



HVPSI

UMR-A 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-A 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
		4 W	20 W	30 W	
Input					
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 M Ω to SIGGND			M Ω
		Negative Output Models 1.1 M Ω to VREF			M Ω
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% Rated Output			VDC
	Negative Models	+5 VDC to +0.36 VDC = 0 to 100% Rated Output			VDC
Reference Voltage¹ (VREF)	T = +25°C	+5.00 VDC \pm 0.5%			
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	\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
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 Options V05 or V10 (additional details on pg.4)

MODELS*

Model Number	Output Voltage	Output Current	High Freq. Ripple ²		Output Capacitance		IMON Scaling ^{3,1}	VMON Scaling ^{4,1}
			Base	Option F ⁵	Base	Option F ⁵		
4 W Models								
UMR-A-125*-4	0 to 125V	32mA	0.029%	0.003%	1µF	1.3 µF	438 mA/V	10:1 ±2%
UMR-A-250*-4	0 to 250V	16mA	0.010%	0.003%	1µF	1.3 µF	213 mA/V	10:1 ±2%
UMR-A-500*-4	0 to 500V	8mA	0.007%	0.001%	0.050µF	0.08 µF	123 mA/V	10:1 ±2%
UMR-A-1000*-4	0 to 1000V	4mA	0.028%	0.0015%	0.010µF	0.030 µF	56 mA/V	100:1 ±2%
UMR-A-2000*-4	0 to 2000V	2mA	0.015%	0.003%	0.005µF	0.030 µF	32 mA/V	100:1 ±2%
UMR-A-4000*-4	0 to 4000V	1mA	0.015%	0.002%	0.005µF	0.015 µF	17 mA/V	100:1 ±2%
UMR-A-6000*-4	0 to 6000V	.67mA	0.021%	0.0025%	0.0033µF	0.010 µF	13 mA/V	100:1 ±2%
20 W Models								
UMR-A-125*-20	0 to 125V	160mA	0.040%	0.005%	8.9µF	9.2 µF	1900 mA/V	10:1 ±2%
UMR-A-250*-20	0 to 250V	80mA	0.021%	0.0030%	1µF	1.3 µF	1000 mA/V	10:1 ±2%
UMR-A-500*-20	0 to 500V	40mA	0.019%	0.001%	1µF	1.3 µF	506 mA/V	10:1 ±2%
UMR-A-1000*-20	0 to 1000V	20mA	0.048%	0.0015%	0.050µF	0.080 µF	244 mA/V	100:1 ±2%
UMR-A-2000*-20	0 to 2000V	10mA	0.026%	0.003%	0.010µF	0.030 µF	130 mA/V	100:1 ±2%
UMR-A-4000*-20	0 to 4000V	5mA	0.030%	0.002%	0.005µF	0.015 µF	67 mA/V	100:1 ±2%
UMR-A-6000*-20	0 to 6000V	3.3mA	0.039%	0.0025%	0.0033µF	0.010 µF	49 mA/V	100:1 ±2%
30 W Models								
UMR-A-125*-30	0 to 125V	240mA	0.040%	0.005%	8.9µF	9.2 µF	2900 mA/V	10:1 ±2%
UMR-A-250*-30	0 to 250V	120mA	0.033%	0.0035%	1µF	1.3 µF	1400 mA/V	10:1 ±2%
UMR-A-500*-30	0 to 500V	60mA	0.020%	0.001%	1µF	1.3 µF	740 mA/V	10:1 ±2%
UMR-A-1000*-30	0 to 1000V	30mA	0.048%	0.0015%	0.050µF	0.080 µF	400 mA/V	100:1 ±2%
UMR-A-2000*-30	0 to 2000V	15mA	0.036%	0.003%	0.010µF	0.030 µF	212 mA/V	100:1 ±2%
UMR-A-4000*-30	0 to 4000V	7.5mA	0.036%	0.002%	0.005µF	0.015 µF	86 mA/V	100:1 ±2%
UMR-A-6000*-30	0 to 6000V	5mA	0.045%	0.0025%	0.0033µF	0.010 µF	57 mA/V	100:1 ±2%

* Refer to OPTIONS table for available options

• Substitute P or N for positive or negative output.

¹ Options V05 or V10 (additional details on pg.4)

² % Vp-p 1 Hz to 1 MHz

³ Full Scale Signal

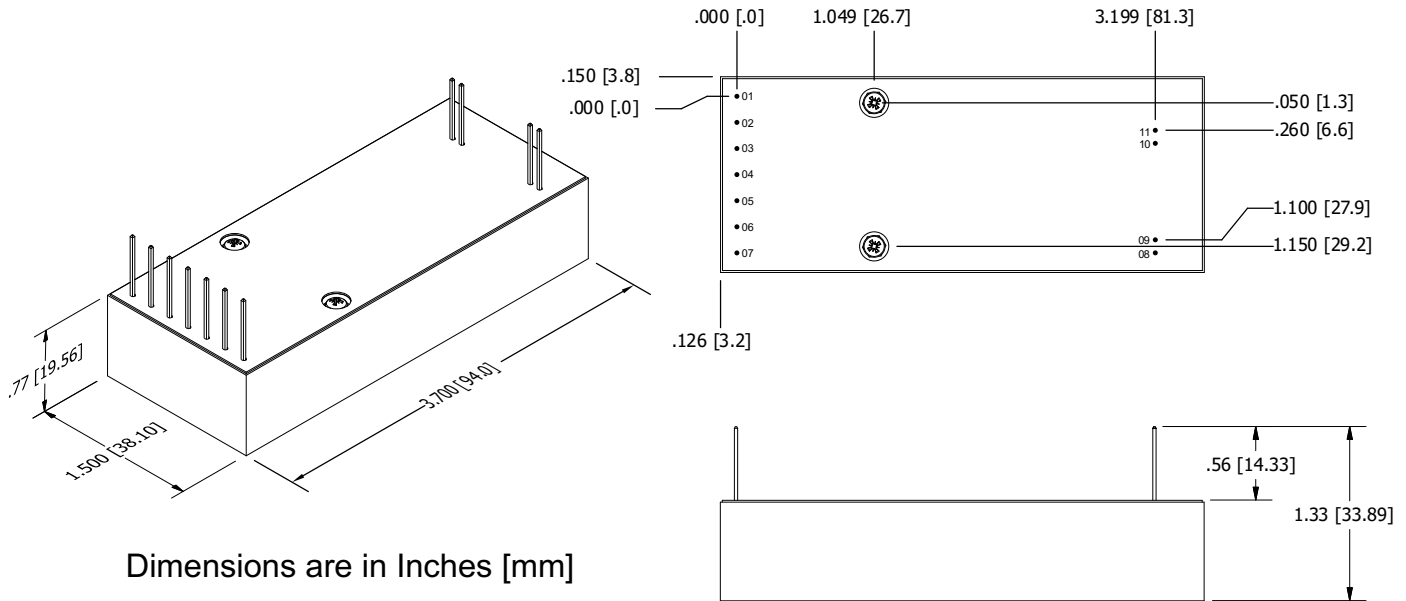
⁴ Into 10 MΩ Meter for Models with Options -Y05 & -F

⁵ Option F (additional details on pg.5-6)

OPTIONS

Append to Part #	Option	Incompatible With
-V05	Added control, 0 to 5 VDC (additional details on pg.4)	-V10, Y05
-V10	Added control, 0 to 10 VDC (additional details on pg.4)	-V05, Y05, 4W
-Y05	HVOUT Voltage Monitor	
-F	Integral Output Filter (additional details on pg.5-6)	-Y05
-T	±25 PPM/°C Temp. Coefficient (Operating Temp. +10 to +45 °C)	
-W	Flying Lead HVOUT	
-M	Mu-Metal Shielding Over Case	
-E	Eared Mounting Plate	-H
-C	RF Tight Aluminum Case	-E, -H
-H	Heatsink	-E, -C

MECHANICAL, DIMENSIONS & PIN DEFINITIONS



Mechanical Specifications		
Volume	4.3 in ³	70.5 cm ³
Weight	5.0 oz	142 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	IMON⁶	Output Current Monitor
4	ENABLE	Enable / Disable HVOUT
5	SIGND	Signal Ground Return
6	VADJ⁶	Voltage Adjust Input
7	VREF	+5 VDC Reference Output
8	HVRTN	High Voltage Ground Return
9	HVRTN	High Voltage Ground Return (<i>Standard</i>)
	VMON	Output Voltage Monitor (<i>-Y05 option</i>)
10, 11	HVOUT	High Voltage Output

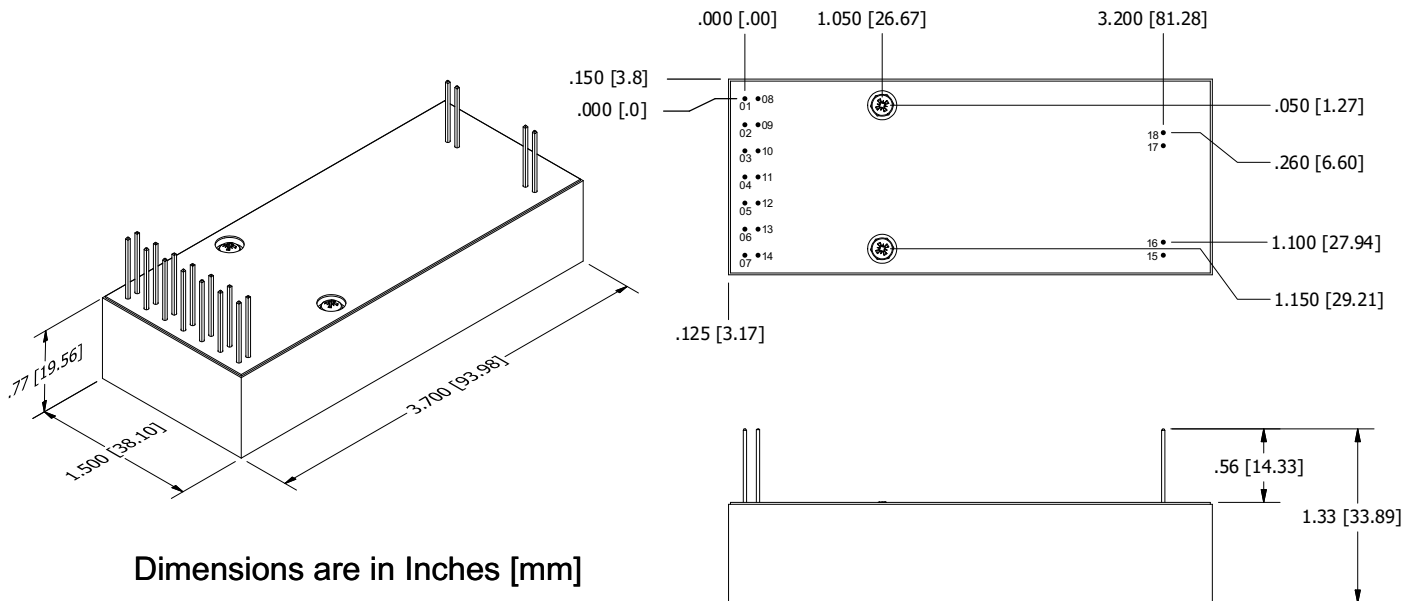
⁶ Some products may have IMON labeled as IOUT, VADJ labeled as RMTADJ

CERTIFICATIONS



OPTION V05/V10

	Conditions	Value	Units
Output			
Current Scaling (IMON)	Option V05, Buffered Signal	+0 VDC to +5 VDC = 0 to 100% Rated Output	VDC
	Option V10, Buffered Signal	+0 VDC to +10 VDC = 0 to 100% Rated Output	VDC
Voltage Scaling (VMON)	Option V05, Buffered Signal	+0 VDC to +5 VDC = 0 to 100% Rated Output	VDC
	Option V10, Buffered Signal	+0 VDC to +10 VDC = 0 to 100% Rated Output	VDC
Programming & Controls			
Adjust Logic (IADJ, VADJ)	Option V05	+0 VDC to +5 VDC = 0 to 100% Rated Output	VDC
	Option V10	+0 VDC to +10 VDC = 0 to 100% Rated Output	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	-

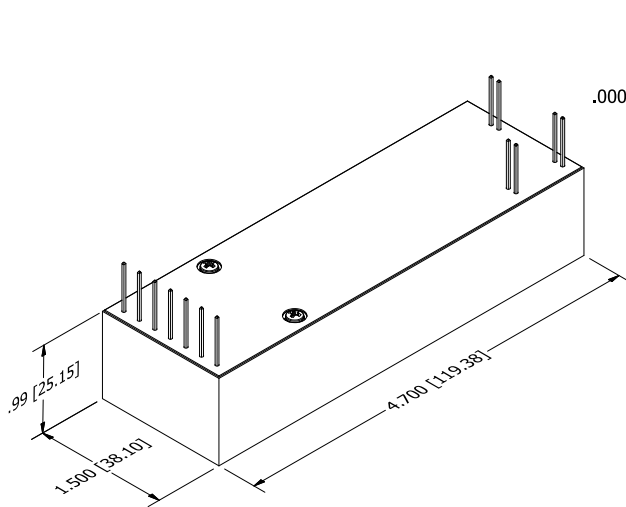


Mechanical Specifications		
Volume	4.3 in ³	70.5 cm ³
Weight	5.0 oz	142 g
Case	DAP case certified to ASTM-D-5948	
Pins	(Pins 1 – 7, 8 – 14) 0.200" Spacing (Pins 15 – 16, 17 – 18) 0.100" Spacing	

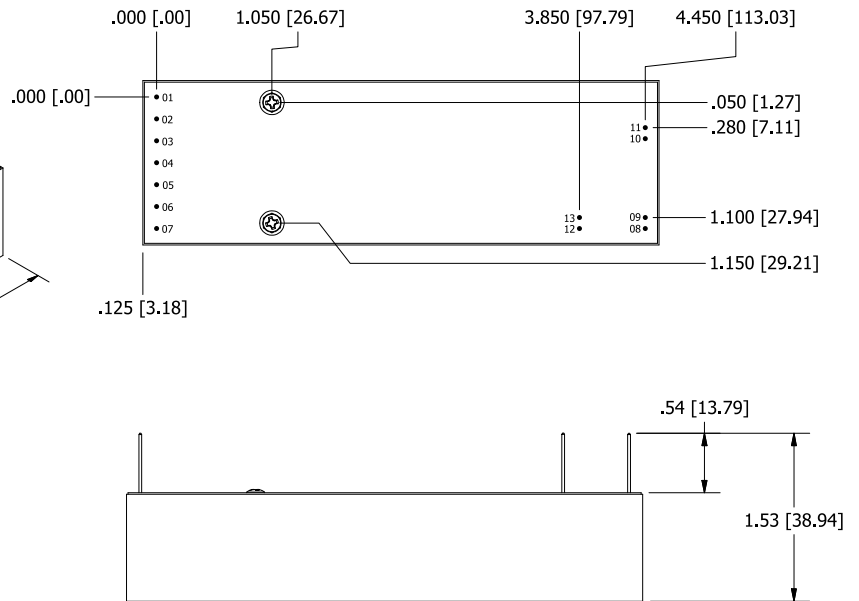
Tolerances	
Overall	0.050" [\pm 1.27 mm]
Pin to Pin	0.015" [\pm 0.38 mm]
Mounting	0.025" [\pm 0.64 mm]

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

OPTION F



Dimensions are in Inches [mm]

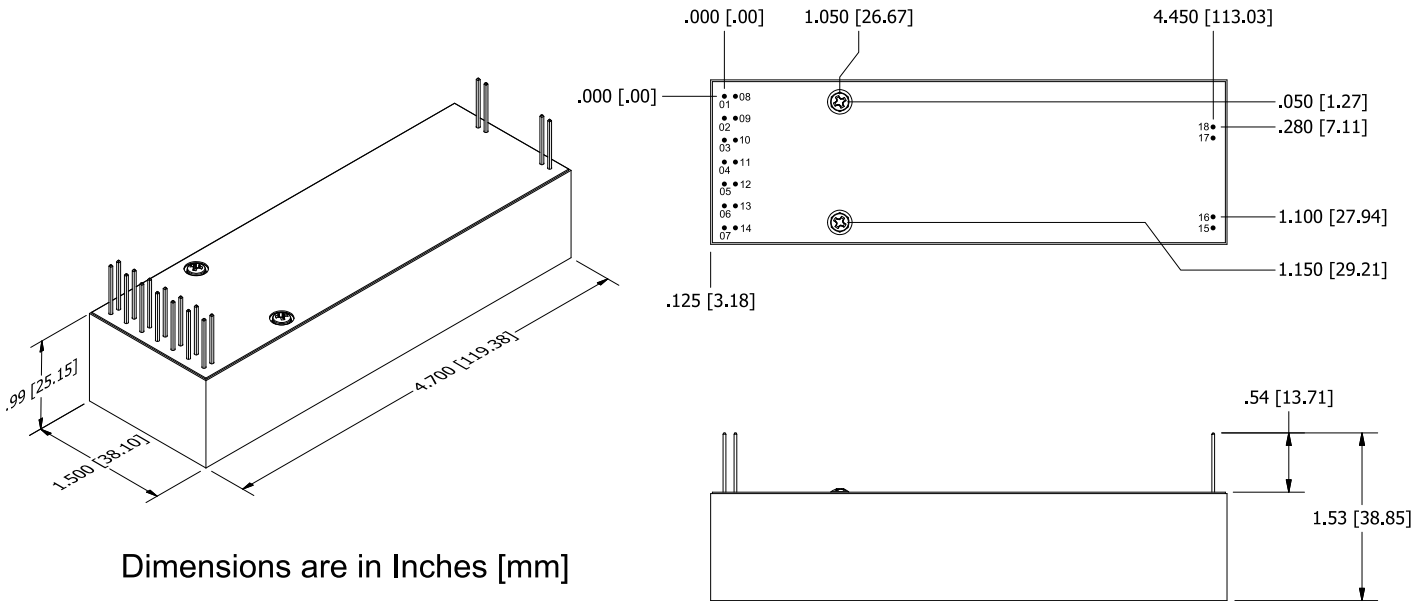


Mechanical Specifications		
Volume	7.0 in ³	114 cm ³
Weight	7.6 oz	215 g
Case	DAP case certified to ASTM-D-5948	
Pins	(Pins 1–7) 0.200" Spacing (Pins 8–9, 10–11, 12–13) 0.100" Spacing	

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	Output Current Monitor
4	ENABLE	Enable / Disable HVOUT
5	SIGGND	Signal Ground Return
6	VADJ	Voltage Adjust Input
7	VREF	+5 VDC Reference Output
8, 9	HVRTN	High Voltage Ground Return
10, 11	HVOUT	High Voltage Output
12, 13	VMON	Output Voltage Monitor

OPTION -V-F



Dimensions are in Inches [mm]

Mechanical Specifications		
Volume	7.0 in ³	114 cm ³
Weight	7.6 oz	215 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" [±1.27 mm]	
Pin to Pin	0.015" [±0.38 mm]	
Mounting	0.025" [±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