SERIES: VMS-350C | **DESCRIPTION:** AC-DC POWER SUPPLY

FEATURES

- universal input voltage (90 ~ 264 Vac)
- active power factor correction
- certified to 60601, 60335, and 61558 safety standards
- suitable for safety class I or class II installations
- over voltage, over current, over temperature, and short circuit protections
- adjustable output via trim POT
- low leakage current (< 0.1 mA)

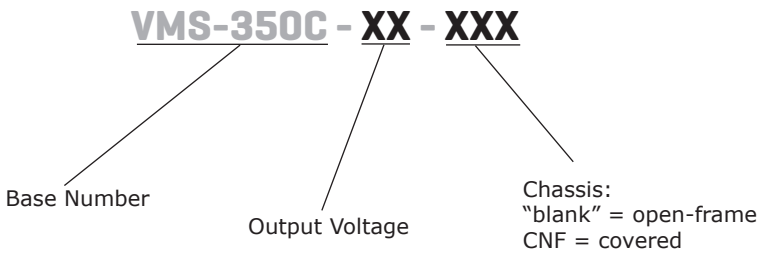


MODEL

MODEL	output voltage (Vdc)	output voltage range[1] (Vdc)	output current max (A)	output power max (W)	ripple and noise[2] max (mVp-p)	efficiency[3] typ (%)
VMS-350C-12	12	11.4~12.6	25.0	300.0	120	92
VMS-350C-15	15	14.25~15.75	21.67	325.0	120	92
VMS-350C-24	24	22.8~25.2	14.6	350.4	150	93
VMS-350C-27	27	25.65~28.35	13.0	351.0	200	93
VMS-350C-36	36	34.2~37.8	9.73	350.2	200	93
VMS-350C-48	48	45.6~50.4	7.3	350.4	250	94

Notes:
1. When adjusting the output voltage care should be taken never to exceed the stated output power or output current of the unit.
2. At full load, nominal input, 20 MHz bandwidth oscilloscope, tip & barrel method, output terminated with 10 µF electrolytic and 0.1 µF ceramic capacitors. Under light load conditions (<10%) the measurement may be 1.5x higher in an effort to maximize converter efficiency.
3. At 230 Vac.

PART NUMBER KEY



Please read our datasheet & drawing disclaimer here.

INPUT

parameter	conditions/description	min	typ	max	units
voltage	ac input dc input	90 127		264 370	Vac Vdc
frequency		47		63	Hz
current	at 115 Vac at 230 Vac			4.0 2.0	A A
inrush current	at 115 Vac, cold start at 230 Vac, cold start		50 75		A A
leakage current	at 240 Vac			0.1	mA
power factor correction	at 115 Vac, full load at 230 Vac, full load	0.98 0.95			
no load power consumption	at 230 Vac			1	W

OUTPUT

parameter	conditions/description	min	typ	max	units
output capacitance	12 Vdc output model 15 Vdc output model 24 Vdc output model 27 Vdc output model 36 & 48 Vdc output models			6,000 5,000 3,200 2,600 2,000	µF µF µF µF µF
initial set point accuracy	full load 12 Vdc, 15 Vdc output models all other output models		 ±3 ±2		 % %
line regulation	rated load		±0.5		%
load regulation	0 ~ 100% load		±1		%
hold-up time	at 230 Vac, 25°C, full load	6	8		ms
temperature coefficient			±0.03		%/°C
fan power	27 Vdc output models, 6W max all other output models, 6W max	9 10.2	12 12	13.8 13.8	V V

PROTECTIONS

parameter	conditions/description	min	typ	max	units
over voltage protection	output shutdown, latching 12 Vdc output model 15 Vdc output model 24 Vdc output model 27 Vdc output model 36 Vdc output model 48 Vdc output model		 15.0 18.5 30.0 33.5 45.0 59.5		 Vdc Vdc Vdc Vdc Vdc Vdc
over current protection	auto recovery	110			%
short circuit protection	continuous, auto recovery				
over temperature protection	output shutdown, auto recovery				

SAFETY & COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage	input to ground, 1 min, <10mA input to output, 1 min, <10mA output to ground, 1 min, <10mA	2,000 4,000 1,500			Vac Vac Vac
safety approvals	certified to 60601: ES, EN certified to 60335: EN certified to 61558: EN				
safety class	class I (with PE), class II (without PE)				
conducted emissions	CISPR32/EN55032 CLASS B				
radiated emissions	CISPR32/EN55032 (Class B for safety class I installations; Class A for safety class II installations)				
harmonic current	IEC/EN61000-3-2 CLASS A & CLASS D				
flicker	IEC/EN61000-3-3				
ESD	IEC/EN61000-4-2 Contact ±8KV/Air ±15KV perf. Criteria A				
radiated immunity	IEC/EN61000-4-3 10V/m perf. Criteria A				
EFT/burst	IEC/EN61000-4-4 ±4KV perf. Criteria A				
surge	IEC/EN61000-4-5 ±2KV/±4KV perf. Criteria A				
conducted immunity	IEC/EN61000-4-6 10 Vr.m.s perf. Criteria A				
voltage dips and interruptions	IEC/EN61000-4-11 0%, 70% perf. Criteria B				
MTBF	as per MIL-HDBK-217F at 25°C	300,000			hours
RoHS	yes				

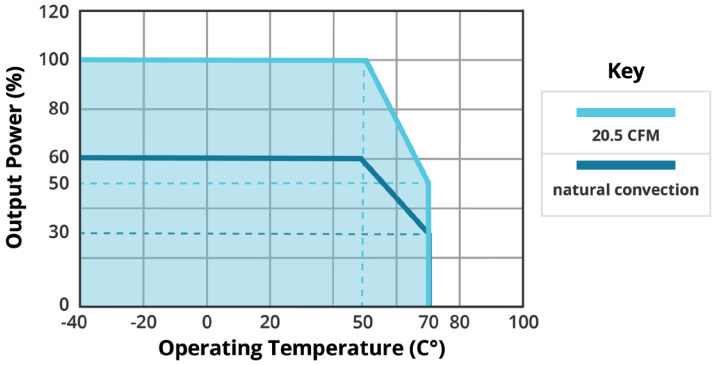
Notes: 1. The power supply is considered a component of the end system. All EMC performance has been tested on a metal plate with the dimensions 360 x 360 x 1 mm. The power supply must be integrated into the end system for proper electromagnetic compatibility testing.

ENVIRONMENTAL

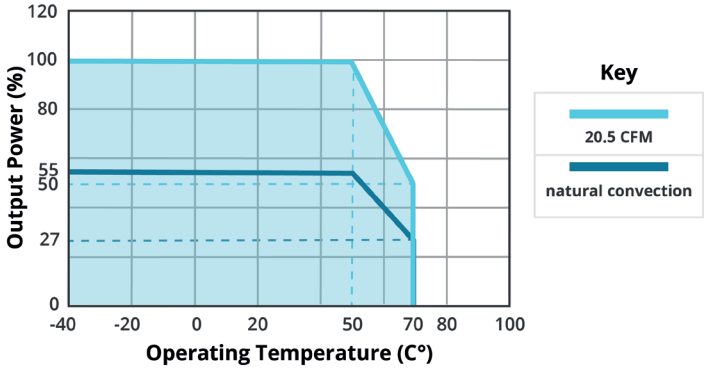
parameter	conditions/description	min	typ	max	units
operating temperature	see derating curves	-40		70	°C
storage temperature		-40		85	°C
operating humidity	non-condensing	20		90	%
storage humidity	non-condensing	10		95	%

DERATING CURVES

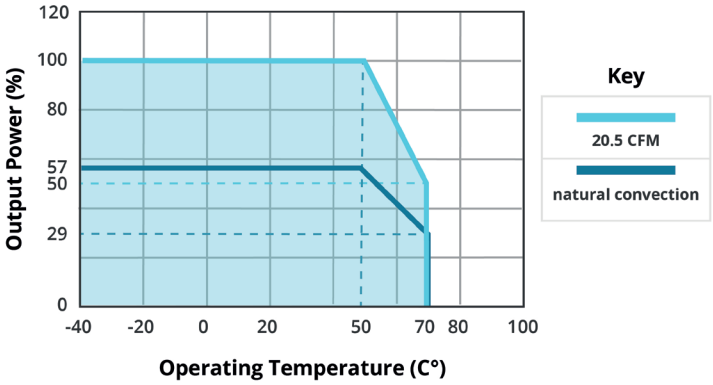
TEMPERATURE DERATING CURVE (full load 300W with 20.5 CFM) VMS-350C-12



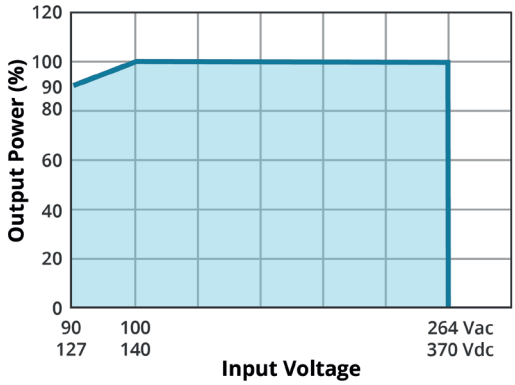
TEMPERATURE DERATING CURVE (full load 325W with 20.5 CFM) VMS-350C-15



TEMPERATURE DERATING CURVE (full load 350W with 20.5 CFM) VMS-350C-24, VMS-350C-27 VMS-350C-36, VMS-350C-48



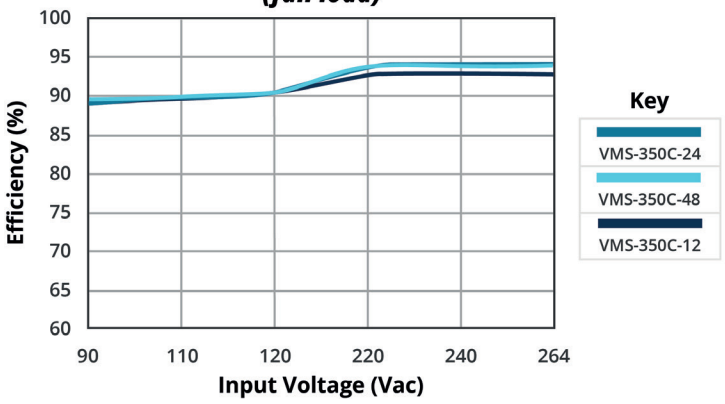
INPUT VOLTAGE DERATING CURVE (25°C)



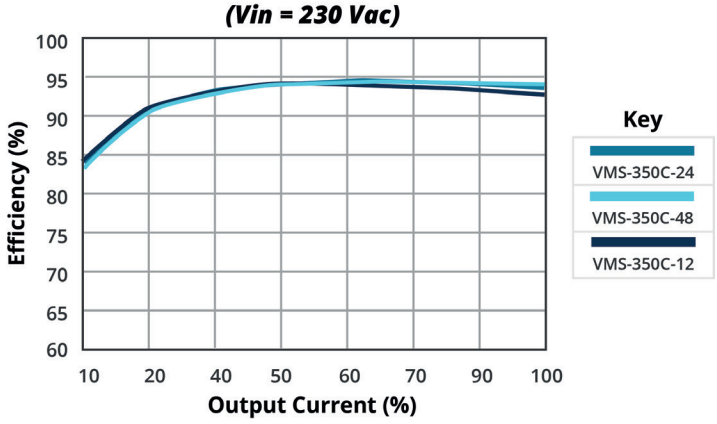
Note: With an AC input voltage between 90 ~ 100VAC and a DC input between 127 ~ 140VDC the output power must be derated as per the temperature derating curves.

EFFICIENCY CURVES

EFFICIENCY VS INPUT VOLTAGE (full load)



EFFICIENCY VS OUTPUT LOAD (Vin = 230 Vac)

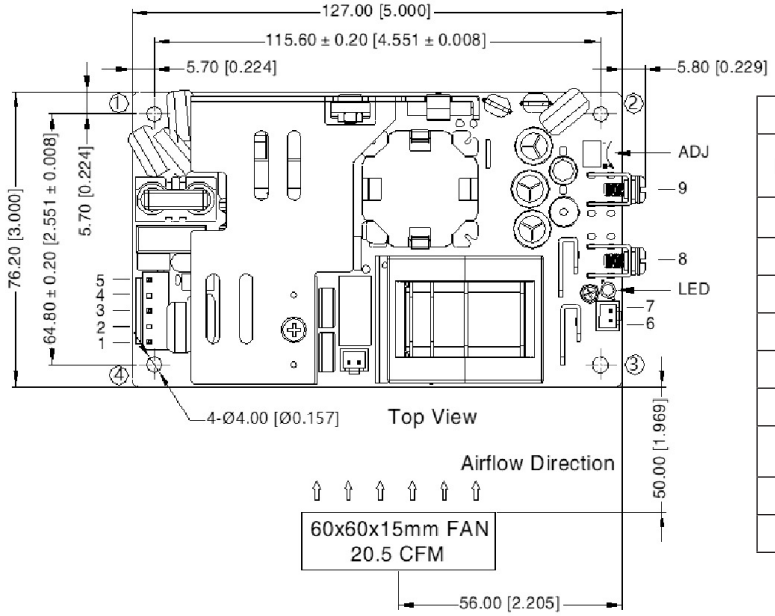


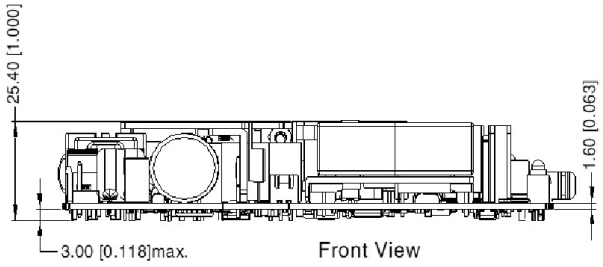
MECHANICAL

parameter	conditions/description	min	typ	max	units
dimensions	open frame models: 127 × 76.2 × 25.4 [5.0 x 3.0 x 1.0 inch] covered models: 130.0 × 86.0 × 35.0 [5.118 x 3.385 x 1.377 inch]				mm mm
weight	open frame models covered models		295 430		g g
cooling	natural convection (no integrated fan)				

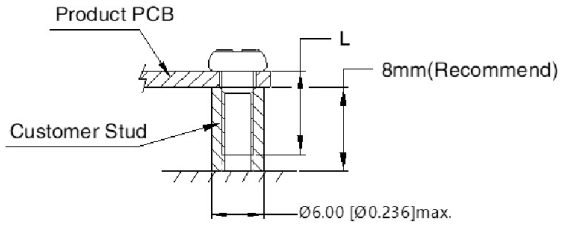
MECHANICAL DRAWING

Open-frame
units: mm [inch]
general tolerance: ±1.00 [±0.039]
connector tightening torque: M3.5, 0.8N·m





PIN-OUT			
PIN	Function	Product Connector	Customer Connector
1	GND	JST B5P-VH or equivalent	Housing: JST VHR Contact: JST SVH-21T-P1.1 or equivalent
2	NC		
3	AC (L)		
4	NC		
5	AC (N)		
6	FAN-	KANGDAO 2.5XHS-2A or equivalent	Housing: KANGDAO 2.5XHS-2Y Contact: KANGDAO 2.5XH-TE or equivalent
7	FAN+		
8	-Vo		
9	+Vo		

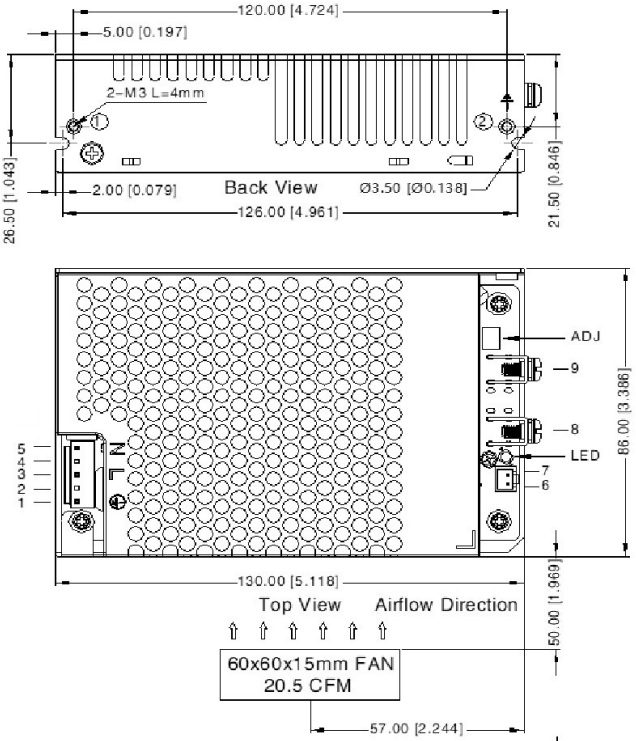


Position	Screw Spec.	L (recommended)	Torque
①~④	M3	6mm	0.4 N·m

Note: 1. Class I system ①, ②, ④ positions must be connected to the protective earth ground (⏚).
2. Class II system ①, ②, ④ positions must be connected together.
3. It is recommended that a minimum distance of 10mm be placed between the PCB edge and all other components.

MECHANICAL DRAWING (CONTINUED)

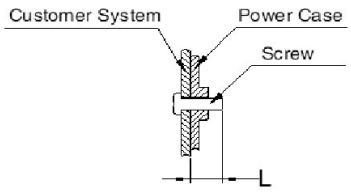
Covered
units: mm [inch]
general tolerance: ±1.00 [±0.039]
connector tightening torque: M3.5, 0.8N·m



PIN-OUT			
PIN	Function	Product Connector	Customer Connector
1	GND	JST B5P-VH or equivalent	Housing: JST VHR Contact: JST SVH-21T-P1.1 or equivalent
2	NC		
3	AC (L)		
4	NC		
5	AC (N)		
6	FAN-	KANGDAO 2.5XHS-2A or equivalent	Housing: KANGDAO 2.5XHS-2Y Contact: KANGDAO 2.5XH-TE or equivalent
7	FAN+		
8	-Vo		
9	+Vo		

Position	Screw Spec.	L (recommended)	Torque
①~②	M3	4mm	0.4 N·m
③~⑥	M3	3mm	0.4 N·m

Note: 1. Safety Class I integrations require the metal case to be securely fastened to protective earth ground (⏚).



REVISION HISTORY

rev.	description	date
1.0	initial release	06/02/2021
1.01	OVP updated	06/14/2021
1.02	no load power consumption updated	08/18/2021
1.03	derating and efficiency curves updated	01/27/2022
1.04	UKCA mark added	06/10/2022
1.05	pin-out tables updated	04/04/2023
1.06	medical icon added	05/04/2023

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

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