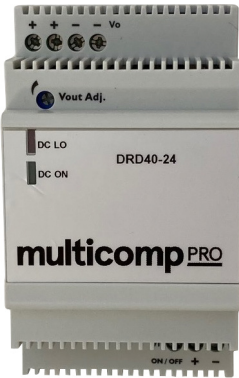


# 40W DC to DC Power Supply DIN Rail Mount

**multicomp** PRO

**RoHS  
Compliant**



## Features

- 3:1 Wide Input Range
- Short Circuit Protection
- Internal Input Filter
- Remote ON / OFF
- Low Profile
- 3 Years Warranty



## Model List

| Model No.            | Input Voltage    | Input Current |        | Output Wattage | Output Voltage | Output Current | EFF. (Min.) | EFF. (Typ.) |
|----------------------|------------------|---------------|--------|----------------|----------------|----------------|-------------|-------------|
|                      |                  | (Type)        | (Max.) |                |                |                |             |             |
| Single Output Models |                  |               |        |                |                |                |             |             |
| MP-DRD40-12          | 10V DC to 32V DC | 2.1 A         | 5 A    | 40 WATTS       | +12V DC        | 3.4 A          | 82%         | 84%         |
| MP-DRD40-24          |                  |               |        |                | +24V DC        | 1.7 A          | 83%         | 85%         |

## Specification

All Specifications Typical At Nominal Line, Full Load, 25°C Unless Otherwise Noticed

| General                       |   |                   |      |         |        |
|-------------------------------|---|-------------------|------|---------|--------|
| Characteristics               | Conditions                                    | Min.              | Typ. | Max.    | Unit   |
| Switching Frequency           | Vi nom, Io nom                                | 100               |      | 300     | kHz    |
| Isolation Voltage             | Input - Output                                | 1,500             |      |         | V DC   |
| Isolation Resistance          | Input- Output, @ 500V DC                      | 100               |      |         | MΩ     |
| Ambient Temperature           | Operating at Vi nom                           | -40               |      | +71     | °C     |
| Derating (see Derating curve) | Vi nom, from +51°C to +71°C                   |                   |      | 2.5     | % / °C |
| Storage Temperature           | Non operational                               | -40               |      | + 85    | °C     |
| Relative Humidity             | Vi nom, Io nom                                | 20                |      | 95      | % RH   |
| Temperature Coefficient       | Vi nom, Io min                                |                   |      | ±0.03   | % / °C |
| MTBF                          | Bellcore Issue 6 @40°C, GB                    | 5V                |      | 576,000 | Hours  |
|                               |   | 9V                |      | 560,000 |        |
|                               |   | 12V               |      | 568,000 |        |
|                               |   | 15V               |      | 580,000 |        |
|                               |   | 24V               |      | 605,000 |        |
| Altitude During Operation     | IEC 60068-2-13                                |                   |      | 4,850   | m      |
| Dimension                     |   | L91 × W53 × D56.5 |      |         | mm     |
| Cooling                       | Free air convection                           |                   |      |         |        |
| Installation Position         | Vertical (other direction may derating using) |                   |      |         |        |
| Pollution Degree              |   | 2                 |      |         |        |

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| Input Specifications     |                           |      |      |      |      |
|--------------------------|---------------------------|------|------|------|------|
| Characteristics          | Conditions                | Min. | Typ. | Max. | Unit |
| Input Voltage Range      | Ta min ... Ta max, Io nom | 10   | 24   | 32   | V DC |
| No Load Input Current    | Vi nom, Io = 0            |      |      | 40   | mA   |
| Input Voltage w/o Damage | Io nom                    |      |      | 40   | V DC |
| Startup Voltage          | Io nom                    |      | 9.6  |      | V DC |
| Input Filter             | Pi type                   |      |      |      |      |

## Output Specifications

| Characteristics                                     | Conditions                 | Min.   | Typ.                                | Max.  | Unit |
|---|----------------------------|--|-------------------------------------|-------|------|
| Output Voltage Accuracy                             | Vi nom, Io max             | 0  |                                     | + 1   | %    |
| Minimum Load  | Vi nom                     | 0  |                                     |       | %    |
| Line Regulation                                     | Io nom, Vi min ... Vi max  |  |                                     | + 1   | %    |
| Voltage Trim Range                                  | Vi nom, 0.8 Io nom         | 5V   | 4.75                                | 5.5   | V DC |
|   |                            | 9V   | 8.55                                | 9.9   |      |
|   |                            | 12V  | 11.4                                | 13.8  |      |
|   |                            | 15V  | 14.25                               | 16.5  |      |
|   |                            | 24V  | 22.8                                | 27.6  |      |
| Rated Continuous Loading                            | Vi nom                     | 5V   | 6 A @ 5V DC / 5.4 A @ 5.5 V DC      |       |      |
|   |                            | 9V   | 4 A @ 9V DC / 3.6 A @ 9.9 V DC      |       |      |
|   |                            | 12V  | 3.4 A @ 12V DC / 2.9 A @ 13.8 V DC  |       |      |
|   |                            | 15V  | 2.7 A @ 15V DC / 2.4 A @ 16.5 V DC  |       |      |
|   |                            | 24V  | 1.7 A @ 24V DC / 1.45 A @ 27.6 V DC |       |      |
| Startup Time  | Vi nom, Io nom             |  |                                     | 50    | ms   |
| Transient Recovery Time                             | Vi nom, 1~0.5 Io nom       |  |                                     | 1     | ms   |
| Ripple & Noise                                      | Vi nom, Io nom, BW = 20MHz |  |                                     | 100   | mV   |
| Power Back Immunity                                 | Vi nom, Io nom             | 5V   | 7.5                                 |       | V DC |
|   |                            | 9V   | 15                                  |       |      |
|   |                            | 12V  | 18                                  |       |      |
|   |                            | 15V  | 22                                  |       |      |
|   |                            | 24V  | 35                                  |       |      |
| Capacitor Load                                      | Vi nom, Io nom             | 5V   |                                     | 3,500 | µF   |
|   |                            | 9V   |                                     | 2,200 |      |
|   |                            | 12V, 15V   |                                     | 1,000 |      |
|   |                            | 24V  |                                     | 470   |      |
| DC ON Indicator Threshold at start up (Green LED)   | Vi nom, Io nom 5V          | 5V   | 3.5                                 | 4.5   | V DC |
|   |                            | 9V   | 6.8                                 | 8.1   |      |
|   |                            | 12V  | 9                                   | 10.8  |      |
|   |                            | 15V  | 11                                  | 13.5  |      |
|   |                            | 24V  | 19.2                                | 21.6  |      |
| DC LOW Indicator Threshold after start up (Red LED) | Vi nom, Io nom             | 5V   | 3.5                                 | 4.5   | V DC |
|   |                            | 9V   | 6.8                                 | 8.1   |      |
|   |                            | 12V  | 9                                   | 10.8  |      |
|   |                            | 15V  | 11                                  | 13.5  |      |
|   |                            | 24V  | 19.2                                | 21.6  |      |
| Efficiency  | Vi nom, Io nom, Po / Pi    | Up to 85%, See model list and typ efficiency curve |                                     |       |      |

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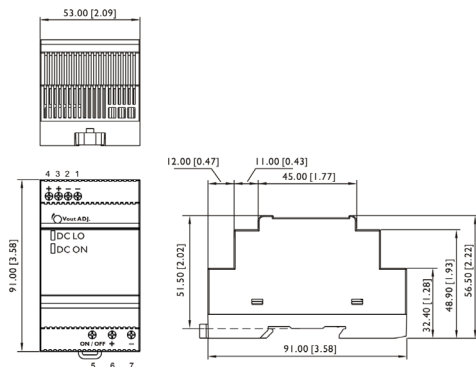
| Control and Protection            |   |                                 |       |      |      |      |
|-----------------------------------|---|---------------------------------|-------|------|------|------|
| Characteristics                   | Conditions  | Min.                            | Typ.  | Max. | Unit |      |
| Input Fuse                        |   | T6.3A / 125VDC internal         |       |      |      |      |
| Internal Surge Voltage Protection | IEC 61000-4-5   | Varistor                        |       |      |      |      |
| Rated Over Load Protection        | Vi nom (see typ current limited curve)  | 110                             |       | 145  | %    |      |
| Over Voltage Protection           | Vi nom, 0.8 Io nom<br>(Auto Recovery)   | 5V                              | 5.75  |      | 6.5  | V DC |
|                                   |   | 9V                              | 10.35 |      | 11.7 |      |
|                                   |   | 12V                             | 14.4  |      | 16.2 |      |
|                                   |   | 15V                             | 17.25 |      | 19.5 |      |
|                                   |   | 24                              | 28.8  |      | 32.4 |      |
| Remote ON / OFF                   | ON : opened or 8V DC to 10V DC applied, reference to input GND<br>OFF : -0.3 ~ 2VDC applied, reference to input GND |                                 |       |      |      |      |
| Output Short Circuit              |   | Current limited (Auto-Recovery) |       |      |      |      |
| Degree of Protection              |   | IP20                            |       |      |      |      |

| Approvals and Standards |  |
|-------------------------|--|
| UL / cUL                | UL 508   |
| cTUVUS                  | UL 60950-1   |
| TUV                     | EN 60950-1   |
| CE                      | EN 61000-6-3, EN 55032 Class B<br>EN 61000-6-2, EN 55024, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4<br>EN 61000-4-5, EN 61000-4-6, EN61000-4-8, ENV 50204, EN 61204-3 |
| Vibration resistance    | Meet IEC 60068-2-6 (Mounting on rail : 10-500 Hz, 2G, along X, Y, Z each Axis, 60 min for each Axis )  |
| Shock resistance        | Meet IEC 60068-2-27 (15G, 11ms, 3 Axis, 6 Faces, 3 times for each Face)  |

## Physical Characteristics

|               |  |
|---------------|--|
| Case Size     | 91mm × 53mm × 56.5mm (3.58 inches × 2.09 inches × 2.22 inches) |
| Case Material | Plastic  |
| Weight        | 180g   |

## Mechanism & Pin Configuration



Dimensions : Millimetres (Inches)

## Construction

Easy snap-on mounting onto the DIN-Rail (TS35/7.5 or TS35/15), unit sits safely and firmly on the rail; no tools required even to remove

## Installation

Ventilation / Cooling Normal convection

All sides 25mm free space For cooling recommended Connector size range

AWG24-12 (0.2mm<sup>2</sup> to 2.5mm<sup>2</sup>) flexible / solid cable

-Connector can withstand torque at maximum 6 pound-inches.

7 m/m stripping at cable end recommends. Use copper conductors only, 60/75°C

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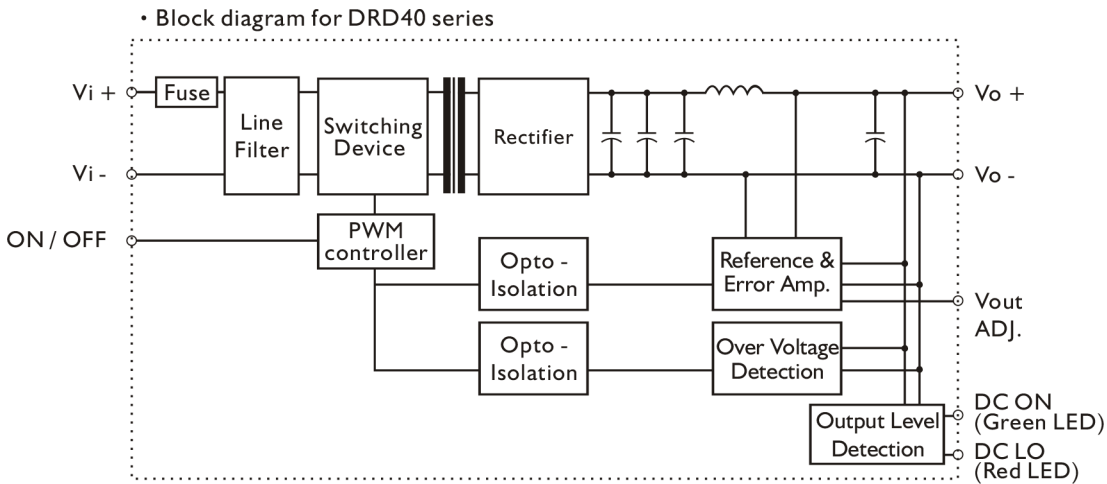
## Mechanism & Pin Configuration

| General Tolerance    |            |
|----------------------|------------|
| 0[0.00] - 30[1.18]   | ±0.3[0.01] |
| 30[1.18] - 120[4.72] | ±0.5[0.02] |

Dimensions : Millimetres (Inches)

| Pin Assignment |             |             |   |
|----------------|-------------|-------------|---|
| PIN NO.        | Designation | Description |   |
| 1, 2           | OUT         | -           | Negative output terminal                  |
| 3, 4           |             | +           | Positive output terminal                  |
| 5              | IN          | ON / OFF    | Remote ON / OFF terminal                  |
| 6              |             | +           | Positive input terminal                   |
| 7              |             | -           | Negative input terminal                   |
|                | OTHER       | Vout ADJ.   | Trimmer-potentiometer for Vout adjustment |
|                |             | DC ON       | Operation indicator LED                   |
|                |             | DC LO       | DC Low indicator LED                      |

## Circuit Schematic

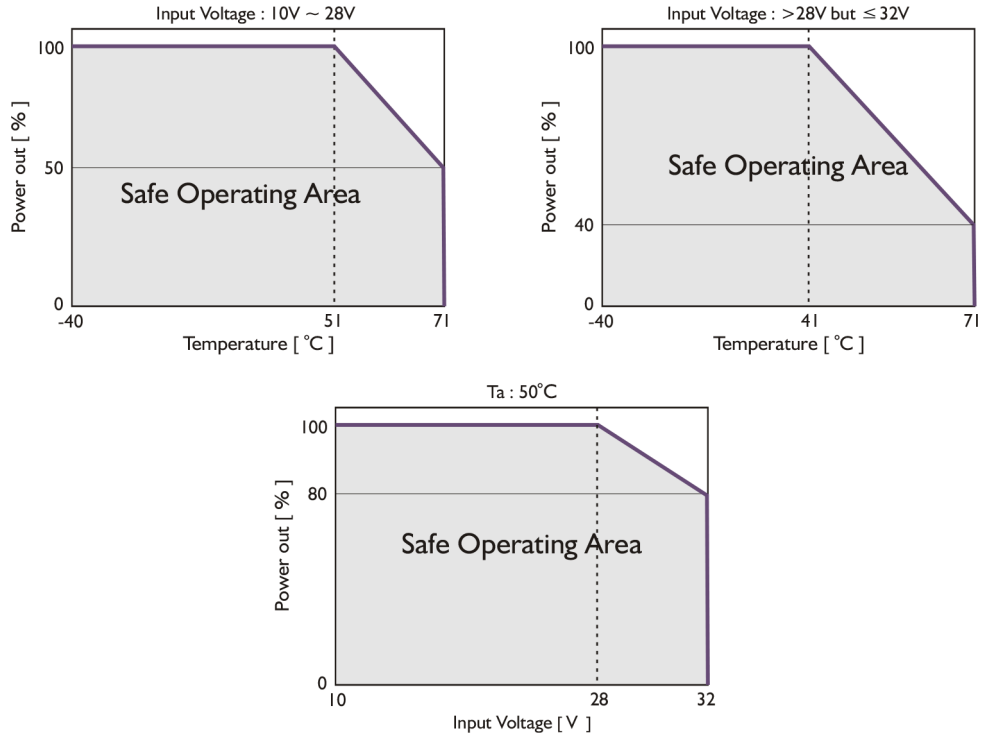


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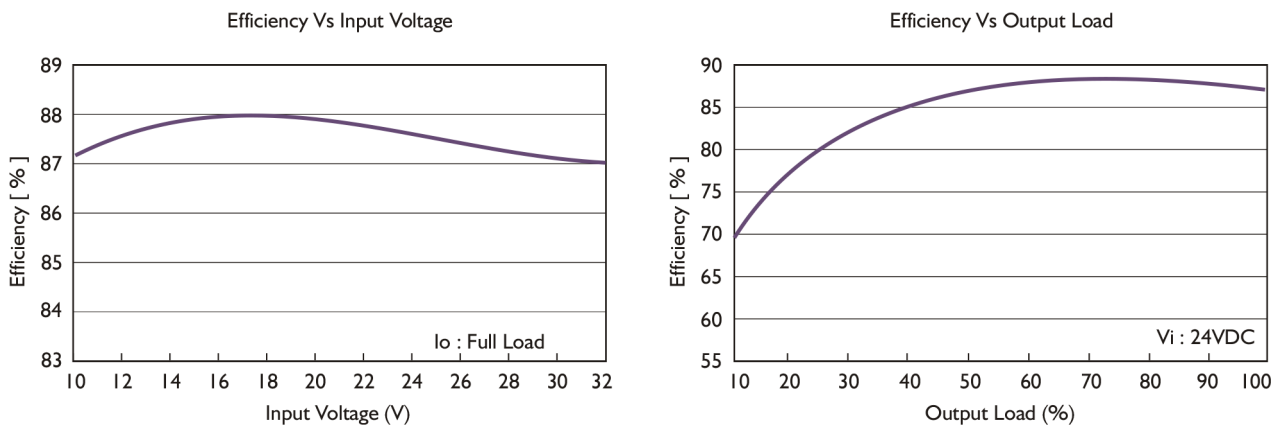
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## Derating Curve



## Derating and Efficiency Curve



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