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

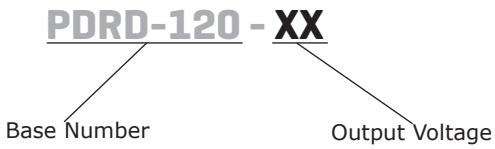
FEATURES

- 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 typ (Vdc)	output current max (A)	output power max (W)	ripple and noise[1] max (mVp-p)	efficiency[2] 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 µF electrolytic and 1 µF 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 dc input	85 120		305 430	Vac Vdc
frequency		47		63	Hz
current	at 115 Vac at 230 Vac			2.7 1.6	A A
inrush current	at 115 Vac, cold start at 230 Vac, cold start			35 65	A 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 48 Vdc output model			4,000 1,000	µF µF
initial set point accuracy				±1	%
line regulation	at rated load			±0.5	%
load regulation	0~100% load			±1	%
adjustability	24 Vdc output model 48 Vdc output model	24 48		28 53	Vdc Vdc
hold-up time	at 115 Vac at 230 Vac		8 16		ms ms
switching frequency			150		kHz
temperature coefficient			±0.03		%/°C

PROTECTIONS

parameter	conditions/description	min	typ	max	units
over voltage protection	24 Vdc output model, hiccup, auto-recovery 48 Vdc output model, hiccup, auto-recovery			33 63	Vdc Vdc
over current protection	at 230 Vac, rated load, auto recovery	105			%
short circuit protection[4]	constant current mode, continuous, auto recovery				
over temperature protection	230 Vac, rated load, 60°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 input to ground for 1 minute, 10mA max output to ground for 1 minute, 10mA max	4,000 2,000 500			Vac Vac 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	%

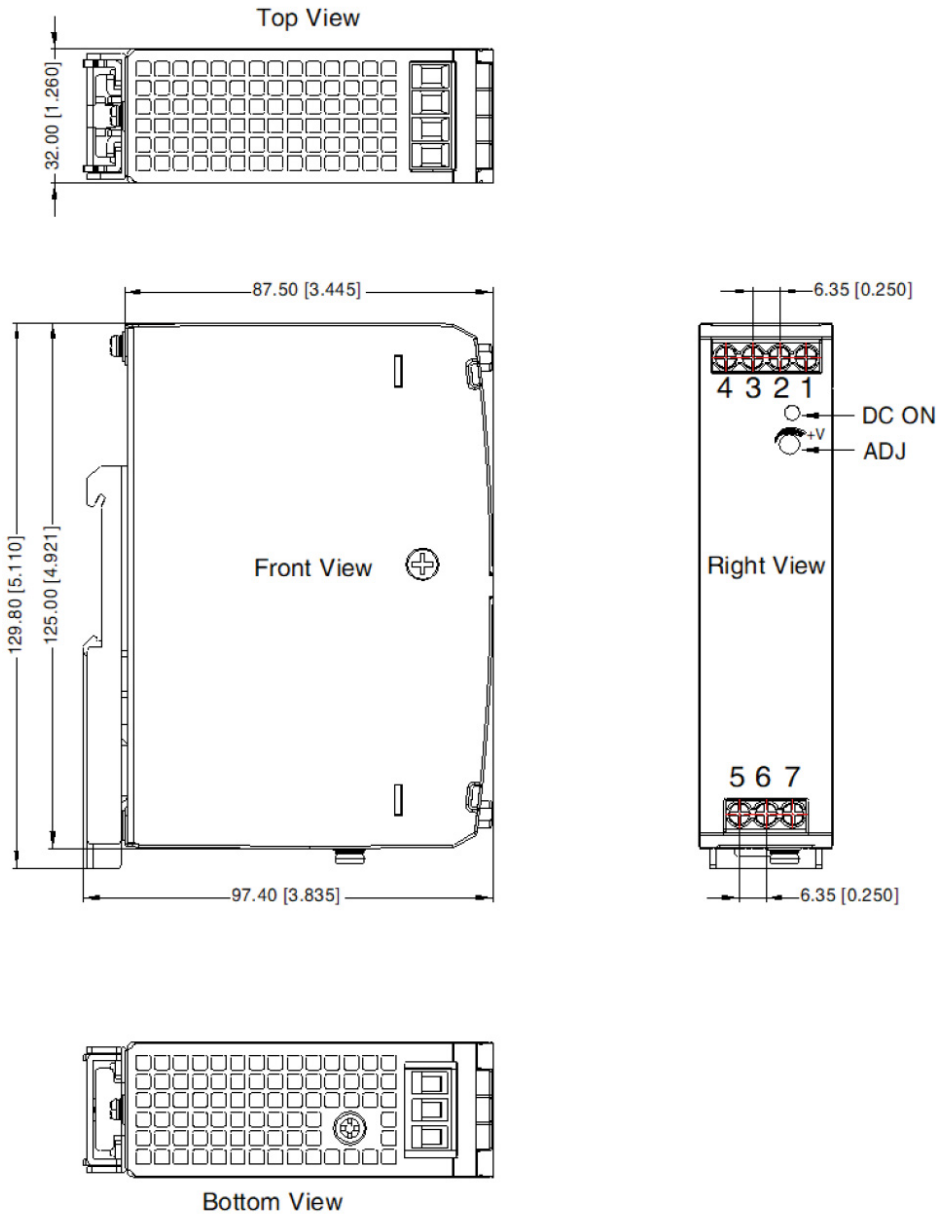
MECHANICAL

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

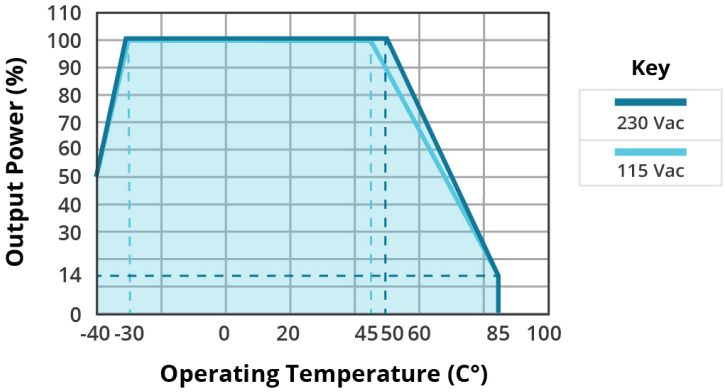
units: mm [inch]
ADJ: output adjustable resistor
wire range 26-10 AWG
tightening torque: Max 0.79 N·m
Monting rail: TS35, rail needs to connect to safety ground
tolerances: ±1.00 [±0.039]

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

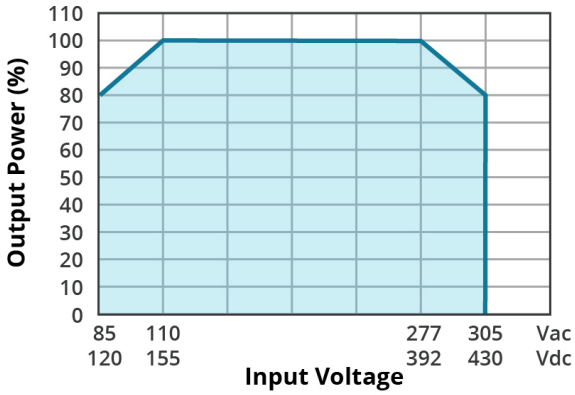


DERATING CURVES

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



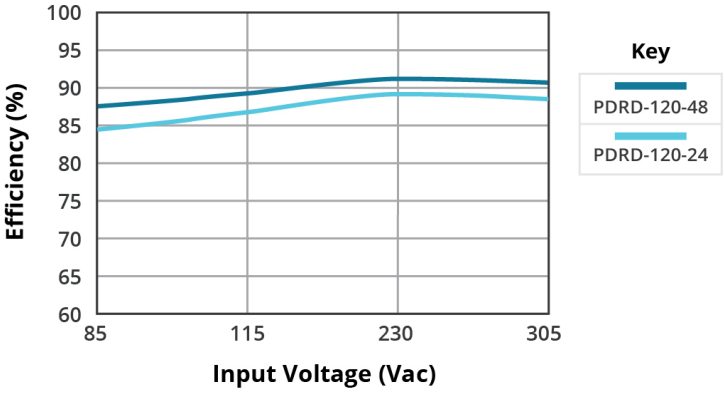
INPUT VOLTAGE DERATING CURVE (at 25°C)



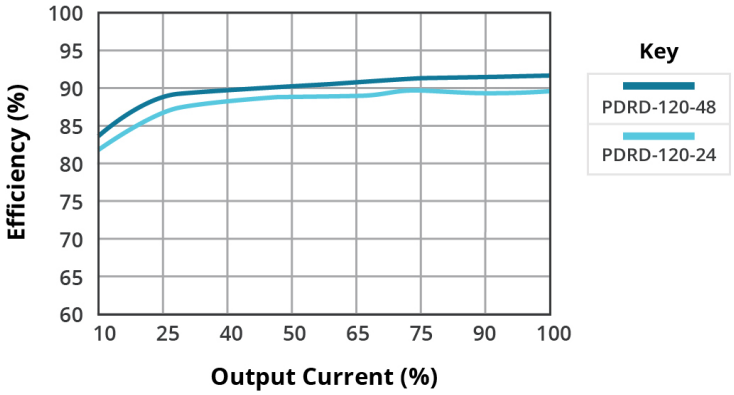
Note: 5. With an AC input voltage between 85 ~ 100VAC/277 ~ 305VAC and a DC input between 120 ~ 140VDC/392 ~ 430VDC the output power must be derated as per the temperature derating curves.
6. This product is suitable for applications using natural convection cooling; for applications in closed environment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

EFFICIENCY CURVES

EFFICIENCY VS INPUT VOLTAGE (full load)



EFFICIENCY VS OUTPUT LOAD (Vin=230 Vac)



REVISION HISTORY

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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