

### Features

- ▶ Rated power: 90W Max
- ▶ Universal input: 85~305VAC, 47~63Hz
- ▶ Regulated single output
- ▶ Isolation voltage 4200VAC
- ▶ Typical efficiency 92%
- ▶ Energy saving, standby power only 0.1W Typ.
- ▶ Operating temperature range: -40~+85°C
- ▶ RoHS compliance
- ▶ No external components required for operating
- ▶ Over voltage, over current and short circuit protection
- ▶ Meet UL/EN/IEC 62368-1, OVC III, EN60335-1, EN61558-1, FCC, UKCA, CISPR32, EN55032 Class B with NO externals
- ▶ 5 year warranty



\*Certification is pending

### Overview

VK-PMR90H series are compact size AC/DC power converters, featuring universal input voltage range, low stand by power consumption, high efficiency. Designed for high reliability industrial applications, these converters are encapsulated to protect from dust and moisture.

They meet UL/EN/IEC 62368-1, OVC III, EN60335-1, EN61558-1, FCC, UKCA and EMC performance meets CISPR32, EN55032 Class B without support from any external components, ideally suitable for industrial, and critical commercial applications.

### Model Numbers

Model Number	Input Voltage [VAC]	Output Voltage [VDC]	Output Current [mA] Max.	Efficiency <sup>[1]</sup> [%] Typ.	Capacitive Load [uF] Max.
VK-PMR90H-120	85~305VAC 100~430VDC	12	6700	92	6800
VK-PMR90H-150		15	5670	93	4500
VK-PMR90H-240		24	3750	93	3000
VK-PMR90H-480		48	1875	93	470

Note <sup>[1]</sup>: Measured at 230VAC input voltage.

## Electrical Specifications

Unless otherwise indicated, specifications are measured at  $T_A=25^{\circ}\text{C}$ , humidity<75%, nominal input voltage and rated output load.

Parameters	Conditions	Min.	Typ.	Max.	Unit
Input voltage range	AC in	85	-	305	VAC
	DC in	100	-	430	VDC
Input frequency		47	-	63	Hz
Nominal input voltage		100	-	277	VAC
Input current	115VAC	-	-	2.0	A
	230VAC	-	-	1.1	A
Inrush current Cold start	115VAC	-	35	-	A
	230VAC	-	65	-	A
Leakage current	277VAC, 50Hz	-	-	0.25	mA RMS
Output voltage accuracy		-	$\pm 2$	-	%
Line regulation	Full load	-	$\pm 0.5$	-	%
Load regulation	$I_{OUT}=0\% \sim 100\%$ of $I_{OUT, rated}$	-	$\pm 1$	-	%
Ripple and noise [2] 20MHz bandwidth	12, 15V	-	-	120	mV
	24V	-	-	200	mV
	48	-	-	240	mV
Temperature coefficient		-	$\pm 0.02$	-	%/ $^{\circ}\text{C}$
Standby power consumption		-	-	0.20	W
Hold up time Full load	115VAC	-	10	-	mS
	230VAC	-	30	-	mS
Over voltage protection Hiccup or clamping by zener diode	$V_{OUT}=12\text{V}$	-	-	16	VDC
	$V_{OUT}=15\text{V}$	-	-	25	VDC
	$V_{OUT}=24\text{V}$	-	-	35	VDC
	$V_{OUT}=48\text{V}$	-	-	60	VDC
Over current protection	Automatic recovery	110	-	-	% $I_{OUT}$
Short circuit protection		Hiccup mode, automatic recovery			
Minimum load		No minimum load is required			
Built in fuse		3.15A, 300V, slow blow			

Note [2]: Ripple and noise measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uF & 47uF parallel capacitor.

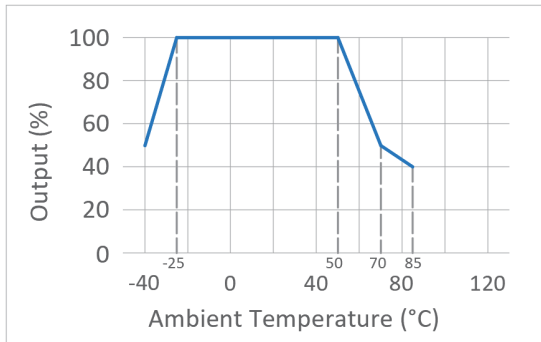
## General Specifications

Parameters	Conditions	Min.	Typ.	Max.	Unit
<b>Isolation voltage</b> Tested for 1 minute	I/P to O/P	4200	-	-	VAC
<b>Isolation resistance</b> 500VDC, 25°C, 70%RH	I/P to O/P	100	-	-	M Ohm
<b>Switching frequency</b>		-	75	-	KHz
<b>Operating temperature range</b>	See "Derating Curve"	-40	-	85	°C
<b>Storage temperature</b>		-40	-	85	°C
<b>Storage humidity</b>		-	-	95	%RH
<b>Maximum case temperature</b>		-	-	95	°C
<b>Operating altitude</b>	See "Derating Curve"	-	-	5000	m
<b>Soldering temperature</b>	Wave-soldering Manual-welding	-	260 360	-	°C
<b>Case material</b>		Black plastic UL94-V0			
<b>Cooling method</b>		Free air convection			
<b>Vibration</b>		10Hz to 500Hz, 2G, 10 minutes along X, Y and Z axis			
<b>MTBF</b>	MIL-HDBK-217F	> 500,000 Hours, 25°C			
<b>Overvoltage category</b>		OVC III			
<b>Safety class</b>		Class II			
<b>Safety approvals</b>		UL/EN/IEC 62368-1, UKCA, EN 60335-1, EN 61558-1			
<b>EMC standards</b>	CISPR32, EN55032	Class B with "NO External Circuit"			
ESD	IEC/EN61000-4-2	Contact ±6kV, Air ±8kV, perf. Criteria A			
Radiated	IEC/EN61000-4-3	10V/m, perf. Criteria A			
EFT, Burst	IEC/EN61000-4-4	±2kV, perf. Criteria A			
Surge	IEC/EN61000-4-5	Line to Line ±2kV, perf. Criteria A			
Conducted	IEC/EN61000-4-6	10Vrms, perf. Criteria A			
PFM	IEC/EN61000-4-8	30A/m. Criteria A			
Voltage dips and interruptions	IEC/EN 61000-4-11	0%, 70%, perf. Criteria B			
<b>Size, and Weight</b>		87x52x29.5mm, 200g Typ.			

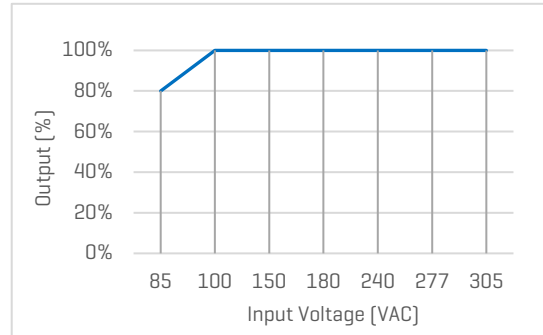
## Characteristic Curves

### Derating Curves

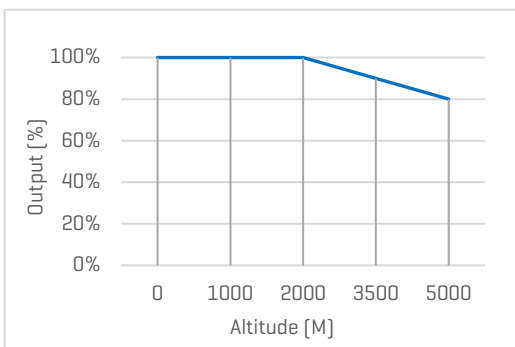
Output vs Ambient Temperature



Output vs Input Voltage

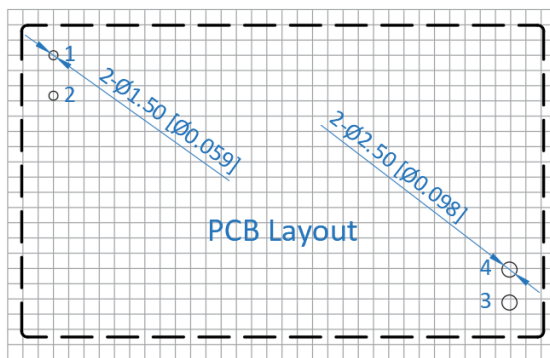
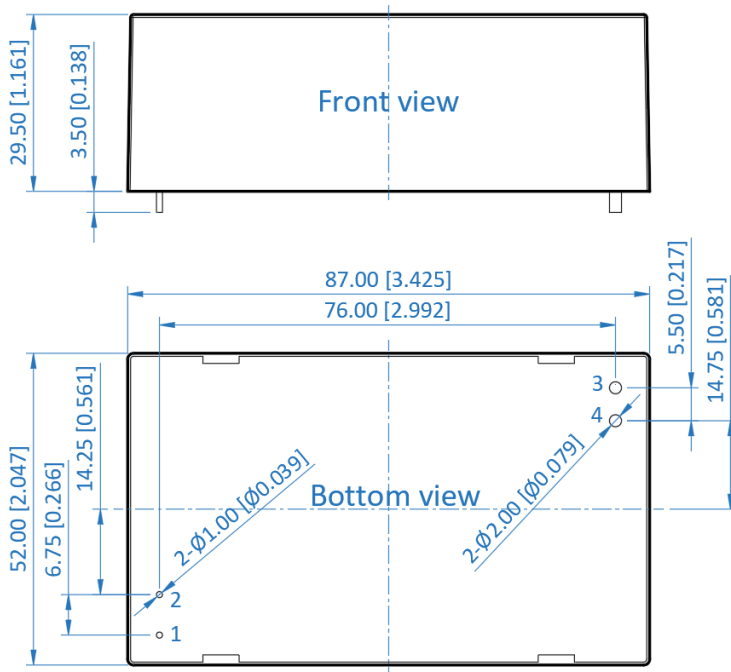


Output vs Altitude



## Mechanical Specifications

### Default Package



### Pin Definition

Pin #	Single Out
1	AC [N]
2	AC [L]
3	+V <sub>OUT</sub>
4	-V <sub>OUT</sub>

\* Unless otherwise specified unit: mm [inch]

\* General tolerance:  $\pm 1.00$  [ $\pm 0.040$ ]

\* Pin thickness:  $\pm 0.15$  [ $\pm 0.006$ ]

\* Pin distance:  $\pm 0.50$  [ $\pm 0.020$ ]

\* Footprint grid 2.54 x 2.54 mm