

**SERIES:** PDRC-24 | **DESCRIPTION:** AC-DC DIN RAIL POWER SUPPLY

**FEATURES**

- low profile for building automation
- universal input (90~264 Vac)
- integrated fuse and surge protection
- 3,000 Vac input/output isolation voltage
- DC On/Low LED indicators
- over-voltage/current protection
- UL/cUL, TUV, CE certified



| MODEL      | output voltage | output current max | output power max | ripple and noise <sup>1</sup> | efficiency <sup>2</sup> |
|------------|----------------|--------------------|------------------|-------------------------------|-------------------------|
|            | (Vdc)          | (A)                | (W)              | max (mVp-p)                   | typ (%)                 |
| PDRC-24-5  | 5              | 3.0                | 15               | 50                            | 82                      |
| PDRC-24-12 | 12             | 2.0                | 24               | 50                            | 84                      |
| PDRC-24-15 | 15             | 1.6                | 24               | 50                            | 84                      |
| PDRC-24-24 | 24             | 1.0                | 24               | 50                            | 85                      |

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**
**PDRC-24 - XX**

Base Number

Output Voltage

**INPUT**

| parameter       | conditions/description                                                     | min       | typ | max        | units      |
|-----------------|----------------------------------------------------------------------------|-----------|-----|------------|------------|
| voltage         |                                                                            | 90<br>120 |     | 264<br>375 | Vac<br>Vdc |
| frequency       |                                                                            | 47        |     | 63         | Hz         |
| current         | at 90 Vac, full load<br>5 Vdc output model<br>12, 15, 24 Vdc output models |           |     | 400<br>600 | mA<br>mA   |
| inrush current  | at 115 Vac, full load<br>at 230 Vac, full load                             |           |     | 20<br>40   | A<br>A     |
| leakage current | input to output                                                            |           |     | 0.25       | mA         |

**OUTPUT**

| parameter                                       | conditions/description                                                                                                             | min                        | typ | max                         | units                    |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-----|-----------------------------|--------------------------|
| capacitive load                                 | at Vi nom, full load                                                                                                               |                            |     | 3,500                       | μF                       |
| initial set point accuracy                      |                                                                                                                                    |                            |     | ±1                          | %                        |
| line regulation                                 | at full load, V in min to V in max                                                                                                 |                            |     | ±1                          | %                        |
| load regulation                                 | at Vi nom, 0~100% load                                                                                                             |                            |     | ±1                          | %                        |
| adjustability                                   | via built in trim pot, 0.8 A load<br>5 Vdc output model<br>12 Vdc output model<br>15 Vdc output model<br>24 Vdc output model       | 5<br>12<br>13.5<br>24      |     | 5.5<br>14<br>16.5<br>28     | Vdc<br>Vdc<br>Vdc<br>Vdc |
| rated continuous loading at max trim voltage    | 5 Vdc output model (5.5 Vdc)<br>12 Vdc output model (14.0 Vdc)<br>15 Vdc output model (16.5 Vdc)<br>24 Vdc output model (28.0 Vdc) |                            |     | 2.7<br>1.7<br>1.4<br>0.85   | A<br>A<br>A<br>A         |
| start-up time                                   | at Vi nom, full load<br>at Vi nom, full load with max capacitive load                                                              |                            |     | 1.0<br>1.5                  | s<br>s                   |
| rise time                                       | at Vi nom, full load<br>at Vi nom, full load with max capacitive load                                                              |                            |     | 150<br>500                  | ms<br>ms                 |
| hold-up time                                    | at 115 Vac, full load<br>at 230 Vac, full load                                                                                     | 20<br>80                   |     |                             | ms<br>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                                                                                                               |                            | 65  |                             | kHz                      |
| temperature coefficient                         |                                                                                                                                    |                            |     | ±0.03                       | %/°C                     |
| power back immunity                             | at Vi nom, full load, for 1 second<br>5 Vdc output model<br>12 Vdc output model<br>15 Vdc output model<br>24 Vdc output model      | 7.5<br>18<br>22<br>35      |     |                             | Vdc<br>Vdc<br>Vdc<br>Vdc |
| DC ON indicator threshold at start-up (GREEN)   | 5 Vdc output model<br>12 Vdc output model<br>15 Vdc output model<br>24 Vdc output model                                            | 3.5<br>9.0<br>11.0<br>19.2 |     | 4.5<br>10.8<br>13.5<br>21.6 | Vdc<br>Vdc<br>Vdc<br>Vdc |
| DC LOW indicator threshold after start-up (RED) | 5 Vdc output model<br>12 Vdc output model<br>15 Vdc output model<br>24 Vdc output model                                            | 3.5<br>9.0<br>11.0<br>19.2 |     | 4.5<br>10.8<br>13.5<br>21.6 | Vdc<br>Vdc<br>Vdc<br>Vdc |

## PROTECTIONS

| parameter                | conditions/description              | min  | typ | max  | units |
|--------------------------|-------------------------------------|------|-----|------|-------|
| over voltage protection  | at Vi nom, full load, auto recovery |      |     |      |       |
|                          | 5 Vdc output model                  | 5.75 |     | 6.5  | Vdc   |
|                          | 12 Vdc output model                 | 15   |     | 16.5 | Vdc   |
|                          | 15 Vdc output model                 | 18   |     | 20   | Vdc   |
|                          | 24 Vdc output model                 | 30   |     | 33   | Vdc   |
| over current protection  | hiccup, auto recovery (see curve)   | 120  |     | 160  | %     |
| short circuit protection | hiccup, auto recovery               |      |     |      |       |

## SAFETY & COMPLIANCE

| parameter            | conditions/description                                                                                                                                                                                                                        | min            | typ                                      | max | units                            |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------------------------------|-----|----------------------------------|
| isolation voltage    | input to output for 1 minute                                                                                                                                                                                                                  | 3,000<br>4,242 |                                          |     | Vac<br>Vdc                       |
| isolation resistance | input to output at 500 Vdc                                                                                                                                                                                                                    | 100            |                                          |     | MΩ                               |
| safety approvals     | UL 508, UL 1310, UL 60950-1, EN 60950-1<br>ISA 12.12.01 (Class I, Div 2, Groups A~D)                                                                                                                                                          |                |                                          |     |                                  |
| safety class         | class I                                                                                                                                                                                                                                       |                |                                          |     |                                  |
| EMI/EMC              | EN 55022 Class B, EN 55032 Class B, EN 55024,<br>ENV 50204, EN 61204-3, EN 61000-3-2,<br>EN 61000-3-3, EN 61000-6-2, EN 61000-6-3,<br>EN 61000-4-2, EN 61000-4-3, EN 61000-4-4,<br>EN 61000-4-5, EN 61000-4-6, EN 61000-4-8,<br>EN 61000-4-11 |                |                                          |     |                                  |
| pollution degree     | 2                                                                                                                                                                                                                                             |                |                                          |     |                                  |
| degree of protection | IP20                                                                                                                                                                                                                                          |                |                                          |     |                                  |
| MTBF                 | as per Bellcore Issue 6 at 40 °C, GB<br>5 Vdc output model<br>12 Vdc output model<br>15 Vdc output model<br>24 Vdc output model                                                                                                               |                | 866,000<br>803,000<br>814,000<br>848,000 |     | hours<br>hours<br>hours<br>hours |
| RoHS                 | yes                                                                                                                                                                                                                                           |                |                                          |     |                                  |

Notes: 4. 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                                                                                         | -40 |     | 71    | °C    |
| storage temperature   |                                                                                                             | -40 |     | 85    | °C    |
| humidity              | non-condensing                                                                                              | 20  |     | 95    | %     |
| altitude              | IEC 60068-2-13                                                                                              |     |     | 4,850 | m     |
| vibration             | meets IEC 60068-2-6 (Mounting on rail: 10~500<br>Hz, 2 G, along X,Y,Z axis, for 60 minutes on each<br>axis) |     |     |       |       |
| shock                 | meets IEC 60068-2-27 (15 G, 11 ms, 3 axis, 6<br>faces, 3 times for each face)                               |     |     |       |       |

## MECHANICAL

| parameter              | conditions/description                            | min | typ | max | units |
|------------------------|---------------------------------------------------|-----|-----|-----|-------|
| dimensions             | 91.00 x 35.00 x 56.50 (3.58 x 1.37 x 2.22 inches) |     |     |     | mm    |
| material               | plastic                                           |     |     |     |       |
| weight                 |                                                   |     | 130 |     | g     |
| cooling                | natural convection                                |     |     |     |       |
| input/output connector | accepts 24~12 AWG wire                            |     |     |     |       |

## MECHANICAL DRAWING

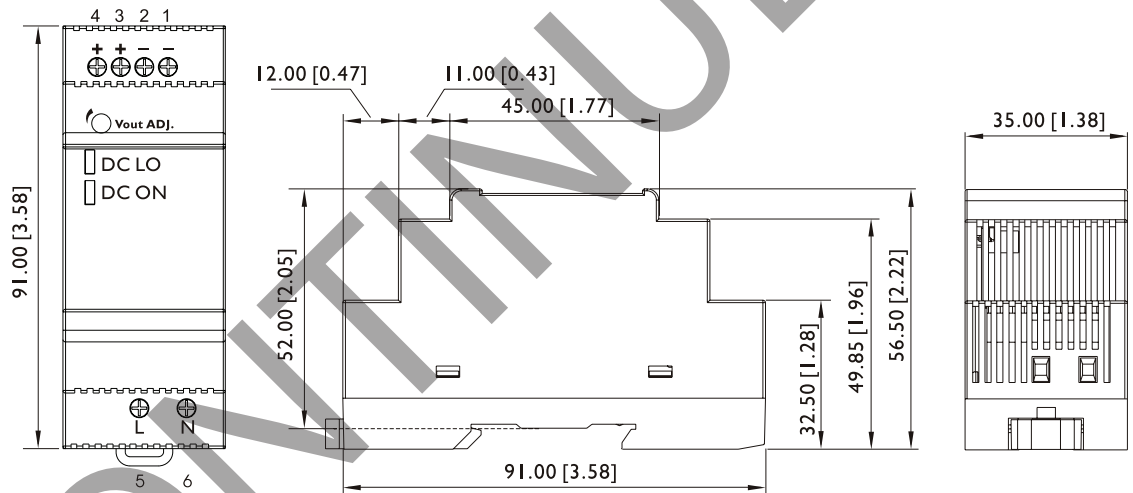
units: mm [inch]

tolerance:

 $X \leq 30.00$ :  $\pm 0.30$  [ $\pm 0.01$ ] $30.00 < X \leq 120.00$ :  $\pm 0.50$  [ $\pm 0.02$ ]

unless otherwise noted

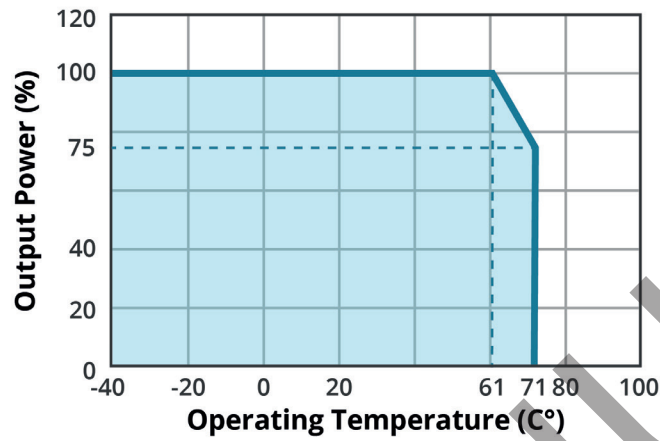
| TERMINAL CONNECTIONS |          |
|----------------------|----------|
| TERMINAL             | Function |
| 1                    | V-       |
| 2                    | V-       |
| 3                    | V+       |
| 4                    | V+       |
| 5                    | L        |
| 6                    | N        |



| INSTALLATION |                                                  |
|--------------|--------------------------------------------------|
| DIN RAIL     | TS35/7.5 or TS35/15                              |
| Cable        | flexible/solid, copper conductors only, 60/75°C  |
| Wire Range   | 24~12 AWG<br>(0.2~2.5 mm <sup>2</sup> )          |
| Strip Length | 7 mm                                             |
| Screw Torque | 6 lb·in                                          |
| Position     | Vertical                                         |
| Cooling      | Natural convection, 25 mm clearance on all sides |

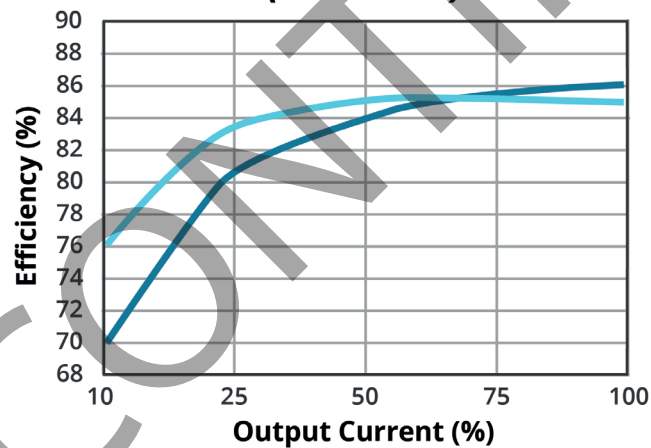
## DERATING CURVES

### TEMPERATURE DERATING CURVE



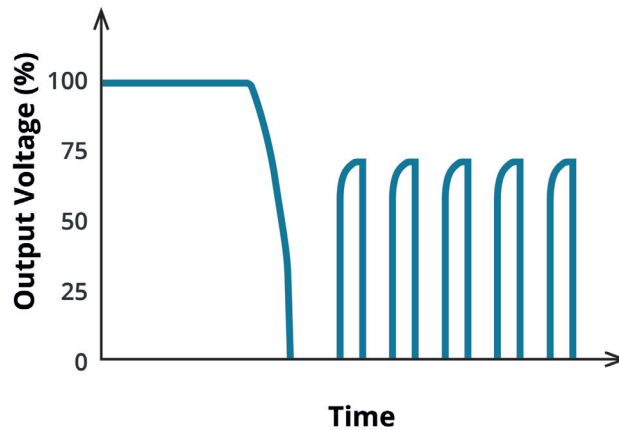
## EFFICIENCY CURVES

### EFFICIENCY VS OUTPUT LOAD (PDRC-24-24)



## CURRENT LIMITED CURVE

### OUTPUT VOLTAGE VS TIME HICCUP MODE



## REVISION HISTORY

| rev. | description                            | date       |
|------|----------------------------------------|------------|
| 1.0  | initial release                        | 06/13/2019 |
| 1.01 | company logo updated                   | 02/05/2021 |
| 1.02 | derating and efficiency curves updated | 02/28/2022 |

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.

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