

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

FEATURES

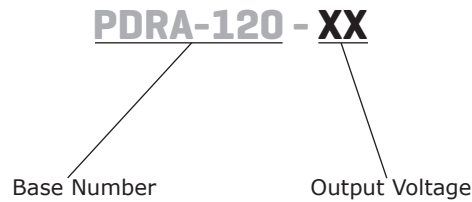
- up to 120 W continuous power
- universal input voltage range
- over current, over voltage, input under voltage, short circuit, and over temperature protections
- active power factor correction
- remote on/off control
- output trim
- low ripple and noise
- -25 to +70°C temperature range
- UL/cUL 60950-1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



| MODEL | output voltage | output current max | output power max | ripple and noise ¹ max | efficiency ² 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 μ F ceramic and 10 μ F electrolytic 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 | | 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 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 | 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 ± 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 |

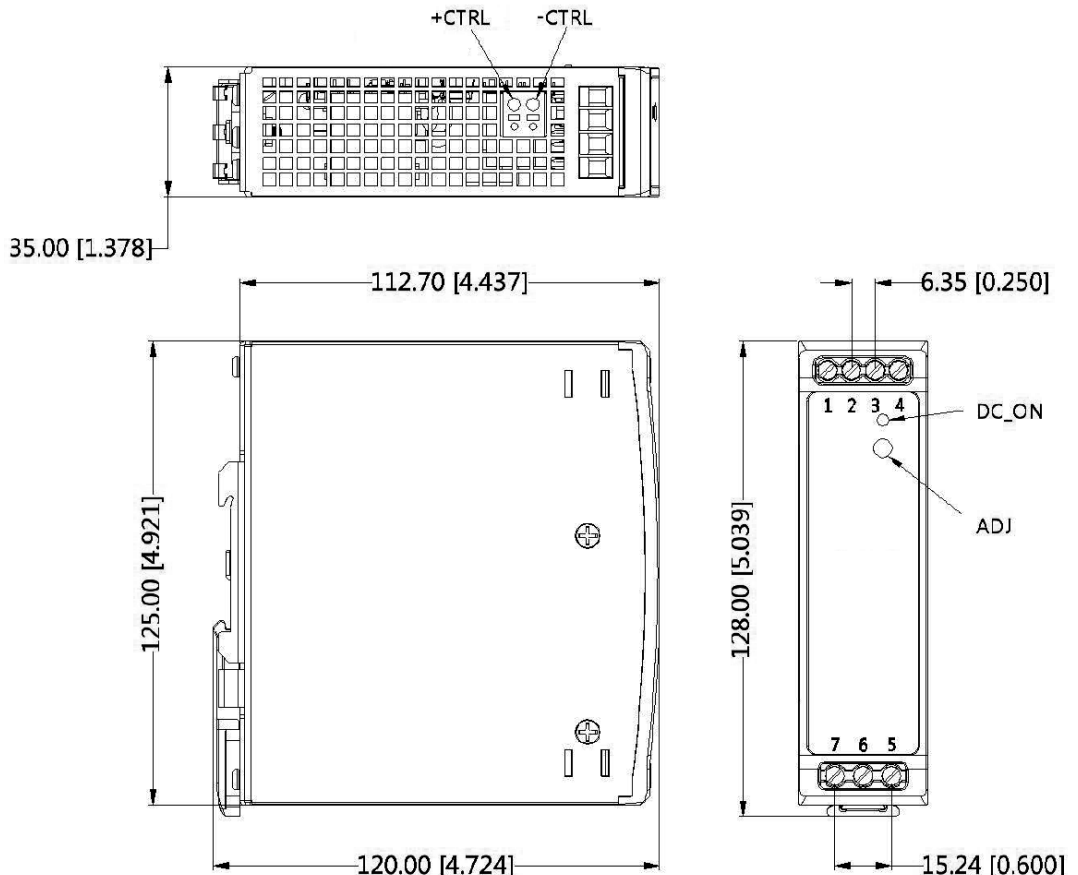
MECHANICAL DRAWING

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 |  |

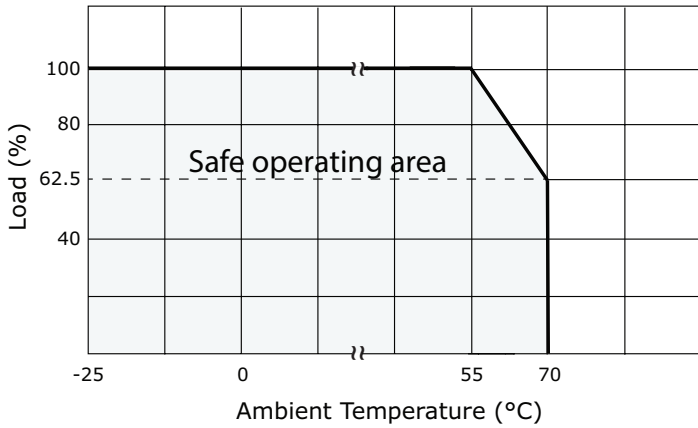
| CONTROL TERMINAL | |
|------------------|----------|
| TERMINAL | Function |
| 1 | +CTRL |
| 2 | -CTRL |



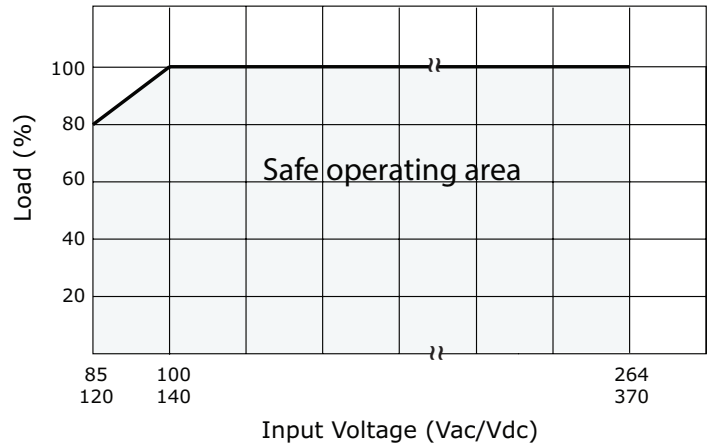
Note: 2. Rail needs to connect to safety ground.

DERATING CURVES

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

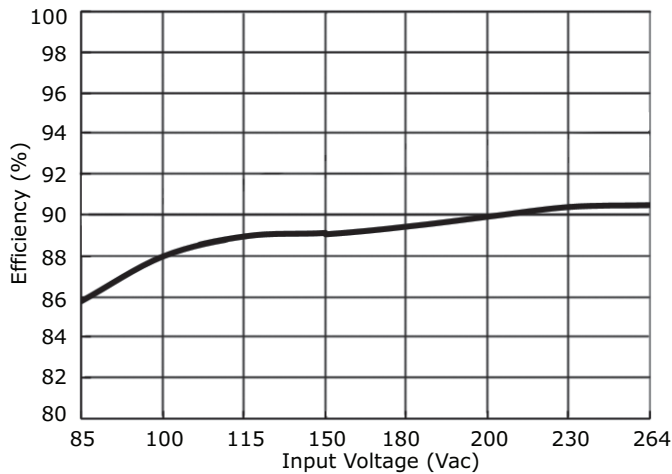


load vs. input voltage
(at 25°C)

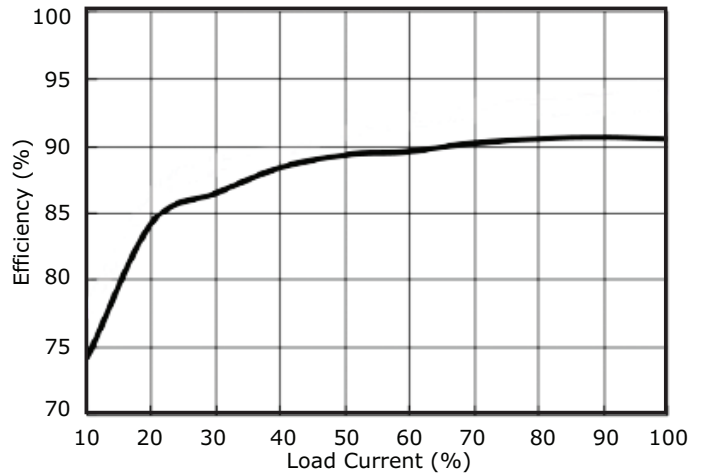


EFFICIENCY CURVES

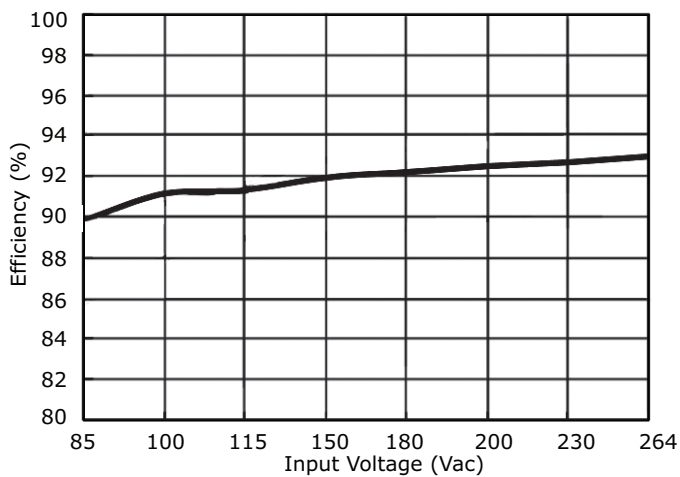
PDRA-120-12 Efficiency Curve
(Efficiency vs. Input Voltage)



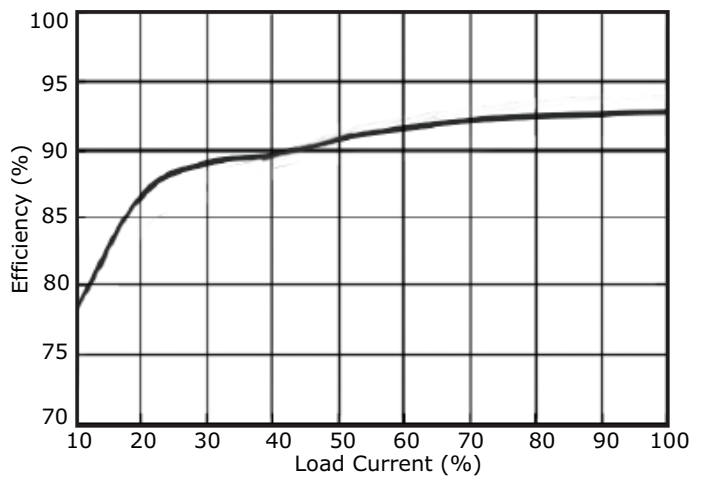
PDRA-120-12 Efficiency Curve
(Efficiency vs. Load Current)



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

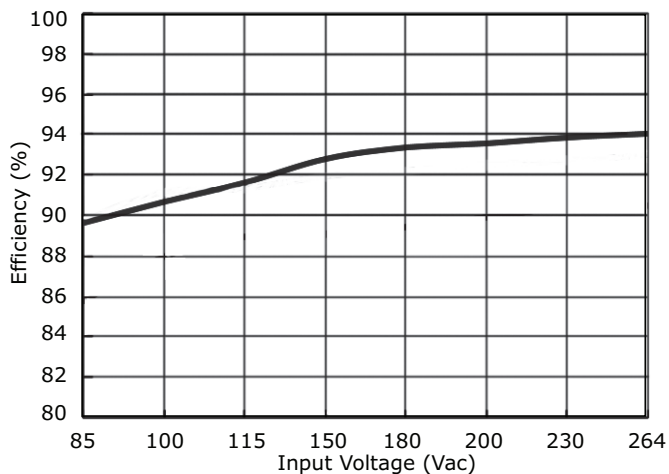


PDRA-120-24 Efficiency Curve
(Efficiency vs. Load Current)

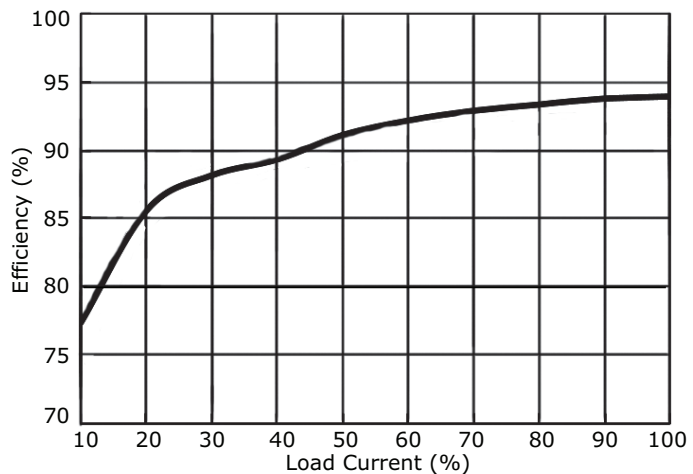


EFFICIENCY CURVES (CONTINUED)

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

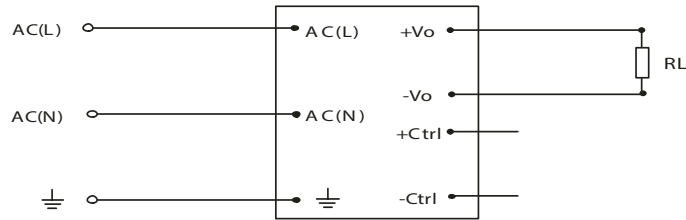
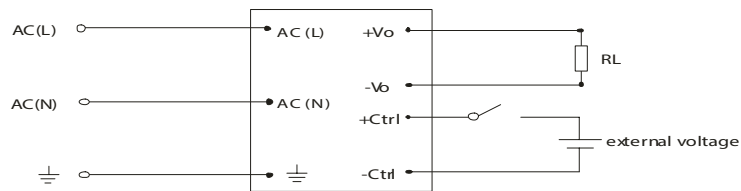


Figure 2 Remote Control Applications Circuit



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

| 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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