



UMR-AA SERIES

125 to 6000V, 4 to 30W
Standard DC/DC Modules



Features

- Biasing High Voltage Power Supplies
- Regulated Output Voltage from V_{OUT} Max to True Zero
- Wide Input Voltage Range
- Low Ripple
- Output Short Circuit Protection
- Output Voltage and Current Monitors
- Fixed-Frequency, Low-Stored-Energy Design
- UL/cUL Recognized Component; CE Mark (LVD and RoHS)

Specifications

| Conditions | | Value | | | Units |
|--|--|--|-----------|-----------|------------|
| Input | | 4W | 20W | 30W | |
| Voltage | Nominal | +12 | +24 | +24 | VDC |
| Voltage Range | Full Power | +11 to 16 | +23 to 30 | +23 to 30 | VDC |
| Voltage Range | Derated Power Range | +10 to 32 | +10 to 32 | +10 to 32 | VDC |
| Current | Standby/Disable | <80 | <80 | <80 | mA |
| Current | No Load, Max V_{OUT} | <150 | <150 | <150 | mA |
| Current | Full Load, Max V_{OUT} | <500 | <1000 | <1500 | mA |
| AC Ripple Current | Nominal Input, Full Load | <100 | <100 | <100 | mAp-p |
| Output | | | | | |
| Static Load Regulation | No Load to Full Load, Max V_{OUT} | <0.01 | | | %VDC |
| Line Regulation | Nominal Input, Max V_{OUT} , Full Power | <0.08 | | | %VDC |
| Stability | 30-minute warmup, per 8h/per day | <0.01 / <0.02 | | | %VDC |
| Programming & Controls | | | | | |
| Input Impedance | Nominal Input, Positive Models | 1.0 to Signal Ground | | | M Ω |
| | Nominal Input, Negative Models | 0.01 to V_{REF} | | | |
| Adjust Resistance | Typical Potentiometer Values | 10K to 100K (Pot Across V_{REF} and Signal Ground, Wiper to Adjust) | | | Ω |
| Adjust Logic (V_{ADJ})¹ | Positive Models | 0 to +4.64 = 0 to 100% Rated Output | | | VDC |
| | Negative Models | +5 to +0.36 = 0 to 100% Rated Output | | | |
| Reference Voltage (V_{REF}) | Temperature +25°C | +5 \pm 0.5% | | | VDC |
| Enable/Disable HV_{OUT} | - | Unconnected = Enabled Ground to +0.5 = Disabled; +2.4 to 32 = Enabled | | | VDC |
| Environmental | | | | | |
| Operating Temperature² | Case Temperature, Full Load, Max V_{OUT} | -40 to +65 | | | °C |
| Temperature Coefficient | Over the Specified Temperature | \pm 50 (\pm 25 Optional) | | | PPM/°C |
| Thermal Shock | Mil-Std-810, Method 503-4, Proc. II | -40 to +65 | | | °C |
| Storage Temperature | Non-Operating, Case Temperature | -55 to +105 | | | °C |
| Humidity | All Conditions, Standard Package | 0 to 95% Non-Condensing | | | - |
| Altitude | All Conditions, Standard Package | Sea Level through Vacuum | | | - |
| Shock | Mil-Std-810, Method 516.5, Proc IV | 20 | | | G |
| Vibration | Mil-Std-810, Method 514.5, Fig 514.5C-3 | 10 | | | G |

¹V05 or V10 Options (additional details on pg.5)

²Typically, convection cooled. Units operating at full power might require additional cooling to maintain case temperature below 65°C. Damage to the power supply may occur if not appropriately cooled during use.



UMR-AA SERIES

| Part Number ³ | Output Voltage VDC | Output Current mA | High Freq. Ripple ⁴ %Vp-p | Output Capacitance μ F | I _{MON} Scaling ⁵ mA/V | V _{MON} Scaling ⁶ V |
|--------------------------|--------------------|-------------------|--------------------------------------|----------------------------|--|---|
| 4W Models | | | | | | |
| UMR-AA-125*-4 | 0 to 125 | 32.00 | 0.029 | 1.0000 | 11.640 | 10:1 \pm 2% |
| UMR-AA-250*-4 | 0 to 250 | 16.00 | 0.010 | 1.0000 | 3.270 | 10:1 \pm 2% |
| UMR-AA-500*-4 | 0 to 500 | 8.00 | 0.007 | 0.0500 | 0.790 | 10:1 \pm 2% |
| UMR-AA-1000*-4 | 0 to 1000 | 4.00 | 0.028 | 0.0100 | 0.370 | 100:1 \pm 2% |
| UMR-AA-2000*-4 | 0 to 2000 | 2.00 | 0.015 | 0.0050 | 0.192 | 100:1 \pm 2% |
| UMR-AA-4000*-4 | 0 to 4000 | 1.00 | 0.015 | 0.0050 | 0.090 | 100:1 \pm 2% |
| UMR-AA-6000*-4 | 0 to 6000 | 0.67 | 0.021 | 0.0033 | 0.066 | 100:1 \pm 2% |
| 20W Models | | | | | | |
| UMR-AA-125*-20 | 0 to 125 | 160.0 | 0.040 | 8.9000 | 258.000 | 10:1 \pm 2% |
| UMR-AA-250*-20 | 0 to 250 | 80.0 | 0.021 | 1.0000 | 72.700 | 10:1 \pm 2% |
| UMR-AA-500*-20 | 0 to 500 | 40.0 | 0.019 | 1.0000 | 17.650 | 10:1 \pm 2% |
| UMR-AA-1000*-20 | 0 to 1000 | 20.0 | 0.048 | 0.0500 | 4.620 | 100:1 \pm 2% |
| UMR-AA-2000*-20 | 0 to 2000 | 10.0 | 0.026 | 0.0100 | 1.520 | 100:1 \pm 2% |
| UMR-AA-4000*-20 | 0 to 4000 | 5.0 | 0.030 | 0.0050 | 0.760 | 100:1 \pm 2% |
| UMR-AA-6000*-20 | 0 to 6000 | 3.3 | 0.039 | 0.0033 | 0.500 | 100:1 \pm 2% |
| 30W Models | | | | | | |
| UMR-AA-125*-30 | 0 to 125 | 240.0 | 0.040 | 8.9000 | 258.000 | 10:1 \pm 2% |
| UMR-AA-250*-30 | 0 to 250 | 120.0 | 0.033 | 1.0000 | 72.700 | 10:1 \pm 2% |
| UMR-AA-500*-30 | 0 to 500 | 60.0 | 0.020 | 1.0000 | 17.650 | 10:1 \pm 2% |
| UMR-AA-1000*-30 | 0 to 1000 | 30.0 | 0.048 | 0.0500 | 4.620 | 100:1 \pm 2% |
| UMR-AA-2000*-30 | 0 to 2000 | 15.0 | 0.036 | 0.0100 | 1.520 | 100:1 \pm 2% |
| UMR-AA-4000*-30 | 0 to 4000 | 7.5 | 0.036 | 0.0050 | 0.760 | 100:1 \pm 2% |
| UMR-AA-6000*-30 | 0 to 6000 | 5.0 | 0.045 | 0.0033 | 0.500 | 100:1 \pm 2% |

³For "*", substitute "P" for positive output or "N" for negative output

⁴1Hz to 1MHz

⁵Full Scale Signal

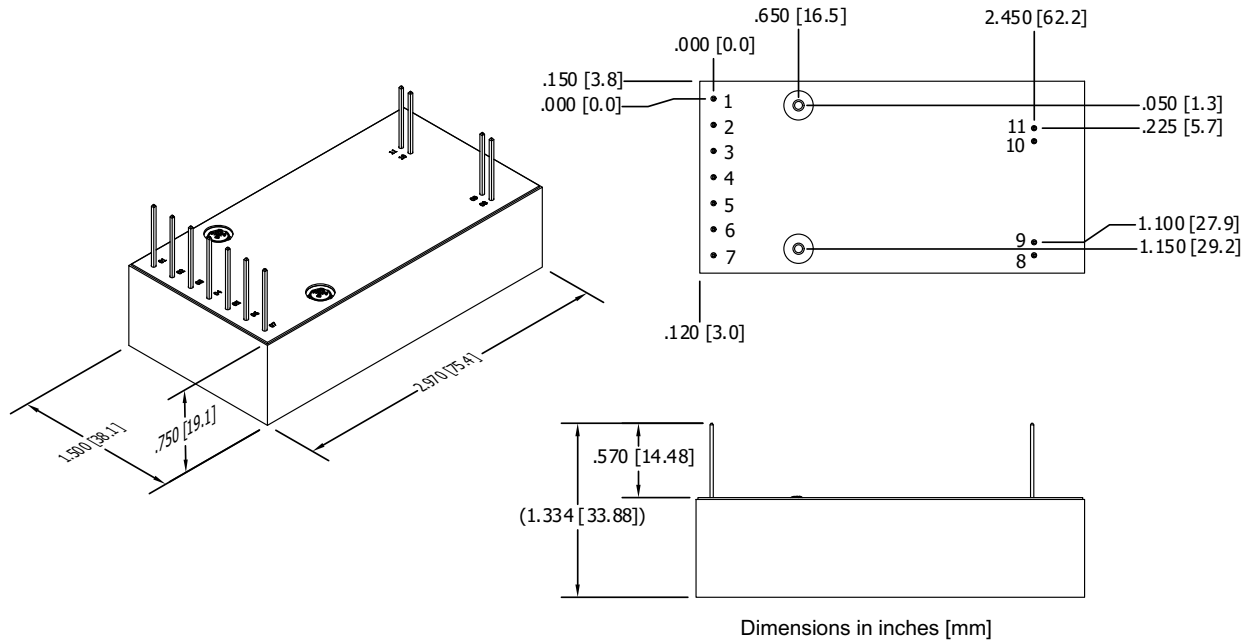
⁶Into 10M Ω Meter for Models with Y05 Option and F Option.

Options

| Append to Part # | Option Description | Not Compatible With |
|------------------|--|---------------------|
| -V05 | Enhanced Controls and Monitors, 0 to +5VDC | V10 |
| -V10 | Enhanced Controls and Monitors, 0 to +10VDC | V05, 4W models |
| -H | Aluminum Heat Sink | E |
| -T | \pm 25PPM/ $^{\circ}$ C Temperature Coefficient ⁷ | - |
| -M | Mu-Metal Shielding Over Case | - |
| -E | Eared Mounting Plate | H |

⁷Operating Temperature is +10 to +45 $^{\circ}$ C.

Mechanical Drawings and Pin Assignments



| Mechanical Specifications | |
|---------------------------|---|
| Volume | 3.35in ³ [54.8cm ³] |
| Weight | 4.0oz [114g] |
| Case | DAP case certified to ASTM-D-5948 |
| Pins | Pins 1-7 0.200in Spacing Pins 8-9, 10-11 0.100in Spacing |

| Tolerances | |
|-------------------|-------------------|
| Overall | 0.050in [±1.27mm] |
| Pin to Pin | 0.015in [±0.38mm] |
| Mounting | 0.025in [±0.64mm] |

| Pin Assignments & Connections | | |
|-------------------------------|---------------------|----------------------------|
| Pin 1 | PWRGND ⁸ | Input Power Ground Return |
| Pin 2 | +VIN | Positive Power Input |
| Pin 3 | IMON ⁸ | Output Current Monitor |
| Pin 4 | ENABLE | Enable/Disable |
| Pin 5 | SIGGND | Signal Ground Return |
| Pin 6 | VADJ ⁸ | Voltage Adjust |
| Pin 7 | VREF | Voltage Reference |
| Pin 8 | HVRTN | High Voltage Ground Return |
| Pin 9 | VMON | Output Voltage Monitor |
| Pin 10, 11 | HVOUT | High Voltage Output |

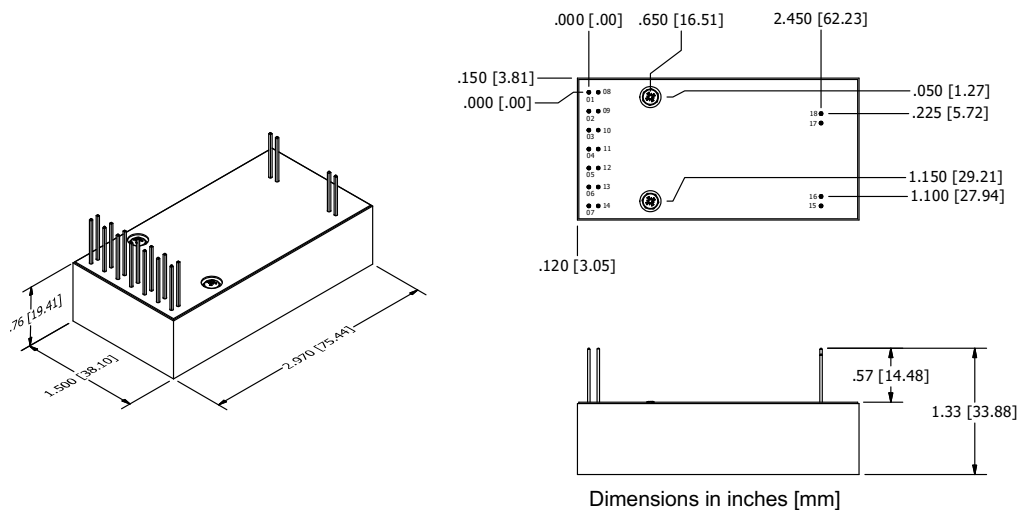
⁸PWRGND may be labelled -VIN, IMON as IOUT, and VADJ as RMTADJ on some models.

Certifications and Compliances



V05 and V10 Options

| Conditions | | Value | Units |
|---|-----------------------------|--|-------|
| Output | | | |
| Current Scaling (I_{MON}) | V05 Option, Buffered Signal | 0 to +5 = 0 to 100% Rated Output | VDC |
| | V10 Option, Buffered Signal | 0 to +10 = 0 to 100% Rated Output | |
| Voltage Scaling (V_{MON}) | V05 Option, Buffered Signal | 0 to +5 = 0 to 100% Rated Output | VDC |
| | V10 Option, Buffered Signal | 0 to +10 = 0 to 100% Rated Output | |
| Programming & Controls | | | |
| Adjust Logic (I_{ADJ} & V_{ADJ}) | V05 Option | 0 to +5 = 0 to 100% Rated Output | VDC |
| | V10 Option | 0 to +10 = 0 to 100% Rated Output | |
| Reference Voltage (V_{REF}) | V05 Option | +5 \pm 0.5%, 10mA Source | VDC |
| | V10 Option | +10 \pm 0.5%, 30mA Source | |
| Enable/Disable HV_{OUT} | - | Unconnected = Disabled; Ground to +0.5 = Disabled; +2.4 to 32 = Enabled | VDC |
| Mode Indicator | IMODE | Open Drain, Pulled Low When Active, 0 to 60V and 100mA Max | - |
| | VMODE | Open Drain, Pulled Low When Active, 0 to 60V and 100mA Max | |



| Mechanical Specifications | |
|---------------------------|--|
| Volume | 3.35in ³ [54.8cm ³] |
| Weight | 4.0oz [114g] |
| Case | DAP case certified to ASTM-D-5948 |
| Pins | Pins 1-7, 8-14 0.200in Spacing |
| | Pins 15-16, 17-18 0.100in Spacing |

| Tolerances | |
|-------------------|-------------------------|
| Overall | 0.050in [\pm 1.27mm] |
| Pin to Pin | 0.015in [\pm 0.38mm] |
| Mounting | 0.025in [\pm 0.64mm] |

| Pin Assignments & Connections | | |
|-------------------------------|---------------------|----------------------------|
| Pin 1, 8 | PWRGND ⁹ | Input Power Ground Return |
| Pin 2, 9 | +VIN | Positive Power Input |
| Pin 3 | IMON | Output Current Monitor |
| Pin 4 | ENABLE | Enable/Disable |
| Pin 5 | SIGGND | Signal Ground Return |
| Pin 6 | VADJ | Voltage Adjust |
| Pin 7 | VREF | Voltage Reference |
| Pin 10 | N/C | N/C |
| Pin 11 | IMODE | Current Mode Indicator |
| Pin 12 | VMODE | Voltage Mode Indicator |
| Pin 13 | IADJ | Current Adjust |
| Pin 14 | VMON | Output Voltage Monitor |
| Pin 15, 16 | HVRTN | High Voltage Ground Return |
| Pin 17, 18 | HVOUT | High Voltage Output |

⁹PWRGND may be labelled -VIN on some models.