

DRA05 SERIES



AC - DC DIN RAIL MOUNTABLE
5W CLASS 2 POWER SUPPLY
INDUSTRIAL CONTROL EQUIPMENT

FEATURES

- UL / cUL / TUV / CE
- UNIVERSAL INPUT 90~265VAC
- HIGH EFFICIENCY UP TO 72%
- SHORT CIRCUIT PROTECTION
- INTERNAL INPUT FILTER
- 2 YEARS WARRANTY

MODEL LIST

| MODEL NO. | INPUT VOLTAGE | OUTPUT WATTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | EFF. (min.) | EFF. (typ.) |
|-----------------------------|---------------|----------------|----------------|----------------|-------------|-------------|
| Single Output Models | | | | | | |
| DRA05-05 | 90~265 VAC | 5 WATTS | + 5 VDC | 1000 mA | 67% | 69% |
| DRA05-12 | 90~265 VAC | 5 WATTS | + 12 VDC | 420 mA | 70% | 72% |
| DRA05-15 | 90~265 VAC | 5 WATTS | + 15 VDC | 340 mA | 70% | 72% |
| DRA05-24 | 90~265 VAC | 5 WATTS | + 24 VDC | 210 mA | 70% | 72% |

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 | | | KHz |
| Isolation voltage | Input / Output | 3,000 | | | VAC |
| Isolation resistance | Input / Output, @ 500VDC | 100 | | | MΩ |
| Ambient temperature | Operating at Vi nom | -25 | | + 71 | °C |
| Derating | Vi nom, from +61°C to +71°C | | | 2.5 | % / °C |
| Storage temperature | Non operational | -25 | | + 85 | °C |
| Relative humidity | Vi nom, Io nom | 20 | | 95 | % RH |
| Dimension | L90 x W22.5 x D115 | | | | mm |
| Cooling | Free air convection | | | | |
| Case material | Plastic | | | | |

INPUT SPECIFICATIONS

| Characteristics | Conditions | min. | typ. | max. | unit |
|---------------------|------------------------------|-------------|------|------|------|
| Rated input voltage | Io nom | 100 | | 240 | VAC |
| Input voltage range | Ta min ... Ta max, Io nom | AC in | | 265 | VAC |
| | | DC in | 120 | | 370 |
| Line frequency | Vi nom, Io nom | 47 | | 63 | Hz |
| Inrush current | Io nom | Vi : 115VAC | | 10 | A |
| | | Vi : 230VAC | | 18 | A |

SPECIFICATION

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

OUTPUT SPECIFICATIONS

| Characteristics | Conditions | min. | typ. | max. | unit |
|---|------------------------------------|---------------------------|-------|------------|---------|
| Output voltage accuracy | V_i nom, I_o min ... I_o nom | | | ± 1 | % |
| Minimum load | V_i nom | 0 | | | % |
| Line regulation | I_o nom, V_i min ... V_i max | | | ± 1 | % |
| Load regulation | V_i nom, I_o min ... I_o nom | | | ± 2 | % |
| Transient recovery time | 50% load, step changed | | 300 | | μ S |
| Temperature coefficient | V_i nom, I_o min | | | ± 0.02 | % / °C |
| Ripple & noise | V_i nom, I_o nom, BW = 20MHz | | | 50 | mV |
| Hold up time | I_o nom | $V_i = 115VAC$ | 30 | | ms |
| | | $V_i = 230VAC$ | 130 | | ms |
| Voltage trim range | V_i nom, I_o nom | 5V ... 15V models | - 10 | + 15 | % |
| | | 24V model | - 10 | + 20 | % |
| DC ON indicator threshold at start up | V_i nom, I_o nom | 5V model | 4.5 | | VDC |
| | | 12V model | 10.8 | | VDC |
| | | 15V model | 13.5 | | VDC |
| | | 24V model | 21.6 | | VDC |
| DC LOW indicator threshold after start up | V_i nom, I_o nom | 5V model | 3.75 | 4.5 | VDC |
| | | 12V model | 9 | 10.8 | VDC |
| | | 15V model | 11.25 | 13.5 | VDC |
| | | 24V model | 18 | 21.6 | VDC |
| Efficiency | V_i nom, I_o nom, P_o / P_i | Up to 72%, See model list | | | |

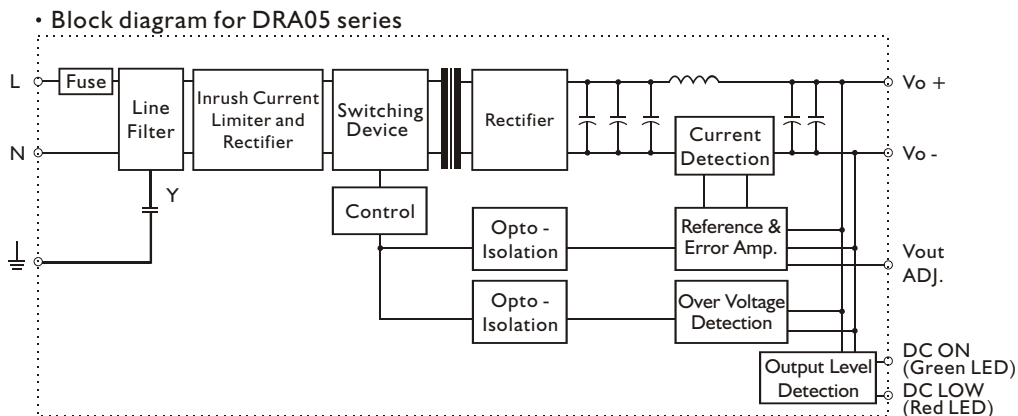
CONTROL AND PROTECTION

| Characteristics | Conditions | min. | typ. | max. | unit |
|----------------------------|----------------------|-----------------------|------|------|------|
| Input fuse | | T2A / 250VAC internal | | | |
| Rated over load protection | V_i nom | 110 | | 135 | % |
| Over voltage protection | V_i nom, I_o nom | 125 | | 145 | % |
| Output short circuit | V_i nom, I_o nom | Hiccup mode | | | |

APPROVALS AND STANDARDS

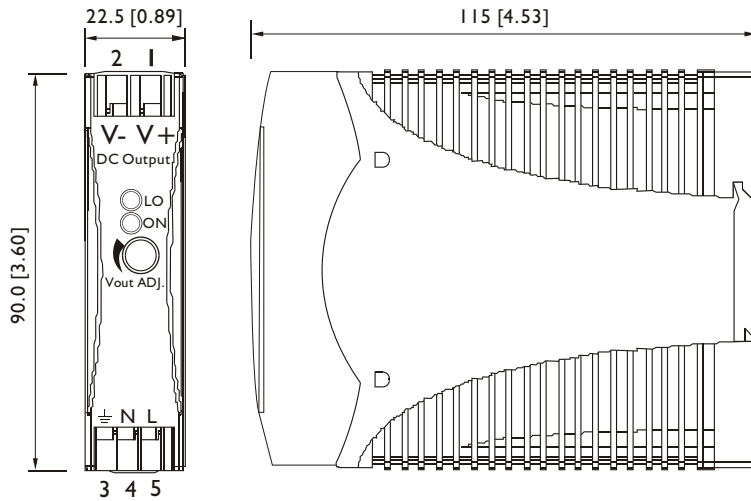
| | |
|----------|--|
| UL / cUL | UL508 Listed UL60950-1, UL1310 Class 2 Power Supply Recognized |
| TUV | EN60950-1 |
| CE | EN61000-6-3 / EN55022 Class B, EN61000-3-2, EN61000-3-3 EN61000-6-2 / EN55024 / EN61204-3 |

CIRCUIT SCHEMATIC



MECHANISM & PIN CONFIGURATION

mm [inch]



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
 Solid: 0.2-2.0mm² (AWG24-14)
 (use copper conductors only)

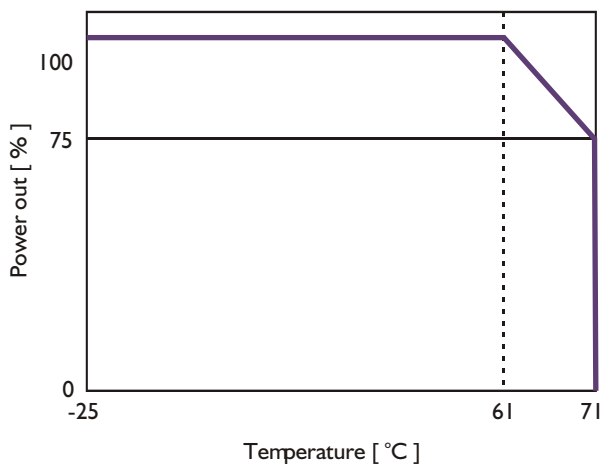
PHYSICAL CHARACTERISTICS

| | |
|---------------|---|
| CASE SIZE | 90 x 22.5 x 115 mm 3.6 x 0.89 x 4.53 inches |
| CASE MATERIAL | Plastic |
| WEIGHT | 115 g |

PIN ASSIGNMENT

| PIN NO. | Designation | Description |
|---------|-------------|--|
| 1 | V + | Positive output terminal |
| 2 | V - | Negative output terminal |
| 3 | ⊥ | Ground this terminal to minimize high-frequency emissions |
| 4 | N | Input terminals (neutral conductor, no polarity at DC input) |
| 5 | L | Input terminals (phase conductor, no polarity at DC input) |
| | ON | Operation indicator LED |
| | LO | DC LOW indicator LED |
| | Vout ADJ. | Trimmer-potentiometer for Vout adjustment |

DERATING



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| DRA05-12A | 90~265 VAC | 5 WATTS | + 12 VDC | 420 mA | 70% | 72% |
| DRA05-15A | 90~265 VAC | 5 WATTS | + 15 VDC | 340 mA | 70% | 72% |
| DRA05-24A | 90~265 VAC | 5 WATTS | + 24 VDC | 210 mA | 70% | 72% |

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|----------------------|-----------------------------|-------|------|------|--------|
| Switching frequency | Vi nom, Io nom | 100 | | | KHz |
| Isolation voltage | Input / Output | 3,000 | | | VAC |
| Isolation resistance | Input / Output, @ 500VDC | 100 | | | MΩ |
| Ambient temperature | Operating at Vi nom | -25 | | + 71 | °C |
| Derating | Vi nom, from +61°C to +71°C | | | 2.5 | % / °C |
| Storage temperature | Non operational | -25 | | + 85 | °C |
| Relative humidity | Vi nom, Io nom | 20 | | 95 | % RH |
| Dimension | L90 x W22.5 x D115 | | | | mm |
| Cooling | Free air convection | | | | |
| Case material | Plastic | | | | |

INPUT SPECIFICATIONS

| Characteristics | Conditions | min. | typ. | max. | unit |
|---------------------|------------------------------|-------------|------|------|------|
| Rated input voltage | Io nom | 100 | | 240 | VAC |
| Input voltage range | Ta min ... Ta max, Io nom | AC in | 90 | 265 | VAC |
| | | DC in | 120 | 370 | VDC |
| Line frequency | Vi nom, Io nom | 47 | | 63 | Hz |
| Inrush current | Io nom | Vi : 115VAC | | 10 | A |
| | | Vi : 230VAC | | 18 | A |

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OUTPUT SPECIFICATIONS

| Characteristics | Conditions | min. | typ. | max. | unit |
|---|----------------------------|---------------------------|-------|--------|--------|
| Output voltage accuracy | Vi nom, Io min ...Io nom | | | ± 1 | % |
| Minimum load | Vi nom | 0 | | | % |
| Line regulation | Io nom, Vi min ...Vi max | | | ± 1 | % |
| Load regulation | Vi nom, Io min ...Io nom | | | ± 2 | % |
| Transient recovery time | 50% load, step changed | | 300 | | μS |
| Temperature coefficient | Vi nom, Io min | | | ± 0.02 | % / °C |
| Ripple & noise | Vi nom, Io nom, BW = 20MHz | | | 50 | mV |
| Hold up time | Io nom | Vi = 115VAC | 30 | | ms |
| | | Vi = 230VAC | 130 | | ms |
| Voltage trim range | Vi nom, Io nom | 5V ...15V models | - 10 | + 15 | % |
| | | 24V model | - 10 | + 20 | % |
| DC ON indicator threshold at start up | Vi nom, Io nom | 5V model | 4.5 | | VDC |
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| | | 24V model | 18 | 21.6 | VDC |
| Efficiency | Vi nom, Io nom, Po / Pi | Up to 72%, See model list | | | |

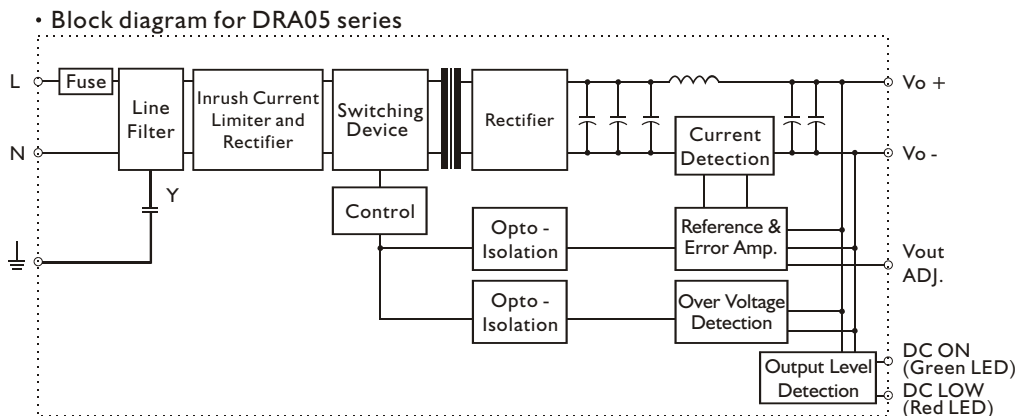
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| Rated over load protection | Vi nom | 110 | | 135 | % |
| Over voltage protection | Vi nom, Io nom | 125 | | 145 | % |
| Output short circuit | Vi nom, Io nom | Hiccup mode | | | |

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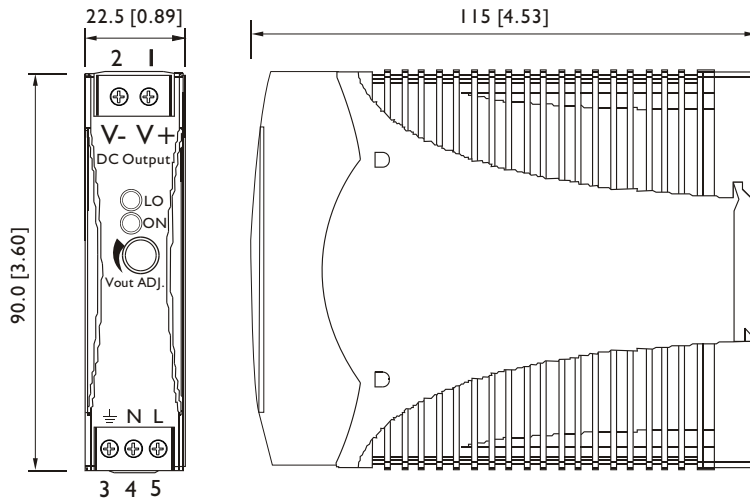
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