

X03-220241-B00 EXTERNAL POWER SUPPLY

220W 24V AC-DC RUGGED PORTABLE SERVER POWER SUPPLY

The **X03-220241-B00** External Power Supply is a reliable 220W 24V desktop single-output power adapter for Core Systems RPS units. This supply is equipped with a 3-pin standard power plug and has an 200,000 hour lifetime expectancy. The working temperature range of the supply is -10 to +40°C and features short circuit, overload, over-voltage, and over-temperature protections.



AC-DC POWER SUPPLY FOR RPS



HIGH-PERFORMANCE POWER

- ▶ 200K HOUR LIFETIME
- ▶ 47Hz~63Hz INPUT FREQUENCY
- ▶ 100V~240V AC INPUT
- ▶ OVP/OCP/SCP PROTECTION
- ▶ -10 TO +40°C WORKING TEMP
- ▶ IEC320-C14 INPUT CONNECTOR

With the efficiency up to 94.5% and the extremely low no-load power consumption below 0.15W, the X03-220241-B00 External Power Supply is compliant with USA EISA 2007/DoE, Canada NRCAN, Australia and New Zealand MEPS, EU ErP, and meet Code of Conduct (CoC) Version 5. The adapter has the ability to save energy when it is either under the operating mode or the standby mode. The power supply utilizes a 94V-0 flame retardant plastic case.

**CORE SYSTEMS**
ENGINEERED TO PERFORM

ABOUT US

Core Systems is a premier manufacturer of best-in-class rugged computers and rugged displays. We design and manufacture all of our products in Poway, California. Our 65,000+ square foot facility features onsite engineering, assembly, and testing along with a complete metal fabrication and machining facility. Our wide range of rugged products are deployed in ground vehicles, aircraft, and maritime installations worldwide.

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TECHNICAL SPECIFICATIONS

AC INPUT	PARAMETER	MIN	NOMINAL INPUT	MAX	UNIT
	V _{in} VOLTAGE	90	100-240	264	Vrms
	V _{in} FREQUENCY	47	50/60	63	Hz
	I _{in} CURRENT	---	---	3.5	A

» The inrush current is less than 120A at 240Vac and 100A at 100Vac under 25oC ambient cold start condition. The inrush current is limited to the extent that no damage is done to the adaptor under specified line, load, and temperature conditions. The inrush current will not cause any external protection devices (i.e. fuses) to trip.

» The leakage current of the power adaptor is less than 1.5mA measured at 240Vac 50Hz input.

» The insulation resistance is higher than 50M ohm between primary and secondary.

» The primary fuse, T4A, is installed for input over-current protection, and meet product safety requirement.

DC INPUT	THE MAXIMUM OUTPUT POWER, UNDER STEADY STATE CONDITION, IS 220W				
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VOLTAGE REGULATION	RANGE	MIN	NOMINAL INPUT	MAX	UNIT
	+/-5%	22.80	24.00	25.20	VOLT

LOAD DISTRIBUTION	O/P WATTAGE	O/P VOLTAGE	MIN	NOMINAL INPUT	MAX	UNIT
	220	24V	0.0	---	9.17	AMP

EFFICIENCY & LOW POWER CONSUMPTION

The efficiency is 89% min. at active average mode, 79% at 10% of full load and power consumption is less than or equal to 0.15W (< 0.15W under the "No Load" (0.0A) condition; The measurement is performed under the input voltage conditions of 115Vac 60Hz & 230Vac 50Hz and is warm up at the maximum load for 30 min. The power adaptor complies with the following standard:

- » NRCAN: Amendment 11 to the Energy Efficiency Regulations for External Power Supplies, published on October 12, 2011 in the Canada Gazette, Part II
- » US CEC: Appliance Efficiency Regulations (California Code of Regulations, Title 20, Sections 1601 through 1608) dated July 2015
- » US DoE: Office of Energy Efficiency and Renewable Energy 10 CFR Parts 429, 430.
- » Australian and New Zealand: Minimum Energy Performance Standards (MEPS): AS/NZS4665.1 – 2005 +A1:2009; AS/NZS4665.2-2005+A1:2009
- » EU Directive for Energy-related Products ErP 2009/125/EC and Implementing Measure (IM) no. EC278/2009 for External Power Supply
- » EU: Code of Conduct on Energy Efficiency of External Power Supplies Version 5 (Tier 2)

RIPPLE & NOISE	O/P VOLTAGE	MAX RIPPLE	MAX RIPPLE & NOISE	UNIT
	24V	240	300	mV(pk-pk)

TRANSIENT RESPONSE

The output voltage will remain within the regulation range specified in "VOLTAGE REGULATION" at the following conditions: The load-changing repetition rate is 100Hz to 1 KHz, the transient load slew rate 0.5A/us, and the maximum step load size is 50% of max. load.

VOLTAGE HOLD-UP TIME

The output voltage will maintain in regulation range specified in "VOLTAGE REGULATION" despite of a loss of input power at 115V 60Hz and at the maximum continuous output load as applicable for a minimum of 8 ms.

POWER-ON TIME

The power-on time is defined as the time from when AC Voltage is provided to when the DC Voltage output is within the regulation ranges specified in "VOLTAGE REGULATION". The power-on time will be less than 3 seconds at full rated input voltage range.

OVERSHOOT AT TURN-ON / TURN-OFF

The output voltage overshoot upon the application or removal of the input voltage will be less than 10% above the nominal voltage, and will not change its polarity with respect to its return line.



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TECHNICAL SPECIFICATIONS

OVER VOLTAGE PROTECTION	OUTPUT	MIN	NOMINAL INPUT	MAX	UNIT
	+24VDC	27.0	---	30.0	VOLTS

OVER POWER PROTECTION	OUTPUT	MIN	NOMINAL INPUT	MAX	UNIT
	+24VDC	11.00	---	13.80	AMP

SHORT-CIRCUIT PROTECTION

Power adaptor has self-limiting protection circuitry built in to protect against short circuit or overload conditions. No damage to the power adaptor will be happened due to a continuous or intermittent short circuit condition. It will be auto-recovered after the fault condition is removed.

AUDIBLE NOISE

There is no audible noise can be detected when it is operating under the rated specification.

MECHANICAL	WIDTH	88.9mm
	LENGTH	197.4mm
	HEIGHT	39mm



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ENVIRONMENTAL SPECIFICATIONS

TEMPERATURE	OPERATING	-10°C to +40°C
	NON-OPERATING	-20°C to +80°C
HUMIDITY	OPERATING	10% to 90% relative humidity (non-condensing)
	NON-OPERATING	5% to 95% relative humidity (non-condensing)
ALTITUDE	OPERATING	0 to 16,000 feet (meet CCC 5000m requirement)
	STORAGE	0 to 50,000 feet

VIBRATION, SHOCK, BUMP, DROP

The power adaptor is designed and tested to withstand the normal operating and transportation vibration, bump, and drop per the standard of MIL-STD-810F, method 514 and procedures X, as it is connected to the equipment and packed for shipping. The following requirements are fulfilled:

VIBRATION (OPERATING)

ISO 9022-36-05 or IEC 60068-2-6 at Tmin / Tmax for use
 10-55Hz; ±0.15mm; 5 cycles; 25min

VIBRATION IN TRANSPORT (NON-OPERATING)

ISO 9022-36-03 or IEC 60068-2-6 at Tmin / Tmax for storage
 10-150Hz; 2g or 20m/s²; ±0.15mm; 20 cycles; 2h 30min

BUMP (NON-OPERATING)

ISO 9022-31-06 or IEC 60068-2-29 at Tmin / Tmax for use
 25g or 250m/s²; 6ms; x 4000 ± 10 times

SHOCK (NON-OPERATING)

ISO 9022-30-02 or IEC 60068-2-27 at Tmin / Tmax for use
 15g or 150m/s²; 11ms; half sine wave

DROP WITHOUT PACKAGING (NON-OPERATING)

1.2m; once to all surfaces onto hard wood (50mm) over concrete floor at Tmin / Tmax for use
 No impairment of normal function, breaking away of any parts or change that would render power adaptor potentially harmful will be occurred.



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