DESCRIPTION

PRODUCT COVERED:

USR/CNR - Linear - Power Supply, Models HA5-1.5/OVP, HA15-0.9, HA24-0.5, HAD12-0.4, HAD15-0.4, HB5-3/0VP, HB12-1.7, HB15-1.5, HB24-1.2, HB28-1, followed by suffix -A. Suffixes after the first hyphen may be replaced by -5XX where X is 0-9. Model name may be followed by "G" or SXXX or SXXXG indicating non-safety critical options.

ELECTRICAL RATING:

	Input			Output, (ac) (dc)		
Model	V	A	Hz	V	A	W @
HA5-1.5/OVP-A	**100/120/230/240**	**0.25/0.125**	**50/60**	**5**	**1.5**	**7.5**
HA15-0.9-A	**100/120/230/240**	**0.5/0.25**	**50/60**	**12-15**	**0.9**	**10.8**
HA24-0.5-A	**100/120/230/240**	**0.5/0.25**	**50/60**	**24-28**	**0.5**	**14.0**
HAD12-0.4-A	**100/120/230/240**	**0.5/0.25**	**50/60**	**12**	**0.4**	**9.6**
HAD15-0.4-A	**100/120/230/240**	**0.5/0.25**	**50/60**	**15**	**0.4**	**12.0**
HB5-3/0VP-A	**100/120/230/240**	**0.5/0.25**	**50/60**	**5**	**3.0**	**15.0**
HB12-1.7-A	**100/120/230/240**	**0.5/0.25**	**50/60**	**12**	**1.7**	**20.4**
HB15-1.5-A	**100/120/230/240**	**0.5/0.25**	**50/60**	**15**	**1.5**	**22.5**
HB24-1.2-A	**100/120/230/240**	**0.75/0.375**	**50/60**	**24**	**1.2**	**28.8**
HB28-1-A	**100/120/230/240**	**0.75/0.375**	**50/60**	**28**	**1.0**	**28.0**

@ - Maximum continuous output power without forced air cooling when the units operate at 25°C ambient. Some units may require forced air cooling when operated at 50°C. See Conditions of Acceptability for more information.

ENGINEERING CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

Use - For use only in (or with) complete equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc.

Special Considerations - The following items are considerations that were used when evaluating this product.

USR/CNR indicates investigation to the U.S. and Canadian (Bi-National) Standard for Safety of Information Technology Equipment, CSA C22.2 No. 60950-1 * UL60950-1, First Edition, dated April 1, 2003.

Conditions of Acceptability - When installed in the end product, consideration shall be given to the following:

1. **This component has been judged on the basis of the required spacings in the Standard for Safety of Information Technology Equipment, CSA/UL60950-1, First Edition, dated April 1, 2003, Sub-clause 2.10 which would cover the component itself if submitted for Listing.**

2. The products were tested on a 20 A branch circuit. If used on a branch circuit greater than this, additional testing may be necessary.

3. All secondary output circuits for all models are SELV and are not hazardous energy levels.

4. The terminals and connectors have not been evaluated for field wiring.

5. The power supply shall be properly bonded to the main protective earthing termination in the end product.

6. Magnetic device(s) (e.g. transformer, inductor) T1 employ(s) an (OBJY3) electrical insulation system designated Class B.

7. The equipment has been evaluated for use in a Pollution Degree 2 environment.

8. A suitable Electrical and Fire enclosure shall be provided.

9. Abnormal Tests were conducted with a Listed non-time-delay fuse rated 0.75 A connected in the ungrounded conductor circuit.

10. Bonding terminals provided on this equipment have not been evaluated as protective earthing terminals.

11. These power supplies have been evaluated for use in a 25, 50 and 70°C ambient in accordance with the manufacturer's specifications. The units were loaded to 100% normal rated load for 25 and 50°C ambient and 40% of normal load for 70°C ambient. At 50°C, the following units required forced air cooling in order to comply with standard requirements.

Model	Required LFM
HB24-1.2-A	100
HB28-1-A	50

DESCRIPTION

PRODUCT COVERED:

USR/CNR - Linear - Power Supply, Models HB48-0.5, HB120-0.2, HB200-0.12, HB250-0.1, followed by suffix -A. Suffixes after the first hyphen may be replaced by -5XX where X is 0-9. Model name may be followed by "G" or SXXX or SXXXG indicating non-safety critical options.

ELECTRICAL RATING:

	Input			Output, (ac)		(dc)
Model	V	A	Hz	V	A	W@
HB48-0.5-A	**100/120/230/240**	**0.75/0.375**	**50/60**	**48**	**0.5**	**24.0**
HB120-0.2-A	**100/120/230/240**	**0.75/0.375**	**50/60**	**120**	**0.2**	**24.0**
HB200-0.12-A	115/230	0.75/0.375	47-440	200	0.12	25.2
HB250-0.1-A	**100/120/230/240**	**0.75/0.370**	**50/60**	**250**	**0.1**	**25.0**

@ - Maximum continuous output power without forced air cooling when the units operate at 25°C ambient. Some units may require forced air cooling when operated at 50°C. See Conditions of Acceptability for more information.

ENGINEERING CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

Use - For use only in (or with) complete equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc.

Special Considerations - The following items are considerations that were used when evaluating this product.

USR/CNR indicates investigation to the U.S. and Canadian (Bi-National) Standard for Safety of Information Technology Equipment, CSA C22.2 No. 60950-1 * UL60950-1, First Edition, dated April 1, 2003.

The component equipment was submitted by the manufacturer for use in a maximum air ambient of 50°C.

The equipment is: For building in, Class I (earthed), pluggable Type A or B, intended for use on a TN power system.

Conditions of Acceptability - When installed in the end product, consideration shall be given to the following:

1. **This component has been judged on the basis of the required spacings in the Standard for Safety of Information Technology Equipment, CSA/UL60950-1, First Edition, dated April 1, 2003, Sub-clause 2.10 which would cover the component itself if submitted for Listing.**

2. The products were tested on a 20 A branch circuit. If used on a branch circuit greater than this, additional testing may be necessary.

3. The secondary output circuits for Models HB120-0.2, HB200-0.12, and HB250-0.1 are at hazardous voltage and are not hazardous energy levels.

4. The terminals and connectors have not been evaluated for field wiring.

5. The power supply shall be properly bonded to the main protective earthing termination in the end product.

6. Magnetic device(s) (e.g. transformer, inductor) T1 employ(s) an (OBJY3) electrical insulation system designated Class B.

7. The equipment has been evaluated for use in a Pollution Degree 2 environment.

8. A suitable Electrical and Fire enclosure shall be provided.

9. Abnormal Tests were conducted with a Listed non-time-delay fuse rated 0.75 A connected in the ungrounded conductor circuit.

10. Bonding terminals provided on this equipment have not been evaluated as protective earthing terminals.

11. These power supplies have been evaluated for use in a 25, 50 and 70°C ambient in accordance with the manufacturer's specifications. The units were loaded to 100% normal rated load for 25 and 50°C ambient and 40% of normal load for 70°C ambient. At 50°C, the following units required forced air cooling in order to comply with standard requirements.

Model	Required LFM
HB120-0.2-A	75

13. The following components should be given special consideration during end-use Heating Tests because of temperatures achieved during component level testing:

Model	Component	Maximum Temperature Achieved, °C
HB48-0.5-A	T1	79

• CERTIFICATE • CERTIFICADO • СЕРТИФИКАТ • 認証書

Product Service

CERTIFICATE

No. B 08 08 24238 01083

Holder of Certificate: **Power-One, Inc.**
740 Calle Plano
Camarillo, CA 93012-8583
USA

Production Facility(ies): 59929

Certification Mark:

Product: **Power supply**
AC/DC Linear Power Supplies

Model(s): **HB48-0.5**
See Attachment for individual models and ratings

Parameters:

Model HB48-0.5:	
Rated Input Voltage:	100/120/220/230/240 V AC
Rated Input Current:	0.75 / 0.375 A
Rated Frequency:	50 / 60 Hz
Rated DC Outputs:	48 V / 0.5 A
Required external airflow:	70 LFM

Product Service

Attachment to Certificate B 08 08 24238 01083
For Power-One, Inc.

General product information:

These models are open frame AC/DC linear power supplies. They were evaluated for use in a maximum operating temperature of 50°C in which forced air cooling is needed for some models. The models were tested with 100% rated load at 60 Hz and derated by 10% at 50 Hz input except model HA5-1.5/OVP.

The models require:
1) A suitable fire enclosure at end use.
2) A reliable ground (Protective Earth) connection at end use.

ELECTRICAL RATING:

Model	Input			Output (dc)		Airflow Required (LFM)
	V	A	Hz	V	A	
HA5-1.5/OVP	100/120/220/230/240	0.25/0.125	50/60	5	1.5	N/A
HA15-0.9	100/120/220/230/240	0.5/0.25	50/60	12 or 15	0.9	N/A
HA24-0.5	100/120/220/230/240	0.5/0.25	50/60	24 or 28	0.5	N/A
HB5-3/OVP	100/120/220/230/240	0.5/0.25	50/60	5	3	N/A
HB12-1.7	100/120/220/230/240	0.5/0.25	50/60	12	1.7	N/A
HB15-1.5	100/120/220/230/240	0.5/0.25	50/60	15	1.5	N/A
HB24-1.2	100/120/220/230/240	0.75/0.375	50/60	24	1.2	100
HB28-1	100/120/220/230/240					

Ref. Certif. No.

DE 3 - 52582M1

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

SYSTEME CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D'ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

CB TEST CERTIFICATE
CERTIFICAT D'ESSAI OC

Product Produit	Linear power supply (AC / DC Linear Power Supplies)
Name and address of the applicant Nom et adresse du demandeur	Power-One, Inc. 740 Calle Plano Camarillo, CA 93012-8583, USA
Name and address of the manufacturer Nom et adresse du fabricant	Power-One, Inc., 740 Calle Plano, Camarillo, CA 93012-8583, USA
Name and address of the factory Nom et adresse de l'usine	Power-One, LTD, Autopista Las Americas Km.22, Zona Franca Las Americas, 11606 Santo Domingo, DOMINICAN REPUBLIC
Rating and principal characteristics Valeurs nominales et caractéristiques principales	Input Voltage, AC: 100/120/220/230/240 V Input Frequency: 50 / 60 Hz Input Current: Model dependent, see attached Protection Class: I Outputs, DC: Model dependent, see attached External Airflow: 70 LFM required For further information please see attachment.
Trade mark (if any) Marque de fabrique (si elle existe)	Power-One
Model/type Ref. Ref. de type	HA5-1/OVP, HA15-0.9, HA24-0.5, HB5-3/OVP, HB12-1.7, HB15-1.5, HB24-1.2, HB28-1, HB48-0.5 HAD12-0.4, HAD15-0.4 (All models maybe followed by suffix -A. Additionally, model may be followed by "G" or SXXX or SXXXG where X is from 0-9, indicating customer version, and; G indicating RoHS version.)
Additional information (if necessary) Information complémentaire (si nécessaire)	SMT
A sample of the product was tested and found	IEC 60950-1:2001

Ref. Certif. No.

DE 3 – 52582M1

GENERAL PRODUCT INFORMATION:

These models are open frame AC/DC linear power supplies.

All models maybe followed by suffix -A. Additionally, model may be followed by "G" or SXXX or SXXXG where X is from 0-9, indicating customer version, and; G indicating RoHS version.

ELECTRICAL RATING:

Model	Input			Output (dc)		Airflow Required (LFM)
	V	A	Hz	V	A	
HA5-1.5/OVP	100/120/ 220/230/240	0.25/ 0.125	50/60	5	1.5	N/A
HA15-0.9	100/120/ 220/230/240	0.5/ 0.25	50/60	12 or 15	0.9	N/A
HA24-0.5	100/120/ 220/230/240	0.5/ 0.25	50/60	24 or 28	0.5	N/A
HB5-3/OVP	100/120/ 220/230/240	0.5/ 0.25	50/60	5	3	N/A
HB12-1.7	100/120/ 220/230/240	0.5/ 0.25	50/60	12	1.7	N/A
HB15-1.5	100/120/ 220/230/240	0.5/ 0.25	50/60	15	1.5	N/A
HB24-1.2	100/120/ 220/230/240	0.75/ 0.375	50/60	24	1.2	100
HB28-1	100/120/ 220/230/240	0.75/ 0.375	50/60	28	1	50
HB48-0.5	100/120/ 220/230/240	0.75/ 0.375	50/60	48	0.5	70
HAD12-0.4	100/120/ 220/230/240	0.5/ 0.25	50/60	12 and -12	0.4 ea.	N/A
HAD15-0.4	100/120/ 220/230/240	0.5/ 0.25	50/60	15 and -15	0.4 ea	N/A

Declaration of Conformity

CE MARKING

We, **Power-One, Inc.,740 Calle Plano, Camarillo, CA. 93012 USA**
declare under our sole responsibility that the products;

Power Supply Model: Linear Power Supplies
(B Case)

to which this declaration relates, is/are in compliance with the following document(s):

Quality Standard(s): **ISO 9001, EN 29001**

Directive: **DIR 73/23/EEC, Low Voltage Directive**

Product Safety Standard(s): **EN 60950-1: 2001**
IEC 60950-1: 2001
(Licensed by a Notified Body to the European Union)

These component level power supplies are intended exclusively for inclusion within other equipment by an industrial assembly operation or by professional installers per the Installation Instructions provided with the power supplies. The power supply is considered Class I and must be connected to a reliable earth grounding system.

	Camarillo, Ca.	**June 04, 2004**
(Manufacturer)	*(Place)*	*(Date)*

Robert P. White Jr.
Product Safety Director