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Jameco Part Number 371012

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1.0 Introduction:

This document specifies ONE voltage +24V power supply for industrial electronic equipment. The power supply will provide power to all system components, and this specification also defines the world wide safety requirements and EMC requirements.

2.0 Input Requirements:

2.1 Input Voltage:

The power supply will operate over the entire input voltage range 85Vac to 264Vac.

2.2 Input Frequency:

The input frequency range will be 47 HZ to 63 HZ.

2.3 Inrush Current:

The power inrush current will be less than 50A at 200Vac input and cold start.

2.4 Ac Input Current:

The power supply input current shall be 2.0 A typical under 100Vac input and full load conditions.

2.5 Efficiency:

The efficiency (watt out/watt in) shall be a typical of 81 % under 100Vac input and full load.

2.6 Leakage Current:

The power supply leakage current, when measured per the test configuration in UL, CSA, VDE will not exceed 0.75mA. If there are capacitors connected between line or neutral and secondary or Ground, these will be in series.

2.7 Power Factor:

The power supply power factor value shall be 0.99 typical under 100Vac input and 0.95 typical under 200Vac input at full load conditions.

3.0 Output Requirement:

3.1 Output Power:

The unit total output power from all input voltage under steady state condition will not exceed 150 W.

3.2 Output Regulation:

3.2.1 Input Rated Voltage Range: 100 VAC to 240 VAC.

3.2.2 Line Rated Frequency: 50 HZ to 60 HZ.

3.2.3 Static Load Regulation:

Output Voltage	Minimum Load (Amperes)	Maximum Load (Amperes)	Voltage Regulation
+24V	0A	6.5A	150mV Max.

Table 3.2.3

3.2.4 Output Voltage Variable Range:

The power supply output voltage can be adjusted $\pm 10\%$ minimum of its normal output voltage.

3.2.5 Ripple and Noise:

Differential ripple and noise at the power supply output shall be as shown below When measured under full Load with an oscilloscope with a bandwidth of 100MHz. And oscilloscope probe contact at barrier strip side directly.

Output Voltage	Max ripple		Max Noise	
	-10~0°C	0~50°C	-10~0°C	0~50°C
+24V	180mV	150mV	160mV	120mV

Table 3.2.5

3.3 Turn on, Hold up Time:

The power supply output shall reach its steady state value within 0.5 seconds after AC input voltage is applied under 85Vac and full load. The hold up time for power supply output will be typical 20mS at 100Vac input and full load.

3.4 No Load Operation:

The power supply will be capable of operating at no load and the output voltage will remain within the regulation limits and No damage or hazardous condition will occur with all the DC output connectors disconnected from the load.

3.5 Output Voltage Drift:

The power supply output voltage drift range will not exceed 96mV under ambient 25°C and constant input voltage and output load during turn on 30 minutes to 8 hours.

4.0 Protection:

4.1 Primary (Input):

4.1.1 Input Current:

An input fuse with a rating of 5 Amps, shall be provided to protect the power supply and the input wiring. The fuse shall be an exchangeable unit.

4.1.2 Input Voltage:

The power supply shall be self-protecting for any steady or dynamic variation of the input voltage below the ratings specified in paragraph 2.1. The power supply shall not be damaged by differential input transients of 1.5KV with energy of 2.5 Joules.

4.2 Secondary (Output):

4.2.1 Over Current (OCP) Protection:

When over current 105%(min) is applied to output, shall cause output voltage decrease and constant current output. Removal the output over current or overload conditions shall automatic recovery of the output voltage.

4.2.2 Over Voltage (OVP) Protection:

When an over voltage fault occurs on power supply output, The power supply will shut down before the output voltage exceed 33.6V. Power supply latch-off is allowed.

4.3 Short Circuit Protection:

The power supply shall be protected from damage of accidentally shorting output for a period of up to 24 hours or more long. These outputs shall also be protected from damage of accidentally shorting either of output. Removal of output shorting output conditions shall permit automatic recovery of the output voltage.

5.0 Environment Conditions:

5.1 Non-operating:

The power supply shall be capable of withstanding the following environmental conditions for extended periods of time, without sustaining electrical and/or mechanical damage and subsequent operational deficiencies:

5.1.1 Storage temperature: -20°C ~ +75°C.

5.1.2 Relative Humidity: 20% ~ 90%RH.

5.1.3 Altitude: Sea level to 25,000 feet.

5.1.3 Vibration and Shock:

The power supply shall be designed to withstand normal transportation vibration per MIL-STD-810D, Method 514, procedure X, as it is mounted in the chassis assembly and packed for shipping. The power supply shall be designed to withstand handling shocks per MIL-STD-810C, Method 516, procedure V, as it is mounted in the chassis assembly and packed for shipping.

5.2 Operating:

The power supply shall be capable of operating continuously in any mode without performance deterioration in the following environmental conditions:

5.2.1 Ambient Temperature: -10°C ~ 65°C (Derating curve is shown as below).

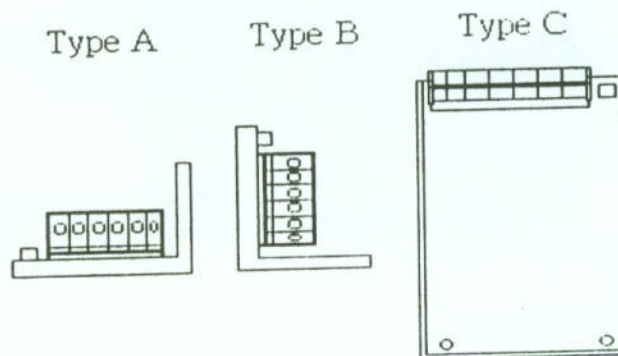


Figure5-1: Three Placement Type

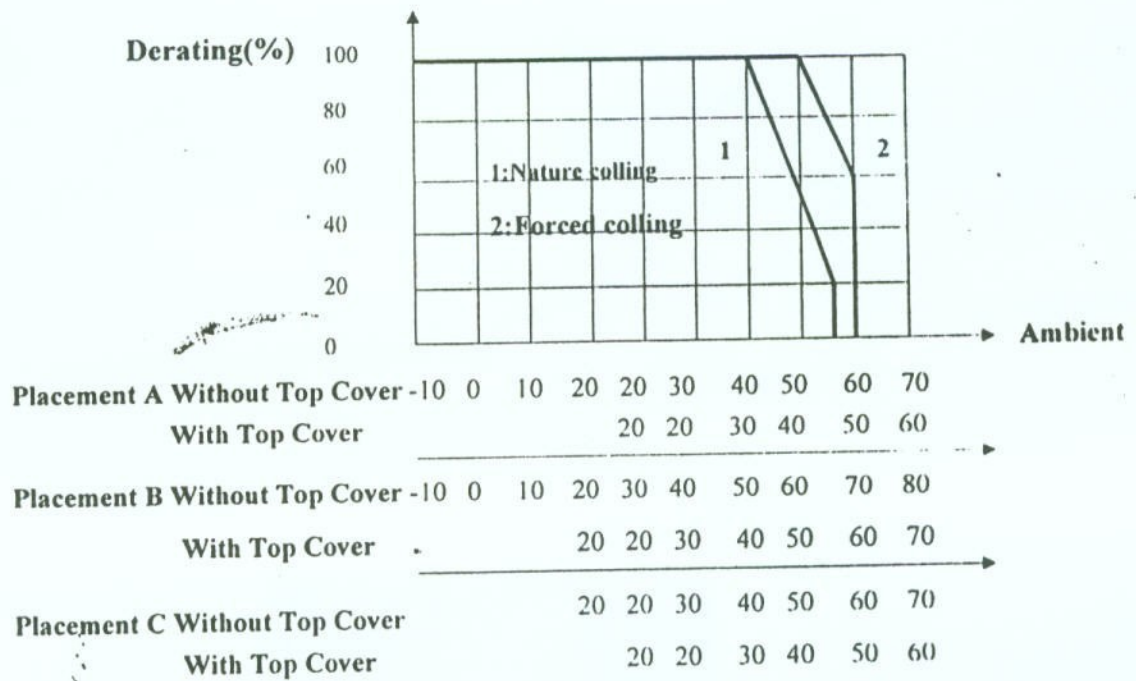


Figure 5-2: Temperature Derating Curve

5.2.2 Relative Humidity: 20% ~ 90%RH.

5.2.3 Altitude: Sea level to 12,000 feet.

5.2.4 Vibration: 10-55Hz, 2G, 1 hr's per cycle for each axis (X, Y, Z).

6.0 Electromagnetic Compatibility:

6.1 FCC Requirements:

The adapter will comply with the United States Federal Communication Commission (FCC) Rules and Regulations, Part 15, Sub-part J, Computing Devices Class B Limits.

6.2 VCCI Requirements:

The power supply with system unit will conform to Class II requirements of VCCI.

6.3 CISPR22 Requirements:

The power supply with system unit will conform to Class B requirements of CISPR22.

6.4 Harmonic Current Requirements:

The power supply with system unit will conform to IEC1000-3-2 requirement.

7.0 Safety:

The power supply must be certified or meet of the following international safety standards:

	Certified	Meet
UL	UL1950	
CSA		C22.2NO.950
TUV	EN60950	
CE	EN60950 EN55022, EN50082-1 EN55011, EN60555-2	
MITI		CLAUSE 25-3 ITEM 1
T-Mark		91-49874

7.1 Dielectric Strength (Hi-Pot) Test:

Primary to Secondary : AC 3000 Vrms, 10mA for 1 minute under normal temperature.

Primary to FG : AC 2000 Vrms, 10mA for 1 minute under normal temperature.

Secondary * to FG : AC 500 Vrms, 100mA for 1 minute under normal temperature.

7.2 Insulation Resistance:

Primary to Secondary : 50 MΩ min at 500 VDC under normal temperature.

Primary to FG : 50 MΩ min at 500 VDC under normal temperature.

Secondary to FG : 50 MΩ min at 500 VDC under normal temperature.

7.3 End Product Requirements:

7.3.1 Secondary Outputs:

The secondary outputs will be "safety extra low voltage" (SELV), and will not be capable of providing energy levels in excess of 240 VA under normal or overload conditions.

7.3.2 Isolation from Primary Circuits to FG, and to SELV circuits:

Primary circuits will be isolated from both FG (Frame Ground), and SELV circuits, by double insulation construction.

7.4 Burn-in:

The power supply will be performed a minimum of a 4 hours burn-in at 40 degrees centigrade under full load on all power supplies.

8.0 Mechanical Requirements:

8.1 Introduction:

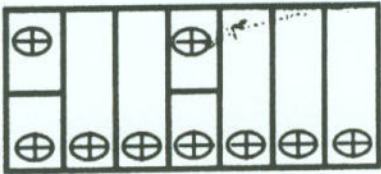
The power supply will provide Output power barrier strip show as in Table 9.1	PIN #	Description
	N	AC Neutral
 <p>S+ S -</p> <p>V+ V+ V- V- FG L N</p>	FG	
	S-	Sense V-
	V-	V-
	V-	V-
	V+	+24V
	S+	Sense V+
	V+	+24V

Table 9.1

8.2 Weight:

The weight of this AC-DC Power supply will not exceed 900 grams.

8.3 Power Supply Dimensions:

The dimensions of the power supply are W93*H165*D199 mm , The detail mechanical dimensions is shown as below.

