電氣規格書

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DR-120-B48AB

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SPECIFICATION

MODEL:

DR-120-B48AB

05-JUN-2017

REV:1.0

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MODEL: DR-120-B48AB

Revision History

Rev	Description	Date	Author
1.0			

1. G ERAL DESCRIPTION AND SCOPE

This is the specification of Mode DR-120-B48AB for AC-line powered switching power supply with universal input voltage range . Designed and manufactured by FSP GROUP.
The specification below is intended to describe as detail as possible the functions and performance of the subject power supply.

2. REFERENCE DOCUMENTS

The subject power supply will meet the EMI requirements and obtain main safety approvals as following:

2.1 EMI REGULATORY

The power supply should be considered as part of the system components to be combined with the terminal equipment, electromagnetic compatibility confirmation.

- FCC Part 15 Subpart J, Class 'B' 115 Vac operation.
- EN55032/CISPR 22 Class 'B' 230 Vac operation.

3. PHYSICAL REQUIREMENTS

3.1 MECHANICAL SPECIFICATIONS

The mechanical drawing of the subject power supply, which indicate the form factor, location of the mounting holes, location, the length of the connectors, and other physical specifications of the subject power supply. Please refer to the attachment drawing. The details shown as Page

3.2 Input and output Terminal : TBD

4. ELECTRICAL REQUIREMENTS

4.1. INPUT ELECTRICAL REQUIREMENTS

4.1.1 Input voltage

Unit	Minimum	Nominal	Maximum
Vac	85	115/230	264
Vdc	120	162/325	375

input current

Conditions	Maximum
Vin:115Vac	< 2.5A
Vin:230Vac	< 1.2A

Input Frequency

Conditions	Typical
Hz	47~63

4.1.2 Inrush current

Conditions	Typical
cold start@ 25 deg.C and full load	100A/230Vac

4.2 OUTPUT ELECTRICAL REQUIREMENTS

4.2.1 The output rating is listed as Table 2

Output Voltage	Rated current	Peak current Max.	Rated Output power	Line regulation	Load regulation	Ripple and Noise
48V	2.5A	3.5A	120W	±2%	±2%	300 mV_{p-p}

Table 2 – Output rating

(1) The output voltage tolerance is +/-2%, the adjustable output voltage range is from 47.5v to 49.5v

(2) The Maximun output current can boost up to 3.5A for 3 second at nominal input voltage(115/230VAC)

(3) Ripple and noise measurements shall be made under all specified load conditions through single pole low pass filter with 20MHz cutoff frequency. Outputs shall bypass at the connector with a 0.1uF ceramic disk capacitor and a 47uF electrolytic capacitor to simulate system loading.

(4) The output voltage must be measured at output terminal

4.2.2. START-UP DELAY TIME(@100 %FULL LOAD)

115V /60Hz : 3s Maximum

230V /50Hz : 2s. Maximum.

4.2.3. HOLD-UP TIME (@100 %FULL LOAD)

115V /60Hz : 20ms Minimum

230V /50Hz : 20ms. Minimum.

4.2.4.OUTPUT RISE TIME (10% TO 90% OF FINAL OUTPUT VALUE, @FULL LOAD)

115V-60Hz :40ms Maximum

230V-50Hz :40ms Maximum

4.2.5.TRANSISIENT RESPONSE

The step loading is within the limits specified in Table 1. The load transient repetition rate shall be from 100Hz and 1 kHz. The load transient repetition rate is only a test specification. The step load may occur anywhere within the MIN load to the MAX load .

Table 1: Transient Load Reguirements

Output	Step Load Size	Load Slew Rate	Maximum output voltage deviation
+48V	50% of max load changed	0.5A/us	+/-5%

4.2.6.Efficiency..

A. The minimum efficiency of DR-120-B48AB is 90% (typ.) measured at nominal input115/230Vac and output full load

4.2.7.OVER VOLTAGE PROTECTION

Voltage Source	Protection Point
+48Vdc	63V max

In the event of internal feedback circuit fails result in output over voltage will trigger protection circuit.
It will shut down and restart cycle by cycle without damaging the power supply.
The power supply shall return to normal operation automatically after the output over voltage has been removed

4.2.8.SHORT CIRCUIT PROTECTION

Output short circuit is defined to be a short circuit load of less than 0.1 ohm.
In the event of an output short circuit, the power supply will shut down and restart cycle by cycle without damaging the power supply. The power supply shall return to normal operation automatically after the output short circuit has been removed

4.2.9.OVER CURRENT /LOAD PROTECTION

The PSU is capable to supply the maximum output peak current 3.5A for 3 s to 5s at nominal input voltage 115v/230vac, in the event of peak current load, PSU shut down and restart without damaging the power supply.

4.2.10.OVER TEMPERATURE PROTECTION

The critical component temperature is raising till running into over temperature protection, the power supply will go into bouncing mode .The power supply will return to normal operation till it drops the normal temperature.

5. ENVIRONMENTAL REQUIREMENTS

The power supply comply with each item in this specification for the following environmental conditions.

5.1. TEMPERATURE RANGE

The surrending Air Tmperature of Operation	-10 to +70 deg. C
The surrending Air Temperature of Storage	-40 to +85 deg. C
The surrending Air Temperaure of Cold Stard	-20 deg. C

5.2. Output Power Derating.

Vertical Mounting	>55 deg.C De-rate output power by 2.5%/deg C

5.3 Operating Humidity

Operating	5 to 95% RH, Non-condensing
Storage	95% RH, Non-condensing

5.4 Cooling System : Convection

5.5 Operation Altitude: 5000 Meters(UL60950)/2000Meter(UL61010)

5.6 Indicatior : DC OK control LED (GREEN)

5.7. VIBRATION:

Operation : nominal input voltage, full load output

a. Swept Sine: 3g Frequency range : 10-250Hz Test duration : 15 min for each X,Y,Z axis

b. 0.01g²/Hz at 5Hz slopping to 0.02g²/Hz at 20Hz,And maintain 0.02g²/Hz from 20Hz ~ 500Hz
PSD=3.13grms, 15 minutes/axis

Non-recoverable failure or deviation from specified output characteristics are allowed

5.8 SHOCK

Storage:40G, 6 mSec. half-sine wave pulse in both directions on three mutually perpendicular axes.

Operating:10G, 11mSec. half-sine wave pulse in both directions on three mutually Perpendicular axes.

Non-recoverable failure or deviation from specified output characteristics are allowed

6. SAFETY

UL/CSA,TUV,EN60950-1,UL61010,EN62368(OPTION)

6.1. LEAKAGE CURRENT: The AC leakage current is less than1mA when power supply is connected to 240Vac/60Hz.

6.2. Hi-Pot : Between AC input and secondary applied 3000Vac/1min

6.3 Insulation resistance: The insulation resistance shall be not less than 100 M Ohm after application of 500VDC/25℃/70%RH for 1minute.

7. ELECTORMAGNETIC COMPATIBILITY(EMC/Emissions)

7.1. RADIATED EMI

The subject power supply will meet FCC and CISPR 32 Part 15 class B requirements under normal load condition ,the extra metal shielding piece must be mounted at mounting holes of power supply during measurement.

7.2 Electrostatic Discharge (ESD)

The Power Supply meets EN61000–4-2/1995, Air Discharge :15Kv, Contact Discharge :8Kv

Level 4 Criteria A

7.3 Radiatee Field : IEC61000-4-3 Level 3, Criteria A

80MHz-1GHz 10v/M,80% Modulation

7.4 Electrical Fast Transient Test (EFT)

The Power Supply meets IEC 61000–4-4/1995,2KV Level 3 ,Criteria A

7.5 Surge Immunity Requirement

The Power Supply meets IEC 61000–4-5/1995, Common Mode : 4KV, Differential Mode: 2KV

7.6 Conducted :IEC61000-4-6 Level 3 ,Criteria A.

7.7 Power Frequency Magnetic Field : IEC 61000-4-8 3A/Meter, Criteria A

7.8 Voltage Dips : IEC 61000-4-11 100% Dip 1 cycle(20ms),Self Recovery.

7.9 Low Energy Pulse Test(Ring Wave): IEC61000-4-12.Level 3 Criteria A

7.10 Voltage Flucutuation and Flicker : IEC61000-3-3

8. RELIABILITY

8.1. MTBF:The power supply have a minimum predicted MTBF(Telcordia SR-332) of >**TBD?** hours of continuous operation at 25℃, maximum-output load, and nominal AC input voltage 115VAC/230VAC.

9.MISCELLANEOUS

9.1 RESTRICTION OF HAZARDOUS SUBSTANCE (ROHS) IN ELECTRICAL

The directive 2002/95/EC of the European Parliament and of the Council of the 27th January 2003, on the restriction of the use of certain hazardous substances in electrical and electronic equipment, requires the reduction of the substances Lead, Mercury, Cadmium, Hexavalent Chromium, Polybrominated Biphenyls (PBB), and Polybrominated Diphenyl Ethers (PBDE) in electronic products by July 1, 2006. Unless otherwise noted, all materials used will be compliant with this directive and any subsequent revisions or amendments.

9.2 Degree of Protection : IP 20

9.3 Mounting Rail : TS35/7.5 or TS35/15