CUI INC
a bel group

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

FEATURES

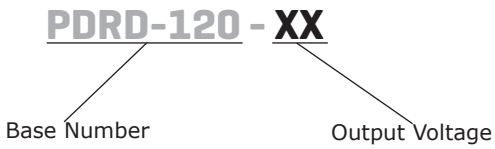
- certified to UL 61010-1, UL, EN/BS EN 62368-1
- designed to meet EN 60335-2-29, EN 61558-2-16, GB 4943.1
- CISPR32/EN55032 CLASS B compliant
- 85 ~ 305 Vac, 120 ~ 430 Vdc input voltage
- -40 ~ 85 °C operating temperature with derating
- over-temperature, output over-voltage, over-current, short-circuit 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	%

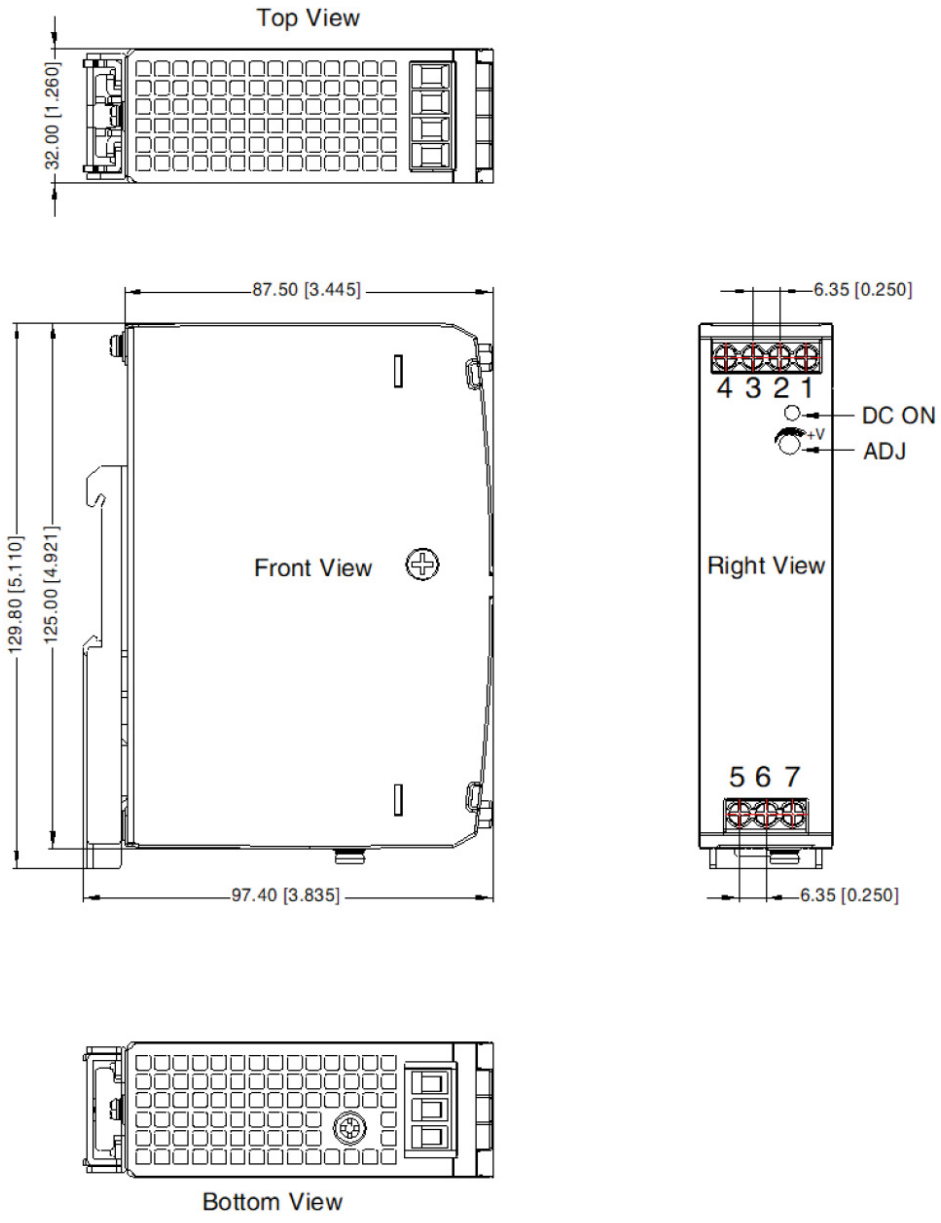
MECHANICAL

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

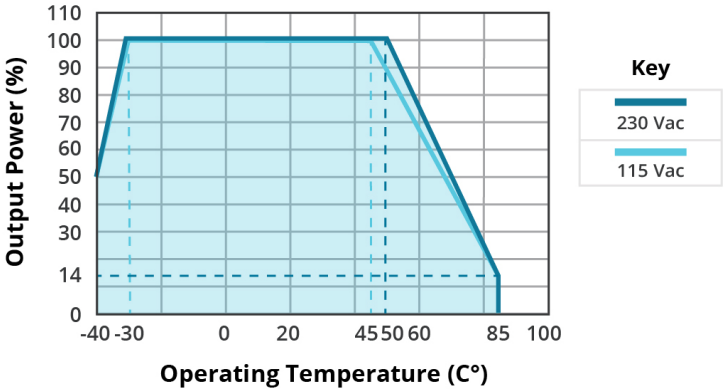
units: mm [inch]
ADJ: output adjustable resistor
wire range 26-10 AWG
tightening torque: Max 0.79 N·m
Monting rail: TS35, rail needs to connect to safety ground
tolerances: ±1.00 [±0.039]

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

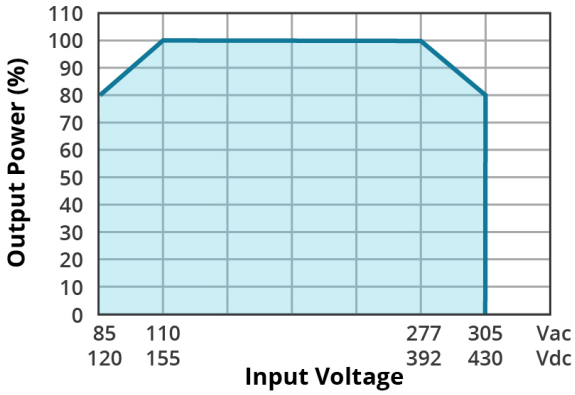


DERATING CURVES

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



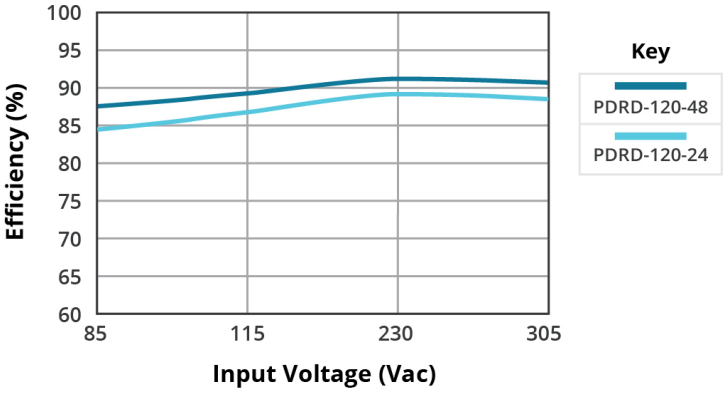
INPUT VOLTAGE DERATING CURVE (at 25°C)



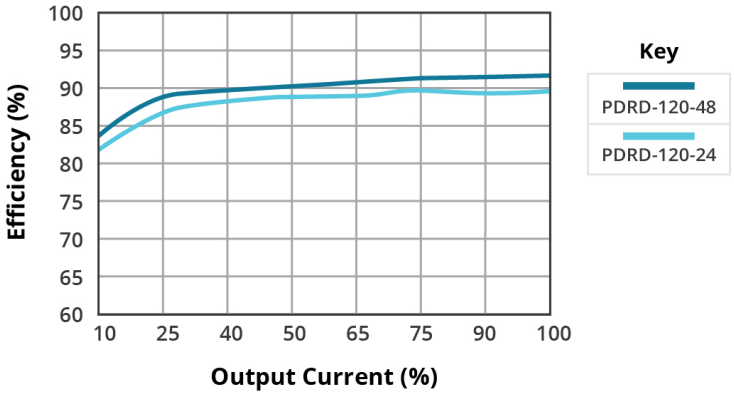
Note: 5. With an AC input voltage between 85 ~ 100VAC/277 ~ 305VAC and a DC input between 120 ~ 140VDC/392 ~ 430VDC the output power must be derated as per the temperature derating curves.
6. This product is suitable for applications using natural convection cooling; for applications in closed environment 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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CUI offers a two (2) year limited warranty. Complete warranty information is listed on our website.

CUI reserves the right to make changes to the product at any time without notice. Information provided by CUI is believed to be accurate and reliable. However, no responsibility is assumed by CUI for its use, nor for any infringements of patents or other rights of third parties which may result from its use.

CUI products are not authorized or warranted for use as critical components in equipment that requires an extremely high level of reliability. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.