

SERIES: VMS-160 | **DESCRIPTION:** AC-DC POWER SUPPLY

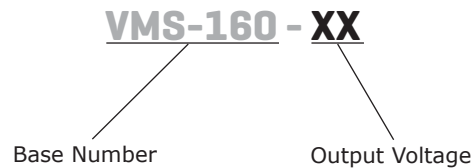
FEATURES

- Up to 160 W continuous power
- Industry standard 2" x 4" footprint
- 18 W/in³ power density
- Universal input (85-264 Vac / 125-373 Vdc)
- Single output from 5 to 48 V
- Active power correction (98%)
- 12 V auxiliary fan output
- No minimum load required
- Over load, over voltage, and short circuit protections
- Full medical and ITE safety approvals
- Efficiency up to 90%


V-Infinity


MODEL	output voltage	output current	output power	ripple and noise ⁴	efficiency
	(Vdc)	max (A)	max (W)	max (mVp-p)	typ (%)
VMS-160-5	5	20	100 ²	50	90
VMS-160-12	12	13.3	160 ¹	120	90
VMS-160-15	15	8	160 ³	50	90
VMS-160-24	24	6.66	160 ¹	240	90
VMS-160-48	48	3.33	160 ¹	480	90

- Notes:
1. Total continuous output power will not exceed 160 W forced air (400 LFM), 100 W without fan
 2. Total continuous output power will not exceed 100 W forced air (400 LFM), 70 W without fan
 3. Total continuous output power will not exceed 120 W forced air (400 LFM), 90 W without fan
 4. Measured at 20 MHz, twisted pair with 0.47 μ F ceramic and 22 μ F tantalum parallel capacitors

PART NUMBER KEY


INPUT

parameter	conditions/description	min	typ	max	units
voltage		90		264	Vac
		125		373	Vdc
frequency		47		63	Hz
current	at 100 Vac, cold start			2.5	A
	at 200 Vac, cold start			1.25	A
inrush current	at 230 Vac, full load, cold start				
power factor	measured at full load and 115 Vac/60 Hz and 230 Vac/50 Hz input source input will be less than 0.25 Ω , compliant to EN61000-3-2 for harmonic currents	0.85	0.98		

OUTPUT

parameter	conditions/description	min	typ	max	units
line regulation	low line to high line		± 1		%
load regulation	all other outputs		± 1		%
	12 V aux. output		± 20		%
temperature coefficient			0.25		mV/°C
transient response	25% I_{max} to I_{max} , 0.1 A/ μ s slew rate, $\pm 5\%$ max. deviation, 1 ms recovery				
start-up time			1		s
rise time		0.2		20	ms
hold-up time		16			ms
adjustability			± 5		%
fan drive	12 Vdc / 500 mA for external fan				

PROTECTION

parameter	conditions/description	min	typ	max	units
over voltage protection				130	%
over current protection	automatically recovers			150	%
short circuit protection	auto recovery with no damage from a short on any output				

SAFETY & COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage	primary to secondary (for 1 second):	5,656			Vdc
	primary to earth ground (for 1 second):	5,656			Vdc
safety approvals	UL 60950-1/60601-1, NEMKO EN60950-1/EN60601-1, CE				
EMI/EMC	EN55022:1998 (CISPR 22 class A conducted), EN61000-3-2: 2000, EN61000-3-3: A1:2001, EN55024 (IEC61000-4-2: 1995, IEC61000-4-3: 1995, IEC61000-4-4: 1995, IEC61000-4-5: 1995, IEC61000-4-6: 1996, IEC61000-4-11: 1994)				
leakage current	measured per IEC 60950-1, paragraph 5.1, test voltage of 120 Vac/60 Hz			0.275	mA
RoHS compliant	yes				
MTBF	with 400 LFM forced air, MIL-HDBK-217E-1, 75% of rated full load, 25°C ambient	200,000			hrs

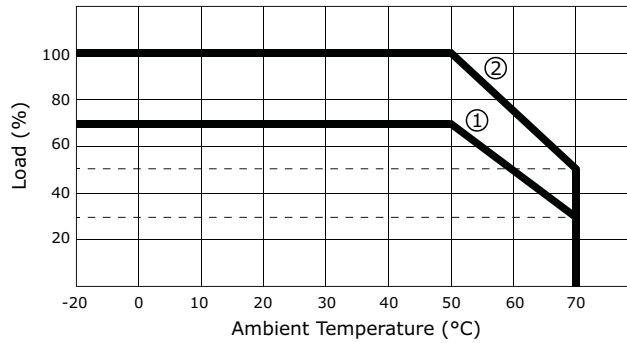
ENVIRONMENTAL

parameter	conditions/description	min	typ	max	units
operating temperature	see derating curve	-20		50	°C
storage temperature	see derating curve	-40		80	°C
operating humidity	non-condensing	8		90	%
storage humidity	non-condensing			95	%
shock	operating (11 ms, half sine, for a total of 6 shock inputs) non-operating (2 ms, half sine, for a total of 6 shock inputs)		10 140		G G
vibration	operating (10 ~ 300 Hz, 1 hour per axis, 3 hours total) non-operating (10 ~ 500 Hz, 1 hour per axis, 3 hours total)		1 2		Grms Grms

DERATING CURVES

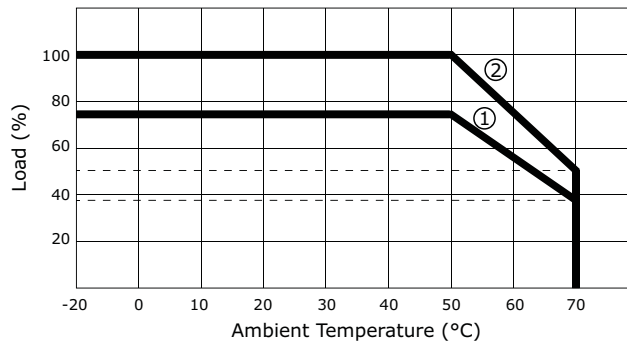
output power vs. ambient temperature

a. 5V model



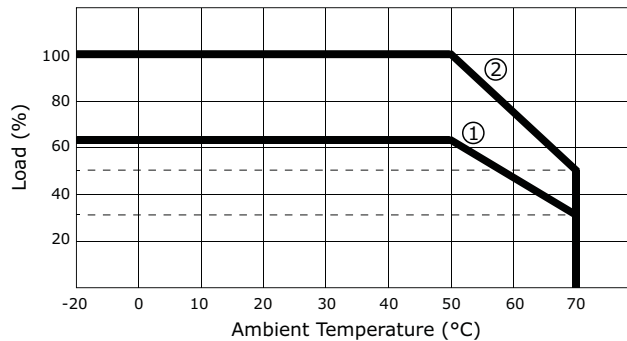
- ① Convection
- ② Forced air (400 LFM)

b. 15V model



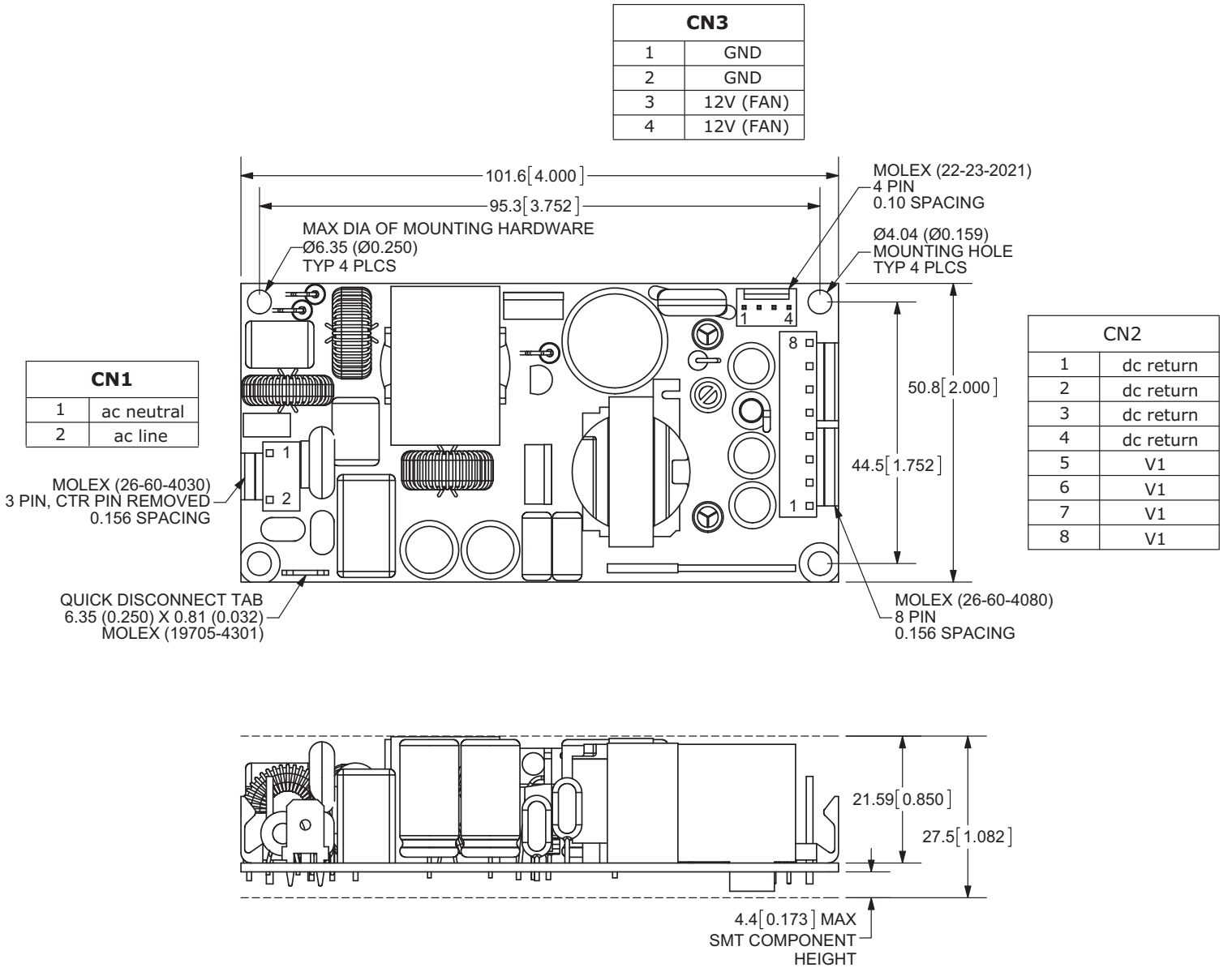
- ① Convection
- ② Forced air (400 LFM)

c. all other models



- ① Convection
- ② Forced air (400 LFM)

MECHANICAL DRAWING



REVISION HISTORY

rev.	description	date
1.0	initial release	05/5/2009
1.01	applied new spec template	06/16/2011

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



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