

**SERIES:** PDRB-10 | **DESCRIPTION:** AC-DC DIN RAIL POWER SUPPLY

**FEATURES**

- 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
- spring and screw terminal options
- adjustable output via trim POT
- 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 (%)                 |
| PDRB-10-5  | 5              | 2.0                | 10               | 50                            | 73                      |
| PDRB-10-12 | 12             | 0.84               | 10               | 50                            | 75                      |
| PDRB-10-15 | 15             | 0.67               | 10               | 50                            | 76                      |
| PDRB-10-24 | 24             | 0.42               | 10               | 50                            | 76                      |

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**
**PDRB-10 - XX X**

Base Number

Output Voltage

 Terminal Type:  
 "blank" = spring terminal  
 A = screw terminal

**INPUT**

| parameter       | conditions/description | min | typ | max  | units |
|-----------------|------------------------|-----|-----|------|-------|
| voltage         |                        | 90  |     | 264  | Vac   |
|                 |                        | 120 |     | 375  | Vdc   |
| frequency       |                        | 47  |     | 63   | Hz    |
| current         | at 90 Vac, full load   |     |     | 300  | mA    |
| inrush current  | at 115 Vac, full load  |     |     | 15   | A     |
|                 | at 230 Vac, full load  |     |     | 30   | A     |
| leakage current | input to output        |     |     | 0.25 | mA    |
|                 | input to FG            |     |     | 3.5  | mA    |

**OUTPUT**

| parameter                                       | conditions/description                        | min  | typ | max   | units |
|-------------------------------------------------|-----------------------------------------------|------|-----|-------|-------|
| capacitive 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                        |      |     | ±2    | %     |
| adjustability                                   | via built in trim pot, 80% load               |      |     |       |       |
|                                                 | 5, 12, 15 Vdc output models                   | 90   |     | 115   | %     |
| rated continuous loading at max trim voltage    | 24 Vdc output models                          | 90   |     | 120   | %     |
|                                                 | 5 Vdc output models (5.75 Vdc)                |      |     | 1.7   | A     |
|                                                 | 12 Vdc output models (13.8 Vdc)               |      |     | 0.72  | A     |
|                                                 | 15 Vdc output models (17.25 Vdc)              |      |     | 0.58  | A     |
| start-up time                                   | at Vi nom, full load                          |      |     | 1.0   | s     |
|                                                 | at Vi nom, full load with max capacitive load |      |     | 1.5   | s     |
| rise time                                       | at Vi nom, full load                          |      |     | 150   | ms    |
|                                                 | at Vi nom, full load with max capacitive load |      |     | 500   | ms    |
| hold-up time                                    | at 115 Vac, full load                         | 25   |     |       | ms    |
|                                                 | at 230 Vac, full load                         | 100  |     |       | 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                          |      | 132 |       | kHz   |
| temperature coefficient                         |                                               |      |     | ±0.03 | %/°C  |
| power back immunity                             | at Vi nom, full load, for 1 second            |      |     |       |       |
|                                                 | 5 Vdc output models                           | 7.5  |     |       | Vdc   |
|                                                 | 12 Vdc output models                          | 18   |     |       | Vdc   |
|                                                 | 15 Vdc output models                          | 22   |     |       | Vdc   |
| DC ON indicator threshold at start-up (GREEN)   | 24 Vdc output models                          | 35   |     |       | Vdc   |
|                                                 | 5 Vdc output models                           | 3.5  |     | 4.5   | Vdc   |
|                                                 | 12 Vdc output models                          | 9.0  |     | 10.8  | Vdc   |
|                                                 | 15 Vdc output models                          | 11.0 |     | 13.5  | Vdc   |
| DC LOW indicator threshold after start-up (RED) | 24 Vdc output models                          | 18   |     | 21.6  | Vdc   |
|                                                 | 5 Vdc output models                           | 3.5  |     | 4.5   | Vdc   |
|                                                 | 12 Vdc output models                          | 9.0  |     | 10.8  | Vdc   |
|                                                 | 15 Vdc output models                          | 11.0 |     | 13.5  | Vdc   |
|                                                 | 24 Vdc output models                          | 18   |     | 21.6  | Vdc   |

## PROTECTIONS

| parameter                | conditions/description             | min   | typ | max   | units |
|--------------------------|------------------------------------|-------|-----|-------|-------|
| over voltage protection  | at Vi nom, 80% load, auto recovery |       |     |       |       |
|                          | 5 Vdc output models                | 6.25  |     | 7.25  | Vdc   |
|                          | 12 Vdc output models               | 15    |     | 17.4  | Vdc   |
|                          | 15 Vdc output models               | 18.75 |     | 21.75 | Vdc   |
|                          | 24 Vdc output models               | 30    |     | 34.8  | Vdc   |
| over current protection  | hiccup, auto recovery (see curve)  | 110   |     | 165   | %     |
| 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 |         |     | Vac   |
|                      |                                                                                                                                                                                                                          | 4,242 |         |     | Vdc   |
|                      | input to FG for 1 minute                                                                                                                                                                                                 | 1,500 |         |     | Vac   |
|                      |                                                                                                                                                                                                                          | 2,121 |         |     | Vdc   |
| isolation resistance | output to FG for 1 minute                                                                                                                                                                                                | 500   |         |     | Vac   |
|                      |                                                                                                                                                                                                                          | 710   |         |     | Vdc   |
| isolation resistance | input to output at 500 Vdc                                                                                                                                                                                               | 100   |         |     | MΩ    |
| safety approvals     | UL 508, UL 1310, UL/EN 62368-1<br>ISA 12.12.01 (Class I, Div 2, Groups A~D)                                                                                                                                              |       |         |     |       |
| safety class         | Class I                                                                                                                                                                                                                  |       |         |     |       |
| EMI/EMC              | EN 55032 Class B, EN 55024, ENV 50204,<br>EN 61204-3, EN 61000-3-2, EN 61000-3-3,<br>EN 61000-6-2, EN 61000-6-3, EN 61000-4-2,<br>EN 61000-4-3, EN 61000-4-4, EN 61000-4-5,<br>EN 61000-4-6, EN 61000-4-8, EN 61000-4-11 |       |         |     |       |
| pollution degree     | 2                                                                                                                                                                                                                        |       |         |     |       |
| degree of protection | IP20                                                                                                                                                                                                                     |       |         |     |       |
| MTBF                 | as per Bellcore Issue 6 at 40 °C, GB                                                                                                                                                                                     |       |         |     |       |
|                      | 5 Vdc output models                                                                                                                                                                                                      |       | 728,000 |     | hours |
|                      | 12 Vdc output models                                                                                                                                                                                                     |       | 767,000 |     | hours |
|                      | 15 Vdc output models                                                                                                                                                                                                     |       | 780,000 |     | hours |
|                      | 24 Vdc output models                                                                                                                                                                                                     |       | 808,000 |     | 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                                                                                   | -20 |     | 71    | °C    |
| storage temperature   |                                                                                                       | -25 |     | 85    | °C    |
| humidity              | non-condensing                                                                                        | 20  |     | 95    | %     |
| altitude              |                                                                                                       |     |     | 5,000 | m     |
| vibration             | meets IEC 60068-2-6 (Mounting on rail: 10~500 Hz, 2 G, along X,Y,Z axis, for 60 minutes on each axis) |     |     |       |       |
| shock                 | meets IEC 60068-2-27 (15 G, 11 ms, 3 axis, 6 faces, 3 times for each face)                            |     |     |       |       |

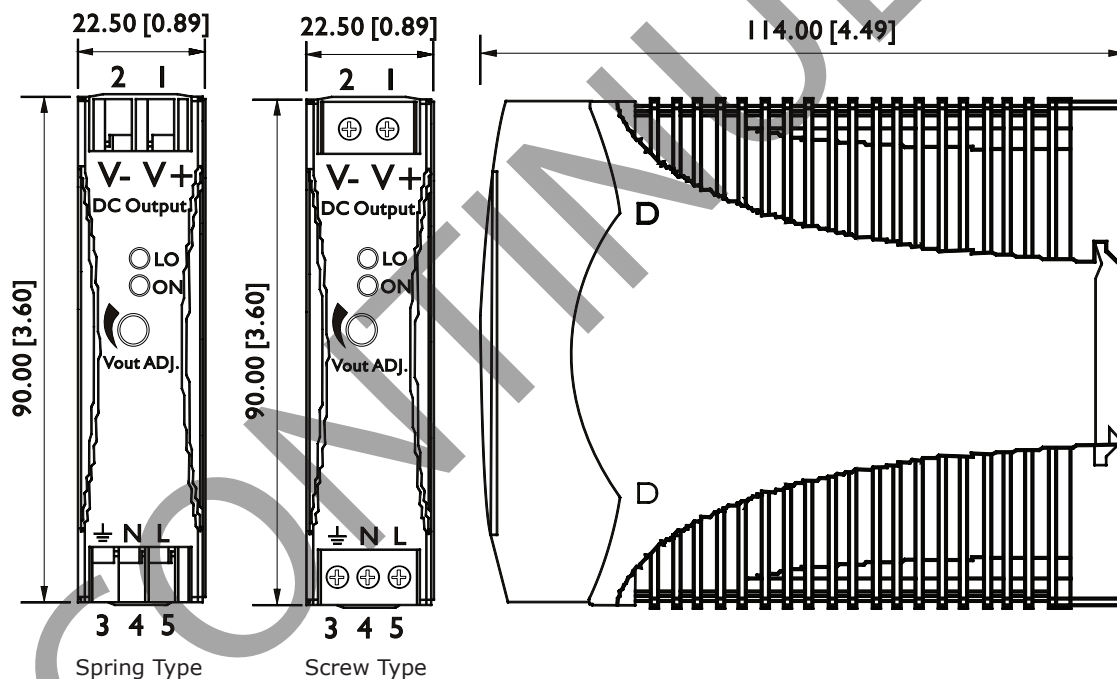
## MECHANICAL

| parameter              | conditions/description                                                            | min | typ | max | units |
|------------------------|-----------------------------------------------------------------------------------|-----|-----|-----|-------|
| dimensions             | 90.00 x 22.50 x 114.00 (3.60 x 0.89 x 4.49 inches)                                |     |     |     | mm    |
| material               | plastic                                                                           |     |     |     |       |
| weight                 |                                                                                   |     | 120 |     | g     |
| cooling                | natural convection                                                                |     |     |     |       |
| input/output connector | spring terminal: accepts 24~14 AWG wire<br>screw terminal: accepts 26~12 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

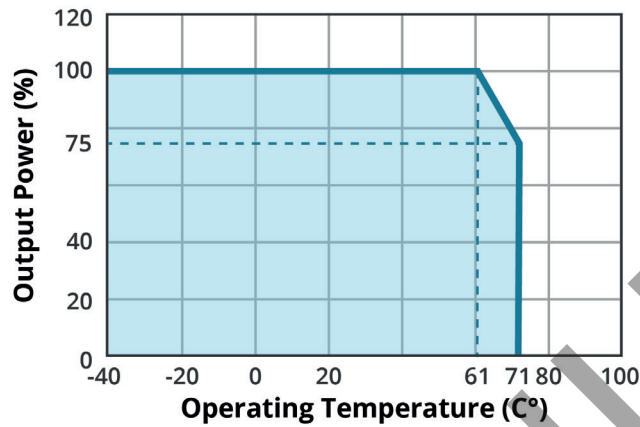
| TERMINAL CONNECTIONS |                                                                                    |
|----------------------|------------------------------------------------------------------------------------|
| TERMINAL             | Function                                               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



| INSTALLATION |                                                  |                                         |
|--------------|--------------------------------------------------|-----------------------------------------|
|              | Spring                                           | Screw                                   |
| DIN RAIL     | TS35/7.5 or TS35/15                              |                                         |
| Cable        | flexible/solid, copper conductors only, 60/75°C  |                                         |
| Wire Range   | 24~14 AWG<br>(0.2~2 mm <sup>2</sup> )            | 26~12 AWG<br>(0.2~2.5 mm <sup>2</sup> ) |
| Strip Length | 10 mm                                            | 4~5 mm                                  |
| Screw Torque | --                                               | 5 lb·in                                 |
| Position     | Vertical                                         |                                         |
| Cooling      | Natural convection, 25 mm clearance on all sides |                                         |

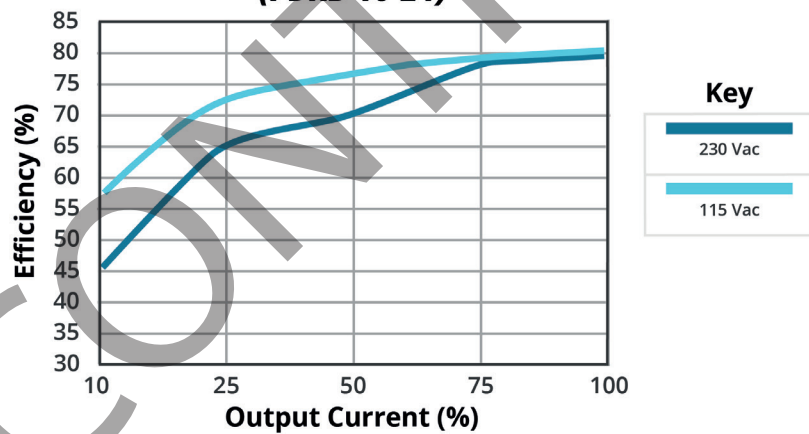
## DERATING CURVE

**TEMPERATURE DERATING CURVE**



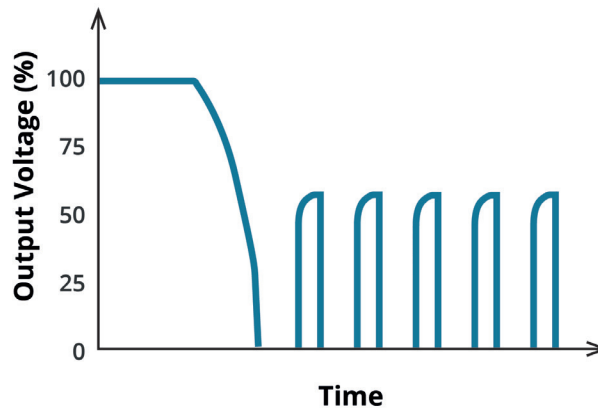
## EFFICIENCY CURVES

**EFFICIENCY VS OUTPUT LOAD  
(PDRB-10-24)**



## CURRENT LIMITED CURVE

**OUTPUT VOLTAGE VS TIME  
HICCUP MODE**



## REVISION HISTORY

| rev. | description                            | date       |
|------|----------------------------------------|------------|
| 1.0  | initial release                        | 06/13/2019 |
| 1.01 | updated safety certifications          | 08/04/2020 |
| 1.02 | derating and efficiency curves updated | 03/03/2022 |

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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