



Choose your product from a wide range of features and options, suitable for almost all applications.



## **Slimline** ..... 6-19

- Small in size - narrow footprint
- Powerful with generous power reserves
- Simple usage
- 10W to 100W



## **Single Phase Low Profile** ..... 20-33

- Installs in seconds
- Simple usage
- Robust plastic case
- 15W to 100W



## **Industrial Metal Case Single Phase** ..... 34-43

- Single Phase Power Supply (75 to 480W)
- Rugged metal case



## **Industrial Metal Case Three Phase** ..... 44-59

- Three Phase Power Supply (240 to 960 W)
- Rugged metal case



## **High Efficiency Compact Housing**

### Universal input voltage ..... 60-71

- Rugged metal case
- 150% peak load capacity

### Wide input voltage ..... 72-81

- Rugged metal case
- 120W to 480W

## **Accessories** ..... 82-91

- Redundancy Buffer Module
- UPS Module

## Frequently Asked Questions ..... 92-94

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# DIN Rail Power Supplies



- Din Rail mount,
- Wide Power Range (10W-960W)
- Wide Adjustment Range
- Rugged for Industrial Use
- High Efficiency
- Lightweight and compact Design
- 3 year warranty
- Short circuit Protection
- Overvoltage Protection
- Overload Protection
- Overtemperature Protection
- Cooling by free air convection
- Worldwide approvals
- UL508 Listed and/or UL60950-1 recognized



Rugged Metal Case

Multiple output connector for easy wiring

Adjustable DC output voltage

DC (on) LED indicator

Easy to understand layout panel

UL508 Listed  
CE compliance

Universal Input

Narrow for maximized panel space

# Altech Power Supplies ... ...Easy to Use & Reliable!



## SPECIFICATIONS

### Input

- Input Voltage
  - 90-264V AC for single phase
  - 100-550V AC for wide input
  - 340-550V AC for three phase
- Input Frequency: 47-63 Hz
- Input Current: 0.6 A to 8A
- Inrush Current: cold start up to 60 A max
- Power Factor: All units are EN61000-3-2 compliant

### General

- Efficiency: 72-94% (see data sheets)
- Isolation: 3000V AC Input to Output  
1500V AC Input to Ground  
500V AC Output to Ground

### Environmental

- Power supplies can run at 100% capacity inside the panel, there is no need for oversizing. See derating curves for more information.
- Operating Temperature:  
-20 to +60°C (-4° to +140°F)
  - Operating Humidity:  
90% RH, non-condensing
  - Storage Temperature:  
-20 °C to +85 °C (-4° to +185°F)
  - Vibration: 2G, 10 Hz to 500 kHz,  
10 min/cycle for 60 minutes each axis

### Output

- Output Voltage: 5V; 12V; 15V; 24V; 48V
- Output Voltage Adjustment Range:  $\pm 10\%$
- Initial Set Accuracy:  $\pm 2\%$  max
- Ripple & Noise: See data sheet
- Over-voltage Protection: 115-135%
- Overload Protection: 105-150%,  
constant current with auto recovery

### EMC & Safety

- Emissions: EN55022/55011, Class B
- EN61000-3-2, -3
- Voltage Flicker: EN61000-3-3
- ESD Immunity: EN61000-4-2, level 3
- Radiated Immunity: EN61000-4-3, 10 V/m
- EFT/Burst: EN61000-4-4, level 3
- Surge: EN61000-4-5, level 3
- Conducted Immunity:  
EN61000-4-6, 10 V rms,
- Safety Approvals:  
EN60950  
UL508  
UL60950  
CE marked
- Military Standard  
MIL-HDBK-217F



## Slim line Single Phase Power Supply

ALTECH's slim type DIN rail switching power supply, PS-S Series designed for the fast growing demand of low wattage DIN rail applications. These 10W to 100W models are enclosed with fully isolated plastic case to prevent users from hazardous shock. The design complies with the slim trend that the precious space on the industrial rail can be saved effectively. Featuring up to 84% of efficiency, this series is cooled by only free air convection up to 70°C that significantly increase the reliability and lifetime of the power supply. Another important feature of PS-S Series is its low power consumption (<0.75W). This unique characteristic can significantly expand the application of PS-S series beyond just heavy industrial field, but can also be implied to datacom or IT applications that require green power to save the energy and to obey the anticipated government laws in the near future!

Short circuit protection, overload protection, over voltage protection, and the DC OK signal for monitoring the status of power supply are standard functions for the PS-S Series. Typical applications includes factory automation, process control, electro-mechanical industry, datacom and IT.

- Input voltage range: 85-264V AC; 120-370V DC
- AC inrush current (max): Cold start: 20A at 115V AC; 40A at 230V DC
- DC adjustment range:  $\pm 10\%$  rated output voltage
- Overload protection: 105%-160% constant current limiting (auto- recovery)
- Over-voltage protection: 115%-135% rated output voltage
- Setup, rise, time (max): 500ms, 30ms/230V AC  
1000ms, 30ms/115V AC, at full load
- Withstand voltage: I/P-O/P: 3KV AC, I/P-FG: 1.5KV AC, O/P-FG: 0.5KV AC
- Working temperature: -20 to +70°C (-4° to +158°F), refer to output derating curve
- Safety standards: UL508, EN60950-1
- EMC standards: EN55022 class B  
EN61000-4-2,3,4,5,6,8,11  
ENV50204; EN55024; EN61000-6-1; EN61204-3;  
Light Industry Level criteria A
- Military Standard MIL-HDBK-217F



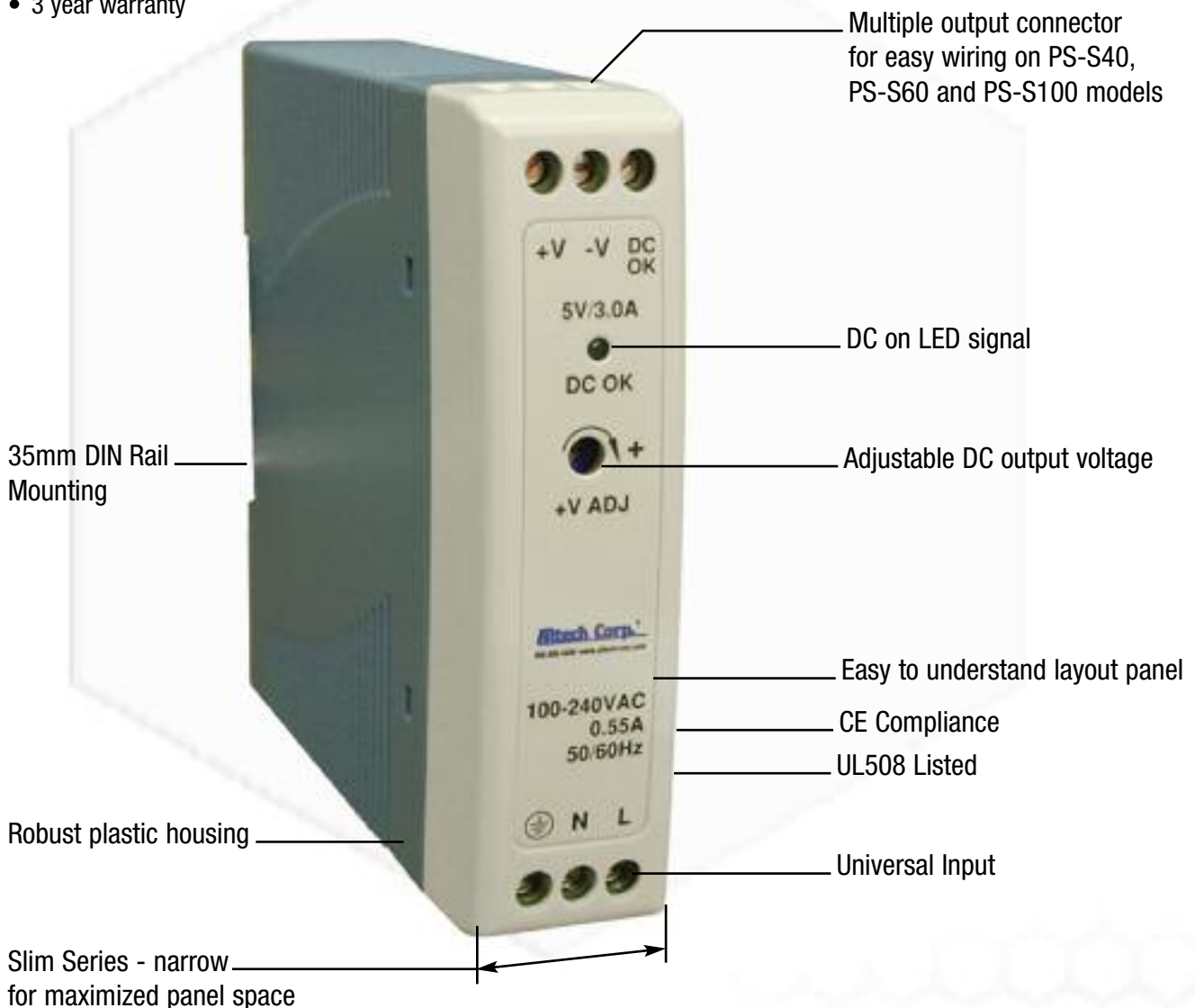
# PS-S Series

**Altech Corp.**



## Features:

- Universal AC input/Full range
- Protections: Short circuit / Overload / Overvoltage
- Cooling by free air convection
- DIN rail mountable
- NEC class 2 / LPS compliant (12V,24V,48V only)
- LED indicator for power on
- DC OK relay contact
- No load power consumption<0.75W
- 100% full load burn-in test
- 3 year warranty



# 10-100W Slimline POWER SUPPLIES



## 10W Single Output Industrial DIN Rail Power Supply

Cat. No.	Output V DC	A	Tol. %	Ripple & Noise	Efficiency	NOTES
PS-S1005	5V DC	2A	±5%	80 mVp-p	77%	
PS-S1012	12V DC	0.84A	±3%	120 mVp-p	81%	
PS-S1015	15V DC	0.67A	±3%	120 mVp-p	81%	
PS-S1024	24V DC	0.42A	±2%	150 mVp-p	84%	

## 20W Single Output Industrial DIN Rail Power Supply

Cat. No.	Output V DC	A	Tol. %	Ripple & Noise	Efficiency	NOTES
PS-S2005	5V DC	3A	±2%	80 mVp-p	76%	
PS-S2012	12V DC	1.67A	±1%	120 mVp-p	80%	
PS-S2015	15V DC	1.34A	±1%	120 mVp-p	81%	
PS-S2024	24V DC	1A	±1%	150 mVp-p	84%	

## 40W Single Output Industrial DIN Rail Power Supply

Cat. No.	Output V DC	A	Tol. %	Ripple & Noise	Efficiency	NOTES
PS-S4005	5V DC	6A	±2%	80 mVp-p	78%	
PS-S4012	12V DC	3.33A	±1%	120 mVp-p	86%	
PS-S4024	24V DC	1.7A	±1%	150 mVp-p	88%	
PS-S4048	48V DC	0.83A	±1%	200 mVp-p	88%	

## 60W Single Output Industrial DIN Rail Power Supply

Cat. No.	Output V DC	A	Tol. %	Ripple & Noise	Efficiency	NOTES
PS-S6005	5V DC	10A	±2%	80 mVp-p	78%	
PS-S6012	12V DC	5A	±1%	120 mVp-p	86%	
PS-S6024	24V DC	2.5A	±1%	150 mVp-p	88%	
PS-S6048	48V DC	1.25A	±1%	200 mVp-p	87%	

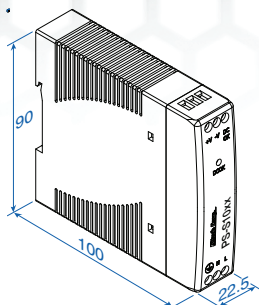
## 100W Single Output Industrial DIN Rail Power Supply

Cat. No.	Output V DC	A	Tol. %	Ripple & Noise	Efficiency	NOTES
PS-S10012	12V DC	7.5A	±1%	120 mVp-p	85%	
PS-S10024	24V DC	4A	±1%	150 mVp-p	86%	
PS-S10048	48V DC	2A	±1%	200 mVp-p	88%	

## SPECIFICATIONS

**Altech Corp.**®

### PS-S10 Series



#### Terminal Pin. No Assign. (TB1)

Pin No.	Assignment
1	FG ⊕
2	AC/N
3	AC/L

#### Terminal Pin. No Assign. (TB2)

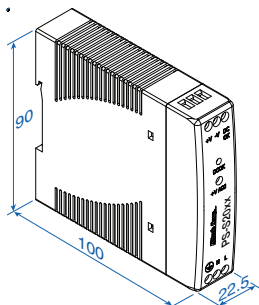
Pin No.	Assignment
4	DC OUTPUT +V
5	DC OUTPUT -V
6	DC OK SIGNAL

Universal Input: 85-264V AC, 120-370V DC full range;  
0.33A @ 110V AC; 0.21A @ 230V AC

Connection: Input - 2 poles, Output - 2 poles, single screw terminal  
Size (WxHxD): 22.5x90x100mm (0.89x3.54x3.94 inches)

Packaging: 1/box; 0.37lbs / 0.17Kg

### PS-S20 Series



#### Terminal Pin. No Assign. (TB1)

Pin No.	Assignment
1	FG ⊕
2	AC/N
3	AC/L

#### Terminal Pin. No Assign. (TB2)

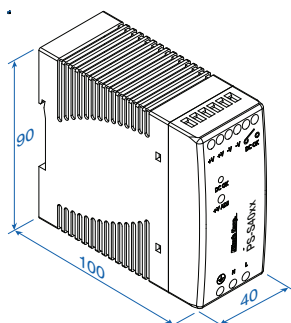
Pin No.	Assignment
4	DC OUTPUT +V
5	DC OUTPUT -V
6	DC OK SIGNAL

Universal Input: 85-264V AC, 120-370V DC full range;  
0.55A @ 110V AC; 0.35A @ 230V AC

Connection: Input - 2 poles, Output - 2 poles, single screw terminal  
Size (WxHxD): 22.5x90x100mm (0.89x3.54x3.94 inches)

Packaging: 1/box; 0.42lbs / 0.19Kg

### PS-S40 Series



#### Terminal Pin. No Assign. (TB1)

Pin No.	Assignment
1	FG ⊕
2	AC/N
3	AC/L

#### Terminal Pin. No Assign. (TB2)

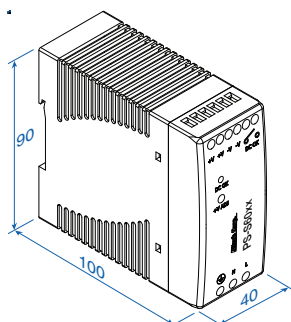
Pin No.	Assignment
1/2	DC OUTPUT +V
3/4	DC OUTPUT -V
5/6	DC OK Relay Contact

Universal Input: 85-264V AC, 120-370V DC full range;  
1.1A @ 115V AC, 0.7A @ 370V AC

Connection: Input - 2 poles, Output - 2 poles, double screw terminal  
Size (WxHxD): 40x90x100mm (1.57x3.54x3.94 inches)

Packaging: 1/box; 0.66lbs / 0.3Kg

### PS-S60 Series



#### Terminal Pin. No Assign. (TB1)

Pin No.	Assignment
1	FG ⊕
2	AC/N
3	AC/L

#### Terminal Pin. No Assign. (TB2)

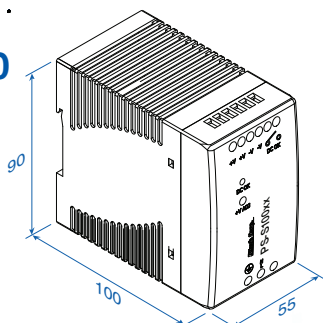
Pin No.	Assignment
1/2	DC OUTPUT +V
3/4	DC OUTPUT -V
5/6	DC OK Relay Contact

Universal Input: 85-264V AC, 120-370V DC full range;  
1.8A @ 115V AC, 1A @ 370V AC

Connection: Input - 2 poles, Output - 2 poles, double screw terminal  
Size (WxHxD): 40x90x100mm (1.57x3.54x3.94 inches)

Packaging: 1/box; 0.73lbs / 0.33Kg

### PS-S100 Series



#### Terminal Pin. No Assign. (TB1)

Pin No.	Assignment
1	FG ⊕
2	AC/N
3	AC/L

#### Terminal Pin. No Assign. (TB2)

Pin No.	Assignment
1/2	DC OUTPUT +V
3/4	DC OUTPUT -V
5/6	DC OK Relay Contact

Universal Input: 85-264V AC, 120-370V DC full range;  
1.3A @ 115V AC, 0.8A @ 230V AC

Connection: Input - 2 poles, Output - 2 poles, double screw terminal  
Size (WxHxD): 55x90x100mm (2.17x3.54x3.94 inches)

Packaging: 1/box; 0.93lbs / 0.42Kg

Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.





# PS-S10 Series Specifications



## Features:

- Universal AC input / full range
- Protections: Short Circuit / Overload / Overvoltage
- Cooling by free air convection
- DIN rail mountable
- NEC class 2 / LPS compliant
- Built in DC OK active signal
- LED indicator for power on
- No load power consumption < 0.75W
- 100% full load burn-in test
- 3 year warranty

## OUTPUT

## INPUT

## PROTECTION

## ENVIRONMENT

## SAFETY & EMC

## OTHERS

Cat. No.	PS-S1005	PS-S1012	PS-S1015	PS-S1024
DC VOLTAGE	5V	12V	15V	24V
RATED CURRENT	2A	0.84A	0.67A	0.42A
CURRENT RANGE	0~2A	0~0.84A	0~0.67A	0~0.42A
RATED POWER	10W	10W	10W	10W
RIPPLE & NOISE (max)	80mVp-p	120mVp-p	120mVp-p	150mVp-p
Ripple & noise are measured at 20MHz of bandwidth by using a 12 twisted pair-wire terminated with a 0.1µF & 47µF parallel capacitor				
VOLTAGE TOLERANCE	±5.0%	±3.0%	±3.0%	±2.0%
Tolerance: includes set up tolerance, line regulation and load regulation.				
LINE REGULATION	±1.0%	±1.0%	±1.0%	±1.0%
LOAD REGULATION	±5.0%	±3.0%	±3.0%	±2.0%
SETUP, RISE TIME	500ms, 30ms/230VAC; 1000ms, 30ms/115VAC at full load			
Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time.				
HOLD UP TIME (Typ.)	120ms/230VAC; 25ms/115VAC at full load			
VOLTAGE RANGE	85~264VAC; 120~370VDC			
FREQUENCY RANGE	47~63Hz			
EFFICIENCY (Typ.)	77%	81%	81%	84%
AC CURRENT (max.)	0.33A/115VAC; 0.21A/230VAC			
INRUSH CURRENT (Typ.)	COLD START: 35A/115VAC; 70A/230VAC			
LEAKAGE CURRENT	<1mA/ 240VAC			
OVERLOAD PROTECTION	Above 105% rated output power			
Protection type: Hiccup mode, recovers automatically after fault condition is removed				
OVERVOLTAGE PROTECTION	5.75~6.75V	13.8~16.2V	17.25~20.25V	27.6~32.4V
Protection type: Shut down overvoltage, re-power on to recover				
OVER TEMPERATURE PROTECTION	Power supply shut down at 70°C constant current limiting / output voltage goes to 0; re-power on to recover			
DC OK AKTIV SIGNAL (max.)	3.75~6V (50mA)	9~13.5V (40mA)	11.5~16.5V (40mA)	18~27V (20mA)
WORKING TEMP.	-20 ~ +70°C (Refer to output load derating curve)			
WORKING HUMIDITY	20 ~ 90% RH non-condensing			
STORAGE TEMP. / HUMIDITY	-40 ~ +85°C; 10 ~ 95% RH			
TEMP. COEFFICIENT	±0.03% °C (0 ~ 50°C)			
VIBRATION	Component: 10 ~ 500Hz, 2G 10min. / 1cycle, 60 min. each long X,Y, Z axes			
MOUNTING	Compliance to IEC60068-2-6			
SAFETY STANDARDS	UL508 EN60950-1 compliant NEC class2 / LPS compliant			
WITHSTAND VOLTAGE	I/P-O/P: 3KVAC I/P-FG: 1.5KVAC O/P-FG: 0.5KVAC			
ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG: 100M Ohms/500VDC			
EMI CONDUCTION & RADIATION	Compliance to EN55011 EN55022 (CISPR22) EN61204-3 Class B			
HARMONIC CURRENT	Compliance to EN61000-3-2,-3			
EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; EN55024; ENV50204; EN61000-6-1;EN61204-3; light industry level; criteria A			
The power supply is considered a component which will installed into a final equipment. The final equipment must be re-confirmed that is still meets EMC directives.				
MTBF	584K hrs min. MIL-HDBK-217K (25°C)			
DIMENSION	22.5x90x100mm (WxHxD)			
PACKING	0.17Kg; 72pcs / 13.2Kg / 0.91CUFT			
All parameters NOT specially mentioned are measured at 230V AC input, rated load and 25°C of ambient temperature				



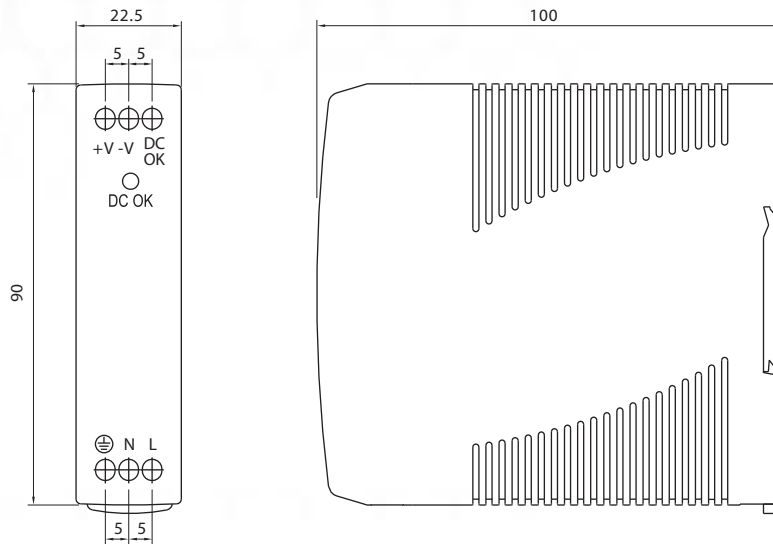
## Mechanical Specification

Terminal Pin. No Assign. (TB1)

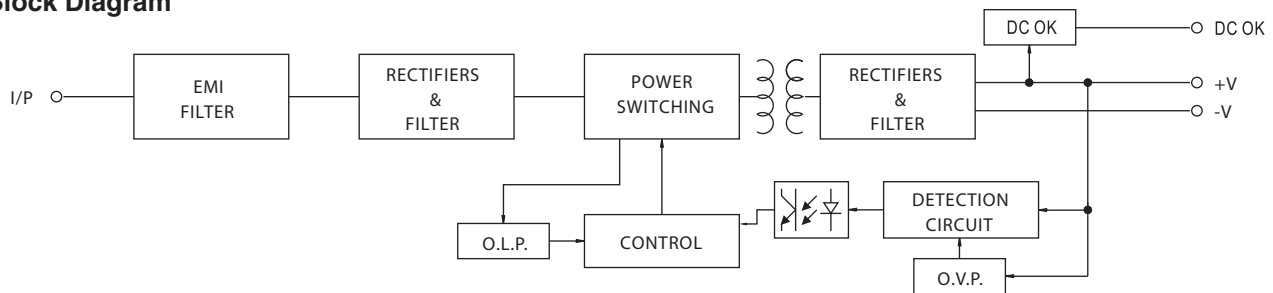
Pin No.	Assignment
1	FG ⊕
2	AC/N
3	AC/L

Terminal Pin. No Assign. (TB2)

Pin No.	Assignment
4	DC OUTPUT +V
5	DC OUTPUT -V
6	DC OK SIGNAL

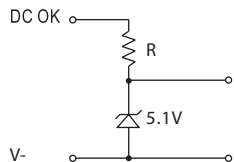


## Block Diagram



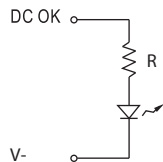
## Application of DC OK Signal

(a) 5V signal



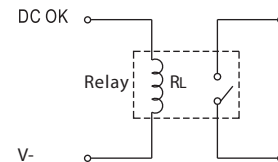
Model	R
5V	≥ 200Ω
12V	≥ 1.5KΩ
15V	≥ 2KΩ
24V	≥ 3.9KΩ

(b) LED



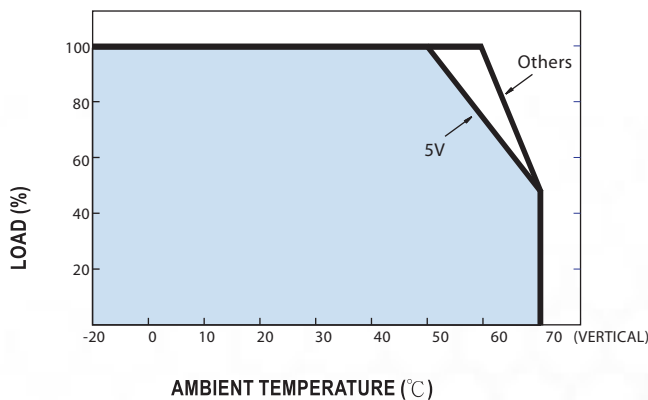
Model	R
5V	≥ 1KΩ
12V	≥ 2.4KΩ
15V	≥ 3KΩ
24V	≥ 4.7KΩ

(c) Relay

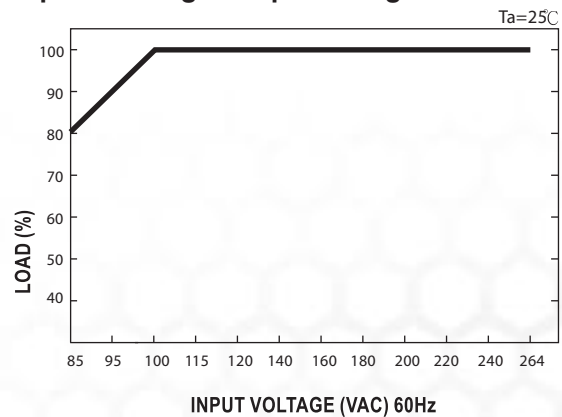


Model	RL
5V	≥ 120Ω
12V	≥ 700Ω
15V	≥ 700Ω
24V	≥ 1.2KΩ

## Derating Curve



## Output Derating VS Input Voltage



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



# PS-S20 Series Specifications



## Features:

- Universal AC input / full range
- Protections: Short Circuit / Overload / Overvoltage
- Cooling by free air convection
- DIN rail mountable
- NEC class 2 / LPS compliant
- Built in DC OK active signal
- LED indicator for power on
- No load power consumption < 0.75W
- 100% full load burn-in test
- 3 year warranty

## OUTPUT

### Cat. No. PS-S2005 PS-S2012 PS-S2015 PS-S2024

DC VOLTAGE	5V	12V	15V	24V
RATED CURRENT	3A	1.67A	1.34A	1A
CURRENT RANGE	0~3A	0~1.67A	0~1.34A	0~1A
RATED POWER	15W	20W	20W	24W
RIPPLE & NOISE (max)	80mVp-p	120mVp-p	120mVp-p	150mVp-p
Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1μF & 47μF parallel capacitor				
VOLTAGE ADJ. RANGE	4.75 ~ 5.5V	10.8 ~ 13.2V	13.5 ~ 16.5V	21.6 ~ 26.4V
VOLTAGE TOLERANCE	±2.0%	±1.0%	±1.0%	±1.0%
Tolerance: includes set up tolerance, line regulation and load regulation.				
LINE REGULATION	±1.0%	±1.0%	±1.0%	±1.0%
LOAD REGULATION	±1.0%	±1.0%	±1.0%	±1.0%
SETUP, RISE TIME	500ms, 30ms/230VAC; 1000ms, 30ms/115VAC at full load			
Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time.				
HOLD UP TIME (Typ.)	50ms/230VAC; 20ms/115VAC at full load			

## INPUT

VOLTAGE RANGE	85~264VAC	120~370VDC		
FREQUENCY RANGE	47~63Hz			
EFFICIENCY (Typ.)	76%	80%	81%	84%
AC CURRENT (max.)	0.55A/115VAC; 0.35A/230VAC			
INRUSH CURRENT (Typ.)	COLD START: 20A/115VAC; 40A/230VAC			
LEAKAGE CURRENT	≤1mA/ 240VAC			

## PROTECTION

OVERLOAD PROTECTION	105% ~ 160% rated output power Protection type: Constant current limiting, recovers automatically after fault condition is removed			
OVERVOLTAGE PROTECTION	5.75~6.75V	13.8~16.2V	17.25~20.25V	27.6~32.4V
Protection type: Shut down overvoltage, re-power on to recover				
OVER TEMPERATURE PROTECTION	Power supply shut down at 70°C constant current limiting / output voltage goes to 0; re-power on to recover			
DC OK AKTIV SIGNAL (max.)	3.75~6V (50mA)	9~13.5V (40mA)	11.5~16.5V (40mA)	18~27V (20mA)

## ENVIRONMENT

WORKING TEMP.	-20 ~ +70°C (Refer to output load derating curve)
WORKING HUMIDITY	20 ~ 90% RH non-condensing
STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH
TEMP. COEFFICIENT	±0.03% /°C (0 ~ 50°C)
VIBRATION	Component: 10 ~ 500Hz, 2G 10min. / 1cycle, 60 min. each long X,Y, Z axes
MOUNTING	Compliance to IEC60068-2-6

## SAFETY & EMC

SAFETY STANDARDS	UL508 EN60950-1 approved NEC class2 / LPS compliant
WITHSTAND VOLTAGE	I/P-O/P: 3KVAC I/P-FG: 1.5KVAC O/P-FG: 0.5KVAC
ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG: 100M Ohms/500VDC
EMI CONDUCTION & RADIATION	Compliance to EN55011 EN55022 (CISPR22) EN61204-3 Class B
HARMONIC CURRENT	Compliance to EN61000-3-2,-3
EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; EN55024; ENV50204; EN61000-6-1; EN61204-3; light industry level; criteria A
The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.	

## OTHERS

MTBF	236.9K hrs min. MIL-HDBK-217K (25°C)
DIMENSION	22.5x90x100mm (WxHxD)
PACKING	0.19Kg; 72pcs / 14.7Kg / 0.91CUFT

All parameters NOT specially mentioned are measured at 230V AC input, rated load and 25°C of ambient temperature

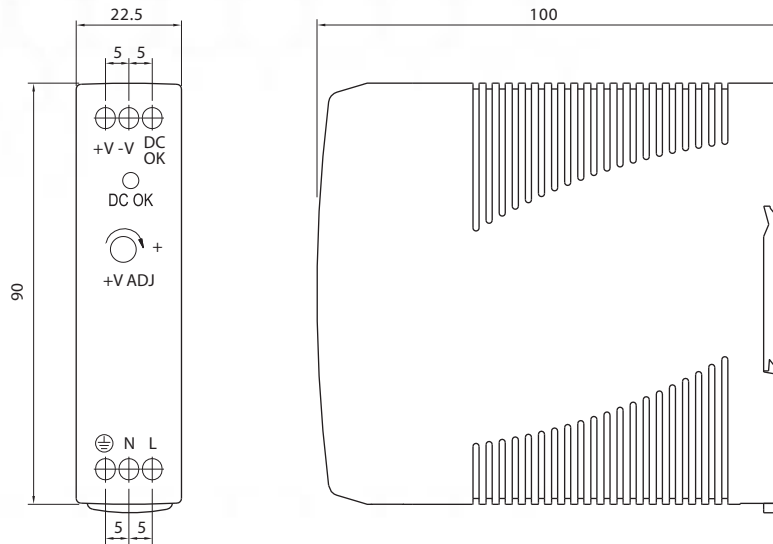
## Mechanical Specification

Terminal Pin. No Assign. (TB1)

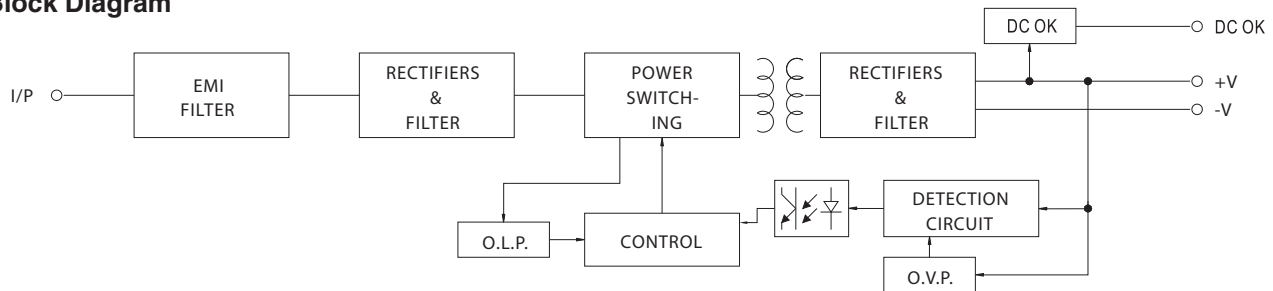
Pin No.	Assignment
1	FG ⊕
2	AC/N
3	AC/L

Terminal Pin. No Assign. (TB2)

Pin No.	Assignment
4	DC OUTPUT +V
5	DC OUTPUT -V
6	DC OK SIGNAL

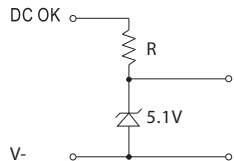


## Block Diagram



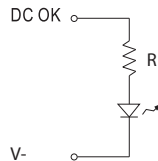
## Application of DC OK Signal

(a) 5V signal



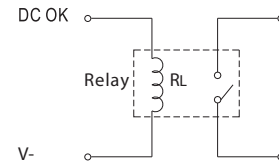
Model	R
5V	≥ 200Ω
12V	≥ 1.5KΩ
15V	≥ 2KΩ
24V	≥ 3.9KΩ

(b) LED



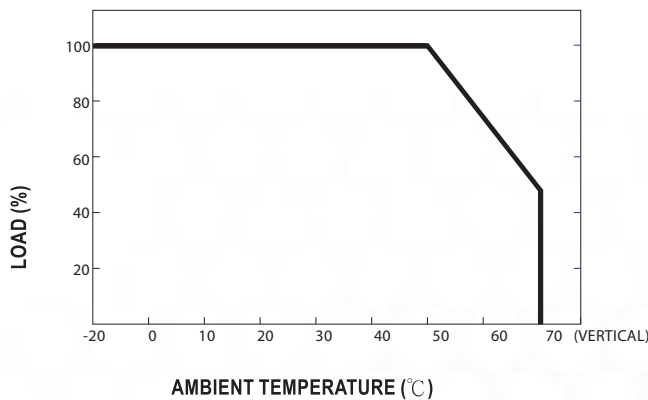
Model	R
5V	≥ 1KΩ
12V	≥ 2.4KΩ
15V	≥ 3KΩ
24V	≥ 4.7KΩ

(c) Relay

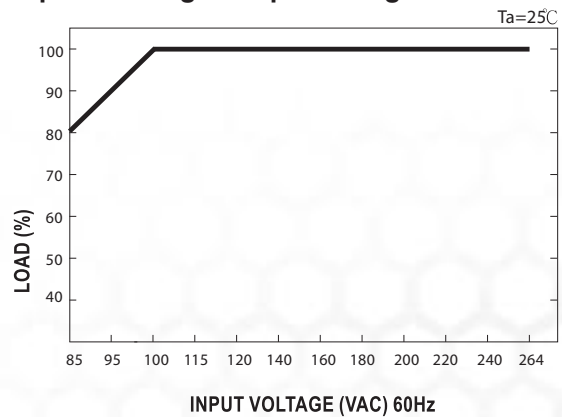


Model	RL
5V	≥ 120Ω
12V	≥ 700Ω
15V	≥ 700Ω
24V	≥ 1.2KΩ

## Derating Curve



## Output Derating VS Input Voltage



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



# PS-S40 Series Specifications



## Features:

- Universal AC input/full range
- Protections: Short Circuit / Overload / Overvoltage
- Cooling by free air convection
- DIN rail mountable
- NEC class 2 / LPS compliant (12V,24V,48V only)
- LED indicator for power on DC OK relay contact
- No load power consumption < 0.75W
- 100% full load burn-in test
- 3 year warranty

## OUTPUT

### Cat. No. PS-S4005 PS-S4012 PS-S4024 PS-S4048

DC VOLTAGE	5V	12V	24V	48V
RATED CURRENT	6A	3.33A	1.7A	0.83A
CURRENT RANGE	0~6A	0~3.33A	0~1.7A	0~0.83A
RATED POWER	30W	40W	40.8W	39.8W
RIPPLE & NOISE (max)	80mVp-p	120mVp-p	150mVp-p	200mVp-p
Ripple & noise are measured at 20MHz of bandwidth by using a 12 twisted pair-wire terminated with a 0.1μF & 47μF parallel capacitor				
VOLTAGE ADJ. RANGE	5 ~ 6V	12 ~ 15V	24 ~ 30V	48 ~ 56V
VOLTAGE TOLERANCE	±2.0%	±1.0%	±1.0%	±1.0%
Tolerance: includes set up tolerance, line regulation and load regulation.				
LINE REGULATION	±1.0%	±1.0%	±1.0%	±1.0%
LOAD REGULATION	±1.0%	±1.0%	±1.0%	±1.0%
SETUP, RISE TIME	500ms, 30ms/230VAC; 500ms, 30ms/115VAC at full load			
Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time.				
HOLD UP TIME (Typ.)	50ms/230VAC; 20ms/115VAC at full load			

## INPUT

VOLTAGE RANGE	85~264VAC 120~370VDC
FREQUENCY RANGE	47~63Hz
EFFICIENCY (Typ.)	78% 86% 88% 88%
AC CURRENT (max)	1.1A/115VAC; 0.7A/230VAC
INRUSH CURRENT (Typ.)	COLD START: 30A/115VAC; 60A/230VAC
LEAKAGE CURRENT	≤1mA/ 240VAC

## PROTECTION

OVERLOAD PROTECTION	105% ~ 150% rated output power			
	Protection type: Constant current limiting, recovers automatically after fault condition is removed			
OVERVOLTAGE PROTECTION	6.25~7.25V	15.6~18V	31.2~36V	57.6~64.8V
	Protection type: Shut down overvoltage, re-power on to recover			
OVER TEMPERATURE PROTECTION	Power supply shut down at 70°C constant current limiting / output voltage goes to 0; re-power on to recover			
DC OK AKTIV SIGNAL (max.)	Relay contact rating (max.): 30V/ 1A resistive			

## ENVIRONMENT

WORKING TEMP.	-20 ~ +70°C (Refer to output load derating curve)
WORKING HUMIDITY	20 ~ 90% RH non-condensing
STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH
TEMP. COEFFICIENT	±0.03% /°C (0 ~ 50°C)
VIBRATION	Component: 10 ~ 500Hz, 2G 10min. / 1cycle, 60 min. each long X,Y, Z axes
MOUNTING	Compliance to IEC60068-2-6

## SAFETY & EMC

SAFETY STANDARDS	UL508 UL60950-1 EN60950-1 approved NEC class2 / LPS compliant (12V, 24V, 48V only)
WITHSTAND VOLTAGE	I/P-O/P: 3KVAC I/P-FG: 1.5KVAC O/P-FG: 0.5KVAC
ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG: ≥100M Ohms/500VDC (25°C; 70% RH)
EMI CONDUCTION & RADIATION	Compliance to EN55011 EN55022 (CISPR22) EN61204-3 Class B
HARMONIC CURRENT	Compliance to EN61000-3-2,-3
EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; EN55024; ENV50204 ; EN61000-6-2; EN61204-3; light industry level; criteria A
The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.	

## OTHERS

MTBF	301.7K hrs min. MIL-HDBK-217K (25°C)
DIMENSION	40x90x100mm (WxHxD)
PACKING	0.3Kg; 42pcs / 13.6 Kg / 0.82CUFT
All parameters NOT specially mentioned are measured at 230V AC input, rated load and 25°C of ambient temperature.	



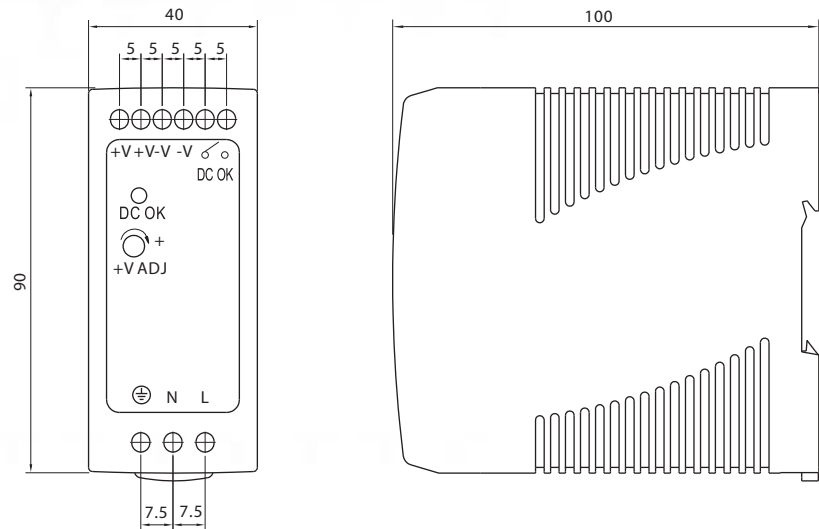
## Mechanical Specification

Terminal Pin. No Assign. (TB1)

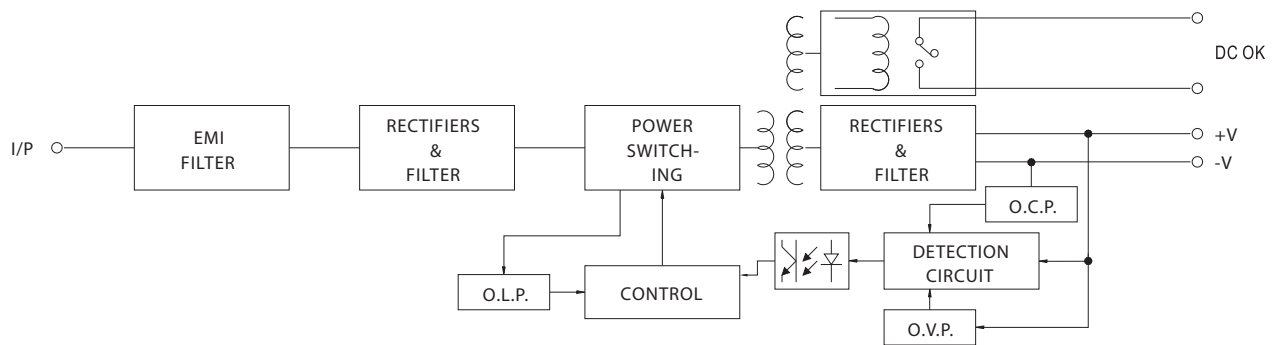
Pin No.	Assignment
1	FG ⊕
2	AC/N
3	AC/L

Terminal Pin. No Assign. (TB2)

Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V
5,6	DC OK RELAY CONTACT



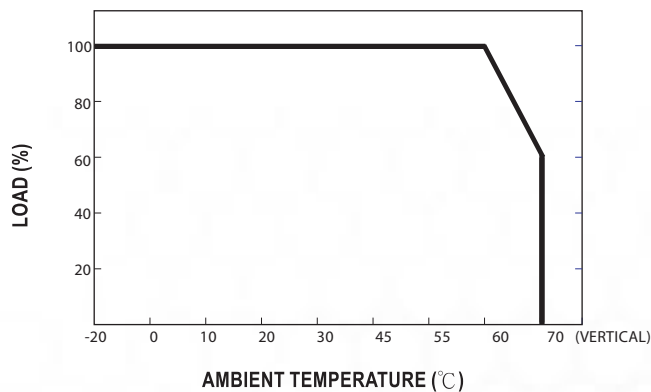
## Block Diagram



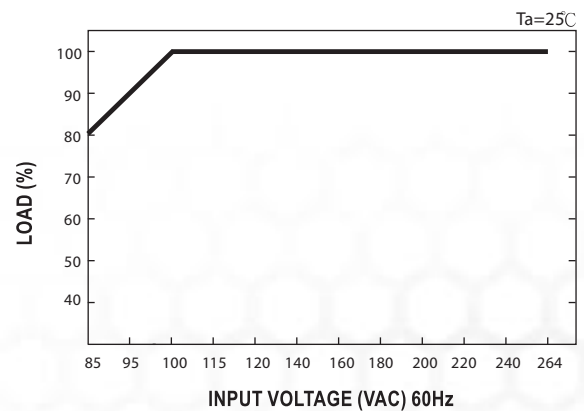
## DC OK Relay Contact

Contact Close	When the output voltage reaches the adjusted output voltage.
Contact Open	When the output voltage drop more than 90% output voltage.
Contact Ratings (max.)	30V/1A resistive load

## Derating Curve



## Output Derating VS Input Voltage



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



# PS-S60 Series Specifications



## Features:

- Universal AC input/full range
- Protections: Short Circuit / Overload / Overvoltage
- Cooling by free air convection
- DIN rail mountable
- NEC class 2 / LPS compliant (24V,48V only)
- LED indicator for power on
- No load power consumption < 0.75W
- 100% full load burn-in test
- 3 year warranty

## OUTPUT

### Cat. No. PS-S6005 PS-S6012 PS-S6024 PS-S6048

DC VOLTAGE	5V	12V	24V	48V
RATED CURRENT	10A	5A	2.5A	1.25A
CURRENT RANGE	0 ~ 10A	0 ~ 5A	0 ~ 2.5A	0 ~ 1.25A
RATED POWER	50W	60W	60W	60W
NOISE (max)	80mVp-p	120mVp-p	150mVp-p	200mVp-p

VOLTAGE ADJ. RANGE	5 ~ 6V	12 ~ 15V	24 ~ 30V	48 ~ 56V
VOLTAGE TOLERANCE	±2.0%	±1.0%	±1.0%	±1.0%

LINE REGULATION	±1.0%	±1.0%	±1.0%	±1.0%
LOAD REGULATION	±1.5%	±1.0%	±1.0%	±1.0%

SETUP, RISE TIME 500ms, 30ms/230VAC; 500ms, 30ms/115VAC at full load

Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time.

HOLD UP TIME (Typ.) 50ms/230VAC / 20ms/115VAC at full load

## INPUT

VOLTAGE RANGE	85 ~ 264VAC	120 ~ 370VDC		
FREQUENCY RANGE	47~63Hz			
EFFICIENCY (Typ.)	78%	86%	88%	87%
AC CURRENT (max)	1.8A/115VAC; 1A/230VAC			
INRUSH CURRENT (Typ.)	COLD START: 60A/230VAC			
LEAKAGE CURRENT	≤1mA/ 240VAC			

## PROTECTION

OVERLOAD PROTECTION	105% ~ 150% rated output power			
	Protection type: Constant current limiting, recovers automatically after fault condition is removed			
OVERVOLTAGE PROTECTION	6.25 ~ 7.25V	15.6 ~ 18V	31.2 ~ 36V	57.6 ~ 64.8V
	Protection type: Shut down overvoltage, re-power on to recover			
OVER TEMPERATURE PROTECTION	Power supply shut down at 70°C constant current limiting / output voltage goes to 0;			
	re-power on to recover			
DC OK AKTIV SIGNAL (max.)	Relay contact rating (max.): 30V/1A resistive			

## ENVIRONMENT

WORKING TEMP.	-20 ~ +70°C (Refer to output load derating curve)
WORKING HUMIDITY	20 ~ 90% RH non-condensing
STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH
TEMP. COEFFICIENT	±0.03% / °C (0 ~ 50°C)
VIBRATION	Component: 10 ~ 500Hz, 2G 10min. / 1cycle, 60 min. each long X,Y, Z axes
MOUNTING	Compliance to IEC60068-2-6

## SAFETY & EMC

SAFETY STANDARDS	UL508 UL60950-1 EN60950-1 approved NEC class2 / LPS compliant (24V, 48V only)
WITHSTAND VOLTAGE	I/P-O/P: 3KVAC I/P-FG: 1.5KVAC O/P-FG: 0.5KVAC
ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG: ≥100M Ohms/500VDC (25°C; 70% RH)
EMI CONDUCTION & RADIATION	Compliance to EN55011 EN55022 (CISPR22) EN61204-3 Class B
HARMONIC CURRENT	Compliance to EN61000-3-2,-3
EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; EN55024; ENV50204; EN61000-6-2; EN61204-3; light industry level; criteria A
	The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

## OTHERS

MTBF	299.2K hrs min. MIL-HDBK-217K (25°C)
DIMENSION	40x90x100mm (WxHxD)
PACKING	0.33Kg; 42pcs / 14.8Kg / 0.82CUFT
	All parameters NOT specially mentioned are measured at 230V AC input, rated load and 25°C of ambient temperature

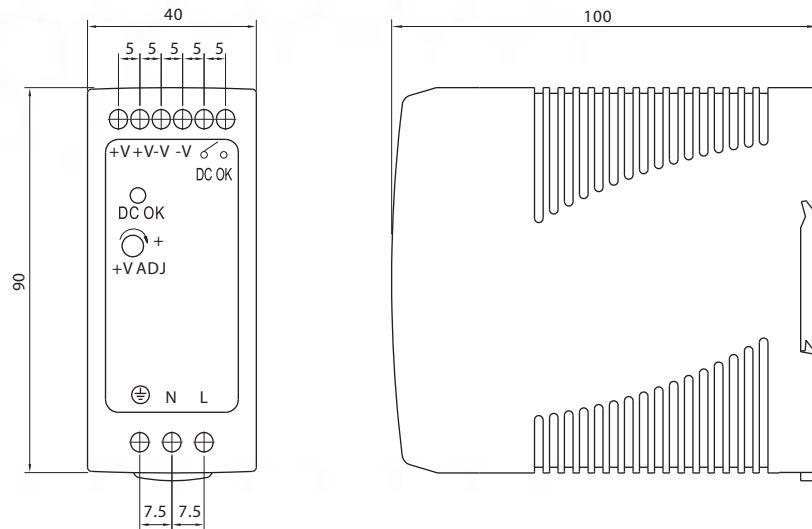
## Mechanical Specification

Terminal Pin. No Assign. (TB1)

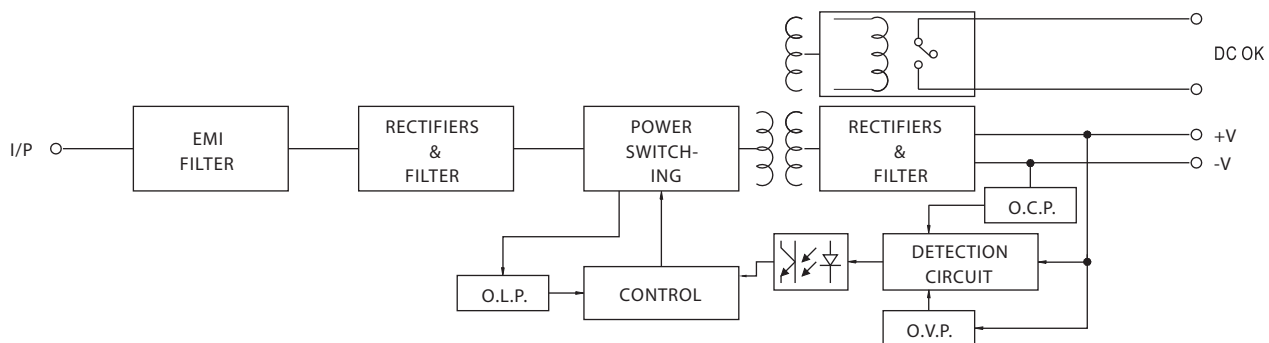
Pin No.	Assignment
1	FG ⊕
2	AC/N
3	AC/L

Terminal Pin. No Assign. (TB2)

Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V
5,6	DC OK RELAY CONTACT



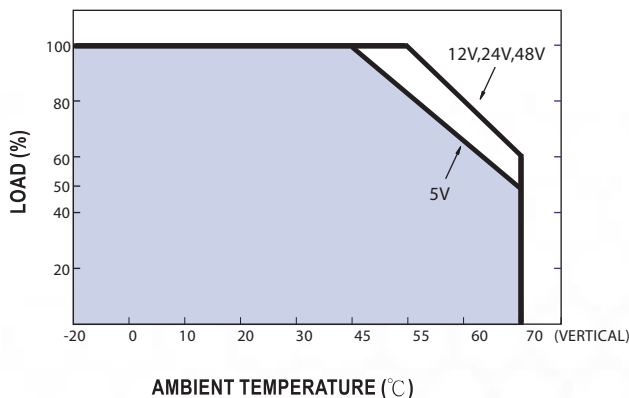
## Block Diagram



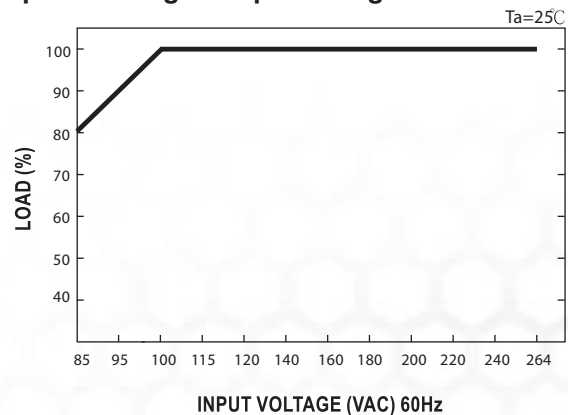
## DC OK Relay Contact

Contact Close	When the output voltage reaches the adjusted output voltage.
Contact Open	When the output voltage drop more than 90% output voltage.
Contact Ratings (max.)	30V/1A resistive load

## Derating Curve



## Output Derating VS Input Voltage



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



# PS-S100 Series Specifications



## Features:

- Universal AC input / full range
- Protections: Short Circuit / Overload / Overvoltage / Over temperature
- ZCS/ZVS technology to reduce power dissipation
- Cooling by free air convection
- DIN rail mountable
- DC OK relay contact
- No load power consumption < 1W
- LED indicator for power on
- 100% full load burn-in test
- 3 year warranty

## OUTPUT

## INPUT

## PROTECTION

## ENVIRONMENT

## SAFETY & EMC

## OTHERS

Cat. No.	PS-S10012	PS-S10024	PS-S10048
DC VOLTAGE	12V	24V	48V
RATED CURRENT	7.5A	4A	2A
CURRENT RANGE	0 ~ 7.5A	0 ~ 4A	0 ~ 2A
RATED POWER	90W	96W	96W
RIPPLE & NOISE (max)	120mVp-p	150mVp-p	200mVp-p
VOLTAGE ADJ. RANGE	12 ~ 15V	24 ~ 30V	48 ~ 56V
VOLTAGE TOLERANCE	±1.0%	±1.0%	±1.0%
LINE REGULATION	±1.0%	±1.0%	±1.0%
LOAD REGULATION	±1.0%	±1.0%	±1.0%
SETUP, RISE TIME	3000ms, 50ms/230VAC; 3000ms, 50ms/115VAC at full load		
HOLD UP TIME (Typ.)	Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time. 50ms/230VAC; 20ms/115VAC at full load		
VOLTAGE RANGE	85 ~ 264VAC 120 ~ 370VDC Deating may be needed under low input voltages, please check the derating curve for more detail		
FREQUENCY RANGE	47~63Hz		
POWER FACTOR (Typ.)	PF ≥ 0.95/230VAC; PF ≥ 0.98/115VAC at full load		
EFFICIENCY (Typ.)	85%	86%	88%
AC CURRENT (max)	1.3A/115VAC; 0.8A/230VAC		
INRUSH CURRENT (Typ.)	COLD START: 30A/115VAC; 60A/230VAC		
LEAKAGE CURRENT	≤1mA/ 240VAC		
OVERLOAD	105% ~ 150% rated output power Protection type: Constant current limiting, recovers automatically after fault condition is removed		
OVERVOLTAGE	15.6 ~ 18V	31.2 ~ 36V	57.6 ~ 64.8V
OVERTEMPERATURE	90°C ± 10°C (RTH2) detect on heat sink of power transistor Protection type: Shut down overvoltage, re-power on to recover		
SHORT CIRCUIT PROTECTION	Power supply shut down at 70°C constant current limiting / output voltage goes to 0; re-power on to recover		
DC OK AKTIV SIGNAL (max.)	Relay contact rating (max.): 30V/1A resistive		
WORKING TEMP.	-10 ~ +60°C (Refer to output load derating curve)		
WORKING HUMIDITY	20 ~ 90% RH non-condensing		
STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH		
TEMP. COEFFICIENT	±0.03% /°C (0 ~ 50°C)		
VIBRATION	Component: 10 ~ 500Hz, 2G 10min. / 1cycle, 60 min. each long X,Y,Z axes		
MOUNTING	Compliance to IEC60068-2-6		
SAFETY STANDARDS	UL508 EN60950-1 compliant		
WITHSTAND VOLTAGE	I/P-O/P: 3KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC		
ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG: ≥100M Ohms/500VDC/25°C/70% RH		
EMI CONDUCTION & RADIATION	Compliance to EN55011 EN55022 (CISPR22) EN61204-3 Class B		
HARMONIC CURRENT	Compliance to EN61000-3-2,-3		
EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; EN55024; ENV50204; EN61000-6-2; EN61204-3; light industry level; criteria A The power supply is considered a component which will installed into a final equipment. The final equipment must be re-confirmed that is still meets EMC directives.		
MTBF	346K hrs min. MIL-HDBK-217K (25°C)		
DIMENSION	55x90x100mm (WxHxD)		
PACKING	0.42Kg; 30pcs / 13.6Kg / 0.82CUFT		

All parameters NOT specially mentioned are measured at 230V AC input, rated load and 25°C of ambient temperature.



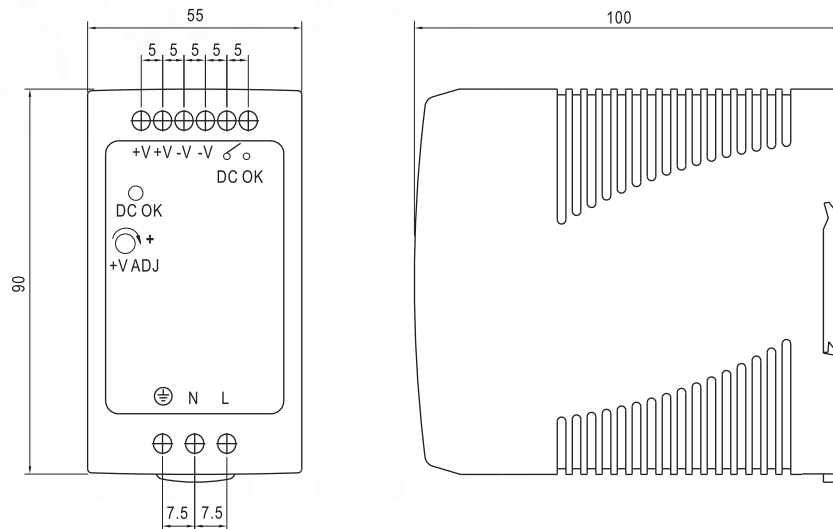
## Mechanical Specification

Terminal Pin. No Assign. (TB1)

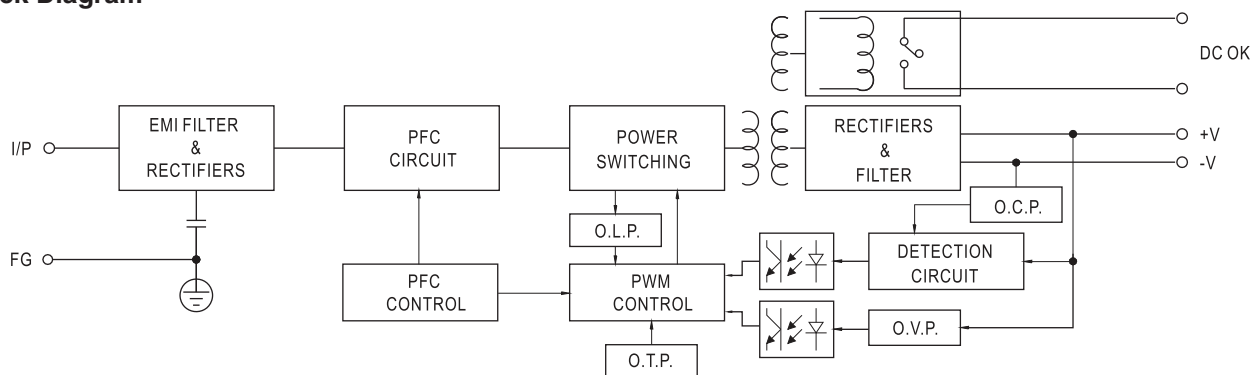
Pin No.	Assignment
1	FG Ⓢ
2	AC/N
3	AC/L

Terminal Pin. No Assign. (TB2)

Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V
5,6	DC OK RELAY CONTACT



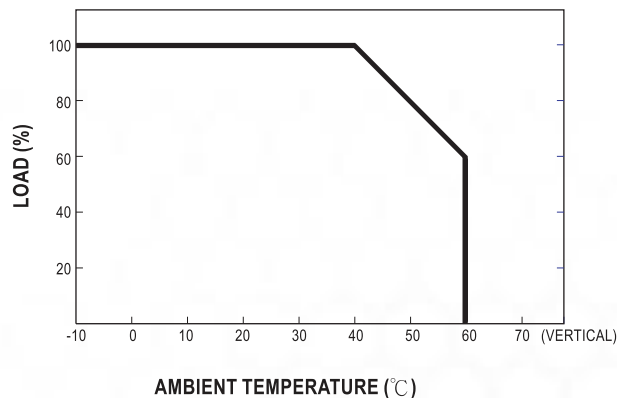
## Block Diagram



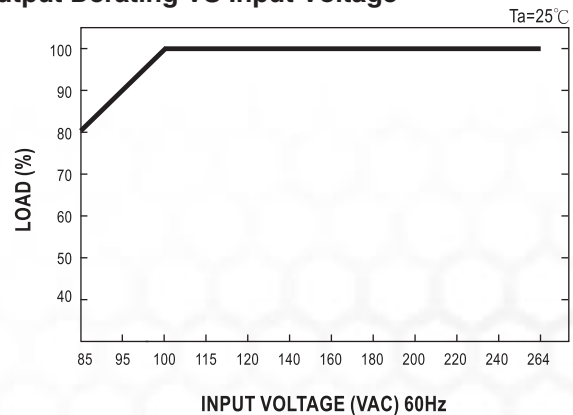
## DC OK Relay Contact

Contact Close	When the output voltage reaches the adjusted output voltage.
Contact Open	When the output voltage drop below 90% output voltage.
Contact Ratings (max.)	30V/1A resistive load

## Derating Curve



## Output Derating VS Input Voltage



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



## Low Profile Single Phase Power Supply (Class II)

The Low Profile Single Phase Power Supplies are 15W to 100W single output Class II DIN rail switching power supplies. They are designed for the fast growing demand of the DIN rail application with limited enclosure height. With Class II of protection level, low profile series provide users a safer operating environment since the whole plastic case is free from hazardous leakage current. Featuring up to 89% of high efficiency, this series can be cooled by only free air convection that significantly increase the reliability and lifetime of the power supply. Complying with the safety of the UL508 and EMC requirements of EN50178 which is mainly for power distribution aspects, the low profile switching power supplies are suitable to be installed in a power distribution box or a control cabinet and the major application fields are building automation and household appliance control.

- Input voltage range: 85-264V AC; 120-370V DC
- AC inrush current: Cold start: 15A at 115V AC, 30A at 230V DC (PS-30xx)
- DC adjustment range:  $\pm 10\%$  rated output voltage
- Overload protection: 105%-160% constant current limiting, auto-recovery
- Over-voltage protection: 115%-135% rated output voltage
- Setup, rise, hold up time: 100ms, 30ms, 100ms at full load and 230V AC (PS-30xx)
- Withstand voltage: I/P-O/P: 3KV AC, I/P-FG: 1.5KV AC
- Working temperature: -20 to +50°C (-4° to +122°F) at 100%  
and +60°C (+140°F) at 80% load
- Safety standards: UL60950-1, UL508
- EMC standards: EN55022 class B  
EN61000-4-2,3,4,5,6,8,11  
ENV50204  
EN61204-3
- Military Standard: MIL-HDBK

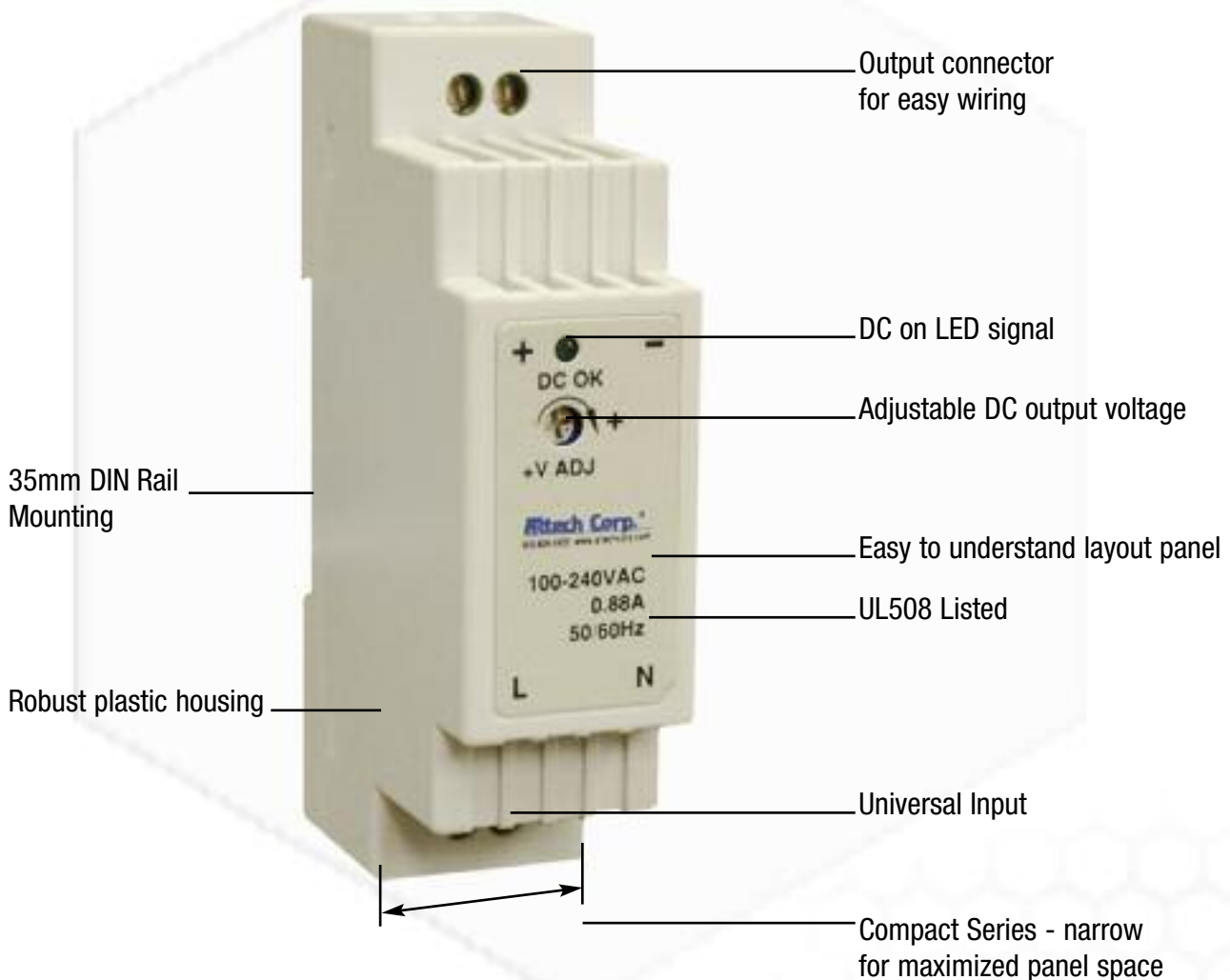
# PS Series - Low Profile

**Altech Corp.**<sup>®</sup>



## Features:

- Universal AC input/Full range
- Protections: Short circuit / Overload / Overvoltage
- Cooling by free air convection
- DIN rail mountable
- Isolation class II
- LED indicator for power on
- 100% full load burn-in test
- 3 year warranty



# 15-100W Low Profile POWER SUPPLIES



## 15W Single Output Class II DIN Rail Power Supply



Cat. No.	Output V DC	A	Tol. %	Ripple & Noise	Efficiency	NOTES
PS-1505	5V DC	2.4A	±2%	80 mVp-p	77%	
PS-1512	12V DC	1.25A	±1%	120 mVp-p	84%	
PS-1515	15V DC	1A	±1%	120 mVp-p	83.5%	
PS-1524	24V DC	0.63A	±1%	150 mVp-p	85%	

## 30W Single Output Class II DIN Rail Power Supply

Cat. No.	Output V DC	A	Tol. %	Ripple & Noise	Efficiency	NOTES
PS-3005	5V DC	3A	±2%	80 mVp-p	74%	
PS-3012	12V DC	2A	±1%	120 mVp-p	81%	
PS-3015	15V DC	2A	±1%	120 mVp-p	82%	
PS-3024	24V DC	1.5A	±1%	150 mVp-p	83%	

## 45W Single Output Class II DIN Rail Power Supply

Cat. No.	Output V DC	A	Tol. %	Ripple & Noise	Efficiency	NOTES
PS-4505	5V DC	5A	±2%	100 mVp-p	72%	
PS-4512	12V DC	3.5A	±1%	200 mVp-p	77%	
PS-4515	15V DC	2.8A	±1%	240 mVp-p	77%	
PS-4524	24V DC	2A	±1%	480 mVp-p	80%	

## 60W Single Output Class II DIN Rail Power Supply

Cat. No.	Output V DC	A	Tol. %	Ripple & Noise	Efficiency	NOTES
PS-6005	5V DC	6.5A	±2%	80 mVp-p	76%	
PS-6012	12V DC	4.5A	±1%	120 mVp-p	82%	
PS-6015	15V DC	4.0A	±1%	120 mVp-p	83%	
PS-6024	24V DC	2.5A	±1%	150 mVp-p	84%	

## 100W Single Output Class II DIN Rail Power Supply

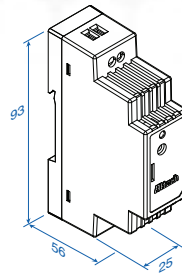


Cat. No.	Output V DC	A	Tol. %	Ripple & Noise	Efficiency	NOTES
PS-10012	12V DC	7.5A	±2%	120 mVp-p	87%	
PS-10015	15V DC	6.5A	±1%	120 mVp-p	87%	
PS-10024	24V DC	4.2A	±1%	150 mVp-p	89%	



# SPECIFICATIONS

## PS-15 Series



### Terminal Pin. No Assignment

Pin No.	Assignment	Pin No.	Assignment
1	AC/L	3	-V
2	AC/N	4	+V

Universal Input: 85-264V AC, 120-370V DC full range;

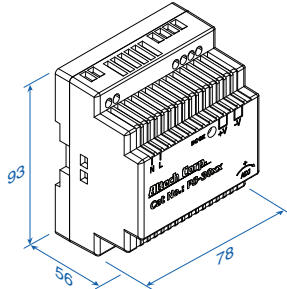
0.88A @ 115V AC; 0.48A @ 230V AC

Connection: Input - 2 poles, Output - 2 poles, single screw terminal

Size (WxHxD): 25x93x56mm (0.98x3.66x2.20 inches)

Packaging: 1/box; 0.22lbs / 0.1Kg

## PS-30 Series



### Terminal Pin. No Assignment

Pin No.	Assignment	Pin No.	Assignment
1	AC/L	5,6	-V
2	AC/N	7	LED
3,4	+V	8	+V ADJ.

Universal Input: 85-264V AC, 120-370V DC full range;

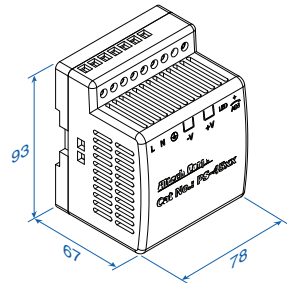
0.88A @ 115V AC; 0.48A @ 230V AC

Connection: Input - 2 poles, Output - 2 poles, double screw terminal

Size (WxHxD): 78x93x56mm (3.07x3.66x2.20 inches)

Packaging: 1/box; 0.60lbs / 0.27Kg

## PS-45 Series



### Terminal Pin. No Assignment

Pin	Assignment	Pin	Assignment
1	AC/L	6,7	DC OUTPUT+V
2	AC/N	8	LED
3	FG ⊕	9	+V ADJ.
4,5	DC OUTPUT-V		

Universal Input: 85-264V AC, 120-370V DC full range;

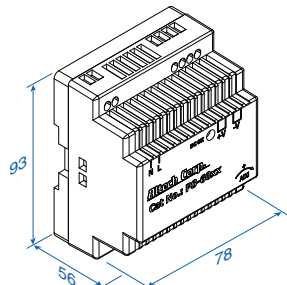
1.5A @ 115V AC, 0.75A @ 230V AC

Connection: Input - 3 poles, Output - 2 poles, double screw terminal

Size (WxHxD): 78x93x67mm (3.07x3.66x2.64 inches)

Packaging: 1/box; 0.68lbs / 0.31Kg

## PS-60 Series



### Terminal Pin. No Assignment

Pin No.	Assignment	Pin No.	Assignment
1	AC/L	5,6	-V
2	AC/N	7	LED
3,4	+V	8	+V ADJ.

Universal Input: 88-264V AC, 124-370V DC full range;

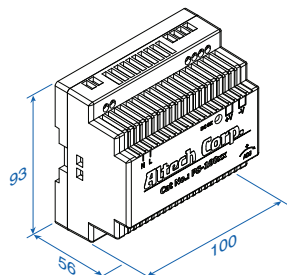
1.2A @ 115V AC, 0.8A @ 230V AC

Connection: Input - 2 poles, Output - 2 poles, double screw terminal

Size (WxHxD): 78x93x56mm (3.07x3.66x2.20 inches)

Packaging: 1/box; 0.66lbs / 0.30Kg

## PS-100 Series



### Terminal Pin. No Assignment

Pin No.	Assignment	Pin No.	Assignment
1	AC/L	5,6	-V
2	AC/N	7	LED
3,4	+V	8	+V ADJ.

Universal Input: 88-264V AC, 124-370V DC full range;

3A @ 115V AC, 1.6A @ 230V AC

Connection: Input - 2 poles, Output - 2 poles, double screw terminal

Size (WxHxD): 100x93x56mm (3.94x3.66x2.20 inches)

Packaging: 1/box; 0.77lbs / 0.35Kg

Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



# PS-15 Series Specifications



## Features:

- Universal AC input / full range
- Protections: Short Circuit / Overload / Over Voltage
- Cooling by free air convection
- DIN rail mountable
- Isolation class II
- LED indicator for power on
- No load power consumption<0.5W
- 100% full load burn-in test
- 3 year warranty

## OUTPUT

## INPUT

## PROTECTION

## ENVIRONMENT

## SAFETY & EMC

## OTHERS

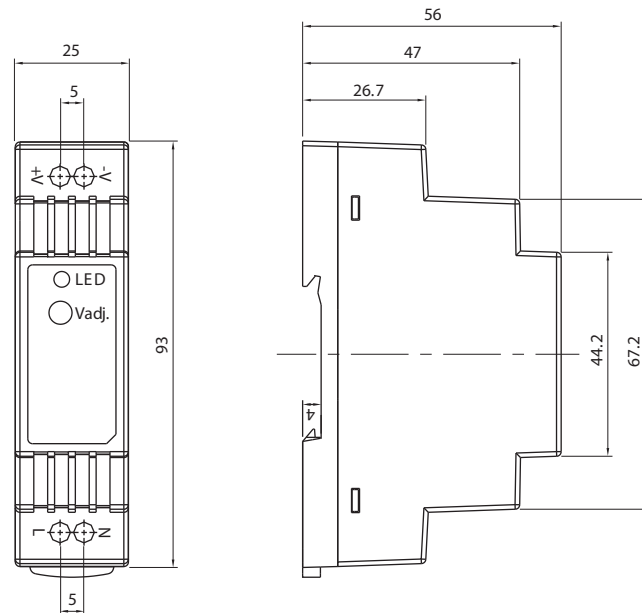
Cat. No.	PS-1505	PS-1512	PS-1515	PS-1524
DC VOLTAGE	5V	12V	15V	24V
RATED CURRENT	2.4A	1.25A	1A	0.63A
CURRENT RANGE	0 ~ 2.4A	0 ~ 1.25A	0 ~ 1A	0 ~ 0.63A
RATED POWER	12W	15W	15W	15.2W
RIPPLE & NOISE (max)	80mVp-p	120mVp-p	120mVp-p	150mVp-p
Ripple & noise are measured at 20MHz of bandwidth by using a 12 twisted pair-wire terminated with a 0.1µF & 47µF parallel capacitor				
VOLTAGE ADJ. RANGE	4.75 ~ 5.5V	10.8 ~ 13.2V	13.5 ~ 16.5V	21.6 ~ 26.4V
VOLTAGE TOLERANCE	±2.0%	±1.0%	±1.0%	±1.0%
Tolerance: includes set up tolerance, line regulation and load regulation.				
LINE REGULATION	±1.0%	±1.0%	±1.0%	±1.0%
LOAD REGULATION	±1.0%	±1.0%	±1.0%	±1.0%
SETUP, RISE TIME	1000ms, 50ms / 230VAC	1000ms, 50ms / 115VAC at full load		
HOLD UP TIME (Typ.)	70ms / 230VAC	16ms / 115VAC at full load		
VOLTAGE RANGE	85 ~ 264VAC	120 ~ 370VDC		
FREQUENCY RANGE	47 ~ 63Hz			
EFFICIENCY (Typ.)	77%	84%	83.50%	85%
AC CURRENT (max.)	0.88A / 115VAC	0.48A / 230VAC		
INRUSH CURRENT (Typ.)	COLD START 35A / 115VAC	65A / 230VAC		
OVERLOAD	105 ~ 160% rated output power Protection type: Constant current limiting recovers automatically after fault condition is removed (Hiccup mode) Constant current operation region is within 60 ~ 100% rated output voltage.			
OVERVOLTAGE	5.75 ~ 6.75V	13.8 ~ 16.2V	17.25 ~ 20.25V	27.6 ~ 32.4V
Protection type: Shut down overvoltage, clamping by zener diode				
WORKING TEMP.	-20 ~ +60°C (Refer to output load derating curve)			
WORKING HUMIDITY	20 ~ 90% RH non-condensing			
STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH			
TEMP. COEFFICIENT	±0.03% /°C (0 ~ 50°C)			
VIBRATION	Component: 10 ~ 500Hz, 2G 10min. / 1cycle, 60 min. each long X,Y, Z axes			
MOUNTING	Compliance to IEC60068-2-6			
SAFETY STANDARDS	UL60950-1 EN60950-1 approved Design refer to EN50178			
WITHSTAND VOLTAGE	I/P-O/P: 3KVAC			
ISOLATION RESISTANCE	I/P-O/P: 100M Ohms/500VDC (25°C; 70% RH)			
EMI CONDUCTION & RADIATION	Compliance to EN55011 EN55022 (CISPR22); EN61204-3 Class B			
HARMONIC CURRENT	Compliance to EN61000-3-2,-3			
EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; EN55024; ENV50204; EN61000-6-2; EN61204-3; heavy industry level; criteria A The power supply is considered a component which will installed into a final equipment. The final equipment must be re-confirmed that is still meets EMC directives.			
MTBF	1172.3K hrs min. MIL-HDBK-217K (25°C)			
DIMENSION	25x93x56mm (WxHxD)			
PACKING	0.1Kg; 140pcs / 15Kg / 0.92CUFT All parameters NOT specially mentioned are measured at 230V AC input, rated load and 25°C of ambient temperature			

All parameters NOT specially mentioned are measured at 230V AC input, rated load and 25°C of ambient temperature

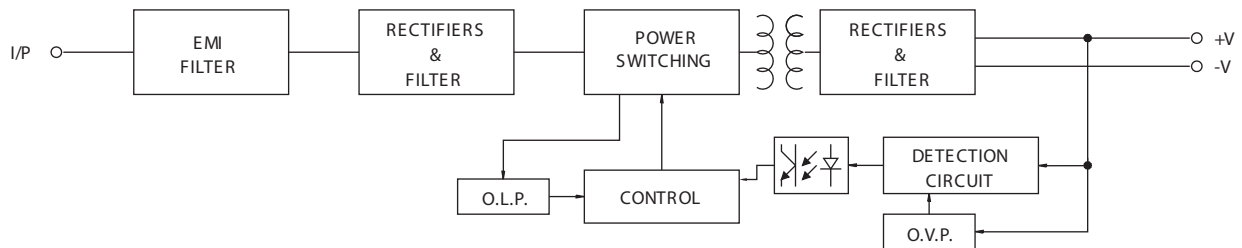
## Mechanical Specification

Terminal Pin. No Assignment

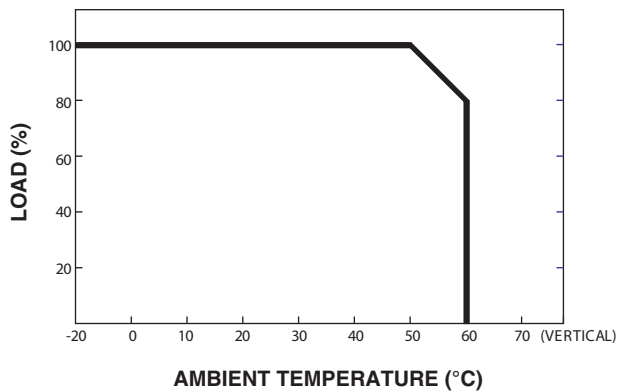
Pin No.	Assignment	Pin No.	Assignment
1	AC/L	3	-V
2	AC/N	4	+V



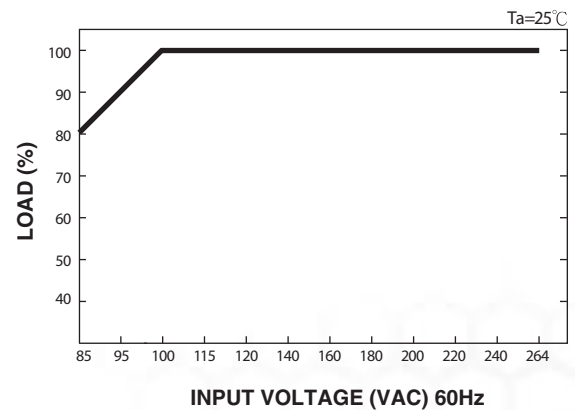
## Block Diagram



## Derating Curve



## Output Derating VS Input Voltage



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



## PS-30 Series Specifications



### Features:

- Universal AC input/ full range
- Protections: Short Circuit / Overload / Over Voltage
- Cooling by free air convection
- DIN rail mountable
- Isolation class II
- LED indicator for power on
- 100% full load burn-in test
- 3 year warranty

### OUTPUT

### INPUT

### PROTECTION

### ENVIRONMENT

### SAFETY & EMC

### OTHERS

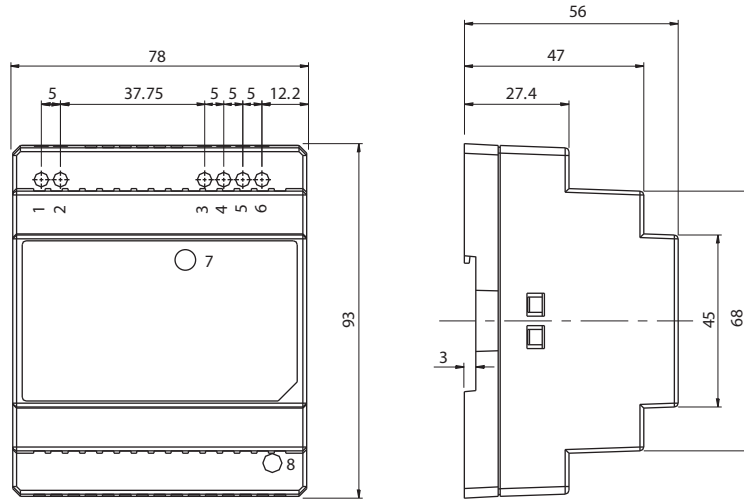
Cat. No.	PS-3005	PS-3012	PS-3015	PS-3024
DC VOLTAGE	5V	12V	15V	24V
RATED CURRENT	3A	2A	2A	1.5A
CURRENT RANGE	0 ~ 3A	0 ~ 2A	0 ~ 2A	0 ~ 1.5A
RATED POWER	15W	24W	30W	36W
RIPPLE & NOISE (max)	80mVp-p	120mVp-p	120mVp-p	150mVp-p
Ripple & noise are measured at 20MHz of bandwidth by using a 12 twisted pair-wire terminated with a 0.1μF & 47μF parallel capacitor				
VOLTAGE ADJ. RANGE	4.75 ~ 5.5V	10.8 ~ 13.2V	13.5 ~ 16.5V	21.6 ~ 26.4V
VOLTAGE TOLERANCE	±2.0%	±1.0%	±1.0%	±1.0%
Tolerance: includes set up tolerance, line regulation and load regulation.				
LINE REGULATION	±1.0%	±1.0%	±1.0%	±1.0%
LOAD REGULATION	±1.0%	±1.0%	±1.0%	±1.0%
SETUP, RISE TIME	100ms, 30ms / 230VAC	100ms, 30ms / 115VAC at full load		
HOLD UP TIME (Typ.)	100ms / 230VAC	21ms / 115VAC at full load		
VOLTAGE RANGE	85 ~ 264VAC	120 ~ 370VDC		
FREQUENCY RANGE	47 ~ 63Hz			
EFFICIENCY (Typ.)	74%	81%	82%	83%
AC CURRENT (Typ.)	0.88A / 115VAC	0.48A / 230VAC		
INRUSH CURRENT (Typ.)	COLD START 15A / 115VAC; 30A / 230VAC			
OVERLOAD	105 ~ 160% rated output power			
Protection type: Constant current limiting recovers automatically after fault condition is removed				
OVERVOLTAGE	5.75 ~ 6.75V	13.8 ~ 16.2V	17.25 ~ 20.25V	27.6 ~ 32.4V
Protection type: Shut down overvoltage, clamping by zener diode				
WORKING TEMP.	-20 ~ +60°C (Refer to output load derating curve)			
WORKING HUMIDITY	20 ~ 90% RH non-condensing			
STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH			
TEMP. COEFFICIENT	±0.03% / °C (0 ~ 50°C)			
VIBRATION	Component: 10 ~ 500Hz, 2G 10min. / 1cycle, 60 min. each long X,Y, Z axes			
MOUNTING	Compliance to IEC60068-2-6			
SAFETY STANDARDS	UL60950-1 EN60950-1 approved Design refer to EN50178			
WITHSTAND VOLTAGE	I/P-O/P: 3KVAC			
ISOLATION RESISTANCE	I/P-O/P: 100M Ohms / 500VDC			
EMI CONDUCTION & RADIATION	Compliance to EN55011 EN55022 (CISPR22) Class B			
HARMONIC CURRENT	Compliance to EN61000-3-2,-3			
EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; EN55024; ENV50204; EN61000-6-2; EN61204-3; heavy industry level; criteria A			
The power supply is considered a component which will installed into a final equipment. The final equipment must be re-confirmed that is still meets EMC directives.				
MTBF	441.5K hrs min. MIL-HDBK-217K (25°C)			
DIMENSION	78x93x56mm (WxHxD)			
PACKING	0.27Kg; 48pcs / 14Kg / 1.02CUFT			
All parameters NOT specially mentioned are measured at 230V AC input, rated load and 25°C of ambient temperature				



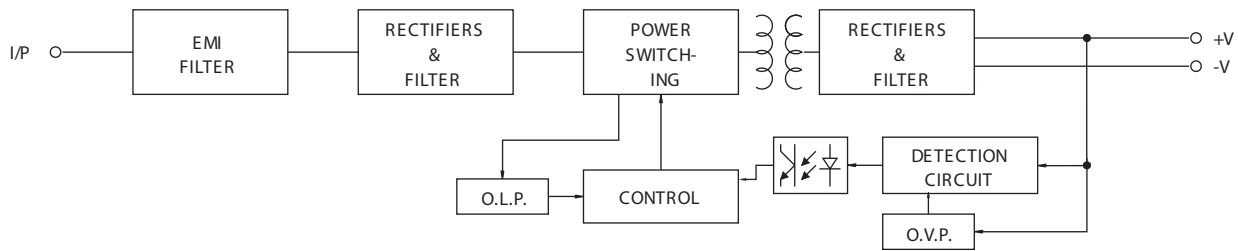
## Mechanical Specification

Terminal Pin. No Assignment

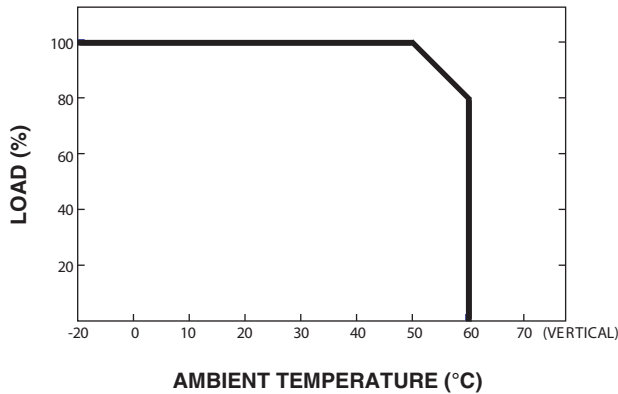
Pin No.	Assignment	Pin No.	Assignment
1	AC/L	5,6	-V
2	AC/N	7	LED
3,4	+V	8	+V ADJ.



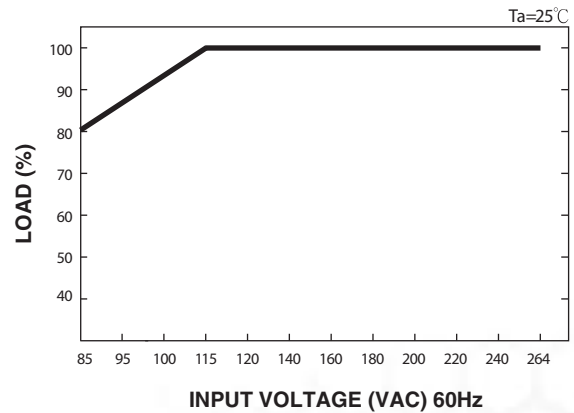
## Block Diagram



## Derating Curve



## Output Derating VS Input Voltage



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



# PS-45 Series Specifications



## Features:

- Universal AC input / full range
- Protections: Short Circuit / Overload / Over Voltage/ Overtemperature
- Cooling by free air convection
- DIN rail mountable
- UL508 approved
- LED indicator for power on
- Fix switching frequency at 100kHz
- 100% full load burn-in test
- 3 year warranty

## OUTPUT

## INPUT

## PROTECTION

## ENVIRONMENT

## SAFETY & EMC

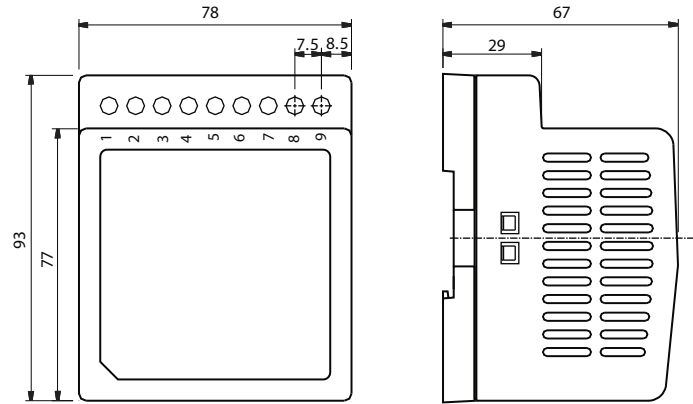
## OTHERS

Cat. No.	PS-4505	PS-4512	PS-4515	PS-4524
DC VOLTAGE	5V	12V	15V	24V
RATED CURRENT	5A	3.5A	2.8A	2A
CURRENT RANGE	0 ~ 5A	0 ~ 3.5A	0 ~ 2.8A	0 ~ 2A
RATED POWER	25W	42W	42W	48W
RIPPLE & NOISE (max)	100mVp-p	200mVp-p	240mVp-p	480mVp-p
Ripple & noise are measured at 20MHz of bandwidth by using a 12 twisted pair-wire terminated with a 0.1µF & 47µF parallel capacitor				
VOLTAGE ADJ. RANGE	4.75 ~ 5.5V	10.8 ~ 13.2V	13.5 ~ 16.5V	21.6 ~ 26.4V
VOLTAGE TOLERANCE	±2.0%	±1.0%	±1.0%	±1.0%
Tolerance: includes set up tolerance, line regulation and load regulation.				
LINE REGULATION	±1.0%	±1.0%	±1.0%	±1.0%
LOAD REGULATION	±1.0%	±1.0%	±1.0%	±1.0%
SETUP, RISE TIME	800ms, 60ms / 230VAC at full load			
HOLD UP TIME (Typ.)	60ms / 230VAC at full load			
VOLTAGE RANGE	85 ~ 264VAC	120 ~ 370VDC		
FREQUENCY RANGE	47 ~ 63Hz			
EFFICIENCY (Typ.)	72%	77%	77%	80%
AC CURRENT (max.)	1.5A / 115VAC	0.75A / 230VAC		
INRUSH CURRENT (Typ.)	COLD START 28A / 115VAC; 56A / 230VAC			
LEAKAGE CURRENT	≤1mA / 240VAC			
OVERLOAD	105 ~ 160% rated output power			
	Protection type: Constant current limiting recovers automatically after fault condition is removed			
OVERVOLTAGE	5.75 ~ 6.75V	13.8 ~ 16.2V	17.25 ~ 20.25V	27.6 ~ 32.4V
	Protection type: Shut down overvoltage, clamping by zener diode			
OVERTEMPERATURE	Tj 135°C typically (U1) detect on heat sink of power transistor			
	Protection type: Shut down overvoltage, re-power on to recover			
WORKING TEMPERATURE	-10 ~ +50°C (Refer to output load derating curve)			
WORKING HUMIDITY	20 ~ 90% RH non-condensing			
STORAGE TEMP., HUMIDITY	-20 ~ +85°C, 10 ~ 95% RH			
TEMP. COEFFICIENT	±0.03% / °C (0 ~ 50°C)			
VIBRATION	Component: 10 ~ 500Hz, 2G 10min. / 1cycle, 60 min. each long X,Y, Z axes			
MOUNTING	Compliance to IEC60068-2-6			
SAFETY STANDARDS	UL508 EN60950-1 approved			
WITHSTAND VOLTAGE	I/P-O/P: 3KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC			
ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG: 100M Ohms / 500VDC (25°C; 70% RH)			
EMI CONDUCTION & RADIATION	Compliance to EN55011; EN55022 (CISPR22) Class B			
HARMONIC CURRENT	Compliance to EN61000-3-2,-3			
EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204; EN55024; EN61000-6-2; heavy industry level; criteria A			
	The power supply is considered a component which will installed into a final equipment.			
	The final equipment must be re-confirmed that it still meets EMC directives.			
MTBF	364.6K hrs min. MIL-HDBK-217K (25°C)			
DIMENSION	93x78x67mm (LxWxH)			
PACKING	0.31Kg; 48pcs / 16.1Kg / 1.3CUFT			
	All parameters NOT specially mentioned are measured at 230V AC input, rated load and 25°C of ambient temperature			

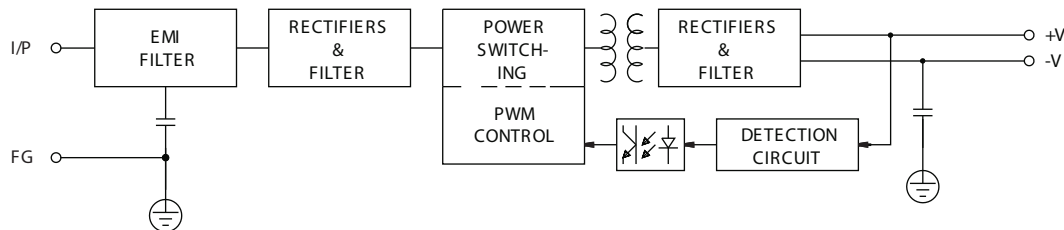
## Mechanical Specification

Terminal Pin. No Assignment

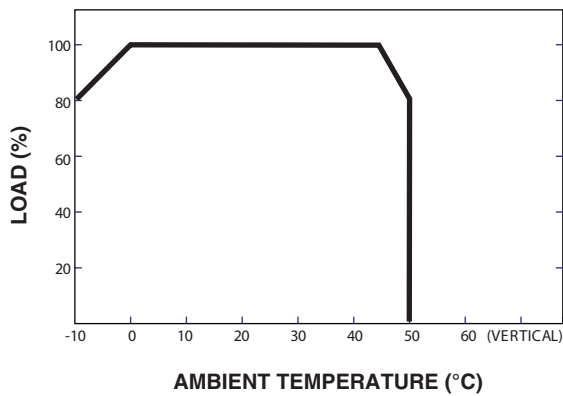
Pin	Assignment	Pin	Assignment
1	AC/L	6,7	DC OUTPUT+V
2	AC/N	8	LED
3	FG ⊕	9	+V ADJ.
4,5	DC OUTPUT-V		



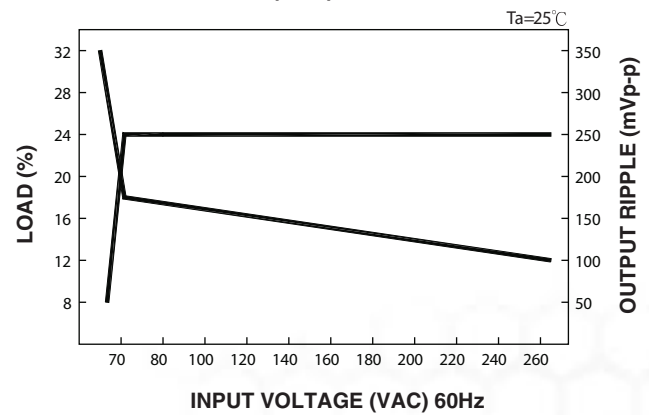
## Block Diagram



## Derating Curve



## Static Characteristic (24V)



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



# PS-60 Series Specifications



## Features:

- Universal AC input / full range
- Protections: Short Circuit / Overload / Over Voltage
- Cooling by free air convection
- DIN rail mountable
- Isolation class II
- LED indicator for power on
- 100% full load burn-in test
- 3 year warranty

## OUTPUT

### Cat. No. PS-6005 PS-6012 PS-6015 PS-6024

DC VOLTAGE	5V	12V	15V	24V
RATED CURRENT	6.5A	4.5A	4A	2.5A
CURRENT RANGE	0 ~ 6.5A	0 ~ 4.5A	0 ~ 4A	0 ~ 2.5A
RATED POWER	32.5W	54W	60W	60W
RIPPLE & NOISE (max)	80mVp-p	120mVp-p	120mVp-p	150mVp-p
Ripple & noise are measured at 20MHz of bandwidth by using a 12 twisted pair-wire terminated with a 0.1µF & 47µF parallel capacitor				
VOLTAGE ADJ. RANGE	4.75 ~ 5.5V	11.1 ~ 13.2V	13.5 ~ 16.5V	21.6 ~ 26.4V
VOLTAGE TOLERANCE	±2.0%	±1.0%	±1.0%	±1.0%
Tolerance: includes set up tolerance, line regulation and load regulation.				
LINE REGULATION	±1.0%	±1.0%	±1.0%	±1.0%
LOAD REGULATION	±1.0%	±1.0%	±1.0%	±1.0%
SETUP, RISE TIME	100ms, 30ms / 230VAC	200ms, 30ms / 115VAC at full load		
HOLD UP TIME (Typ.)	100ms / 230VAC	23ms / 115VAC at full load		

## INPUT

VOLTAGE RANGE	85 ~ 264VAC	124 ~ 370VDC		
FREQUENCY RANGE	47 ~ 63Hz			
EFFICIENCY (Typ.)	76%	82%	83%	84%
AC CURRENT (max.)	1.2A / 115VAC	0.8A / 230VAC		
INRUSH CURRENT (Typ.)	COLD START 18A / 115VAC; 36A / 230VAC			

## PROTECTION

OVERLOAD	105 ~ 160% rated output power			
	Protection type: Constant current limiting recovers automatically after fault condition is removed			
OVERVOLTAGE	5.75 ~ 6.75V	13.8 ~ 16.2V	17.25 ~ 20.25V	27.6 ~ 32.4V
	Protection type: Shut down overvoltage, re-power on to recover			

## ENVIRONMENT

WORKING TEMP.	-20 ~ +60°C (Refer to output load derating curve)
WORKING HUMIDITY	20 ~ 90% RH non-condensing
STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH
TEMP. COEFFICIENT	±0.03% / °C (0 ~ 50°C)
VIBRATION	10 ~ 500Hz, 2G 10min. / 1cycle, 60 min. each long X,Y, Z axes
MOUNTING	Compliance to IEC60068-2-6

## SAFETY & EMC

SAFETY STANDARDS	UL60950-1 EN60950-1 approved Design refer to EN50178
WITHSTAND VOLTAGE	I/P-O/P: 3KVAC
ISOLATION RESISTANCE	I/P-O/P: 100M Ohms/500VDC (25°C; 70% RH)
EMI CONDUCTION & RADIATION	Compliance to EN55011 EN55022 (CISPR22) Class B
HARMONIC CURRENT	Compliance to EN61000-3-2,-3
EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204; EN55024; EN61000-6-2; EN61204-3; heavy industry level; criteria A
The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.	

## OTHERS

MTBF	216.2K hrs min. MIL-HDBK-217K (25°C)
DIMENSION	78x93x56mm (WxHxD)
PACKING	0.3Kg; 48pcs / 15.4Kg / 1.02CUFT

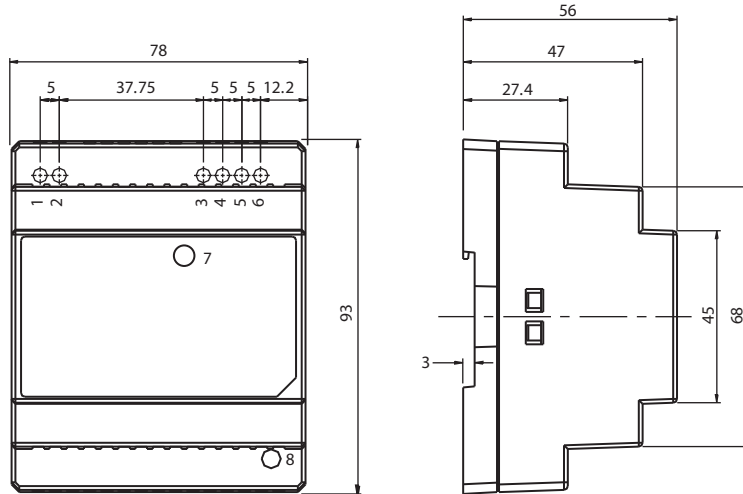
All parameters NOT specially mentioned are measured at 230V AC input, rated load and 25°C of ambient temperature



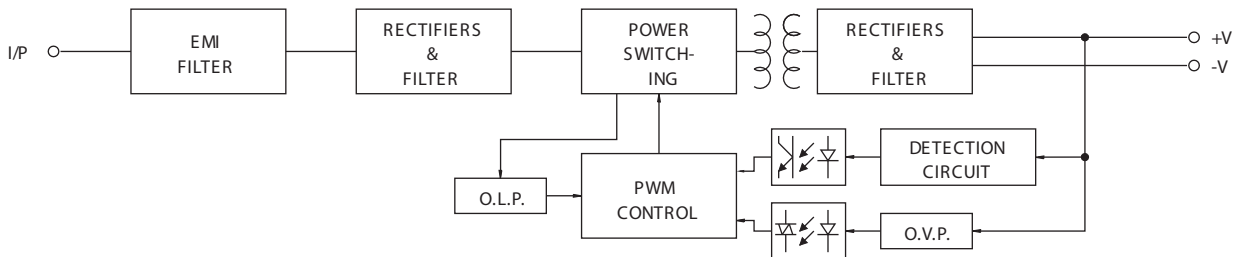
## Mechanical Specification

Terminal Pin. No Assignment

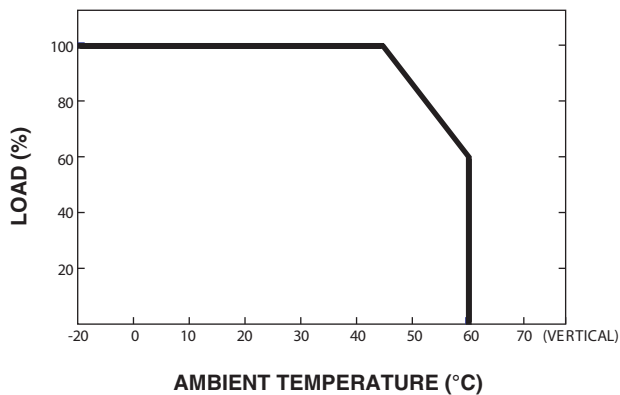
Pin No.	Assignment	Pin No.	Assignment
1	AC/L	5,6	-V
2	AC/N	7	LED
3,4	+V	8	+V ADJ.



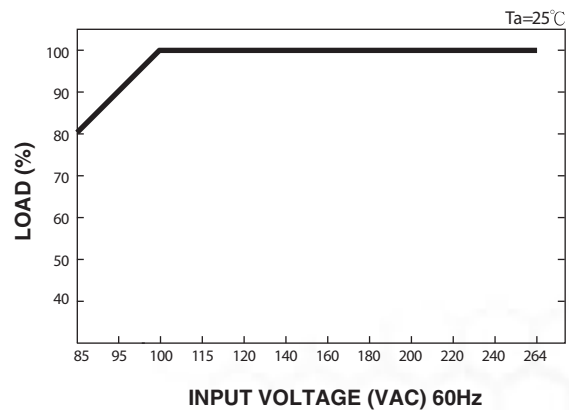
## Block Diagram



## Derating Curve



## Output Derating VS Input Voltage



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



# PS-100 Series Specifications



## Features:

- Universal AC input / full range
- Protections: Short Circuit / Overload / Over Voltage / Overtemperature
- Cooling by free air convection
- DIN rail mountable
- Isolation class II
- LED indicator for power on
- No load power consumption <1W
- 100% full load burn-in test
- 3 year warranty

## OUTPUT

## INPUT

## PROTECTION

## ENVIRONMENT

## SAFETY & EMC

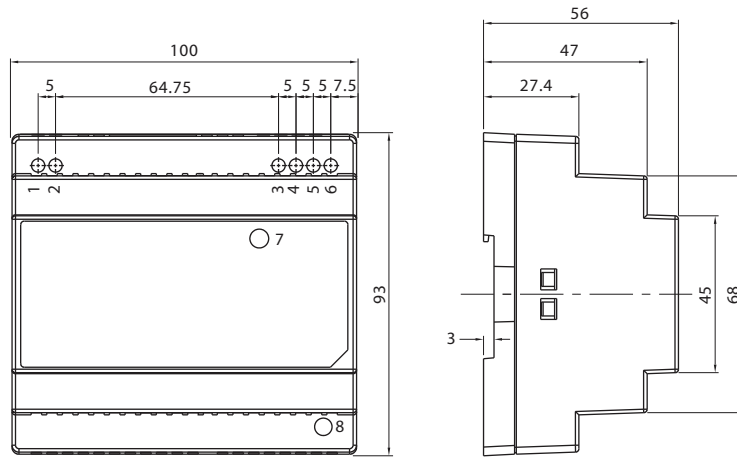
## OTHERS

Cat. No.	PS-10012	PS-10015	PS-10024
DC VOLTAGE	12V	15V	24V
RATED CURRENT	7.5A	6.5A	4.2A
CURRENT RANGE	0 ~ 7.5A	0 ~ 6.5A	0 ~ 4.2A
RATED POWER	90W	97.5W	100.8W
RIPPLE & NOISE (max)	120mVp-p	120mVp-p	150mVp-p
Ripple & noise are measured at 20MHz of bandwidth by using a 12 twisted pair-wire terminated with a 0.1µF & 47µF parallel capacitor.			
VOLTAGE ADJ. RANGE	12 ~ 15V	15 ~ 18V	24 ~ 29V
VOLTAGE TOLERANCE	±2.0%	±1.0%	±1.0%
Tolerance: includes set up tolerance, line regulation and load regulation.			
LINE REGULATION	±1.0%	±1.0%	±1.0%
LOAD REGULATION	±1.0%	±1.0%	±1.0%
SETUP, RISE TIME	2700ms, 80ms / 230VAC	2700ms, 80ms / 115VAC at full load	
HOLD UP TIME (Typ.)	50ms / 230VAC	18ms / 115VAC at full load	
VOLTAGE RANGE	88 ~ 264VAC	124 ~ 370VDC	
FREQUENCY RANGE	47 ~ 63Hz		
EFFICIENCY (Typ.)	87%	87%	89%
AC CURRENT (max.)	3A / 115VAC	1.6A / 230VAC	
INRUSH CURRENT (Typ.)	COLD START 30A / 115VAC;	45A / 230VAC	
OVERLOAD	105 ~ 135% rated output power Protection type: Constant current limiting recovers automatically after fault condition is removed Under short circuit or overload ≥ 150% conditions, output voltage may shut down for 5 sec. and then go into constant current protection mode		
OVERVOLTAGE	16 ~ 20V	19 ~ 23V	30 ~ 35V
Protection type: Shut down overvoltage, re-power on to recover			
OVERTEMPERATURE	90°C ± 15°C (RTH2) detect on heat sink of power transistor Protection type: Shut down overvoltage, re-power on to recover		
WORKING TEMP.	-20 ~ +60°C (Refer to output load derating curve)		
WORKING HUMIDITY	20 ~ 90% RH non-condensing		
STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH		
TEMP. COEFFICIENT	±0.03% / °C (0 ~ 50°C)		
VIBRATION	10 ~ 500Hz, 2G 10min. / 1cycle, 60 min. each long X,Y, Z axes		
MOUNTING	Compliance to IEC60068-2-6		
SAFETY STANDARDS	UL60950-1 EN60950-1 compliant Design refer to EN50178		
WITHSTAND VOLTAGE	I/P-O/P: 3KVAC		
ISOLATION RESISTANCE	I/P-O/P: 100M Ohms/500VDC (25°C; 70% RH)		
EMI CONDUCTION & RADIATION	Compliance to EN61204-3; EN55022 (CISPR22) Class B		
HARMONIC CURRENT	Compliance to EN61000-3-2,-3 Harmonic current test @ 90% load		
EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204; EN55024; EN61000-6-2; EN61204-3; heavy industry level; criteria A The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.		
MTBF	486K hrs min. MIL-HDBK-217K (25°C)		
DIMENSION	100x93x56mm (WxHxD)		
PACKING	0.35Kg; 36pcs / 13.6Kg / 0.89CUFT		
NOTE	All parameters NOT specially mentioned are measured at 230V AC input, rated load and 25°C of ambient temperature.		

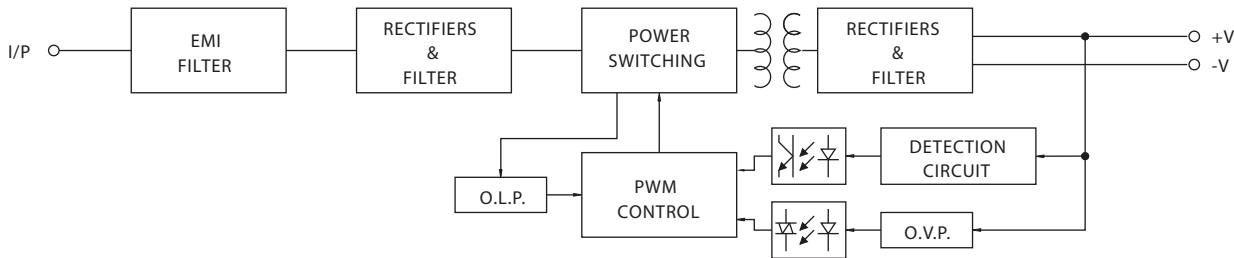
## Mechanical Specification

Terminal Pin. No Assignment

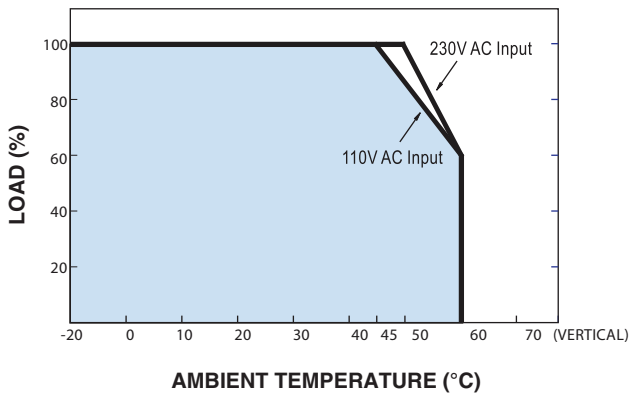
Pin No.	Assignment	Pin No.	Assignment
1	AC/L	5,6	-V
2	AC/N	7	LED
3,4	+V	8	+V ADJ.



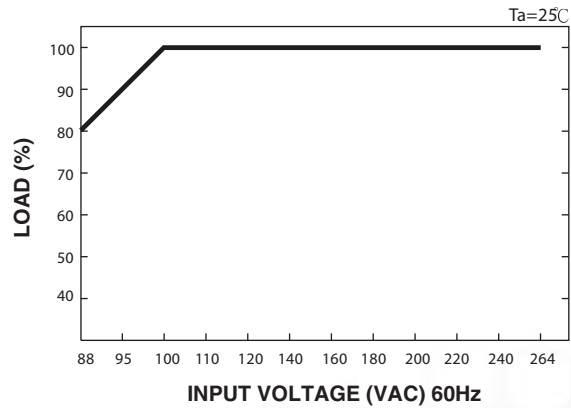
## Block Diagram



## Derating Curve



## Output Derating VS Input Voltage



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



# Industrial Metal Case Single Phase and Three Phase Power Supply

The Altech Industrial metal case power supplies have been optimized for use in practically any DC power applications, with a wide range of AC/DC inputs and an extended temperature range of -20° C up to +70° C. These metal case power supplies feature a small housing design and high power reserve. Excellent electrical specifications and high immunity against fluctuations in input voltage make these metal case modules the best choice to industrial automation. Altech's metal case power supplies are available in six single-phase and four three-phase models with 12VDC (75W and 120W), 24 VDC and 48VDC output voltages, and up to 40A output currents. This voltage range enables the Industrial metal case supplies to be used in virtually any single-phase or three-phase application. The Industrial metal case power supply series offers users easy wiring with screw terminal blocks and snap-on DIN-rail mounting. Designed for use in numerous applications around the world, this power supplies are UL and CSA approved, CE marked and ROHS compliant. They feature a rugged metal housing, vibration- and shock-proof construction and provide a cost-effective power delivery solution for basic functionality requirements.

## Single Phase Power Supply:

- |                                  |  |
|----------------------------------|--|
| • Input voltage range:           | 85-264V AC / 120-370V DC   |
| • AC inrush current: Cold start: | 20A at 115V AC, 40A at 230V AC                                     |
| • Overload voltage protection:   | 105%-160% constant current limiting auto-recovery                  |
| • Over-voltage protection:       | 115%-135% rated output voltage                                     |
| • Setup, rise, hold up time:     | 500ms; 70ms; 30ms at full load and 230V AC                         |
| • Working temperature:           | -20 to +50°C (-4° to +122°F) at 100%<br>+60°C (+140°F) at 80% load |

## Three Phase Power Supply:

- |                                |   |
|--------------------------------|---|
| • Three phase input            |   |
| • Input voltage range:         | 340-550V AC / 480-760V DC   |
| • AC inrush current:           | Cold start: 50A   |
| • Overload voltage protection: | 105%-150% constant current limiting auto-recovery                     |
| • Over-voltage protection:     | 115%-135% rated output voltage  |
| • Setup, rise, hold up time:   | 1200ms, 40ms, 20ms @ 400V AC<br>800ms, 40ms, 40ms @ 500V AC full load |
| • Working temperature:         | -20 to +70°C (-4 to +158°F) at 100%                                   |
| • EMC standards:               | EN61000-6-2 (EN50082-2)<br>Heavy Industrial Level; criteria A         |

## Single Phase

75-240W .....pages 36-45  
480W and 480W Switch Select.....pages 46-51

## Three Phase

240-960W .....pages 52-59



# PS Series - Metal Case

**Altech Corp.®**



## Features:

- Universal AC input / Full range
- Single phase or Three phase
- Built in active PFC function
- Protections: Short circuit / Overload / Overvoltage / Over temperature
- Cooling by free air convection
- DIN rail mountable
- UL 508 (industrial control equipment) approved
- LED indicator for power on
- 100% full load burn-in test
- 3 year warranty



# 75-240W Single Phase POWER SUPPLIES



## 75W Single Output DIN Rail Power Supply

Cat. No.	Output V DC	A	Tol. %	Ripple & Noise	Efficiency	NOTES
PS-7512	12V DC	6.3A	±2%	100 mVp-p	76%	
PS-7524	24V DC	3.2A	±1%	150 mVp-p	80%	
PS-7548	48V DC	1.6A	±1%	240 mVp-p	81%	

## 120W Single Output DIN Rail Power Supply

Cat. No.	Output V DC	A	Tol. %	Ripple & Noise	Efficiency	NOTES
PS-12012	12V DC	10A	±2%	80 mVp-p	80%	
PS-12024	24V DC	5A	±1%	80 mVp-p	84%	
PS-12048	48V DC	2.5A	±1%	100 mVp-p	85%	

## 120W High Input Single Output DIN Rail Power Supply

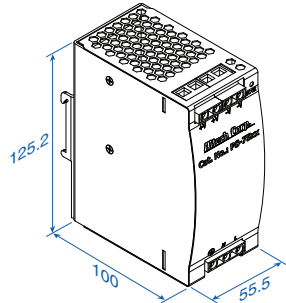
Cat. No.	Output V DC	A	Tol. %	Ripple & Noise	Efficiency	NOTES
PSH-12024	24V DC	5A	±1%	80 mVp-p	85%	
PSH-12048	48V DC	2.5A	±1%	80 mVp-p	86%	

## 240W Single Output DIN Rail Power Supply with PFC Function

Cat. No.	Output V DC	A	Tol. %	Ripple & Noise	Efficiency	NOTES
PSP-24024	24V DC	10A	±1%	80 mVp-p	84%	
PSP-24048	48V DC	5A	±1%	150 mVp-p	85%	



## PS-75 Series



Terminal Pin. No Assign. (TB1)

Pin No.	Assignment
1	FG ⊕
2	AC/N
3	AC/L

Terminal Pin. No Assign. (TB2)

Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V

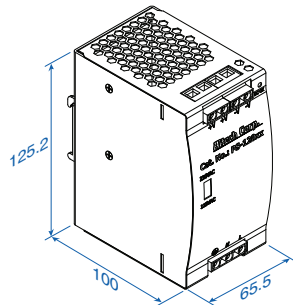
Universal Input: 85-264V AC, 120-370V DC full range,  
1.6A @ 115V AC, 0.96A @ 230V AC

Connection: Input - 3 poles, Output - 4 poles screw terminal

Size (WxHxD): 55.5x125x100mm (2.20x4.95x3.95 inches)

Packaging: 1/box; 1.35lbs / 0.60Kg

## PS-120 Series (Switch Select)



Terminal Pin. No Assign. (TB1)

Pin No.	Assignment
1	FG ⊕
2	AC/N
3	AC/L

Terminal Pin. No Assign. (TB2)

Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V

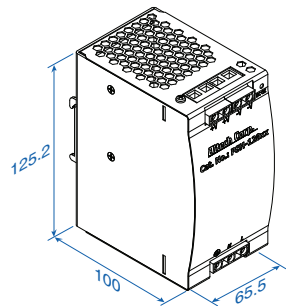
Switch select Input: 88-132V AC / 176-264 V AC, 248-370V DC range,  
2.6A @ 115V AC, 1.6A @ 230V AC

Connection: Input - 3 poles, Output - 4 poles screw terminal

Size (WxHxD): 65.5x125x100mm (2.56x4.95x3.95 inches)

Packaging: 1/box; 1.75lbs / 0.79Kg

## PSH-120 High Input Series



Terminal Pin. No Assign. (TB1)

Pin No.	Assignment
1	FG ⊕
2	AC/N(L2)
3	AC/L(L1)

Terminal Pin. No Assign. (TB2)

Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V

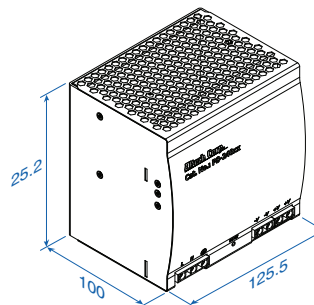
Universal Input: 340-550V AC, 480-780V DC range,  
0.65A @ 400V AC, 0.6A @ 500V AC

Connection: Input - 3 poles, Output - 4 poles screw terminal

Size (WxHxD): 65.5x125x100mm (2.56x4.95x3.95 inches)

Packaging: 1/box; 1.65lbs / 0.75Kg

## PSP-240 Series



Terminal Pin. No Assign. (TB1)

Pin No.	Assignment
1	FG ⊕
2	AC/N
3	AC/L

Terminal Pin. No Assign. (TB2)

Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V

Universal Input: 85-264V AC, 120-370V DC full range,  
2.8A @ 115V AC, 1.4A @ 230V AC

Built in active Power Factor Correction function. PF>0.95

Connection: Input - 3 poles, Output - 4 poles screw terminal

Size (WxHxD): 125x125x100mm (4.95x4.95x3.95 inches)

Packaging: 1/box; 2.7lbs / 1.2Kg

*Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.*



# PS-75 Series Specifications



## Features:

- Universal AC input / full range
- Protections: Short Circuit / Over load / Overvoltage / Over temperature
- Cooling by free air convection
- DIN rail mountable
- UL508 (industrial control equipment) approved
- LED indicator for power on
- 100% full load burn-in test
- Fix switching frequency at 50KHz
- 3 year warranty

## OUTPUT

## INPUT

## PROTECTION

## ENVIRONMENT

## SAFETY & EMC

## OTHERS

### Cat. No.

### PS-7512

### PS-7524

### PS-7548

DC VOLTAGE  
RATED CURRENT  
CURRENT RANGE  
RATED POWER  
RIPPLE & NOISE (max)

12V  
6.3A  
0 ~ 6.3A  
76W  
100mVp-p

24V  
3.2A  
0 ~ 3.2A  
76.8W  
150mVp-p

48V  
1.6A  
0 ~ 1.6A  
76.8W  
240mVp-p

Ripple & noise are measured at 20MHz of bandwidth by using a 12 twisted pair-wire terminated with a 0.1µF & 47µF parallel capacitor.

VOLTAGE ADJ. RANGE  
VOLTAGE TOLERANCE

12 ~ 14V  
±2.0%

24 ~ 28V  
±1.0%

48 ~ 53V  
±1.0%

Tolerance: includes set up tolerance, line regulation and load regulation.

LINE REGULATION  
LOAD REGULATION  
SETUP, RISE TIME  
HOLD UP TIME (Typ.)

±0.5%  
±1.0%  
1000ms, 60ms / 230VAC  
60ms / 230VAC

±0.5%  
±1.0%  
1800ms, 60ms / 115VAC at full load  
12ms / 115VAC at full load

±0.5%  
±1.0%

VOLTAGE RANGE  
FREQUENCY RANGE  
EFFICIENCY (Typ.)  
AC CURRENT (max.)  
INRUSH CURRENT (Typ.)  
LEAKAGE CURRENT

85 ~ 264VAC 120 ~ 370VDC  
47 ~ 63Hz  
76%  
1.6 A / 115VAC 0.96A / 230VAC  
COLD START 20A / 115VAC  
≤ 1mA / 240VAC

80%  
40A / 230VAC

81%

OVERLOAD

105 ~ 150% rated output power  
Protection type: Constant current limiting, recovers automatically after fault condition is removed

OVERVOLTAGE

15 ~ 16.5V 29 ~ 34V

58 ~ 65V

Protection type: Shut down overvoltage, re-power on to recover

OVERTEMPERATURE

85°C ± 5°C (TSW1) detect on heat sink of power transistor

Protection type: Shut down overvoltage, recovers automatically after temperature goes down

WORKING TEMP.  
WORKING HUMIDITY  
STORAGE TEMP., HUMIDITY  
TEMP. COEFFICIENT  
VIBRATION  
MOUNTING

-10 ~ +60°C (Refer to output load derating curve)  
20 ~ 90% RH non-condensing  
-20 ~ +85°C, 10 ~ 95% RH  
±0.03% / °C (0 ~ 50°C)  
10 ~ 500Hz, 2G 10min./1cycle, 60 min. each long X,Y, Z axes  
Compliance to IEC60068-2-6

SAFETY STANDARDS

UL508  
EN60950-1 approved  
I/P-O/P: 3KVAC I/P-FG: 1.5KVAC O/P-FG: 0.5KVAC  
I/P-O/P, I/P-FG, O/P-FG: 100M Ohms / 500VDC  
Compliance to EN55011; EN55022 (CISPR22) Class B  
Compliance to EN61000-3-2,-3  
Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204; EN55024; EN61000-6-2; (EN50082-2)  
heavy industry level; criteria A

The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

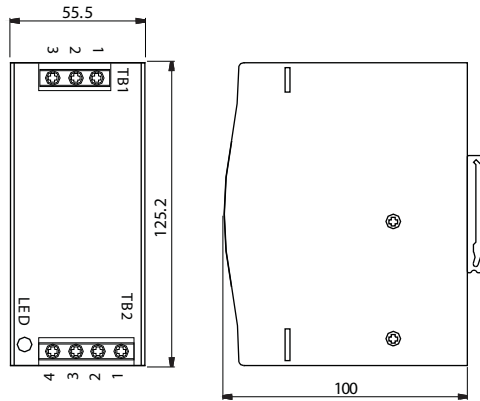
MTBF  
DIMENSION  
PACKING

123.1K hrs min. MIL-HDBK-217K (25°C)  
55.5x125.2x100mm (WxHxD)  
0.6Kg; 20pcs / 13Kg / 1.29CUFT

All parameters NOT specially mentioned are measured at 230V AC input, rated load and 25°C of ambient temperature.



## Mechanical Specification



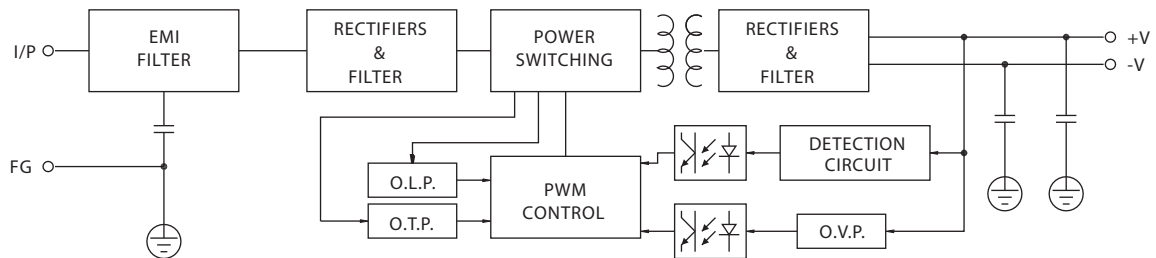
Terminal Pin. No Assignment (TB1)

Pin No.	Assignment
1	FG $\oplus$
2	AC/N
3	AC/L

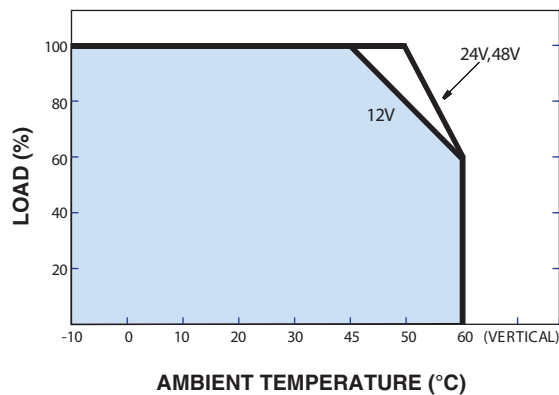
Terminal Pin. No Assignment (TB2)

Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V

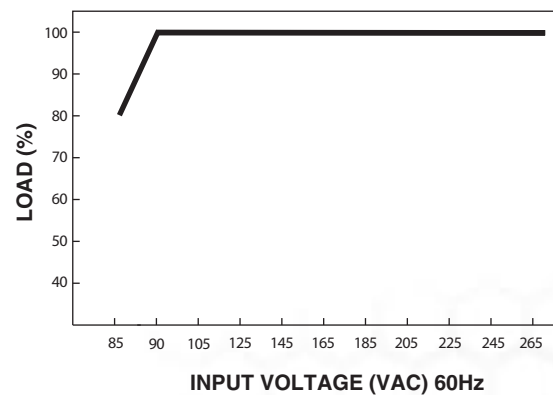
## Block Diagram



## Derating Curve



## Output Derating VS Input Voltage



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



110/220V  
SWITCH SELECT

## PS-120 Series Specifications



### Features:

- Universal AC input / full range
- Protections: Short Circuit / Over load / Overvoltage/Over temperature
- Cooling by free air convection
- DIN rail mountable TS-35/ 7.5 or 15
- UL 508 (industrial control equipment) approved
- LED indicator for power on
- 100% full load burn-in test
- Fix switching frequency at 50KHz
- 3 year warranty

### OUTPUT

### INPUT

### PROTECTION

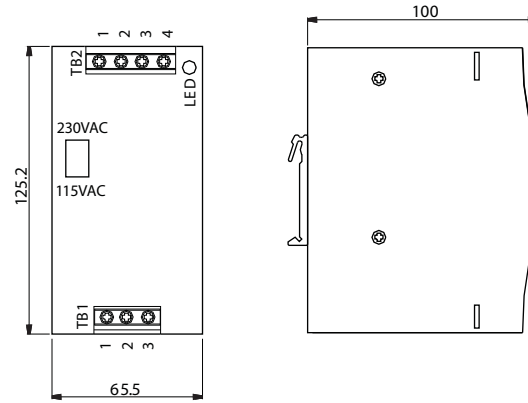
### ENVIRONMENT

### SAFETY & EMC

### OTHERS

Cat. No.	PS-12012	PS-12024	PS-12048
DC VOLTAGE	12V	24V	48V
RATED CURRENT	10A	5A	2.5A
CURRENT RANGE	0 ~ 10A	0 ~ 5A	0 ~ 2.5A
RATED POWER	120W	120W	120W
RIPPLE & NOISE (max)	80mVp-p	80mVp-p	100mVp-p
VOLTAGE ADJ. RANGE	12 ~ 14V	24 ~ 28V	48 ~ 53V
VOLTAGE TOLERANCE	±2.0%	±1.0%	±1.0%
LINE REGULATION	±0.5%	±0.5%	±0.5%
LOAD REGULATION	±1.0%	±1.0%	±1.0%
SETUP, RISE TIME	500ms, 70ms / 230VAC	500ms, 70ms / 115VAC at full load	
HOLD UP TIME (Typ.)	36ms / 230VAC	32ms / 115VAC at full load	
VOLTAGE RANGE	88 ~ 132VAC / 176 ~ 264VAC by switch		248 ~ 370VDC
FREQUENCY RANGE	47 ~ 63Hz		
EFFICIENCY (Typ.)	80%		85%
AC CURRENT (max.)	2.6 A / 115VAC 1.6A / 230VAC		
INRUSH CURRENT (Typ.)	COLD START 20A / 115VAC 40A / 230VAC		
LEAKAGE CURRENT	≤ 3.5mA / 240VAC		
OVERLOAD	105 ~ 150% rated output power		
	Protection type: Constant current limiting, recovers automatically after fault condition is removed		
OVERVOLTAGE	15 ~ 16.5V	29 ~ 33V	58 ~ 65V
	Protection type: Shut down overvoltage, re-power on to recover		
OVERTEMPERATURE	85°C ± 5°C (TSW1)	90°C ± 5°C (TSW1)	90°C ± 5°C (TSW1)
	Protection type: Shut down overvoltage, recovers automatically after temperature goes down		
WORKING TEMP.	-10 ~ +60°C (Refer to output load derating curve)		
WORKING HUMIDITY	20 ~ 90% RH non-condensing		
STORAGE TEMP., HUMIDITY	-20 ~ +85°C, 10 ~ 95% RH		
TEMP. COEFFICIENT	±0.03% / °C (0 ~ 50°C)		
VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60 min. each long X,Y, Z axes		
MOUNTING	Compliance to IEC60068-2-6		
SAFETY STANDARDS	UL508 UL60950-1 EN60950-1 approved		
WITHSTAND VOLTAGE	I/P-O/P: 3KVAC I/P-FG: 1.5KVAC O/P-FG: 0.5KVAC		
ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG: 100M Ohms / 500VDC		
EMI CONDUCTION & RADIATION	Compliance to EN55011; EN55022 (CISPR22) Class B		
HARMONIC CURRENT	Compliance to EN61000-3-2,-3		
EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204; EN55024; EN61000-6-2; (EN50082-2); heavy industry level; criteria A		
	The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.		
MTBF	136.8K hrs min. MIL-HDBK-217K (25°C)		
DIMENSION	65.5x125.2x100mm (WxHxD)		
PACKING	0.79Kg; 20pcs / 16.5Kg / 1.29CUFT		
	All parameters NOT specially mentioned are measured at 230V AC input, rated load and 25°C of ambient temperature.		

## Mechanical Specification



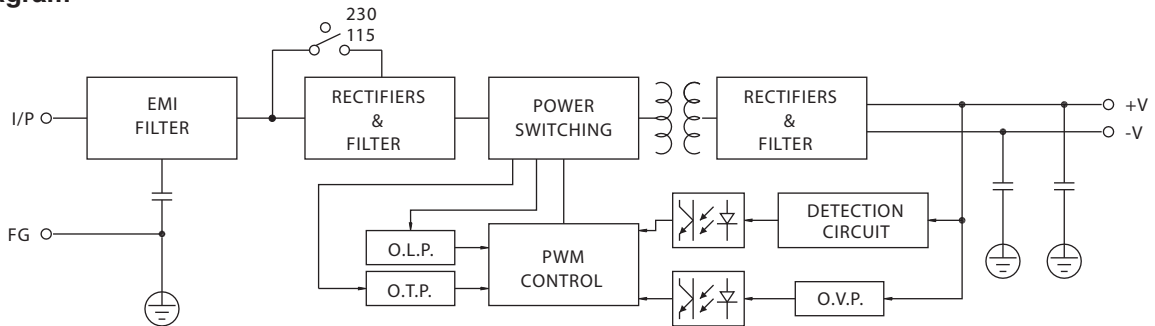
Terminal Pin. No Assignment (TB1)

Pin No.	Assignment
1	FG $\oplus$
2	AC/N
3	AC/L

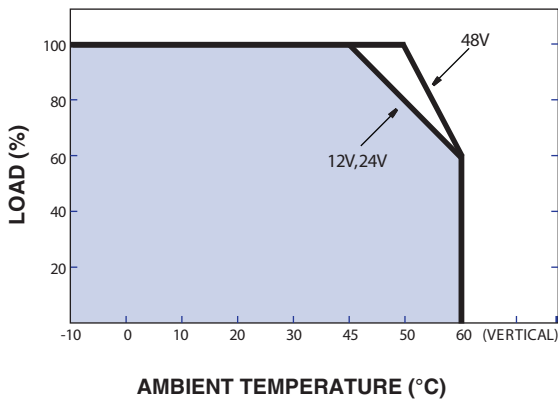
Terminal Pin. No Assignment (TB2)

Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V

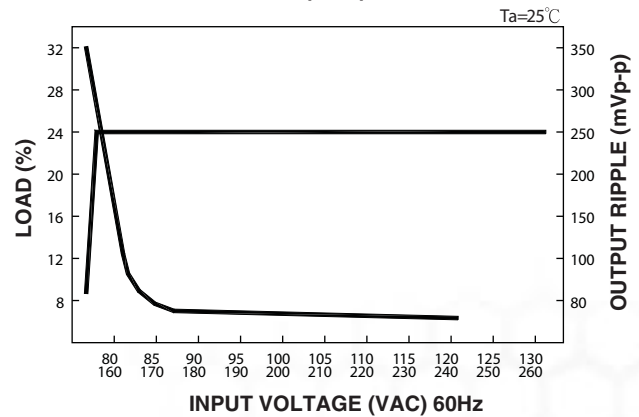
## Block Diagram



## Derating Curve



## Static Characteristics (24V)



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



# PSH-120 High Input Series

## Specifications



### Features:

- Universal AC input / full range
- Protections: Short Circuit / Overload / Over Voltage / Overtemperature
- Cooling by free air convection
- Built-in constant current limiting circuit
- DIN rail mountable
- EN61000-6-2(EN50082-2) industrial immunity level
- 100% full load burn-in test
- Fixed switching frequency at 70KHz
- 3 year warranty

### OUTPUT

#### Cat. No.

#### PSH-12024

#### PSH-12048

DC VOLTAGE  
RATED CURRENT  
CURRENT RANGE  
RATED POWER  
RIPPLE & NOISE (max)

24V  
5A  
0 ~ 5A  
120W  
80mVp-p

48V  
2.5A  
0 ~ 2.5A  
120W  
80mVp-p

VOLTAGE ADJ. RANGE  
VOLTAGE TOLERANCE

24 ~ 28V  
±1.0%

48 ~ 55V  
±1.0%

LINE REGULATION  
LOAD REGULATION  
SETUP, RISE, HOLD UP TIME

±0.5%  
±0.5%  
1700ms, 120ms, 16ms / 400VAC

±0.5%  
±0.5%  
1000ms, 120ms, 30ms / 500VAC at full load

VOLTAGE RANGE  
FREQUENCY RANGE  
EFFICIENCY (Typ.)  
AC CURRENT (max.)  
INRUSH CURRENT (max.)  
LEAKAGE CURRENT

340 ~ 550VAC 480 ~ 780VDC  
47 ~ 63Hz  
85%  
0.65A / 400VAC 0.6A / 500VAC  
COLD START 50A  
≤ 3.5 mA / 530VAC

86%

OVERLOAD  
OVERVOLTAGE  
OVERTEMPERATURE

105 ~ 160% rated output power  
Protection type: Constant current limiting, recovers automatically after fault condition is removed  
30 ~ 36V  
Protection type: Shut down overvoltage, re-power on to recover  
85°C ± 5°C (TSW: detect on heat sink of power switch)  
Protection type: Shut down overvoltage, recovers automatically after temperature goes down

59 ~ 66V

WORKING TEMP.  
WORKING HUMIDITY  
STORAGE TEMP., HUMIDITY  
TEMP. COEFFICIENT  
VIBRATION  
MOUNTING

-20 ~ +60°C (Refer to output load derating curve)  
20 ~ 90% RH non-condensing  
-40 ~ +85°C, 10 ~ 95% RH  
±0.03% / °C (0 ~ 50°C)  
10 ~ 500Hz, 2G 10min./1cycle, 60 min. each long X,Y, Z axes  
Compliance to IEC60068-2-6

#### SAFETY STANDARDS

UL60950-1 approved  
IEC60950-1 CB approved by SIQ  
I/P-O/P: 3KVAC I/P-FG: 1.5KVAC O/P-FG: 0.5KVAC  
I/P-O/P, I/P-FG, O/P-FG: 100M Ohms / 500VDC (25°C; 70% RH)  
Compliance to EN55011 (CISPR11); EN55022 (CISPR22); EN61204-3 Class B  
Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204; EN61204-3; EN61000-6-2; (EN50082-2), heavy industry level; criteria A  
The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

MTBF  
DIMENSION  
PACKING

178.7K hrs min. MIL-HDBK-217K (25°C)  
65.5x125.2x100mm (WxHxD)  
0.75Kg; 20pcs / 16Kg / 1.29CUFT

All parameters NOT specially mentioned are measured at 230V AC input, rated load and 25°C of ambient temperature.

### INPUT

### PROTECTION

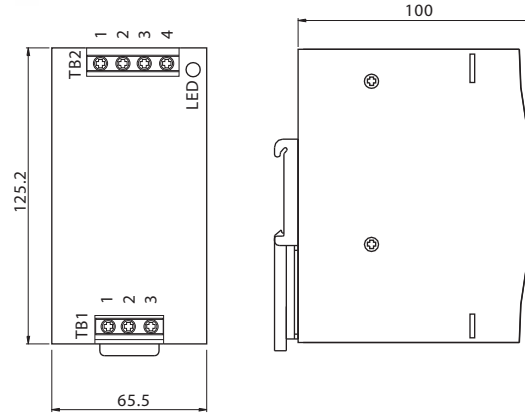
### ENVIRONMENT

### SAFETY & EMC

### OTHERS



## Mechanical Specification



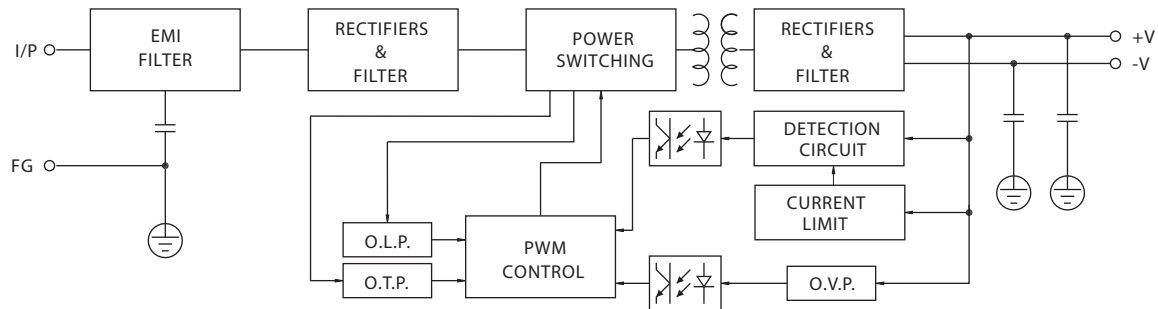
Terminal Pin No. Assignment (TB1)

Pin No.	Assignment
1	FG ⊕
2	AC/L2
3	AC/L1

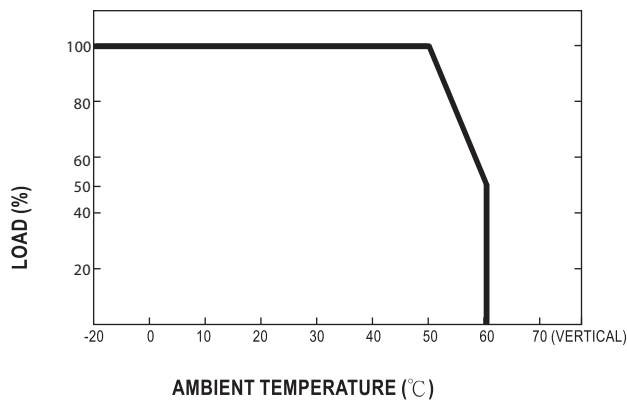
Terminal Pin No. Assignment (TB2)

Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V

## Block Diagram



## Derating Curve



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



# PSP-240 Series Specifications



## Features:

- Universal AC input / full range
- Built in active PFC function
- Protections: Short Circuit / Overload / Overvoltage / Over temperature
- Cooling by free air convection
- DIN rail mountable
- UL 508(industrial control equipment)approved
- LED indicator for power on
- 100% full load burn-in test
- Fixed switching frequency at 100KHz
- 3 year warranty

## OUTPUT

### Cat. No.

### PSP-24024

### PSP-24048

DC VOLTAGE  
RATED CURRENT  
CURRENT RANGE  
RATED POWER  
RIPPLE & NOISE (max)

24V  
10A  
0 ~ 10A  
240W  
80mVp-p

48V  
5A  
0 ~ 5A  
240W  
150mVp-p

VOLTAGE ADJ. RANGE  
VOLTAGE TOLERANCE

24 ~ 28V  
±1.0%

48 ~ 53V  
±1.0%

LINE REGULATION  
LOAD REGULATION

±0.5%  
±1.0%

±0.5%  
±1.0%

SETUP, RISE TIME  
HOLD UP TIME (Typ.)

800ms, 40ms / 230VAC  
24ms / 230VAC

800ms, 40ms / 115VAC at full load  
24ms / 115VAC at full load

VOLTAGE RANGE

85 ~ 264VAC

120 ~ 370VDC

Derating may be needed under low input voltages, please check the derating curve for more detail

FREQUENCY RANGE  
POWER FACTOR (Typ.)

47 ~ 63Hz  
0.96 / 230VAC

0.99 / 115VAC at full load

EFFICIENCY (Typ.)

84%

85%

AC CURRENT (max.)

2.8A / 115VAC; 1.4A / 230VAC

INRUSH CURRENT (Typ.)

COLD START 27A / 115VAC

45A / 230VAC

LEAKAGE CURRENT

≤ 3.5mA / 240VAC

OVERLOAD

105 ~ 150% rated output power

OVERVOLTAGE

30 ~ 36V

54 ~ 60V

OVERTEMPERATURE

100°C ± 5°C (TSW: detect on heat sink of power transistor)

Protection type: Shut down overvoltage, re-power on to recover

Protection type: Shut down overvoltage, recovers automatically after fault condition is removed

WORKING TEMP.

-10 ~ +70°C (Refer to output load derating curve)

WORKING HUMIDITY

20 ~ 90% RH non-condensing

STORAGE TEMP., HUMIDITY

-20 ~ +85°C, 10 ~ 95% RH

TEMP. COEFFICIENT

±0.03% / °C (0 ~ 50°C)

VIBRATION

10 ~ 500Hz, 2G 10min./1cycle, 60 min. each long X,Y, Z axes

MOUNTING

Compliance to IEC60068-2-6

SAFETY STANDARDS

UL508

EN60950-1

EN60950-1 approved

WITHSTAND VOLTAGE

I/P-O/P: 3KVAC I/P-FG: 1.5KVAC O/P-FG: 0.5KVAC

ISOLATION RESISTANCE

I/P-O/P, I/P-FG, O/P-FG: 100M Ohms / 500VDC

EMI CONDUCTION & RADIATION

Compliance to EN55011; EN55022 (CISPR22) Class B

HARMONIC CURRENT

Compliance to EN61000-3-2,-3

EMS IMMUNITY

Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204; EN55024; EN61000-6-2; (EN50082-2); heavy industry level; criteria A

The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

MTBF

289.9K hrs min. MIL-HDBK-217K (25°C)

DIMENSION

125.5x125.2x100mm (WxHxD)

PACKING

1.2Kg; 12pcs / 15.5Kg / 1.29CUFT

All parameters NOT specially mentioned are measured at 230V AC input, rated load and 25°C of ambient temperature.

## INPUT

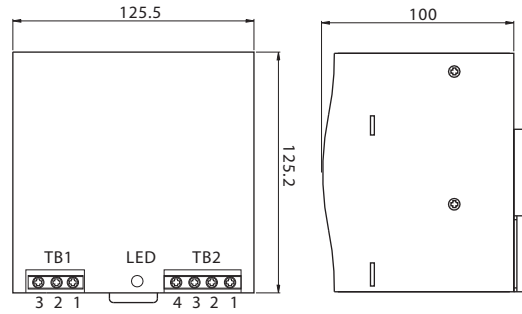
## PROTECTION

## ENVIRONMENT

## SAFETY & EMC

## OTHERS

## Mechanical Specification



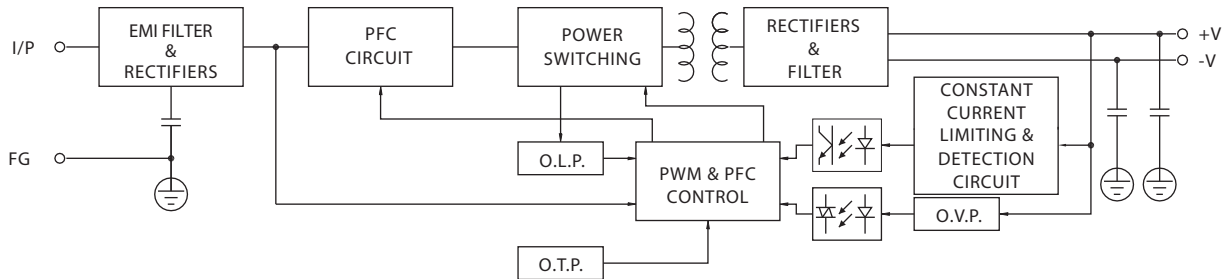
Terminal Pin Number Assignment (TB1)

Pin No.	Assignment
1	FG ⊕
2	AC/N
3	AC/L

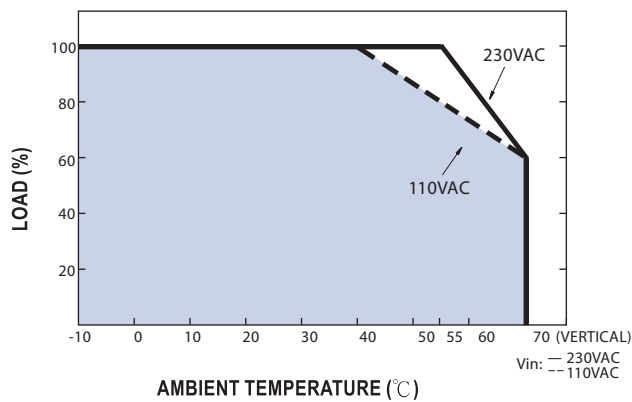
Terminal Pin Number Assignment (TB2)

Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V

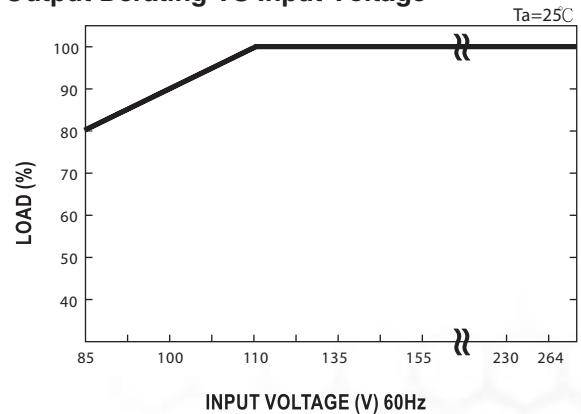
## Block Diagram



## Derating Curve



## Output Derating VS Input Voltage



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.

# 480W Single Phase POWER SUPPLIES



**220V ONLY**

## 480W 220V AC Single Output DIN Rail Power Supply with PFC Function

Cat. No.	Output		Tol. %	Ripple & Noise	Efficiency	NOTES
	V DC	A				
PSP-48024	24V DC	20A	±1%	120 mVp-p	89%	
PSP-48048	48V DC	10A	±1%	120 mVp-p	89%	



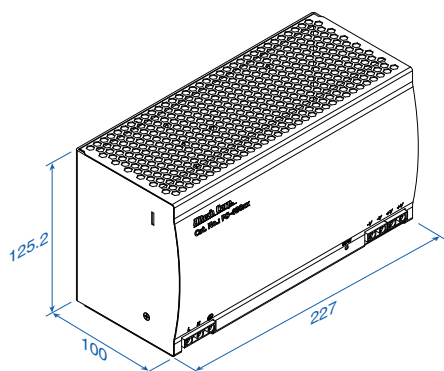
**110/220V  
SWITCH SELECT**

## 480W Switch Select 110/220V AC Single Output DIN Rail Power Supply with PFC Function

Cat. No.	Output		Tol. %	Ripple & Noise	Efficiency	NOTES
	V DC	A				
PSP-480S24	24V DC	20A	±1%	120 mVp-p	89%	
PSP-480S48	48V DC	10A	±1%	120 mVp-p	89%	



## PSP-480 Series (220V AC input only)



TB1 Terminal Pin. No Assignment

Pin No.	Assignment
1	AC/L
2	AC/N
3	FG ⊕

TB2 Terminal Pin. No Assignment

Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V

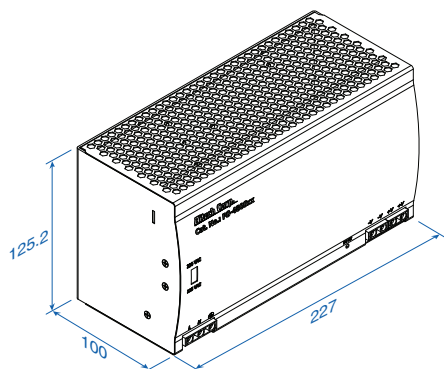
Wide range Input: 180-264V AC only, 250-370V DC, 4A @ 230V AC  
Built in passive Power Factor Correction function compliance to EN61000-3-2, PF>0.7

Connection: Input - 3 poles, Output - 4 poles screw terminal

Size (WxHxD): 227x125x100mm (8.95x4.95x3.95 inches)

Packaging: 1/box; 5.3lbs / 2.4Kg

## PSP-480 with Switch Series (110V AC and 220V input AC)



TB1 Terminal Pin. No Assignment

Pin No.	Assignment
1	AC/L
2	AC/N
3	FG ⊕

TB2 Terminal Pin. No Assignment

Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V

Switch select Input: 90-132V AC / 180-264 V AC, 254-370V DC range  
8A @ 115V AC, 3.2A @ 230V AC

Built in passive Power Factor Correction function compliance to EN61000-3-2, PF>0.7/230V AC only

Connection: Input - 3 poles, Output - 4 poles screw terminal

Size (WxHxD): 227x125x100mm (8.95x4.95x3.95 inches)

Packaging: 1/box; 5.8lbs / 2.6Kg

Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



220V ONLY

# PSP-480 Series Specifications



## Features:

- Built-in passive PFC function compliance to EN61000-3-2
- High efficiency 89% and low dissipation
- Protections: Short Circuit / Overload / Overvoltage / Over temperature
- Cooling by free air convection
- Built-in constant current limiting circuit
- DIN rail mountable
- UL 508(industrial control equipment)approved
- EN61000-6-2(EN50082-2) industrial immunity level
- 100% full load burn-in test
- 3 year warranty

## OUTPUT

### Cat. No. PSP-48024 PSP-48048

DC VOLTAGE	24V	48V
RATED CURRENT	20A	10A
CURRENT RANGE	0 ~ 20A	0 ~ 10A
RATED POWER	480W	480W
RIPPLE & NOISE (max)	120mVp-p	120mVp-p
Ripple & noise are measured at 20MHz of bandwidth by using a 12 twisted pair-wire terminated with a 0.1μF & 47μF parallel capacitor.		
VOLTAGE ADJ. RANGE	24 ~ 28V	48 ~ 53V
VOLTAGE TOLERANCE	±1.0%	±1.0%
Tolerance: includes set up tolerance, line regulation and load regulation.		
LINE REGULATION	±0.5%	±0.5%
LOAD REGULATION	±1.0%	±1.0%
SETUP, RISE TIME	1200ms, 40ms / 230VAC at full load	
HOLD UP TIME (Typ.)	16ms / 230VAC	

## INPUT

VOLTAGE RANGE	180 ~ 264 VAC by switch	250 ~ 370VDC
FREQUENCY RANGE	47 ~ 63Hz	
POWER FACTOR (Typ.)	≥0.7	
EFFICIENCY (Typ.)	89%	
AC CURRENT (Typ.)	4A / 230VAC	
INRUSH CURRENT (Typ.)	COLD START 27A / 115VAC	45A / 230VAC
LEAKAGE CURRENT	≤ 3.5mA / 240VAC	

## PROTECTION

OVERLOAD	105 ~ 150% rated output power
Protection type: Constant current limiting, recovers automatically after fault condition is removed	
OVERVOLTAGE	30 ~ 36V 54 ~ 60V
Protection type: Shut down overvoltage, re-power on to recover	
OVERTEMPERATURE	100°C ± 5°C (TSW: detect on heat sink of power switch)
Protection type: Shut down overvoltage, recovers automatically after temperature goes down	

## ENVIRONMENT

WORKING TEMP.	-20 ~ +70°C (Refer to output load derating curve)
WORKING HUMIDITY	20 ~ 95% RH non-condensing
STORAGE TEMP., HUMIDITY	-20 ~ +85°C, 10 ~ 95% RH
TEMP. COEFFICIENT	±0.03% / °C (0 ~ 50°C)
VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60 min. each long X,Y, Z axes
MOUNTING	Compliance to IEC60068-2-6

## SAFETY & EMC

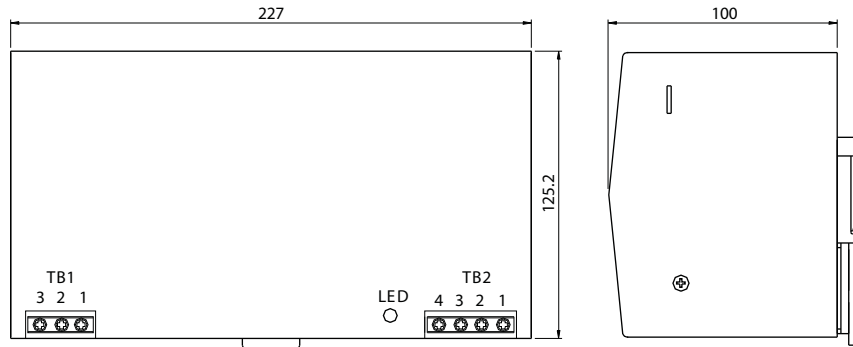
SAFETY STANDARDS	UL508 EN60950-1 EN60950-1 approved
WITHSTAND VOLTAGE	I/P-O/P: 3KVAC I/P-FG: 1.5KVAC O/P-FG: 0.5KVAC
ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG: ≥100M Ohms / 500VDC (25°C; 70% RH)
EMI CONDUCTION & RADIATION	Compliance to EN55022 (CISPR22); Class B
HARMONIC CURRENT	Compliance to EN61000-3-2,-3
EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204; EN61000-6-2 (EN50082-2); heavy industry level; criteria A
The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.	

## OTHERS

MTBF	180.9K hrs min. MIL-HDBK-217K (25°C)
DIMENSION	227x125.2x100mm (WxHxD)
PACKING	2.4Kg; 6pcs / 15Kg / 1.75CUFT

All parameters NOT specially mentioned are measured at 230V AC input, rated load and 25°C of ambient temperature.

## Mechanical Specification



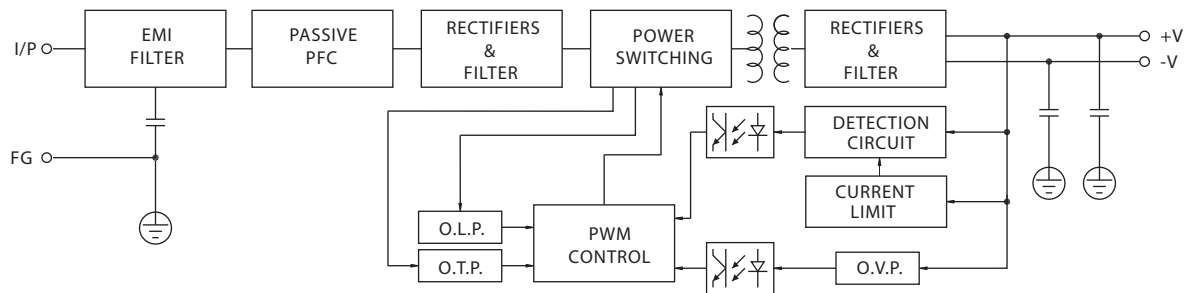
TB1 Terminal Pin. No Assignment

Pin No.	Assignment
1	AC/L
2	AC/N
3	FG

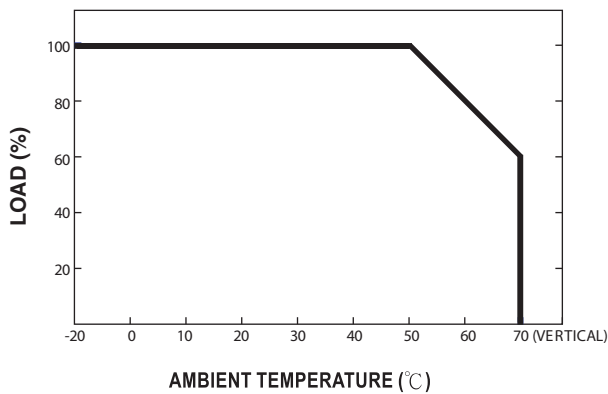
TB2 Terminal Pin. No Assignment

Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V

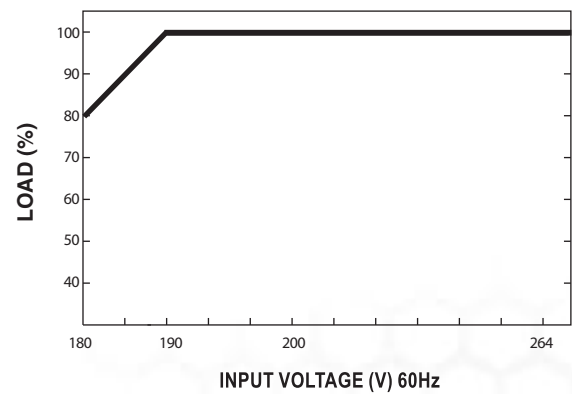
## Block Diagram



## Derating Curve



## Output Derating VS Input Voltage



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



# PSP-480S Series Specifications



## Features:

- AC input range selectable by switch
- Built-in passive PFC function compliance to EN61000-3-2
- High efficiency 89% and low dissipation
- Protections: Short Circuit / Overload / Overvoltage / Over temperature
- Cooling by free air convection
- Built-in constant current limiting circuit
- DIN rail mountable
- UL 508(industrial control equipment)approved
- EN61000-6-2(EN50082-2) industrial immunity level
- 100% full load burn-in test
- 3 year warranty

## OUTPUT

## INPUT

## PROTECTION

## ENVIRONMENT

## SAFETY & EMC

## OTHERS

### Cat. No.

### PSP-480S24

### PSP-480S48

DC VOLTAGE  
RATED CURRENT  
CURRENT RANGE  
RATED POWER  
RIPPLE & NOISE (max)

VOLTAGE ADJ. RANGE  
VOLTAGE TOLERANCE

LINE REGULATION  
LOAD REGULATION  
SETUP, RISE TIME  
HOLD UP TIME (Typ.)

VOLTAGE RANGE  
FREQUENCY RANGE  
POWER FACTOR (Typ.)  
EFFICIENCY (Typ.)  
AC CURRENT (Typ.)  
INRUSH CURRENT (Typ.)  
LEAKAGE CURRENT

OVERLOAD

OVERVOLTAGE

OVERTEMPERATURE

WORKING TEMP.  
WORKING HUMIDITY  
STORAGE TEMP., HUMIDITY  
TEMP. COEFFICIENT  
VIBRATION  
MOUNTING

SAFETY STANDARDS

WITHSTAND VOLTAGE  
ISOLATION RESISTANCE  
EMI CONDUCTION & RADIATION  
HARMONIC CURRENT  
EMS IMMUNITY

MTBF  
DIMENSION  
PACKING

24V  
20A  
0 ~ 20A  
480W  
120mVp-p

24 ~ 28V  
±1.0%

±0.5%  
±1.0%

1200ms, 40ms / 230VAC  
23ms / 230VAC

90 ~ 132VAC / 180 ~ 264 VAC by switch

47 ~ 63Hz  
≥0.7 / 230VAC only  
89%  
8A / 115VAC 3.2A / 230VAC

COLD START 27A / 115VAC 45A / 230VAC  
≤ 3.5mA / 240VAC

105 ~ 150% rated output power

Protection type: Constant current limiting, recovers automatically after fault condition is removed

30 ~ 36V 59 ~ 66V

Protection type: Shut down overvoltage, re-power on to recover

100°C ± 5°C (TSW: detect on heat sink of power switch)

Protection type: Shut down overvoltage, recovers automatically after temperature goes down

-20 ~ +70°C (Refer to output load derating curve)  
20 ~ 95% RH non-condensing  
-40 ~ +85°C, 10 ~ 95% RH  
±0.03% / °C (0 ~ 50°C)  
10 ~ 500Hz, 2G 10min./1cycle, 60 min. each long X,Y, Z axes  
Compliance to IEC60068-2-6

UL508  
EN60950-1  
EN60950-1 approved  
I/P-O/P: 3KVAC I/P-FG: 1.5KVAC O/P-FG: 0.5KVAC  
I/P-O/P, I/P-FG, O/P-FG: 100M Ohms / 500VDC / 25°C / 70% RH  
Compliance to EN55011 (CISPR11); EN55022 (CISPR22); EN61204-3 Class B  
Compliance to EN61000-3-2,-3  
Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204; EN61204-3; EN61000-6-2 (EN50082-2); heavy industry level; criteria A

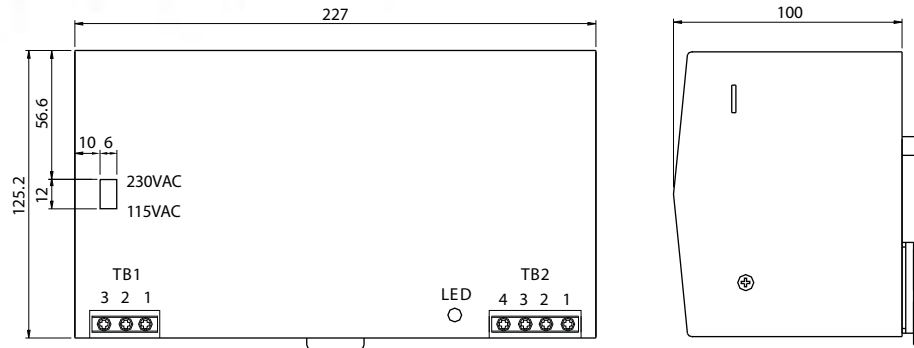
The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

187.9K hrs min. MIL-HDBK-217K (25°C)  
227x125.2x100mm (WxHxD)  
2.6Kg; 6pcs / 16.6Kg / 1.75CUFT

All parameters NOT specially mentioned are measured at 230V AC input, rated load and 25°C of ambient temperature.



## Mechanical Specification



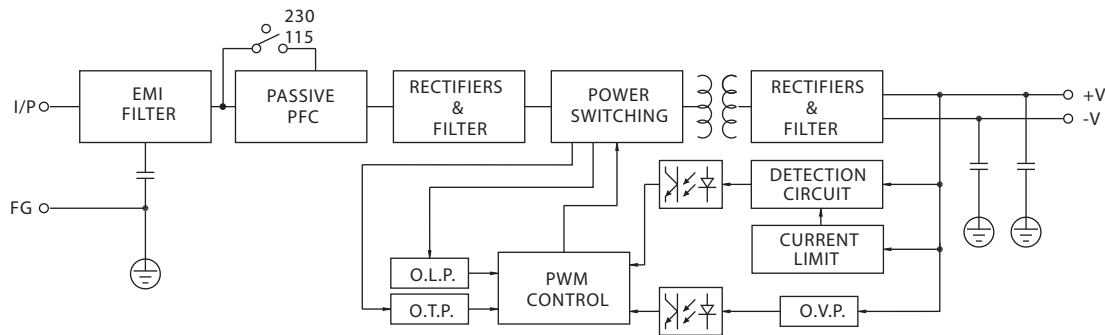
TB1 Terminal Pin. No Assignment

Pin No.	Assignment
1	AC/L
2	AC/N
3	FG ⊕

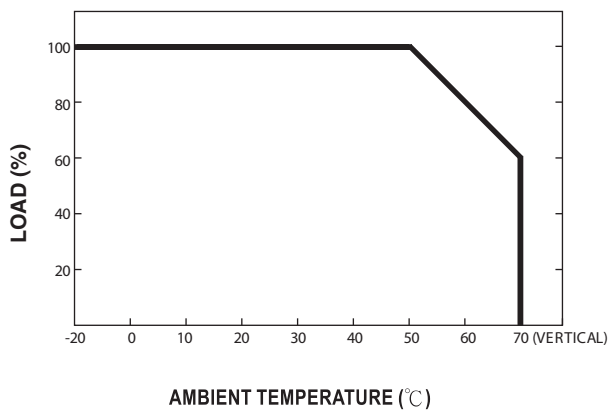
TB2 Terminal Pin. No Assignment

Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V

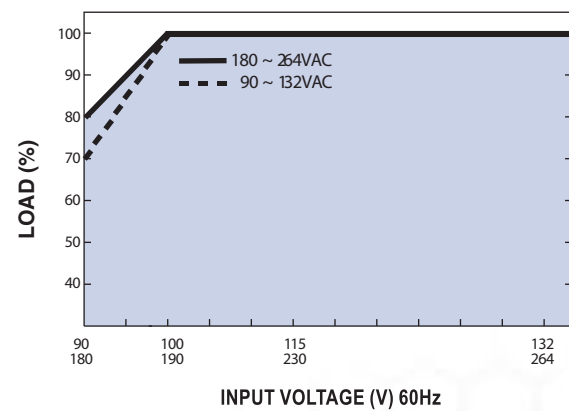
## Block Diagram



## Derating Curve



## Output Derating VS Input Voltage



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.

# 240-960W Three Phase POWER SUPPLIES



## 240W Three Phase Industrial DIN Rail Power Supply

Cat. No.	Output V DC	A	Tol. %	Ripple & Noise	Efficiency	NOTES
PST-24024	24V DC	10A	±1%	80 mVp-p	89%	
PST-24048	48V DC	5A	±1%	80 mVp-p	89%	

## 480W Three Phase Industrial DIN Rail Power Supply

Cat. No.	Output V DC	A	Tol. %	Ripple & Noise	Efficiency	NOTES
PST-48024	24V DC	20A	±1%	80 mVp-p	89%	
PST-48048	48V DC	10A	±1%	80 mVp-p	90%	

## 960W Three Phase Industrial DIN Rail Power Supply

Cat. No.	Output V DC	A	Tol. %	Ripple & Noise	Efficiency	NOTES
PST-96024	24V DC	40A	±1%	80 mVp-p	91%	
PST-96048	48V DC	20A	±1%	80 mVp-p	92%	

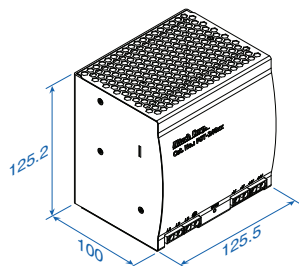
## 960W Three Phase Industrial DIN Rail Power Supply

with PFC and Parallel Function (1+1)

Cat. No.	Output V DC	A	Tol. %	Ripple & Noise	Efficiency	NOTES
PST-960P24	24V DC	40A	±1%	80 mVp-p	91%	
PST-960P48	48V DC	20A	±1%	80 mVp-p	92%	

PARALLEL

## PST-240 Series



TB1 Terminal Pin. No Assignment

Pin No.	Assignment
1	FG ⊕
2	AC/L3
3	AC/L2
4	AC/L1

TB2 Terminal Pin. No Assignment

Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V

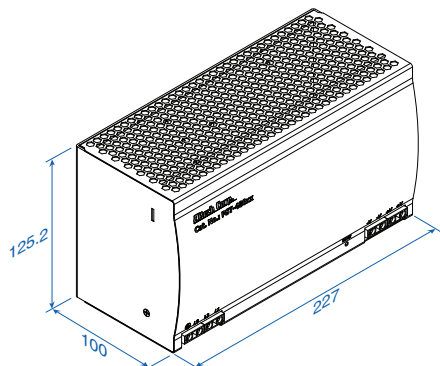
Three phase input: 340-550V AC wide range, 480-780V DC  
0.95A @ 400V AC, 0.75A @ 500V AC

Connection: Input - 4 poles, Output - 4 poles screw terminal

Size (WxHxD): 125x125x100mm (4.95x4.95x3.95 inches)

Packaging: 1/box; 2.87lbs / 1.3Kg

## PST-480 Series



TB1 Terminal Pin. No Assignment

Pin No.	Assignment
1	AC/L1
2	AC/L2
3	AC/L3
4	FG ⊕

TB2 Terminal Pin. No Assignment

Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V

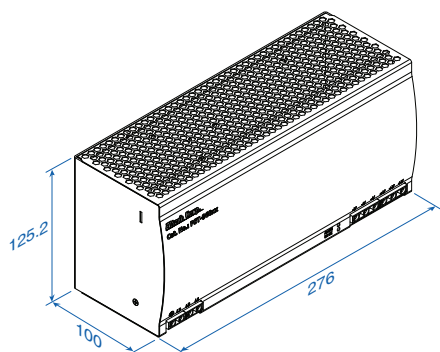
Three phase input: 340-550V AC wide range, 480-780V DC  
1.7A @ 400V AC, 1.3A @ 500V AC

Connection: Input - 4 poles, Output - 4 poles screw terminal

Size (WxHxD): 227x125x100mm (9.95x4.95x3.95 inches)

Packaging: 1/box; 5.5lbs / 2.5Kg

## PST-960 Series



TB1 Terminal Pin. No Assignment

Pin No.	Assignment
1	AC/L1
2	AC/L2
3	AC/L3
4	FG ⊕

TB2 Terminal Pin. No Assignment

Pin No.	Assignment
1,2,3	DC OUTPUT +V
4,5,6	DC OUTPUT - V
7	GND
8	P (Current Share)

} Parallel Only

Three phase input: 340-550V AC wide range,  
2.4A @ 400V AC, 1.9A @ 500V AC

Connection: Input - 4 poles, Output - 6 poles screw terminal

Size (WxHxD): 276x125x100mm (10.87x4.95x3.95 inches)

Packaging: 1/box; 7.3lbs / 3.3Kg

Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



# PST-240 Series Specifications



## Features:

- Three-Phase AC 340 ~ 550V wide range input
- High efficiency 89% and low dissipation
- Protections: Short Circuit / Overload / Overvoltage / Over temperature
- Cooling by free air convection
- Built-in constant current limiting circuit
- DIN rail mountable
- UL 508(industrial control equipment)approved
- EN61000-6-2(EN50082-2) industrial immunity level
- 100% full load burn-in test
- Fixed switching frequency at 70KHz
- 3 year warranty

## OUTPUT

### Cat. No.

### PST-24024

### PST-24048

DC VOLTAGE  
RATED CURRENT  
CURRENT RANGE  
RATED POWER  
RIPPLE & NOISE (max)

24V  
10A  
0 ~ 10A  
240W  
80mVp-p

48V  
5A  
0 ~ 5A  
240W  
80mVp-p

VOLTAGE ADJ. RANGE  
VOLTAGE TOLERANCE

24 ~ 28V  
±1.0%

48 ~ 55V  
±1.0%

LINE REGULATION  
LOAD REGULATION

±0.5%  
±0.5%

±0.5%  
±0.5%

SETUP, RISE, HOLD UP TIME

1200ms, 40ms, 20ms / 400VAC; 800ms, 40ms, 40ms / 500VAC at full load

Ripple & noise are measured at 20MHz of bandwidth by using a 12 twisted pair-wire terminated with a 0.1μF & 47μF parallel capacitor.

Tolerance: includes set up tolerance, line regulation and load regulation.

## INPUT

VOLTAGE RANGE

Three Phase 340 ~ 550VAC (Dual Phase operation possible) 480 ~ 780VDC  
Dual phase operation: derating of 20% is required

FREQUENCY RANGE

47 ~ 63Hz

EFFICIENCY (Typ.)

89%

AC CURRENT

0.95A / 400VAC; 0.75 / 500VAC

INRUSH CURRENT (Typ.)

COLD START 50A

LEAKAGE CURRENT

≤ 3.5 mA / 530VAC

## PROTECTION

OVERLOAD

105 ~ 150% rated output power

OVERVOLTAGE

30 ~ 36V

59 ~ 66V

OVERTEMPERATURE

Protection type: Shut down overvoltage, re-power on to recover  
100°C ± 5°C (TSW) detect on heat sink of power switch  
Protection type: Shut down overvoltage, re-power automatically after temperature goes down

## ENVIRONMENT

WORKING TEMP.

-20 ~ +70°C (Refer to output load derating curve)

WORKING HUMIDITY

20 ~ 90% RH non-condensing

STORAGE TEMP., HUMIDITY

-40 ~ +85°C, 10 ~ 95% RH

TEMP. COEFFICIENT

±0.03% / °C (0 ~ 50°C)

VIBRATION

10 ~ 500Hz, 2G 10min./1cycle, 60 min. each long X,Y, Z axes

MOUNTING

Compliance to IEC60068-2-6

## SAFETY & EMC

SAFETY STANDARDS

UL508  
EN60950-1approved  
UL60950-1

WITHSTAND VOLTAGE

I/P-O/P: 3KVAC I/P-FG: 1.5KVAC O/P-FG: 0.5KVAC

ISOLATION RESISTANCE

I/P-O/P, I/P-FG, O/P-FG: 100M Ohms / 500VDC (25°C; 70% RH)

EMI CONDUCTION & RADIATION

Compliance to EN55011 (CISPR11), EN55022 (CISPR22) Class B

EMS IMMUNITY

Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204; EN61000-6-2; (EN50082-2), EN61204-3; heavy industry level; criteria A,

The power supply is considered a component which will installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

## OTHERS

MTBF

114.6K hrs min. MIL-HDBK-217K (25°C)

DIMENSION

125.5x125.2x100mm (WxHxD)

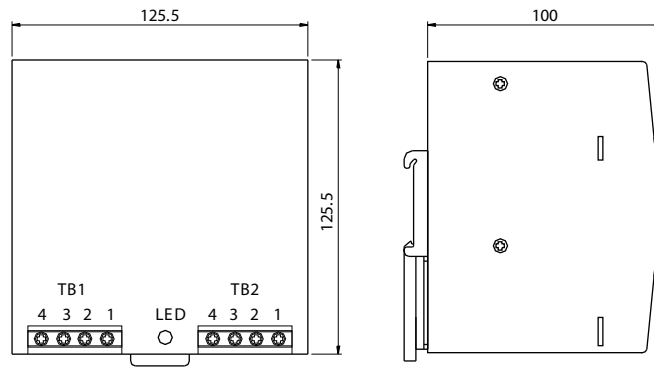
PACKING

1.3Kg; 12pcs / 16.6Kg / 1.29CUFT

All parameters NOT specially mentioned are measured at 400VAC input, rated load and 25°C of ambient temperature.



## Mechanical Specification



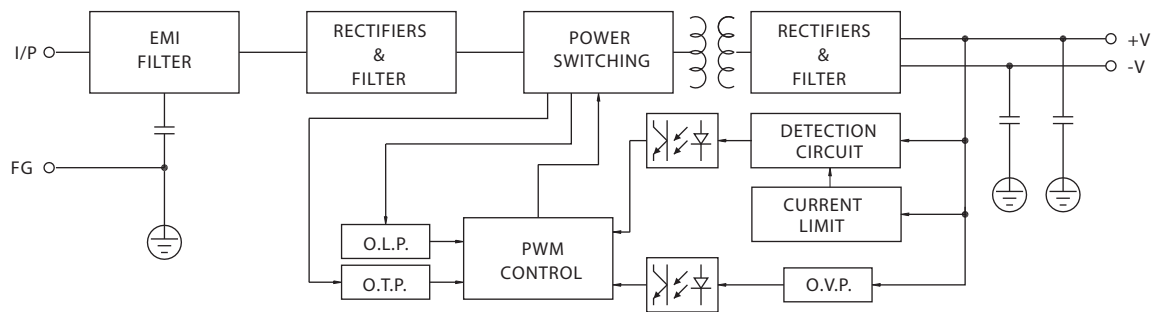
TB1 Terminal Pin. No Assignment

Pin No.	Assignment
1	FG $\oplus$
2	AC/L3
3	AC/L2
4	AC/L1

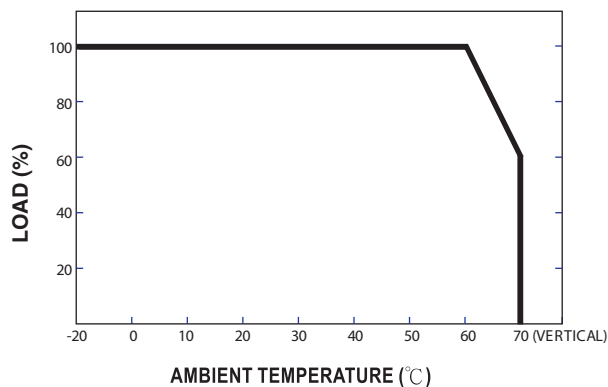
TB2 Terminal Pin. No Assignment

Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V

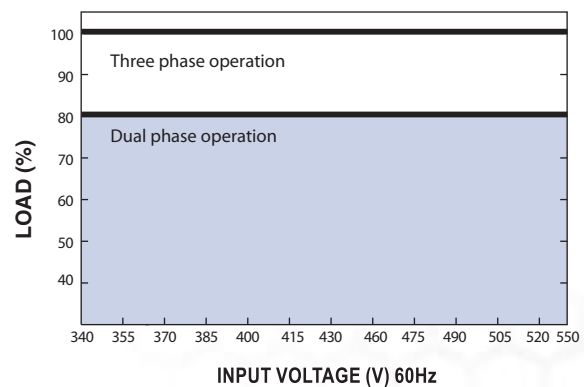
## Block Diagram



## Derating Curve



## Output Derating VS Input Voltage



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



# PST-480 Series Specifications



## Features:

- Three-Phase AC 340 ~ 550V wide range input
- High efficiency 89% and low dissipation
- Protections: Short Circuit / Overload / Over Voltage / Overtemperature
- Cooling by free air convection
- Built-in constant current limiting circuit
- DIN rail mountable
- UL 508(industrial control equipment)approved
- EN61000-6-2(EN50082-2) industrial immunity level
- 100% full load burn-in test
- 3 year warranty

## OUTPUT

### Cat. No.

### PST-48024

### PST-48048

DC VOLTAGE  
RATED CURRENT  
CURRENT RANGE  
RATED POWER  
RIPPLE & NOISE (max)

24V  
20A  
0 ~ 20A  
480W  
80mVp-p

48V  
10A  
0 ~ 10A  
480W  
80mVp-p

Ripple & noise are measured at 20MHz of bandwidth by using a 12 twisted pair-wire terminated with a 0.1μF & 47μF parallel capacitor.

VOLTAGE ADJ. RANGE  
VOLTAGE TOLERANCE

24 ~ 28V  
±1.0%

48 ~ 55V  
±1.0%

Tolerance: includes set up tolerance, line regulation and load regulation.

LINE REGULATION  
LOAD REGULATION

±0.5%  
±0.5%

±0.5%  
±0.5%

SETUP, RISE, HOLD UP TIME

1200ms, 40ms, 16ms / 400VAC; 800ms, 40ms, 35ms / 500VAC at full load

## INPUT

VOLTAGE RANGE

Three Phase 340 ~ 550VAC (Dual Phase operation possible) 480 ~ 780VDC  
Dual phase operation: derating of 20% is required

FREQUENCY RANGE  
EFFICIENCY (Typ.)

47 ~ 63Hz  
89%

90%

AC CURRENT  
INRUSH CURRENT (Typ.)  
LEAKAGE CURRENT

1.7A / 400VAC; 1.3A / 500VAC  
COLD START 50A  
≤ 3.5mA / 530VAC

## PROTECTION

OVERLOAD

105 ~ 150% rated output power

Protection type: Constant current limiting, recovers automatically after fault condition is removed

OVERVOLTAGE

30 ~ 36V

59 ~ 66V

Protection type: Shut down overvoltage, re-power on to recover

OVERTEMPERATURE

110°C ± 5°C (TSW) detect on heat sink of power switch

Protection type: Shut down overvoltage, recovers automatically after temperature goes down

## ENVIRONMENT

WORKING TEMP.  
WORKING HUMIDITY  
STORAGE TEMP., HUMIDITY  
TEMP. COEFFICIENT  
VIBRATION  
MOUNTING

-20 ~ +70°C (Refer to output load derating curve)  
20 ~ 90% RH non-condensing  
-40 ~ +85°C, 10 ~ 95% RH  
±0.03% / °C (0 ~ 50°C)  
10 ~ 500Hz, 2G 10min./1cycle, 60 min. each long X,Y, Z axes  
Compliance to IEC60068-2-6

## SAFETY & EMC

SAFETY STANDARDS

UL508  
EN60950-1approved  
UL60950-1

WITHSTAND VOLTAGE  
ISOLATION RESISTANCE  
EMI CONDUCTION & RADIATION  
HARMONIC CURRENT  
EMS IMMUNITY

I/P-O/P: 3KVAC I/P-FG: 1.5KVAC O/P-FG: 0.5KVAC  
I/P-O/P, I/P-FG, O/P-FG: 100M Ohms / 500VDC (25°C: 70% RH)  
Compliance to EN55011 (CISPR11), EN55022 (CISPR22), EN61204-3 Class B  
Compliance to EN61000-3-2,-3  
Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204; EN61204-3; EN61000-6-2; (EN50082-2), heavy industry level; criteria A  
The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

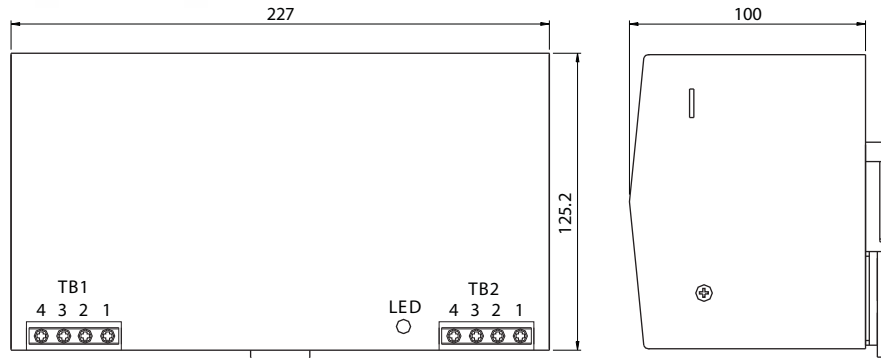
## OTHERS

MTBF  
DIMENSION  
PACKING

91.1K hrs min. MIL-HDBK-217K (25°C)  
227x125.2x100mm (WxHxD)  
2.5Kg; 6pcs / 16Kg / 1.75CUFT

All parameters NOT specially mentioned are measured at 400VAC input, rated load and 25°C of ambient temperature.

## Mechanical Specification



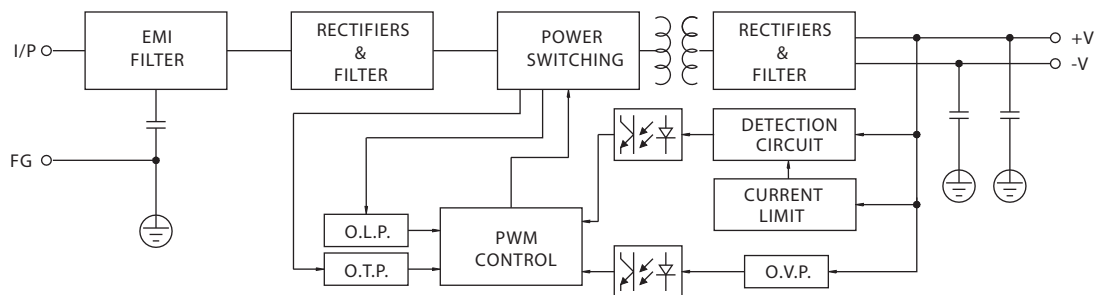
TB1 Terminal Pin. No Assignment

Pin No.	Assignment
1	AC/L1
2	AC/L2
3	AC/L3
4	FG ⊕

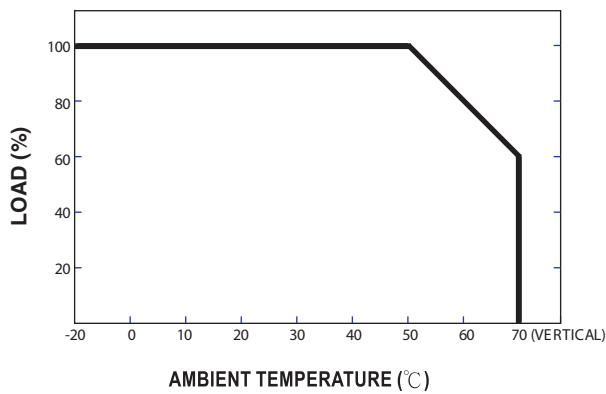
TB2 Terminal Pin. No Assignment

Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V

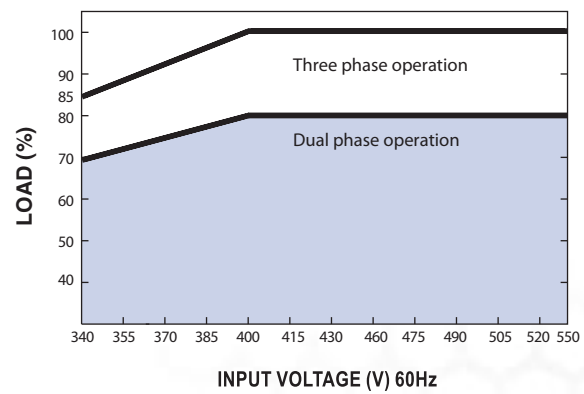
## Block Diagram



## Derating Curve



## Output Derating VS Input Voltage



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



# PST-960 Series Specifications

PARALLEL



## Features:

- Three-Phase AC 340 ~ 550V wide range input
- High efficiency 91% and low dissipation
- Protections: Short Circuit / Overload / Over Voltage / Overtemperature
- Optional parallel function(1+1)
- Cooling by free air convection
- DIN rail mountable
- UL 508(industrial control equipment) approved
- EN61000-6-2(EN50082-2) industrial immunity level
- 100% full load burn-in test
- 3 year warranty

## OUTPUT

### Cat. No.

### PST-96024 / PST-960P24\*

### PST-96048 / PST-960P48\*

DC VOLTAGE  
RATED CURRENT  
CURRENT RANGE  
RATED POWER  
RIPPLE & NOISE (max)

24V  
40A  
0 ~ 40A  
960W  
80mVp-p

48V  
20A  
0 ~ 20A  
960W  
80mVp-p

VOLTAGE ADJ. RANGE  
VOLTAGE TOLERANCE

24 ~ 28V  
±1.0%

48 ~ 55V  
±1.0%

LINE REGULATION  
LOAD REGULATION

±0.5%  
±0.5%

±0.5%  
±0.5%

SETUP, RISE, HOLD UP TIME

200ms, 60ms, 14ms / 400VAC

200ms, 60ms, 30ms / 500VAC at full load

Ripple & noise are measured at 20MHz of bandwidth by using a 12 twisted pair-wire terminated with a 0.1µF & 47µF parallel capacitor.

Tolerance: includes set up tolerance, line regulation and load regulation.

## INPUT

VOLTAGE RANGE

Three Phase 340 ~ 550VAC (Dual Phase operation possible in connecting L1, L3, FG)

FREQUENCY RANGE

47 ~ 63Hz

EFFICIENCY (Typ.)

91%

92%

AC CURRENT

2A / 400VAC;

1.6A / 500VAC

INRUSH CURRENT (Typ.)

COLD START 50A

LEAKAGE CURRENT

≤ 3.5 mA / 530VAC

Dual phase operation (connecting L1, L3, FG) is allowed under certain derating to output load. Please refer to the derating curves for details.

## PROTECTION

OVERLOAD

105 ~ 125% rated output power

OVERVOLTAGE

30 ~ 36V

59 ~ 66V

OVERTEMPERATURE

Protection type: Shut down overvoltage, re-power on to recover

110°C ± 5°C (TSW1) detect on heat sink of power transistor

85°C ± 5°C (TSW2) detect on heat sink of power diode

Protection type: Shut down overvoltage, recovers automatically after temperature goes down

## ENVIRONMENT

WORKING TEMP.

-20 ~ +60°C (Refer to output load derating curve)

WORKING HUMIDITY

20 ~ 90% RH non-condensing

STORAGE TEMP., HUMIDITY

-40 ~ +85°C, 10 ~ 95% RH

TEMP. COEFFICIENT

±0.03% / °C (0 ~ 50°C)

VIBRATION

10 ~ 500Hz, 2G 10min./1cycle, 60 min. each long X,Y, Z axes

MOUNTING

Compliance to IEC60068-2-6

## SAFETY & EMC

SAFETY STANDARDS

UL508

EN60950-1 approved

UL60950-1

WITHSTAND VOLTAGE

I/P-O/P: 3KVAC I/P-FG: 1.5KVAC O/P-FG: 0.5KVAC

ISOLATION RESISTANCE

I/P-O/P, I/P-FG, O/P-FG: 100M Ohms / 500VDC (25°C; 70% RH)

EMI CONDUCTION & RADIATION

Compliance to EN55011 (CISPR11), EN55022 (CISPR22), EN61204-3 Class B

HARMONIC CURRENT

Compliance to EN61000-3-2, -3

EMS IMMUNITY

Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204; EN61204-3; EN61000-6-2; (EN50082-2), heavy industry level; criteria A

The power supply is considered a component which will installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

## OTHERS

MTBF

122.5K hrs min. MIL-HDBK-217K (25°C)

DIMENSION

276x125.2x100mm (WxHxD)

PACKING

3.3Kg; 4pcs / 14.2Kg / 1.14CUFT

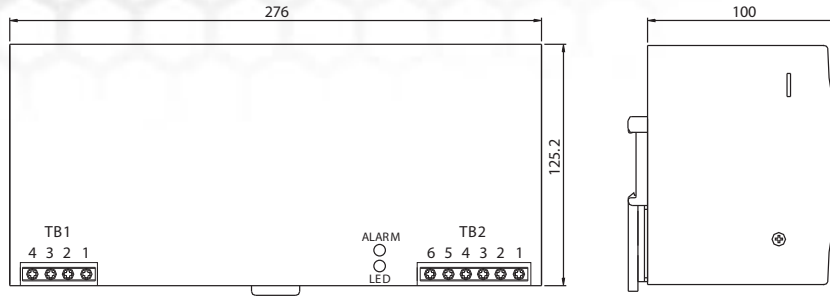
All parameters NOT specially mentioned are measured at 400VAC input, rated load and 25°C of ambient temperature.

\*Special order required.

For the latest on Altech Power Supply specifications please visit [www.altechcorp.com/power](http://www.altechcorp.com/power).



## Mechanical Specification



TB1 Terminal Pin. No Assignment

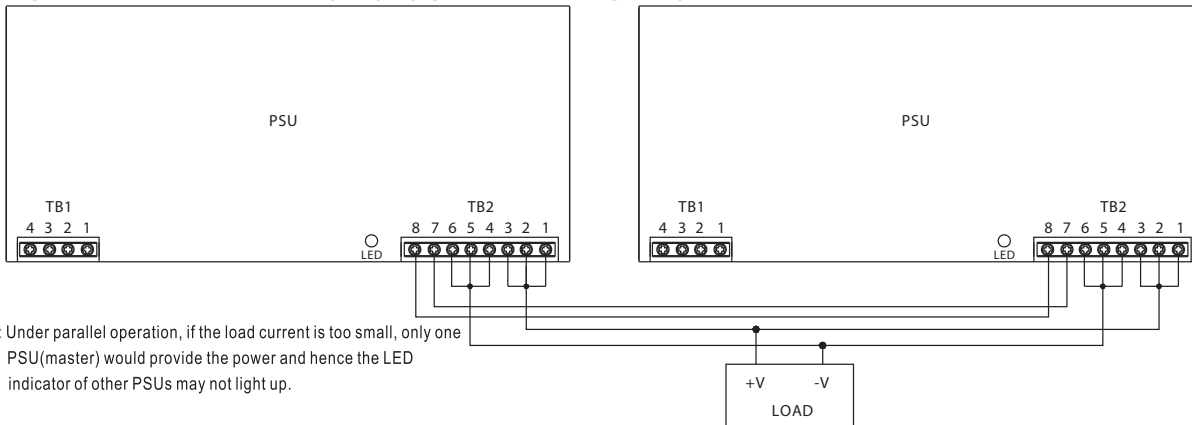
Pin No.	Assignment
1	AC/L1
2	AC/L2
3	AC/L3
4	FG ⚡

TB2 Terminal Pin. No Assignment

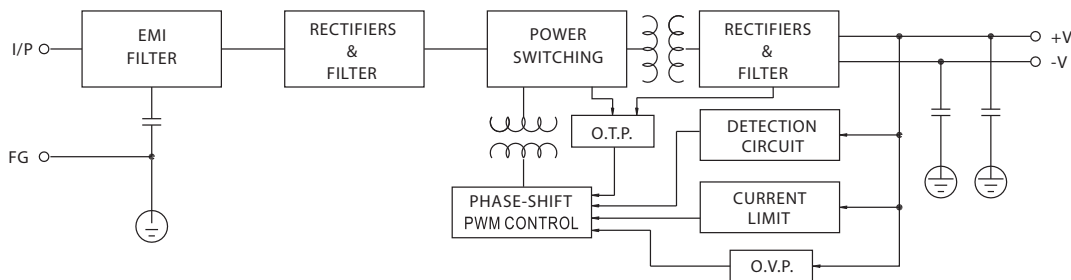
Pin No.	Assignment
1,2,3	DCOUTPUT+ V
4,5,6	DCOUTPUT - V
7	P (Current Share)
8	P (Current Share)

Parallel Only

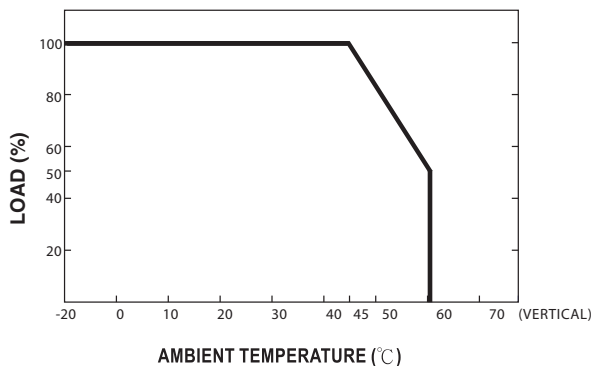
## Optional Parallel Function (1+1) - (Special order required)



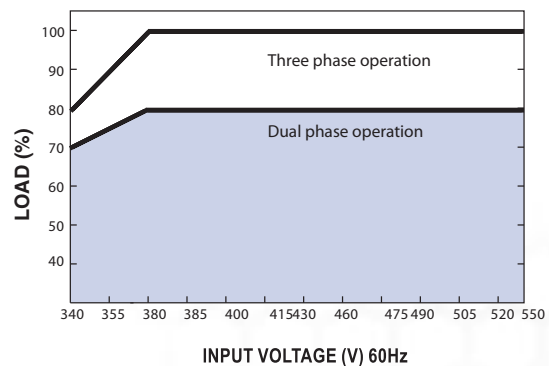
## Block Diagram



## Derating Curve



## Output Derating VS Input Voltage



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



## High Efficiency Compact Housing Power Supply

This high performance single output compact DIN rail PS-C Series, with up-to-date circuit design, possess up to 94% of high efficiency and works within 110 ~150% rated output power for up to 3 seconds.

With built-in active PFC function, PS-C Series is a full range AC input switching power supply that fulfills the requirement of EN61000-3-2 for harmonic current. The compact design helps save the precious space on the rail and also makes it up to 50% smaller in size compare to its predecessor model PS-Series. Meanwhile, PS-C also have 5~9% higher efficiency than corresponding models of the PS-Series, which response to the trend of green power with energy saving concept.

Other standard functions include DC OK relay contact, on panel LED indicator, and protection for short-circuit, overload (constant current limiting, shut down if over 3 seconds), over voltage, and over temperature. To fulfill the requirements of marine and semi-conductor related usage, PS-C Series also complies with GL and SEMI F47 norms in addition to UL, CUL and CE certificates. Suitable applications are factory automation, semi-conductor fabrication equipment, marine related installation, and electro-mechanical applications.

- Input voltage range: 88-264V AC; 124-370V DC
- AC inrush current (typical):Cold start: 65A at 230V AC (PSC-240)
- DC adjustment range (typical): 12V: 12-14V, 24V: 24-28V, 48V: 48-55V,
- Overload protection (typical): 110%-150% rated output power
- Overvoltage protection (typical): 14-17V for 12V model (PSW-120),  
29-33V for 24V model  
56-65V for 48V model
- Over temperature protection: 95°C ± 5°C (PSC-120/240); 105°C ± 5°C
- Withstand voltage: I/P-O/P:3KV AC, I/P-FG:1.5KV AC, O/P-FG:0.5KV AC,
- Working temperature: -25 to +70°C (-4° to +158°F),  
refer to output derating curve
- Safety standards: UL508; EN60950-1 compliant
- EMC standards: Compliance to EN55022 class B,  
EN61000-4-2,3,4,5,6,8,11, ENV50204,  
EN61000-6-2, EN61204-3, heavy Industry level,  
SEMI F47, GL



## Features:

- High efficiency up to 94% and low power dissipation
- Universal AC Input / Full Range
- 150% peak load capability
- Built-in active PFC function,  $PF > 0.93$
- Protections: Short circuit / Overload / Overvoltage / Over temperature
- Cooling by free air convection
- Din rail mountable
- LED indicator for power on
- UL 508 (industrial control equipment) approved
- EN61000-6-2(EN50082-2) industrial immunity level
- 100% full load burn-in test
- Built-in DC OK relay contact
- 3 year warranty

35mm DIN Rail Mounting

Rugged metal housing

Narrow for maximized panel space



Adjustable DC Output Voltage

DC on LED signal

Easy to understand layout panel

CE Compliance

UL508 Compliance

Universal Input

Slimline  
single phase

Low Profile  
single phase

Industrial Metal Case  
single phase

Industrial Metal Case  
three phase

High Efficiency  
compact housing

Accessories

# 120-480W Single Phase

## COMPACT SIZE POWER SUPPLIES



### 120W Single Output DIN Rail Power Supply

Cat. No.	Output V DC	A	Tol. %	Ripple & Noise	Efficiency	NOTES
PS-C12012	12V DC	10A	±1%	100 mVp-p	89%	
PS-C12024	24V DC	5A	±1%	100 mVp-p	91%	
PS-C12048	48V DC	2.5A	±1%	120 mVp-p	91%	

### 240W Single Output DIN Rail Power Supply

Cat. No.	Output V DC	A	Tol. %	Ripple & Noise	Efficiency	NOTES
PS-C24024	24V DC	10A	±1%	100 mVp-p	94%	
PS-C24048	48V DC	5A	±1%	120 mVp-p	94%	

### 480W Single Output DIN Rail Power Supply

Cat. No.	Output V DC	A	Tol. %	Ripple & Noise	Efficiency	NOTES
PS-C48024	24V DC	20A	±1%	100 mVp-p	94%	
PS-C48048	48V DC	10A	±1%	120 mVp-p	94%	

### 480W Single Output DIN Rail Power Supply

with PFC and Parallel Function (1+7)

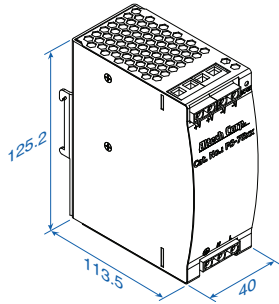
Cat. No.	Output V DC	A	Tol. %	Ripple & Noise	Efficiency	NOTES
PS-C480P24	24V DC	20A	±1%	100 mVp-p	94%	
PS-C480P48	48V DC	10A	±1%	120 mVp-p	94%	

PARALLEL



# SPECIFICATIONS

## PS-C120 Series



Terminal Pin. No Assign. (TB1)

Pin No.	Assignment
1	FG ⊕
2	AC/N
3	AC/L

Terminal Pin. No Assign. (TB2)

Pin No.	Assignment
1,2	Relay Contact
3	DC OUTPUT -V
4	DC OUTPUT +V

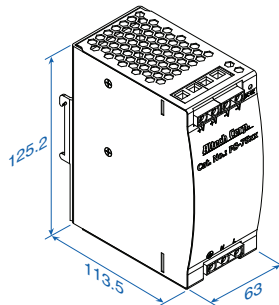
Universal Input: 88-264V AC, 124-370V DC full range,  
1.4A/115V AC, 0.7A/230V AC

Connection: Input - 3 poles, Output - 4 poles screw terminal

Size (WxHxD): 40x125.2x113.5mm (1.57x4.93x4.47 inches)

Packaging: 1/box; 1.48lbs / 0.67Kg

## PS-C240 Series



Terminal Pin. No Assign. (TB1)

Pin No.	Assignment
1	FG ⊕
2	AC/N
3	AC/L

Terminal Pin. No Assign. (TB2)

Pin No.	Assignment
1,2	Relay Contact
3,4	DC OUTPUT -V
5,6	DC OUTPUT +V

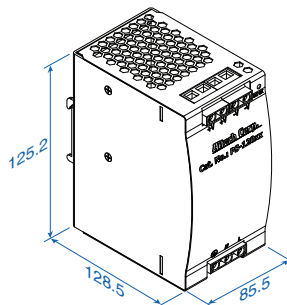
Switch select Input: 88-264V AC, 124-370V DC range,  
2.6A/115V AC, 1.3A/230V AC

Connection: Input - 3 poles, Output - 6 poles screw terminal

Size (WxHxD): 63x125.2x113.5mm (2.48x4.93x4.47 inches)

Packaging: 1/box; 2.27lbs / 1.03Kg

## PS-C480 Series



Terminal Pin. No Assign. (TB1)

Pin No.	Assignment
1	FG ⊕
2	AC/N
3	AC/L

Terminal Pin. No Assign. (TB2)

Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V
5,6	Relay Contact
7,8	NC

For Parallel Model  
Terminal Pin. No Assign. (TB1)

Pin No.	Assignment
1	FG ⊕
2	AC/N
3	AC/L

For Parallel Model  
Terminal Pin. No Assign. (TB2)

Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V
5,6	Relay Contact
7	P+ (current share)*
8	P- (current share)*

\* Only parallel function.

Universal Input: 90-264V AC, 127-370V DC full range,  
5A/115V AC, 2.5A/230V AC

Connection: Input - 3 poles, Output - 12 poles screw terminal

Size (WxHxD): 85.5x125.2x128.5mm (3.37x4.93x5.06 inches)

Packaging: 1/box; 3.53lbs / 1.6Kg

Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



# PS-C120 Series Specifications



## Features:

- High efficiency 91% and low power dissipation
- 150% peak load capability
- Built-in active PFC function, PF>0.93
- Protections: Short Circuit / Overload / Over Voltage / Overtemperature
- Cooling by free air convection
- DIN rail mountable
- UL 508 (industrial control equipment) approved
- EN61000-6-2 (EN50082-2) industrial immunity level
- Built-in DC OK relay contact
- 100% full load burn-in test
- 3 year warranty

## OUTPUT

Cat. No.	PS-C12012	PS-C12024	PS-C12048
DC VOLTAGE	12V	24V	48V
RATED CURRENT	10A	5A	2.5A
CURRENT RANGE	0 ~ 10A	0 ~ 5A	0 ~ 2.5A
RATED POWER	120W	120W	120W
PEAK CURRENT	15A	7.5A	3.75A
PEAK POWER	180W (3 sec.)		
	3 seconds max., please refer to peak loading curves		
RIPPLE & NOISE (max)	100mVp-p	100mVp-p	120mVp-p
	Ripple & noise are measured at 20MHz of bandwidth by using a 12 twisted pair-wire terminated with a 0.1µF & 47µF parallel capacitor.		
VOLTAGE ADJ. RANGE	12 ~ 14V	24 ~ 28V	48 ~ 55V
VOLTAGE TOLERANCE	±1.0%	±1.0%	±1.0%
	Tolerance: includes set up tolerance, line regulation and load regulation.		
LINE REGULATION	±0.5%	±0.5%	±0.5%
LOAD REGULATION	±1.0%	±1.0%	±1.0%
SETUP, RISE TIME	1500ms, 60ms / 230VAC	3000ms, 60ms / 115VAC at full load	
HOLD UP TIME (Typ.)	20ms / 230VAC	20ms / 115VAC at full load	
VOLTAGE RANGE	88 ~ 264VAC	124 ~ 370VDC	
	Derating may be needed under low input voltages, please check the derating curve for more detail		
FREQUENCY RANGE	47 ~ 63Hz		
POWER FACTOR (Typ.)	0.93 / 230VAC	0.96 / 115VAC at full load	
EFFICIENCY (Typ.)	89%	91%	90.50%
AC CURRENT (Typ.)	1.4A / 115VAC	0.7A / 230VAC	
INRUSH CURRENT (Typ.)	35A / 115VAC	70A / 230VAC	
LEAKAGE CURRENT	≤ 1 mA / 240VAC		
OVERLOAD	Normally works within 110 ~ 150% rated output power for more than 3 seconds and then shut down overvoltage		
	≥ 150% rated power, constant current limiting with auto-recovery within 3 seconds and shut down overvoltage after 3 seconds		
OVERVOLTAGE	14 ~ 17V	29 ~ 33V	56 ~ 65V
	Protection type: Shut down overvoltage, re-power on to recover		
OVERTEMPERATURE	95°C ± 5°C (TSW: detect on heat sink of power switch)		
	Protection type: Shut down overvoltage, re-power automatically after temperature goes down		
DC OK RELAY CONTACT RATINGS (max.)	60VDC / 0.3A	30VDC / 1A	30VAC / 0.5A RESISTIVE LOAD
WORKING TEMP.	-25 ~ +70°C (Refer to output load derating curve)		
	Installation clearances: 40mm on top, 20mm on the bottom, 5mm on the left and right side are recommended when loaded permanently with full power. In case the adjacent device is a heat source, 15mm clearance is recommended		
WORKING HUMIDITY	20 ~ 95% RH non-condensing		
STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH		
TEMP. COEFFICIENT	±0.03% / °C (0 ~ 50°C)		
VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60 min. each long X,Y, Z axes		
MOUNTING	Compliance to IEC60068-2-6		
SAFETY STANDARDS	UL508 EN60950-1 compliant		
WITHSTAND VOLTAGE	I/P-O/P: 3KVAC I/P-FG: 1.5KVAC O/P-FG: 0.5KVAC O/P-DC OK: 0.5KVAC		
ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG: ≥100M Ohms/500VDC (25°C; 70% RH)		
EMI CONDUCTION & RADIATION	Compliance to EN55022 (CISPR22) Class B		
HARMONIC CURRENT	Compliance to EN61000-3-2,-3		
EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204; EN55024; EN61000-6-2; (EN50082-2); EN61204-3; heavy industry level; criteria A, SEMI F47, GL approved		
	The power supply is considered a component which will installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.		
MTBF	289.9K hrs min. MIL-HDBK-217K (25°C)		
DIMENSION	40x125.2x113.5mm (WxHxD)		
PACKING	0.67Kg; 20pcs / 14.4Kg / 1.16CUFT		
	All parameters NOT specially mentioned are measured at 230V AC input, rated load and 25°C of ambient temperature.		

## INPUT

## PROTECTION

## ENVIRONMENT

## SAFETY & EMC

## OTHERS

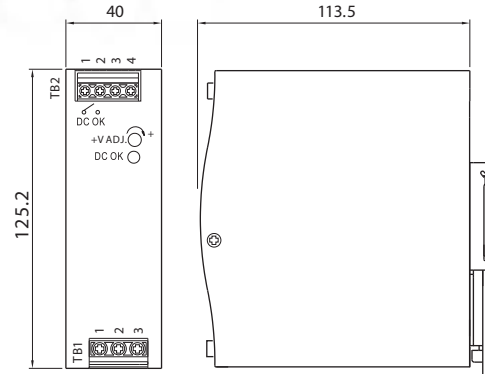
## Mechanical Specification

Terminal Pin No. Assignment (TB1)

Pin No.	Assignment
1	FG ⊕
2	AC/N
3	AC/L

Terminal Pin No. Assignment (TB2)

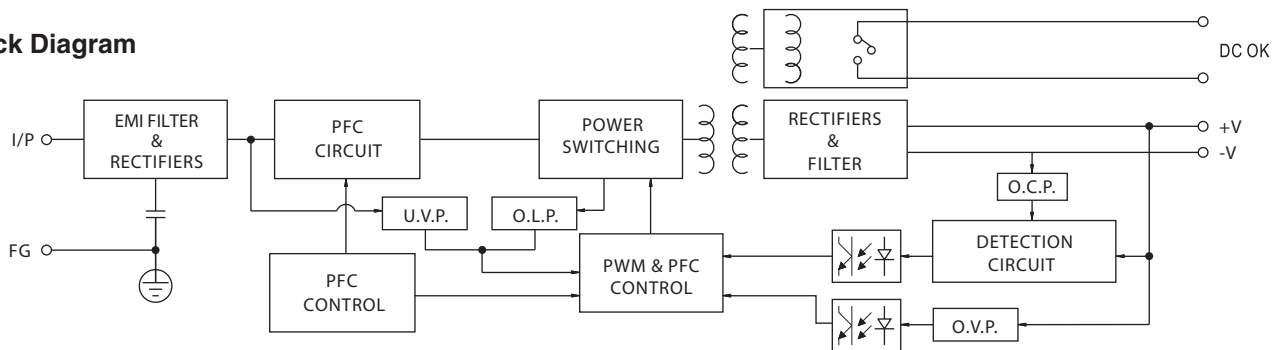
Pin No.	Assignment
1,2	Relay Contact
3	DC OUTPUT -V
4	DC OUTPUT +V



## DC OK Relay Contact

Contact Close	When the output voltage reaches the adjusted output voltage.
Contact Open	When the output voltage drop below 90% output voltage.
Contact Ratings (max.)	30V/1A resistive load

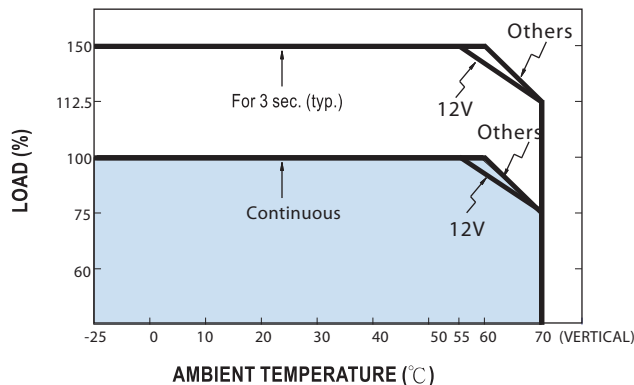
## Block Diagram



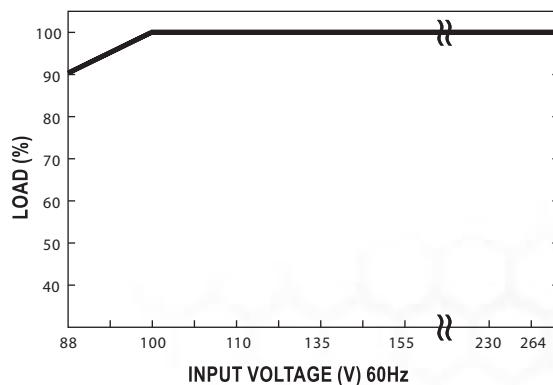
## Peak Loading



## Derating Curve



## Output Derating VS Input Voltage



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



# PS-C240 Series Specifications



## Features:

- High efficiency 94% and low power dissipation
- 150% peak load capability
- Built-in active PFC function, PF>0.93
- Protections: Short Circuit / Overload / Over Voltage / Overtemperature
- Cooling by free air convection
- DIN rail mountable
- UL 508 (industrial control equipment) approved
- EN61000-6-2(EN50082-2) industrial immunity level
- Built-in DC OK relay contact
- 100% full load burn-in test
- 3 year warranty

## OUTPUT

## INPUT

## PROTECTION

## ENVIRONMENT

## SAFETY & EMC

## OTHERS

### Cat. No.

### PS-C24024

### PS-C24048

DC VOLTAGE	24V	48V
RATED CURRENT	10A	5A
CURRENT RANGE	0 ~ 10A	0 ~ 5A
RATED POWER	240W	240W
PEAK CURRENT	15A	7.5A
PEAK POWER	360W (3 sec.)	
	3 seconds max., please refer to peak loading curves	
RIPPLE & NOISE (max)	100mVp-p	120mVp-p
	Ripple & noise are measured at 20MHz of bandwidth by using a 12 twisted pair-wire terminated with a 0.1µF & 47µF parallel capacitor.	
VOLTAGE ADJ. RANGE	24 ~ 28V	48 ~ 55V
VOLTAGE TOLERANCE	±1.0%	±1.0%
	Tolerance: includes set up tolerance, line regulation and load regulation.	
LINE REGULATION	±0.5%	±0.5%
LOAD REGULATION	±1.0%	±1.0%
SETUP, RISE TIME	1500ms, 60ms / 230VAC	3000ms, 60ms / 115VAC at full load
HOLD UP TIME (Typ.)	20ms / 230VAC	20ms / 115VAC at full load
VOLTAGE RANGE	88 ~ 264VAC	124 ~ 370VDC
	Derating may be needed under low input voltages, please check the derating curve for more detail	
FREQUENCY RANGE	47 ~ 63Hz	
POWER FACTOR (Typ.)	0.93 / 230VAC	0.99 / 115VAC at full load
EFFICIENCY (Typ.)	94%	
	After 30 minutes of burn-in.	
AC CURRENT (Typ.)	2.6A / 115VAC	1.3A / 230VAC
INRUSH CURRENT (Typ.)	33A / 115VAC	65A / 230VAC
LEAKAGE CURRENT	≤ 1 mA / 240VAC	
OVERLOAD	Normally works within 110 ~ 150% rated output power for more than 3 seconds and then shut down overvoltage with auto-recovery	
	≥ 150% rated power, constant current limiting with auto-recovery within 2 seconds and shut down overvoltage after 2 seconds	
OVERVOLTAGE	29 ~ 33V	56 ~ 65V
	Protection type: Shut down overvoltage with auto-recovery	
OVERTEMPERATURE	95°C ± 5°C (TSW: detect on heat sink of power switch)	
	Protection type: Shut down overvoltage, re-power automatically after temperature goes down	
DC OK RELAY CONTACT RATINGS (max.)	60VDC / 0.3A	30VDC / 1A
WORKING TEMP.	-25 ~ +70°C (Refer to output load derating curve)	
	Installation clearances: 40mm on top, 20mm on the bottom, 5mm on the left and right side are recommended when loaded permanently with full power. In case the adjacent device is a heat source, 15mm clearance is recommended.	
WORKING HUMIDITY	20 ~ 95% RH non-condensing	
STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH	
TEMP. COEFFICIENT	±0.03% / °C (0 ~ 50°C)	
VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60 min. each long X,Y, Z axes	
MOUNTING	Compliance to IEC60068-2-6	
SAFETY STANDARDS	UL508	
	EN60950-1 compliant	
WITHSTAND VOLTAGE	I/P-O/P: 3KVAC I/P-FG: 1.5KVAC O/P-FG: 0.5KVAC O/P-DC OK: 0.5KVAC	
ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG: ≥100M Ohms / 500VDC (25°C; 70% RH)	
EMI CONDUCTION & RADIATION	Compliance to EN55022 (CISPR22) Class B	
HARMONIC CURRENT	Compliance to EN61000-3-2,-3	
EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; EN55024; EN61000-6-2; (EN50082-2), EN61204-3; heavy industry level; criteria A, SEMI F47, GL approved	
	The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.	
MTBF	169.3K hrs min. MIL-HDBK-217K (25°C)	
DIMENSION	63x125.2x113.5mm (WxHxD)	
PACKING	1.03Kg; 12pcs / 13.4Kg / 1.06CUFT	
	All parameters NOT specially mentioned are measured at 230V AC input, rated load and 25°C of ambient temperature.	

For the latest on Altech Power Supply specifications please visit [www.altechcorp.com/power](http://www.altechcorp.com/power).



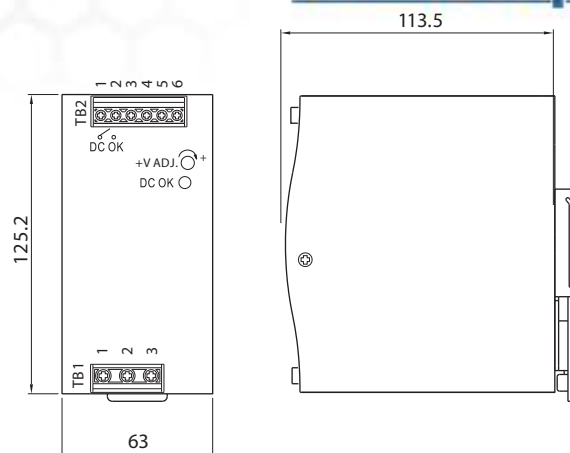
## Mechanical Specification

Terminal Pin No. Assignment (TB1)

Pin No.	Assignment
1	FG $\oplus$
2	AC/N
3	AC/L

Terminal Pin No. Assignment (TB2)

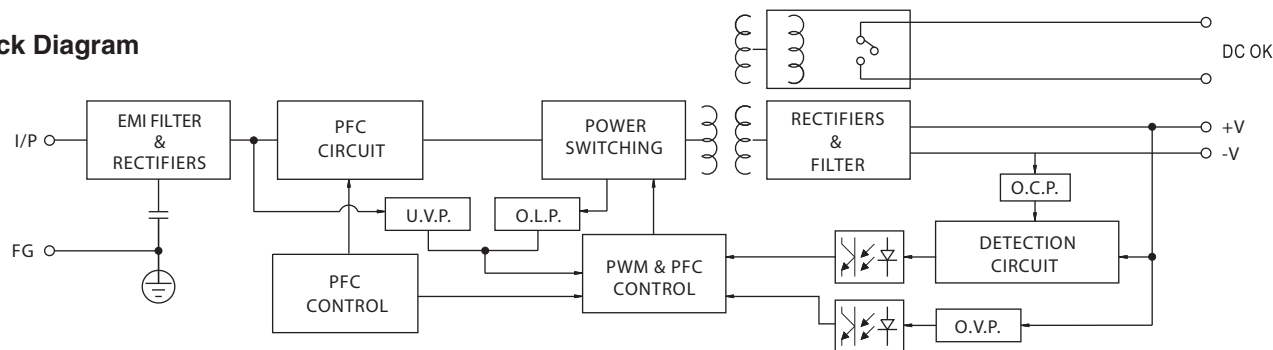
Pin No.	Assignment
1,2	Relay Contact
3,4	DC OUTPUT +V
5,6	DC OUTPUT -V



## DC OK Relay Contact

Contact Close	When the output voltage reaches the adjusted output voltage.
Contact Open	When the output voltage drop below 90% output voltage.
Contact Ratings (max.)	30V/1A resistive load

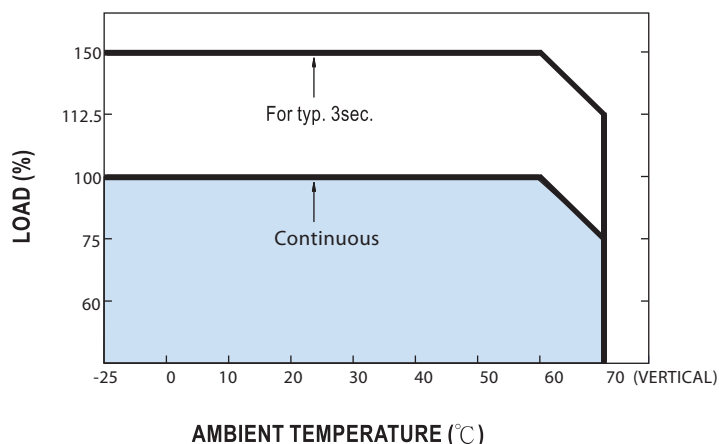
## Block Diagram



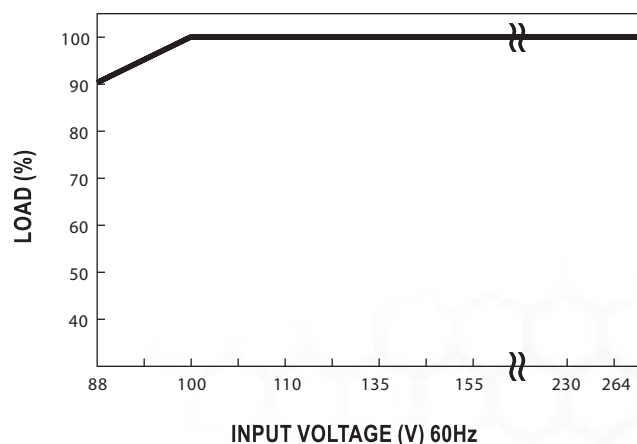
## Peak Loading



## Derating Curve



## Output Derating VS Input Voltage



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



# PS-C480 Series Specifications



## Features:

- High efficiency 94% and low power dissipation
- 150% peak load capability
- Built-in active PFC function, PF>0.94
- Protections: Short Circuit / Overload / Over Voltage / Overtemperature
- Cooling by free air convection
- Built-in constant current limiting circuit
- DIN rail mountable
- UL 508(industrial control equipment) approved
- EN61000-6-2(EN50082-2) industrial immunity level
- Built-in DC OK relay contact
- 100% full load burn-in test
- 3 year warranty

## OUTPUT

### Cat. No.

### PS-C48024

### PS-C48048

DC VOLTAGE	24V	48V
RATED CURRENT	20A	10A
CURRENT RANGE	0 ~ 20A	0 ~ 10A
RATED POWER	480W	480W
PEAK CURRENT	30A	15A
PEAK POWER	720W (3 sec.)	
	3 seconds peak power max. and the average output power should not exceed the rate power	
RIPPLE & NOISE (max)	100mVp-p	120mVp-p
	Ripple & noise are measured at 20MHz of bandwidth by using a 12 twisted pair-wire terminated with a 0.1µF & 47µF parallel capacitor.	
VOLTAGE ADJ. RANGE	24 ~ 28V	48 ~ 55V
VOLTAGE TOLERANCE	±1.2%	±1.0%
	Tolerance: includes set up tolerance, line regulation and load regulation.	
LINE REGULATION	±0.5%	±0.5%
LOAD REGULATION	±1.0%	±1.0%
SETUP, RISE TIME	1500ms, 150ms / 230VAC	3000ms, 150ms / 115VAC at full load
HOLD UP TIME (Typ.)	14ms / 230VAC at full load	

## INPUT

VOLTAGE RANGE	90 ~ 264VAC 127 ~ 370VDC	
	Deating may be needed under low input voltages, please check the derating curve for more detail	
FREQUENCY RANGE	47 ~ 63Hz	
POWER FACTOR (Typ.)	0.94 / 230VAC	0.99 / 115VAC at full load
EFFICIENCY (Typ.)	94%	
	After 30 minutes of burn-in	
AC CURRENT (Typ.)	5A / 115VAC	2.5A / 230VAC
INRUSH CURRENT (Typ.)	40A / 115VAC	80A / 230VAC
LEAKAGE CURRENT	≤ 0.8 mA / 240VAC	

## PROTECTION

OVERLOAD	Normally works within 110 ~ 150% rated output power for more than 3 seconds and then shut down overvoltage with auto-recovery ≥ 150% rated power, constant current limiting with auto-recovery within 2 seconds and shut down overvoltage after 2 seconds	
OVERVOLTAGE	29 ~ 33V	56 ~ 65V
	Protection type: Shut down overvoltage with auto-recovery on re-power on to recovery	
OVERTEMPERATURE	105°C ± 5°C (TSW: detect on heat sink of power switch) Protection type: Shut down overvoltage, re-power automatically after temperature goes down	
DC OK RELAY CONTACT RATINGS (max.)	60VDC / 0.3A; 30VDC / 1A; 30VAC / 0.5A resistive load	

## ENVIRONMENT

WORKING TEMP.	-25 ~ +70°C (Refer to output load derating curve)
	Installation clearances: 40mm on top, 20mm on the bottom, 5mm on the left and right side are recommended when loaded permanently with full power. In case the adjacent device is a heat source, 15mm clearance is recommended.
WORKING HUMIDITY	20 ~ 95% RH non-condensing
STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH
TEMP. COEFFICIENT	±0.03% / °C (0 ~ 50°C)
VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60 min. each long X,Y, Z axes
MOUNTING	Compliance to IEC60068-2-6

## SAFETY & EMC

SAFETY STANDARDS	UL508 EN60950-1 compliant
WITHSTAND VOLTAGE	I/P-O/P: 3KVAC I/P-FG: 1.5KVAC O/P-FG: 0.5KVAC O/P-DC OK: 0.5KVAC
ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG: ≥100M Ohms/500VDC (25°C; 70% RH)
EMI CONDUCTION & RADIATION	Compliance to EN55022 (CISPR22) Class B
HARMONIC CURRENT	Compliance to EN61000-3-2, -3
EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204; EN55024; EN61000-6-2; (EN50082-2), EN61204-3; heavy industry level; criteria A, SEMI F47, GL approved
	The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

## OTHERS

MTBF	112.9K hrs min. MIL-HDBK-217K (25°C)
DIMENSION	85.5x125.2x128.5mm (WxHxD)
PACKING	1.6Kg; 8pcs / 13.8Kg / 0.9CUFT
	All parameters NOT specially mentioned are measured at 230V AC input, rated load and 25°C of ambient temperature.

For the latest on Altech Power Supply specifications please visit [www.altechcorp.com/power](http://www.altechcorp.com/power).

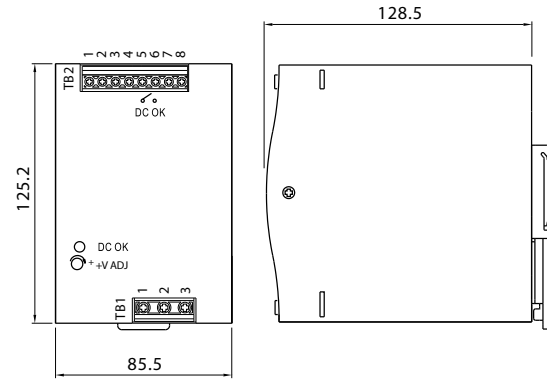
## Mechanical Specification

Terminal Pin No. Assignment (TB1)

Pin No.	Assignment
1	FG $\oplus$
2	AC/N
3	AC/L

Terminal Pin No. Assignment (TB2)

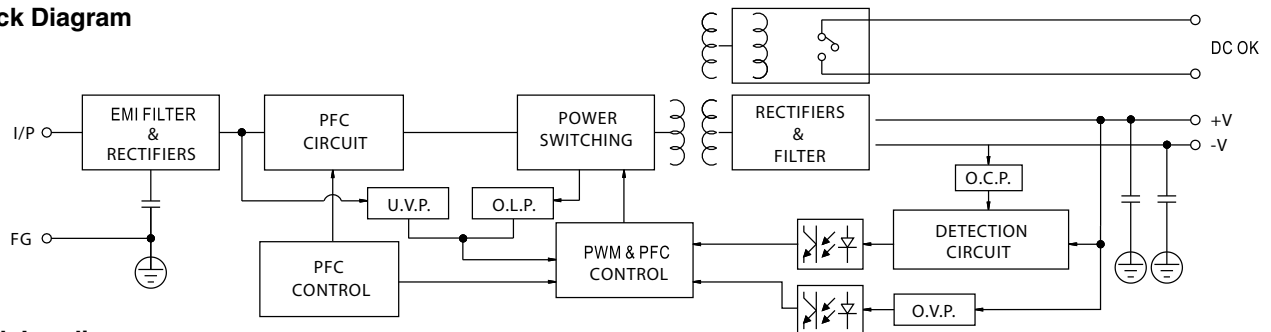
Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V
5,6	Relay Contact
7,8	NC



## DC OK Relay Contact

Contact Close	When the output voltage reaches the adjusted output voltage.
Contact Open	When the output voltage drop below 90% output voltage.
Contact Ratings (max.)	30V/1A resistive load

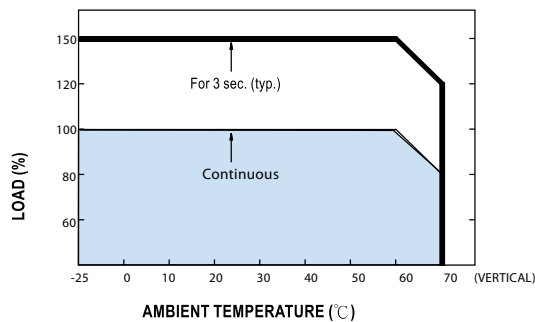
## Block Diagram



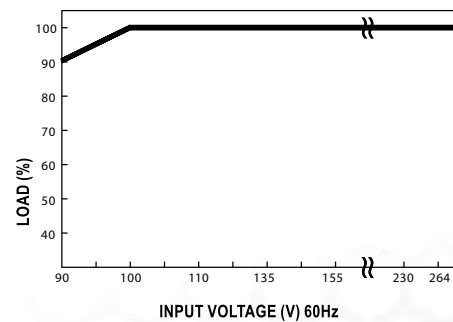
## Peak Loading



## Derating Curve



## Output Derating VS Input Voltage



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



# PS-C480P Series With Parallel Function Specifications



**PARALLEL**

## Features:

- High efficiency 94% and low power dissipation
- 150% peak load capability
- Built-in active PFC function, PF>0.94
- Protections: Short Circuit / Overload / Over Voltage / Overtemperature
- Cooling by free air convection
- Built-in constant current limiting circuit
- DIN rail mountable
- Current sharing up to 380W (1+7)
- UL 508(industrial control equipment)approved
- EN61000-6-2(EN50082-2) industrial immunity level
- Built-in DC OK relay contact
- 100% full load burn-in test
- 3 year warranty

## OUTPUT

### Cat. No.

### PS-C480P24

### PS-C480P48

DC VOLTAGE	24V	48V
RATED CURRENT	20A	10A
CURRENT RANGE	0 ~ 20A	0 ~ 10A
RATED POWER	480W	480W
PEAK CURRENT	30A	15A
PEAK POWER	720W (3 sec.)	
	3 seconds peak power max. and the average output power should not exceed the rate power	
RIPPLE & NOISE (max)	100mVp-p	120mVp-p
	Ripple & noise are measured at 20MHz of bandwidth by using a 12 twisted pair-wire terminated with a 0.1μF & 47μF parallel capacitor.	
VOLTAGE ADJ. RANGE	24 ~ 28V	48 ~ 55V
VOLTAGE TOLERANCE	±1.2%	±1.0%
	Tolerance: includes set up tolerance, line regulation and load regulation.	
LINE REGULATION	±0.5%	±0.5%
LOAD REGULATION	±1.0%	±1.0%
SETUP, RISE, HOLD UP TIME	1500ms, 150ms, 14ms / 230VAC	3000ms, 150ms / 115VAC at full load
VOLTAGE RANGE	90 ~ 264VAC 127 ~ 370VDC	
	Derating may be needed under low input voltages, please check the derating curve for more detail	
FREQUENCY RANGE	47 ~ 63Hz	
POWER FACTOR (Typ.)	0.94 / 230VAC 0.99 / 115VAC at full load	
EFFICIENCY (Typ.)	94%	
	After 30 minutes of burn-in.	
AC CURRENT (max.)	5A / 115VAC 2.5A / 230VAC	
INRUSH CURRENT (Typ.)	40A / 115VAC 80A / 230VAC	
LEAKAGE CURRENT	≤ 0.6 mA / 240VAC	
OVERLOAD	Normally works within 110 ~ 150% rated output power for more than 3 seconds and then shut down overvoltage with auto-recovery	
	≥ 150% rated power, constant current limiting with auto-recovery within 2 seconds and shut down overvoltage after 2 seconds	
OVERVOLTAGE	29 ~ 33V	56 ~ 65V
	Protection type: Shut down overvoltage with auto-recovery on re-power on to recovery	
OVERTEMPERATURE	105°C ± 5°C (TSW: detect on heat sink of power switch)	
	Protection type: Shut down overvoltage, re-power automatically after temperature goes down	
CURRENT SHARING	Please see function diagram	
DC OK RELAY CONTACT RATINGS (max.)	60VDC / 0.3A; 30VDC / 1A; 30VAC / 0.5A resistive load	
WORKING TEMP.	-25 ~ +70°C (Refer to output load derating curve)	
	Installation clearances: 40mm on top, 20mm on the bottom, 5mm on the left and right side are recommended when loaded permanently with full power. In case the adjacent device is a heat source, 15mm clearance is recommended.	
WORKING HUMIDITY	20 ~ 95% RH non-condensing	
STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH	
TEMP. COEFFICIENT	±0.03% / °C (0 ~ 50°C)	
VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60 min. each long X,Y, Z axes	
MOUNTING	Compliance to IEC60068-2-6	
SAFETY STANDARDS	UL508	
	EN60950-1 compliant	
WITHSTAND VOLTAGE	I/P-O/P: 3KVAC I/P-FG: 1.5KVAC O/P-FG: 0.5KVAC O/P-DC OK: 0.5KVAC	
ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG: ≥100M Ohms/500VDC (25°C; 70% RH)	
EMI CONDUCTION & RADIATION	Compliance to EN55022 (CISPR22) Class B	
HARMONIC CURRENT	Compliance to EN61000-3-2,-3	
EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204; EN55024; EN61000-6-2; (EN50082-2), EN61204-3; heavy industry level; criteria A, SEMI F47, GL approved	
	The power supply is considered a component which will installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.	
MTBF	112.9K hrs min. MIL-HDBK-217K (25°C)	
DIMENSION	85.5x125.2x128.5mm (WxHxD)	
PACKING	1.6Kg; 8pcs / 13.8Kg / 0.9CUFT	

All parameters NOT specially mentioned are measured at 230V AC input, rated load and 25°C of ambient temperature.

For the latest on Altech Power Supply specifications please visit [www.altechcorp.com/power](http://www.altechcorp.com/power).



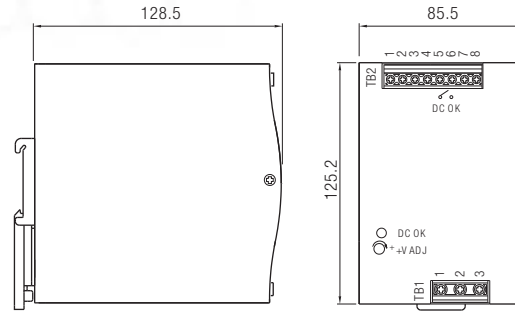
## Mechanical Specification

Terminal Pin No. Assignment (TB1)

Pin No.	Assignment
1	FG Ⓢ
2	AC/N
3	AC/L

Terminal Pin No. Assignment (TB2)

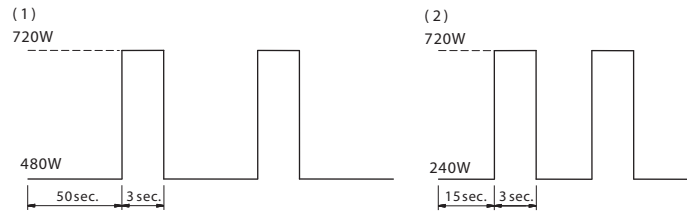
Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V
5,6	Relay Contact
7	P+ (current share)
8	P- (current share)



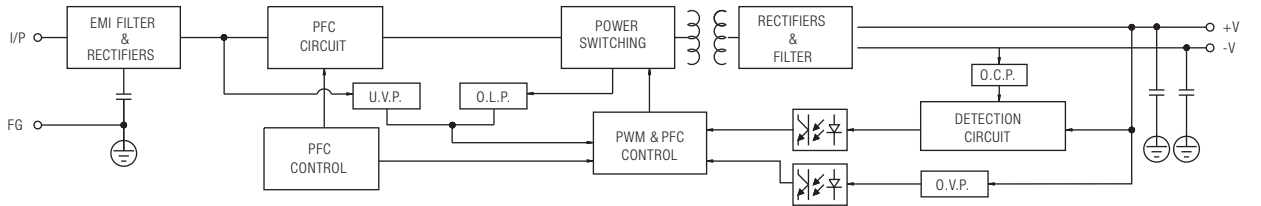
## DC OK Relay Contact

Contact Close	When the output voltage reaches the adjusted output voltage.
Contact Open	When the output voltage drop below 90% output voltage.
Contact Ratings (max.)	30V/1A resistive load

## Peak Loading



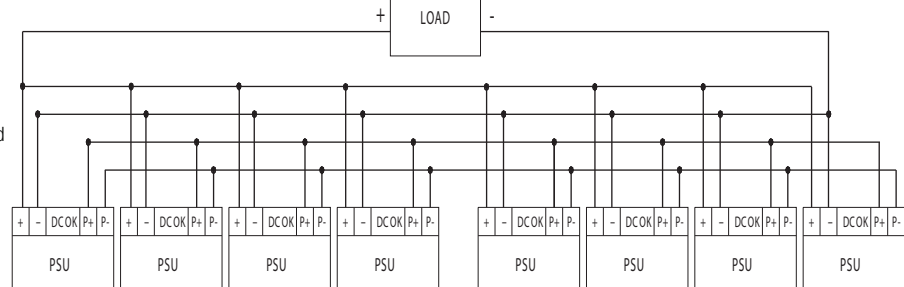
## Block Diagram



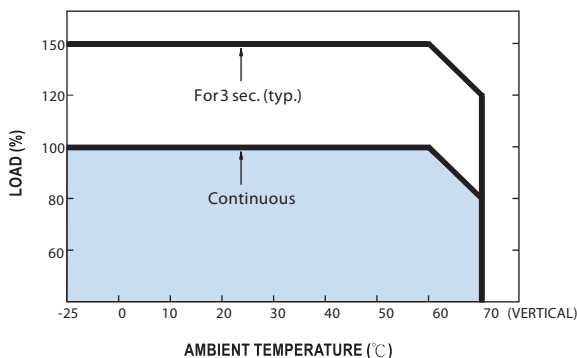
## Function Diagram

### 1. Current sharing

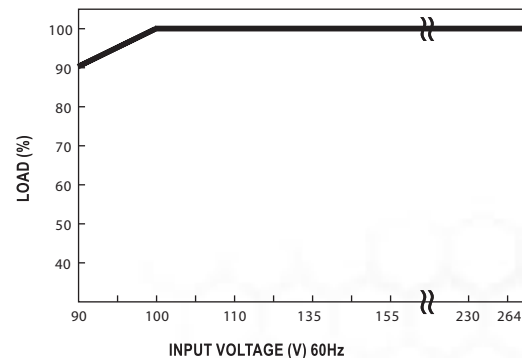
- (1) Parallel operation is available by connecting the units shown as below (P+, P- are connected mutually in parallel):
- (2) The voltage difference among each output should be minimized that less than 2% is required.
- (3) The total output current must not exceed the value determined by the following equation (Output current at parallel operation) = (The rated current per unit) x (Number of unit) x 0.9.
- (4) In parallel operation 8 units is the maximum, please consult the manufacture for other applications.
- (5) When in parallel operation, the minimum output load should be greater than 3% of total output load.  
(Min. load > 3% rated current per unit x number of unit)



## Derating Curve



## Output Derating VS Input Voltage



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



## Wide Input Compact Housing Power Supply

With the PSW family, AC/DC compact DIN rail switching power supplies with single phase wide input range, Altech further expanded the power supply line. Built-in active PFC function, these high efficient power units meet the harmonic current limitation per EN61000-3-2. Equipped with 180 to 550Vac single phase wide input range, they can be used in general power system applications with single phase 230Vac input or can capture two phases from the 220~550Vac three-phase power system, which can greatly increase the flexibility of system deployment.

With up-to-date circuit design PSW series possess up to 93% of extremely high efficiency and can provide 100% power continuously at 50°C by only free air convection, or operate under 70°C ambient temperature by suitable power derating. The compact design in width helps save the precious space on the rail and also makes it up to 50% smaller in size compare to its predecessor models. Meanwhile, with wider input range the PSW series also has 3% higher efficiency than corresponding models, which response to the trend of green power with energy saving concept. Other standard functions include DC OK relay contact alarm signal output, front panel DC voltage adjustment, as well as protection for short-circuit, overload (constant current mode, shut down if over 3 seconds), over voltage, and over temperature. The PSW series comply with UL508, IEC60950-1 (CB), and CE certificates and also meet the EMC requirements of heavy industrial immunity level (EN61000-6-2). Suitable applications include industrial control system, semi-conductor fabrication equipment, factory automation, electro-mechanical applications, and marine related installation.

- Input voltage range: 180~550V AC; 254-780V DC
- AC inrush current (typical): Cold start: 50A at 400V AC
- DC adjustment range (typical): 12V: 12-15V, 24V: 24-29V, 48V: 48-58V,
- Overload protection (typical): 105%-130% rated output
- Over-voltage protection (typical): 16-18V for 12V model (PSW-120),  
31-37V for 24V model; 60-67V for 48V model
- Setup, rise, time (typical): 2000ms, 70ms at full load and 230V AC (PSW-120)  
2000ms, 150ms at full load and 230V AC (PSW240/480)
- Withstand voltage: I/P-O/P: 3KV AC, I/P-FG: 1.5KV AC, O/P-FG: 0.5KV AC,
- Working temperature: -20 to +70°C (-4° to +158°F),  
refer to output derating curve (PSW-120)
- DC OK signal: Relay contact
- Safety standards: UL508 (PSW-240 pending)
- EMC standards: Compliance to EN55011 (CISPR11), EN55022 class B,  
EN61000-4-2,3,4,5,6,8,11, ENV50204, EN55024,  
EN61000-6-2, EN61204-3, heavy Industry Level criteria A
- Military standard: MIL-HDBK-217K

# PSW Series

**Altech Corp.®**



- Single and two phase wide input range 180~550VAC
- Universal AC Input / Full Range
- High efficiency up to 93% and low power dissipation
- Protections: Short circuit / Overload / Overvoltage / Over temperature
- Cooling by free air convection
- DIN rail mountable
- UL 508 (industrial control equipment) approved
- EN61000-6-2(EN50082-2) industrial immunity level
- Built-in DC OK relay contact
- 100% full load burn-in test
- 3 year warranty

Slimline  
single phase

Low Profile  
single phase

Industrial Metal Case  
single phase

Industrial Metal Case  
three phase

High Efficiency  
compact housing

Accessories



# 120-480W Single Phase

## WIDE INPUT POWER SUPPLIES



### 120W Single Output DIN Rail Power Supply

Cat. No.	Output V DC	A	Tol. %	Ripple & Noise	Efficiency	NOTES
PSW-12012	12V DC	10A	±1.5%	120 mVp-p	89.5%	
PSW-12024	24V DC	5A	±1%	120 mVp-p	91%	
PSW-12048	48V DC	2.5A	±1%	150 mVp-p	92%	



### 240W Single Output DIN Rail Power Supply

Cat. No.	Output V DC	A	Tol. %	Ripple & Noise	Efficiency	NOTES
PSW-24024	24V DC	10A	±1%	120 mVp-p	90%	
PSW-24048	48V DC	5A	±1%	120 mVp-p	90%	



### 480W Single Output DIN Rail Power Supply

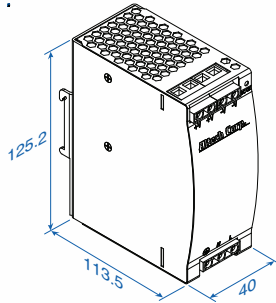
(Also available with Optional Parallel Function (7+1))

Cat. No.	Output V DC	A	Tol. %	Ripple & Noise	Efficiency	NOTES
PSW-48024	24V DC	20A	±1%	100 mVp-p	94%	
PSW-48048	48V DC	10A	±1%	120 mVp-p	94%	



## SPECIFICATIONS

### PSW-120 Series



#### Terminal Pin. No Assign. (TB1)

Pin No.	Assignment
1	FG ⊕
2	AC/L2
3	AC/L1

#### Terminal Pin. No Assign. (TB2)

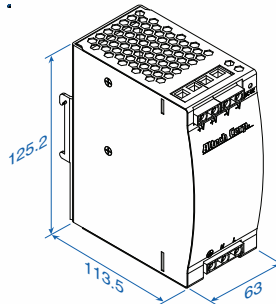
Pin No.	Assignment
1,2	Relay Contact
3	DC OUTPUT -V
4	DC OUTPUT +V

Universal Input: 180-550V AC, 254-780V DC full range,  
0.55A/400V AC, 1.2A/230V AC

Connection: Input - 3 poles, Output - 4 poles screw terminal  
Size (WxHxD): 40x125.2x113.5mm (1.57x4.93x4.47 inches)

Packaging: 1/box; 1.433lbs / 0.65Kg

### PSW-240 Series



#### Terminal Pin. No Assign. (TB1)

Pin No.	Assignment
1	FG ⊕
2	AC/L2
3	AC/L1

#### Terminal Pin. No Assign. (TB2)

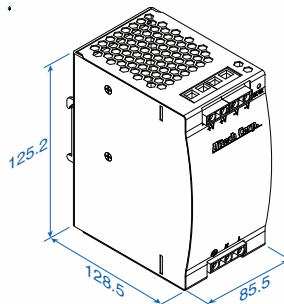
Pin No.	Assignment
1,2	Relay Contact
3,4	DC OUTPUT -V
5,6	DC OUTPUT +V

Universal Input: 180-550V AC, 254-780V DC full range,  
1A/400V AC, 2A/230V AC

Connection: Input - 3 poles, Output - 6 poles screw terminal  
Size (WxHxD): 63x125.2x113.5mm (2.48x4.93x4.47 inches)

Packaging: 1/box; 2.337lbs / 1.06Kg

### PSW-480 Series



#### Terminal Pin. No Assign. (TB1)

Pin No.	Assignment
1	FG ⊕
2	AC/N
3	AC/L

#### Terminal Pin. No Assign. (TB2)

Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V
5,6	Relay Contact

#### For Parallel Model Terminal Pin. No Assign. (TB1)

Pin No.	Assignment
1	FG ⊕
2	AC/L2
3	AC/L1

#### For Parallel Model Terminal Pin. No Assign. (TB2)

Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V
5,6	Relay Contact

\* Only parallel function.

Universal Input: 180-550V AC, 254-780V DC full range,  
1.6A/400V AC, 4A/230V AC

Connection: Input - 3 poles, Output - 12 poles screw terminal  
Size (WxHxD): 85.5x125.2x128.5mm (3.37x4.93x5.06 inches)

Packaging: 1/box; 3.748lbs / 1.7Kg

Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



# PSW-120 Series Specifications



## Features:

- Single and two phase wide input range 180 ~ 550VAC
- Protections: Short Circuit / Overload / Over Voltage / Overtemperature
- Cooling by free air convection
- Built-in constant current limiting circuit
- DIN rail mountable
- UL508 (industrial control equipment) approved
- EN61000-6-2 (EN50082-2) industrial immunity level
- 100% full load burn-in test
- Built-in DC OK relay contact
- 3 year warranty

## OUTPUT

## INPUT

## PROTECTION

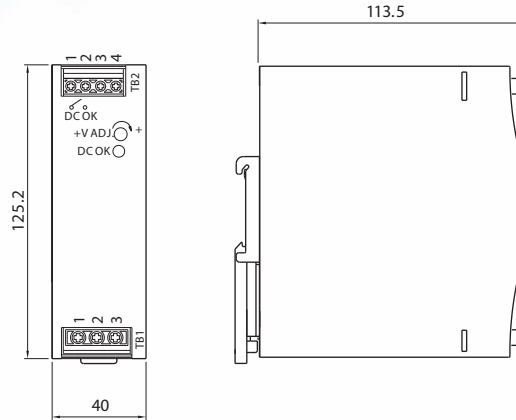
## ENVIRONMENT

## SAFETY & EMC

## OTHERS

Cat. No.	PSW-12012	PSW-12024	PSW-12048
DC VOLTAGE	12V	24V	48V
RATED CURRENT	10A	5A	2.5A
CURRENT RANGE	0 ~ 10A	0 ~ 5A	0 ~ 2.5A
RATED POWER	120W	120W	120W
RIPPLE & NOISE (max)	120mVp-p	120mVp-p	150mVp-p
	Ripple & noise are measured at 20MHz of bandwidth by using a 12 twisted pair-wire terminated with a 0.1μF & 47μF parallel capacitor.		
VOLTAGE ADJ. RANGE	12 ~ 15V	24 ~ 29V	48 ~ 58V
VOLTAGE TOLERANCE	±1.5%	±1.0%	±1.0%
	Tolerance: includes set up tolerance, line regulation and load regulation.		
LINE REGULATION	±0.5%	±0.5%	±0.5%
LOAD REGULATION	±0.5%	±0.5%	±0.5%
SETUP, RISE HOLD UP TIME	2000ms, 70ms, 50ms / 400VAC	2000ms, 70ms, 10ms / 230VAC at full load	
	Length of set up time is measured at cold first start. Turning ON/OFF the power supply very quick may lead to increase of the set up time.		
VOLTAGE RANGE	180 ~ 550VAC	254 ~ 780VDC	
FREQUENCY RANGE	47 ~ 63Hz		
EFFICIENCY (Typ.)	89.5% / 400V	91% / 400V	92% / 400V
AC CURRENT	0.55A / 400VAC	1.2A / 230VAC	
INRUSH CURRENT (Typ.)	COLD START 50A		
LEAKAGE CURRENT	≤ 3.5 mA / 530VAC		
OVERLOAD	105 ~ 130% rated output power		
	Protection type: Constant current limiting, recovers automatically after fault condition is removed		
OVERVOLTAGE	16 ~ 18V	31 ~ 37V	60 ~ 67V
	Protection type: Shut down overvoltage, re-power on to recover		
OVERTEMPERATURE	105°C ± 5°C (12V), 110°C ± 5°C (24V) (TSW1) detect on heat sink of power switch transistor; 100°C ± 5°C (48V) (TSW1) detect on heat sink of power diode		
	Protection type: Shut down overvoltage, re-power automatically after temperature goes down		
DC OK SIGNAL	Relay contact rating (max.): 30V / 1A resistive		
WORKING TEMP.	-25 ~ +70°C (Refer to output load derating curve)		
WORKING HUMIDITY	20 ~ 90% RH non-condensing		
STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH		
TEMP. COEFFICIENT	±0.03% / °C (0 ~ 50°C)		
VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60 min. each long X,Y, Z axes Mounting clip: Compliance to IEC60068-2-6		
SAFETY STANDARDS	UL508 approved IEC60950-1 compliant		
WITHSTAND VOLTAGE	I/P-O/P: 3KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC O/P-DC OK:0.5KVAC		
ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG: 100M Ohms/500VDC (25°C; 70% RH)		
EMI CONDUCTION & RADIATION	Compliance to EN55011 (CISPR11), EN55022 (CISPR22), EN61204-3 Class B		
EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204; EN61204-3; EN61000-6-2; (EN50082-2), heavy industry level; criteria A,  The power supply is considered a component which will installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.		
MTBF	268K hrs min. MIL-HDBK-217K (25°C)		
DIMENSION	40x125.2x113.5mm (WxHxD)		
PACKING	0.65Kg; 20pcs / 14Kg / 1.16CUFT  All parameters NOT specially mentioned are measured at 230V AC input, rated load and 25°C of ambient temperature.		

## Mechanical Specification



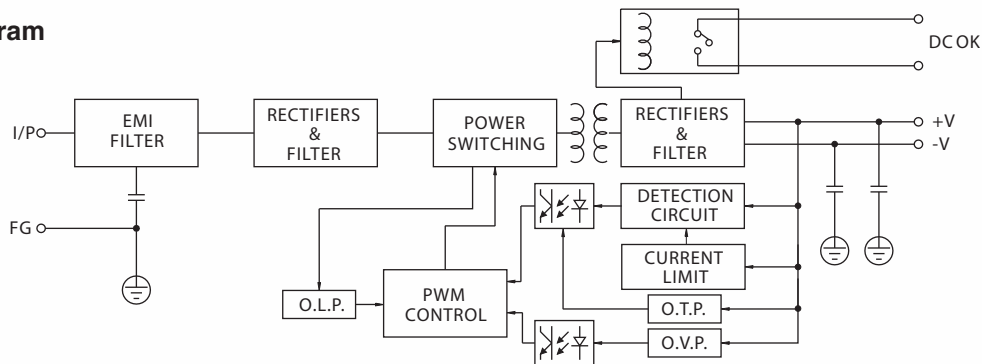
Terminal Pin No. Assignment (TB1)

PinNo.	Assignment
1	FG $\oplus$
2	AC/L2
3	AC/L1

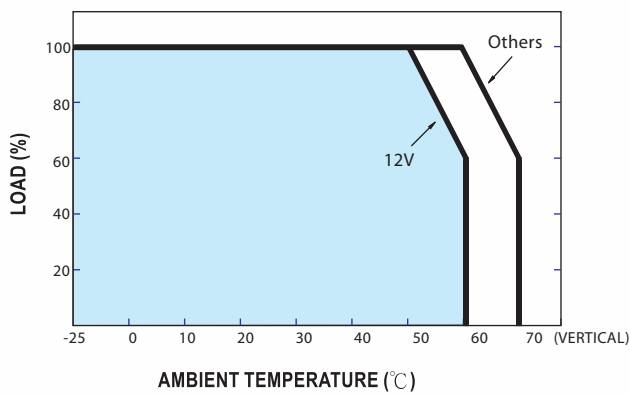
Terminal Pin No. Assignment (TB2)

PinNo.	Assignment
1,2	Relay Contact
3	DC OUTPUT -V
4	DC OUTPUT +V

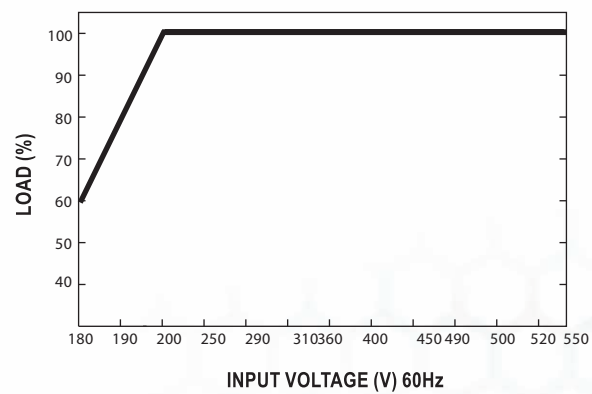
## Block Diagram



## Derating Curve



## Static Characteristics



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



# PSW-240 Series Specifications



## Features:

- Single and two phase wide input range 180~550VAC
- High efficiency 91% and low power dissipation
- Protections: Short Circuit / Overload / Over Voltage / Overtemperature
- Cooling by free air convection
- DIN rail mountable
- UL 508 (industrial control equipment) approved
- EN61000-6-2 (EN50082-2) industrial immunity level
- Built-in DC OK relay contact
- 100% full load burn-in test
- 3 year warranty

## OUTPUT

## INPUT

## PROTECTION

## ENVIRONMENT

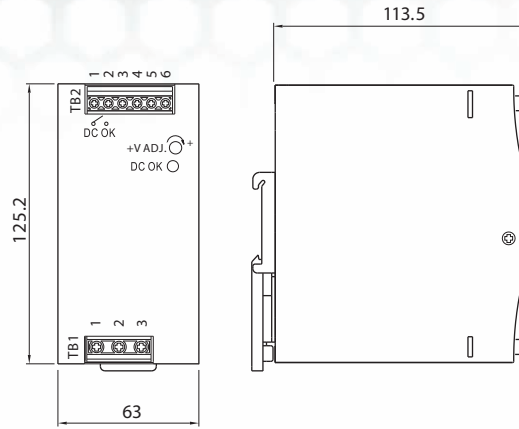
## SAFETY & EMC

## OTHERS

Cat. No.	PSW-24024	PSW-24048
DC VOLTAGE	24V	48V
RATED CURRENT	10A	5A
CURRENT RANGE	0 ~ 10A	0 ~ 5A
RATED POWER	240W	240W
RIPPLE & NOISE (max)	150mVp-p	150mVp-p
Ripple & noise are measured at 20MHz of bandwidth by using a 12 twisted pair-wire terminated with a 0.1μF & 47μF parallel capacitor.		
VOLTAGE ADJ. RANGE	24 ~ 28V	48 ~ 55V
VOLTAGE TOLERANCE	±1.0%	±1.0%
Tolerance: includes set up tolerance, line regulation and load regulation.		
LINE REGULATION	±0.5%	±0.5%
LOAD REGULATION	±1.0%	±1.0%
SETUP, RISE, HOLD UP TIME	800ms, 150ms, 18ms / 400VAC	1500ms, 150ms, 18ms / 230VAC at full load
VOLTAGE RANGE	180 ~ 550VAC    254 ~ 780VDC	
Derating may be needed under low input voltage. Please check the derating curve for more details		
FREQUENCY RANGE	47 ~ 63Hz	
EFFICIENCY (Typ.)	91%	
AC CURRENT	1A / 400VAC    2A / 230VAC	
INRUSH CURRENT (Typ.)	COLD START 50A	
LEAKAGE CURRENT	≤ 3.5 mA / 530VAC	
OVERLOAD	105 ~ 130% rated output power	
Protection type: Constant current limiting, unit will shut down after 3 sec.; auto recovery after 1 minute if the fault condition is removed		
OVERVOLTAGE	29 ~ 33V	56 ~ 65V
Protection type: Shut down overvoltage, re-power on to recovery Under over-voltage condition, If input voltage ≤ 200VAC, the power supply will shut down and then may have auto-recovery after several seconds		
OVERTEMPERATURE	90°C ± 5°C (TSW) detect on heat sink of power switch	
Protection type: Shut down overvoltage, recovers automatically after temperature goes down		
DC OK RELAY CONTACT RATINGS (max.)	60VDC / 0.3A; 30VDC / 1A; 30VAC / 0.5A resistive load	
WORKING TEMP.	-30 ~ +70°C (Refer to output load derating curve)	
Installation clearances: 40mm on top, 20mm on the bottom, 5mm on the left and right side are recommended when loaded permanently with full power. In case the adjacent device is a heat source, 15mm clearance is recommended.		
WORKING HUMIDITY	20 ~ 95% RH non-condensing	
STORAGE TEMP., HUMIDITY	-40 ~ +85°C; 10 ~ 95% RH	
TEMP. COEFFICIENT	±0.03% / °C (0 ~ 50°C)	
VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60 min. each long X,Y, Z axes	
MOUNTING	Compliance to IEC60068-2-6	
SAFETY STANDARDS	UL508 approved IEC 60950-1 compliant Design refer to GL	
WITHSTAND VOLTAGE	I/P-O/P: 3KVAC    I/P-FG: 1.5KVAC    O/P-FG :0.5KVAC    O/P-DC OK: 0.5KVAC	
ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG: ≥ 100M Ohms / 500VDC (25°C; 70% RH)	
EMI CONDUCTION & RADIATION	EN55022 (CISPR22), Class B	
HARMONIC CURRENT	Compliance to EN61000-3-2,-3	
EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204; EN 55024; EN61000-6-2; (EN50082-2); EN61204-3; heavy industry level; criteria A approved; The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.	
MTBF	141.1K hrs min.    MIL-HDBK-217K (25°C)	
DIMENSION	63x125.2x113.5mm (WxHxD)	
PACKING	1.06Kg; 12pcs / 13.7Kg / 1.06CUFT	
All parameters NOT specially mentioned are measured at 400VAC input, rated load and 25°C of ambient temperature.		



## Mechanical Specification



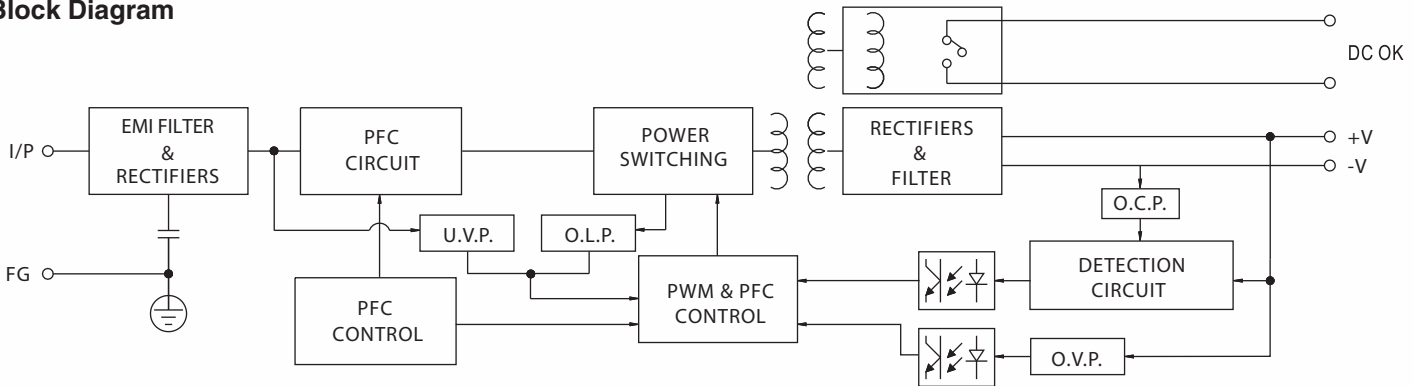
Terminal Pin No. Assignment (TB1)

Pin No.	Assignment
1	FG $\oplus$
2	AC/L2
3	AC/L1

Terminal Pin No. Assignment (TB2)

Pin No.	Assignment
1,2	Relay Contact
3,4	DC OUTPUT +V
5,6	DC OUTPUT -V

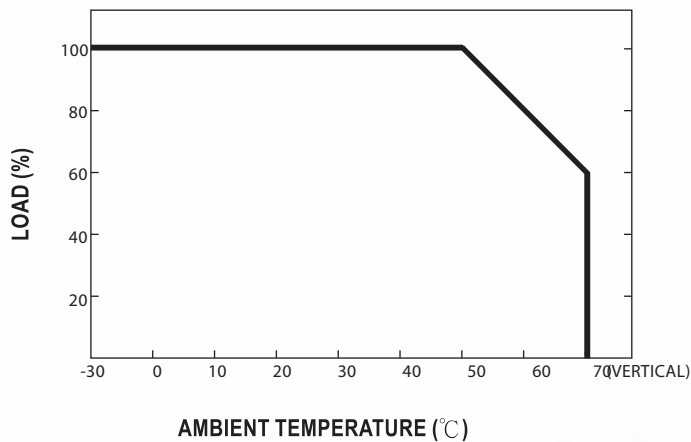
## Block Diagram



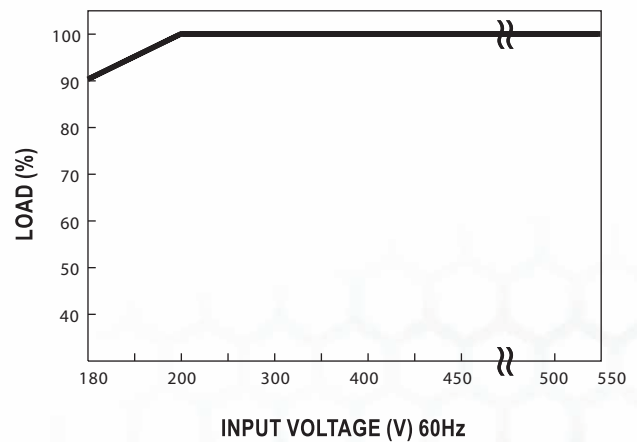
## DC OK Relay Contact

Contact Close	PSU turns on / DC OK.
Contact Open	PSU turns off / DC Fail.
Contact Ratings (max.)	30V/1A resistive load.

## Derating Curve



## Output Derating VS Input Voltage



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



# PSW-480 Series Specifications



## Features:

- Single and two phase wide input range 180~550VAC
- High efficiency 93% and low power dissipation
- Protections: Short Circuit / Overload / Over Voltage / Overtemperature
- Cooling by free air convection
- DIN rail mountable
- UL 508(industrial control equipment) approved
- EN61000-6-2 (EN50082-2) industrial immunity level
- Built-in DC OK relay contact
- 100% full load burn-in test
- 3 year warranty

## OUTPUT

## INPUT

## PROTECTION

## ENVIRONMENT

## SAFETY & EMC

## OTHERS

### Cat. No.

### PSW-48024

### PSW-48048

DC VOLTAGE  
RATED CURRENT  
CURRENT RANGE  
RATED POWER  
RIPPLE & NOISE (max)

24V  
20A  
0 ~ 20A  
480W  
100mVp-p

48V  
10A  
0 ~ 10A  
480W  
150mVp-p

Ripple & noise are measured at 20MHz of bandwidth by using a 12 twisted pair-wire terminated with a 0.1μF & 47μF parallel capacitor.

VOLTAGE ADJ. RANGE  
VOLTAGE TOLERANCE

24 ~ 28V  
±1.0%

48 ~ 55V  
±1.0%

Tolerance: includes set up tolerance, line regulation and load regulation.

LINE REGULATION  
LOAD REGULATION  
SETUP, RISE, HOLD UP TIME

±0.5%  
±1.0%

±0.5%  
±1.0%

800ms, 150ms, 18ms / 400VAC 2000ms, 150ms, 16ms / 230VAC at full load

VOLTAGE RANGE

180 ~ 550VAC 254 ~ 780VDC

Derating may be needed under low input voltage. Please check the derating curve for more details

FREQUENCY RANGE

47 ~ 63Hz

EFFICIENCY (Typ.)

92%

93%

AC CURRENT

1.6A / 400VAC

4A / 230VAC

INRUSH CURRENT (Typ.)

COLD START 50A

LEAKAGE CURRENT

≤ 3.5 mA / 530VAC

OVERLOAD

105 ~ 130% rated output power

OVERVOLTAGE

29 ~ 33V

56 ~ 65V

Protection type: Shut down overvoltage; auto recovery after 1 minute if the fault condition is removed

Under over-voltage condition, If input voltage ≤ 200VAC, the power supply will shut down and then may have auto-recovery after several seconds.

OVERTEMPERATURE

95°C ± 5°C (TSW) detect on heat sink of power switch

Protection type: Shut down overvoltage, recovers automatically after temperature goes down

DC OK RELAY CONTACT RATINGS (max.)

60VDC / 0.3A; 30VDC / 1A; 30VAC / 0.5A resistive load

WORKING TEMP.

-30 ~ +70°C (Refer to output load derating curve)

Installation clearances: 40mm on top, 20mm on the bottom, 5mm on the left and right side are recommended when loaded permanently with full power. In case the adjacent device is a heat source, 15mm clearance is recommended.

WORKING HUMIDITY

20 ~ 95% RH non-condensing

STORAGE TEMP., HUMIDITY

-40 ~ +85°C; 10 ~ 95% RH

TEMP. COEFFICIENT

±0.03% / °C (0 ~ 50°C)

VIBRATION

10 ~ 500Hz, 2G 10min./1cycle, 60 min. each long X,Y, Z axes

MOUNTING

Compliance to IEC60068-2-6

SAFETY STANDARDS

UL508 approved  
IEC 60950-1 compliant  
Design refer to GL

WITHSTAND VOLTAGE

I/P-O/P: 3KVAC I/P-FG: 1.5KVAC O/P-FG: 0.5KVAC O/P-DC OK: 0.5KVAC

ISOLATION RESISTANCE

I/P-O/P, I/P-FG, O/P-FG: 100M Ohms / 500VDC (25°C; 70% RH)

EMI CONDUCTION & RADIATION

EN55022 (CISPR22), EN61204-3 Class B

HARMONIC CURRENT

Compliance to EN61000-3-2, -3

EMS IMMUNITY

Compliance to EN61000-4-2, 3, 4, 5, 6, 8, 11; EN50204; EN 55024; EN 55024; EN61000-6-2; (EN50082-2); EN61204-3; heavy industry level; criteria A approved;

The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

MTBF

112.8K hrs min. MIL-HDBK-217K (25°C)

DIMENSION

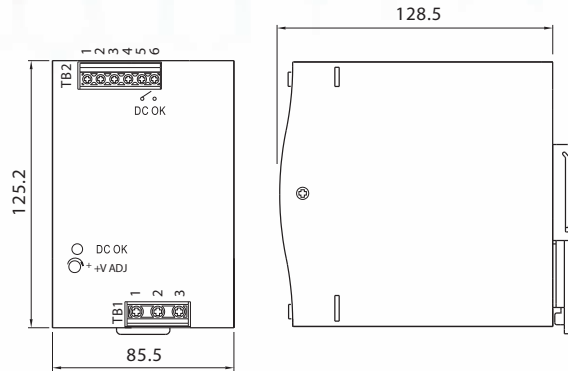
85.5x125.2x128.5mm (WxHxD)

PACKING

1.7Kg; 8pcs / 14.6Kg / 0.9CUFT

All parameters NOT specially mentioned are measured at 400VAC input, rated load and 25°C of ambient temperature.

## Mechanical Specification



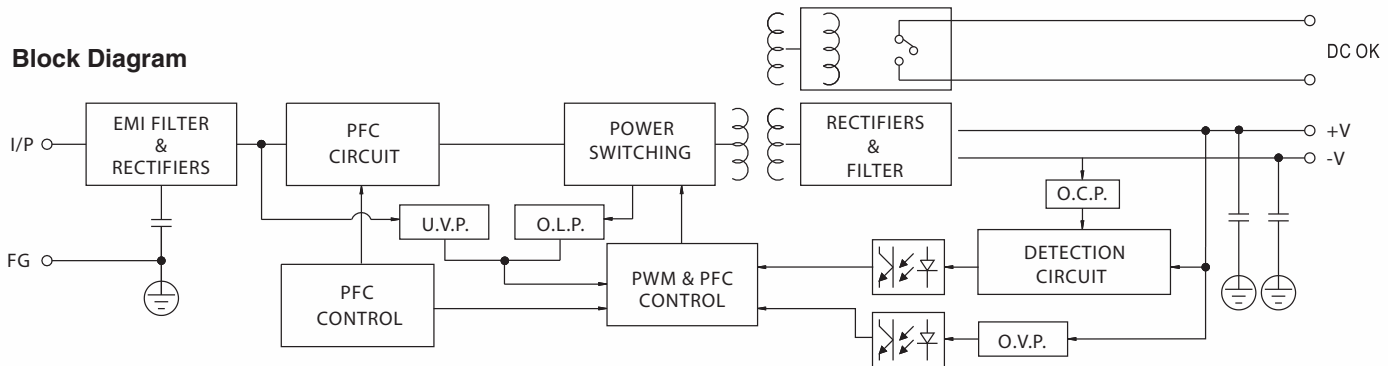
Terminal Pin No. Assignment (TB1)

Pin No.	Assignment
1	FG $\oplus$
2	AC/L2
3	AC/L1

Terminal Pin No. Assignment (TB2)

Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V
5,6	Relay Contact

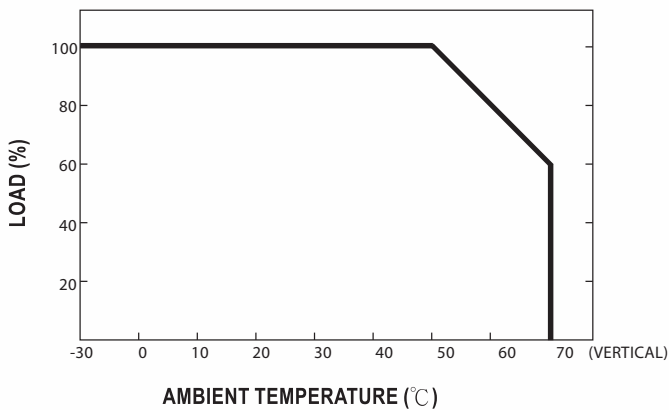
## Block Diagram



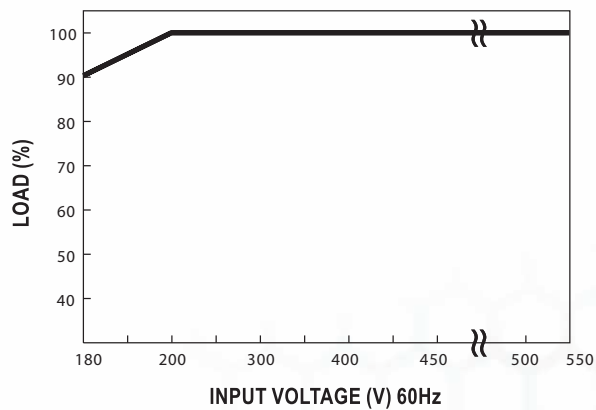
## DC OK Relay Contact

Contact Close	PSU turns on / DC OK.
Contact Open	PSU turns off / DC Fail.
Contact Ratings (max.)	30V/1A resistive load.

## Derating Curve



## Output Derating VS Input Voltage



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



## Accessories

### Power Supply Redundancy Buffer Module

PS-RDN20 is a 20A redundancy (decoupling) module for the 24V DC power system. Containing 2 sets of 20A Or-ing diodes with wonderful heat dissipation deployment, PS-RDN20 give you a new option for safe connection of 1+1 redundant set-up. Not only perfectly decouple power sources from each other as well as from the load, PS-RDN20 also provides users monitoring signals for both input channels through the built-in relays. Since there's no switching components inside the module, PS-RDN20 will not arise additional EMI issues and should provide you a worry-free application platform!

DC input voltage range	21~28V, 20A max. x 2 channels
Reverse voltage	30V
DC output current	20A max.
DC output voltage drop	0.5V max.
Input voltage alarm	When input is > 20V(±5%) or <30V(±5%), relay contacts
Relay contact rating	30VDC, 1A
Working Temperature	-20~+70°C
EMC standards	EN55022 class B, EN61000-4-2,3,4,5,6,8, ENV50204
Connection	I/P: 4 poles, O/P: 2 poles screw DIN terminal, Single output: 4 poles

### UPS Battery Module

PS-UPS40 is a 40A max. DC UPS (battery control) module for the 24 V DC power system. Accompany with external batteries, it can back-up up to 40A of current to critical loads for certain period of time depending on the capacity of batteries. With complete monitoring signals and LED indicators for DC BUS OK, Battery Fail, Battery Discharge and the repeated Battery Test function to check the situation of external batteries. Users can customize their own DC UPS system to back up critical loads and capture the status of the whole system easily.

DC input / DC bus	24~29V, 40A max.
Battery inout voltage	21~29V
Battery input current	0~40A
Charge current (typ.)	2A
External battery (typ.)	24V, 4AH / 7AH / 12AH
DC bus ok	Relay status: Short when DC voltage between 21~29V(±3%), relay contacts
Battery fail	Relay status: Short when battery failure is observed through the battery test function, relay contacts LED (red): Battery over-discharge warning or battery broken: light; battery OK: dark
Battery discharge	Relay status: Short when battery in discharge condition, relay contacts LED (yellow): Battery discharging: light; battery is not discharging or discharging current <2A: dark
Working temperature	-20~+70°C
EMC standards	EN55022 class B, EN61000-4-2,3,4,5,6,8, ENV50204
Connection	I/P: 2 poles, O/P: 2 poles screw DIN terminal, Single output: 6 poles



# Redundancy Buffer Module UPS Battery Module

**Altech Corp.®**



## Redundancy Buffer Module Features:

- Suitable for redundant operation of 24V system
- Installed on 35 x 7.5 mm or 35 x 15 mm DIN Rail
- Relay contact signal output and LED indicator for input failure alarm
- Cooling by free air convection
- 3 year warranty

## UPS Battery Module Features:

- Battery controller for DIN Rail UPS system
- Installed on 35 x 7.5 mm or 35 x 15 mm DIN Rail
- Parallel connection to DC BUS
- Suitable for 24V system up to 40A
- Built-in battery test function
- Battery polarity protection
- Relay contact signal output and LED indicator for DC BUS OK, battery fail and battery discharge
- Cooling by free air convection
- 3 year warranty



# Accessories

- REDUNDANCY BUFFER MODULE
- UPS MODULE



## Power Supply Redundancy Buffer Module

PS-RDN20 is a 20A redundancy (decoupling) module for the 24V DC power system. Containing 2 sets of 20A Oring diodes with excellent heat dissipation deployment. PS-RDN20 give you a new option for safe connection of 1+1 redundant set-up. Not only perfectly decouple power sources from each other as well as from the load, PS-RDN20 also provides users monitoring signals for both input channels through the built-in relays. Since there's no switching components inside the module, PS-RDN20 will not arise additional EMI issues and should provide you a worry-free application platform!

Cat. No.	Voltage Range	Current Range	NOTES
PS-RDN20	21-28V DC	0-20A	

Connection: Terminal 1 - 4 poles, Terminal 2 - 6 poles  
 Size (WxHxD): 55.5x125x100mm (2.19x4.95x3.95 inches)  
 Packaging: 1/box; 1.1lbs / 0.5Kg

[DC Fail Block Diagram](#)

## 40 AMP UPS Battery Controller

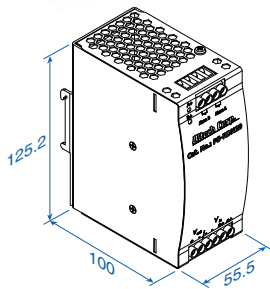
PS-UPS40 is a 40A max. DC UPS (battery control) module for the 24 V DC power system. Accompany with external batteries, it can back-up up to 40A of current to critical loads for certain period of time depending on the capacity of batteries. With complete monitoring signals and LED indicators for DC BUS OK, Battery Fail, Battery Discharge and the repeated Battery Test function to check the situation of external batteries. Users can customize their own DC UPS system to back up critical loads and capture the status of the whole system easily.

Cat. No.	Voltage Range	Current Range	NOTES
PS-UPS40	21-29V (Battery) 24-29V (DC)	0 - 40A	

Connection: Terminal 1 - 4 poles, Terminal 2 - 6 poles  
 Size (WxHxD): 55.5x125x100mm (2.19x4.95x3.95 inches)  
 Packaging: 1/box; 1.21lbs / 0.55Kg

# SPECIFICATIONS

## PS-RDN20 Series



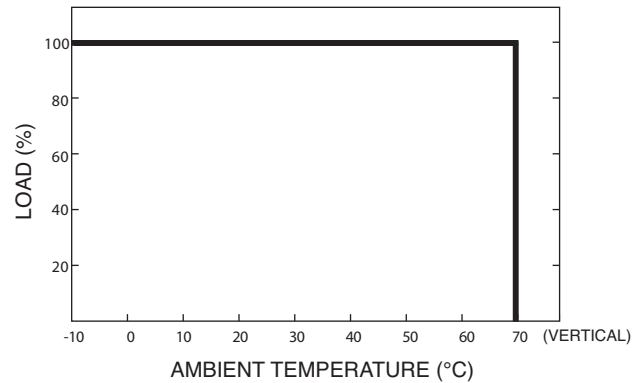
Terminal Pin. No Assign. (TB1)

Pin No.	Assignment
1	Vout+
2	Vout-
3,4	Vin-
5	Vin B+
6	Vin A+

Terminal Pin. No Assign. (TB2)

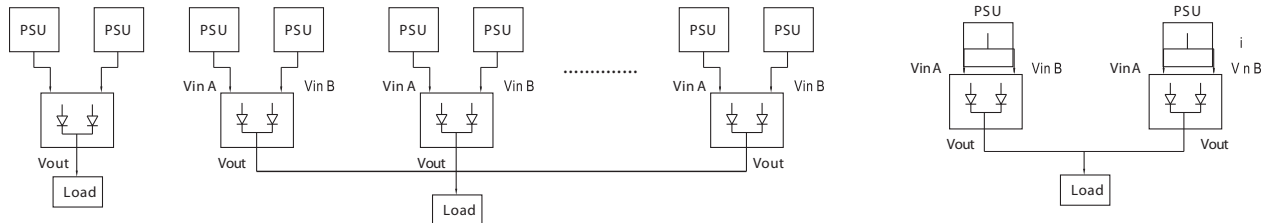
Pin No.	Assignment
1	Alarm B1
2	Alarm B2
3	Alarm A1
4	Alarm A2

Derating Curve

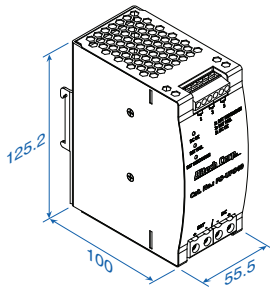


### Applications:

- 1+1 Redundancy: Using 1 more PSU as the redundant unit
- 1+N Redundancy: Using more PSUs as the redundant units to increase the reliability
- Single Use: Connecting only one PSU to one PS-RDN20 to reduce the stress of the diodes and hence increase the reliability



## PS-UPS40 Series



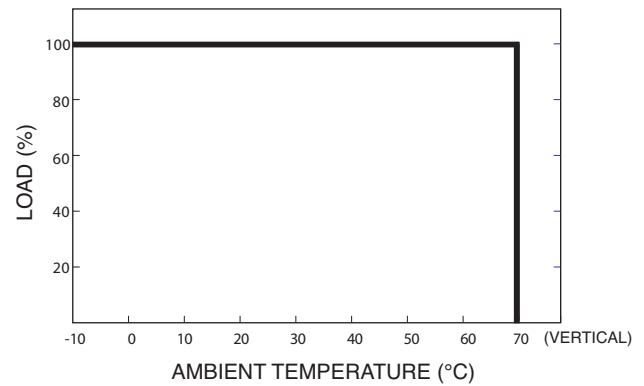
Terminal Pin. No Assign. (TB1)

Pin No.	Assignment
1	BATTERY INPUT +
2	BATTERY INPUT -
3	DC INPUT -
4	DC INPUT +

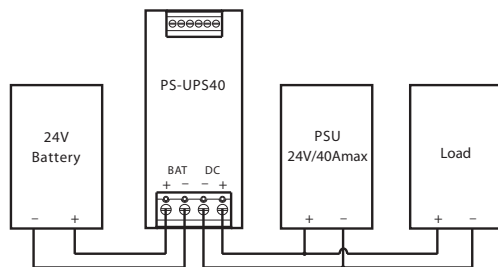
Terminal Pin. No Assign. (TB2)

Pin No.	Assignment
1	BAT DISC 1
2	BAT DISC 2
3	BAT OK 1
4	BAT OK 2
5	DC OK 1
6	DC OK 2

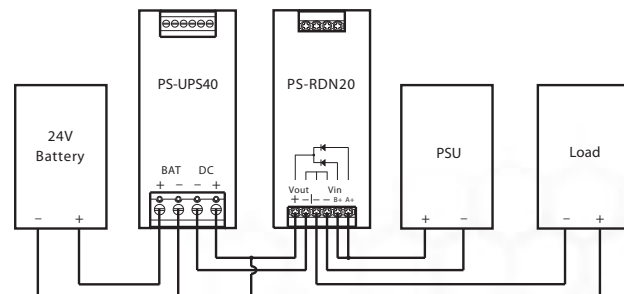
Derating Curve



### 1. Backup connection for AC interruption



### 2. Combine redundancy module (PS-RDN20) to back up AC interruption or failure of PSU



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



# PS-RDN20

## Specifications



### Features:

- Suitable for redundant operation of 24V system
- Installed on DIN Rail TS35 / 7.5 or 15
- Relay contact signal output and LED indicator for input failure alarm
- Cooling by free air convection
- 3 year warranty

### OUTPUT

### INPUT

### FUNCTION

### ENVIRONMENT

### SAFETY & EMC

### OTHERS

#### Cat. No.

#### PS-RDN20

REVERSE VOLTAGE (max.)  
OUTPUT CURRENT (max.)  
VOLTAGE DROP  
LED INDICATORS

30V  
20A  
0.5V  
Two green LED's indicating each input is OK or fail

INPUT VOLTAGE RANGE  
NUMBER OF INPUTS  
INPUT CURRENT (max.)

21 ~ 28V  
Two  
20A per input

INPUT VOLTAGE ALARM  
RELAY CONTACT RATING (max.)

When input is  $\geq 20V (\pm 5\%)$  or  $\leq 30V (\pm 5\%)$  relay contacts  
30VDC, 1A

WORKING TEMP.  
WORKING HUMIDITY  
STORAGE TEMP., HUMIDITY  
VIBRATION  
MOUNTING

-20 ~ +70°C  
20 ~ 90% RH non-condensing  
-40 ~ +85°C, 10 ~ 95% RH  
10 ~ 500Hz, 2G 10min./1cycle, 60 min. each long X, Y, Z axes  
Compliance to IEC60068-2-6

WITHSTAND VOLTAGE  
ISOLATION RESISTANCE  
EMI CONDUCTION & RADIATION  
EMS IMMUNITY

Terminal- Chassis: 0.5KVAC, Relay Contacts- Terminal: 0.5KVAC  
Terminal- Chassis:  $\geq 100M \Omega$  / 500VDC (25°C; 70% RH)  
Compliance to EN55022 (CISPR22) Class B  
Compliance to EN61000-4-2,3,4,5,6,8; ENV50204; heavy industry level; criteria A,

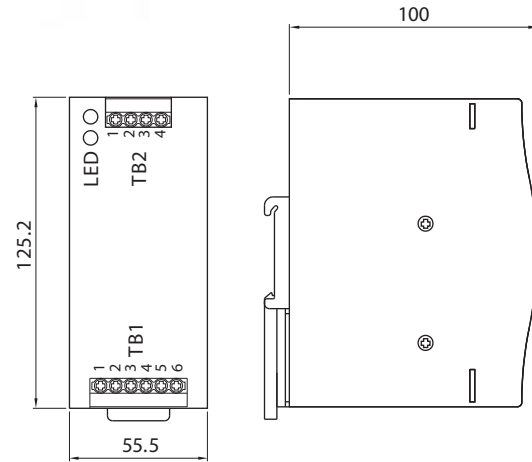
MTBF  
DIMENSION  
PACKING

996.8Khrs min. MIL-HDBK-217K (25°C)  
55.5x125.2x100mm (WxHxD)  
0.5Kg; 20pcs / 11Kg / 1.29CUFT

All parameters NOT specially mentioned are measured at 24V DC input, rated load and 25°C of ambient temperature.



## Mechanical Specification



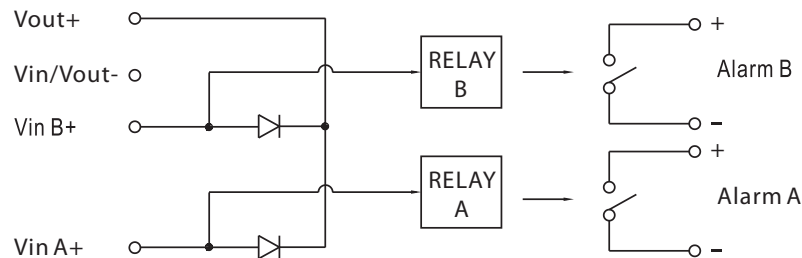
Terminal Pin. No Assignment (TB1)

Pin No.	Assignment
1	Vout+
2	Vout-
3,4	Vin-
5	Vin B+
6	Vin A+

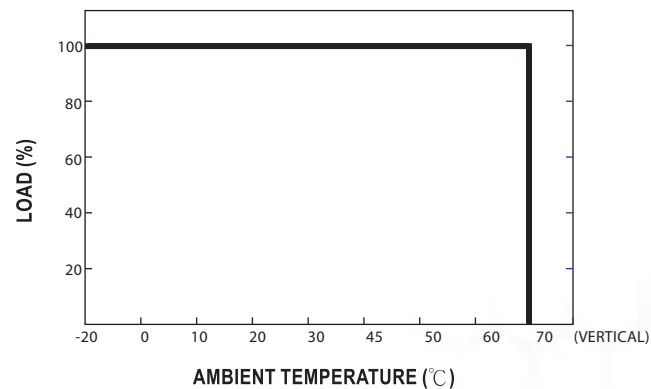
Terminal Pin. No Assignment (TB2)

Pin No.	Assignment
1	Alarm B1
2	Alarm B2
3	Alarm A1
4	Alarm A2

## Block Diagram



## Derating Curve



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.



# PS-UPS40

## Specifications



### Features:

- Battery controller for DIN Rail UPS system
- Parallel connection to DC BUS
- Suitable for 24V system up to 40A
- Installed on DIN Rail TS35/ 7.5 or 15
- Built-in battery test function
- Battery polarity protection
- Relay contact signal output and LED indicator for DC BUS OK,
- Battery fail, and battery discharge
- Cooling by free air convection
- 3 year warranty

### DC INPUT / DC BUS

### BATTERY IN / OUTPUT

### FUNCTION

### ENVIRONMENT

### SAFETY & EMC

### OTHERS

#### Cat. No.

#### PS-UPS40

DC VOLTAGE (Typ.)  
RATED CURRENT

24 ~ 29V  
40A

VOLTAGE RANGE (Typ.)  
CURRENT RANGE  
CHARGE CURRENT (Typ.)  
EXTERNAL BATTERY (Typ.)

21 ~ 29V  
0 ~ 40A  
2A  
4 / 7 / 12AH / 24V

RELAY CONTACT RATING (max.)  
DC BUS OK

BATTERY FAIL

BATTERY DISCHARGE

30VDC, 1A  
Relay contact: Short when DC voltage between 21 ~ 29V ( $\pm 3\%$ ), relay contacts  
LED (Green): DC BUS OK: light; DC BUS fail: dark  
Relay contact: Short when battery failure is observed through the battery test function, relay contacts  
LED (Red): Battery over- discharge warning or battery broken: light; Battery OK: dark  
Every 25 seconds, unit will send out test signal through Battery Fail relay contact and LED indicator  
once the battery is fail.  
Relay contact: Short when battery in discharge condition, relay contacts  
LED (Yellow): Battery discharging: light; Battery is not discharging or discharging current  $\leq 2.0A$ : dark

WORKING TEMP.  
WORKING HUMIDITY  
STORAGE TEMP., HUMIDITY  
VIBRATION  
MOUNTING

-20 ~ +70°C  
20 ~ 90% RH  
-20 ~ +85°C, 10 ~ 95% RH  
10 ~ 500Hz, 2G 10min./1cycle, 60 min. each long X,Y, Z axes  
Compliance to IEC60068-2-6

WITHSTAND VOLTAGE  
ISOLATION RESISTANCE  
EMI CONDUCTION & RADIATION  
EMS IMMUNITY

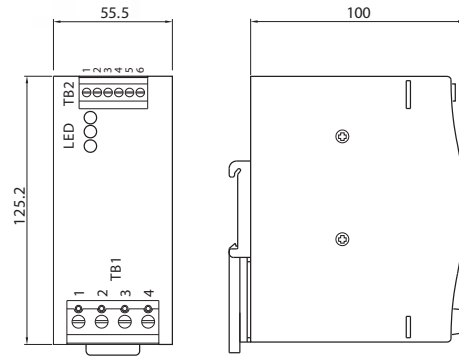
Terminal- Chassis: 0.5KVAC, Relay Contacts- Terminal: 0.5KVAC  
Terminal- Chassis:  $\geq 100M$  Ohms / 500VDC (25°C; 70% RH)  
Compliance to EN55022 (CISPR22) Class B  
Compliance to EN61000-4-2,3,4,5,6,8; ENV50204; heavy industry level; criteria A

MTBF  
DIMENSION  
PACKING

161.9Khrs min. MIL-HDBK-217K (25°C)  
55.5x125.2x100mm (WxHxD)  
0.55Kg; 20pcs / 12Kg / 1.29CUFT

All parameters NOT specially mentioned are measured at rated load and 25°C of ambient temperature.

## Mechanical Specification



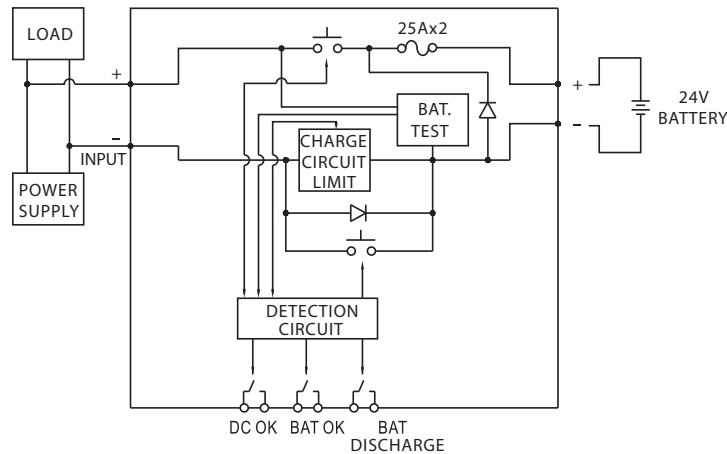
Terminal Pin. No Assignment (TB1)

Pin No.	Assignment
1	BATTERY INPUT +
2	BATTERY INPUT -
3	DC INPUT -
4	DC INPUT +

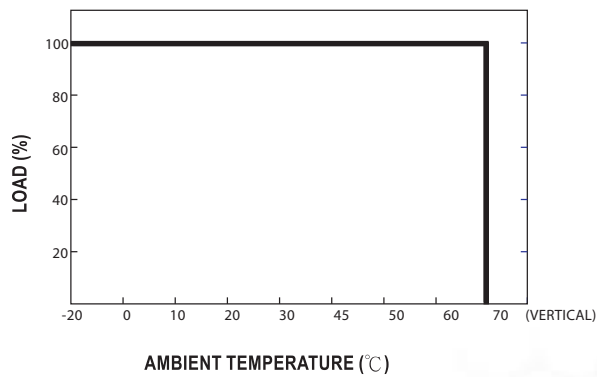
Terminal Pin. No Assignment (TB2)

Pin No.	Assignment
1	BAT DISC 1
2	BAT DISC 2
3	BAT OK 1
4	BAT OK 2
5	DC OK 1
6	DC OK 2

## Block Diagram



## Derating Curve



Note: All dimensions are in millimeters, to convert to inches multiply by 0.03937.

# Accessories

## POWER SUPPLIES

### DIN MOUNTING RAILS

Altech DIN Rails comply with DIN 50045, 50022 and 50035 Standards. The use of DIN Rails enhances design capabilities, saves space and reduces labor.

Standard rails are made of steel with zinc plating and chromate passivation and are available in various configurations.

DIN Rails are 35mm wide and available in 7.5 and 15mm depths. They are supplied in 1 m (3'3") and 2 m (6'6") lengths. Upon request they can be cut to custom lengths and punched with holes or perforations.

#### DIN35



(7.5 mm deep)

Type	Cat. No.	Length	Std. Pk.
Perforated Steel	2511120	2m	20
	2511120/1M	1m	40
Unperforated Steel	2511110	2m	20
	2511110/1M	1m	40

#### DIN35



(15 mm deep)

Type	Cat. No.	Length	Std. Pk.
Perforated Steel	CA701-15/S-2M	2m	12
	CA701-15/S	1m	24
Unperforated Steel	CA701-15-2M	2m	12
	CA701-15	1m	24

### SUPPORT BRACKETS

Support Brackets elevate DIN Rails away from the panel to facilitate component mounting and to increase wiring access. Angled brackets tilt the rail by 45° to improve visibility. Straight brackets are available in three heights for optimum positioning of the rail.

Brackets mount with 2 screws to any panel or flat surface and have tapped center holes for rail mounting. Bracket material is steel, zinc plated yellow chromate.

#### DIN35



Cat. No.	Std. Pk.
CA603	25

#### DIN35



Height	Cat. No.	Std. Pk.
1	CA703	25
2	CA803	25
3	CA903	25



## END STOPS and SPACER

End Stops prevent power supplies and other DIN Rail mount components and devices from moving laterally on the rail. They are available in polyamide 6.6 and metal configurations for 35mm DIN rails.

CA802 is a small endstop for the smaller power supplies.  
CA202 is a large endstop for larger power supplies.

CA302 is used with 7.5mm deep DIN rail and the CA402 is used with 15mm deep rail.

DIN Rail mountable spacers (CASP and 15.960) are generally used to ensure cooling space for the small power supply.

CA202		CA802		CA302		CA402		CASP		15.960	
											
Polyamide 6.6		Polyamide 6.6		Steel		Steel		Polyamide 6.6		Polyamide 6.6	
44.5 x 50 x 9.5 mm		32 x 45 x 8 mm		27 x 39.5 x 16 mm		27 x 39.5 x 16 mm		29 x 43 x 8 mm		69 x 55 x 9 mm	
Cat. No.	Std. Pk.	Cat. No.	Std. Pk.	Cat. No.	Std. Pk.	Cat. No.	Std. Pk.	Cat. No.	Std. Pk.	Cat. No.	Std. Pk.
CA202	50	CA802	50	CA302	50	CA402	50	CASP	50	15.960	10

## GROUND BLOCKS for DIN Rail

Use ground blocks instead of grounding studs and wire lugs to terminate ground wires, saving installation and wiring time.

Ground blocks clamp mechanically onto the DIN Rail by tightening the center mounting screw, making a reliable electrical connection between the cage clamp terminals and the DIN Rail. The rail serves as a busbar and automatically distributes ground potential to all other ground terminals on the same rail.

Ground blocks can also be used as end stops, preventing other terminal blocks and components from moving laterally on the DIN Rail.

They are supplied with a standard green/yellow housing for easy identification.

	CGT4N			CGT6N			CGT10U		
									
	CE			CE			CE  AEx eII EEx eII		
Terminal Width	6 mm			8 mm			10 mm		
Height x Length	45.4 x 54.2 mm			47 x 54.5 mm			49.5 x 45 mm		
Stripping Length	9 mm			12 mm			12 mm		
Insulation Material	Polyamide 6.6			Polyamide 6.6			Polyamide 6.6		
Type of Connection	2 screw clamps			2 screw clamps			2 screw clamps		
Approvals	  			  			  		
Wire Range	22-10 AWG 0.5-4 sq.mm 22-10 AWG			22-8 AWG 1.5-6 sq.mm 22-8 AWG			22-6 AWG 1.5-10 sq.mm 16-8 AWG		
Torque	7 lb-in 0.8 Nm 7 lb-in			14 lb-in 0.8 Nm 14 lb-in			14 lb-in 1.2 Nm 14 lb-in		

# Frequently Asked Questions

## Notes on choosing a switching power supply?

- To increase the reliability of the switching power supply, we suggest users choose a unit that has a rating of 30% more power than actual need. For example, if the system needs a 90W source, we suggest that users choose a switching power supply with 120W of output power or more. By doing this, you can effectively boost the reliability of the switching power supply in your system.
- We also need to consider about ambient temperature of the switching power supply and whether there is additional device for dissipating the heat. If the switching power supply is working in a high temperature environment, we need to make some derating to the output power. The derating curve of "ambient temperature" versus "output power" can be found on our spec sheets.
- Choosing functions based on your application:
  - Protection function:
    - Overvoltage Protection (OVP)
    - Overtemperature Protection (OTP)
    - Overload Protection (OLP)
    - Short Circuit Protection (SCP)
  - Application function:
    - Signaling Function (Power Good, Power Fail)
    - DC OK Signal
  - Special function:
    - Power Factor Correction (PFC)
    - Uninterruptible Power Supply (UPS) function
    - Pick Load Capability
- Make sure that the model qualifies for the safety standards and EMC regulations you need.

## How do we choose a power supply to charge a battery?

ALTECH does not have power supplies designed for battery charging. If you like to choose a Power Supply as a battery charger, our advice is to pick a power supply with over load protection (OLP) which mode is constant current limiting. The models in this mode provide constant current even when the protection circuit is triggered. The second choice is fold-back current limiting or constant wattage model. In this model, when a battery is running low, the output current of the power supply will gently increase. The level of increase depends on battery's capacity and degree of exhaustion.

Hiccup or shut down model are not recommended because it will stop to generate current when OLP happens.

## Does Altech carry class 2 power supplies?

Selected models of the Altech slim line series (PS-S...) is NEC class 2 / LPS compliant, but they are not UL1310 tested. More information can be found on the individual specification sheets.

## Can ALTECH's power supply be used in the range of 45Hz ~ 440Hz? If YES, what will happen?

ALTECH's power supply can be used within this frequency range. But if the frequency is too low, the efficiency will also be lower. For example, when a PS-12024 is operated under 230VAC and rated load, if the frequency of AC input is 60 Hz, the efficiency is around 84%; however, if the frequency of AC input reduces to 50 Hz, the efficiency will be around 83.8%. If the frequency is too high, the power factor of the switching power supply with PFC (power factor correction) function will reduce and this also will cause higher leakage current. For example, when a PS-12024 is operated under 230VAC and rated load, if the frequency of AC input is 60 Hz, the power factor is 0.93 and the leakage current is around 0.7mA; however, if the frequency of AC input increase to 440 Hz, the power factor will decrease to 0.75 and the leakage current will rise to around 4.3mA.

## If we need a 24V output power supply, but ALTECH does not have this model, can we use two 12V power supplies connecting in series instead of one 24V power supply?

YES, basically you can do this to get the right output voltage, but be careful that the rated output current of the series system should be the rating of the minimum one in these series connected power supplies. Furthermore, we like you to parallel a diode at the output of power supply to prevent possible damage of internal capacitors.

**Why I cannot turn on the power supply smoothly when the loads are motors, light bulbs or capacitive loads?**

If you connect the switching power supply to motors, light bulbs, or high capacitive loads, you will have a high output surge current when you turn on the S.P.S. and this high surge current will cause failure of start up. We suggest using switching power supply with over load protection and constant current limiting protection to deal with these loads.

**Why did the power supply shuts down during operation and after turning it off, I can restart the power supply again?**

In general there are two circumstances that will cause the power supply to shut down. The first one is the activation of the over-load-protection (OLP). To deal with this situation, we suggest increasing the rating of the output power or modifying the OLP point. The second one is the activation of over-temperature protection (OTP) when the internal temperature reaches the pre-set value. All of these conditions will let the switching power supply enter protection mode and shut down. After these conditions are removed, the switching power supply will be back to normal.

**The output ground (GND) and frame ground (FG) is the same point in my system, can ALTECH's power supplies be used in such system?**

Yes. Since our products are designed based on isolation concept, it will be no problem that the output ground (GND) and frame ground (FG) is the same point in your system. But, EMI may be affect by this connection.

**During the operation of ALTECH power supply, there is some leakage current on the case. Is this normal? Will this leakage current hurt human body?**

Due to the requirement of EMI, there will be some Y capacitors between line and neutral to the FG (case) to improve EMC. These Y capacitors will cause some leakage current flow from line or neutral to the case (normally case will be connected to earth ground). For example, IEC-60950-1 requires that this current should be less than 3.5mA for IT equipment, so basically the leakage current you find on the case will not hurt human body. Proper connection to Earth ground will solve the leakage current problem.

**What should be noticed when installing a power supply in vertical and horizontal directions?**

Most small wattage power supplies are mainly installed in the horizontal position. If you have to install it vertically because of mechanical limitation, you should consider the output derating due to the heat concern. The temperature derating curve can be found on the spec sheet.

**What is "Input - Inrush Current"? What will we notice?**

At input side, there will be (1/2 ~1 cycle, ex. 1/120 ~ 1/60 seconds for 60 Hz AC source) large pulse current (20~60A based on the design of S.P.S.) at the moment of power on and then back to normal rating. This "Inrush Current" will appear every time you turn on the power. Although it will not damage the power supply, we suggest not turning the power supply ON/OFF very quickly within a short time. Besides, if there are several power supplies turning on at the same time, the circuit breaker of AC source may shut off and go into protection mode because of the huge inrush current. It is suggested that these power supplies start up one by one if possible.

**What is PFC?**

PFC stands for Power Factor Correction. The purpose of PFC is to improve the ratio of apparent power and real power. The power factor is only 0.4~0.6 in non-PFC models. In PFC models, the power factor can reach above 0.95. The calculation formulas are as below:

Apparent Power=Input Voltage x Input Current (VA)

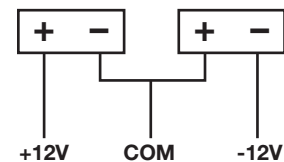
Real Power= Input Voltage x Input Current x Power Factor (W)

From the environment friendly point, the electric power plant needs to generate a power which is higher than apparent power in order to steadily provide electricity to the market. The real usage of electricity should be defined by real power. Assuming the power factor is 0.5, the power plant needs to produce more than 2VA to satisfy 1W real power. On the contrary, if the power factor is 0.95, the power plant only needs to generate more than 1.06VA to provide 1W real power need. It will be more effective.

**What is the difference between -V, +V and COM which are marked on the output side? COM(COMMON) means common ground.**

Single output: Positive pole (+V), Negative pole (-V)

+V; COM and -V can be attained by using two switching power supplies in series. Example: (2x PS-S2012)



**In ALTECH's catalog, we see AC and DC at input, what is it all about?**

Due to different circuit designs, ALTECH power supply's input consists of three types as below:

( $\sqrt{2}=1.414 \rightarrow 1.414 \times \text{AC} = \text{DC}$ )

A.85~264VAC;120~370VDC

B.176~264VAC;250~370VDC

C.85~132VAC/176~264VAC by Switch; 250~370VDC

- In the case of option A and B inputs models, power supply can work properly no matter under AC or DC input. Some models need correct connection of input poles, positive pole connects to AC/L; negative pole connects to AC/N. Others may require opposite connection, positive pole to AC/N; negative pole to AC/L. If customers make a wrong connection, the power supply will not be broken. You can just reverse the input poles and power supply will still work.
- In the case of option C input models, please make sure that you switch the 115/230V input correctly. If the switch is on the 115V side and the real input is 230V, the power supply will be damaged.



# Frequently Asked Questions

## Why the input voltage marked on the spec. sheet is 88~264 VAC while the label on the power supply says that it is 100~240VAC?

During safety verification process, the agency will use a stricter standard --  $\pm 10\%$  (IEC60950 uses  $+6\%$ ,  $-10\%$ ) of the input voltage range labeled on the power supply to conduct the test. So, operating at the wider input voltage range as specified on the spec. sheet should be fine. The narrower range of input voltage labeled on the power supply is to fulfill the test standard of safety regulation and make sure that users insert input voltage correctly.

## Will ALTECH's products with CE marking meet the EMC requirements after assembling into my system?

We cannot guarantee 100% that the final system can still meet the EMC requirements. The location, wiring and grounding of the switching power supply in the system may influence its EMC characteristics. In different environment or applications, the same switching power supply may have different outcomes. Our test results are based on setup shown in the EMC report.

## What is different between information (EN60950-1) and medical (EN60601-1) safety standard?

According to safety standard, the leakage current in EN60950-1 Class I cannot exceed 3.5mA. Many of ALTECH's power supplies meet this requirement but may not meet the EN60601-1. Others criteria like safe distance and numbers of fuse are also different. Please consult the diagram below:

Subjects		IEC60950-1	IEC60601-1	
Creepage distance/ Clearance distance	Basic Insulation	2.5mm/2mm	4mm/2.5mm	
	Supplementary Insulation	5mm/4mm	8mm/5mm	
Electric Strength Test	Basic Insulation	1500Vac	1500Vac	
	Supplementary Insulation	3000Vac	4000Vac	
Leakage Current	CLASS I	Handheld: 0.75mA	—	
		Others: 3.5mA	Leakage current of grounding	0.3mA
			Leakage current of grounding	0.1mA
	CLASS II	0.25mA	Leakage current of grounding	0.1mA
Number of Fuse		1	2	
The Lowest Ambient Temperature		Refer to the definition of Manufacturer	40°C	

## What is MTBF? Is it different from Life Cycle?

MTBF and Life Cycle are both indicators of reliability. Altech uses MIL-HDBK-217F as the core of MTBF. An expected reliability is forecasted through accounting component's number. The exact meaning of MTBF is after continuously using of power supply in a certain time, the probability of operating properly is 36.8% ( $e^{-1}=0.368$ ). If power supply is continuously used at double the MTBF time, the probability of operating properly becomes 13.5% ( $e^{-2}=0.135$ ). Life Cycle is found through using the temperature rise of electrolytic capacitor to estimate the approximate life of power supply. For example, PS-S10 series MTBF=584K hours; electrolytic capacitor C108 Life Cycle=202K hours ( $T_a=45^\circ\text{C}$ ).

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Power supply data sheet specifies devices but can not promise to deliver any specific characteristics. No warranty or guaranty is given regarding performance or suitability. The customer shall test and ensure that each power supply would work for the anticipated use. Altech Corp. reserves the right to make modification to its power supply data sheets or specifications at any time without prior notice. Please visit [www.altechcorp.com/power](http://www.altechcorp.com/power) for more information.



	Output voltage					Universal Input	Switch Select Input	UL 508 Listed	UL 60950-1 Rec.	CE marked	RoHS Compliant	Reach Compliant	DC OK	Short Circuit	Overload	Over Voltage	Over Temperature	EMC	CB
	5	12	15	24	48														
PS-S10xx	X	X	X	X		X		X		X	X	X	SIG	X	X	X		X	X
PS-S20xx	X	X	X	X		X		X		X	X	X	SIG	X	X	X		X	X
PS-S40xx	X	X		X	X	X		X	X*	X	X	X	X	X	X	X		X	X
PS-S60xx	X	X		X	X	X		X	X*	X	X	X	X	X	X	X		X	X
PS-S100xx		X		X	X	X		X	X*	X	X	X	X	X	X	X	X	X	X
PS-15xx	X	X	X	X		X			X		X	X	X		X	X	X	X	X
PS-30xx	X	X	X	X		X			X		X	X	X		X	X	X	X	X
PS-45xx	X	X	X	X		X		X			X	X	X		X	X	X	X	X
PS-60xx	X	X	X	X		X			X		X	X	X		X	X	X	X	X
PS-100xx		X	X	X		X			X		X	X	X		X	X	X	X	X
PS-75xx		X		X	X	X		X			X	X	X		X	X	X	X	X
PS-120xx		X		X	X		X	X			X	X	X		X	X	X	X	X
PSH-120xx				X	X	X			X		X	X	X		X	X	X	X	X
PSP-240xx				X	X	X		X	X		X	X	X		X	X	X	X	X
PSP-480xx				X	X	V		X	X		X	X	X		X	X	X	X	X
PSP-480Sxx				X	X		X	X	X		X	X	X		X	X	X	X	X
PST-240xx				X	X	TP		X	X		X	X	X		X	X	X	X	X
PST-480xx				X	X	TP		X	X		X	X	X		X	X	X	X	X
PST-960xx				X	X	TP		X	X		X	X	X		X	X	X	X	X
PST-960Pxx				X	X	TP		X	X		X	X	X		X	X	X	X	X
PS-C120xx		X		X	X	X		X			X	X	X	X	X	X	X	X	X
PS-C240xx				X	X	X		X			X	X	X	X	X	X	X	X	X
PS-C480xx				X	X	X		X			X	X	X	X	X	X	X	X	X
PS-C480Pxx				X	X	X		X			X	X	X	X	X	X	X	X	X
PSW-120xx		X		X	X	WR		X			X	X	X	X	X	X	X	X	X
PSW-240xx				X	X	WR		X			X	X	X	X	X	X	X	X	X
PSW-480xx				X	X	WR		X			X	X	X	X	X	X	X	X	X
PS-RDN				21-28							X	X	X					X	
PS-UPS				21-28							X	X	X	DBO				X	

TP = three phase input  
WR = wide range input

X\* = selected items, see data sheet  
SIG = DC OK signal

V = 220V INPUT ONLY  
DBO = DC bus OK

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## SPECIFICATION SHEETS

