



(IRM-90)



(IRM-90-xxST)



### ■ Features

- 3.43"x2.05"compact size
- PCB, chassis or screw terminal mounting version
- Universal input 80~305VAC
- No load power consumption<0.21W
- EMI BS EN/EN55032 ClassB without additional components
- Wide operating temp. rage -30~80°C
- Protections: Short circuit / Overload / Over voltage
- Cooling by free air convection
- Isolation Class II
- Over voltage category III
- Operating attitude up to 4000 meters (Note.7)
- 100W peak(10 sec.)
- 3 years warranty

### ■ Applications

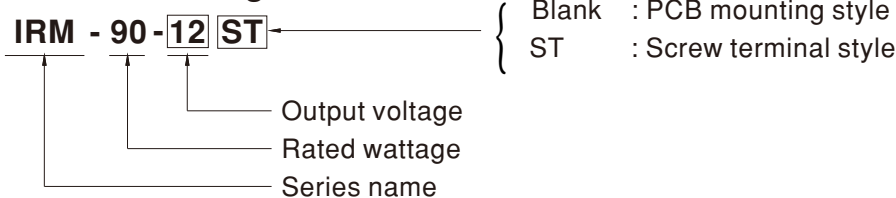
- Industrial electrical equipment
- Mechanical equipment
- Factory automation equipment
- Handheld electronic device

### ■ Description

IRM-90 is a 90W miniature (87\*52\*29.5mm) AC-DC PCB-mount module type power supply, ready to be soldered onto the PCB boards of various kinds of electronic instruments or industrial automation equipments. This product allows the universal input voltage range of 80~305VAC. The 94V-0 flame retardant plastic case and the fully-potted silicone enhance the heat dissipation and meet the anti-vibration demand up to 2~5G anti-vibration by model; moreover, it provides the fundamental resistance to dust and moisture.

With the high efficiency up to 93% and the extremely low no-load power consumption below 0.21W, IRM-90 series fulfills the worldwide regulation for the low power consumption requirement for electronics. The entire series is a Class II design (no FG pin), incorporating the built-in EMI filtering components, enabling the compliance with BS EN/EN55032 Class B; the supreme EMC features keep the end electronic units from from electromagnetic interference. In addition to the PCB mounting style model, IRM-90 series also offers the screw terminal style model (ST).

### ■ Model Encoding



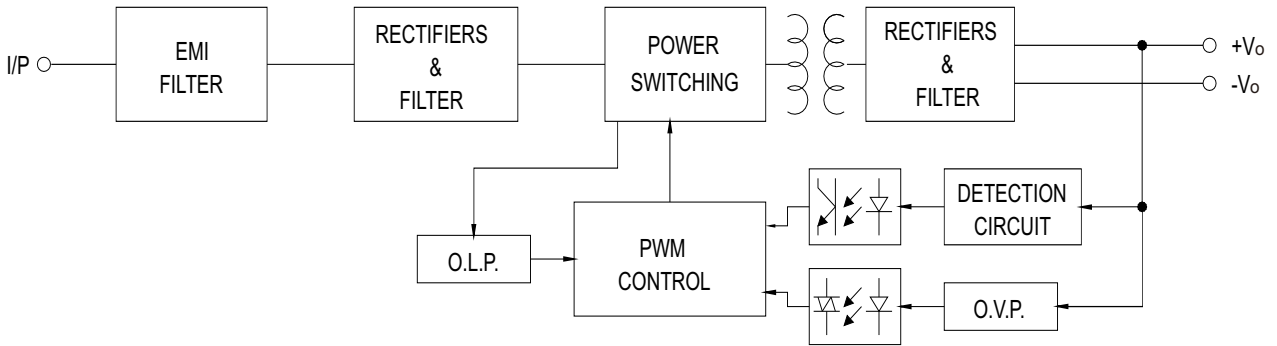


**SPECIFICATION**

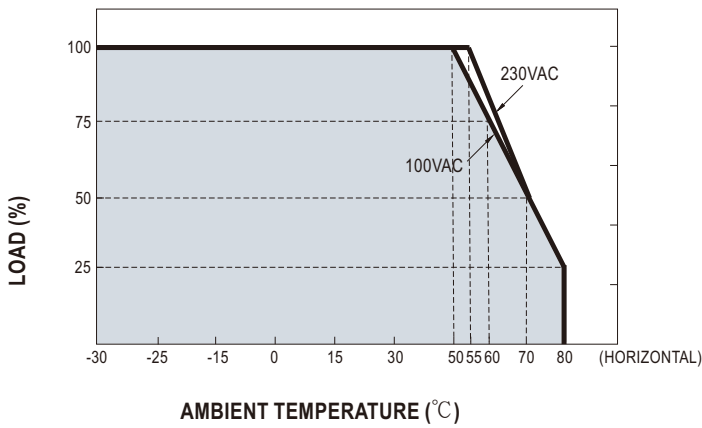
MODEL	IRM-90-12 <input type="checkbox"/>		IRM-90-15 <input type="checkbox"/>		IRM-90-24 <input type="checkbox"/>		IRM-90-48 <input type="checkbox"/>			
OUTPUT	DC VOLTAGE		12V		15V		24V		48V	
	CURRENT	Peak(10 sec.)	7.37A		6.23A		4.13A		2.07A	
		Convection	6.7A		5.67A		3.75A		1.88A	
	RATED POWER	Peak(10 sec.) <small>Note.2</small>	88.4W		93.5W		99W		99.2W	
		Convection	80.4W		85.05W		90W		90.2W	
	RIPPLE & NOISE (max.) <small>Note.3</small>		120mVp-p		150mVp-p		200mVp-p		240mVp-p	
	VOLTAGE TOLERANCE <small>Note.4</small>		±2.0%		±2.0%		±2.0%		±2.0%	
	LINE REGULATION		±0.5%		±0.5%		±0.5%		±0.5%	
	LOAD REGULATION		±1.0%		±0.5%		±0.5%		±0.5%	
	SETUP, RISE TIME		1000ms, 30ms/230VAC		1000ms, 30ms/115VAC at full load					
HOLD UP TIME (Typ.)		30ms/230VAC		10ms/115VAC at full load						
INPUT	VOLTAGE RANGE <small>Note.5</small>		80 ~ 305VAC		113 ~ 431VDC					
	FREQUENCY RANGE		47 ~ 63Hz							
	EFFICIENCY (Typ.)		92%		92.5%		93%		93%	
	AC CURRENT (Typ.)		1.9A/115VAC		1.1A/230VAC					
	INRUSH CURRENT (Typ.)		COLD START		30A/115VAC		65A/230VAC			
	LEAKAGE CURRENT (max.) <small>Note.6</small>		< 0.25mA/240VAC							
PROTECTION	OVERLOAD		115% ~ 160% rated output power		Protection type : Hiccup mode, recovers automatically after fault condition is removed					
	OVER VOLTAGE		12.6 ~ 16.2V		15.8 ~ 20.3V		25.2 ~ 32.4V		50.4 ~ 64.8V	
	OVER TEMPERATURE		Protection type : Shut down o/p voltage, re-power on to recover							
ENVIRONMENT	WORKING TEMP.		-30 ~ +80°C (Refer to "Derating Curve")							
	WORKING HUMIDITY		20 ~ 90% RH non-condensing							
	STORAGE TEMP.		-40 ~ +85°C							
	TEMP. COEFFICIENT		±0.03%/°C (0 ~ 50°C)							
	SOLDERING TEMPERATURE		260°C ±5°C/10sec.max.							
	VIBRATION		Blank:10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes		ST:10 ~ 500Hz, 5G 10min./1cycle, period for 60min. each along X, Y, Z axes					
	OPERATING ALTITUDE <small>Note.7</small>		III ; EN62368-1;altitude up to 2000 meters							
SAFETY & EMC (Note 8)	SAFETY STANDARDS		IEC62368-1, UL62368-1, TUV BS EN/EN62368-1, EAC TP TC 004 approved; Design refer to BS EN/EN60335-1(by request)							
	WITHSTAND VOLTAGE		I/P-O/P:4KVAC							
	ISOLATION RESISTANCE		I/P-O/P:100M Ohms / 500VDC / 25°C / 70% RH							
	EMC EMISSION		Parameter		Standard		Test Level / Note			
			Conducted		BS EN/EN55032 (CISPR32)		Class B			
			Radiated		BS EN/EN55032 (CISPR32)		Class B			
			Harmonic Current		BS EN/EN61000-3-2		Class A			
			Voltage Flicker		BS EN/EN61000-3-3		-----			
	EMC IMMUNITY		BS EN/EN55035, BS EN/EN61000-6-2							
			Parameter		Standard		Test Level / Note			
			ESD		BS EN/EN61000-4-2		Level 3, 8KV air; Level 2, 4KV contact, criteria A			
			RF field susceptibility		BS EN/EN61000-4-3		Level 3, criteria A			
			EFT bursts		BS EN/EN61000-4-4		Level 3, criteria A			
			Surge susceptibility		BS EN/EN61000-4-5		Level 4,2KV/L-N, criteria A			
			Conducted susceptibility		BS EN/EN61000-4-6		Level 3, criteria A			
Magnetic field immunity			BS EN/EN61000-4-8		Level 4, criteria A					
		Voltage dip, interruption		BS EN/EN61000-4-11		>95% dip 0. 5 periods, 30% dip 25 periods, >95% interruptions 250 periods				
OTHERS	MTBF		310Khrs min. MIL-HDBK-217F (25°C);		1694.28Khrs min. Telcordia TR/SR-332 (Bellcore) (25°C)					
	DIMENSION		PCB mounting style : 87*52*29.5mm (L*W*H)		Screw terminal style : 109*52*33.5mm (L*W*H)					
	PACKING		PCB mounting style : 0.197Kg;60pcs/11.8Kg/0.94CUFT		Screw terminal style :0.219Kg;50pcs/12Kg/0.56CUFT					
NOTE	<p>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</p> <p>2. 33% Duty cycle maximum within every 30 seconds. Average output power should not exceed the rated power.</p> <p>3. Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 μf &amp; 47 μf parallel capacitor.</p> <p>4. Tolerance : includes set up tolerance, line regulation and load regulation.</p> <p>5. Derating may be needed under low input voltages. Please check the derating curve for more details.</p> <p>6. Leakage current was measured from primary input to DC output.</p> <p>7. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft).</p> <p>8. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on <a href="http://www.meanwell.com">http://www.meanwell.com</a>)</p> <p>※ Product Liability Disclaimer : For detailed information, please refer to <a href="https://www.meanwell.com/serviceDisclaimer.aspx">https://www.meanwell.com/serviceDisclaimer.aspx</a></p>									

■ Block Diagram

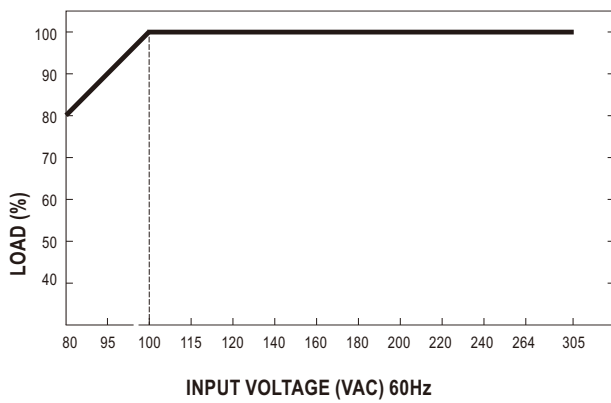
fosc : 70KHz



■ Derating Curve



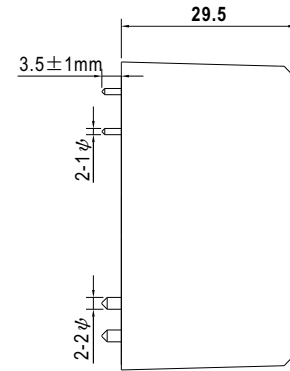
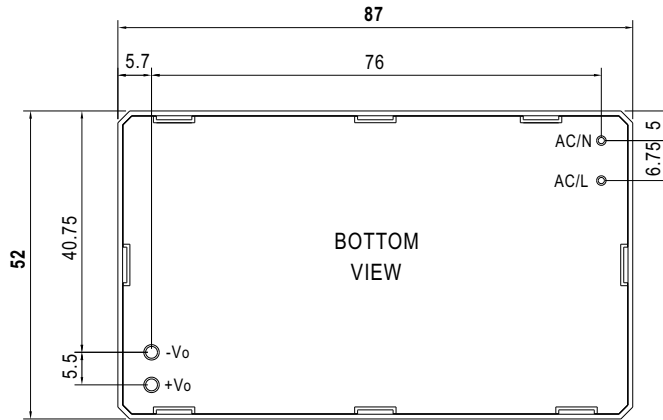
■ Output Derating VS Input Voltage



■ **Mechanical Specification**

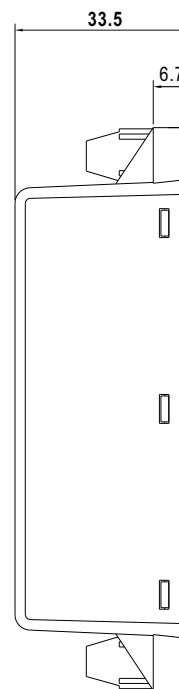
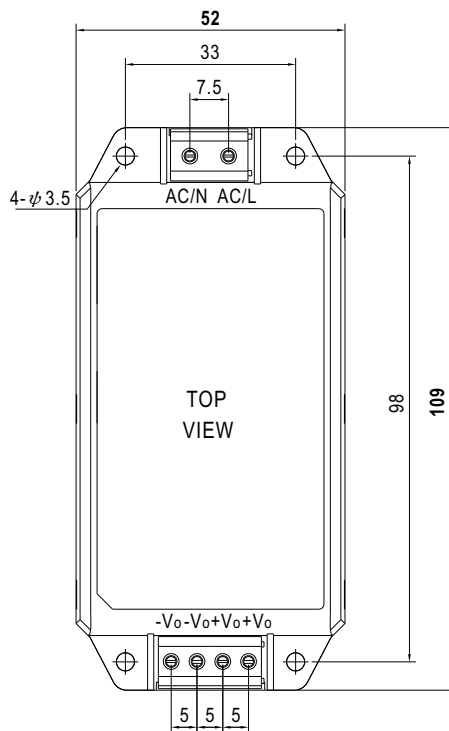
Case No. IRM60 Unit: mm

• PCB mounting style (IRM-90)



AC/L, AC/N P/N diameter: 1  $\phi$   
+Vo, -Vo P/N diameter: 2  $\phi$

• Screw terminal style (IRM-90-xxST)



■ **Installation Manual**

Please refer to : <http://www.meanwell.com/manual.html>