

# CERTIFICATE OF COMPLIANCE

**Certificate Number** E139109  
**Report Reference** E139109-A6084-UL  
**Issue Date** 2019-DECEMBER-23

**Issued to:** XP POWER L L C  
15641 RED HILL AVE, SUITE 100, TUSTIN CA 92780

**This certificate confirms that  
representative samples of**

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

COMPONENT - POWER SUPPLIES, INFORMATION  
TECHNOLOGY EQUIPMENT INCLUDING ELECTRICAL  
BUSINESS EQUIPMENT

See addendum page for Models

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 and CAN/CSA C22.2 No. 62368-1-14-(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

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at <http://ul.com/aboutul/locations/>



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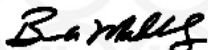
**Certificate Number** E139109  
**Report Reference** E139109-A6084-UL  
**Issue Date** 2019-DECEMBER-23

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

## Models

### DC/DC HV Converters

HRL3024S200P, HRL3024S200N, HRL3024S350P, HRL3024S350N, HRL3024S600P,  
HRL3024S600N, HRL3024S1K0P, HRL3024S1K0N, HRL3024S1K5P, HRL3024S1K5N,  
HRL3024S2K0P, HRL3024S2K0N, HRL3024S2K5P, HRL3024S2K5N, HRL3024S3K0P,  
HRL3024S3K0N, HRL3024S4K0P, HRL3024S4K0N, HRL3024S5K0P, HRL3024S5K0N,  
HRL3024S6K0P, HRL3024S6K0N



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## UL TEST REPORT AND PROCEDURE

<b>Standard:</b>	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)
<b>Certification Type:</b>	Component Recognition
<b>CCN:</b>	QQJQ2, QQJQ8 (Power Supplies for Use in Audio/Video, Information and Communication Technology Equipment)
<b>Complementary CCN:</b>	QQGQ2, QQGQ8 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)
<b>Product:</b>	DC/DC HV Converters
<b>Model:</b>	HRL3024S200P, HRL3024S200N, HRL3024S350P, HRL3024S350N, HRL3024S600P, HRL3024S600N, HRL3024S1K0P, HRL3024S1K0N, HRL3024S1K5P, HRL3024S1K5N, HRL3024S2K0P, HRL3024S2K0N, HRL3024S2K5P, HRL3024S2K5N, HRL3024S3K0P, HRL3024S3K0N, HRL3024S4K0P, HRL3024S4K0N, HRL3024S5K0P, HRL3024S5K0N, HRL3024S6K0P, HRL3024S6K0N
<b>Rating:</b>	Input: 24Vdc, 1.5A  Output: See Model Differences for output ratings of each model.  Ratings optionally marked on unit.
<b>Applicant Name and Address:</b>	XP POWER L L C 15641 RED HILL AVE, SUITE 100 TUSTIN CA 92780 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.

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

Prepared By: Robert Leon / Project Handler

Reviewed By: Walid Beytoughan / 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 units are non-isolating Low Voltage DC to High Voltage DC 30 watt converters.

**Model Differences**

Models differ in output ratings based on different transformer turns ratios.

Model Output Voltage and Current:

HRL3024S200P: 0 to +200V, 150mA

HRL3024S200N: 0 to -200V, 150mA

HRL3024S350P: 0 to +350V, 85.7mA

HRL3024S350N: 0 to -350V, 85.7mA

HRL3024S600P: 0 to +600V, 50.0mA

HRL3024S600N: 0 to -600V, 50.0mA

HRL3024S1K0P: 0 to +1000V, 30.0mA

HRL3024S1K0N: 0 to -1000V, 30.0mA

HRL3024S1K5P: 0 to +1500V, 20.0mA

HRL3024S1K5N: 0 to -1500V, 20.0mA

HRL3024S2K0P: 0 to +2000V, 15.0mA

HRL3024S2K0N: 0 to -2000V, 15.0mA

HRL3024S2K5P: 0 to +2500V, 12.0mA

HRL3024S2K5N: 0 to -2500V, 12.0mA

HRL3024S3K0P: 0 to +3000V, 10.0mA

HRL3024S3K0N: 0 to -3000V, 10.0mA

HRL3024S4K0P: 0 to +4000V, 7.5mA

HRL3024S4K0N: 0 to -4000V, 7.5mA

HRL3024S5K0P: 0 to +5000V, 6.0mA

HRL3024S5K0N: 0 to -5000V, 6.0mA

HRL3024S6K0P: 0 to +6000V, 5.0mA

HRL3024S6K0N: 0 to -6000V, 5.0mA

<b>Test Item Particulars</b>	
Classification of use by	Skilled person
Supply Connection	External Circuit - not Mains connected ES1
Supply % Tolerance	None
Supply Connection – Type	For building-in
Considered current rating of protective device as part of building or equipment installation	20 A; building;
Equipment mobility	for building-in
Over voltage category (OVC)	other: N/A for Building-In
Class of equipment	Not classified
Access location	N/A
Pollution degree (PD)	PD 2
Manufacturer's specified maximum operating ambient (°C)	70°C at Baseplate Hotspot
IP protection class	IPX0
Power Systems	--
Altitude during operation (m)	2000 m or less
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	0.0368 - 0.0566

#### **Technical Considerations**

- The product was submitted and evaluated for use at the maximum ambient temperature (T<sub>ma</sub>) permitted by the manufacturer's specification of : When installed in the end product temperature at the Baseplate hotspot should be measured and temperatures should not exceed 70°C
- The product is intended for use on the following power systems : No direct connection
- The equipment disconnect device is considered to be : N/A - To be provided as an element of the end product.

#### **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 end-product Electric Strength Test is to be based upon a maximum working voltage of : 6800Vdc for model HRL3024S6K0N and 642Vdc for model HRL3024S600P
- The following output circuits are at ES3 energy levels : All Outputs, All Models
- The following output circuits are at PS1 energy levels : All Outputs, All Models
- 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 : Not required
- The following end-product enclosures are required : Electrical, Fire
- Heating test should be repeated in the end-use product.
- When installed in the end product the Baseplate hotspot should be measured and temperatures should not exceed 70°C.
- When installed in the end product the Baseplate for models HRL3024S200P, HRL3024S200N, HRL3024S350P, HRL3024S350N, HRL3024S600P and HRL3024S600N may be connected to protective bonding as it is isolated from hazardous circuits by Basic Insulation.
- Power supply shall not be directly connected to primary power and shall derive its power from a safety isolating transformer whose secondary circuit is double/reinforced insulated from the mains or derive its power from batteries.
- When installed onto a earthed surface in the end product the Baseplate for models HRL3024S1K0P, HRL3024S1K0N, HRL3024S1K5P, HRL3024S1K5N, HRL3024S2K0P, HRL3024S2K0N, HRL3024S2K5P, HRL3024S2K5N, HRL3024S3K0P, HRL3024S3K0N, HRL3024S4K0P, HRL3024S4K0N, HRL3024S5K0P, HRL3024S5K0N, HRL3024S6K0P and HRL3024S6K0N, should be provided with sufficient insulation as the Baseplate is considered a hazardous circuit.
- The power supply outputs are not intended to be accessible to the user when installed in the end use product. Further evaluation may be necessary if its determined that the output circuits are accessible in the final installation.

**Additional Information**

The nameplate markings provided are considered representative of the entire series and only the output ratings may vary.

The need for the additional testing and evaluation shall be determined in the end product investigation.

**Additional Standards**

The product fulfills the requirements of: EN 62368-1:2014 + A11:2017, CSA/UL 62368-1 2nd Ed

**Markings and Instructions**

Clause Title	Marking or Instruction Details
Equipment identification marking – Manufacturer identification	Listees or Recognized companys name, Trade Name, Trademark or File Number
Equipment identification marking – model identification	Model Number

**Special Instructions to UL Representative**

N/A