CUI INC®

SERIES: PDRB-300 | **DESCRIPTION:** AC-DC DIN RAIL POWER SUPPLY

FEATURES

- integrated fuse and surge protection
- 3,000 Vac input/output isolation voltage
- DC on/low LED indicators
- over-voltage/current protection
- detachable and fixed screw terminal options
- adjustable output via trim POT
- power good relay (24 Vdc model)
- parallel up to three units
- UL/cUL, TUV, CE certified

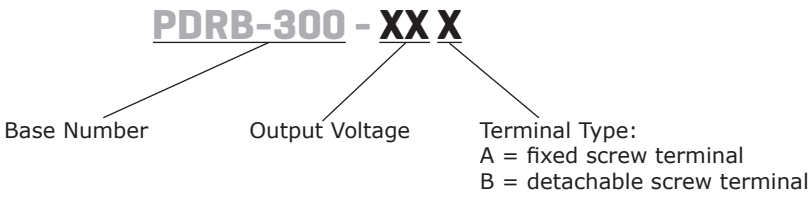


MODEL

MODEL	output voltage (Vdc)	output current max (A)	output power max (W)	ripple and noise[1] max (mVp-p)	efficiency[2] typ (%)
PDRB-300-24	24	12.5	300	100	89
PDRB-300-48	48	6.25	300	100	90

Notes:
1. At full load, nominal input, 20 MHz bandwidth oscilloscope.
2. At nominal input.
3. All specifications are measured at Ta=25°C, nominal input voltage, and rated output load unless otherwise specified.

PART NUMBER KEY



INPUT

parameter	conditions/description	min	typ	max	units
voltage		90 180 210		132 264 375	Vac Vac Vdc
frequency		47		63	Hz
current	at 90 Vac at 180 Vac			6.0 3.0	A A
inrush current	at 115 Vac at 230 Vac			35 65	A A
leakage current	input to output input to FG			0.25 3.5	mA mA
power factor (passive)	at 230 Vac, full load		0.75		

OUTPUT

parameter	conditions/description	min	typ	max	units
capacitive load				7,000	µF
initial set point accuracy				±1	%
line regulation	at full load, V in min to V in max			±0.5	%
load regulation	at Vi nom, 0~100% load single mode parallel mode			 ±1 ±5	 % %
adjustability	via built in trim pot, 80% load 24 Vdc output models 48 Vdc output models	 22.5 47		 28.5 56	 Vdc Vdc
rated continuous loading at max trim voltage	24 Vdc output models (28.5 Vdc) 48 Vdc output models (56 Vdc)			10.5 5.35	A A
start-up time	at Vi nom, full load at Vi nom, full load with max capacitive load			2.5 2.5	s s
rise time	at Vi nom, full load at Vi nom, full load with max capacitive load			150 500	ms ms
hold-up time	at 115 Vac, full load at 230 Vac, full load	25 30			ms ms
fall time	at Vi nom, full load			150	ms
transient recovery time	at Vi nom, 100~50% load			2	ms
switching frequency	at Vi nom, full load		40		kHz
temperature coefficient				±0.03	%/°C
DC ON indicator threshold at start-up (GREEN)	24 Vdc output models 48 Vdc output models	17.6 37.0		19.4 43.0	Vdc Vdc
DC LOW indicator threshold after start-up (RED)	24 Vdc output models 48 Vdc output models	17.6 37.0		19.4 43.0	Vdc Vdc
parallel operation[4]	at 10~90% load			3	modules
power ready[5]	threshold voltage of contact closed (at start-up) electrical isolation contact rating at 60 Vdc	17.6 500		19.4 0.3	Vdc Vdc A

Notes: 4. Single/Parallel mode operation selectable via S/P switch.
5. For 24 Vdc output models only

PROTECTIONS

parameter	conditions/description	min	typ	max	units
over voltage protection	at Vi nom, 80% load, auto recovery 24 Vdc output models 48 Vdc output models	 30 60		 33 66	 Vdc Vdc
over current protection	fold forward (see curve)	120		145	%
short circuit protection	fold forward				

SAFETY & COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage	input to output for 1 minute	3,000 4,242			Vac Vdc
	input to FG for 1 minute	1,500 2,121			Vac Vdc
	output to FG for 1 minute	500 710			Vac Vdc
isolation resistance	input to output at 500 Vdc	100			MΩ
safety approvals	UL 508, UL 60950-1, EN 60950-1 ISA 12.12.01 (Class I, Div 2, Groups A~D)				
safety class	class I				
EMI/EMC	EN 55032 Class B, EN 55024, ENV 50204, EN 61204-3, EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 61000-6-3, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11				
pollution degree	2				
degree of protection	IP20				
MTBF	as per Bellcore Issue 6 at 40 °C, GB 24 Vdc output models 48 Vdc output models		 437,000 468,000		 hours hours
RoHS	yes				

Notes: 6. The power supply is considered a component which will be installed into final equipment. The final equipment still must be tested to meet the necessary EMC directives.

ENVIRONMENTAL

parameter	conditions/description	min	typ	max	units
operating temperature	see derating curves	-30		71	°C
storage temperature		-40		85	°C
humidity	non-condensing	20		95	%
altitude	EN 60950-1			5,000	m
vibration	meets IEC 60068-2-6 (Mounting on rail: 10~500 Hz, 2 G, along X,Y,Z axis, for 60 minutes on each axis)				
shock	meets IEC 60068-2-27 (15 G, 11 ms, 3 axis, 6 faces, 3 times for each face)				

MECHANICAL

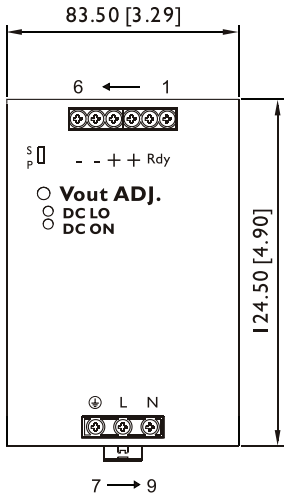
parameter	conditions/description	min	typ	max	units
dimensions	fixed screw terminal: 124.50 x 83.5 x 123.6 (4.90 x 3.29 x 4.87 inches) detachable screw terminal: 143.5 x 83.5 x 123.6 (5.65 x 3.29 x 4.87 inches)				mm mm
material	metal				
weight			1.4		kg
cooling	natural convection				
input/output connector	fixed screw terminal: accepts 24~10 AWG wire detachable screw terminal: accepts 24~12 AWG wire				

MECHANICAL DRAWING

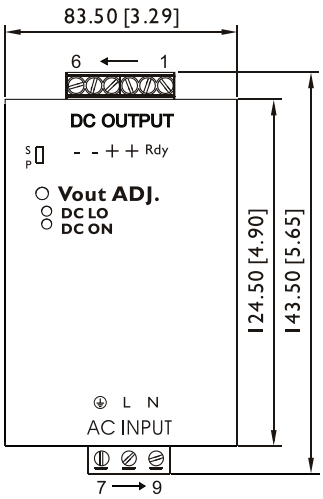
units: mm [inch]
tolerance:
X≤30.00: ±0.30 [±0.01]
30.00<X≤120.00: ±0.50 [±0.02]
120.00<X≤400.00: ±0.80 [±0.03]
unless otherwise noted

TERMINAL CONNECTIONS	
TERMINAL	Function
1	RDY*
2	RDY*
3	V+
4	V+
5	V-
6	V-
7	⏚
8	L
9	N

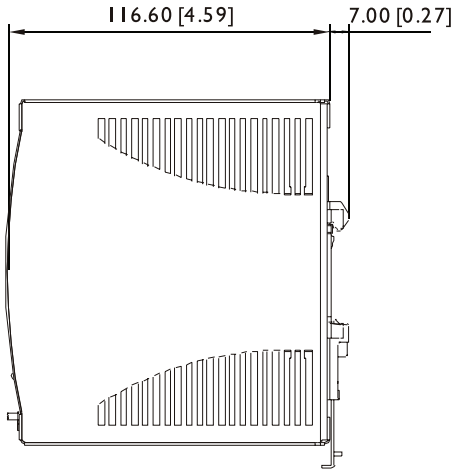
Note: *RDY on 24 Vdc model only



fixed screw terminal



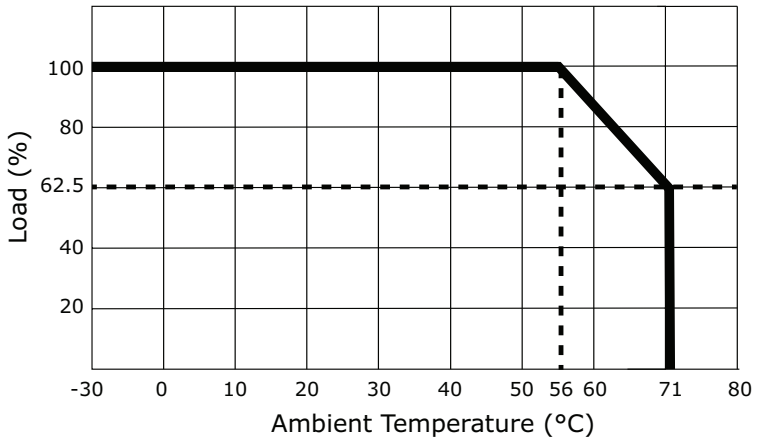
detachable screw terminal



INSTALLATION		
	Fixed Screw Terminal	Detachable Screw Terminal
DIN RAIL	TS35/7.5 or TS35/15	
Cable	flexible/solid, copper conductors only, 60/75°C	
Wire Range	24~10 AWG (0.2~4 mm²)	24~12 AWG (0.2~2.5 mm²)
Strip Length	8 mm	4~5 mm
Screw Torque	input: 9 lb·in output: 5.5 lb·in	input: 4.5 lb·in output: 7 lb·in
Position	Vertical	
Cooling	Natural convection, 25 mm clearance on all sides	

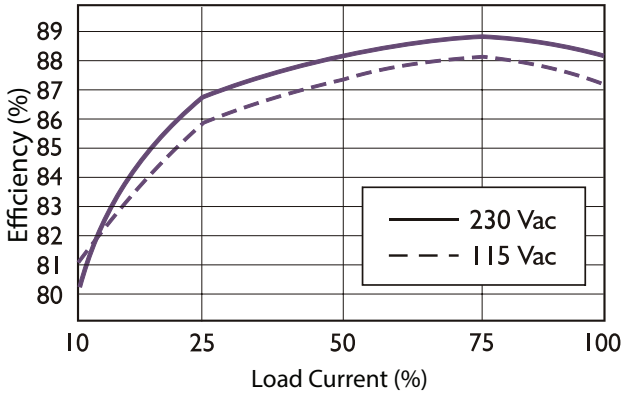
DERATING CURVES

PDRB-300-24 Derating Curve
(Output Load vs. Ambient Tempearature)



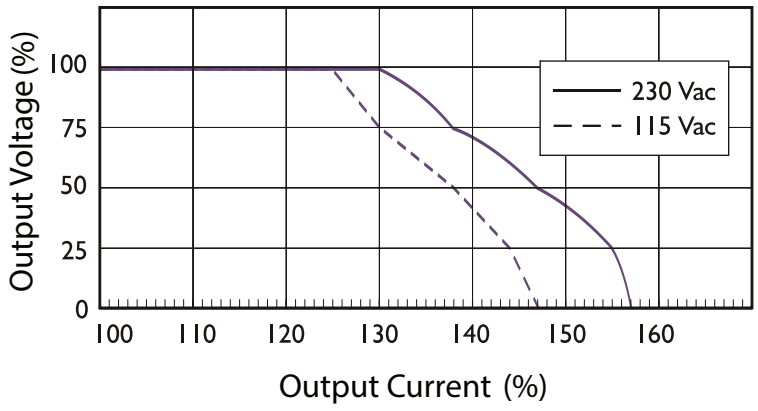
EFFICIENCY CURVES

PPDRB-300-24 Efficiency Curve
(Efficiency vs. Load Current)



CURRENT LIMITED CURVE

Typical Over Current Protection Curve
(Output Voltage vs. Time)



REVISION HISTORY

rev.	description	date
1.0	initial release	06/13/2019

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

CUI INC®

Headquarters
20050 SW 112th Ave.
Tualatin, OR 97062
800.275.4899

Fax 503.612.2383
cui.com
techsupport@cui.com

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.