AC-DC Power Supply
DIN Rail

RoHS Compliant

Features

- Universal 90 - 264VAC or 127 - 370VDC Input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -20°C to +60°C
- High I/O isolation test voltage up to 4000V AC
- Low ripple & noise
- Output short circuit, over-current, over-voltage, over-temperature protection
- DIN rail TS-35/7.5 or 15 mountable
- Ultra slim design: suitable for small chassis and narrow space installation
- Safety according to UL508

MPLI120-20BxxR2S is AC-DC converter series featuring a cost-effective, energy efficient green power supply solution for standard DIN-rail mounting. The products offer a high level of stability and immunity to noise for industrial control equipment, machinery, and other industrial equipment in a variety of harsh environments. These light weight AC-DC converters have an extremely compact design and the standard rail installation for space saving. With good EMC performance, compliant with international UL61010, UL508, EN/BS EN 62368 standards for EMC and safety.

Selection Guide

Part Number	Output Power (W)	Nominal Output Voltage and Current (Vo/Io)	Output Voltage Adjustable Range (V)	Efficiency at 230V AC (%) Typ.	Max. Capacitive Load (μF)
MPI120-20B12R2S	120	12V/10A	12-14	85	3000
MPI120-20B24R2S		24V/5A	24-28	88	1200
MPI120-20B48R2S		48V/2.5A	48-55	89	800
Note: *Use suffix “QQ” for double-faced conformal coating.					

Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Voltage Range	AC input		90		264	V AC
	DC input		127		370	V DC
Input Voltage Frequency			47	--	63	Hz
Input Current	115V AC				3	A
	230V AC		--		1.6	
Inrush Current	115V AC	Cold start		30	--	
	230V AC			55		
Leakage Current	240V AC		<1 mA			
Hot Plug			Unavailable			

Output Specifications						
Item	**Operating Conditions**		**Min.**	**Typ.**	**Max.**	**Unit**
Output Voltage Accuracy	Full load range	12V	--	±2	-	%
		24V/48V		±1		
Line Regulation	Rated load			±0.5		
Load Regulation	0%-100% load			±1		
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	12V		--	100	mV
		24V			120	
		48V			150	
Temperature Coefficient				±0.03	--	%/°C
Minimum Load			0	--		%
Hold-up Time	115V AC		8			ms
	230V AC		16			
Short Circuit Protection	Recovery time < 3s after the short circuit disappear.		Constant current, continuous, self-recovery			
Over-current Protection	230V AC, rated load	Normal temperature, high temperature	105%-150% Io, constant current mode, automatic recover after fault condition is removed			
		Low temperature	≥105%Io, constant current mode, automatic recover after fault condition is removed			
Over-voltage Protection	12V		≤16V (Output voltage turn off, re-power on for recover)			
	24V		≤33V (Output voltage turn off, re-power on for recover)			
	48V		≤60V (Output voltage turn off, re-power on for recover)			
Over-temperature Protection			Output voltage turn off, re-power on for recover			

General Specifications

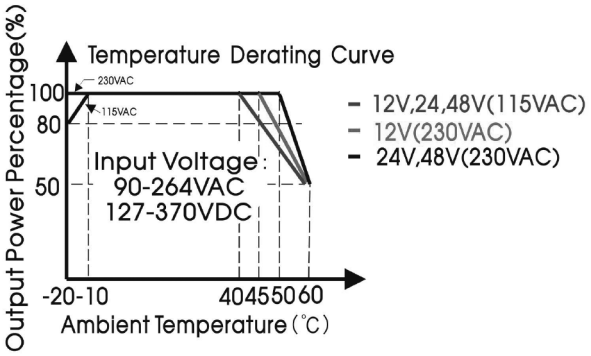
Item		Operating Conditions				Min.	Typ.	Max.	Unit
Isolation Test	Input - ⏚	Electric strength test for 1min., leakage current <10mA				2000		--	V AC
	Input - output					4000			
	Output - ⏚					500			
Insulation Resistance	Input - ⏚	At 500V DC				100	--		MΩ
	Input - output								
	Output - ⏚								
Operating Temperature						-20		+60	°C
Storage Temperature						-40		+85	
Storage Humidity		Non-condensing				10		95	%RH
Operating Humidity						20		90	
Switching Frequency						--	65	--	kHz
Power Derating		Operating temperature derating	All series	-20°C to -10°C	115V AC	3.34	2.0	--	%/°C
				-20°C to -10°C	230V AC		0		
				+40°C to +60°C	115V AC	3	2.5		
			12V	+45°C to +60°C	230V AC		3.33		
			24V/48V	+50°C to +60°C	230V AC	3.34	5		
		Input voltage derating		90V AC - 115V AC		1	1		%/V AC
Safety Standard						UL61010-1, UL61010-2-201, IS13252 (Part1) safety approved & EN62368-1, BS EN 62368-1 (Report) Design refer to UL508			
Safety Class						CLASS I			
MTBF		MIL-HDBK-217F@25°C				>3009,000h			

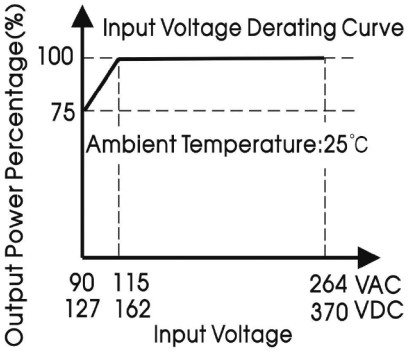
Mechanical Specifications	
Case Material	Metal (AL1100, SGCC)
Dimensions	36mm × 125mm × 100mm
Weight	410g (Typ.)
Cooling Method	Free air convection

Electromagnetic Compatibility (EMC)

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

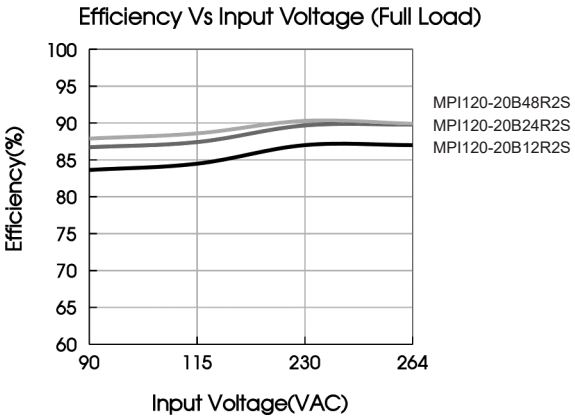
Product Characteristic Curve

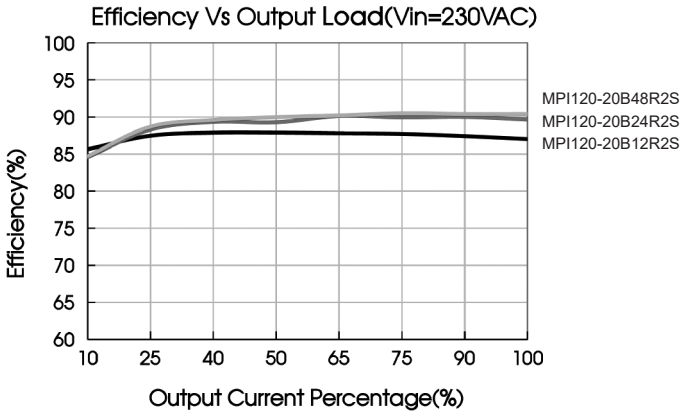




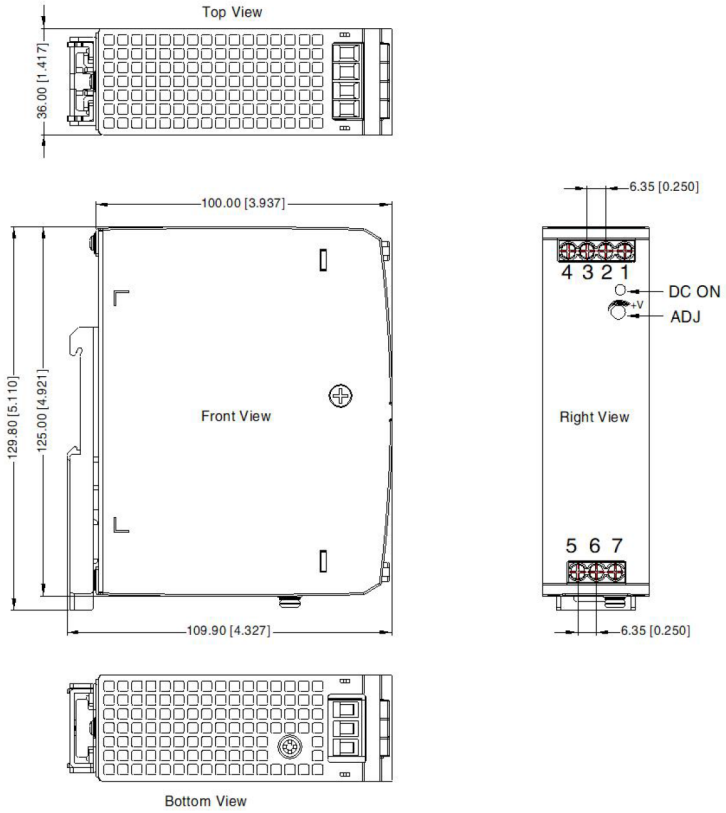
Note: 1. With an AC input voltage between 90 -115VAC and a DC input between 127-162V DC the output power must be derated as per the temperature derating curves;

2.This product is suitable for applications using natural air cooling





Dimensions and Recommended Layout



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: Input: 26–10AWG(12–10AWG for pin7)
Output: 12V: 12–10AWG
24V: 16–10AWG
48V: 18–10AWG
Tightening torque: Max 0.79N・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. 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
3. The out case needs to be connected to PE (⏚) of system when the terminal equipment in operating

Part Number Table

Description	Part Number
AC-DC DIN Rail Mount Power Supply, 120W, 12V, 10A	MPI120-20B12R2S
AC-DC DIN Rail Mount Power Supply, 120W, 24V, 5A	MPI120-20B24R2S
AC-DC DIN Rail Mount Power Supply, 120W, 48V, 2.5A	MPI120-20B48R2S

Dimensions : Inches (Millimetres)