

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

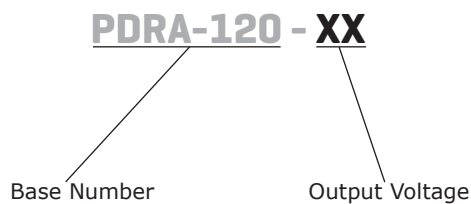
**FEATURES**

- 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	output voltage	output current max	output power max	ripple and noise <sup>1</sup> max	efficiency <sup>2</sup> typ
	(Vdc)	(A)	(W)	(mVp-p)	(%)
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  $\mu$ F ceramic and 10  $\mu$ F electrolytic capacitor on the output.  
 2. At 230 Vac input.  
 3. All specifications are measured at  $T_a=25^\circ\text{C}$ , 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		264	Vac
		100		370	Vdc
frequency		47		63	Hz
under voltage protection	start-up voltage at full load	76		83	Vac
	shutdown voltage at full load	67		75	Vac
current	at 115 Vac			1.5	A
	at 230 Vac			0.75	A
inrush current	at 115 Vac		35		A
	at 230 Vac		70		A
power factor correction	at 115 Vac		0.98		
	at 230 Vac		0.96		
no load power consumption				0.75	W

## OUTPUT

parameter	conditions/description	min	typ	max	units
capacitive load	12 Vdc output model			10,000	μF
	24 Vdc output model			4,700	μF
	48 Vdc output model			1,700	μF
initial set point accuracy				±1	%
line regulation	at full load			±0.5	%
load regulation				±1	%
adjustability <sup>1</sup>	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	3,000			Vac
	input to ground for 1 minute	1,500			Vac
	output to ground for 1 minute	500			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 $\pm 2$ kV/ line to ground $\pm 4$ 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

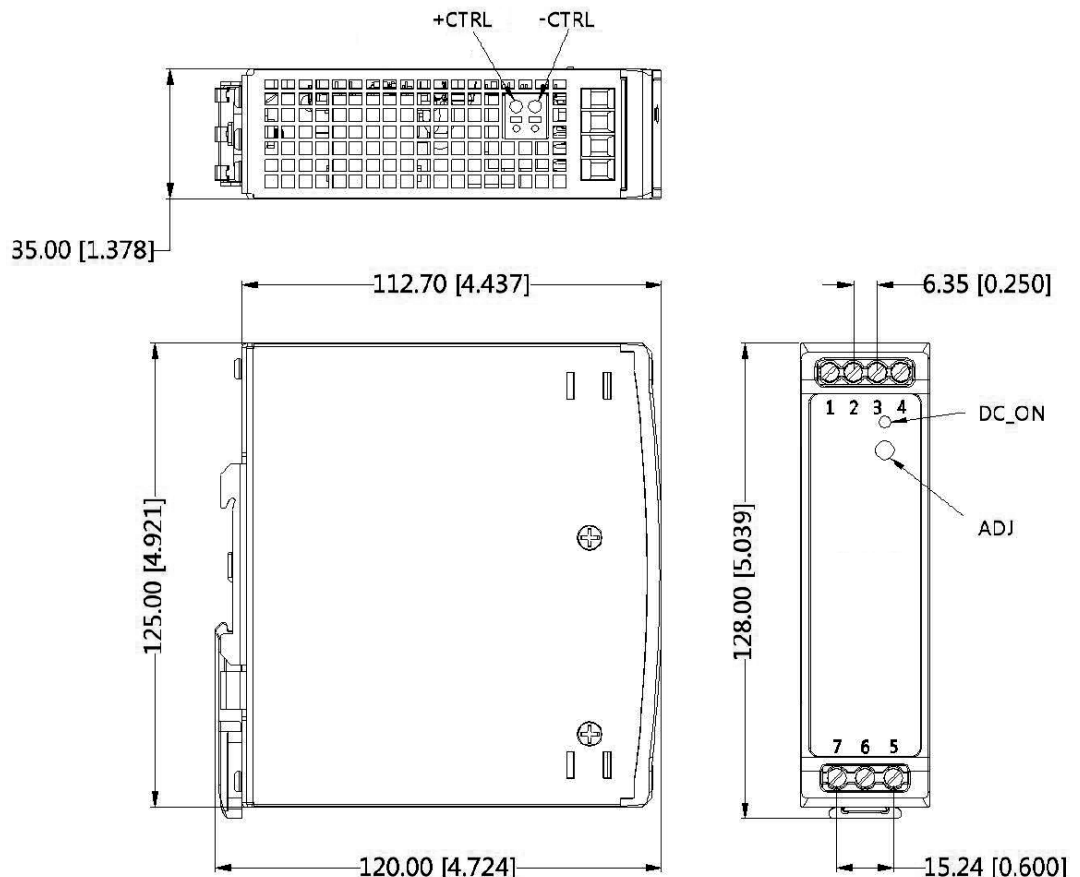
## MECHANICAL DRAWING

units: mm [inch]  
tolerance:  $\pm 1.00[\pm 0.039]$

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	

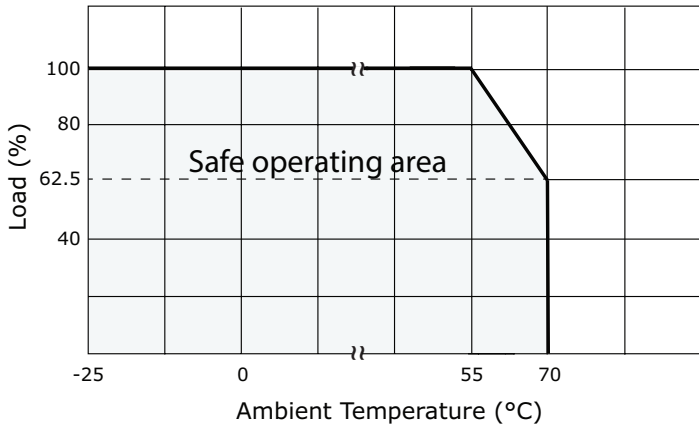
CONTROL TERMINAL	
TERMINAL	Function
1	+CTRL
2	-CTRL



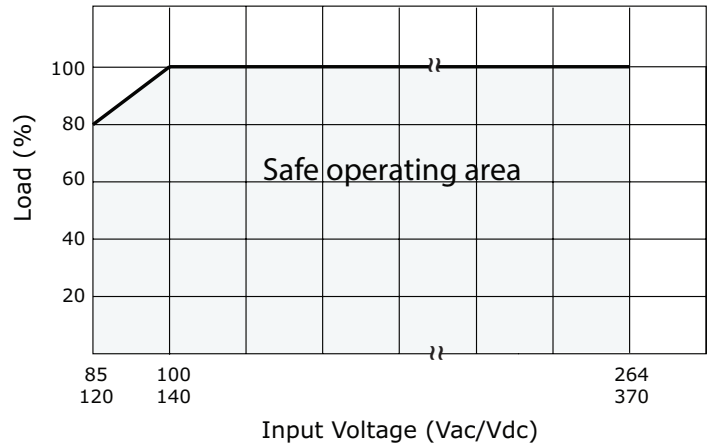
Note: 2. Rail needs to connect to safety ground.

## DERATING CURVES

load vs. ambient temperature  
(at 100~264 Vac / 120~370 Vdc input voltage)

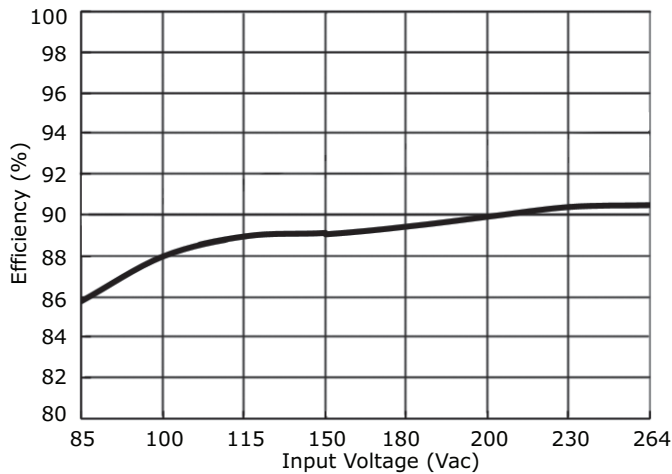


load vs. input voltage  
(at 25°C)

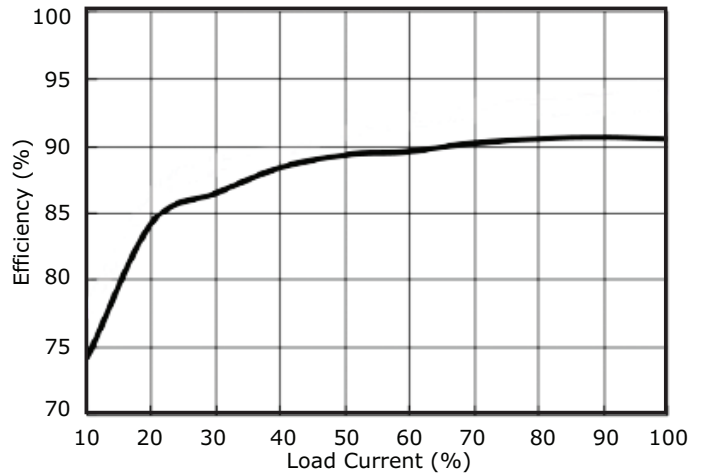


## EFFICIENCY CURVES

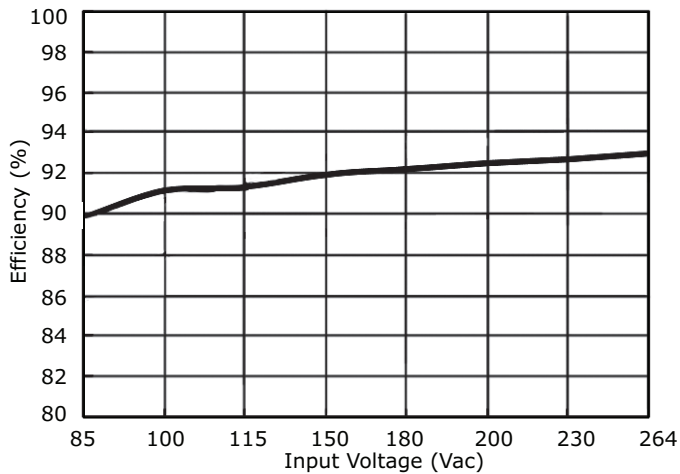
PDRA-120-12 Efficiency Curve  
(Efficiency vs. Input Voltage)



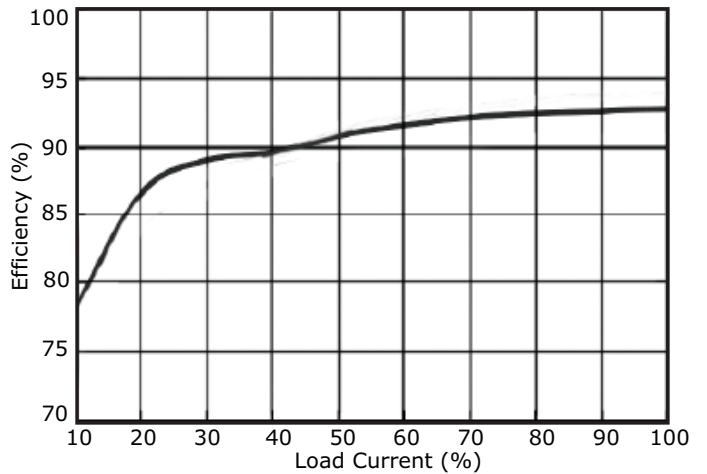
PDRA-120-12 Efficiency Curve  
(Efficiency vs. Load Current)



PDRA-120-24 Efficiency Curve  
(Efficiency vs. Input Voltage)

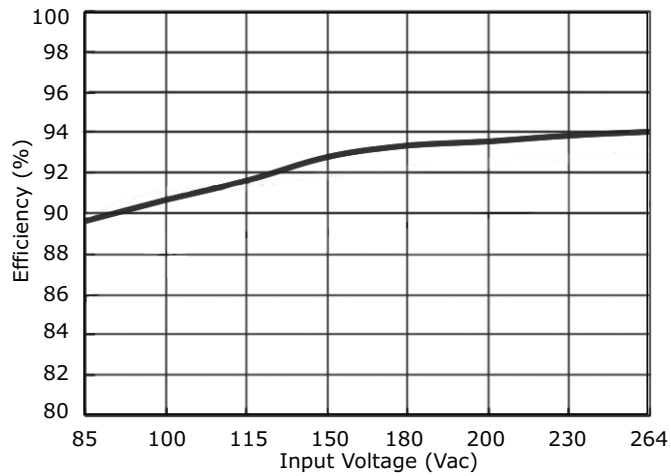


PDRA-120-24 Efficiency Curve  
(Efficiency vs. Load Current)

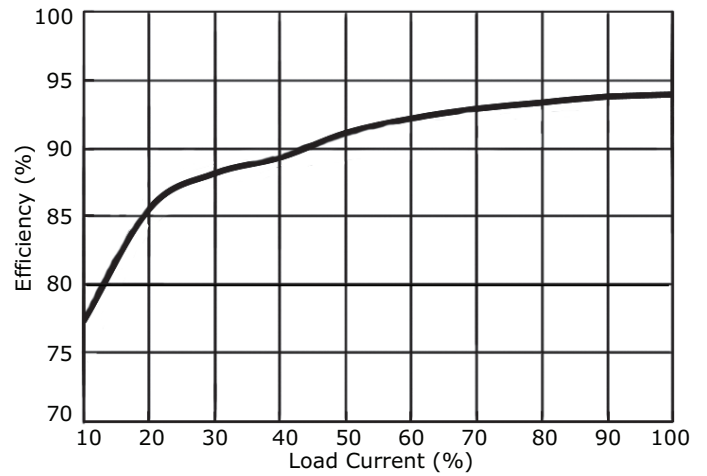


## EFFICIENCY CURVES (CONTINUED)

PDRA-120-48 Efficiency Curve  
(Efficiency vs. Input Voltage)

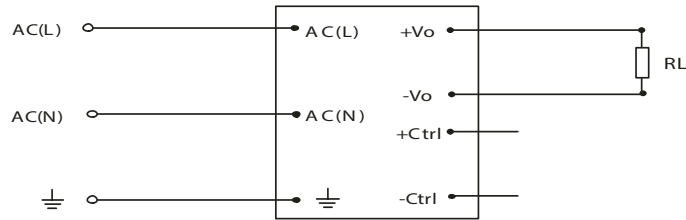


PDRA-120-48 Efficiency Curve  
(Efficiency vs. Load Current)

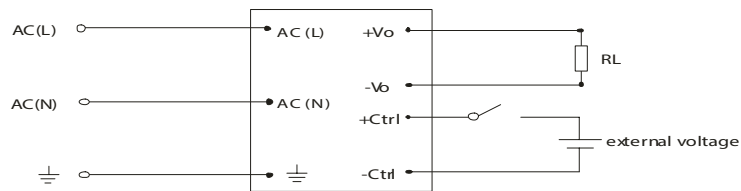


## APPLICATION CIRCUIT

**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

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rev.	description	date
1.0	initial release	10/17/2016
1.01	added 12 Vdc & 48 Vdc output models	02/01/2018

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

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