	CONDOR
Model/Type reference :	GPHP600-XX-YYY Series, where XX is any number from 24 to 36, which represents the output voltage rating and YYY represents front cover colors and mounting options not related to safety.
	GPHP700-48-YYY Series, where YYY represents front cover colors and mounting options not related to safety.
Manufacturer .....	CONDOR D C POWER SUPPLIES INC 2311 STATHAM PKY OXNARD, CA 93033
Rating .....	GPHP600-XX-YYY

	Input: 100-240 V ac, 8.5 A, 50/60 Hz Output: 24 V dc minimum, 36 V dc maximum 25 A maximum, 16.6 A minimum, 600 W maximum with integral fans or with 54 CFM customer supplied airflow through the unit.  GPHP700-48-YYY Input: 100-240 V ac, 9.5 A, 50/60 Hz Output: 48 V dc, 14.6 A 700 W maximum with integral fans or with 54 CFM customer supplied airflow through the unit.  Ambient: 50°C
Marking Plate - Refer to Enclosure titled Miscellaneous for copy.	

<b>Particulars: test item vs. test requirements</b>	
Equipment mobility :	for building-in
Operating condition :	continuous
Mains supply tolerance (%) :	+10%, -10%
Tested for IT power systems :	No
IT testing, phase-phase voltage (V) :	N/A
Class of equipment :	Class I (earthed)
Mass of equipment (kg) :	< 18
Protection against ingress of water :	IP X0
<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>General remarks:</b>	
<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 a NCB in accordance with IEC60950-1.</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 testing laboratory.	
"(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.	

**General Product Information:****Report Summary**

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

**Product Description**

This product is a component switch-mode power supply intended to be built into an end product or inserting into a rack system. It is provided with an input/output connector for connection to the end use equipment. The GPHP has an OR-ing diode, is N+1 capable and is rack mountable. Since the ground pin is longer than the AC input pins, it is also "Hot-Swappable".

**Model Differences**

The GPHP600-XX-YYY and GPHP700-48-YYY models are identical except for transformer and minor component changes unrelated to Safety. The GPHP700-48-YYY has a higher output wattage than the GPHP600. All Models of the GPHP600 series are electrically similar and physically the same except for the transformer and other minor component changes un-related to Safety.

**Additional Information**

N/A

**Technical Considerations**

The product was submitted and tested for use at the maximum ambient temperature (T<sub>ma</sub>) permitted by the manufacturer's specification of: 50°C

The following were investigated as part of the protective earthing/bonding: Printed wiring board trace (refer to Enclosure - Schematics + PWB for layouts)

**Engineering Conditions of Acceptability**

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

The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-Earthed Dead Metal: 354 Vrms maximum.

The maximum investigated branch circuit rating is: 20 A

The investigated Pollution Degree is: 2

The power supply shall be installed in compliance with the enclosure, mounting, spacing, casualty and segregation requirements of the end-use application.

This power supply has been evaluated for use in a 50°C ambient. An additional evaluation should be made if the power supply is intended to be used in an elevated ambient.

A Heating Test should be conducted in the end-product. Consideration should be given to measuring the temperature on power electronic components, inductors and transformer windings when the power supply is installed in the end-use equipment. All inductors and transformers comply with a min. Class B limit, except for T6 and L7, which are Class F limit.

The input/output connector has not been evaluated for field connection and is only intended for connection to

mating connectors of internal wiring inside the end-use machine. The acceptability of this and the mating connectors relative to secureness, insulating materials, and temperature shall be considered in the end-product evaluation.

The power supply returns are to be connected to ground in the end unit.

An Earthing Test between the Chassis and input/output ground references was successfully performed at 40A. The suitability of this connection should be determined in the end product. To ensure that the secondary and front panel are earthed, the chassis should be bonded to earth in the end product.

The secondary outputs of this power supply are considered SELV and an Energy Hazard (>250V/A).

All tests were conducted with an internal Listed fuse, rated T10.0 A, 250 V,. Fuse located on the line side of the input.

The unit was evaluated with integral forced air-cooling of 54 CFM (two fans of 27 CFM each).

The unit has been evaluated and found acceptable for HOT SWAP applications. The ground pin makes before and breaks after the AC input pins.

Built-in OR-ing diodes on all outputs along with the HOT SWAP capability allow multiple units to share the same rack configuration and share the load

The product input and output are isolated from each other by Reinforced insulation.

The power supply connector has not been evaluated for current interruption. Additional testing will be necessary in the end product to ensure compliance of the connector with the requirements for current interruption.

The PWB is rated minimum 130 °C.

# Demko Certificate

**Product:** Built-in Power Supply  
**Manufacturer:** Condor D.C. Power Supplies Inc  
2311 Statham Pky, Oxnard, CA 93033, USA  
**Production site:** See appendix  
**Certified by request of:** Condor D.C. Power Supplies Inc  
2311 Statham Pky, Oxnard, CA 93033, USA  
**Trademark:** CONDOR  
**Model/Type ref.:** See appendix  
**Rated current or power:** See appendix  
**Rated voltage:** 100-240 V ac, 50/60 Hz  
**Insulation Class:** Class I  
**Degree of protection:** IPX0  
**Additional information:**

Variants covered by this certificate are specified in the attached appendix.  
Detailed specification of the certified product(s) is listed in the appendix.

A sample of the product has been tested and found in conformity with EN 60950:2000, as shown in the Test Report with ref. No. E135803-A11-CB-1.

Furthermore, the product complies with the national deviations in Denmark.

Date of expiry: 2014-10-26

*UL International Demko A/S is a body notified to the Member States and Commission of the European Communities according to the provisions of Article 8 of the Low Voltage Directive.*

*The Manufacturer complies with the Production Surveillance Requirements.*

*Products included in this certificate are allowed to carry the registered approval marks of UL International Demko A/S, ® or for cables <DEMKO>. The name of UL International Demko A/S can be used in the marketing of the products as well.*

*This certificate is only valid for products, which are identical to the certified product, and manufactured at the above mentioned production site(s). UL International Demko A/S has to be informed in writing about any changes, in accordance with the "UL International Demko A/S Standard Terms and Conditions" for UL International Demko A/S services.*

Herlev, 2004-10-26

**Karina Christiansen**  
Certification Manager



## UL International Demko A/S

Lyskaer 8, P.O. Box 514  
DK-2730, Herlev, Denmark  
Telephone: +45 44856565  
Fax: +45 44856500



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## Appendix to Demko Certificate No. 138367-01

**The Certificate covers the following:**

138367-01-0001; GPHP600-XX-YYY; 8.5A;

Type key: XX is any number from 24 to 36 which represents the output voltage rating and YYY represents front cover colors and mounting options not related to safety.

Output: 24 V dc minimum, 36 V dc maximum

25 A maximum, 16.6 minimum

600 W maximum with integral fans or with 54 CFM customer supplied airflow through the unit.

138367-01-0002; GPHP700-48-YYY; 9.5 A;

Type key: YYY represents front cover colors and mounting options not related to safety.

Output: 48 V dc, 14.6 A

700 W maximum with integral fans or with 54 CFM customer supplied airflow through the unit.

**Production Site:**

Fuzhou Santron Electronics Corporation  
Gai Shan Investment Area  
Fuzhou, Fujian  
China

Industrias S.L.S.A. de C.V.  
Costa Rica #60  
Col Cuahutemoc  
Mexicali  
Baja California N  
Mexico

Flash Electronics inc. (Shanghai)  
W E D Z  
2 Gutang Rd  
Wujiang City  
Sozhou Jiangsu  
China

Herlev, 2004-10-26

  
Karina Christiansen  
Certification Manager

**UL International Demko A/S**

Lyskaer 8, P.O. Box 514  
DK-2730, Herlev, Denmark  
Telephone: +45 44856565  
Fax: +45 44856500



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# Appendix to Demko Certificate No. 138367-01

Shanghai Ges Information Technology Co. Ltd.  
Zhangjiang Hi Tech Park  
668 Li Shi Zhen Rd  
201203 Shanghai  
China

Herlev, 2004-10-26

  
Karina Christiansen  
Certificate Manager



## SPECIFIC TECHNICAL CRITERIA

<b>UL 60950-1, First Edition Information technology equipment - Safety- Part 1: General Requirements</b>	
Report Reference No .....	E135803-A11-UL-1
Compiled by .....	Ahmad Daoudi
Reviewed by .....	Anh Nguyen
Date of issue .....	2004-10-21
Standards .....	UL 60950-1:2003, First Edition CSA C22.2 No. 60950-1-03 1st Ed. April 1, 2003
Test procedure .....	Component Recognition
Non-standard test method .....	N/A
<b>Test item</b> description .....	Built-in Power Supply
Trademark .....	CONDOR
Model and/or type reference .....	GPHP600-XX-YYY Series, where XX is any number from 24 to 36, which represents the output voltage rating and YYY represents front cover colors and mounting options not related to safety.  GPHP700-48-YYY Series, where YYY represents front cover colors and mounting options not related to safety.
Rating(s) .....	GPHP600-XX-YYY Input: 100-240 V ac, 8.5 A, 50/60 Hz Output: 24 V dc minimum, 36 V dc maximum 25 A maximum, 16.6 A minimum, 600 W maximum with integral fans or with 54 CFM customer supplied airflow through the unit.  GPHP700-48-YYY Input: 100-240 V ac, 9.5 A, 50/60 Hz Output: 48 V dc, 14.6 A 700 W maximum with integral fans or with 54 CFM customer supplied airflow through the unit.  Ambient: 50°C

**Particulars: test item vs. test requirements**

Equipment mobility .....: for building-in  
Operating condition .....: continuous  
Mains supply tolerance (%) .....: +10%, -10%  
Tested for IT power systems .....: No  
IT testing, phase-phase voltage (V) .....: N/A  
Class of equipment .....: Class I (earthed)  
Mass of equipment (kg) .....: < 18  
Protection against ingress of water .....: IP X0

**Possible test case verdicts:**

- test case does not apply to the test object .....: N / A
- test object does meet the requirement .....: Pass
- test object does not meet the requirement .....: Fail (acceptable only if a corresponding, less stringent national requirement is "Pass")

**General remarks:**

- "(see Enclosure #)" refers to additional information appended to the Test Report
- "(see appended table)" refers to a table appended to the Test Report
- Throughout the Test Report a point is used as the decimal separator

<b>GENERAL PRODUCT INFORMATION:</b>	
CA1.0	<b>Report Summary</b>
CA1.1	N/A
CB1.0	<b>Product Description</b>
CB1.1	This product is a component switch-mode power supply intended to be built into an end product or inserting into a rack system. It is provided with an input/output connector for connection to the end use equipment. The GPHP has an OR-ing diode, is N+1 capable and is rack mountable. Since the ground pin is longer than the AC input pins, it is also "Hot-Swappable".
CC1.0	<b>Model Differences</b>
CC1.1	The GPHP600-XX-YYY and GPHP700-48-YYY models are identical except for transformer and minor component changes unrelated to Safety. The GPHP700-48-YYY has a higher output wattage than the GPHP600. All Models of the GPHP600 series are electrically similar and physically the same except for the transformer and other minor component changes un-related to Safety.
CD1.0	<b>Additional Information</b>
CD1.1	N/A
CE1.0	<b>Technical Considerations</b>
CE1.2	The product was submitted and tested for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 50°C
CE1.12	The following were investigated as part of the protective earthing/bonding: Printed wiring board trace (refer to Enclosure - Schematics + PWB for layouts)
CF1.0	<b>Engineering Conditions of Acceptability</b>
CF1.1	For use only in or with complete equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc.  When installed in an end-product, consideration must be given to the following:
CF1.3	The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-Earthed Dead Metal: 354 Vrms maximum.
CF1.12	The maximum investigated branch circuit rating is: 20 A
CF1.13	The investigated Pollution Degree is: 2
CF2.0	The power supply shall be installed in compliance with the enclosure, mounting, spacing, casualty and segregation requirements of the end-use application.
CF2.1	This power supply has been evaluated for use in a 50°C ambient. An additional evaluation should be made if the power supply is intended to be used in an elevated ambient.

CF2.2	A Heating Test should be conducted in the end-product. Consideration should be given to measuring the temperature on power electronic components, inductors and transformer windings when the power supply is installed in the end-use equipment. All inductors and transformers comply with a min. Class B limit, except for T6 and L7, which are Class F limit.
CF2.3	The input/output connector has not been evaluated for field connection and is only intended for connection to mating connectors of internal wiring inside the end-use machine. The acceptability of this and the mating connectors relative to secureness, insulating materials, and temperature shall be considered in the end-product evaluation.
CF2.4	The power supply returns are to be connected to ground in the end unit.
CF2.5	An Earthing Test between the Chassis and input/output ground references was successfully performed at 40A. The suitability of this connection should be determined in the end product. To ensure that the secondary and front panel are earthed, the chassis should be bonded to earth in the end product.
CF2.6	The secondary outputs of this power supply are considered SELV and an Energy Hazard (>250V/A).
CF2.7	All tests were conducted with an internal Listed fuse, rated T10.0 A, 250 V,. Fuse located on the line side of the input.
CF2.8	The unit was evaluated with integral forced air-cooling of 54 CFM (two fans of 27 CFM each).
CF2.9	The unit has been evaluated and found acceptable for HOT SWAP applications. The ground pin makes before and breaks after the AC input pins.
CF3	Built-in OR-ing diodes on all outputs along with the HOT SWAP capability allow multiple units to share the same rack configuration and share the load
CF3.1	The product input and output are isolated from each other by Reinforced insulation.
CF3.2	The power supply connector has not been evaluated for current interruption. Additional testing will be necessary in the end product to ensure compliance of the connector with the requirements for current interruption.
CF3.3	The PWB is rated minimum 130 °C.