



UMR-AA Series

125 – 6,000 Volts, 4 – 30 Watt
DC / DC High Voltage Power Supply

FEATURES

- 4, 20, or 30 Watts of Output Power
- Regulated Output Voltage from V_{OUT} Max to True 0
- Wide Input Voltage Range
- Low Ripple
- Indefinite Output Short Circuit Protection
- Output Current and Voltage Monitors
- Fixed-Frequency, Low-Stored-Energy Design
- UL / cUL Recognized Component; CE Mark (LVD and RoHS)



The UMR-AA Series are standard DC / DC high voltage power supplies designed to give industry leading performance and value. They offer all of the standard and optional features expected from this type of supply including external current and voltage monitoring with regulated output, in a form factor designed to be a drop-in replacement for existing designs.

SPECIFICATIONS

		Conditions	Value			Units
Input			4 W	20 W	30 W	
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 Vout		< 150	< 150	< 150	mA
Current	Max Load, Max Vout		< 500	< 1000	< 1500	mA
AC Ripple Current	Nominal Input, Full Load		< 100	< 100	< 100	mA PP
Output						
Static Load Regulation	No Load to Full Load, Max Vout		< 0.01			% VDC
Line Regulation	Nom. Input, Max Vout, Full Power		< 0.08			% VDC
Stability	30 min. warmup, per 8 hr / per day		< 0.01 / < 0.02			% VDC
Programming & Controls						
Input Impedance	Nominal Input		Positive Output Models 1.5 MΩ to SIGGND Negative Output Models 1.1 MΩ to VREF			MΩ
Adjust Reference	Typical Potentiometer Value		10K to 100K (Pot Across VREF & SIGGND, Wiper to Adjust)			Ω
Adjust Logic¹ (VADJ)	Positive Models		+0 VDC to +4.64 VDC = 0 to 100% HVOUT			VDC
	Negative Models		+5 VDC to +0.36 VDC = 0 to 100% HVOUT			VDC
Reference Voltage¹ (VREF)	T = +25°C		+5.00 VDC ±0.5%			VDC
Enable/Disable HVOUT¹			Unconnected = Enabled; GND to +0.5 = Disabled; +2.4 to 32 = Enabled			VDC
Environmental						
Operating Temp.	Case Temperature, Full Load, Max Vout		-40 to +65			°C
Temp. Coefficient	Over the Specified Temperature		±50 (±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
Operational 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

Note: 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.

¹ For Options V05/V10 See pg.4

MODELS*

Model Number	Output V	Output Current	High Freq. ² Ripple	Output Capacitance	IMON Scaling ³	VMON Scaling ⁴
4 W Models						
UMR-AA-125*-4	0 to 125 V	32 mA	0.029%	1 µF	11.64 mA/V	10:1 ±2%
UMR-AA-250*-4	0 to 250 V	16 mA	0.010%	1 µF	3.27 mA/V	10:1 ±2%
UMR-AA-500*-4	0 to 500 V	8 mA	0.007%	0.050 µF	0.79 mA/V	10:1 ±2%
UMR-AA-1000*-4	0 to 1000 V	4 mA	0.028%	0.010 µF	0.37 mA/V	100:1 ±2%
UMR-AA-2000*-4	0 to 2000 V	2 mA	0.015%	0.005 µF	0.192 mA/V	100:1 ±2%
UMR-AA-4000*-4	0 to 4000 V	1 mA	0.015%	0.005 µF	0.09 mA/V	100:1 ±2%
UMR-AA-6000*-4	0 to 6000 V	.67 mA	0.021%	0.0033 µF	0.066 mA/V	100:1 ±2%
20 W Models						
UMR-AA-125*-20	0 to 125 V	160 mA	0.040%	8.9 µF	258.0 mA/V	10:1 ±2%
UMR-AA-250*-20	0 to 250 V	80 mA	0.021%	1 µF	72.7 mA/V	10:1 ±2%
UMR-AA-500*-20	0 to 500 V	40 mA	0.019%	1 µF	17.65 mA/V	10:1 ±2%
UMR-AA-1000*-20	0 to 1000 V	20 mA	0.048%	0.050 µF	4.62 mA/V	100:1 ±2%
UMR-AA-2000*-20	0 to 2000 V	10 mA	0.026%	0.010 µF	1.52 mA/V	100:1 ±2%
UMR-AA-4000*-20	0 to 4000 V	5 mA	0.030%	0.005 µF	0.76 mA/V	100:1 ±2%
UMR-AA-6000*-20	0 to 6000 V	3.3 mA	0.039%	0.0033 µF	0.50 mA/V	100:1 ±2%
30 W Models						
UMR-AA-125*-30	0 to 125 V	240 mA	0.040%	8.9 µF	258.0 mA/V	10:1 ±2%
UMR-AA-250*-30	0 to 250 V	120 mA	0.033%	1 µF	72.7 mA/V	10:1 ±2%
UMR-AA-500*-30	0 to 500 V	60 mA	0.020%	1 µF	17.65 mA/V	10:1 ±2%
UMR-AA-1000*-30	0 to 1000 V	30 mA	0.048%	0.050 µF	4.62 mA/V	100:1 ±2%
UMR-AA-2000*-30	0 to 2000 V	15 mA	0.036%	0.010 µF	1.52 mA/V	100:1 ±2%
UMR-AA-4000*-30	0 to 4000 V	7.5 mA	0.036%	0.005 µF	0.76 mA/V	100:1 ±2%
UMR-AA-6000*-30	0 to 6000 V	5 mA	0.045%	0.0033 µF	0.50 mA/V	100:1 ±2%

* Refer to OPTIONS table for available options

- Substitute P or N for positive or negative output

² % Vp-p 1 Hz to 1 MHz

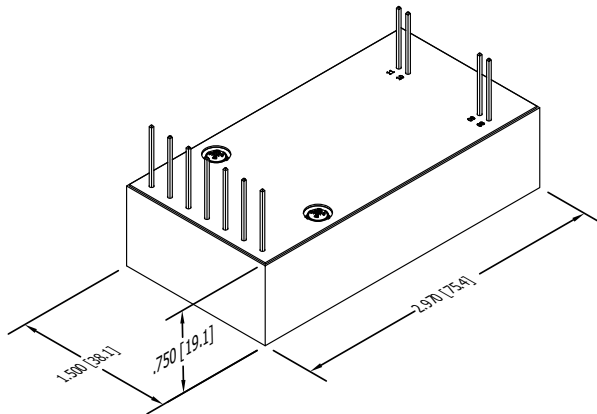
³ Full Scale Signal, for Options V05/V10 see pg.4

⁴ Into 10 Megaohm Meter for Option -Y05 models, for Options V05/V10 see pg.4

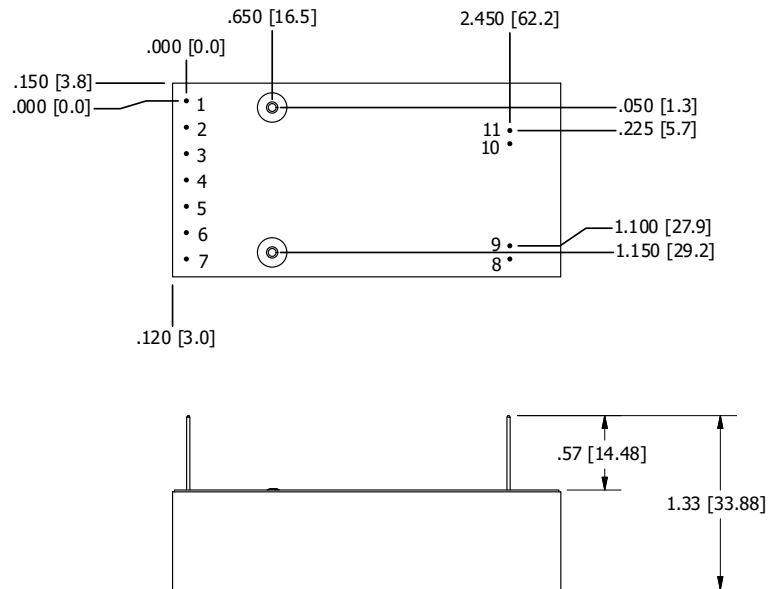
OPTIONS

Append to Part #	Option	Incompatible With
-V05	Added control, 0 to 5 VDC (additional details on pg 4)	-V10
-V10	Added control, 0 to 10 VDC (additional details on pg 4)	-V05, 4W
-T	25 PPM Temperature Coefficient (Operating Temp. +10 to +45 °C)	
-M	Mu-Metal Shielding Over Case	
-E	Eared Mounting Plate	-H
-H	Heatsink	-E

MECHANICAL, DIMENSIONS & PIN DEFINITIONS



Dimensions are in Inches [mm]



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

Tolerances	
Overall	0.050" [±1.27 mm]
Pin to Pin	0.015" [±0.38 mm]
Mounting	0.025" [±0.64 mm]

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

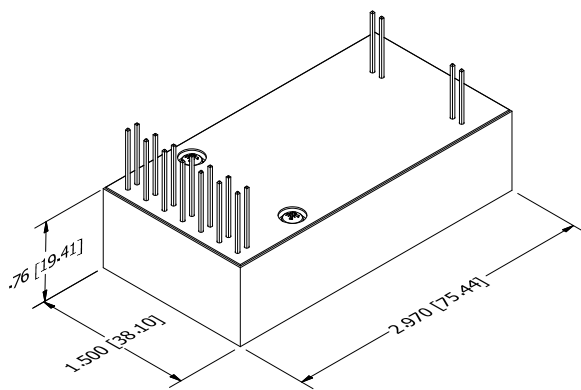
⁵ Some products may have IMON labeled as IOUT, VADJ labeled as RMTADJ

CERTIFICATIONS

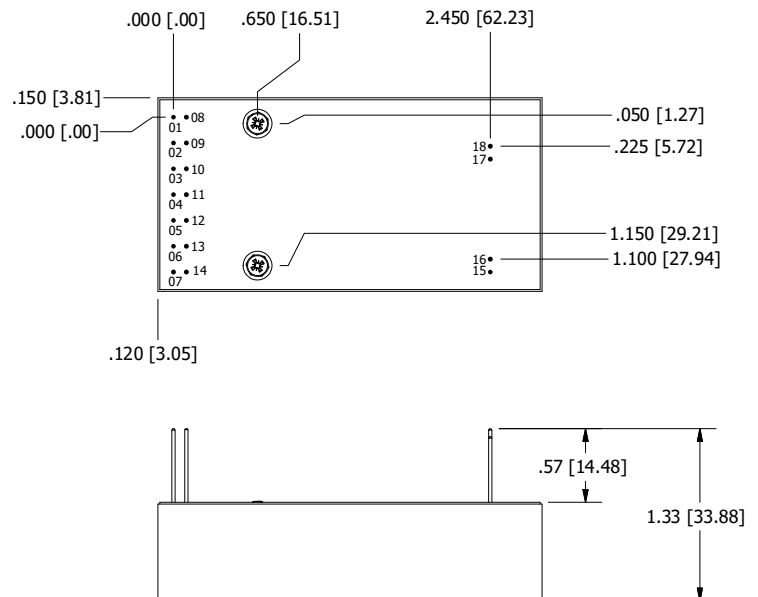


OPTION V05/V10

	Conditions	Value	Units
Output			
Current Scaling (IMON)	Option V05, Buffered Signal	+0 VDC to +5 VDC = 0 to 100% HVOUT	VDC
	Option V10, Buffered Signal	+0 VDC to +10 VDC = 0 to 100% HVOUT	VDC
Voltage Scaling (VMON)	Option V05, Buffered Signal	+0 VDC to +5 VDC = 0 to 100% HVOUT	VDC
	Option V10, Buffered Signal	+0 VDC to +10 VDC = 0 to 100% HVOUT	VDC
Programming & Controls			
Adjust Logic (IADJ, VADJ)	Option V05	+0 VDC to +5 VDC = 0 to 100% HVOUT	VDC
	Option V10	+0 VDC to +10 VDC = 0 to 100% HVOUT	VDC
Reference Voltage (VREF)	Option V05	+5.00 VDC \pm 0.5%, 10mA Source	VDC
	Option V10	+10.00 VDC \pm 0.5%, 30mA Source	VDC
Enable/Disable HVOUT		Unconnected = Disabled; GND, < +0.5 = Disabled; +2.4 to 32 = Enabled	VDC
Mode Indicator	IMODE	Open Drain, Pulled Low When Active, 0 to 60V & 100mA Max	-
	VMODE	Open Drain, Pulled Low When Active, 0 to 60V & 100mA Max	-



Dimensions are in Inches [mm]



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

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

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