

AMR3 SERIES

AC - DC DIN RAIL MOUNTABLE POWER SUPPLY
INDUSTRIAL CONTROL EQUIPMENT



FEATURES

- UNIVERSAL INPUT 90~264VAC
- SHORT CIRCUIT PROTECTION
- INTERNAL INPUT FILTER
- LOW PROFILE FOR BUILDING AUTOMATION
- 3 YEARS WARRANTY



MODEL LIST

| MODEL NO. | INPUT VOLTAGE | OUTPUT WATTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | EFF. (min.) | EFF. (typ.) |
|-----------------------------|---------------|----------------|----------------|----------------|-------------|-------------|
| Single Output Models | | | | | | |
| AMR3-05 | 90~264 VAC | 22.5 WATTS | + 5 VDC | 4500 mA | 72% | 75% |
| AMR3-12 | 90~264 VAC | 33 WATTS | + 12 VDC | 2750 mA | 80% | 83% |
| AMR3-15 | 90~264 VAC | 36 WATTS | + 15 VDC | 2400 mA | 81% | 84% |
| AMR3-24 | 90~264 VAC | 36 WATTS | + 24 VDC | 1500 mA | 81% | 84% |

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 | 45 | | 65 | KHz | |
| Isolation voltage | Input-Output | 3,000/4,242 | | | VAC / VDC | |
| Isolation resistance | Input-Output, @ 500VDC | 100 | | | MΩ | |
| Ambient temperature | Operating at Vi nom | -40 | | + 71 | °C | |
| Derating (see derating curve) | Vi nom, from +56°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 | | 757,000 | Hours | |
| | | 12V | | 716,000 | Hours | |
| | | 15V | | 724,000 | Hours | |
| | | 24V | | 748,000 | Hours | |
| Altitude during operation | EN 62368-1 | | | 5,000 | m | |
| Dimension | | | L91 x W53 x D56.5 | | mm | |
| Cooling | Free air convection | | | | | |
| Installation position | Vertical (other direction may derating using) | | | | | |
| Pollution degree | | | | 2 | | |

INPUT SPECIFICATIONS

| Characteristics | Conditions | min. | typ. | max. | unit |
|---------------------------|-----------------------------|---------------|-----------|---------|------|
| Rated input voltage | Io nom | 100 | | 240 | VAC |
| Absolute input max. range | Ta min ... Ta max, Io nom | AC in | 90 | 264 | VAC |
| | | DC in | 120 | 375 | VDC |
| Input current | Vi : 115 / 230 VAC, Io nom | 5V | 480 / 310 | | mA |
| | | 12V, 15V, 24V | 680 / 410 | | mA |
| Rated input current | Vi : 90 VAC, Io nom | 5V | | 600 | mA |
| | | 12V, 15V, 24V | | 900 | mA |
| Line frequency | Vi nom, Io nom | 47 | | 63 | Hz |
| Inrush current | Vi : 115 / 230 VAC , Io nom | | | 25 / 50 | A |



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INPUT SPECIFICATIONS

| Characteristics | Conditions | min. | typ. | max. | unit |
|-------------------|----------------------|------|------|------|------|
| Power dissipation | Vi : 230 VAC, Io nom | 5V | 7.5 | | W |
| | | 12V | 7.3 | | W |
| | | 15V | 7.4 | | W |
| | | 24V | 7.1 | | W |
| Leakage current | Input-Output | | | 0.25 | mA |

OUTPUT SPECIFICATIONS

| Characteristics | Conditions | min. | typ. | max. | unit |
|---|-----------------------------------|----------|-------------------------------|--|------|
| Output voltage accuracy (Adjusted before shipment) | Vi nom, Io max | 0 | | + 1 | % |
| Minimum load | Vi nom | 0 | | | % |
| Line regulation | Io nom, Vi min ...Vi max | | | ± 1 | % |
| Load regulation | Vi nom, Io min ...Io nom | | | ± 1 | % |
| Voltage trim range | Vi nom, 0.8 Io nom | 5V | 5 | 5.5 | VDC |
| | | 12V | 12 | 14 | VDC |
| | | 15V | 13.5 | 16.5 | VDC |
| | | 24V | 24 | 28 | VDC |
| Rated continuous loading | Vi nom, | 5V | 4.5A @ 5VDC / 4A @ 5.5VDC | | |
| | | 12V | 2.75A @ 12VDC / 2.3A @ 14VDC | | |
| | | 15V | 2.4A @ 15VDC / 2.1A @ 16.5VDC | | |
| | | 24V | 1.5A @ 24VDC / 1.25A @ 28VDC | | |
| Hold up time | Vi : 115 / 230 VAC , Io nom | 20 / 100 | | | ms |
| Turn on time | Vi nom, Io nom | | | 1,000 | ms |
| | Vi nom, Io nom → with 3500 μF CAP | | | 1,500 | ms |
| Rise time | Vi nom, Io nom | | | 150 | ms |
| | Vi nom, Io nom → with 3500 μF CAP | | | 500 | ms |
| Fall time | Vi nom, Io nom | | | 150 | ms |
| Transient recovery time | Vi nom, I ~ 0.5 Io nom | | | 2 | ms |
| Ripple & noise | Vi nom, Io nom, BW = 20MHz | | | 50 | mV |
| Power back immunity | Vi nom, Io nom | 5V | 7.5 | | VDC |
| | | 12V | 18 | | VDC |
| | | 15V | 22 | | VDC |
| | | 24V | 35 | | VDC |
| Capacitor load | Vi nom, Io nom | | | 3,500 | μF |
| DC ON indicator threshold at start up (Green LED) | Vi nom, Io nom | 5V | 3.5 | 4.5 | VDC |
| | | 12V | 9 | 10.8 | VDC |
| | | 15V | 11 | 13.5 | VDC |
| | | 24V | 19.2 | 21.6 | VDC |
| DC LOW indicator threshold after start up (Red LED) | Vi nom, Io nom | 5V | 3.5 | 4.5 | VDC |
| | | 12V | 9 | 10.8 | VDC |
| | | 15V | 11 | 13.5 | VDC |
| | | 24V | 19.2 | 21.6 | VDC |
| Efficiency | Vi nom, Io nom, Po / Pi | | | Up to 84%, See model list and typ efficiency curve | |

CONTROL AND PROTECTION

| Characteristics | Conditions | min. | typ. | max. | unit |
|-----------------------------------|--|-----------------------|------|------|------|
| Input fuse | | T2A / 250VAC internal | | | |
| Internal surge voltage protection | IEC 61000-4-5 | Varistor | | | |
| Rated over load protection | Vi nom (see typ current limited curve) | 110 | | 150 | % |
| Over voltage protection | Vi nom, Io nom (Auto Recovery) | 5V | 5.75 | 6.5 | VDC |
| | | 12V | 15 | 16.5 | VDC |
| | | 15V | 18 | 20 | VDC |
| | | 24V | 30 | 33 | VDC |
| Output short circuit | | Fold forward | | | |
| Degree of protection | | IP20 | | | |

SPECIFICATION

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APPROVALS AND STANDARDS

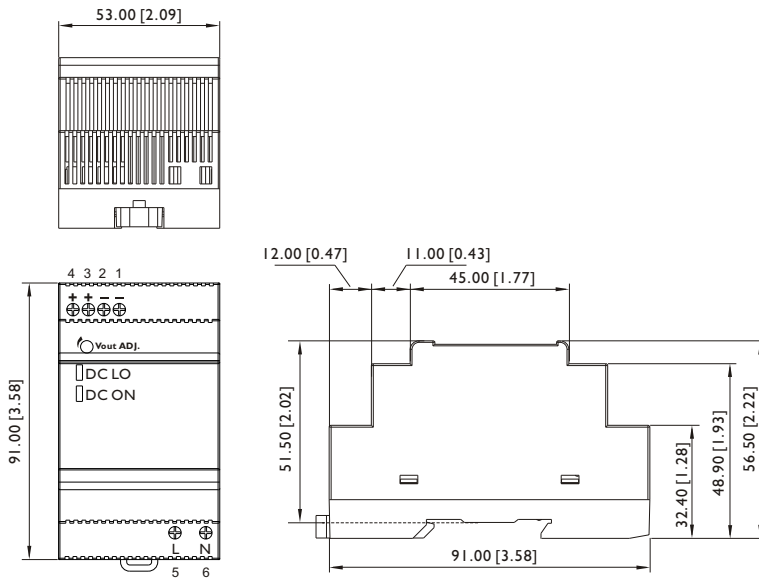
| | |
|----------------------|--|
| UL / cUL | UL 508 Listed UL 60950-1, UL 1310 Class 2 Power Recognized ISA 12.12.01 (Class I, Division 2, Groups A, B, C and D) |
| TUV | EN 62368-1 |
| cTUVus | UL 62368-1 |
| CE | EN 61000-6-3, EN 55032 Class B, EN 61000-3-2, EN 61000-3-3 EN 61000-6-2, EN 55024, EN 61000-4-2 Level 4, EN 61000-4-3 Level 3 EN 61000-4-4 Level 4, EN 61000-4-5 L-N Level 3 EN 61000-4-6 Level 3, EN 61000-4-8 Level 4, EN 61000-4-11 ENV 50204 Level 2, 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 | 91 x 53 x 56.5 mm (3.58 x 2.09 x 2.22 inches) |
| Case material | Plastic |
| Weight | 190g |
| Packing | 0.25kg ; 64 pcs / 17kg / 2.28CUFT |

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

AWG24-12 (0.2~2.5mm²) flexible / solid cable

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

7m/m stripping at cable end recommends.

Use copper conductors only, 60/75 °C

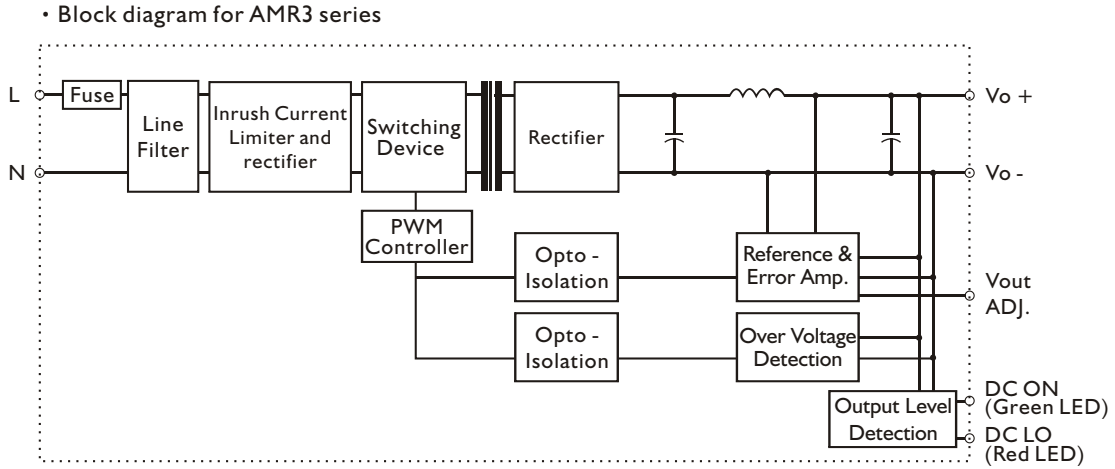
GENERAL TOLERANCE

| | |
|----------------------------|-------------|
| 0.00[0.00] - 30.00[1.18] | ±0.30[0.01] |
| 30.00[1.18] - 120.00[4.72] | ±0.50[0.02] |

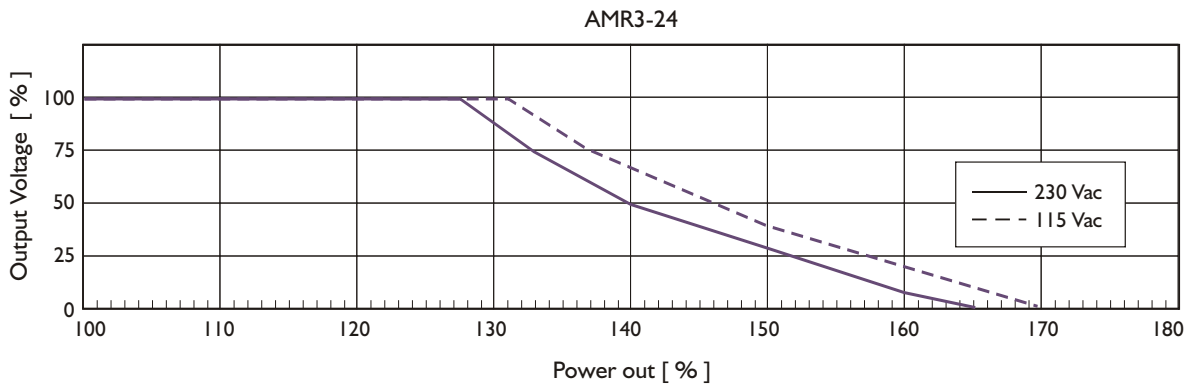
PIN ASSIGNMENT

| PIN NO. | Designation | Description |
|---------|-------------|--|
| 1, 2 | OUT | - Negative output terminal |
| 3, 4 | | + Positive output terminal |
| 5 | IN | L Input terminals (phase conductor, no polarity at DC input) |
| 6 | | N Input terminals (neutral conductor, no polarity at DC input) |
| | OTHER | Vout ADJ. Trimmer-potentiometer for Vout adjustment |
| | | DC ON Operation indicator LED |
| | | DC LO DC Low indicator LED |

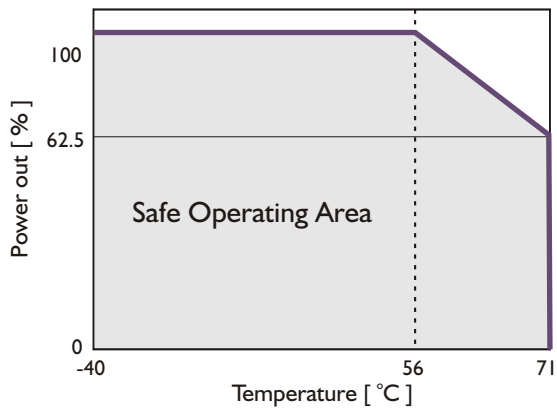
CIRCUIT SCHEMATIC



TYP. CURRENT LIMITED CURVE



DERATING CURVE



TYP. EFFICIENCY CURVE

