

SERIES: VUMM-S400-XXR | **DESCRIPTION:** MEDICAL AC-DC POWER SUPPLY

FEATURES

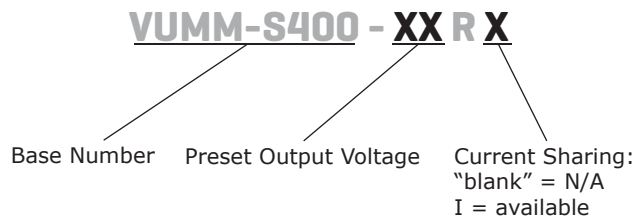
- medical approvals: UL 60601-1, CSA C22.2 No. 601.1
- universal input (90~264 Vac)
- current monitoring and remote voltage adjustments (margin)
- compact 1U size and high power density: 5.56 W/inch³
- power factor corrected to EN 61000-3-2 Class D
- metal-enclosed
- short circuit, overload, over voltage and over temperature protections
- optional IEC 320 AC inlet or terminal block
- optional current sharing



MODEL	preset voltage (Vdc)	output voltage ^{1,2,3,4}		output current ⁵ max (A)	ripple and noise ^{6,7} max (% Vp-p)	efficiency typ (%)
		min (Vdc)	max (Vdc)			
VUMM-S400-03R	3.3	2	3.3	60	±1	70
VUMM-S400-5R	5	5	6	60	±1	75
VUMM-S400-12R	12	12	15	33.34	±1	80
VUMM-S400-18R	18	16	21	25	±1	83
VUMM-S400-24R	24	22	30	18.19	±1	83
VUMM-S400-36R	36	31	41	12.9	±1	83
VUMM-S400-48R	48	42	58	9.53	±1	83

- Notes:
1. customer must specify output voltage
 2. output is fully isolated
 3. output voltage is measured at output power connector
 4. provides peak power of 700 W within 500 μs for all models
 5. must use external forced airflow min. 23 CFM to achieve maximum current
 6. 1% minimum load is required to maintain the ripple and regulation
 7. Ripple & noise are measured at 20 MHz BW with 0.1 μF ceramic cap and a 22 μF electrolytic capacitors on the output

PART NUMBER KEY



INPUT

parameter	conditions/description	min	typ	max	units
voltage		90		264	Vac
frequency		47		63	Hz
current	at 90 Vac, full load			6.35	A
inrush current	at 230 Vac, full load, cold start			35	A
input fuse	built-in ac fuse. A blown fuse usually indicates permanent damage to the power supply serviceable by factory only.				
power factor correction	meets EN 61000-3-2 Class D				

OUTPUT

parameter	conditions/description	min	typ	max	units
total regulation			±1		%
transient response	output voltage returns to within 1% in less than 2.5 ms for a 50% load change. Peak transient does not exceed 5%.				
overshoot	turn-on and turn-off overshoot shall not exceed 5% over nominal voltage				
start-up time	at 120 Vac			1	s
hold-up time	at 80% load	20			ms
adjustment range	output user adjustable		±5		%
remote sense ²	designated as RS+ and RS- on CN3. Total voltage compensation for cable losses with respect to the main output.				
remote on/off	defined RSW on CN3, requiring a low signal to inhibit output.				
LED display (LED 1)	green - the power supply is operating normally. orange - when any protection occurs or RSW is low.				
power good	designated as PG on CN3. This signal goes high 100~500 ms after the output reaches regulation. It goes low at least 1 ms before loss of regulation.				
current sharing	designated as CSH on CN3, optional single wired for forced current sharing function and parallel up to 4 units within 10% accuracy at full load.				
current monitor	designated as CMN on CN3 for for current sense for 0.5~3 Vdc to represent 0~100% output current.				
AC fail (optional) ²	designated as ACF on CN3 to monitor the input voltage when input goes under 80 ±5 Vac the signal will go low (0 V) and then go high (+5 V) once it reappears over 86 Vac.				

Notes: 1. 1% minimum load is required to maintain ripple and regulation
2. Not available for current sharing models
3. Input voltage protection must be disabled when AC Fail is enabled

PROTECTIONS

parameter	conditions/description	min	typ	max	units
input under voltage protection	power supply shuts down when ac input is under 80 ±5 Vac. When ac line reappears over 86 ±5 Vac, the power supply restarts automatically.				
over voltage protection	shutdown and latches, ac input reset required to restart			130	%
over current protection	auto recovery	110		140	%Io
short circuit protection	auto recovery upon removal of short				
over temperature protection	shutdown, auto recovery	85			°C

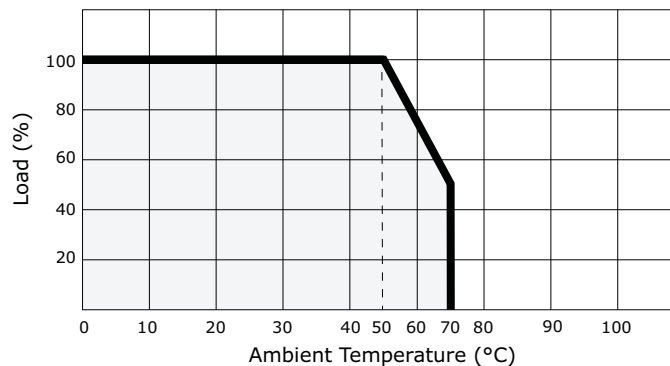
SAFETY & COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage	primary to secondary at 2 mA for 3 seconds	4,000			Vac
	primary to transformer at 2 mA core for 3 seconds	1,500			Vac
	primary to earth ground at 2 mA for 3 seconds	1,500			Vac
safety approvals	UL 60601-1, CSA C22.2 No. 601.1-M90, TUV EN 60601-1, CE Mark (LVD) EN 61204-3/60601-1-2/61000-3-(2,3) & IEC 61000-4 Series Regulations, CB				
EMI/EMC	FCC Part 15, CISPR 22 Class B, conducted, EN 60601-1-2 (E302945)				
leakage current	at 264 Vac			300	μA
grounding test	allowable resistance measured when 40 A current is applied from the ground pin of the three prong plug to the farthest earthed connection point.			0.1	Ω
RoHS compliant	yes				
MTBF	according to MIL-HBK-217F at 30°C	100,000			hours

ENVIRONMENTAL

parameter	conditions/description	min	typ	max	units
operating temperature	derating linearly at 2.5% from 50~70°C	0		70	°C
storage temperature		-20		85	°C
operating humidity	non-condensing	5		90	%RH
storage humidity	non-condensing	5		95	%RH

DERATING CURVE

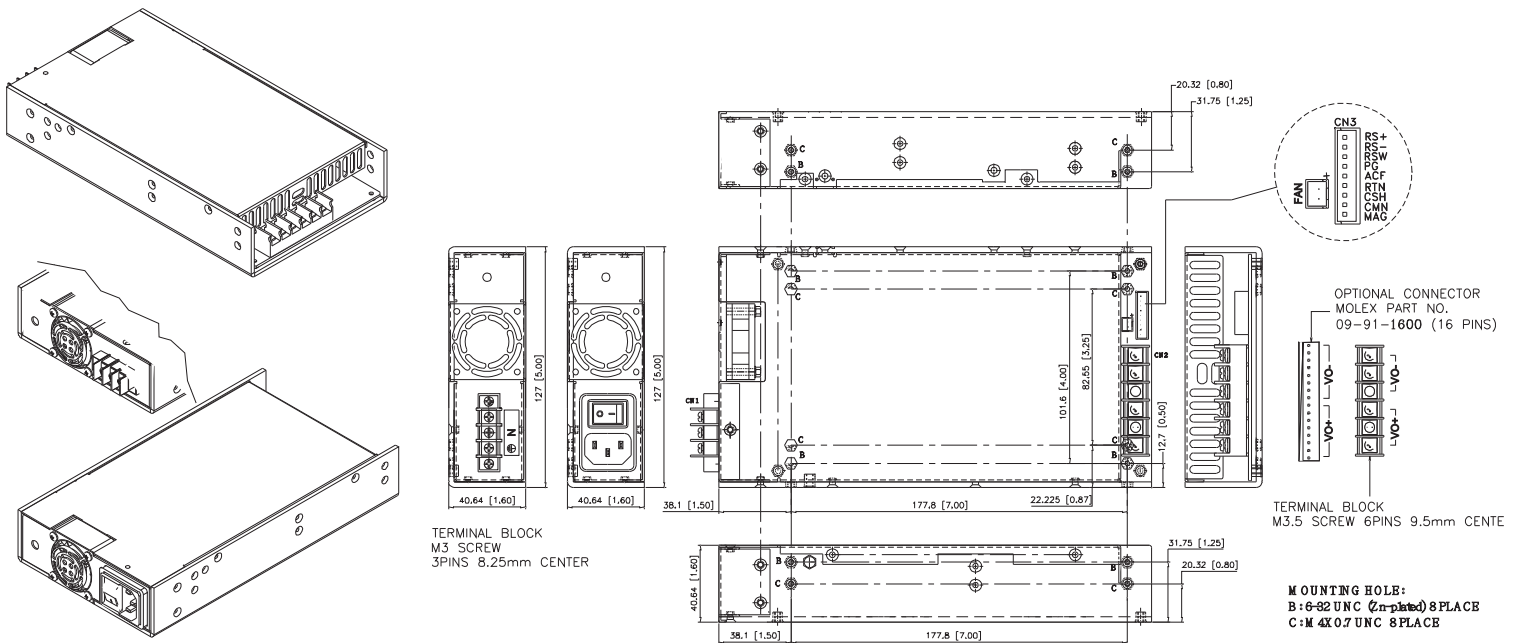


MECHANICAL

parameter	conditions/description	min	typ	max	units
dimensions	9 x 5 x 1.6 (228.6 x 127 x 40.64 mm)				inch
weight				1.6	kg
Mounting holes	Two sets of 8 threaded mounting holes available on the enclosure. B: 6-32, maximum insertion depth of 0.2 inches. C: M4, maximum insertion depth of 0.2 inches.				

MECHANICAL DRAWING

units: inches [mm]
tolerance: inches: ±0.02
mm: ±0.5



INPUT CONNECTOR [CN1]	
IEC320 or equivalent snap-in mounting type (option 1)	DINKLE DT-35-A02W-03 (option 2)
Suggested mating plug IEC320	Suggested mating connector Molex 19198-0016 or similar

OUTPUT CONNECTOR [CN2]			
Molex 09-91-1600 (option 1)		Howard HD-121-6P (option 2)	
PIN	FUNCTION	PIN	FUNCTION
1~8	+Vo	1~3	+Vo
9~16	-Vo	4~6	-Vo

LOGIC CONNECTOR [CN3]		FAN	
JS B5B-XH-A		JS B2B-XH-A	
Suggested mating connector JST XHP-5 or equivalent Contact: SXH-002T-P0.6		Suggested mating connector JST XHP-2 or equivalent, Contact: SXH-001T-P0.6	
PIN	FUNCTION		
1	MAG - margin		
2	CMN - current monitoring		
3	CSH - current sharing		
4	RTN - return		
5	ACF - AC fail		
6	PG - power good signal		
7	RSW - remote on/off		
8	RS- - remote sense (-)		
9	RS+ - remote sense (+)		

REVISION HISTORY

rev.	description	date
1.0	initial release	07/06/2007
1.01	new template applied, V-Infinity branding removed	08/28/2012
1.02	updated CN2 data	09/25/2012
1.03	added derating curve	10/30/2012

The revision history provided is for informational purposes only and is believed to be accurate.



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