

# CERTIFICATE OF COMPLIANCE

**Certificate Number** 2024-08-15-E321744  
**Report Reference** E321744-D1036-1/A0/C0-UL  
**Date** 2024-08-15

**Issued to:** XP Power LLC  
**Applicant Company:** 340 Commerce, Suite 100  
Irvine, CA 92602 USA

**Listed Company:** Same as Applicant

**This is to certify that  
representative samples of**

Component Power Supply intended for Building-in  
EPL150PSXX (where XX can be any number between 12 and 48  
designating the output voltage), may also be provided with suffix  
"-SF" or "-T" or "-YYYYYY", EPL150PS12-XZ1752@ (where @  
is any alpha numeric for marketing purpose only)

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.

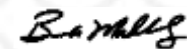
**Standard(s) for Safety:** AAMI ES60601-1:2005, ES60601-1:2005/AMD1 1:2012 ,  
ES60601-1:2005/AMD2:2021, CAN/CSA-C22.2 No. 60601-1:08,  
CAN/CSA-C22.2 No. 60601-1:14 (including amendment 1) and  
Amendment 2:2022 (MOD) to CAN/CSA-C22.2 No. 60601-1:14

**Additional Standards:** EN 60601-1:2006 + A1:2013 + A12:2014 + A2:2021  
**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.



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/>



Look for the UL Recognized Component Mark on the product.

*B. Mahlen*

Bruce Mahrenholz, Director North American Certification Program

UL LLC

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## Description

### UL TEST REPORT AND PROCEDURE

<b>Standard:</b>	AAMI ES60601-1:2005,ES60601-1:2005/AMD1 1:2012 , ES60601-1:2005/AMD2:2021, CAN/CSA-C22.2 No. 60601-1:08, CAN/CSA-C22.2 No. 60601-1:14 (including amendment 1) and Amendment 2:2022 (MOD) to CAN/CSA-C22.2 No. 60601-1:14, IEC 60601-1:2005, AMD1:2012, AMD2:2020
<b>Certification Type:</b>	Component Recognition
<b>CCN:</b>	QQHM2 / QQHM8
<b>Complementary CCNs:</b>	
<b>Product:</b>	Component Power Supply intended for Building-in
<b>Model:</b>	EPL150PSXX (where XX can be any number between 12 and 48 designating the output voltage), may also be provided with suffix "-SF" or "-T" or "-YYYYYY", EPL150PS12-XZ1752@ (where @ is any alpha numeric for marketing purpose only)
<b>Rating:</b>	Input: 100-240 Vac, 50/60Hz, 2.5 A; Output: See Model Differences for details
<b>Applicant Name and Address:</b>	XP Power LLC 340 Commerce, Suite 100 Irvine, CA 92602 , USA

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 as applicable.

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

Prepared by: Longjie Zhang, Project  
Handler

Reviewed by: Richard Maeder, Project  
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 product is an open frame AC/DC switching mode power supply and is intended for building-in Class I or Class II from factory installation to be used as part of Medical Electrical Equipment.

Refer to the Report Modifications page for any modifications made to this report.

## Model Differences

All models in the Model EPL150PSXX series are identical with exception to the Mains Transformer, TR1, and minor secondary components that allow for different output voltage ratings.

See below for Model Ratings:

EPL150PS12: 12Vdc (10.1 - 13.5 Vdc), 12.5 A max, 150W max (50C, forced-air with 10 cfm fan)  
 EPL150PS15: 15Vdc (13.6 - 17 Vdc), 10.0 A max, 150W max (50C, forced-air with 10 cfm fan)  
 EPL150PS18: 18Vdc (17.1 - 21 Vdc), 8.33 A max, 150W max (50C, forced-air with 10 cfm fan)  
 EPL150PS24: 24Vdc (21.1 - 26 Vdc), 6.25 A max, 150W max (50C, forced-air with 10 cfm fan)  
 EPL150PS28: 28Vdc (26.1 - 31 Vdc), 5.36 A max, 150W max (50C, forced-air with 10 cfm fan)  
 EPL150PS33: 33Vdc (31.1 - 33 Vdc), 4.55 A max, 150W max (50C, forced-air with 10 cfm fan)  
 EPL150PS36: 36Vdc (33.1 - 42 Vdc), 4.17 A max, 150W max (50C, forced-air with 10 cfm fan)  
 EPL150PS48: 48Vdc (42.1 - 52 Vdc), 3.13 A max, 150W max (50C, forced-air with 10 cfm fan)

EPL150PS12: 12Vdc (10.1 - 13.5 Vdc), 6.25 A max, 75W max (70C, forced-air with 10 cfm fan)  
 EPL150PS15: 15Vdc (13.6 - 17 Vdc), 5.0 A max, 75W max (70C, forced-air with 10 cfm fan)  
 EPL150PS18: 18Vdc (17.1 - 21 Vdc), 4.17 A max, 75W max (70C, forced-air with 10 cfm fan)  
 EPL150PS24: 24Vdc (21.1 - 26 Vdc), 3.13 A max, 75W max (70C, forced-air with 10 cfm fan)  
 EPL150PS28: 28Vdc (26.1 - 31 Vdc), 2.68A max, 75W max (70C, forced-air with 10 cfm fan)  
 EPL150PS33: 33Vdc (31.1 - 33 Vdc), 2.27 A max, 75W max (70C, forced-air with 10 cfm fan)  
 EPL150PS36: 36Vdc (33.1 - 42 Vdc), 2.08 A max, 75W max (70C, forced-air with 10 cfm fan)  
 EPL150PS48: 48Vdc (42.1 - 52 Vdc), 1.56 A max, 75W max (70C, forced-air with 10 cfm fan)

EPL150PS12: 12Vdc (10.1 - 13.5 Vdc), 8.33 A max, 100W max (50C, convection)  
 EPL150PS15: 15Vdc (13.6 - 17 Vdc), 6.67 A max, 100W max (50C, convection)  
 EPL150PS18: 18Vdc (17.1 - 21 Vdc), 5.56 A max, 100W max (50C, convection)  
 EPL150PS24: 24Vdc (21.1 - 26 Vdc), 4.17 A max, 100W max (50C, convection)  
 EPL150PS28: 28Vdc (26.1 - 31 Vdc), 3.57 A max, 100W max (50C, convection)  
 EPL150PS33: 33Vdc (31.1 - 33 Vdc), 3.03 A max, 100W max (50C, convection)  
 EPL150PS36: 36Vdc (33.1 - 42 Vdc), 2.78 A max, 100W max (50C, convection)  
 EPL150PS48: 48Vdc (42.1 - 52 Vdc), 2.1 A max, 100W max (50C, convection)

EPL150PS12: 12Vdc (10.1 - 13.5 Vdc), 4.17 A max, 50W max (70C, convection)  
 EPL150PS15: 15Vdc (13.6 - 17 Vdc), 3.33 A max, 50W max (70C, convection)

EPL150PS18: 18Vdc (17.1 - 21 Vdc), 2.78 A max, 50W max (70C, convection)  
 EPL150PS24: 24Vdc (21.1 - 26 Vdc), 2.08 A max, 50W max (70C, convection)  
 EPL150PS28: 28Vdc (26.1 - 31 Vdc), 1.79 A max, 50W max (70C, convection)  
 EPL150PS33: 33Vdc (31.1 - 33 Vdc), 1.52 A max, 50W max (70C, convection)  
 EPL150PS36: 36Vdc (33.1 - 42 Vdc), 1.39 A max, 50W max (70C, convection)  
 EPL150PS48: 48Vdc (42.1 - 52 Vdc), 1.04 A max, 50W max (70C, convection)

EPL150PS12-XZ1752@ (where @ is any alphanumeric for marketing purpose only) is similar to model EPL150PS12, except for addition of optional chassis, wiring harnesses, and alternate capacitor.

All models are provided with a Fan output @ CN3 (12 Vdc, 0.5A).

Additional Suffix "-SF" denotes units provided with only a single line side fuse.

Additional Suffix "-T" denotes units provided with screw type terminal.

Additional Suffix "-YYYYYY" can be any digits or letters or blank for marketing purpose.

All "-" considered optional.

See Enclosure - Miscellaneous for Output Ratings Table for additional details

### Additional Information

The required clearance values have been assessed for suitability up to 5000 m elevation (1.29 correction factor as per IEC 60606-1, Table 8).

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

The nameplate markings provided as an Enclosure - Marking Plate are considered representative of the entire series.

The power supply series covered by this report employ Double/Reinforced Insulation between Primary and Secondary circuits.

Equipment mobility : for building-in

Connection to the mains : To be determined in the end-use product.

Over voltage category (OVC) : OVC II

Mains supply tolerance (%) or absolute mains supply values : +10%, -10%

Considered current rating of protective device as part of the building installation (A) : 20 A

Pollution degree (PD) : PD 2

IP protection class : IPX0

Altitude of operation (m) : 5000

Altitude of test laboratory (m) : less than 2000 meters

The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 50°C for full load; 70°C for half load.

The maximum continuous power supply output (Watts) relied on forced air cooling from: 10cfm fan applied 1 inch from input side, blowing inward.

Model: EPL150PS12-XZ1752@, was evaluated as Class I construction. Protective bonding was achieved through bonding the power supply to chassis, which will be bonded to protective earthing in the installation.

### Technical Considerations

- The product was investigated to the following additional standards: EN 60601-1:2006 + A1:2013 + A12:2014 + A2:2021
- The following additional investigations were conducted: N/A
- The product was not investigated to the following standards or clauses: Biocompatibility, PESS, EMC, Annex Z of EN standards for compliance with the MDD, Usability
- The following accessories were investigated for use with the product: None
- Scope of Power Supply evaluation defers the following clauses to be determined as part of the end product: Clause 7.5 (Safety Signs), Clause 7.9 (Accompanying Documents), Clause 9 (ME Hazard), Clause 10 (Radiation), Clause 14 (PEMS), Clause 16 (ME Systems), Usability

Scope of Power Supply evaluation excludes the following: Patient applied parts clauses: 4.6, 7.2.10, 8.3, 8.5.2, 8.5.5, 8.7.4.7-8.7.4.9, 8.9.1.15; Battery related clauses: 7.3.3, 15.4.3; Hand Control related clauses: 8.10.4; Oxygen related clauses: 11.2.2; Fluids related clauses: 11.6.2 – 11.6.4; Sterilization clause: 11.6.7; Biocompatibility Clause: 11.7 (ISO 10993); Motor related clauses: 13.2.13.3, 13.4; Heating Elements related clause: 13.2

The product is evaluated only to the following hazards: Casualty, Fire, Shock

The degree of protection against harmful ingress of water is: Ordinary

Software is relied upon for meeting safety requirements related to mechanical, fire and shock: No

The product was submitted and evaluated for use at the maximum ambient temperature (T<sub>ma</sub>) permitted by the manufacturer's specification of: 50°C at full rated load and 70°C at 50% rated load.

See the Output Ratings Table in the Model Differences section for 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:

- 1. The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-Secondary: 259 Vrms, 504 Vpk, Primary-Earthed Dead Metal: 237 Vrms, 384 Vpk
- 2. This power supply was evaluated with Two MOPP between Primary and Secondary for 504Vpk/259Vrms; One MOPP primary and Earth for 354Vpk/250Vrms; Two MOPP between Secondary to Ground for working voltage of 48Vdc and 1 MOPP for working voltage of 240 Vrms between Secondary and Earth for BF output considerations (with respect to dielectric tests and spacings measurements only).
- 3. The output circuits have not been evaluated for direct patient connection (Type B, BF or CF). All applicable patient leakage current tests to be performed in the end-product application.
- 4. The following secondary output circuits are at hazardous energy levels: All
- 5. The power supply terminals and/or connectors are: Not investigated for field wiring
- 6. The maximum investigated branch circuit rating is: 20A
- 7. Proper bonding to the end-product main protective earthing termination is: Required (Class I configuration only). Model EPL150PS12-XZ1752@ is provided with a metal chassis that must be connected to protective earthing.
- 8. An investigation of the protective bonding terminals has: Not been conducted
- 9. The following input terminals/connectors must be connected to the end-product supply neutral: Input Connector (CN1) N terminal.
- 10. The following magnetic devices (e.g. transformers or inductor) are provided with an OBJY2 insulation system with the indicated rating greater than Class B (130C): TR1 (Class B)
- 11. The following end-product enclosures are required: Fire, Mechanical, Electrical
- 12. Suitable disconnect device is to be provided in the end system.
- 13. Temperature, Leakage Current with a non-frequency weighted device and Dielectric Strength testing shall be considered in the end system.
- 14. Printed Wiring Board rated 130C.
- 15. Heatsinks are floating and considered live. They should not be accessible in the end-product.
- 16. Heating test was not conducted on unit with input/output leads. If unit is provided with input and/or output leads, then temperature on leads must be measured and cannot exceed 105C.
- 17. The equipment is provided with a fuse in both the Line and Neutral of the primary circuit. The need for a marking warning service person of the hazards associated with neutral fusing shall be considered in the end-product.
- 18. This power supply has been evaluated as a continuous operation, ordinary equipment and has not been evaluated for use in the presence of a flammable anesthetic mixture with air, oxygen, or nitrous oxide.
- 19. The end product shall ensure that the requirements related to accompanying documents, clause 7.9, are met.
- 20. The need for Marking Durability and Marking Legibility Testing shall be considered as part of the

end product installation.

21. Models provided with suffix SF only provided with one line side fuse. Consideration should be made in the end-use product to determine the need of double pole fusing.

22. The suitability of the breaking capacity of the fuse per Clause 8.11.5 shall be verified in the end product.

23. When installed in a Class II end product, the power supply shall be mounted in a manner that provides sufficient clearance and creepage distance between the hazardous parts and accessible conductive parts.

24. Proper bonding to the Class I end-product main protective earthing termination is required (via mounting holes on the PCB), unless for Class II applications. For Class II applications the primary side mounting pads are isolated from accessible conductive chassis by Reinforced Insulation.

25. Energy not exceeding 240 VA or 20 J to be considered in the end-product evaluation.