PMT Panel Mount Power Supply

PMT2 600W series / PMT-□V600W2BR□



PMT2

Highlights & Features

- AC input voltage range selectable by switch (90-132 Vac, 180-264 Vac)
- 300Vac Input Surge Resilience (5s)
- Built-in 200% peak power supported
- Low profile design:41 mm height
- Certified to IEC/EN 62368-1
- Wide operating temp -40°C ~ 70°C

Safety Standards

CB Certified for worldwide use

Model Number: PMT-□V600W2BR□
Unit Weight: 1.10 kg (2.43 lb)
Dimensions (L x W x H): 225 x 124 x 41 mm (8.86 x 4.88 x 1.61 inch)

General Description

PMT 2nd generation (PMT2) 600 W power supply is a single-output, Panel Mount type power supply featuring a 41mm low-profile design. This series offers flexibility with a switch-selectable AC input and provides four output voltage options: 12 V, 24 V, 36 V, and 48 V. Offering up to 92% conversion efficiency with a built-in cooling fan, it can operate from -40°C to 70°C. The PMT-600W series provides comprehensive protection and is certified to multiple international standards. Moreover, the PMT-600W can offer 200% short-duration peak power for various applications requiring heavy power during startup.

Model Information

PMT Panel Mount Power Supply

Model Number	Input Voltage Range	Rated Output Voltage	Rated Output Current
PMT-12V600W2BR□	90-132 Vac, 180-264 Vac (Selectable by Switch)	12 Vdc	50.0 A
PMT-24V600W2BR□		24 Vdc	25.0 A
PMT-36V600W2BR□		36 Vdc	16.7 A
PMT-48V600W2BR□		48 Vdc	12.5 A

Model Numbering

							CC code
PM	**T –**	**□V**	**600W**	**2**	**B**	**R**	**□**
Panel Mount	Product Type T – Enclosed	Output Voltage 12 – 12 V 24 – 24 V 36 – 36 V 48 – 48 V	Output Power	Single Phase With low profile	Family Code: B With No PFC	Connector Type R – Terminal Block	Blank – Without connector cover & coating

All parameters are specified at 25°C ambient and nominal AC input unless otherwise indicated.

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Specifications

Model Number	PMT-12V600W2BR□	PMT-24V600W2BR□	PMT-36V600W2BR□	PMT-48V600W2BR□

Input Ratings / Characteristics

Nominal Input Voltage	100-120 Vac, 200-240 Vac (Selectable by Switch)			
Input Voltage Range	90-132 Vac, 180-264 Vac (Selectable by Switch)			
Nominal Input Frequency*1	50-60 Hz			
Input Frequency Range	47-63 Hz			
Input Current	12 A typ. @ 115 Vac, 7.5 A typ. @ 230 Vac			
Efficiency at 100% Load @ 230Vac	90% typ.	91% typ.	92% typ.	92% typ.
Max Inrush Current (Cold Start)	60 A typ. @ 230 Vac			
Leakage Current	< 0.75 mA @ 240 Vac			

*1 60Hz for 90~132Vac and 50Hz for 180~264Vac

Output Ratings / Characteristics*2

Nominal Output Voltage	12 Vdc	24 Vdc	36 Vdc	48 Vdc
Factory Set Point Tolerance	12 Vdc ± 1.5%	24 Vdc ± 1%	36 Vdc ± 1%	48 Vdc ± 1%
Output Voltage Adjustment Range	10.8-13.5 Vdc	21.6-27 Vdc	32.4-39.6 Vdc	43.2-54 Vdc
Output Current	50.0 A 100 A / 5S_max	25.0A 50.0 A / 5S_max	16.67 A 33.34 A / 5S_max	12.5 A 25.0 A / 5S_max
Output Power	600 W 1,200 W / 5S_max	600 W 1,200 W / 5S_max	600 W 1,200 W / 5S_max	600 W 1,200 W / 5S_max
Line Regulation	± 0.5% typ. @ 100-132 Vac, 200-264 Vac (Selectable by Switch)			
Load Regulation	±1% @ 100-132 Vac, 200-264 Vac (Selectable by Switch)	±0.5% typ. @ 100-132 Vac, 200-264 Vac (Selectable by Switch)		
PARD*3 (20MHz)	< 200 mVp-p @ 0°C to 70°C <600 mVp-p @ -30°C to 0°C	< 240 mVp-p @ 0°C to 70°C <720 mVp-p @ -30°C to 0°C	< 360 mVp-p @ 0°C to 70°C <1080 mVp-p @ -30°C to 0°C	
Rise Time	30 ms typ. @ 115 Vac & 230 Vac			
Start-up Time	500 ms typ. @ 115 Vac & 230 Vac			
Hold-up Time	16 ms typ. @ 115 Vac & 20 ms typ. @ 230 Vac			
Dynamic Response*3 (Overshoot & Undershoot O/P Voltage)	± 10% @ 115 & 230 Vac input, 50%-100% load (Slew Rate: 2.5 A/μS, 50% duty cycle @ 120 Hz & 1KHz)			
Start-up with Capacitive Loads	8,000 μF Max	8,000 μF Max	6,000 μF Max	5,000 μF 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.

*4 When the output loading is too small then cooling fan may not turn on .

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Mechanical

Case Chassis	SGCC
Case Cover	SGCC
Dimensions (L x W x H)	225 x 124 x 41 mm (8.86 x 4.88 x 1.61 inch)
Unit Weight	1.10 kg (2.43 lb)
Indicator	Green LED (DC OK)
Cooling System	Force Cooling
Terminal	M3.5 x 9 Pins (Rated 300 V / 20 A)
Wire	AWG 18-12 Current rating can refer to page 6 “Wire AWG Table”

Environment

Surrounding Air Temperature	Operating	-40°C to +70°C (Please refer to derating curve page 7)
	Storage	-40°C to +85°C
Power De-rating		> 50°C de-rate power by 2% / °C < 100 Vac de-rate power by 2% / V < 200 Vac de-rate power by 1% / V (80% load @ 90 Vac & 180Vac)
Operating Humidity		20 to 90% (Non-Condensing)
Operating Altitude		0 to 5,000 Meters (0 to 16,400 ft)
Shock Test	Non-Operating	IEC 60068-2-27, Half Sine Wave: 50G for a duration of 11 ms, 3 shocks for each 3 directions
	Operating	IEC 60068-2-27, Half Sine Wave: 10G for a duration of 11 ms, 3 shock for each 3 directions.
Vibration	Non-Operating	IEC 60068-2-6, Random: 5 Hz to 500 Hz (2.09G); 20 min per axis for all X, Y, Z direction
	Operating	IEC 60068-2-6, Sine Wave: 10 Hz to 500 Hz (2G); 10 min per cycle, 60 min for each axis (X,Y,Z)
Over Voltage Category		II
Pollution Degree		3

Protections

Overvoltage*5	13.7 V - 17.4 V SELV Output, Latch Mode	27.2 V - 33.6 V SELV Output, Latch Mode	39.8 V - 48.6 V SELV Output, Latch Mode	54.2 V - 64.8 V SELV Output, Latch Mode
Overload / Overcurrent*5	110-175% of rated load current, >5s into Latch Mode (200% Peak Power for 5 seconds)			
Over Temperature	Hiccup Mode, Non-Latching (Auto-Recovery)			
Short Circuit*4	Latch Mode			
Protection Against Shock	Class I with PE*6 connection			

*5 If latch mode protection is triggered, it need to turn AC off and waiting >5mins(type) then AC turn on to restart (Nominal AC input)
*6 PE: Protection Earth

Reliability Data

MTBF	> 700,000 hrs as per Telcordia SR-332 I/P: 100 Vac, O/P: 100% Load, Ta: 25°C)
Expected Cap Life Time	10 years (230 Vac, 50% load @ 40°C)
Warranty	3 Years

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Safety Standards / Directives

Safety Entry Low		SELV
Electrical Safety	TUV Bauart	EN 62368-1
	UL/cUL	UL 62368-1; CAN/CSA C22.2 No. 62368-1
	CB scheme	IEC 62368-1; AS/NZS 62368-1 RCM
	CQC	GB 4943.1
	BIS	IS 13252 (Part 1)
	BSMI	CNS 15598-1
	EAC	TP TC 004/2011
	UKCK	BS EN 62368-1
CE		In conformance with EMC Directive 2014/30/EU and Low Voltage Directive 2014/35/EU This power supply does not comply with the harmonic current emission requirements specified in BS EN/EN61000-3-2. Please ensure it is not used in applications where compliance with this standard is required.
UKCA		In conformance with Electromagnetic Compatibility Regulations 2016 and Electrical Equipment (Safety) Regulations 2016
Galvanic Isolation	Input to Output	3.75 KVac
	Input to Ground	2.0 KVac
	Output to Ground	0.5 KVac

EMC

Emissions (CE & RE)		EN/BS EN 55032, AS/NZS CISPR 32 Class A, KS C 9832 FCC Part 15 Title 47 Class A, ANSI C63.4
Immunity		EN/BS EN 55035, KS C 9835
Electrostatic Discharge	IEC 61000-4-2	Level 3 Criteria A[1)] Air Discharge: 8 kV Contact Discharge: 6 kV
Radiated Field	IEC 61000-4-3	Level 3 Criteria A[1)] 80 MHz – 1 GHz, 10 V/M with 1 kHz tone / 80% modulation
Electrical Fast Transient / Burst	IEC 61000-4-4	Level 3 Criteria A[1)] 2 kV
Surge	IEC 61000-4-5	Level 4 Criteria A[1)] Common Mode[4)]: 4 kV Differential Mode[5)]: 2 kV
Conducted	IEC 61000-4-6	Level 3 Criteria A[1)] 150 kHz-80 MHz, 10 Vrms
Power Frequency Magnetic Fields	IEC 61000-4-8	Level 4 Criteria A[1)] 30 A/Meter
Voltage Dips and Interruptions	IEC 61000-4-11	0% residual; 1 cycle, Criteria B[2)] 40% residual; 10 cycle, Criteria C[3)] 70% residual; 25 cycle, Criteria C[3)]
Voltage Fluctuation and Flicker	IEC 61000-3-3	EN 61000-3-3

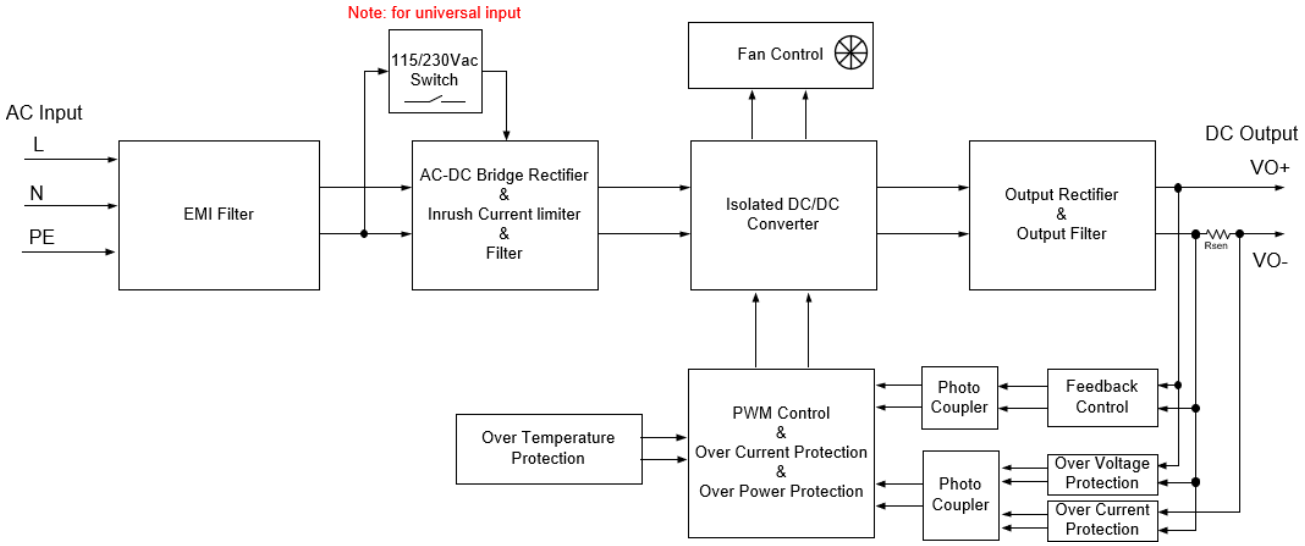
1) Criteria A: Normal performance within the specification limits
2) Criteria B: Output out of regulation, or shuts down during test. Automatically restored to normal operation after test.
3) Criteria C: Output out of regulation, shuts down during test (Need to recycle AC power cord to normal operation after test)
4) Asymmetrical: Common mode (Line to earth)
5) Symmetrical: Differential mode (Line to line)

PMT Panel Mount Power Supply

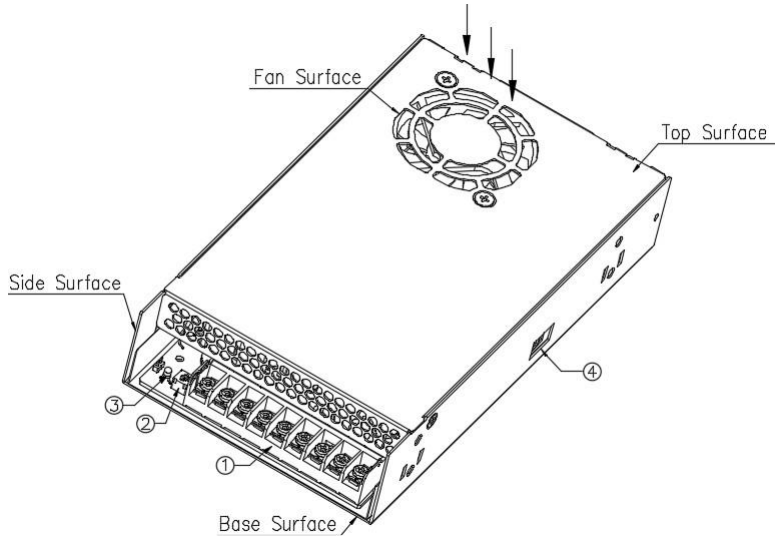
PMT2 600W series / PMT-□V600W2BR□

Block Diagram

PMT-□V600W2BR□



Device Descriptions



1) Input & Output terminal block connector
2) DC voltage adjustment potentiometer
3) DC OK control LED (Green)
4) AC selectable switch

All parameters are specified at 25°C ambient and nominal AC input unless otherwise indicated.

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PMT2 600W series / PMT-□V600W2BR□

Dimensions

L x W x H: 225 x 124 x 41 mm (8.86 x 4.88 x 1.61 inch)

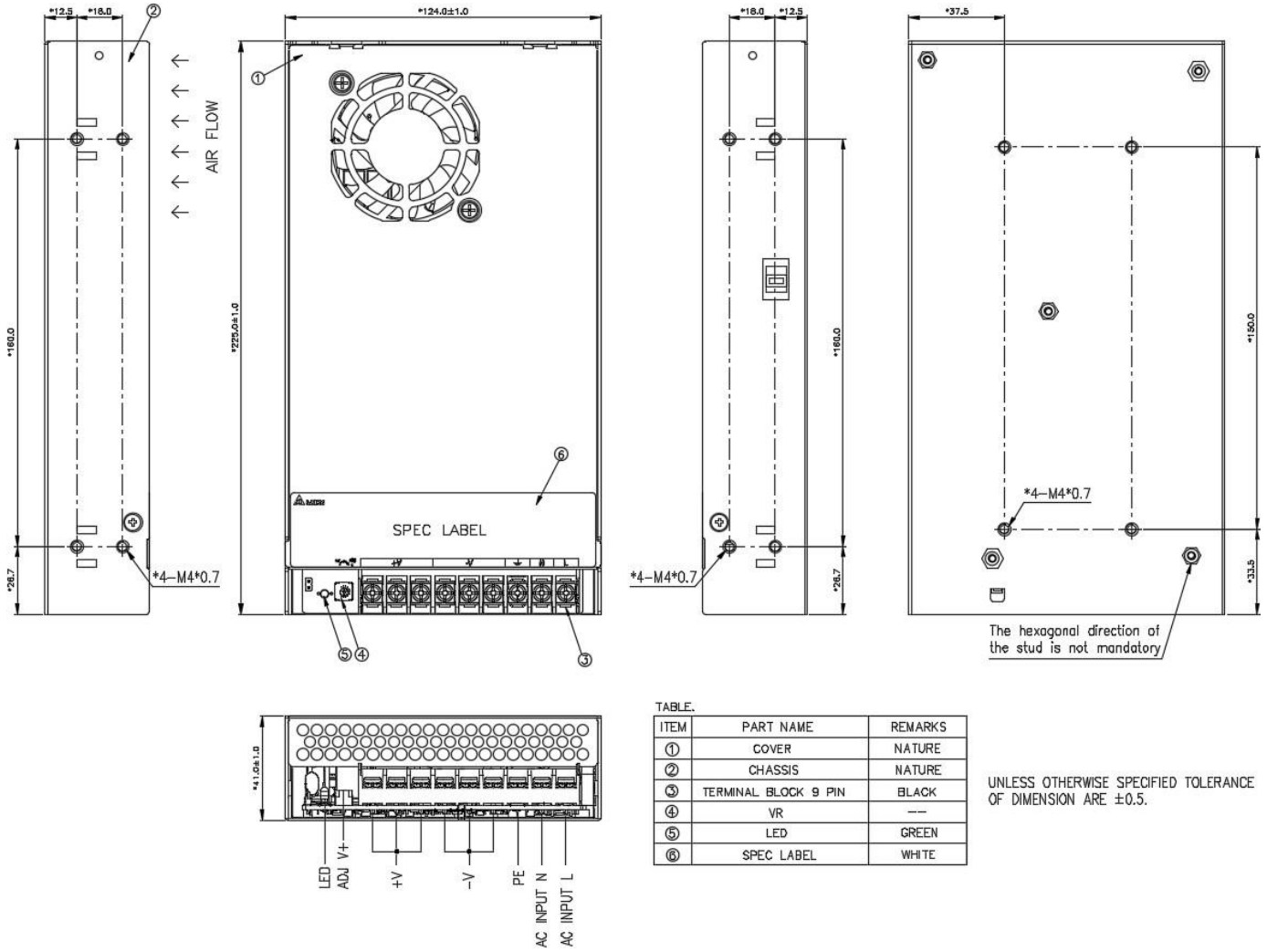


TABLE.

ITEM	PART NAME	REMARKS
①	COVER	NATURE
②	CHASSIS	NATURE
③	TERMINAL BLOCK 9 PIN	BLACK
④	VR	––
⑤	LED	GREEN
⑥	SPEC LABEL	WHITE

UNLESS OTHERWISE SPECIFIED TOLERANCE OF DIMENSION ARE ±0.5.

Note : Built-in cooling fan. Must prevent dust suction into power supply, or use natural convection power supply if any concerns.

Wire AWG Table

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

PMT Panel Mount Power Supply

PMT2 600W series / PMT-□V600W2BR□

Engineering Data

Output Load De-rating VS Surrounding Air Temperature

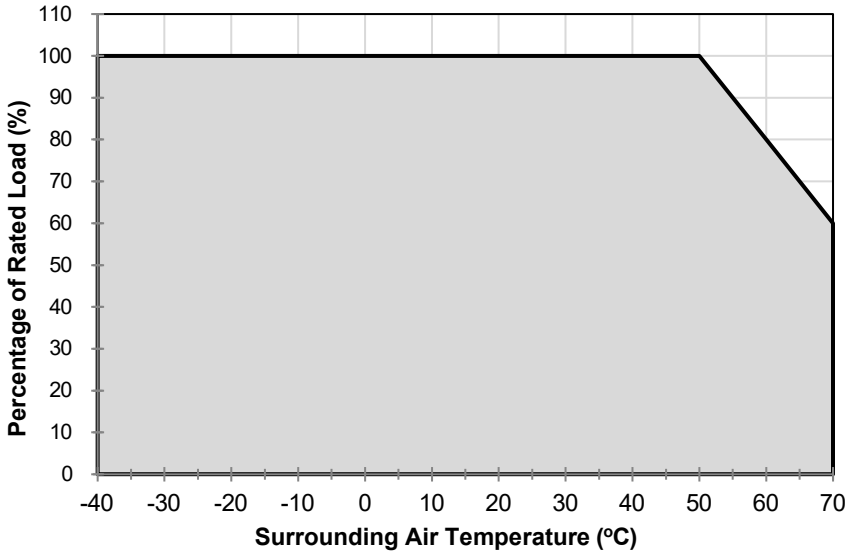
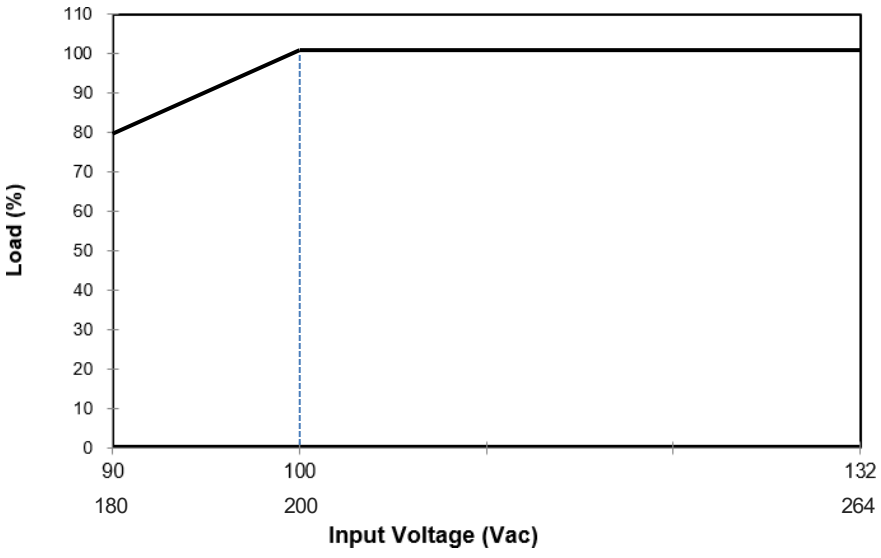


Fig. 1 De-rating for Horizontal Mounting Orientation
> 50°C de-rate power by 2.0% / °C / -40°C for cold start condition

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 power supply will have long rise time when the ambient temperature range is -30°C to -40°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, the power supply will enter hiccup mode and will automatically recover once the surrounding air temperature is lowered or the load is reduced as far as necessary to keep the device in working condition.
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



- No output power de-rating for the input voltage from 100 Vac to 132 Vac, 200Vac to 264 Vac.
- Input range: 90–132Vac at 60Hz and 180–264Vac at 50Hz.

Fig. 2 De-rating for Horizontal Mounting Orientation
< 100 Vac de-rate power by 2% / V
< 200 Vac de-rate power by 1% / V
(80% load @ 90 Vac & 180Vac)

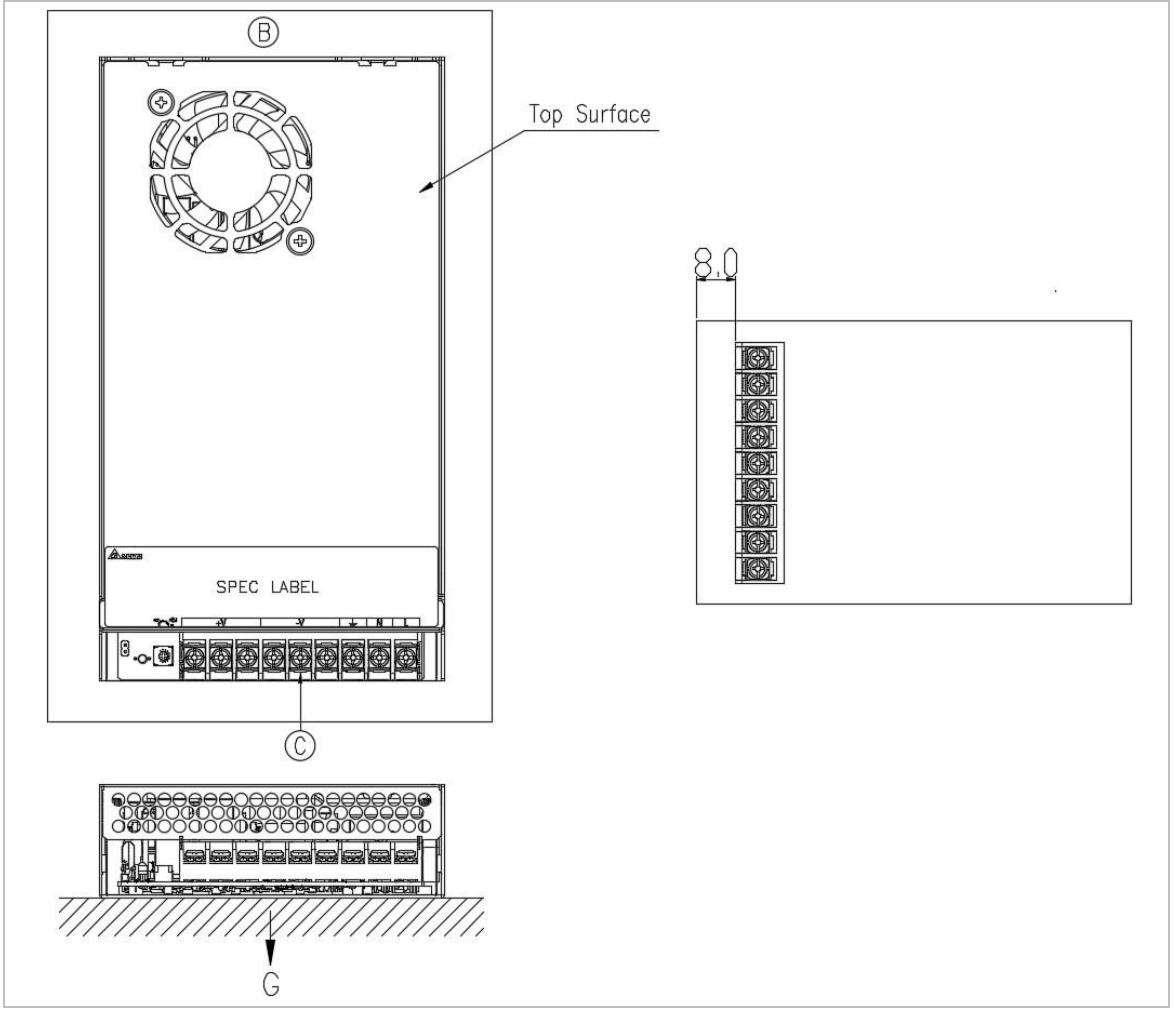
PMT Panel Mount Power Supply

PMT2 600W series / PMT-□V600W2BR□

Assembly & Installation

Ⓐ Base Mounting: Fig. 2 shows the mounting hole locations for power supply assembly onto a metal mounting surface.
Ⓑ This surface belongs to customer's end system or panel where the power supply is mounted.
© Connector

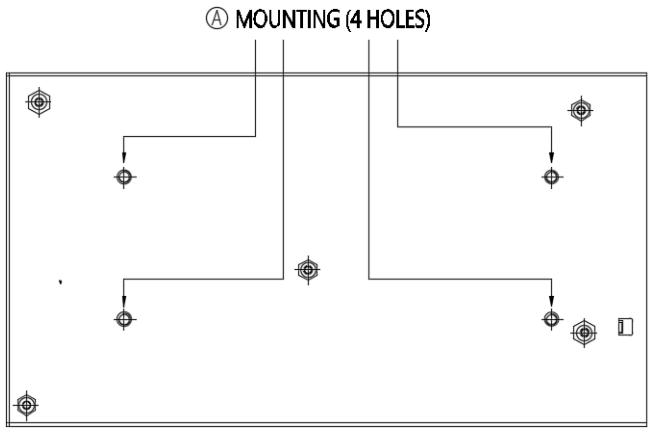
Base Mounting (Horizontal)



* If the device has to be mounted in any other orientation, please leave a message via the Contact Us form.

- 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 8 Kgf.cm. (6.94 lbf.in). The insulation stripping length should not exceed 0.275" or 7 mm. (Refer to Fig. 2).

Installation of Mounting Accessories



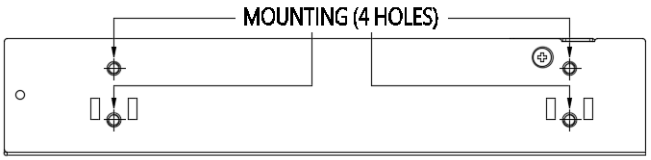


Fig. 3 Assembly Reference

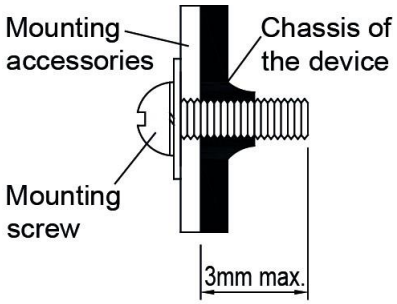


Fig. 4 Mounting Screw

- Only use M4 screw ≤ 3 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: 4~5 Kgf.cm (3.47~4.33 lbf.in).

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 ≥ 50mm (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.
- The terminal system must use a circuit breaker rated at 70A or higher in order to operate this product.

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Functions

Peak Power

Peak Power is a constant reserve power that enables reliable startup under sudden, short peak loads and high inrush currents, removing the need for an oversized and more expensive power supply. After the output reaches steady state, the unit can support surge loads up to 200% of the maximum rated load (I_{oMax}) for a maximum duration of 5 seconds. Peak Power function is available on a repeatable basis, as long as the average (R.M.S.) output power remains within continuous operating limits or satisfies the duty cycle calculation below.

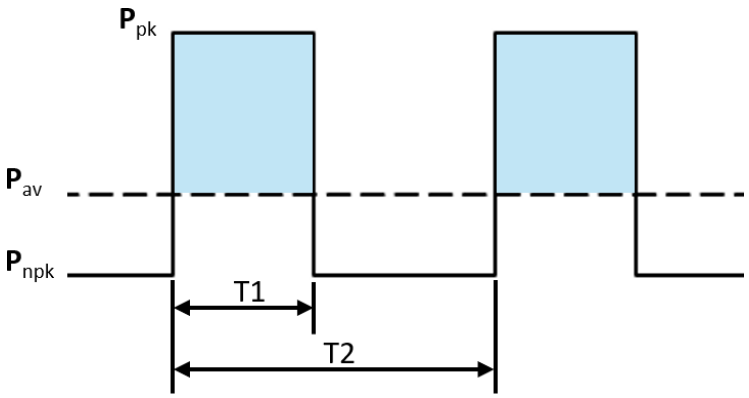


Fig.4 Duty Cycle Calculation

P_{av} : Average output power (W)
P_{pk} : Peak output power (W)
P_{npk} : Non-peak output power (W)
P_{rated} : Rated output power (W)
T1 : Peak power duration (sec)
T2 : Period (sec)

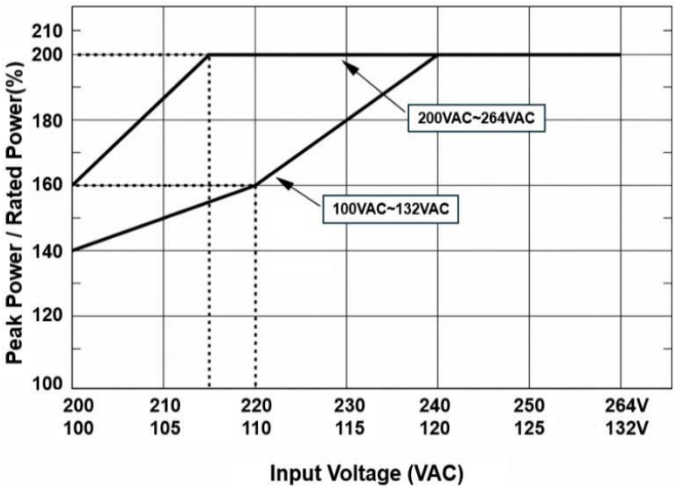
$$P_{av} = \frac{((P_{pk}) \times T1 + P_{npk} \times (T2-T1))}{T2} \leq P_{rated}$$

$$\text{Duty cycle (\%)} = \frac{T1}{T2} \leq 35\% \text{ ; (T1 (max) } \leq 5 \text{ sec)}$$

Example of Peak Power and Average Output Power

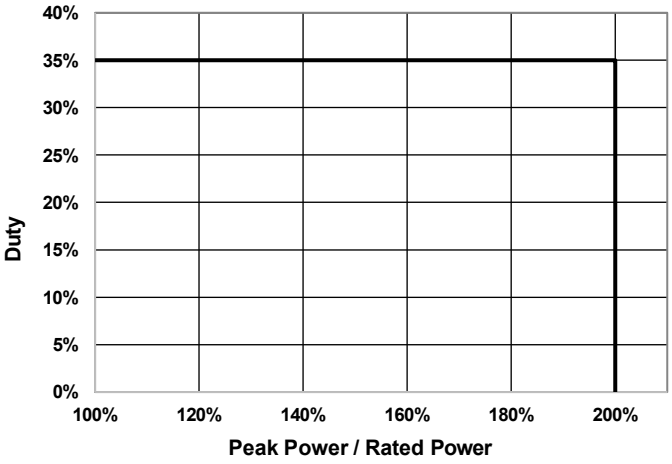
Power Boost	Peak Power (W)	Peak Power Duration (S)	Duty Cycle	Non-Peak Power (W)	Non-Peak Power Duration (S)	Total Time (T2)	Average output power (W)
200%	1200	5	35%	277	9.3	14.3	600
160%	960	5	35%	406	9.3	14.3	600
140%	840	5	35%	471	9.3	14.3	600

Peak Power De-rating VS Input Voltage



100~132VAC/60 Hz
200~264VAC/50 Hz

Duty VS Peak Power



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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.

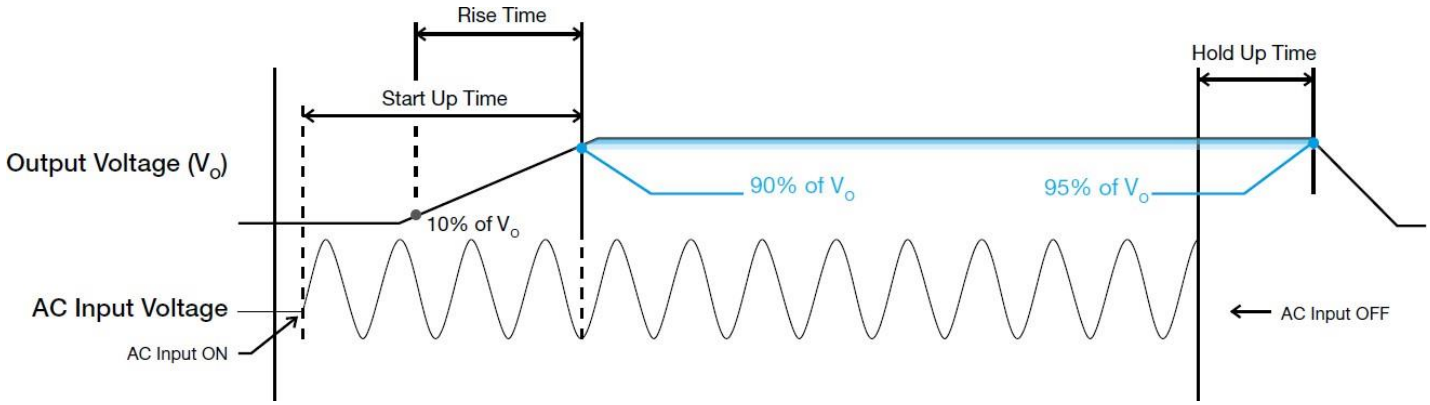
Rise Time

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

Hold-up Time

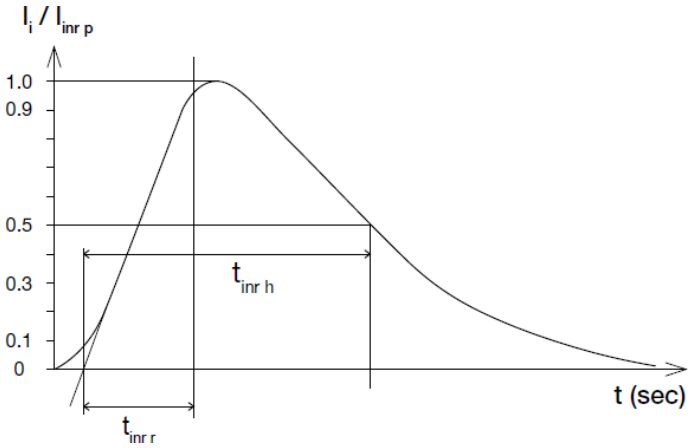
Time between the collapse of the AC input voltage, and the output falling to 95% of its steady state set value.

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



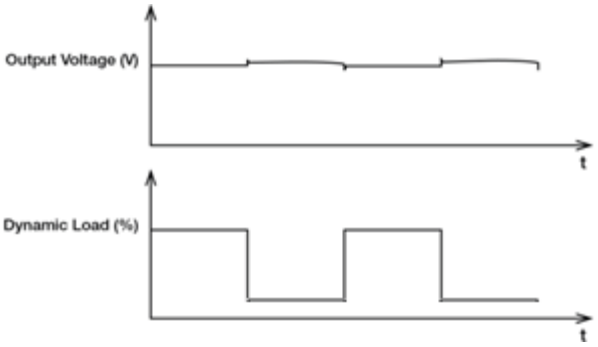
Inrush Current

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 remains within ± 10% of its steady state value, when subjected to a dynamic load from 50% to 100%.



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Overload & Overcurrent Protections (Latch Mode)

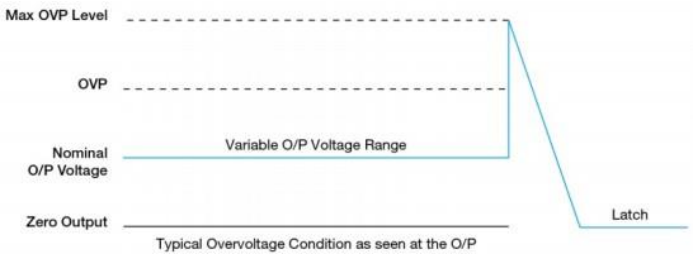
The power supply's Overload (OLP) and Overcurrent (OCP) Protections will be activated when output current exceeds 110% of IO (Max load). In such occurrence, the output current will operate in "Latch mode". To recover, the power supply must be turned off and left for 5mins before being powered on again.

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

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 (Auto-Recovery)

As described in the 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 Auto-Recovery mode until the temperature drops to its normal operating temperature as recommended in the de-rating graph.

Short Circuit Protection (Latch Mode)

The power supply's output OLP/OCP function also provides protection against short circuits. When a short circuit is applied, the power supply will operate in "Latch mode". To recover, the power supply must be turned off and left for 5mins before being powered

Others

Attention

Delta provides all information in the datasheets on an “AS IS” basis and does not offer any kind of warranty through the information for using the product. In the event of any discrepancy between the information in the catalog and datasheets, the datasheets shall prevail (please refer to **PSU.deltaww.com** for the latest datasheets information). Delta shall have no liability of indemnification for any claim or action arising from any error for the provided information in the datasheets. Customer shall take its responsibility for evaluation of using the product before placing an order with Delta.

Delta reserves the right to make changes to the information described in the datasheets without notice.

Company, Manufacturer and Authorized Representatives Information

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