AC-DC DIN Rail Mount Power Supply 120W

RoHS Compliant

Features

- Universal 85 - 264VAC or 120 - 370 VDC Input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -40°C to +70°C
- High efficiency up to 94%, high reliability
- DC OK function
- Active PFC
- 150% peak load output for 3 seconds
- DC ON output status indicator LED
- Output short circuit, over-current, over-voltage,
- over-temperature protection
- Safety according to IEC/EN/UL62368, UL61010, UL508
- 3 year warranty

These AC-DC converter series featuring a cost-effective, energy efficient explosion-proof solution for standard DIN-rail mounting. The products offer a high level of stability and immunity to noise, compliant with international IEC62368 standards for EMC and safety specifications meet IEC/EN/UL62368, UL61010, UL508. These light weight AC-DC converters also have an extremely compact design for space saving and are ideal for applications such as industrial control equipment, machinery, and all kinds of applications in a harsh environments.

Selection Guide

Part Number	Output Power (W)	Nominal Output Voltage and Current (Vo/Io)	Output Voltage Adjustable Range (V)	Efficiency at 230VAC (%) Typ.	Max. Capacitive Load (µF)
MPIF120-10B12	120	12V/10A	11.8-14.0	93.5	80.000
MPIF120-10B24		24V/5A	23.5-28.0	94	50.000
MPIF120-10B48		48V/2.5A	47.0-53.0	94	30.000

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Voltage Range	Rated input	100	--	240	V AC
	AC input	85		264	
	DC input	120		370	V DC
Input Frequency	AC input	47	--	63	Hz
Input Current	115V AC	--	--	1.5	A
	230V AC	--	--	0.75	
Inrush Current	115V AC	--	15	--	
	230V AC	--	30	--	
Power Factor	115V AC	--	0.98	--	--
	230V AC	--	0.94	--	
Start-up Delay Time	230V AC	--	300	1000	ms
Leakage Current	240V AC	<1mA			
Hot Plug		Unavailable			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full load range		--	±1	--	%
Line Regulator	Rated load		--	±0.5	--	
Load Regulation	0% - 100% load		--	±1	--	
Ripple & Noise*	20MHz bandwidth (peak-peak value)	12V	--	--	100	mV
		24V	--	--	100	
		48V	--	--	200	
Stand-by Power Consumption			--	2	--	W
Hold-up Time			--	20	--	ms
DC OK Signal*			30V DC/1A Max.			
Short Circuit Protection	Recovery time < 10s after the short circuit disappear.		Constant current hiccup mode (constant current mode works 1s and stop 10s) continuous, self-recovery			
Over-current Protection	230V AC, rated load	Normal temperature, high temperature	105% - 200% Io, self-recovery			
		Low temperature	≥105% full load after derating, self-recovery			
Over-voltage Protection	12V		≤18V (Hiccup, self-recovery after the abnormality is removed)			
	24V		≤35V (Hiccup, self-recovery after the abnormality is removed			
	48V		≤60V (Hiccup, self-recovery after the abnormality is removed)			
Over-temperature Protection	230VAC, 70% load	Over-temperature protection start	--	90	--	°C
		Over-temperature protection release	60	--	--	

General Specifications

Item		Operating Conditions		Min.	Typ.	Max.	Unit
Isolation Test	Input - ⏚	Electric strength test for 1min., leakage current <15mA		1500	--	--	VAC
	Input - output			3000	--	--	
	Output - ⏚			500	--	--	
Insulation Resistance	Input - ⏚	At 500V DC		50	--	--	MΩ
	Input - output			50	--	--	
	Output - ⏚			50	--	--	
Operating Temperature				-40	--	+70	°C
Storage Temperature				-40	--	+85	
Operating Humidity		Non-condensing		--	--	95	%RH
Storage Humidity				20	--	95	
Switching Frequency				--	100	--	kHz
Power Derating		Operating temperature derating	-40°C to -25°C				
			+55°C to +70°C	85VAC-164VAC	2		--	%/°C
			+60°C to +70°C	165VAC-264VAC	2		--	
		Input voltage derating		85VAC-100VAC	1		--	%/VAC
Safety Standard					Meet IEC/EN/UL62368/UL61010/ UL508			
Safety Certification					EN62368/UL61010 (Pending)			
Safety Class					CLASS I			
MTBF		MIL-HDBK-217F@25°C			>300,000 h			

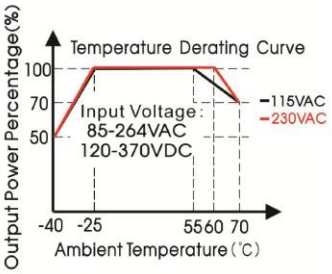
Mechanical Specifications

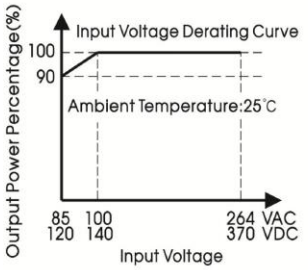
Case Material	Metal (AL1100, SPCC) and Plastic (PC940)
Dimensions	110.00 x 32.00 x 124.00mm
Weight	490g±10% (Typ.)
Cooling Method	Free air convection

EMC Specifications

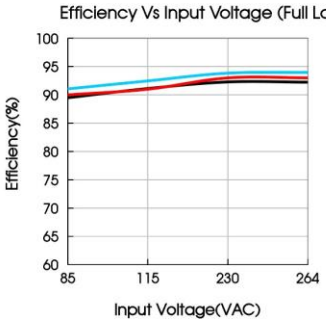
EMI	CE	CISPR32/EN55032 CLASS B	
	RE	CISPR32/EN55032 CLASS B	
	Harmonic current	IEC/EN61000-3-2 CLASS A and CLASS D	
EMS	ESD	IEC/EN 61000-4-2 Contact ±6KV/Air ±8KV	perf. Criteria A
	RS	IEC/EN 61000-4-3 10V/m	perf. Criteria A
	EFT	IEC/EN 61000-4-4 ±4KV	perf. Criteria A
	Surge	IEC/EN 61000-4-5 line to line ±2KV/line to ground ±4KV	perf. Criteria A
	CS	IEC/EN61000-4-6 10 Vr.m.s	perf. Criteria A
	Voltage dips, short interruptions and voltage variations immune	IEC/EN61000-4-11 0%, 70%	perf. Criteria B

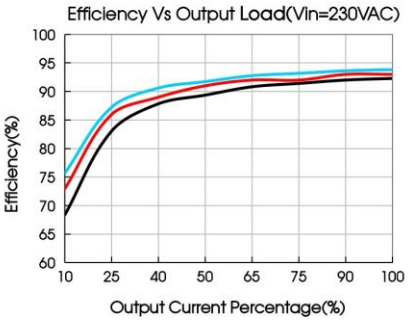
Product Characteristic Curve



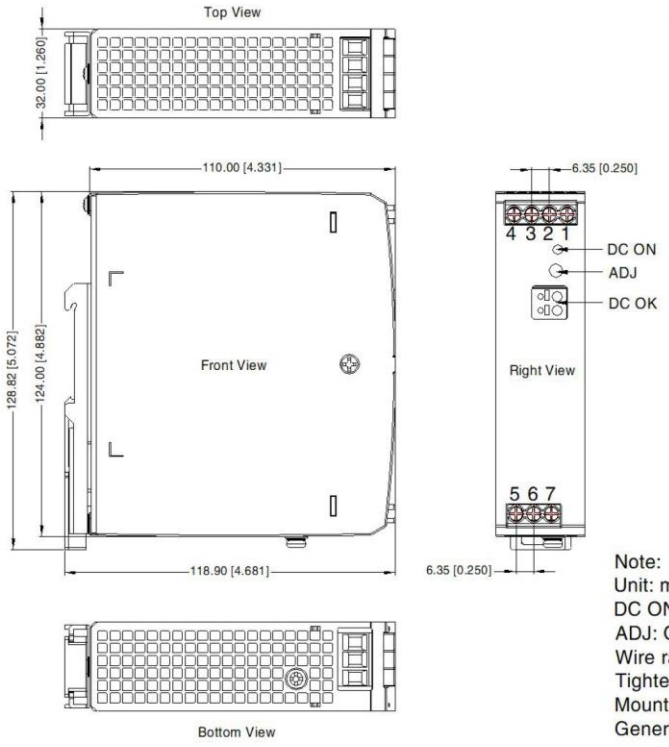


Note: 1.With an AC input voltage between 85 -100VAC and a DC input between 120-140VDC the output power must be derated as per the temperature derating curves;
2.This product is suitable for applications using natural air cooling; for applications in closed environment please consult Mornsun FAE.





Dimensions and Recommended Layout



THIRD ANGLE PROJECTION

Pin-Out	
Pin	Mark
1	-Vo
2	-Vo
3	+Vo
4	+Vo
5	AC(N)
6	AC(L)
7	⏚

Note:
Unit: mm[inch]
DC ON: Output status indicator LED
ADJ: Output adjustable resistor
Wire range: 26-10 AWG
Tightening torque: Max 0.4 N-m
Mounting rail: TS35, rail needs to connect safety ground
General tolerances: ± 1.00[± 0.039]

Notes:

1. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25°C, humidity<75% RH with nominal input voltage and rated output load;
2. The room temperature derating of 5°C/1000m is needed for operating altitude greater than 2000m;
3. All index testing methods in this datasheet are based on our company corporate standards;
4. In order to improve the efficiency at high input voltage, there will be audible noise generated, but it does not affect product performance and reliability;
5. We can provide product customization service, please contact our technicians directly for specific information;
6. Products are related to laws and regulations: see “Features” and “EMC”;
7. The out case needs to be connected to the earth (⏚) of system when the terminal equipment in operating;
8. The output voltage can be adjusted by the output adjustable resistance ADJ, turn it down clockwise.

Part Number Table

Description	Part Number
AC-DC DIN Rail Mount Power Supply, 120W, 12V, 10A	MPIF120-10B12
AC-DC DIN Rail Mount Power Supply, 120W, 24V, 5A	MPIF120-10B24
AC-DC DIN Rail Mount Power Supply, 120W, 48V, 2.5A	MPIF120-10B48