

PMT2 Panel Mount Power Supply

PMT2 100W series / PMT-□V100W2B□□



PMT2

Highlights & Features

- Household appliance approvals according to IEC/EN 60335-1, IEC/EN 61558-1 and IEC/EN 61558-2-16
- Universal AC input voltage range
- No load power consumption < 0.3W
- Low profile design : 30mm height
- OVC III, Pollution Degree 3
- Wide operating temp -30°C ~70°C (Support -40°C cold start)
- Conforms to harmonic current IEC/EN 61000-3-2, Class A
- High MTBF > 700,000 hrs per Telcordia SR-332

Safety Standards



CB Certified for worldwide use

Model Number:	PMT-□V100W2B□□
Unit Weight:	0.285 kg (0.628 lb)
Dimensions (L x W x H):	129 x 97 x 30 mm (5.08 x 3.82 x 1.18 inch)

General Description

PMT 2nd generation (PMT2) power supplies is designed in a low 30mm profile and accepts universal AC input. The highly efficient convection cooling construction can operate from -30°C to 70°C. The single output model is competitively priced for general industrial and ITE applications. It complies to major safety approvals such as IEC/EN 60335-1, IEC/EN 61558-2-16, IEC 60950-1 & IEC/EN/UL 62368-1.

Model Information

PMT2 Panel Mount Power Supply

Model Number	Input Voltage Range	Rated Output Voltage	Rated Output Current
PMT-12V100W2B□□	90-264Vac	12Vdc	8.5A
PMT-15V100W2B□□		15Vdc	7.0A
PMT-24V100W2B□□		24Vdc	4.5A
PMT-30V100W2B□□		30Vdc	3.6A
PMT-36V100W2B□□		36Vdc	3.0A
PMT-48V100W2B□□		48Vdc	2.3A

Model Numbering

							CC code
PM	T -	□V	100W	2	B	□	□
Panel Mount	Loại sản phẩm T – Enclosed	Điện áp đầu ra 12 – 12V 15 – 15V 24 – 24V 30 – 30V 36 – 36V 48 – 48V	Công suất đầu ra	1 pha với thiết kế với cấu hình thấp	Mã vạch: B Không PFC	Kiểu kết nối A – Terminal Block	Trống – Không có vỏ bọc và lớp phủ B – Với lớp phủ 1 mặt C – Với vỏ bọc và lớp phủ 1 mặt

*1 : 12V/24V models only

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Specifications

Mã hàng	PMT-12V100W2B □□	PMT-15V100W2B □□	PMT-24V100W2B □□	PMT-30V100W2B □□	PMT-36V100W2B □□	PMT-48V100W2B □□
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Thông số đầu vào

Điện áp vào định mức	100-240Vac					
Dải điện áp vào	90-264Vac					
Tần số vào định mức	50-60Hz					
Dải tần số đầu vào	47-63Hz					
Dòng điện đầu vào	1.9 A typ. tại 115Vac, 1.2 A typ. tại 230Vac					
Hiệu quả khi chạy 100% tải ở 20VAC	87.5% typ.	88.0% typ.	90.0% typ.	90.0% typ.	91.0% typ.	91.5% typ.
Công suất tiêu thụ không tải	< 0.3W tại 230Vac					
Dòng lớn nhất (bắt đầu chế độ lạnh)	55A typ. tại 230Vac					
Dòng rò	< 0.5mA tại 240Vac					

Thông số đầu ra

Điện áp đầu ra định mức	12Vdc	15Vdc	24Vdc	30Vdc	36Vdc	48Vdc
Sai số	12Vdc ± 1%	15Vdc ± 1%	24Vdc ± 1%	30Vdc ± 1%	36Vdc ± 1%	48Vdc ± 1%
Dải điều chỉnh điện áp đầu ra	10.8-13.2Vdc	13.5-16.5Vdc	21.6-26.4Vdc	27.0-33.0Vdc	32.4-39.6Vdc	43.2-52.8Vdc
Dòng điện đầu ra	8.5A	7.0A	4.5A	3.6A	3.0A	2.3A
Điện áp đầu ra	102W Max.	105W Max.	108W Max.	108W Max.	108W Max.	110W Max.
Điều chỉnh dòng	± 0.5% (tại 115Vac & 230Vac đầu vào)					
Điều chỉnh tải	± 0.5% (tại 115Vac & 230Vac đầu vào)					
PARD*3 (20MHz)	< 120mVpp tại 0°C to 70°C, 360mVpp typ. tại -30°C to 0°C		< 150mVpp ở 0°C đến 70°C, 450mVpp typ. ở -30°C đến 0°C		< 200mVpp tại 0°C to 70°C, 600mVpp typ. tại -30°C to 0°C	
Thời gian tăng tốc	30ms typ. tại 115Vac và 230Vac					
Thời gian khởi động	500ms typ. tại 115Vac và 230Vac					
Thời gian lưu điện	9ms typ. tại 115Vac, 42ms typ. tại 230Vac					
Đường đặc trưng (Điện áp trên và dưới ngưỡng O/P)	± 10% tại 115 & 230Vac đầu vào, 10-100% load (Slew Rate: 2.5A/μS, 50% duty cycle @ 5Hz & 10KHz)					
Khởi động với tải điện dung	8,000μF Max	8,000μF Max	8,000μF Max	6,000μF Max	3,000μF Max	2,000μF Max

*2 For power de-rating from > 50°C to 70°C, see power de-rating on page 3.

*3 PARD is measured with an AC coupling mode, and in parallel to end terminal with 0.1μF ceramic capacitor & 47μF electrolytic capacitor. PSU need to burn in > 5 minutes when AMB ≤ 0°C

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Cơ khí

Chassis	Nhôm
Vỏ	SGCC
Kích thước(L x W x H)	129 x 97 x 30 mm (5.08 x 3.82 x 1.18 inch)
Cân nặng	0.285 kg (0.628 lb)
Hiển thị	Green LED (DC OK)
Hệ thống làm mát	Đổi lưu
Terminal	M3.5 x 7 Pins (Rated 300V/20A)
Dây	AWG 18-12 Current rating can refer to page 6 "Wire AWG Table"
Độ ồn (1 mét từ nguồn cấp)	Sound Pressure Level (SPL) < 25dBA

Môi trường

Nhiệt độ không khí xung quanh	Hoạt động	-30°C to +70°C (-40°C Cold Start)
	Lưu trữ	-40°C to +85°C
Công suất giảm tải	> 50°C de-rate power by 2% / °C < 115Vac de-rate power by 0.6% / V (85% load @ 90Vac)	
Độ ẩm hoạt động	20 to 90% RH (Non-Condensing)	
Độ cao hoạt động	0 to 5,000 Meters (0 to 16,400 ft)	
Kiểm tra shock	Không hoạt động	IEC 60068-2-27, Half Sine Wave: 50G for a duration of 11ms, 3 shocks for each 3 directions
	Hoạt động	IEC 60068-2-27, Half Sine Wave: 10G for a duration of 11ms, 3 shock for each 3 directions.
Độ rung	Không hoạt động	IEC 60068-2-6, Random: 5Hz to 500Hz (2.09G); 20 min per axis for all X, Y, Z direction
	Hoạt động	IEC 60068-2-6, Sine Wave: 20Hz to 500Hz (5G); 10min per cycle, 60min for each axis (X, Y,Z)
Phân mục quá điện áp	II (Compliance to EN 62477-1 OVC III with 2000 meters altitude)	
Mức độ ô nhiễm	3	

Bảo vệ

Quá áp	13.2V-17.4V SELV Output, Latch Mode	16.5V-21.0V SELV Output, Latch Mode	26.4-33.6V SELV Output, Latch Mode	33.0V-40.5V SELV Output, Latch Mode	39.6V-48.6V SELV Output, Latch Mode	52.8V-64.8V SELV Output, Latch Mode
Quá tải / Quá dòng	110-175% of rated load current, Hiccup Mode Non-Latching (Auto-Recovery)					
Quá nhiệt	Latch Mode					
Dòng ngắn mạch	Hiccup Mode, Non-Latching (Auto-Recovery when the fault is removed)					
Bảo vệ chống sốc	Class I with PE*4 connection					

*4 PE: Protection Earth

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Độ tin cậy

MTBF	> 700,000tiếng as per Telcordia SR- 332 I/P: 230Vac, O/P: 100% Load, Ta: 25°C
Tuổi thọ	10 years (230Vac, 50% load @ 40°C)

Tiêu chuẩn an toàn

Điện áp thấp an toàn	SELV
An toàn điện	TUV Bauart cTUVus CB scheme CCC KC EAC
	EN 62368-1, EN60335-1, EN 61558-1/-2-16 UL 62368-1 and CAN/CSA C22.2 No. 62368-1 IEC 62368-1, IEC 60950-1, IEC 60335-1, IEC 61558-1/-2-16 GB4943 K 60950-1 TP TC 004/2011
Chứng nhận	In conformance with EMC Directive 2014/30/EU and Low Voltage Directive 2014/35/EU
Cách ly	4.0KVac 2.0KVac 1.25KVac

EMC

Khí thải	CISPR 32, EN 55032, EN 61000-6-4, KN32, AS/NZS CISPR32 Compliance to EN55014-1, FCC Title 47, EN 61000-6-3 : Class B
Khả năng miễn dịch	EN 55035, KN35, EN 61000-6-2 Compliance to EN55014-2, EN 61000-6-1
Xả tĩnh điện	IEC 61000-4-2 Level 4 Criteria A ¹⁾ Air Discharge: 15kV Contact Discharge: 8kV
Bức xạ	IEC 61000-4-3 Level 3 Criteria A ¹⁾ 80MHz-1GHz, 10V/M with 1kHz tone / 80% modulation
Chống nổ	IEC 61000-4-4 Level 3 Criteria A ¹⁾ 2kV
Chống sét	IEC 61000-4-5 Level 4 Criteria A ¹⁾ Common Mode ⁴⁾ : 4kV Differential Mode ⁵⁾ : 2kV
Tiến hành	IEC 61000-4-6 Level 3 Criteria A ¹⁾ 150kHz-80MHz, 10Vrms
Từ trường tần số công suất	IEC 61000-4-8 Level 4 Criteria A ¹⁾ 30A/Meter
Điện áp Dips	IEC 61000-4-11 0% residual; 1 cycle, Criteria B 40% residual; 10 cycle, Criteria C ³⁾ 70% residual; 25 cycle, Criteria C ³⁾
Sóng hài	EC/EN 61000-3-2 Class A

1) Criteria A: Normal performance within the specification limits

2) Criteria B: Output out of regulation, or shuts down during test. Automatically restored to normal operation after test.

3) Criteria C: Output out of regulation, shuts down during test (Need to recycle AC power cord to normal operation after test)

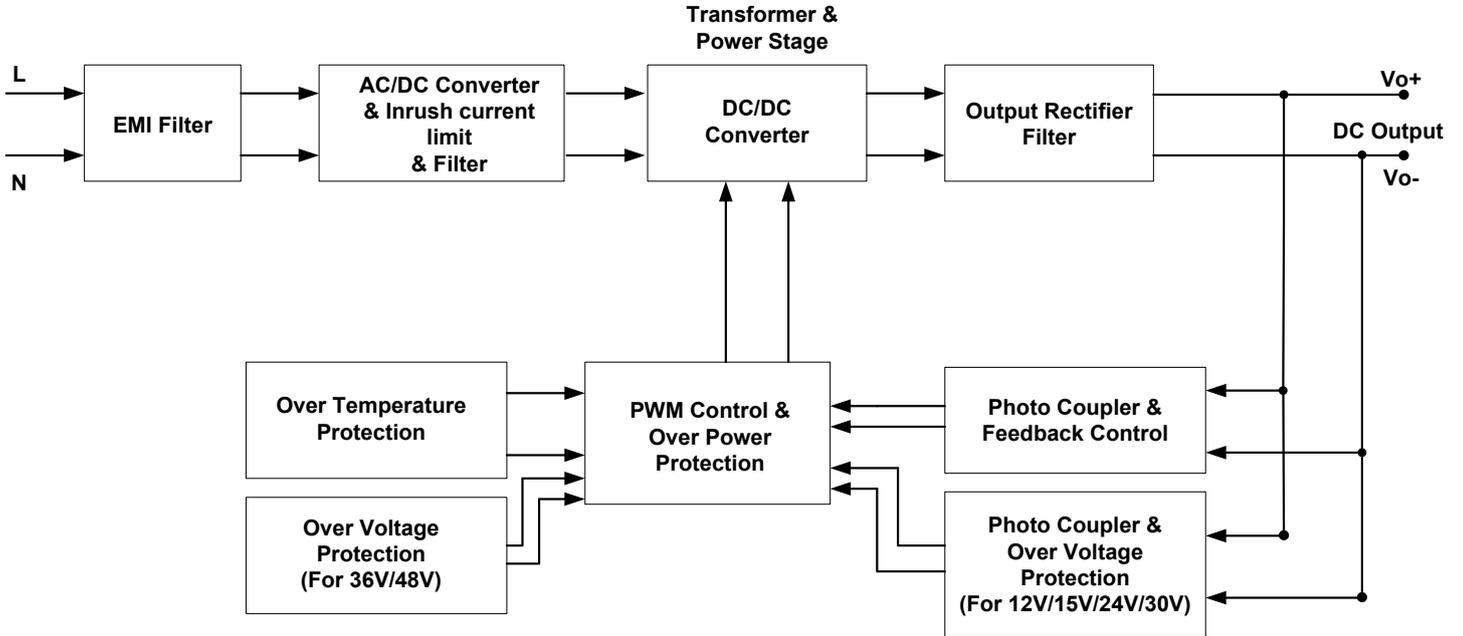
4) Asymmetrical: Common mode (Line to earth)

5) Symmetrical: Differential mode (Line to line)

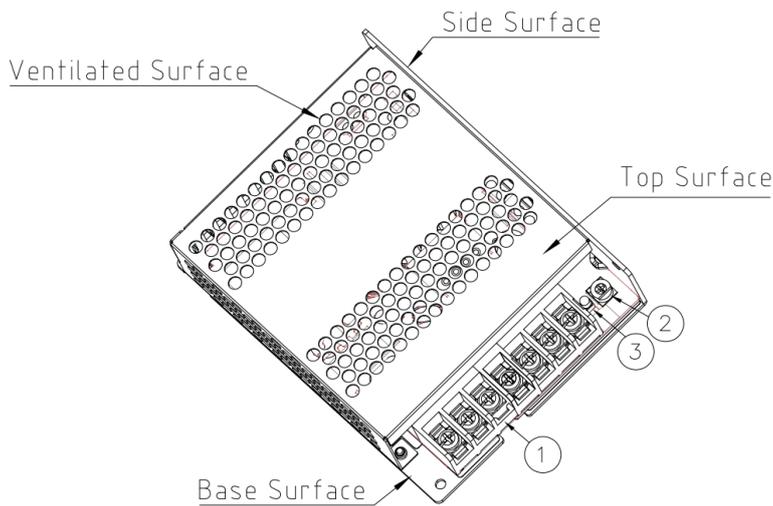
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Block Diagram



Device Descriptions



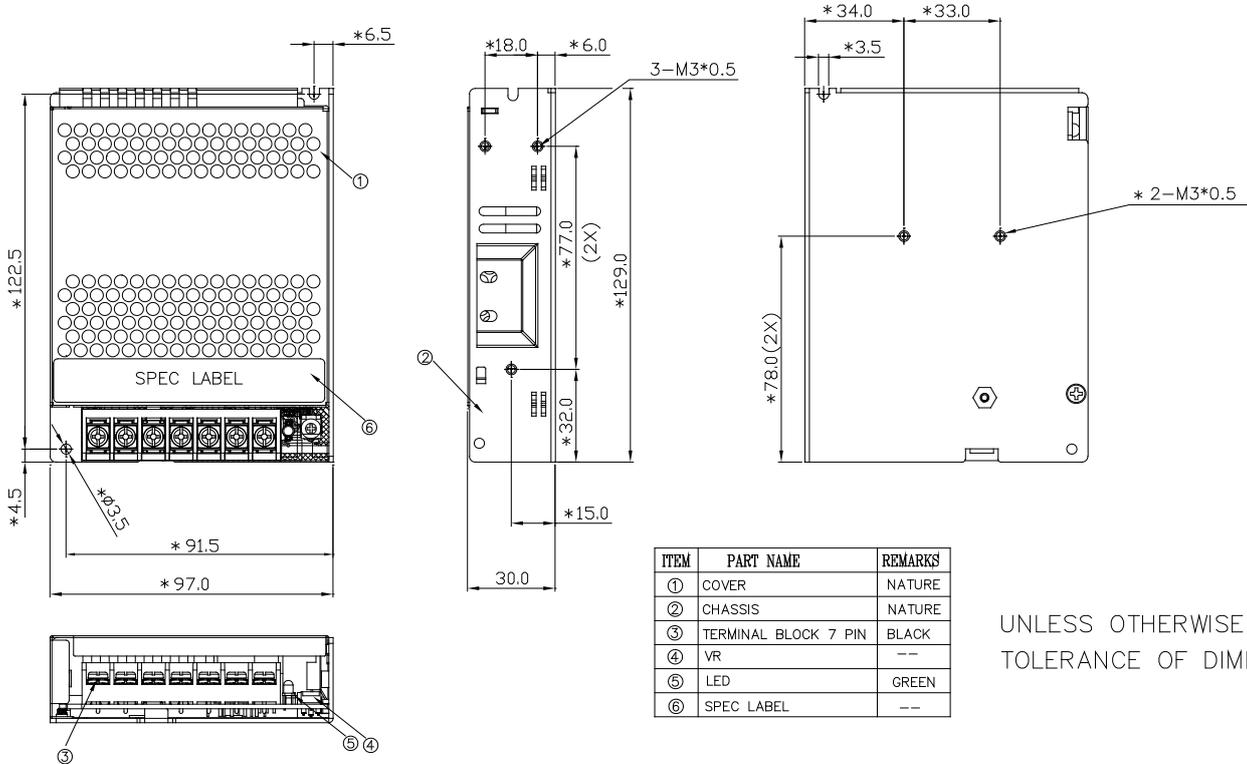
- 1) Input & Output terminal block connector
- 2) DC voltage adjustment potentiometer
- 3) DC OK control LED (Green)

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Dimensions

L x W x H: 129 x 97 x 30 mm (5.08 x 3.82 x 1.18 inch)



Wire AWG Table

Current rating for PVC Wire AWG			
6AWG	52.5A	20AWG	6.5A
8AWG	37.5A	22AWG	5.0A
10AWG	29.0A	24AWG	3.5A
12AWG	22.5A	26AWG	2.5A
14AWG	16.5A	28AWG	2.0A
16AWG	12.0A	30AWG	1.5A
18AWG	9.0A		

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Engineering Data

Output Load De-rating VS Surrounding Air Temperature

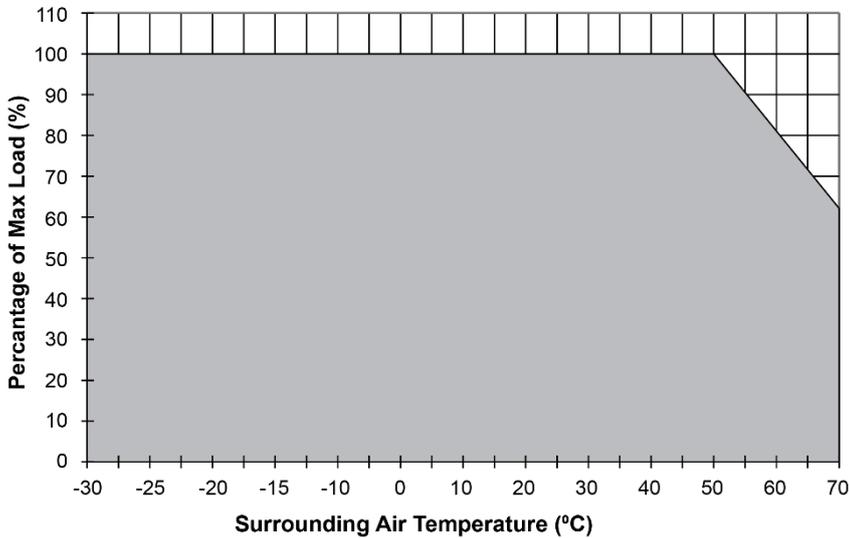


Fig. 1 De-rating for Horizontal Mounting Orientation
 > 50°C de-rate power by 2% / °C

Note

1. Power supply components may degrade, or be damaged, when the power supply is continuously used outside the shaded region, refer to the graph shown in Fig. 1 & Fig. 2.
2. The PSU will be bouncing and start up time will not exceed 5s when ambient temperature at -30 °C
3. If the output capacity is not reduced when the surrounding air temperature >50°C, the device will run into Over Temperature Protection. When activated, power supply will latch off, until the surrounding air temperature is lowered or the load is reduced as far as necessary to keep the device in working condition, and require removal/re-application of input AC voltage in order to restart.
4. In order for the device to function in the manner intended, it is also necessary to keep a safety distance as recommended in the safety instructions while the device is in operation.
5. Depending on the surrounding air temperature and output load delivered by the power supply, the device can be very hot!

Output Load De-rating VS Input Voltage

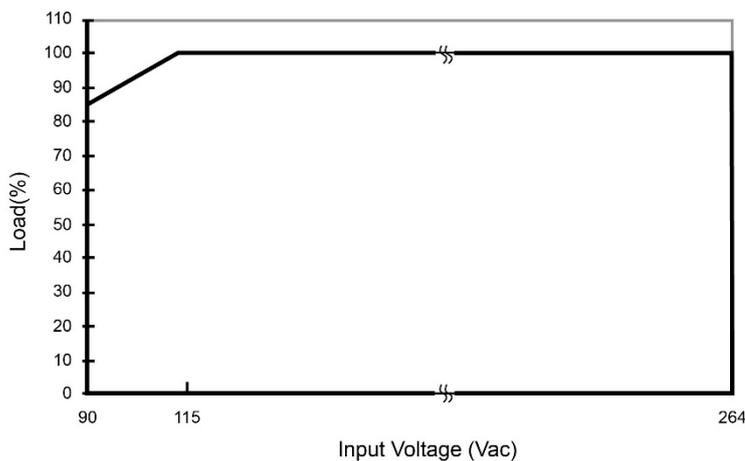


Fig. 2 De-rating for AC Input Voltage
 < 115Vac de-rate power by 0.6% / V

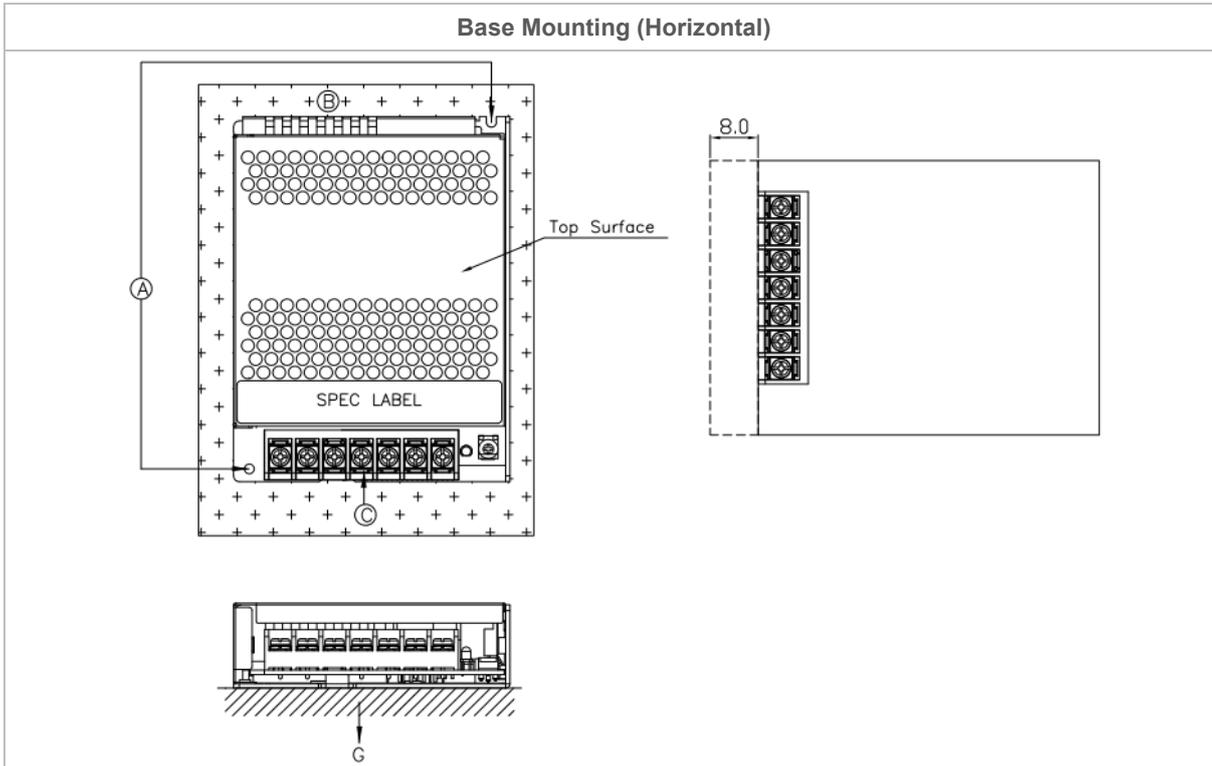
- No output power de-rating for the input voltage from 115Vac to 264Vac

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Assembly & Installation

- Ⓐ Mounting holes for power supply assembly onto the mounting surface.
The power supply shall be mounted on minimum 2 mounting holes using M3 screw minimum 5mm (0.20 inch) length.
- Ⓑ This surface belongs to customer's end system or panel where the power supply is mounted.
- Ⓒ Connector



* If the device has to be mounted in any other orientation, please contact info@deltapsu.com for more details.

- Use flexible cable (stranded or solid) of AWG No. 18-12. User should calculate and select the suitable wire specification (type/quantity/diameter) according to actual output current. The torque at the Connector shall not exceed 8Kgf.cm. (6.94 lbf.in). The insulation stripping length should not exceed 0.275" or 7mm (Refer to Fig. 3).

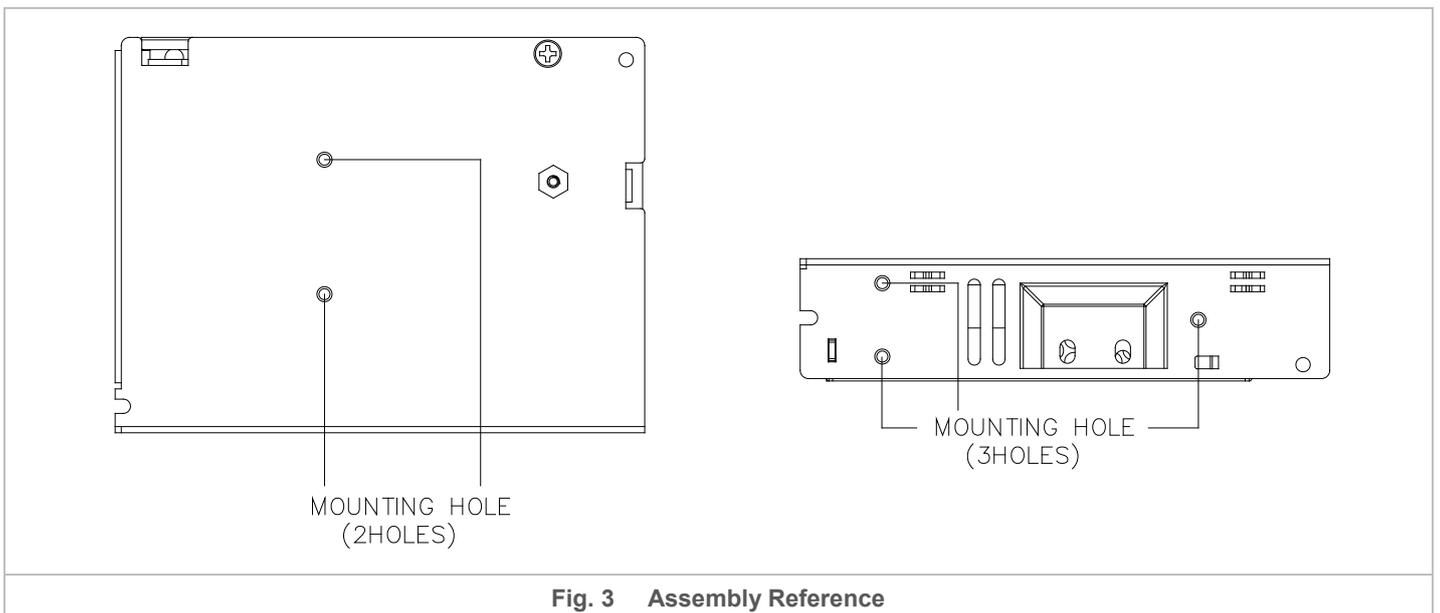
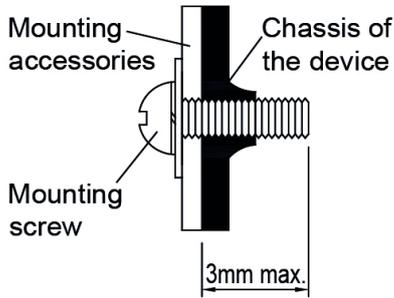


Fig. 3 Assembly Reference

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- Only use M3 screw $\leq 3\text{mm}$ (0.20 inch) through the base mounting holes. This is to keep a safe distance between the screw and internal components.
- Recommended mounting tightening torque: 4~7Kgf.cm. (3.47~6.08 lbf.in).

Fig. 4 Mounting Screw

Safety Instructions

- If user's mounting orientation is not according to the recommended mounting orientations, please consult Delta for further information.
- To ensure sufficient convection cooling, always maintain a safety distance of $\geq 50\text{mm}$ (1.97 inch) from all ventilated surfaces while the device is in operation.
- The device is not recommended to be placed on low thermal conductive surface. For example, plastics.
- The enclosure of the device can become very hot depending on the ambient temperature and load of the power supply. Do not touch the device while it is in operation or immediately after power is turned OFF. Risk of burning!
- Do not touch the terminals while power is being supplied. Risk of electric shock.
- Prevent any foreign metal, particles or conductors from entering the device through the openings during installation. It may cause: Electric shock; Safety Hazard; Fire; Product failure
- The power supply must be mounted by metal screws onto a grounded metal surface. It is highly recommended that the Earth terminal on the connector be connected to the grounded surface.

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Functions

Start-up Time

The time required for the output voltage to reach 90% of its final steady state set value, after the input voltage is applied.

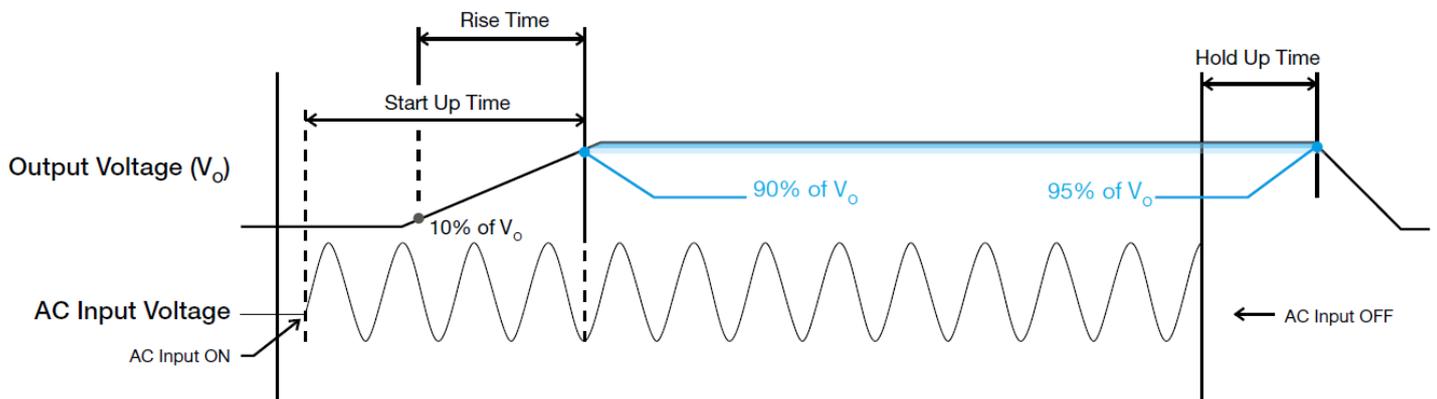
Rise Time

The time required for the output voltage to change from 10% to 90% of its final steady state set value.

Hold-up Time

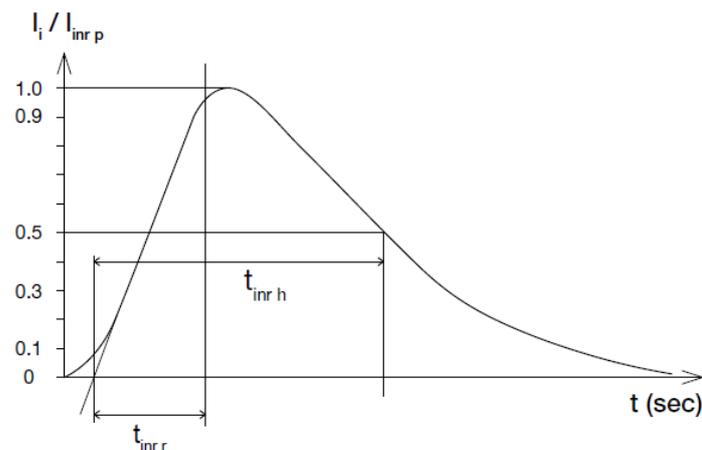
Time between the collapse of the AC input voltage, and the output falling to 95% of its steady state set value.

■ Graph illustrating the Start-up Time, Rise Time, and Hold-up Time



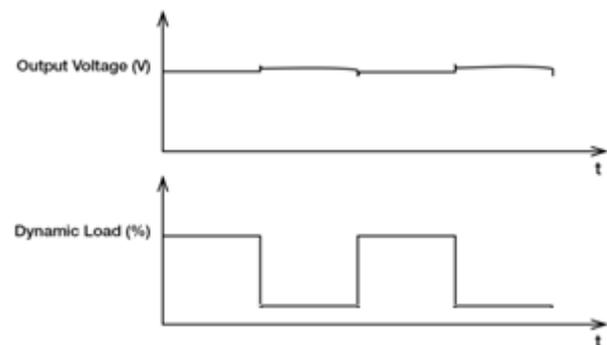
Inrush Current

Inrush current is the peak, instantaneous, input current measured and, occurs when the input voltage is first applied. For AC input voltages, the maximum peak value of inrush current will occur during the first half cycle of the applied AC voltage. This peak value decreases exponentially during subsequent cycles of AC voltage.



Dynamic Response

The power supply output voltage will remain within $\pm 10\%$ of its steady state value, when subjected to a dynamic load from 10% to 100%.

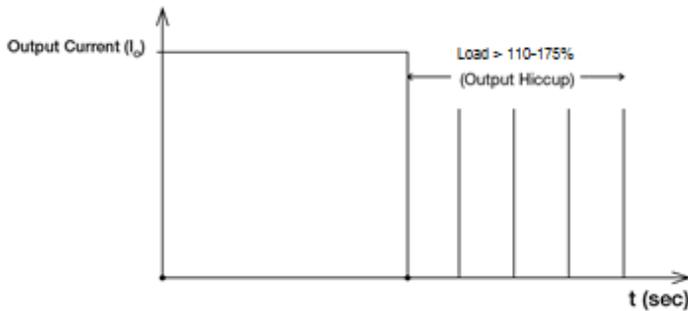


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Overload & Overcurrent Protections (Auto-Recovery)

The power supply's Overload (OLP) and Overcurrent (OCP) Protections will be activated when output current exceeds 110% of I_O (Max load). In such occurrence, the V_O will start to droop and once the power supply has reached its maximum power limit, the protection is activated and the power supply will go into "Hiccup mode" (Auto-Recovery). The power supply will recover once the fault condition of the OLP and OCP is removed and I_O is back within the specifications.



It is not recommended to prolong the duration of I_O when it is <110% but >100%, since it may cause damage to the PSU.

Short Circuit Protection (Auto-Recovery)

The power supply's output OLP/OCP function also provides protection against short circuits. When a short circuit is applied, the output current will operate in "Hiccup mode", as shown in the illustration in the OLP/OCP section on this page. The power supply will return to normal operation after the short circuit is removed.

Others

Attention

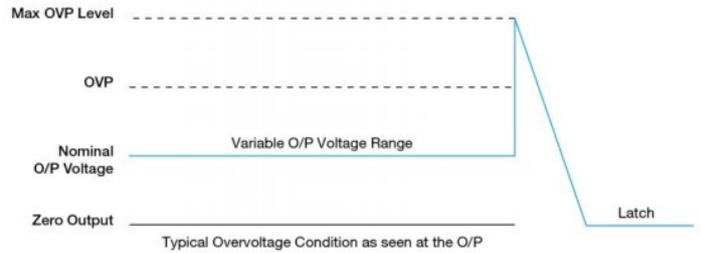
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Overvoltage Protection (Latch Mode)

The power supply's overvoltage circuit will be activated when its internal feedback circuit fails. The output voltage shall not exceed its specifications defined on under "Protections". Power supply will latch, and require removal/re-application of input AC voltage in order to restart.

The power supply should be latch, and require removal /re-apply of input AC voltage in order to restart.



Over Temperature Protection (Latch Mode)

As described in Engineering data section, the power supply also has Over Temperature Protection (OTP). In the event of a higher operating temperature at 100% load, the power supply will run into OTP when the operating temperature is beyond what is recommended in the de-rating graph. When activated, the output voltage will go into latch mode until the temperature drops to its normal operating temperature as recommended in the de-rating graph.

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