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REPORT

On

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

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DESCRIPTION

PRODUCT COVERED:

USR, CNR Component - Switching Power Supply, Models 73-180-0001i and iVS1-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XX, iVS1-3R-3R-80-B-584 for use in Information Technology Equipment, where X is any alphanumeric character or blank for specific Model Designation. See Illustration 7 for details.

ELECTRICAL RATINGS:

MODEL	INPUT
73-180-0001i	AC: 100-120 Vac / 200-240 Vac, 20 A, 50 / 60 Hz DC: 120 Vmin. - 170 Vmax / 254 Vmin. - 300 Vmax, 20A

OUTPUTS	200-240VAC or 254 V min. - 300 V max. DC Input Voltage at 50°C	100-120VAC or 120 V min. - 170 V max. DC Input Voltage at 50°C
+385V:	3500W	1600W
+5Vsb:	1.0A	1.0A
+17M ₁ Vcc:	0.1A	0.1A
+17M ₂ Vcc:	0.1A	0.1A
+17M ₃ Vcc:	0.1A	0.1A
+17M ₄ Vcc:	0.1A	0.1A
+17M ₅ Vcc:	0.1A	0.1A
+17M ₆ Vcc:	0.1A	0.1A
+17M ₇ Vcc:	0.1A	0.1A
+17M ₈ Vcc:	0.1A	0.1A
+17M ₉ Vcc:	0.1A	0.1A
Total Power:	3520.3 Watts	1620.3 Watts

MODEL	INPUT	Output
iVS1-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XX	AC: 100-120 Vac / 200-240 Vac, 20 A, 50 / 60 Hz DC: 120 Vmin. - 170 Vmax / 254 Vmin. - 300 Vmax, 20A	DC + 1.5V to + 60V
*iVS1-3R-3R-80-B-584	AC: 110-230 Vac, 20 A, 50 / 60 / 400 Hz DC: 90 - 300 Vdc , 20A	DC + 28 V, 42.8 A

Maximum continuous output power at AC 100-120 V / DC 120 Vmin - 170 Vmax input voltage for Model iVS1-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XX is 1500W using normal or forward airflow direction at 50°C ambient temperature.

Maximum continuous output power at AC 200-240 V / DC 254 Vmin - 300 Vmax input voltage for Model iVS1-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XX is 3210W using normal or forward airflow direction at 50°C ambient temperature.

Maximum continuous output power at AC 200-240 V / DC 254 Vmin - 300 Vmax input voltage for Model iVS1-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XX is 3000W using normal or forward airflow direction at 40°C ambient temperature.

Maximum continuous output power at AC 100-120 V / DC 120 Vmin - 170 Vmax for +385V output of Model 73-180-0001i is 1600W using normal or forward airflow direction at 50°C ambient temperature.

Maximum continuous output power at AC 200-240 V / DC 254 Vmin - 300 Vmax for +385V output of Model 73-180-0001i is 3500W using normal or forward airflow direction at 50°C ambient temperature.

Maximum continuous output power at AC 200-240 V / DC 254 Vmin - 300 Vmax for +385V output of Model 73-180-0001i is 3500W using reverse airflow direction at 40°C ambient temperature.

Output power of Models 73-180-0001i and iVS1-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XX decrease 2.5% per °C from 50°C to 70°C ambient temperatures.

Model iVS1-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XX has up to 9 output modules, maximum three outputs each. Output voltage set at Factory and marked adjacent to each connector.

*Model iVS1-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XX was evaluated for input voltage AC 100-120V / DC **120** Vmin - 170 Vmax, maximum 1500W and input voltage AC 200-240 V / DC 254 Vmin - 300 Vmax, maximum 3210W continuous output in 50°C to 70°C for normal airflow. Airflow is reversible, up to 40°C ambient at 3000W output power. Total loading of dual output modules not to exceed 144W and total loading of triple output modules not to exceed 36W.

Model 73-180-0001i is a subassembly of Model iVS1-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XX.

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

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

*USR and CNR indicate investigation to the harmonized standard for Safety of Information Technology Equipment, **UL 60950-1, 2nd Edition, 2014-10-14; CAN/CSA C22.2 No. 60950-1-07, 2nd Edition, 2014-10.**

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

1. This component has been judged on the basis of the required creepages and clearances in the **Second** Edition of the Standard for Safety of Information Technology Equipment, Sub-clause 2.10, and which covers the end-use product for which the component was designed. The functional insulations among the primary circuits and among secondary circuits have been evaluated by short circuiting the insulation per Sub-clause 5.3.4 (c) of UL 60950-1, Second Edition and CAN/CSA-C22.2 No. 60950-1-07, Second Edition.
2. This power supply has only been evaluated for use in pollution degree 2 environment.
3. Considerations shall be given in measuring the temperature of power electronic components: inductors and transformer windings when the power supply is installed in the end-use equipment. Transformer T501 employs Class 155 (F) electrical insulation system.
4. The input and secondary output connectors have not been evaluated for field connections.
5. DC 385V output of the power supply is primary and at hazardous energy level, while other outputs are unearthed non-energy hazard SELV. Sub-clause 2.2.3.1 per IEC 60950-1, Second Edition was used to maintain the insulation of SELV from primary circuits.
6. This power supply has been evaluated for use in Class I equipment as defined in UL 60950-1, Second Edition and CAN/CSA-C22.2 No. 60950-1-07, Second Edition, and shall be properly earthed in the end-use. An additional evaluation shall be made if the power supply is intended for use in other than Class I equipment.
7. Fan Airflow Direction may be normal (fans blow towards the components) or reversible (fans blow away from the components).
8. Additional UL Recognized Fuse, rated 300 Vdc suitable for DC application must be provided in the end-system for DC input.

9. A suitable electrical, mechanical and fire enclosure shall be provided by end use equipment.
- *10. This power supply was evaluated with the assumption that the power source is a TN system as defined by **UL 60950-1, Second Edition and CAN/CSA-C22.2 No. 60950-1-07, Second Edition.**
- *11. This power supply is classified Level 5 as defined by **UL 60950-1, Second Edition and CAN/CSA-C22.2 No. 60950-1-07, Second Edition.**
12. A suitable power supply disconnection means is to be provided by end use equipment.
13. This power supply was not evaluated for end system mounting. When installed in the end system, the proper evaluation should be considered.
- *14. Clearances and Creepage Distances have additionally been assessed for suitability up to 3048m elevation. Annex G of **UL 60950-1, Second Edition and CAN/CSA-C22.2 No. 60950-1-07, Second Edition** was used in determining the clearance requirement.
15. The equipment was tested on a 100A branch circuit. If used on a branch circuit greater than this, additional testing may be necessary.
16. Earthing terminal at input connector is not considered protective earthing terminal, but is considered bonding terminal. Power Supply chassis is to be reliably bonded to protective earthing in end use equipment before energized. See Illustration 6 for details.
17. The following cautionary markings shall be provided in the servicing instructions: Caution: Double Pole / Neutral Fusing.
18. The secondary outputs of the DC/DC modules are considered SELV except for the secondary output of the 48V DC/DC modules which exceeds 60 Vdc and is not suitable for SELV. There is a hazardous energy level that exceeds 250 VA at the output of all power supplies.
19. Models 73-180-0001i and iVS1-XXXX-XXXX-XXXX-XXXX-XXXX- XXXX-XXXX-XXXX-XXXX-XX series have been evaluated for use in a 50°C ambient at 100% rated load; 70°C ambient with derating of 2.5% of rated output from 50°C to 70°C; 40°C with reverse airflow at 100% rated load for 73-180-0001i and 3000W for iVS1-XXXX-XXXX-XXXX-XXXX-XXXX- XXXX-XXXX-XXXX-XXXX-XX. A 30 CFM external reversible fan was also utilized during testing of iVS1 series.
20. This product maintains the following insulations:

Reinforced insulation
 - between AC input circuits and 5 Vdc and 17Vdc output circuits,
 - between 385Vdc output circuits and 5Vdc and 17Vdc output circuit.
Basic insulation
 - between AC input circuits and protective earth,
 - between 385Vdc output circuits and protective earth.