



# 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		
<b>Voltage</b>	Nominal	+12	+24	+24		VDC
<b>Voltage Range</b>	Full Power	+11 to 16	+23 to 30	+23 to 30		VDC
<b>Voltage Range</b>	Derated Power Range	+10 to 32	+10 to 32	+10 to 32		VDC
<b>Current</b>	Standby/Disable	<80	<80	<80		mA
<b>Current</b>	No Load, Max $V_{OUT}$	<150	<150	<150		mA
<b>Current</b>	Full Load, Max $V_{OUT}$	<500	<1000	<1500		mA
<b>AC Ripple Current</b>	Nominal Input, Full Load	<100	<100	<100		mAp-p
<b>Output</b>						
<b>Static Load Regulation</b>	No Load to Full Load, Max $V_{OUT}$		<0.01			%VDC
<b>Line Regulation</b>	Nominal Input, Max $V_{OUT}$ , Full Power		<0.08			%VDC
<b>Stability</b>	30-minute warmup, per 8h/per day		<0.01 / <0.02			%VDC
<b>Programming &amp; Controls</b>						
<b>Input Impedance</b>	Nominal Input, Positive Models	1.0 to Signal Ground			M $\Omega$	
	Nominal Input, Negative Models	0.01 to $V_{REF}$				
<b>Adjust Resistance</b>	Typical Potentiometer Values	10K to 100K (Pot Across $V_{REF}$ and Signal Ground, Wiper to Adjust)			$\Omega$	
<b>Adjust Logic (<math>V_{ADJ}</math>)<sup>1</sup></b>	Positive Models	0 to +4.64 = 0 to 100% Rated Output			VDC	
	Negative Models	+5 to +0.36 = 0 to 100% Rated Output				
<b>Reference Voltage (<math>V_{REF}</math>)</b>	Temperature +25°C	+5 $\pm$ 0.5%			VDC	
<b>Enable/Disable <math>HV_{OUT}</math></b>	-	Unconnected = Enabled Ground to +0.5 = Disabled; +2.4 to 32 = Enabled			VDC	
<b>Environmental</b>						
<b>Operating Temperature<sup>2</sup></b>	Case Temperature, Full Load, Max $V_{OUT}$	-40 to +65			$^{\circ}$ C	
<b>Temperature Coefficient</b>	Over the Specified Temperature	$\pm$ 50 ( $\pm$ 25 Optional)			PPM/ $^{\circ}$ C	
<b>Thermal Shock</b>	Mil-Std-810, Method 503-4, Proc. II	-40 to +65			$^{\circ}$ C	
<b>Storage Temperature</b>	Non-Operating, Case Temperature	-55 to +105			$^{\circ}$ C	
<b>Humidity</b>	All Conditions, Standard Package	0 to 95% Non-Condensing			-	
<b>Altitude</b>	All Conditions, Standard Package	Sea Level through Vacuum			-	
<b>Shock</b>	Mil-Std-810, Method 516.5, Proc IV	20			G	
<b>Vibration</b>	Mil-Std-810, Method 514.5, Fig 514.5C-3	10			G	

<sup>1</sup>V05 or V10 Options (additional details on pg.4)

<sup>2</sup>Typically, 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 <sup>3</sup>	Output Voltage VDC	Output Current mA	High Frequency Ripple <sup>4</sup> %Vp-p	Output Capacitance $\mu$ F	I <sub>MON</sub> Scaling <sup>5</sup> mA/V	V <sub>MON</sub> Scaling <sup>6</sup> V
<b>4W Models</b>						
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%
<b>20W Models</b>						
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%
<b>30W Models</b>						
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%

<sup>3</sup>For “-”, substitute “P” for positive output or “N” for negative output

<sup>4</sup>1Hz to 1MHz

<sup>5</sup>Full Scale Signal

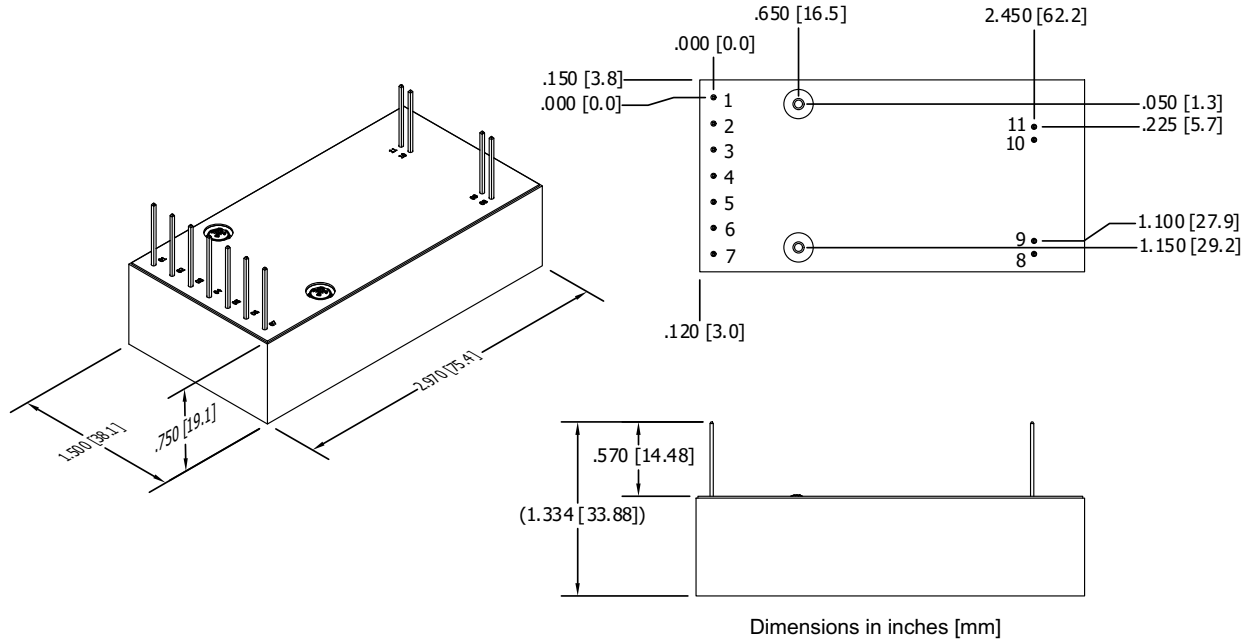
<sup>6</sup>Into 10M $\Omega$  Meter for Models with Y05 Option and F Option.

## 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 <sup>7</sup>	-
-M	Mu-Metal Shielding Over Case	-
-E	Eared Mounting Plate	H

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

**Mechanical Drawings and Pin Assignments**



Mechanical Specifications		
<b>Volume</b>	3.35in <sup>3</sup> [54.8cm <sup>3</sup> ]	
<b>Weight</b>	4.0oz [114g]	
<b>Case</b>	DAP case certified to ASTM-D-5948	
<b>Pins</b>	<i>Size</i>	0.025" [0.635mm] square
	<i>Spacing</i>	Pins 1-7      0.200in Pins 8-9, 10-11    0.100in

Tolerances	
<b>Overall</b>	0.050in [±1.27mm]
<b>Pin to Pin</b>	0.015in [±0.38mm]
<b>Mounting</b>	0.025in [±0.64mm]

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

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

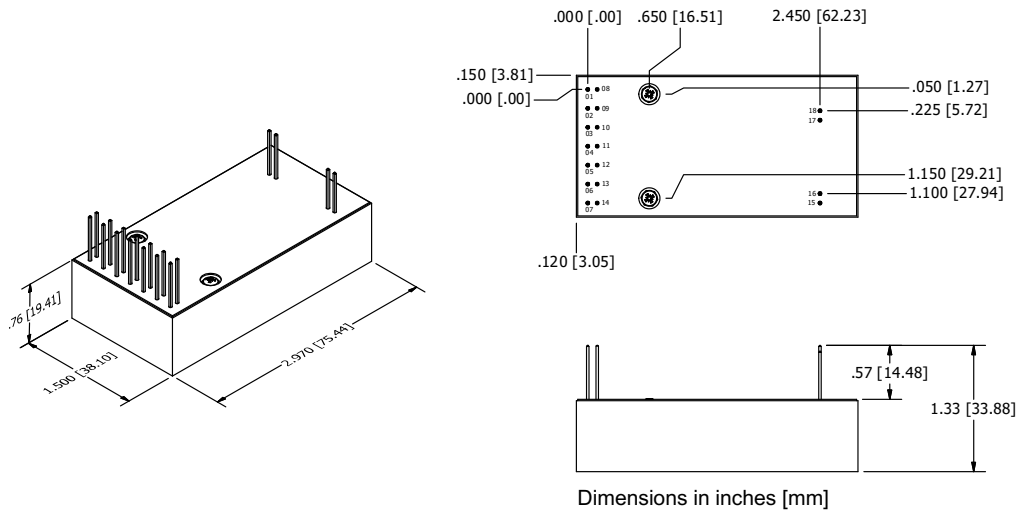
**Certifications and Compliances**





## V05 and V10 Options

Conditions		Value	Units
<b>Output</b>			
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	
<b>Programming &amp; Controls</b>			
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 <sup>3</sup> [54.8cm <sup>3</sup> ]
Weight	4.0oz [114g]
Case	DAP case certified to ASTM-D-5948
Pins	Size 0.025" [0.635mm] square
	Spacing Pins 1-7, 8-14 0.200in Pins 15-16, 17-18 0.100in

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 <sup>9</sup>	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

<sup>9</sup>PWRGND may be labelled -VIN on some models.