

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

**FEATURES**

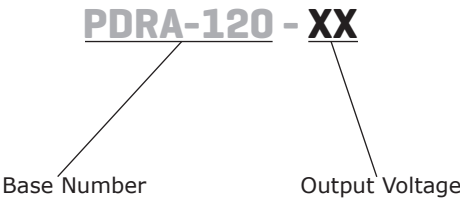
- up to 120 W continuous power
- universal input voltage range
- over current, over voltage, input under voltage, short circuit, and over temperature protections
- active power factor correction
- remote on/off control
- output trim
- low ripple and noise
- -25 to +70°C temperature range
- UL/cUL 60950-1 safety approval
- efficiency up to 92%



| MODEL       | output<br>voltage | output<br>current<br>max | output<br>power<br>max | ripple<br>and noise <sup>1</sup><br>max | efficiency <sup>2</sup> |
|-------------|-------------------|--------------------------|------------------------|-----------------------------------------|-------------------------|
|             | (Vdc)             | (A)                      | (W)                    | (mVp-p)                                 | typ<br>(%)              |
| PDRA-120-24 | 24                | 5                        | 120                    | 100                                     | 92                      |

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 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<br>100 |              | 264<br>370  | Vac<br>Vdc |
| frequency                 |                                                                | 47        |              | 63          | Hz         |
| under voltage protection  | start-up voltage at full load<br>shutdown voltage at full load | 76<br>67  |              | 83<br>75    | Vac<br>Vac |
| current                   | at 115 Vac<br>at 230 Vac                                       |           |              | 1.5<br>0.75 | A<br>A     |
| inrush current            | at 115 Vac<br>at 230 Vac                                       |           | 35<br>70     |             | A<br>A     |
| power factor correction   | at 115 Vac<br>at 230 Vac                                       |           | 0.98<br>0.96 |             |            |
| no load power consumption |                                                                |           |              | 0.75        | W          |

## OUTPUT

| parameter                  | conditions/description | min | typ   | max   | units |
|----------------------------|------------------------|-----|-------|-------|-------|
| capacitive load            |                        |     |       | 4,700 | 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<br>input to ground for 1 minute<br>output to ground for 1 minute | 3,000<br>1,500<br>500 |     |     | Vac<br>Vac<br>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, Class B, contact ±6 kV/ air ±8 kV                                            |                       |     |     |                   |
| radiated immunity   | IEC/EN61000-4-3, Class A, 10 V/m                                                              |                       |     |     |                   |
| EFT/burst           | IEC/EN61000-4-4, Class B, ±4 kV                                                               |                       |     |     |                   |
| surge               | IEC/EN61000-4-5, Class B, line to line ±2 kV/ line to ground ±4 kV                            |                       |     |     |                   |
| conducted immunity  | IEC/EN61000-4-6, Class A, 10 Vr.m.s                                                           |                       |     |     |                   |

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 |
|------------------------------|-----------------------------------|---------|-----|-----|-------|
| PFM                          | IEC/EN61000-4-8, Class A, 10 A/m  |         |     |     |       |
| voltage dips & interruptions | IEC/EN61000-4-11, Class B, 0%-70% |         |     |     |       |
| 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 4.72 inches) |     |     |     | mm    |
| material   | heat resistant plastic (UL94V-0) and metal          |     |     |     |       |
| weight     |                                                     |     | 560 |     | g     |

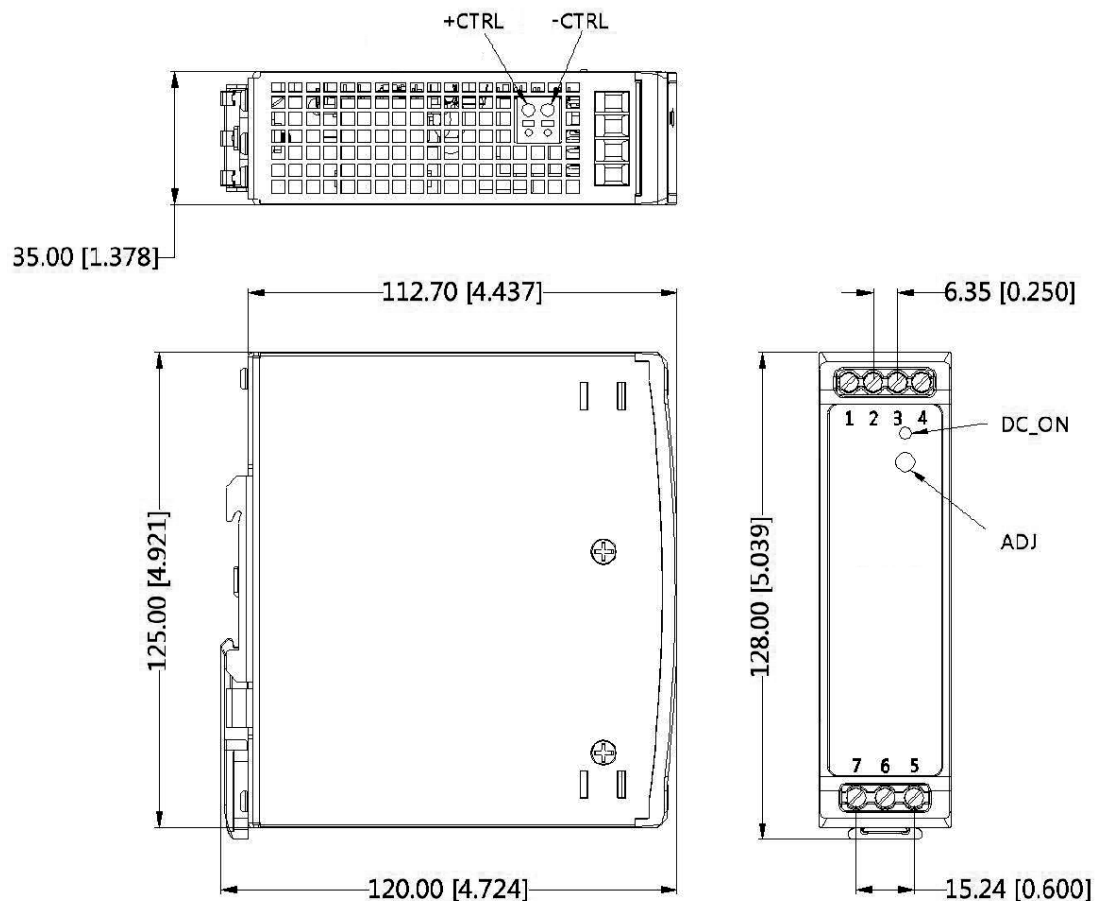
## MECHANICAL DRAWING

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

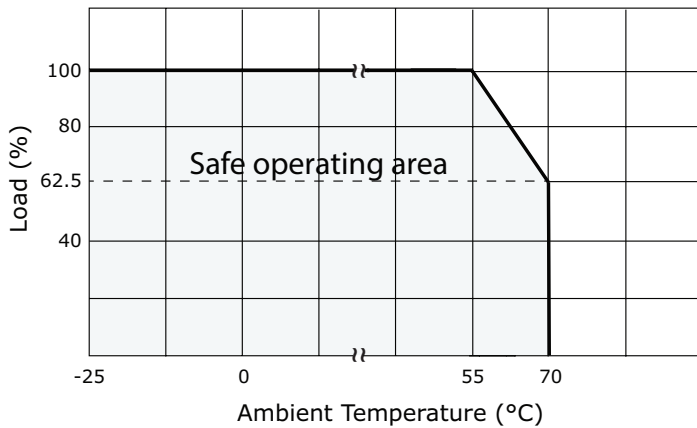
| TERMINAL CONNECTIONS |                                                                                     |
|----------------------|-------------------------------------------------------------------------------------|
| TERMINAL             | Function                                             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

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

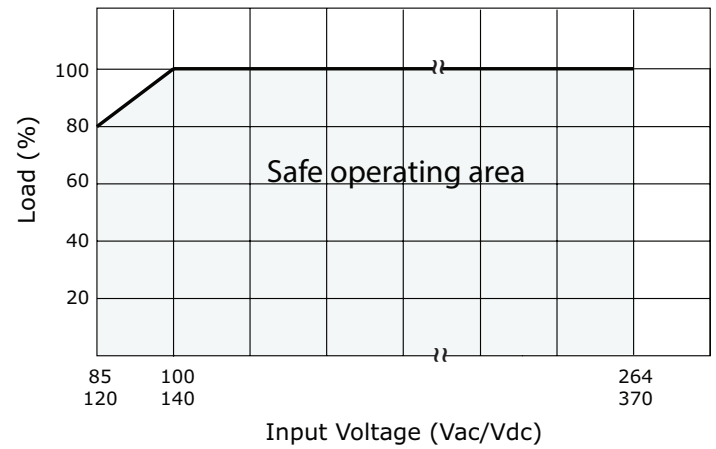


## DERATING CURVES

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

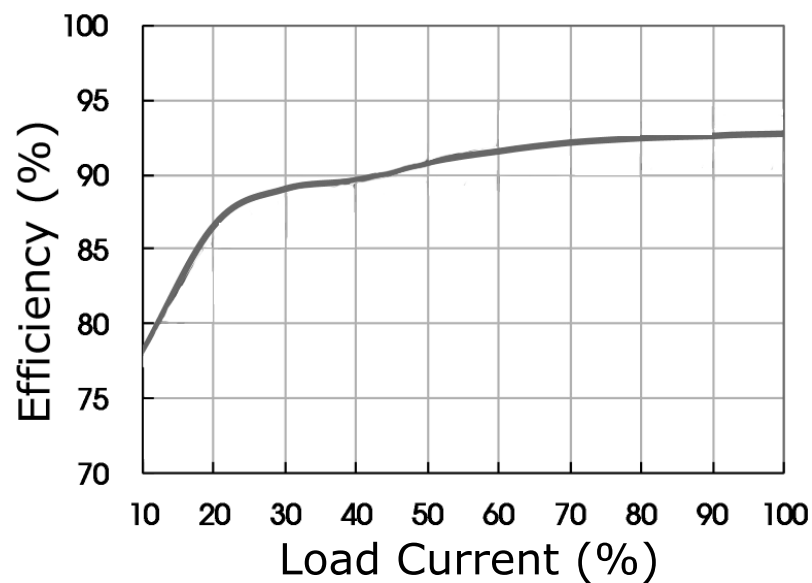


load vs. input voltage  
(at 25°C)



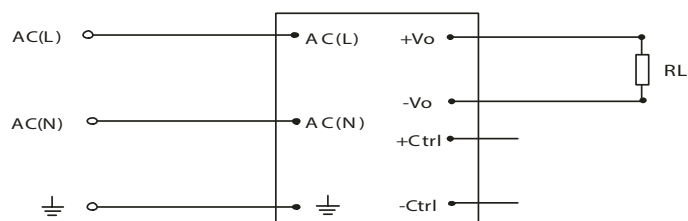
## EFFICIENCY CURVE

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

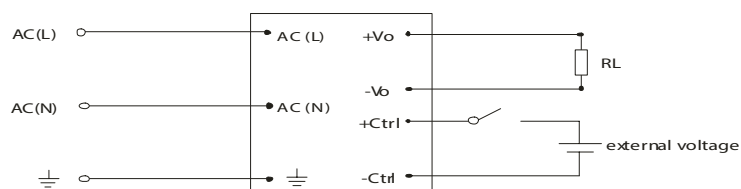


## APPLICATION CIRCUIT

**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 |

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



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