

# 規格書


## SPECIFICATION

品名  
STYLE NAME : REDUNDANT SWITCHING POWER SUPPLY

型號  
MODEL NO. : DG1W2-5660V3V

料號  
PART NO. :

版次  
REVISION : A2

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## Revision

Rev.	Page	Item	Date	Description
A2	7	4.2.4	JUN-15-2018	Revise 4.2.4 Over current protection specification

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1.0 Scope

This specification defines the performance characteristics of a grounded 660 watts , 5 output level power supply. This specification also defines world wide safety requirements and manufactures process test requirements.

DG1W2-5660V3V power system is a 1+1 Redundant power system consisting of two DG1W-3660V power modules and one DG1W2-5660V3V power system frame.

2.0 Input requirements

2.1 Voltage

Range                    - 36 ~ - 72 VDC  
 Nomal                    - 48VDC

2.2 Steady-state current

- 36 ~ - 72 VDC / 24 ~12 amp (21 amp at - 48VDC)

2.3 Inrush current

80 amps @- 48VDC (at 25 degrees ambient cold start)

3.0 Output requirements

3.1 DC load requirements

Normal Output voltage	Load current		Regulation tolerance	
	Max.	Min	Max.	Min.
+5V	25.0	0.5	+5%	-5%
+12V	55.0	2.0	+5%	-5%
-12V	0.8	0.0	+10%	-10%
+3.3V	25.0	0.5	+5%	-5%
+5VSB	3.5	0.1	+5%	-5%

\*\*\* +5V and +3.3V total output max : 190W \*\*\*

\*\*\* Total output max : 660W \*\*\*

When doing the cross regulation test(one output channel at high load and the other output channels at low load), it is requested to set the higher output channel at 80% max. of its spec., and the lower output channels at 20% max. of theirs.

3.2 Regulation

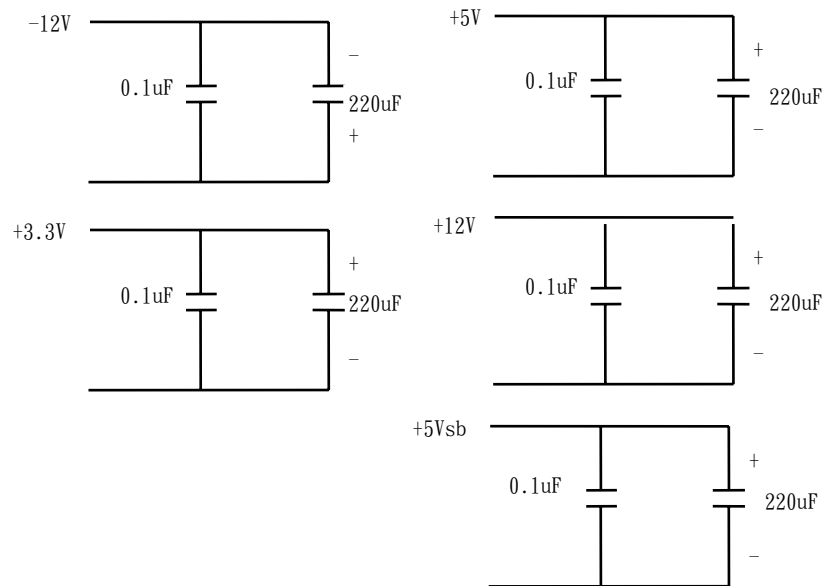
Output DC voltage	Line regulation
+5V	±50mV
+12V	±120mV
-12V	±120mV
+3.3V	±50mV
+5VSB	±50mV

### 3.3 Ripple and noise

#### 3.3.1 Specification

+5V	50mV (P-P)
+12V	120mV (P-P)
-12V	120mV (P-P)
+3.3V	50mV (P-P)
+5VSB	50mV (P-P)

#### 3.3.2 Ripple voltage test circuit



0.1uF is ceramic, the other is electrolytic capacitor.  
Noise bandwidth is from DC to 20Mhz

#### 3.4 Overshoot

Any overshoot at turn on or turn off shall be less than 10% of the nominal voltage value , all output shall be within the regulation limit of section 3.1 before issuing the power good signal of section 6.0.

#### 3.5 Efficiency

Power supply efficiency >80% at -48V , full load.

NOTE:

The different harness conditions and/or the accuracy of measurement instruments affect the test result of output voltage and efficiency. Harness conditions are such as cable length, wire gauge, the connector types and with fan loss, total harness amounts.

#### 3.6 Remote on/off control

The power supply DC outputs (with the exception of +5VSB) shall be enabled with an active-low , TTL-compatible signal(“PS-ON”)

When PS-ON is pulled to TTL low , the DC outputs are to be enabled.

When PS-ON is pulled to TTL high or open circuited , the DC outputs are to be disabled.

### 4.0 Protection

#### 4.1 Input (primary)

The input power line must have an over power protection device in accordance with safety requirement of section 8.0

#### 4.2 Output (secondary)

##### 4.2.1 Over power protection (one unit)

The power supply shall provide over power protection on the power supply latches all DC output into a shutdown state. Over power of this type shall cause no damage to power supply , after over load is removed and a power on/off cycle is initiated , the power supply will restart.

Trip point total power min. 110% , max. 150%.

##### 4.2.2 Over voltage protection

If an over voltage fault occurs , the power supply will latch all DC output into a shutdown state before

- +5V : 5.9V ~ 6.7V
- +3.3V : 3.9V ~ 4.3V
- +12V : 13.3V ~ 15.0V

##### 4.2.3 Short circuit

- A: A short circuit placed on any DC output to DC return shall cause no damage.
- B: The power supply shall be latched in case any short circuit is taken place at +5V,+3.3V,+12V output.
- C: The power supply shall be auto-recovered in case any short circuit is taken place at +5VSB,-12V output

##### 4.2.4 Over current protection

If an over current fault occurs , the power supply will latch all DC output into a shutdown state.

	Min	Typical	Max
+3.3V	27A	33A	45A
+5V	27A	33A	45A
+12V	60A	72A	99A

#### 5.0 Power supply sequencing

##### 5.1 Power on (see fig.1)

##### 5.2 Hold up time

When power shutdown DC output 5V must be maintain 1 msec in -48V

##### 5.3 Power off sequence (see fig. 1)

6.0 Signal requirements

6.1 Power good signal (see fig. 1)

The power supply shall provide a "power good" signal to reset system logic , indicate proper operation of the power supply , and give advance warning of impending loss of regulation at turn off. This signal shall be a TTL compatible up level (2.4V to 5.25V) when +5V output voltage are present and above the minimum UV sense levels specified in paragraph 6.2 , or a down level (0.0V to 0.8V) when any output is below its minimum UV sense level.

At power on , the power good signal shall have a turn on delay of at least 100ms but not greater than 500ms after the output voltages have reached their respective minimum sense levels.

7.0 Environment

7.1 Temperature

Operating temperature	0 to 40 degrees centigrade
Non-Operating temperature	-20 to 80 degrees centigrade

Operating temperature from 0°C should start from DC-48V

7.2 Humidity

Operating humidity	20% to 80%
Non-operating humidity	10% to 90%

7.3 Insulation resistance

Primary to secondary	: 20 meg. ohm min. 500 VDC
Primary to Frame Gnd	: 20 meg. ohm min. 500 VDC

7.4 Dielectric withstanding voltage

For approval purpose :

Primary to secondary : 2000 VAC for 60 sec.

Primary to FG : 1500 VAC for 60 sec.

For production purpose:

Primary to FG 1500VAC for 1 sec.

8.0 Safety

8.1 Underwriters laboratory (UL).

The power supply designed to meet UL 60950.

8.2 Canadian standards association (CUL)

The power supply designed to meet CSA C22.2 No. 60950.

8.3 TUV

The power supply shall be designed to meet TUV EN-60950.

8.4 CCC Standards

The power supply shall be designed to meet GB9254-2008, GB4943.1-2011, GB17625.1-2012.



9.0 Reliability

9.1 Burn in

All products shipped to customer must be processed by burn-in. The burn-in shall be performed at full load.

10.0 Mechanical requirements

Physical dimension : 300 mm \* 101.2 mm \* 84 mm (D\*W\*H)

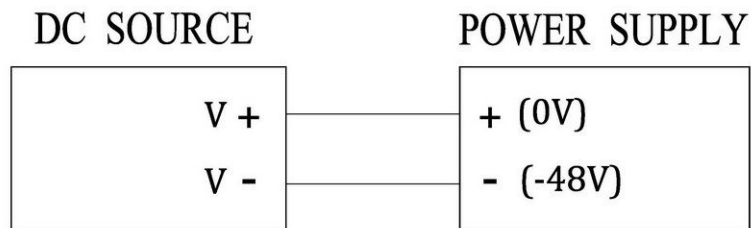
11.0 Warning method

11.1 Audio alarm(buzzer sound,resetable)

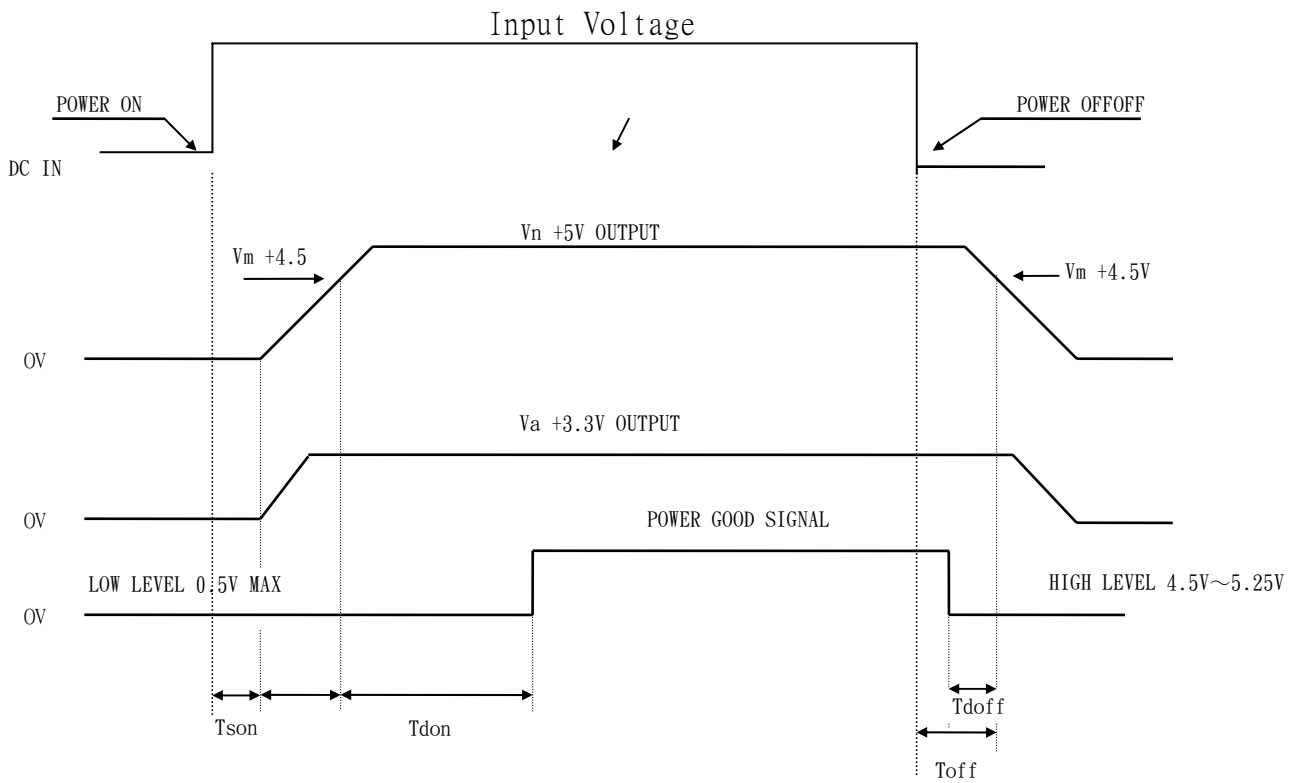
11.2 Fault LED

11.3 Power defective signal delivery(TTL,Lowactive)

12.0 Instruction of DC source input cable connection



12.0 DC output cable drawing  
(see attached drawing)



- $V_n$  Nominal voltages +5V
- $V_m$  Minimum voltages +4.5V
- $V_a$  Nominal voltages +3.3V
- $T_{son}$  Switch on time(5000ms. Max)
- $T_{rs}$  +5V rise time (100ms. max.)
- $T_{don}$  Delay turn-on (100ms. <  $T_{don}$  < 500ms.)
- $T_{off}$  Hold up time (1ms. min.)
- $T_{doff}$  Delay turn-off (1 ms. min.) (While use remote ON/OFF)

《Figure 1》