

# Switching power supply specifications

---

Product Name: Switching Power

---

Model: 60W 12V5A waterproof

---

## Section

---

### 1. Power supply overview

- 1.1 Input Electrical Characteristics Overview
- 1.2 Output Electrical Characteristics Overview
  - 1.2.1 Output Voltage ,Current & Regulation.
  - 1.2.2 DC Output Ripple & Noise.
  - 1.2.3 DC Output Hold-Up Time.
  - 1.2.4 DC output voltage rise time
- 1.3 Protection:
  - 1.3.1 DC output Over Voltage Protection.
  - 1.3.2 DC Output Over current Protection.
  - 1.3.3 DC Output Short Circuit Protection.
  - 1.3.4 DC Output Temperature coefficient.
  - 1.3.5 Reset After Shutdown.

### 2. Isolation

### 3. Safety

### 4. EMC

- 4.1 EMI
- 4.2 EMS
- 4.3 Waterproof level

### 5. Environmental Requirement

- 5.1 Temperature
- 5.2 Humidity
- 5.3 Altitude
- 5.4 Cooling Method
- 5.5 Vibration
- 5.6 Impact

# 1. Power Supply Overview :

## 1.1 Table 1 Input Electrical Characteristics Overview

Input voltage range	90-264VAC
Normal voltage range	100-240VAC
Frequency range	47-63Hz
Max input ac current	<1.5A (IN AC90V)
Inrush current (cold start)	30A
Efficiency(full load)	85% $\geq$ (IN AC230V) 81% $\geq$ (IN AC120V)
Leakage Current	<0.5mA
Standby Power Loss	$\leq$ 1W

## 1.2 Output Electrical Characteristics Overview

### 1.2.1 Table 2 Output Voltage ,Current & Regulation.

Note:\* pulse width within 100ms

Output Voltage	Regulation	Min. current	Rated current
12.00	$\pm 5\%$	0	5A

### 1.2.2 Table 3 DC Output Ripple & Noise.

Note: 1) Measurements shall be made with an oscilloscope with 20MHz bandwidth.

2) Outputs shall be bypassed at the connector with a 0.1uF ceramic capacitor and a 10uF electrolytic capacitor to simulate system loading.

Output Voltage	Ripple & Noise (Max.)
12.00	120mV

### 1.2.3 Table 5 DC Output Hold-Up Time.

Note: All of dc output at full load.

Output Voltage	110V AC Input	220V AC Input
12.00	10ms	20ms

### 1.2.4 Table 7 DC output voltage rise time

Note: The output voltages shall rise from 10% to 90% of their output voltage.

Output Voltage	110V AC input &Full Load	220V AC Input &Full Load
12.00	25ms	20ms

### 1.3 Protection:

#### 1.3.1 Table 9 DC output Over Voltage Protection.

Note: The power supply shall be test at max AC voltage (264Vac) and max load .

Output Voltage	Max. Over Voltage	Comments
12.00	18V	Shutdown

#### 1.3.2 Table 10 DC Output Over current Protection.

Output Voltage	Over Current	Comments
12.00	5.5-7A	Shutdown

#### 1.3.3 Table 11 DC Output Short Circuit Protection.

Output Voltage	Comments
12.00	Shutdown

Note: While outputting regular anode short circuit

#### 1.3.4Table 12 DC Output Temperature coefficient.

Output Voltage	Comments
12.00	110±5°C

#### 1.3.5 Reset After Shutdown.

The power supply will restart after the fault removed.

## 2. Isolation

### 2.1 Table 12 (Insulation resistance)

Note: Entry-level to second-class:50 MΩ is minimum(provide 500 VDCs)

### 2.2 Table 13 (Insulation withstand voltage)

Note: Entry-level to second-class:1500VAC 5mA 60S

Open FG and Output return. AC ground and output negative pole should be disconnected.

## 3. Safety

The power supply shall compliance with the following Criterion:

- 1) EN60950

2) GB4943-2001

#### 4. EMC (Electromagnetic compatibility)

##### 4.1 EMI (Electromagnetic interference)

The power supply shall compliance with the following Criterion:

1) Conduction Emission :

\*EN55022, CLASS B

2) Radiated Emission :

\*EN55022, CLASS B

##### 4.2 EMS (Electromagnetic immunity)

The power supply shall compliance with the following Criterion:

1) ESD (Static immunity)

\*GB17626. 2-1998/IEC61000-4-2

##### 4.3 Waterproof level: IP67

### 5. Environmental Requirement

#### 5.1 Temperature

\* Operating: -5°C to +35°C.

\* Store: -10°C to +50°C.

#### 5.2 Humidity

\* Operating: From 10%to90% relative humidity (non-condensing).

\* Store: From 5 to 95% relative humidity (non-condensing).

#### 5.3 Altitude

\* Operating: to10,000 ft.

\* Store: to 20,000ft.

#### 5.4 Cooling Method

\* Ventilation cooling .

#### 5.5 Vibration

\* 10-55Hz, 49.0m/s<sup>2</sup> (5G), 3minutes period, 60minutes each along X, Y and Z axis.

#### 5.6 Impact

\* 196.1m/s<sup>2</sup> (20G),11ms, once each X, Y and Z axis