

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

**FEATURES**

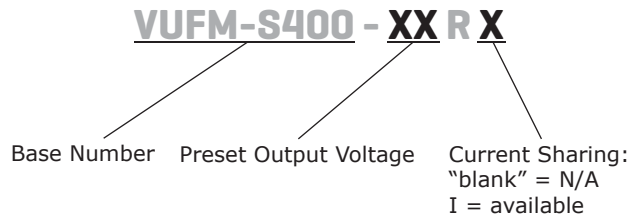
- up to 400 W continuous power
- compact 1U size
- 5.56 W/inch<sup>3</sup> power density
- universal input (90~264 Vac)
- single output from 3.3~48V
- short circuit, over voltage and over temperature protections
- full medical approvals
- built-in active PFC function
- built-in remote sense function
- efficiency up to 83%



MODEL	output voltage	output current	output power	ripple and noise <sup>4</sup>	efficiency
	(Vdc)	max (A)	max (W)	max (mVp-p)	typ (%)
VUFM-S400-03R	3.3	60	200 <sup>1</sup>	33	70
VUFM-S400-05R	5	60	300 <sup>2</sup>	50	75
VUFM-S400-12R	12	33.34	400 <sup>3</sup>	120	80
VUFM-S400-18R	18	25	400 <sup>3</sup>	180	83
VUFM-S400-24R	24	18.19	400 <sup>3</sup>	240	83
VUFM-S400-36R	36	12.9	400 <sup>3</sup>	360	83
VUFM-S400-48R	48	9.53	400 <sup>3</sup>	480	83

- Notes:
1. total continuous output power will not exceed 200 W forced air (23 CFM), 150 W without fan
  2. total continuous output power will not exceed 300 W forced air (23 CFM), 225 W without fan
  3. total continuous output power will not exceed 400 W forced air (23 CFM), 250 W without fan
  4. 1% minimum load is required to maintain the ripple and regulation

**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%.				
start-up time	at 120 Vac			1	s
hold-up time	at 120 Vac, 80% load	20			ms
adjustability	output user adjustable			±5	%
switching frequency			30		kHz
overshoot	Turn-on and turn-off overshoot shall not exceed 5% over nominal voltage.				
remote sense <sup>1</sup>	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)	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. Not available for current sharing models

## 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	85			°C

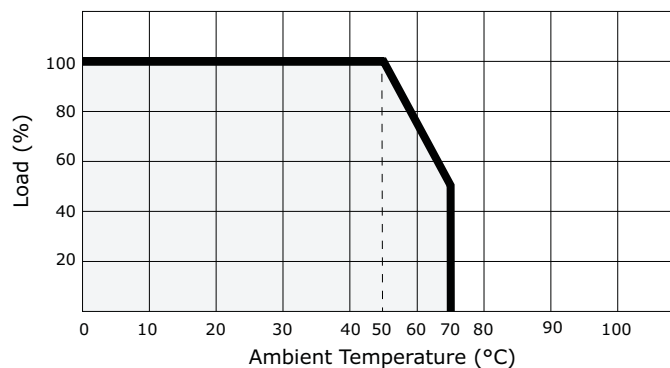
## SAFETY & COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage	primary to secondary at 2 mA for 3 seconds	4,000			Vac
	primary to transformer core at 2 mA for 3 seconds	1,500			Vac
	primary to earth ground at 2 mA for 3 seconds	1,500			Vac
isolation resistance	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
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, CISPR22 Class B, conducted				
leakage current				300	μA
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
vibration	5 ~ 50 Hz, per axis		±7.35		m/s <sup>2</sup>

## DERATING CURVE

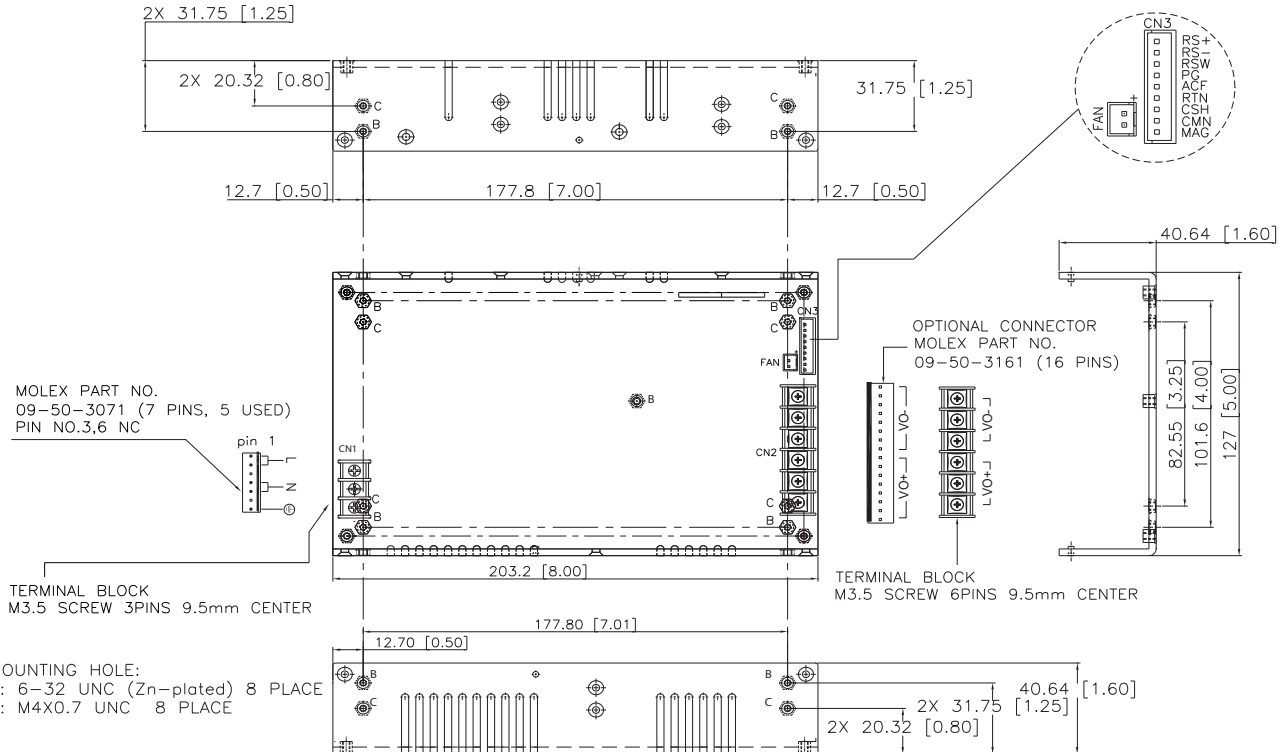
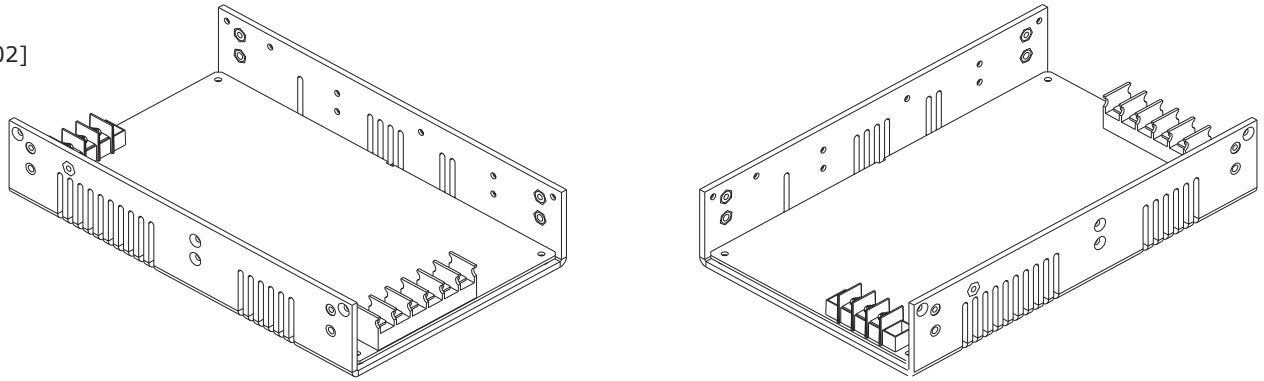


## MECHANICAL

parameter	conditions/description	min	typ	max	units
dimensions	203.2 x 127 x 40.64 (8 x 5 x 1.6 inch)				mm
weight				1.3	kg

## MECHANICAL DRAWING

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



INPUT CONNECTOR [CN1]				LOGIC CONNECTOR [CN3]				FAN	
Howder terminal block HD-121-3P (option 1)		Molex 09-50-3071 (7 pins, 5 used) (option 2)		Suggested mating connector --- or equivalent Contact: SXH-002T-P0,6				---	
OUTPUT CONNECTOR [CN2]				PIN	FUNCTION	PIN	FUNCTION	Suggested mating connector --- or equivalent, Contact: SXH-002T-P0,6	
Howder terminal block HD-121-6P (option 1)		Molex 09-50-3161 (16 pins) (option 2)		1	MAG - margin	6	PG - power good signal		
PIN	FUNCTION	PIN	FUNCTION	2	CMN - current monitoring	7	RSW - remove on/off		
1~3	+Vo	1~8	+Vo	3	CSH - current sharing	8	RS- - remote sense (-)		
4~6	-Vo	9~16	-Vo	4	RTN - return	9	RS+ - remote sense (+)		
				5	ACF - AC fail				

Note: 1. Bottom mounting holes have a maximum screw depth of 3.8mm. Side mounting holes have a maximum screw depth of 6.3mm.

## REVISION HISTORY

---

rev.	description	date
1.0	initial release	07/06/2006
1.01	updated features, added preset voltage data	12/27/2006
1.02	updated connector data and drawing	12/12/2007
1.03	new template applied	05/11/2012
1.04	V-Infinity branding removed	08/28/2012
1.05	added derating curve	10/30/2012
1.06	updated spec, Molex connectors changed	01/21/2014

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

**CUI INC**<sup>®</sup>

**Headquarters**  
20050 SW 112th Ave.  
Tualatin, OR 97062  
**800.275.4899**

Fax 503.612.2383  
**cui.com**  
techsupport@cui.com

CUI offers a two (2) year limited warranty. Complete warranty information is listed on our website.

CUI reserves the right to make changes to the product at any time without notice. Information provided by CUI is believed to be accurate and reliable. However, no responsibility is assumed by CUI for its use, nor for any infringements of patents or other rights of third parties which may result from its use.

CUI products are not authorized or warranted for use as critical components in equipment that requires an extremely high level of reliability. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.