

## 120W - 240W DIN Rail Mount Three Phase Power Supplies

<https://product.tdk.com/en/power/drb>  
[www.emea.tdk-lambda.com/drb](http://www.emea.tdk-lambda.com/drb)



The DRB120/240-3 series supports the growing trend for simple and economically priced 3-phase input DIN power supplies for industrial and process control applications. The series combines low cost, reliability and compact dimensions with energy saving efficiencies of up to 94%. Conservatively rated electrolytic capacitor temperatures offer improved field life-times of typically 10 years. Available in two power levels, 120W and 240W, the series provides a choice of 12V, 24V and 48V outputs. All models can provide a peak power of 20% for up to 2s to handle capacitive loading. A low energy inrush current level avoids nuisance tripping of circuit breakers. Units can be connected in parallel to provide more power or for redundant applications. A DC Good relay, remote on/off and a choice of models with either screw or push-in wire terminals.

| Features                                     | Benefits  |
|--|---|
| • High Efficiency, up to 94%                 | • Lowers Operating Costs and Improves Thermal Performance |
| • Narrow Case Widths                         | • Occupies Less Space on the DIN rail                     |
| • Curve B Radiated and Conducted EMI         | • Reduced Electrical Noise in the System                  |
| • Long E-Capacitor Life (typically 10 Years) | • Improved Field Life                                     |
| • Low Off-Load Power Consumption             | • Saves Energy  |

| Model Selector |                    |                      |                     |                                |                   |                        |               |  |
|----------------|--------------------|----------------------|---------------------|--------------------------------|-------------------|------------------------|---------------|--|
| Model          | Output Voltage (V) | Adjustment Range (V) | Maximum Current (A) | Peak Current (A) ( $\leq 2s$ ) | Maximum Power (W) | Maximum Peak Power (W) | Terminal Type | Efficiency (%) (400/500Vac) <sup>(1)</sup> |
| DRB120-12-3-A0 | 12                 | 11.4 - 15            | 10                  | 12                             | 120               | 144                    | Screw         | 89.4 / 89.1                                |
| DRB120-12-3-A1 | 12                 | 11.4 - 15            | 10                  | 12                             | 120               | 144                    | Push-in       | 89.4 / 89.1                                |
| DRB120-24-3-A0 | 24                 | 22.5 - 29            | 5                   | 6                              | 120               | 144                    | Screw         | 91.3 / 91.2                                |
| DRB120-24-3-A1 | 24                 | 22.5 - 29            | 5                   | 6                              | 120               | 144                    | Push-in       | 91.3 / 91.2                                |
| DRB240-24-3-A0 | 24                 | 22.5 - 29            | 10                  | 12                             | 240               | 288                    | Screw         | 93.1 / 93.2                                |
| DRB240-24-3-A1 | 24                 | 22.5 - 29            | 10                  | 12                             | 240               | 288                    | Push-in       | 93.1 / 93.2                                |
| DRB240-48-3-A0 | 48                 | 45 - 56              | 5                   | 6                              | 240               | 288                    | Screw         | 93.8 / 94.0                                |
| DRB240-48-3-A1 | 48                 | 45 - 56              | 5                   | 6                              | 240               | 288                    | Push-in       | 93.8 / 94.0                                |

| Related Products                                  |                                       |   |
|---|---------------------------------------|---|
| Type  | Part Number(s)                        | Description   |
| Redundancy module                                 | <a href="#">DRM40</a>                 | 20 to 40A DIN rail Redundancy module                                |
| Buffer DIN rail modules                           | <a href="#">DBM20</a>                 | 20A DIN rail Buffer (hold-up) modules                               |
| Low power DIN rail power supplies                 | <a href="#">DRB15, 30, 50, 100</a>    | 15 to 100W AC-DC single phase DIN rail power supplies               |
| Mid power DIN rail power supplies                 | <a href="#">DRB120, 240, 480</a>      | 120 to 480W AC-DC single phase DIN rail power supplies              |
| Mid to high power premium DIN rail power supplies | <a href="#">DRF120, 240, 480, 960</a> | 120 to 960W AC-DC single phase DIN rail power supplies              |
| DIN rail mount filters                            | <a href="#">RTMN</a>                  | 6A to 60A 500Vac three phase 2 stage filters with pulse attenuation |

| Specifications                            |     |   |                |                |                |
|---|-----|---|----------------|----------------|----------------|
| Model                                     |     | DRB120-12-3-Ax  | DRB120-24-3-Ax | DRB240-24-3-Ax | DRB240-48-3-Ax |
| <b>Input</b>                              |     |   |                |                |                |
| Input Voltage Range                       | Vac | 3-phase 350 - 575   |                |                |                |
| Input Frequency                           | Hz  | 47 - 63   |                |                |                |
| Input Current (Per Phase Max)             | A   | 0.5   | 0.5            | 0.8            | 0.8            |
| Inrush Current (Cold Start 400 / 500Vac ) | A   | 30 / 40   | 30 / 39        | 36 / 40        | 34 / 49        |
| Dropped Phase Output Power                | W   | Full load operating on 2 phases. See technical datasheet for conditions                                   |                |                |                |
| Leakage Current (575Vac, 60Hz)            | mA  | <1  |                |                |                |
| Touch Current (575Vac, 60Hz)              | uA  | <50   |                |                |                |
| Power Factor (400/500Vac)                 | -   | >0.5  |                | >0.6           |                |
| Harmonic Compliance                       | -   | Meets EN61000-3-2 Class A   |                |                |                |
| No Load Power Consumption                 | W   | <14.5   | <11.5          | <18            | <16            |
| Hold Up Time (minimum) at 400 / 500Vac    | ms  | 21 / 41   | 23 / 43        | 22 / 44        | 23 / 46        |
| Efficiency                                | -   | See model selector table  |                |                |                |
| Average Efficiency (400 / 500Vac) (2)     | %   | 87.5 / 87.3   | 89.8 / 88.9    | 92.5 / 92.1    | 93.0 / 92.6    |
| Conducted & Radiated EMI                  | -   | EN55011-B, CISPR11-B  |                |                |                |
| Immunity                                  | -   | See immunity table  |                |                |                |
| Safety Agency Certifications              | -   | IEC/EN/UL/CSA 61010-1, 61010-2-201, 62368-1, IEC 60950-1, EN 60204-1, IEC/EN 62477-1, 61204-7, 61558-2-16 |                |                |                |

| Immunity                             |              |                     |          |  |
|--------------------------------------|--------------|---------------------|----------|--|
| Test                                 | Standard     | Test Level          | Criteria |  |
| ESD                                  | EN61000-4-2  | See immunity report | A        | 4kV contact 8kV air discharge  |
| Radiated Susceptibility              | EN61000-4-3  | See immunity report | A        | 10V/m: 80MHz to 1GHz<br>3V/m 1.4GHz to 2GHz<br>1V/m 2GHz to 2.7GHz   |
| Electrical Fast Transient Burst      | EN61000-4-4  | See immunity report | A        | Input 4kV 5kHz<br>Output 2kV 5kHz<br>Signal contact 2kV 5kHz   |
| Surge                                | EN61000-4-5  | See immunity report | A        | Input symmetrical (L-L) 2kV<br>Input asymmetrical (L-PE) 4kV<br>Output symmetrical (L-L) 0.5kV<br>Output asymmetrical (L-PE) 1kV |
| Conducted Susceptibility             | EN61000-4-6  | 10V                 | A        | 150kHz to 80MHz  |
| Magnetic Fields                      | EN61000-4-8  | 30A/m               | A        | 50Hz, 60s each axis (x, y, z)  |
| Voltage Dips and Input Interruptions | EN61000-4-11 | 500ms               | A        | 400Vac at 70%, 50Hz  |
|                                      |              | 200ms               | A        | 400Vac at 40%, 50Hz  |
|                                      |              | 20ms                | A        | 400Vac at 0%, 50Hz   |
|                                      |              | 5000ms              | C        | 400Vac at 0%, 50Hz   |

| Specifications                            |        |   |                |                |                |
|---|--------|---|----------------|----------------|----------------|
| Model                                     |        | DRB120-12-3-Ax  | DRB120-24-3-Ax | DRB240-24-3-Ax | DRB240-48-3-Ax |
| <b>Output</b>                             |        |   |                |                |                |
| Output Voltage Tolerance (100% load)      | %      | ± 3 maximum   |                |                |                |
| Switching Frequency (Output Converter)    | kHz    | 50 to 135. (Variable with input line and output load)   |                |                |                |
| Line Regulation                           | %      | ≤ 0.1   |                |                |                |
| Load Regulation (No Parallel Mode)        | %      | ≤ 1.1   | ≤ 0.4          | ≤ 0.6          | ≤ 0.2          |
| Load Regulation (Parallel Mode)           | %      | ≤ 3.8   | ≤ 2.9          | ≤ 3.1          | ≤ 2.8          |
| Ripple & Noise (+25 to 70°C ambient)      | mV     | 10  | 10             | 10             | 20             |
| Ripple & Noise (-25 to ≤+25°C ambient)    | mV     | 20  | 30             | 40             | 80             |
| Minimum Load                              | -      | No minimum load required  |                |                |                |
| Maximum Load Capacitance                  | uF     | 10,000  | 5,000          | 10,000         | 5,000          |
| Overcurrent Protection (Auto Recovery)    | %      | ≤ 145   | ≤ 150          | ≤ 150          | ≤ 150          |
| Overvoltage Protection (Auto Recovery)    | V      | ≤ 18  | ≤ 32           | ≤ 32           | ≤ 58           |
| Overtemperature Protection                | -      | Yes. Auto recovery  |                |                |                |
| Remote Sense                              | -      | None  |                |                |                |
| Remote On/Off                             | -      | Closed contact or <4V enables output  |                |                |                |
| DC Good                                   | -      | Closed contact relay when output voltage is >95%  |                |                |                |
| Indicators                                | -      | Green LED indicates DC is OK  |                |                |                |
| Parallel Operation                        | -      | Front panel DIP switch to enable parallel droop mode current sharing.<br>Refer to technical datasheet when paralleling. |                |                |                |
| Series Operation                          | -      | Possible, see technical datasheet   |                |                |                |
| <b>Environmental</b>                      |        |   |                |                |                |
| Operating Temperature Nominal             | °C     | -25 to +55 full load, up to 70 with derating (see derating below)   |                |                |                |
| Operating Temperature Derating Above 55°C | W/°C   | 2   | 0.8            | 2.4            | 2.6            |
| Storage Temperature                       | °C     | -40 to +85  |                |                |                |
| Humidity (Non condensing)                 | %RH    | 95 (Operating & Storage)  |                |                |                |
| Cooling                                   | -      | Convection  |                |                |                |
| Altitude                                  | m      | 3,000 nominal, (6,000 maximum no UL certification)  |                |                |                |
| Withstand Voltage (For 1 minute)          | Vac    | Input to Output 3,510, Input to GND 2,210, Output to GND and signals 1,390  |                |                |                |
| Vibration (Non operating)                 | -      | IEC 60068-2-6: 2g / 10 to 500Hz, 1 hour/direction X,Y,Z on DIN rail   |                |                |                |
| Shock (Non operating)                     | -      | IEC 60068-2-27, 30g / 11ms ±5ms, 3 x each axis on DIN rail  |                |                |                |
| <b>Other</b>                              |        |   |                |                |                |
| Weight (Typ)                              | g      | 660   | 660            | 780            | 780            |
| Size (WxHxD)                              | mm     | 55 x 129 x 138.2  |                |                |                |
| Size (WxHxD)                              | Inches | 2.17 x 5.08 x 5.44  |                |                |                |
| Case Material                             | -      | Aluminum  |                |                |                |
| DIN Rail Type                             | -      | Suitable for mounting on TS-35/7.5 or TS35/15 DIN Rails   |                |                |                |
| MTBF - Telcordia SR-332 issue 4*          | Hours  | 1,100,000   |                |                |                |
| Warranty                                  | Years  | 3   |                |                |                |

**Notes**

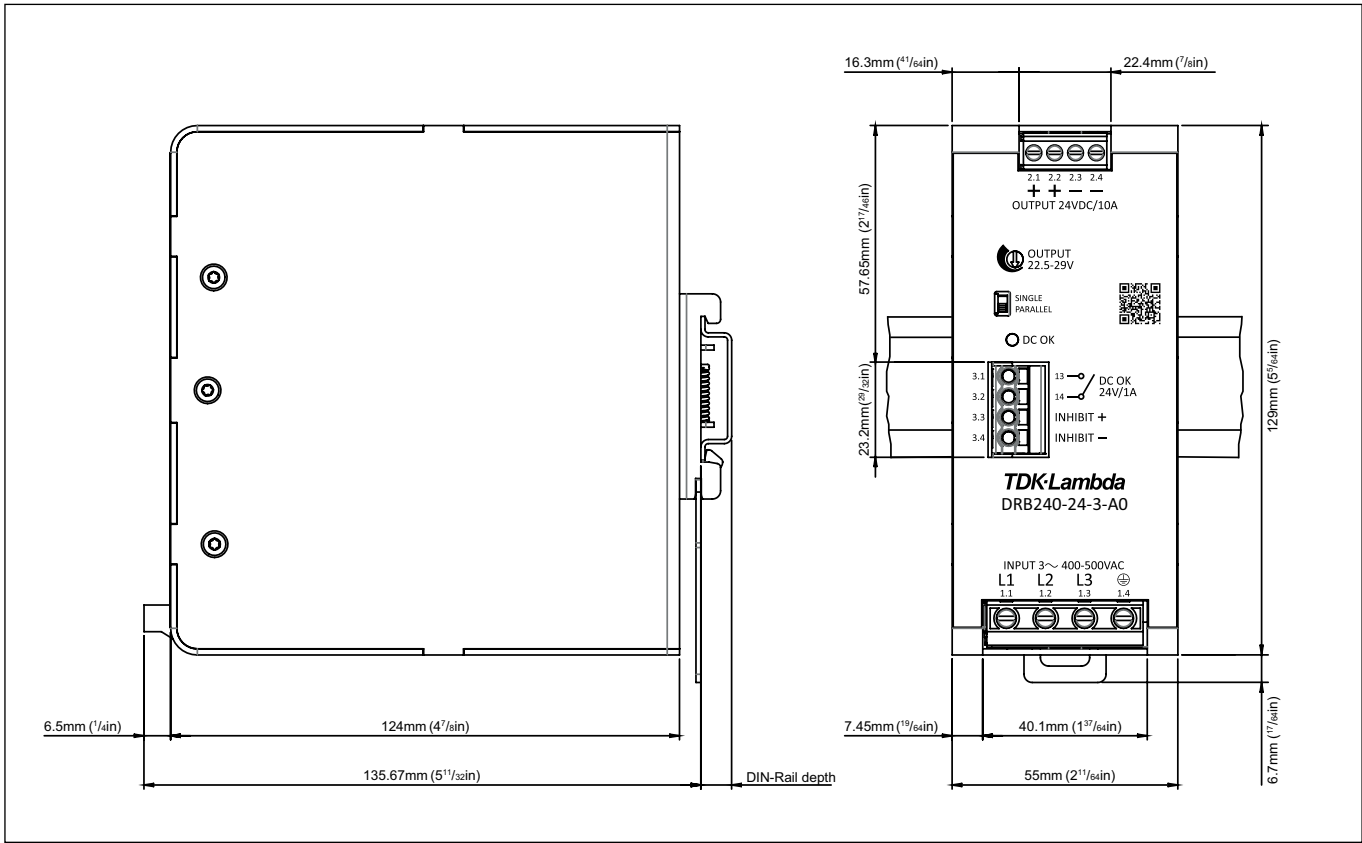
See website for detailed specifications, test methods and installation manual

(1) Minimum at 100% load

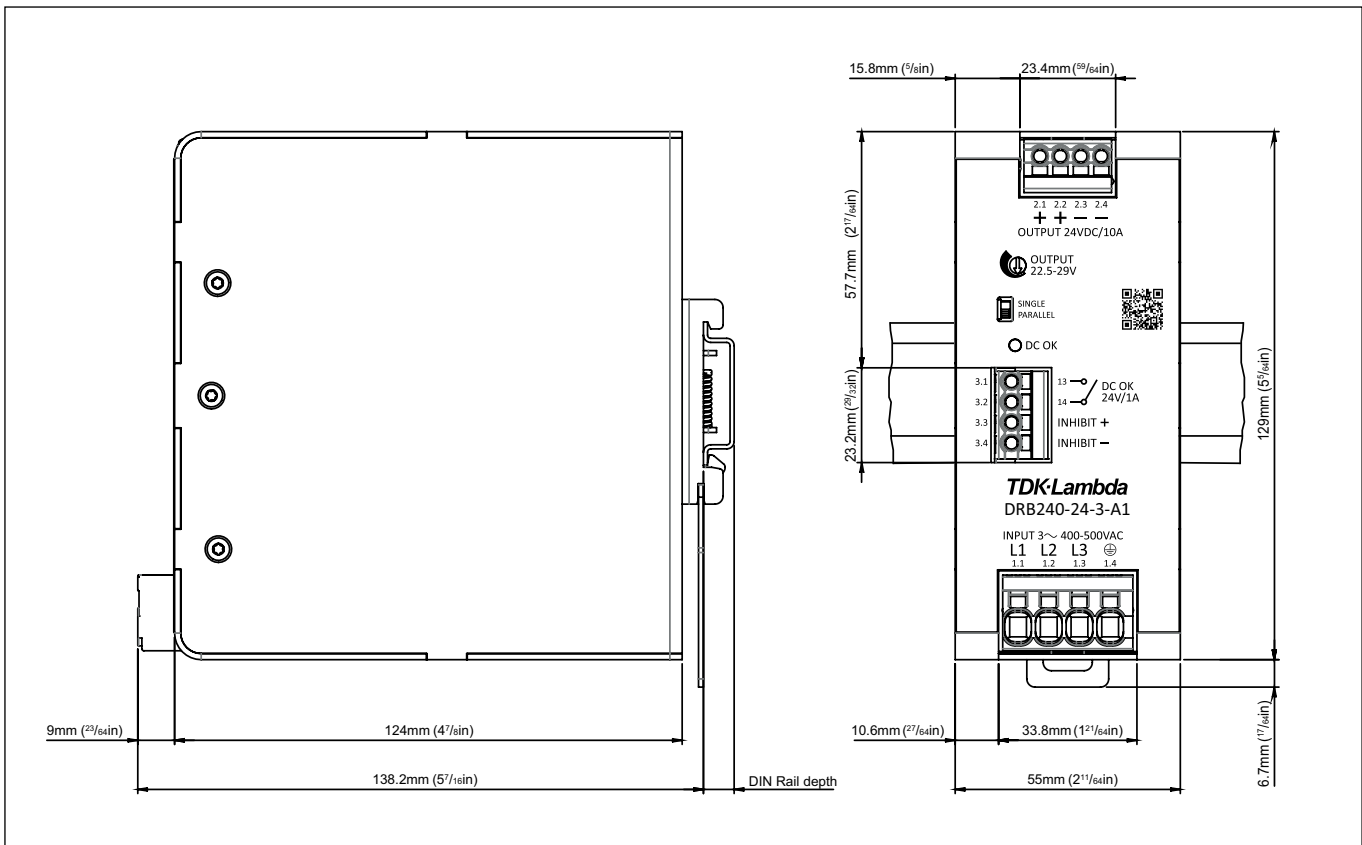
(2) Weighted average: 10%@Pout=20%, 50%@Pout=50%, 20%@Pout=80%, 20%@Pout=100%

\*25°C ambient, full load.

**Outline DRB-3 Screw Terminals (-A0 suffix)**



**Outline DRB-3 Push In Terminals (-A1 suffix)**





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