

**SERIES:** PDRD-120 | **DESCRIPTION:** AC-DC DIN RAIL POWER SUPPLY

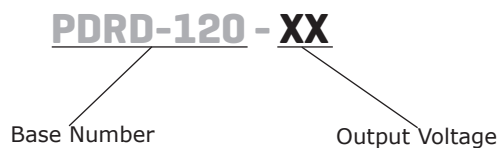
**FEATURES**

- certified to UL 61010-1, UL, EN/BS EN 62368-1
- designed to meet EN 60335-2-29, EN 61558-2-16, GB 4943.1
- CISPR32/EN55032 CLASS B compliant
- 85 ~ 305 Vac, 120 ~ 430 Vdc input voltage
- -40 ~ 85 °C operating temperature with derating
- over-temperature, output over-voltage, over-current, short-circuit protection
- constant current short-circuit protection and over-current protection
- safety CLASS I
- output voltage trim
- accepts AC or DC input (dual use of the same terminal)



MODEL	output voltage	output current	output power	ripple and noise <sup>1</sup>	efficiency <sup>2</sup>
	typ (Vdc)	max (A)	max (W)	max (mVp-p)	typ (%)
PDRD-120-24	24	5.0	120	120	90
PDRD-120-48	48	2.5	120	150	91.5

Notes: 1. Tested at full load, nominal input, 20 MHz bandwidth oscilloscope with 47  $\mu$ F electrolytic and 1  $\mu$ F ceramic capacitor on the output.  
 2. At 230 Vac.  
 3. All specifications are measured at Ta=25°C, humidity <75% RH, nominal input voltage, and rated output load unless otherwise specified.

**PART NUMBER KEY**


## INPUT

parameter	conditions/description	min	typ	max	units
voltage	ac input	85		305	Vac
	dc input	120		430	Vdc
frequency		47		63	Hz
current	at 115 Vac			2.7	A
	at 230 Vac			1.6	A
inrush current	at 115 Vac, cold start			35	A
	at 230 Vac, cold start			65	A
leakage current	at 277 Vac, 60 Hz			1	mA
no load power consumption	at 230 Vac		1.0	1.5	W

## OUTPUT

parameter	conditions/description	min	typ	max	units
capacitive load	24 Vdc output model			4,000	$\mu$ F
	48 Vdc output model			1,000	$\mu$ F
initial set point accuracy				$\pm 1$	%
line regulation	at rated load			$\pm 0.5$	%
load regulation	0~100% load			$\pm 1$	%
adjustability	24 Vdc output model	24		28	Vdc
	48 Vdc output model	48		53	Vdc
hold-up time	at 115 Vac		8		ms
	at 230 Vac		16		ms
switching frequency			150		kHz
temperature coefficient			$\pm 0.03$		%/ $^{\circ}$ C

## PROTECTIONS

parameter	conditions/description	min	typ	max	units
over voltage protection	24 Vdc output model, hiccup, auto-recovery			33	Vdc
	48 Vdc output model, hiccup, auto-recovery			63	Vdc
over current protection	at 230 Vac, rated load, auto recovery	105			%
short circuit protection <sup>4</sup>	constant current mode, continuous, auto recovery				
over temperature protection	230 Vac, rated load, 60 $^{\circ}$ C, output shut-down, auto recovery				

Notes: 4. Recovery time <5s after the short circuit disappear.

**SAFETY & COMPLIANCE**

parameter	conditions/description	min	typ	max	units
isolation voltage	input to output for 1 minute, 10mA max	4,000			Vac
	input to ground for 1 minute, 10mA max	2,000			Vac
	output to ground for 1 minute, 10mA max	500			Vac
safety approvals	certified to 61010-1: UL certified to 62368-1: UL, EN, BS EN designed to meet 60335-2-29: EN designed to meet 61558-2-16: EN designed to meet 4943.1: GB				
safety class	CLASS I				
conducted emissions	CISPR32/EN55032 CLASS B				
radiated emissions	CISPR32/EN55032 CLASS B				
harmonic current	IEC/EN61000-3-2 CLASS A				
ESD	IEC/EN 61000-4-2 Contact ±6KV; Air ±8KV, perf. Criteria A				
radiated immunity	IEC/EN 61000-4-3 10V/m, perf. Criteria A				
EFT/burst	IEC/EN 61000-4-4 ±2KV, perf. Criteria A				
surge	IEC/EN 61000-4-5 line to line ±2KV; line to ground ±4KV, perf. Criteria B				
conducted immunity	IEC/EN61000-4-6 10Vrms, perf. Criteria A				
voltage dips and interruptions	IEC/EN61000-4-11 0%, 70%, perf. Criteria B				
MTBF	as per MIL-HDBK-217F at 25°C		300,000		hours
RoHS	yes				

**ENVIRONMENTAL**

parameter	conditions/description	min	typ	max	units
operating temperature	see derating curves	-40		85	°C
storage temperature		-40		85	°C
operating humidity	non-condensing	10		95	%
storage humidity	non-condensing	20		95	%

## MECHANICAL

parameter	conditions/description	min	typ	max	units
dimensions	125.00 x 87.50 x 32.00				mm
material	metal (AL1100, SGCC)				
weight			400		g
cooling	natural convection				

## MECHANICAL DRAWING

units: mm [inch]

ADJ: output adjustable resistor

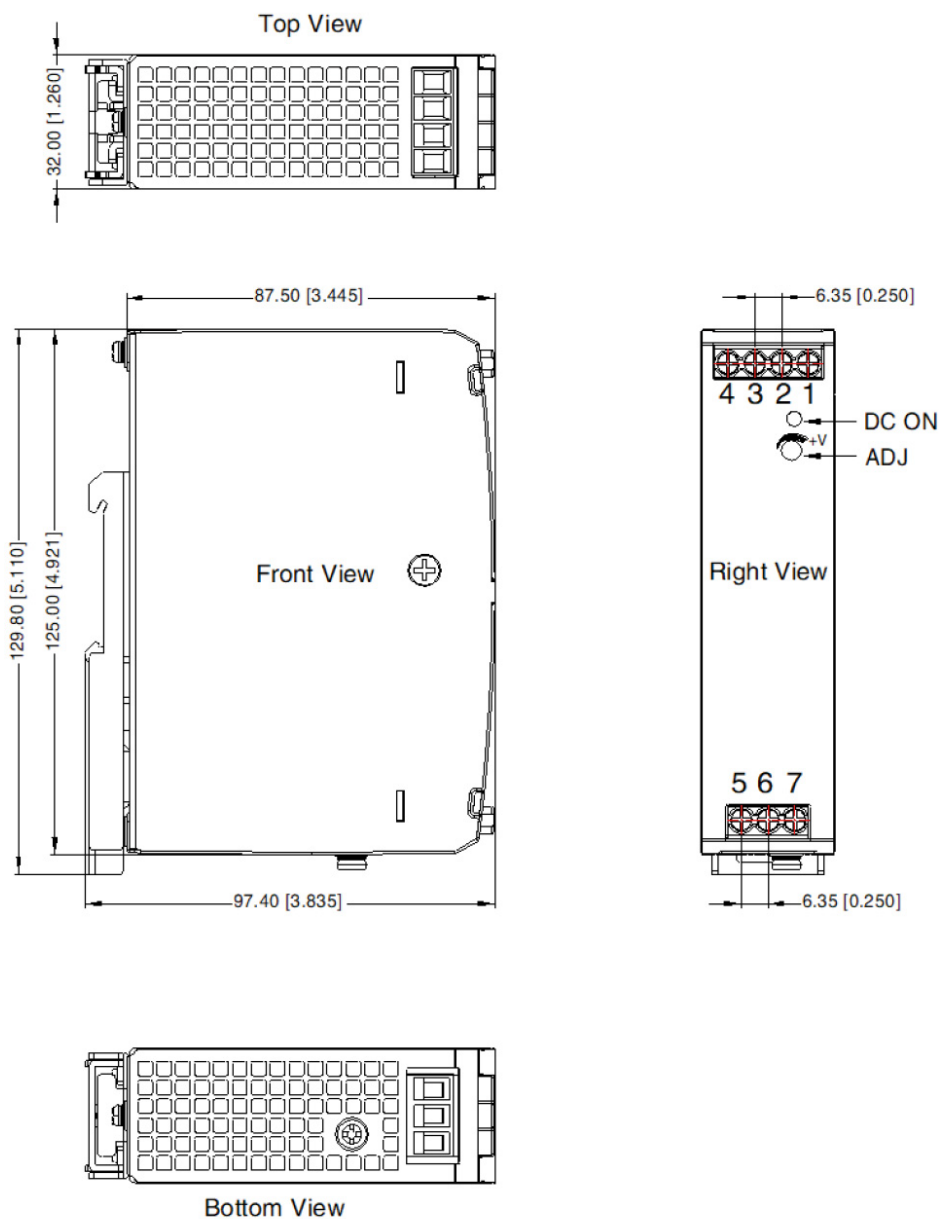
wire range 26-10 AWG

tightening torque: Max 0.79 N·m

Mounting rail: TS35, rail needs to connect to safety ground

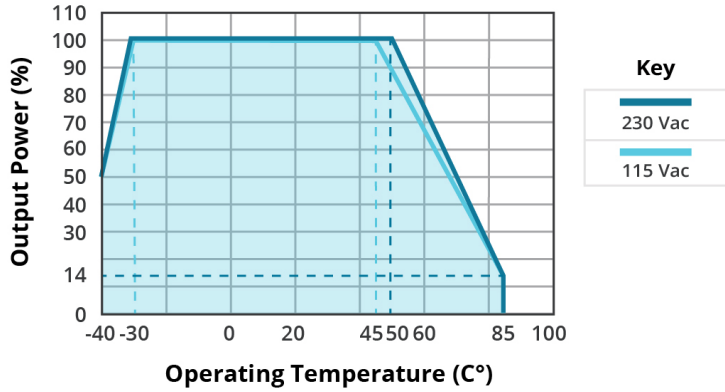
tolerances: ±1.00 [±0.039]

PIN CONNECTIONS	
TERMINAL	Function
1	-Vo
2	-Vo
3	+Vo
4	+Vo
5	AC (N)
6	AC (L)
7	⊕

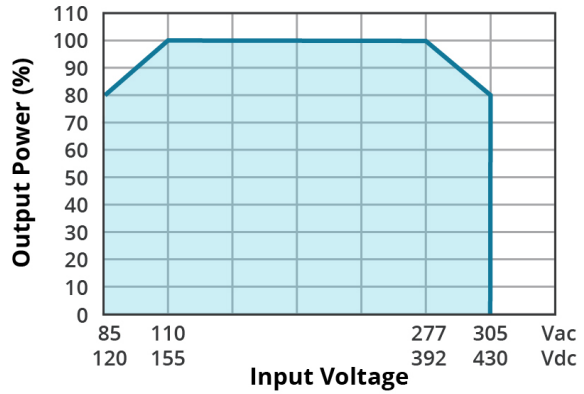


## DERATING CURVES

**TEMPERATURE DERATING CURVE**  
(at 85~305 Vac / 120~430 Vdc)



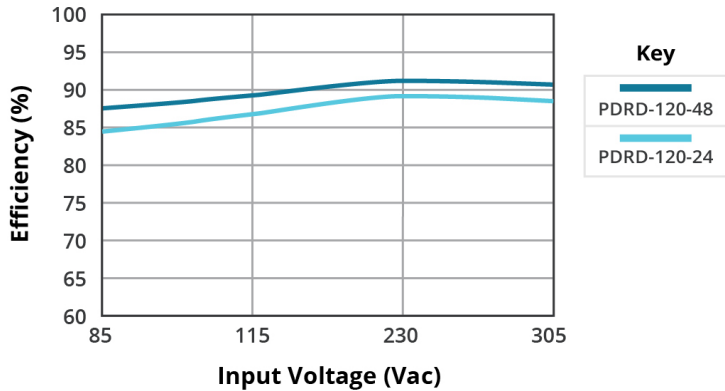
**INPUT VOLTAGE DERATING CURVE**  
(at 25°C)



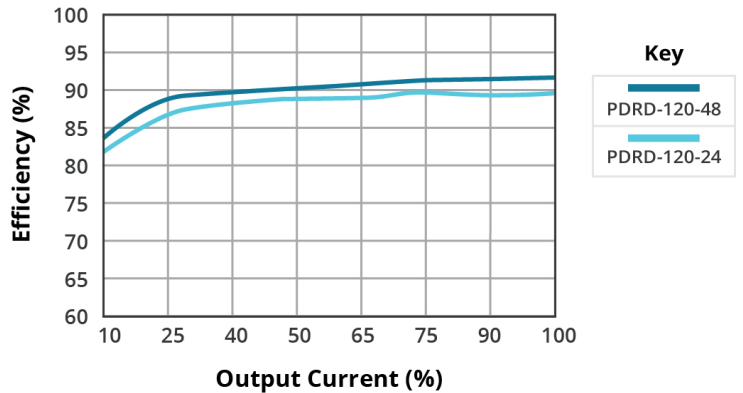
- Note:
5. With an AC input voltage between 85 ~ 100VAC/277 ~ 305VAC and a DC input between 120 ~ 140VDC/392 ~ 430VDC the output power must be derated as per the temperature derating curves.
  6. This product is suitable for applications using natural convection cooling; for applications in closed environment please consult CUI.

## EFFICIENCY CURVES

**EFFICIENCY VS INPUT VOLTAGE**  
(full load)



**EFFICIENCY VS OUTPUT LOAD**  
(Vin=230 Vac)



## REVISION HISTORY

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rev.	description	date
1.0	initial release	09/08/2023
1.01	safeties updated	09/21/2023

The revision history provided is for informational purposes only and is believed to be accurate.



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CUI offers a two (2) year limited warranty. Complete warranty information is listed on our website.

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