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REPORT

On

COMPONENT - POWER SUPPLIES, INFORMATION TECHNOLOGY EQUIPMENT

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DESCRIPTION

PRODUCT COVERED:

- * USR, CNR Component - Switching Power Supply, Models LPS202-M, LPS203-M, LPS204-M, LPS205-M LPS208-M **and LPS203-M-402** for use in Information Technology Equipment.

ELECTRICAL RATINGS:

| MODEL | INPUT | OUTPUT |
|----------|-------------------------------------|---|
| LPS202-M | AC 100V - 250 V 50/60 Hz, 3.5A | 200 W Forced Air Cooling DC +5 V, 40.0 A max DC +12 V_FAN, 1 A max |
| | DC 120 Vmin - 300 Vmax, 3.0A | 100 W Convection Cooling DC +5 V, 20.0 A max DC +12 V_FAN, 0.5 A max |
| LPS203-M | AC 100 V - 250 V 50/60 Hz, 3.5 A | 250 W Forced Air Cooling DC +12 V, 20.8 A max DC +12 V_fan, 1.0 A max |
| | DC 120 Vmin - 300 Vmax, 3.0 A | 125 W Convection Cooling DC +12 V, 10.4 A max DC +12 V_fan, 0.5 A max |
| LPS204-M | AC 100V - 250 V 50/60Hz, 3.5A | 250 W Forced Air Cooling DC +15 V, 16.6 A max DC +12 V_FAN, 1 A max |
| | DC 120 Vmin - 300 Vmax, 3.0A | 125 W Convection Cooling DC +15 V, 8.3 A max DC +12 V_FAN, 0.5 A max |
| LPS205-M | AC 100 V - 250 V 50/60 Hz, 3.5 A | 250 W Forced Air Cooling DC +24 V, 10.4 A max DC +12 V FAN, 1.0 A max |
| | DC 120 Vmin - 300 Vmax, 3.0 A | 125 W Convection Cooling DC +24 V, 5.2 A max DC +12 V FAN, 0.5 A max |

| | | |
|--------------|---|--|
| LPS208-M | AC 100 V - 250 V 50/60 Hz, 3.5 A | 250 W Forced Air Cooling DC +48 V, 5.2 A max DC +12 V FAN, 1 A max |
| | DC 120 Vmin - 300 Vmax, 3.0 A | 125 W Convection Cooling DC +48 V, 2.6 A max DC +12 V FAN, 0.5 A max |
| LPS203-M-402 | AC 100 V - 250 V 50/60/440 Hz, 3.5 A | 250 W Forced Air Cooling DC +13 V, 19.2 A max DC +12 V FAN, 1 A max |
| | DC 120 Vmin - 300 Vmax, 3.0 A | 125 W Convection Cooling DC +13 V, 9.6 A max DC +12 V FAN, 0.5 A max |

Maximum Continuous Output Power is 125 W for models LPS203-M, LPS204-M, LPS205M, LPS208-M and LPS203-M-402 with convection Cooling.

Maximum Continuous Output Power is 100 W for model LPS202-M with convection cooling.

Maximum Continuous Output Power is 250 W for models LPS203-M, LPS204-M, LPS205-M, LPS208-M and LPS203-M-402 with 30CFM forced-air cooling.

Maximum Continuous Output Power is 200 W for model LPS202-M with 30CFM forced-air cooling.

Total output power derates 2.5% per °C from 50°C to 70°C ambient temperature.

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

General - The unit is for use in product where the acceptability of the combination is determined by Underwriters Laboratories Inc.

* Both USR and CNR indicate investigation to the Standard for Safety of Information Technology Equipment, UL 60950-1, Second Edition, dated **2014-10-14** and CAN/CSA-C22.2 No. 60950-1-07, Second Edition dated **2014-10**.

Conditions of Acceptability - When installed in the end-use equipment, the following are the considerations to be made:

1. This components have been judged on the basis of the required creepages and clearances in the Second Edition of the Standard for Safety of Information Technology Equipment, UL 60950-1, Second **Edition, dated 2014-10-14** and CAN/CSA C22.2 No. 60950-1-07, Second **Edition, dated 2014-10** Sub-clause 2.10 and Annex G (altitude requirement), which covers the end-use product for which the component was designed. The functional insulation has been evaluated by conducting Component Failure Test per Sub-clause 5.3.4(c) of UL 60950-1, Second Edition **dated 2014-10-14** and CAN/CSA C22.2 No. 60950-1-07, Second Edition **dated 2014-10**.

2. These components have only been evaluated for use in pollution degree 2 environment.
3. These power supplies have been evaluated with the assumption that the power source is a TN power system as defined by UL 60950-1, Second Edition **dated 2014-10-14** and CAN/CSA C22.2 No. 60950-1-07, Second Edition **dated 2014-10**.
4. A suitable electrical, mechanical and fire enclosure shall be provided by end use equipment.
5. These power supplies have been evaluated for use in Class I equipment as defined in UL 60950-1, Second Edition **dated 2014-10-14** and CAN/CSA C22.2 No. 60950-1-07 Second Edition **dated 2014-10** and shall be properly earthed or bonded to earth in the end-use. An additional evaluation shall be made if the power supply is intended for use in other than Class I equipment.
6. The input and output connectors have not been evaluated for field connections and are only intended for connections to mating connectors of internal wiring inside the end-use product. The acceptability of these and the mating connectors relative to secureness, insulating materials and temperatures shall be considered in the end use product.
7. These power supplies are classified as Level 5 as defined by UL 60950-1, Second Edition **dated 2014-10-14** and CAN/CSA C22.2 No. 60950-1-07, Second Edition **dated 2014-10**.
8. Transformers T1 and T2 employ Class 155(F) electrical insulation system.
9. The secondary outputs of the power supply are considered SELV and the output (+5.0V for LPS202-M, +12.0V for LPS203-M, +15.0V for LPS204-M, +24.0V for LPS205-M, +48.0V for LPS208-M), +13V for LPS203-M-402 represents an energy hazard, the unit shall be handled with care during end product installation. Sub-clause 2.2.3.1 per UL 60950-1, Second Edition **dated 2014-10-14** and CAN/CSA C22.2 No. 60950-1-07, Second Edition **dated 2014-10** were used to maintain the insulation of SELV from primary circuits.
10. These power supplies have been evaluated for use up to 50°C ambient. Total output power is derated by 2.5% per °C from 50°C to 70 °C ambient.
11. These power supplies have also been evaluated under a specific ventilation set-up for 30CFM forced-air cooling. See ILL. 3 for details.
12. The Clearances and Creepage Distances have additionally been assessed for suitability up to 3963 m elevation.
13. These power supplies are not evaluated for end system mounting. When installed in the end system, the proper evaluation should be considered.
14. These power supplies have been evaluated for the requirements of double pole fusing as defined by UL 60950-1.
15. The following cautionary markings shall be provided in the servicing instructions: Caution: Double Pole / Neutral Fusing.

16. For Model LPS203-M-402: At 440Hz operating frequency, Touch current at main protective earthing terminal and secondary output exceeds 3.5 mA and 0.25 mA respectively. Compliance to the touch current shall be considered in the end product.