CUI INC
a bel group

SERIES: PDRA-120 | DESCRIPTION: AC-DC POWER SUPPLY

FEATURES

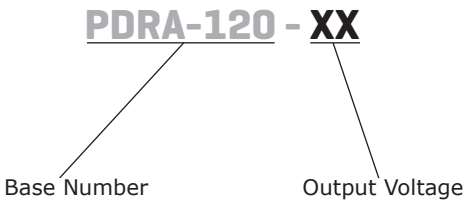
- up to 120 W continuous power
- universal input voltage range
- over current, over voltage, input under voltage, short circuit, and over temperature protections
- active power factor correction
- remote on/off control
- output trim
- low ripple and noise
- -25 to +70°C temperature range
- UL/cUL 60950-1 safety approval
- efficiency up to 93%

MODEL

MODEL	output voltage (Vdc)	output current max (A)	output power max (W)	ripple and noise[1] max (mVp-p)	efficiency[2] typ (%)
PDRA-120-12	12	10	120	100	89
PDRA-120-24	24	5	120	100	92
PDRA-120-48	48	2.5	120	100	93

Notes:
1. At full load, nominal input, 20 MHz bandwidth oscilloscope, with a 1 µF ceramic and 10 µF electrolytyic capacitor on the output.
2. At 230 Vac input.
3. All specifications are measured at Ta=25°C, humidity <75%, nominal input voltage, and rated output load unless otherwise specified.

PART NUMBER KEY



INPUT

parameter	conditions/description	min	typ	max	units
voltage		85 100		264 370	Vac Vdc
frequency		47		63	Hz
under voltage protection	start-up voltage at full load shutdown voltage at full load	76 67		83 75	Vac Vac
current	at 115 Vac at 230 Vac			1.5 0.75	A A
inrush current	at 115 Vac at 230 Vac		35 70		A A
power factor correction	at 115 Vac at 230 Vac		0.98 0.96		
no load power consumption				0.75	W

OUTPUT

parameter	conditions/description	min	typ	max	units
capacitive load	12 Vdc output model 24 Vdc output model 48 Vdc output model			10,000 4,700 1,700	µF µF µF
initial set point accuracy				±1	%
line regulation	at full load			±0.5	%
load regulation				±1	%
adjustability[1]	via built in trim pot		±10		%
start-up time				1.5	s
hold-up time	at 115/230 Vac		25		ms
switching frequency			100		kHz
temperature coefficient			±0.03		%/°C

Notes: 1. Max output power of 120 W.

PROTECTIONS

parameter	conditions/description	min	typ	max	units
over voltage protection	continuous, auto recovery				
over current protection	activates after 3 seconds, auto recovery	110		150	%
short circuit protection	continuous, auto recovery				
over temperature protection	output shutdown, auto recovery				

SAFETY & COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage	input to output for 1 minute input to ground for 1 minute output to ground for 1 minute	3,000 1,500 500			Vac Vac Vac
safety approvals	UL 60950-1, EN 60950-1				
safety class	class I				
EMI/EMC	EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3				
conducted emissions	CISPR22/EN55022, Class B				
radiated emissions	CISPR22/EN55022, Class B				
ESD	IEC/EN61000-4-2, contact ±6 kV/ air ±8 kV, Class B				
radiated immunity	IEC/EN61000-4-3, 10 V/m, Class A				
EFT/burst	IEC/EN61000-4-4, ±4 kV, Class B				

Notes: 2. 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.

SAFETY & COMPLIANCE (CONTINUED)

parameter	conditions/description	min	typ	max	units
surge	IEC/EN61000-4-5, line to line ±2 kV/ line to ground ±4 kV, Class B				
conducted immunity	IEC/EN61000-4-6, 10 Vr.m.s, Class A				
PFM	IEC/EN61000-4-8, 10 A/m, Class A				
voltage dips & interruptions	IEC/EN61000-4-11, 0%-70%, Class B				
MTBF	as per MIL-HDBK-217F at 25 °C	300,000			hours
RoHS	2011/65/EU				

Notes: 1. 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	-25		70	°C
storage temperature		-25		85	°C
storage humidity	non-condensing			95	%

MECHANICAL

parameter	conditions/description	min	typ	max	units
dimensions	35.00 x 125.00 x 120.00 (1.38 x 4.92 x 4.724 inches)				mm
material	heat resistant plastic (UL94V-0) and metal				
weight	12 Vdc output model all other models		580 560		g g

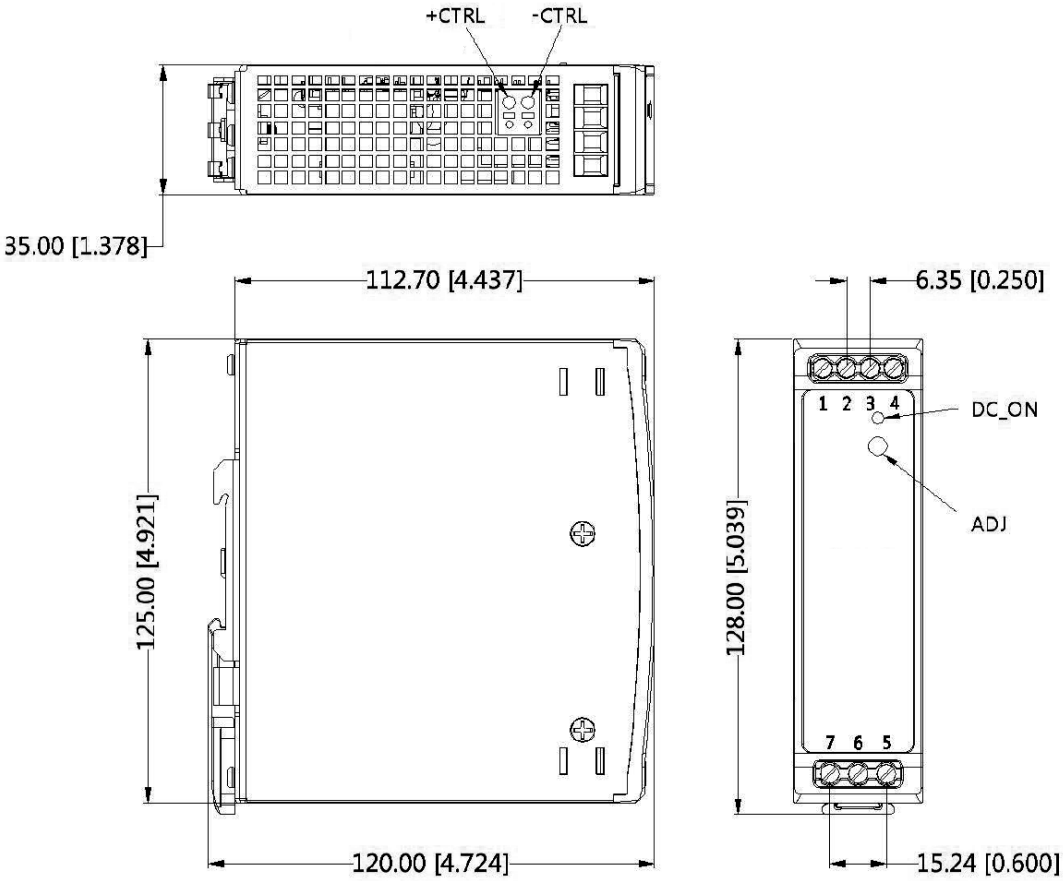
MECHANICAL DRAWING

units: mm [inch]
tolerance: ±1.00[±0.039]

wire range: 26~10 AWG
strip length: 8.0 mm
mounts to DIN RAIL TS35
tightening torque: max 0.4 N*m

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

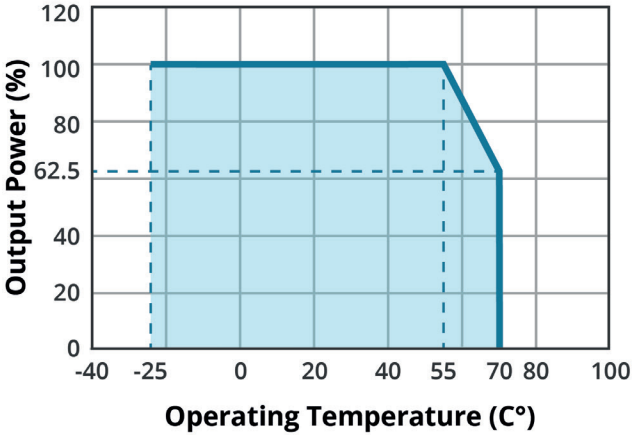
CONTROL TERMINAL	
TERMINAL	Function
1	+CTRL
2	-CTRL



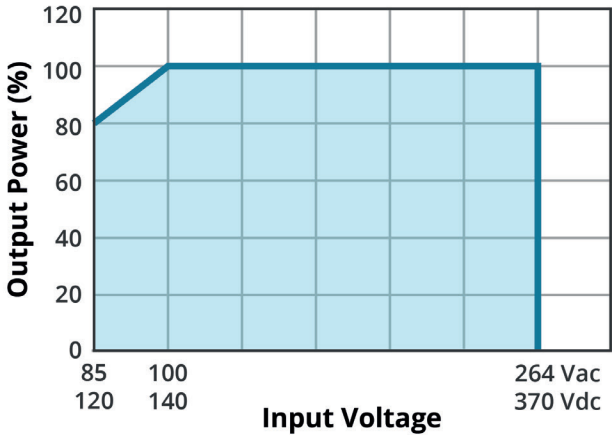
Note: 2. Rail needs to connect to safety ground.

DERATING CURVES

TEMPERATURE DERATING CURVE
(at 100 ~264 Vac / 120 ~370 Vdc Input Voltage)

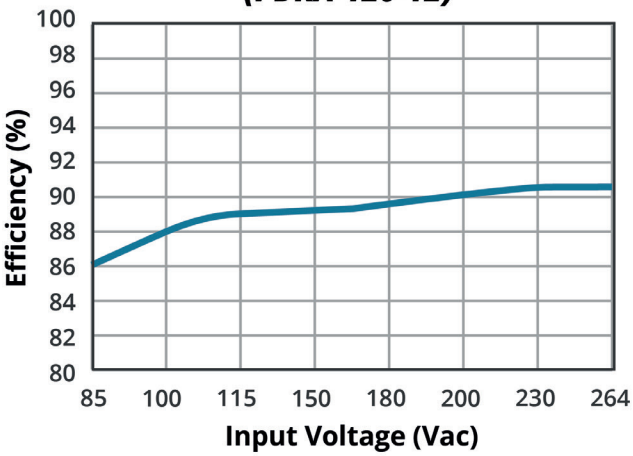


INPUT VOLTAGE DERATING CURVE
(at 25°C)

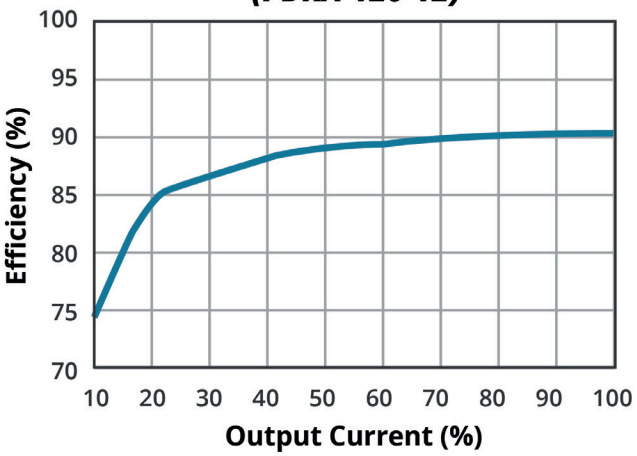


EFFICIENCY CURVES

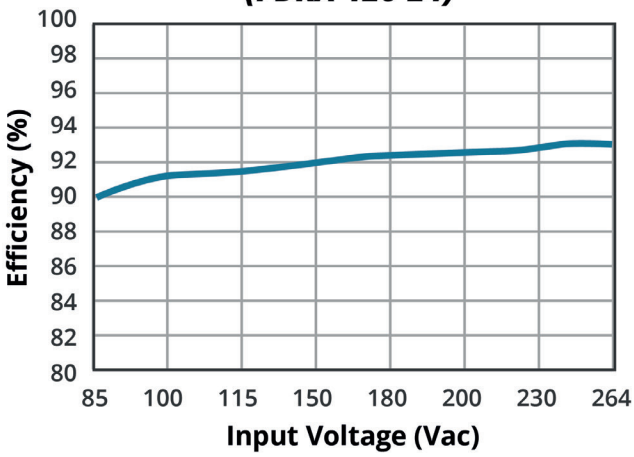
EFFICIENCY VS INPUT VOLTAGE
(PDRA-120-12)



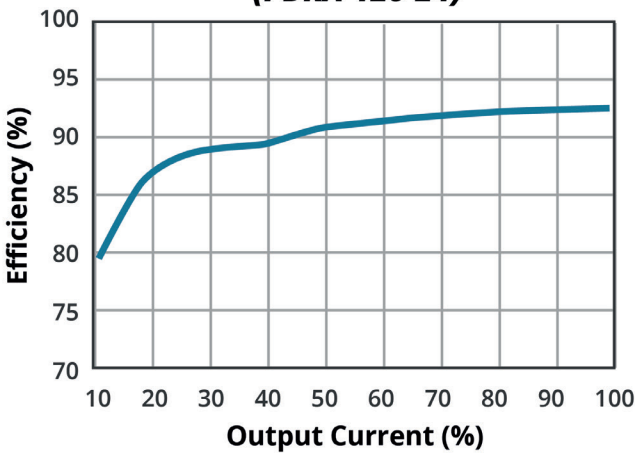
EFFICIENCY VS OUTPUT LOAD
(PDRA-120-12)



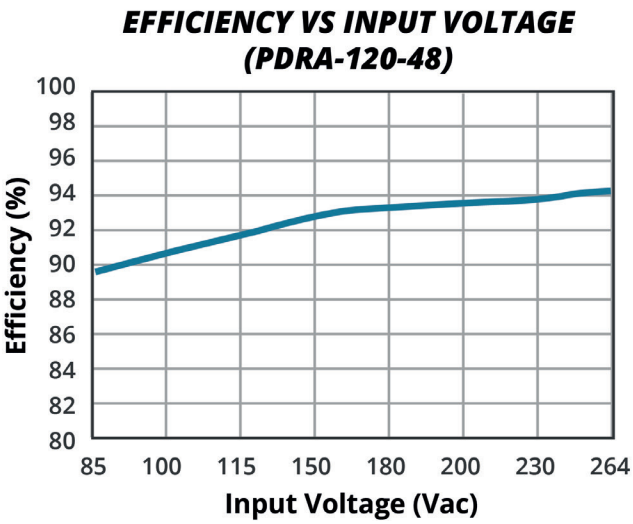
EFFICIENCY VS INPUT VOLTAGE
(PDRA-120-24)

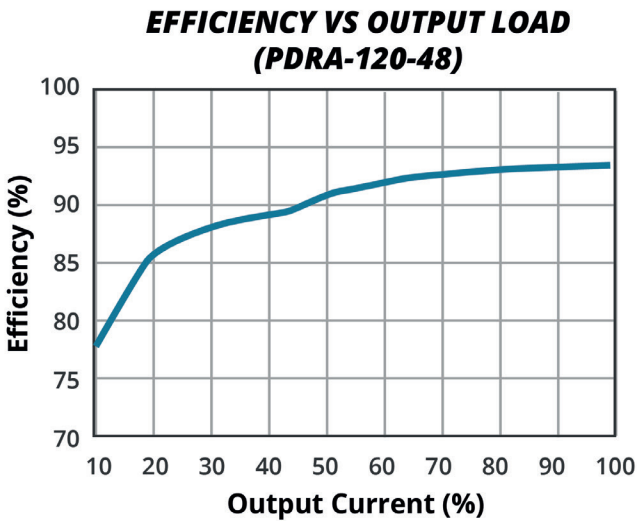


EFFICIENCY VS OUTPUT LOAD
(PDRA-120-24)



EFFICIENCY CURVES (CONTINUED)





APPLICATION CIRCUIT

Figure 1 Typical Application Circuit

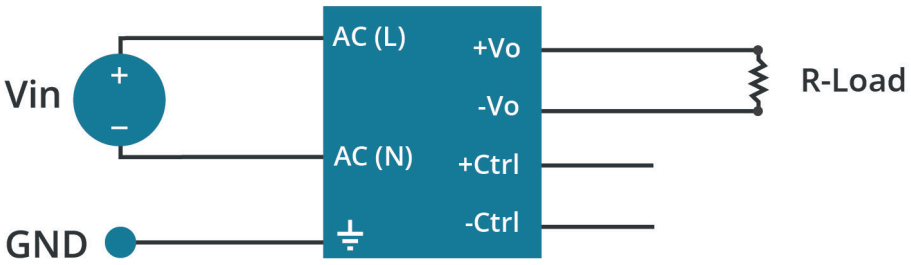
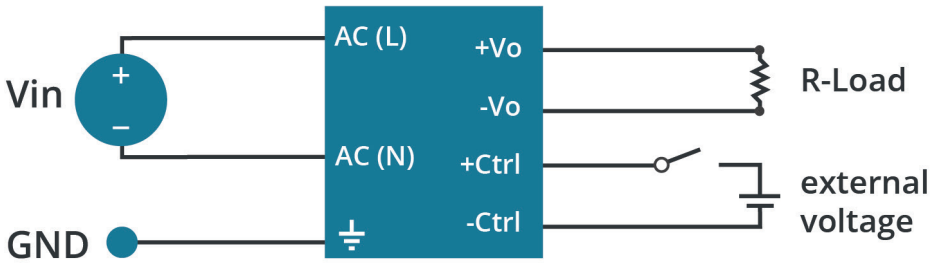


Figure 2 Remote Control Applications Circuit



The power supply can be turned on/off by using the "CTRL" terminals.
Enable output: open
Disable output: 4.5~12.5 Vdc

REVISION HISTORY

rev.	description	date
1.0	initial release	10/17/2016
1.01	added 12 Vdc & 48 Vdc output models	02/01/2018
1.02	company logo updated	02/05/2021
1.03	derating and efficicency curves and application circuit updated	02/17/2022

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.