



(IRM-90)



(IRM-90-xxST)



UL62368-1

 CB  
IEC62368-1

 EAC  
TPTC004

CE



## ■ Features

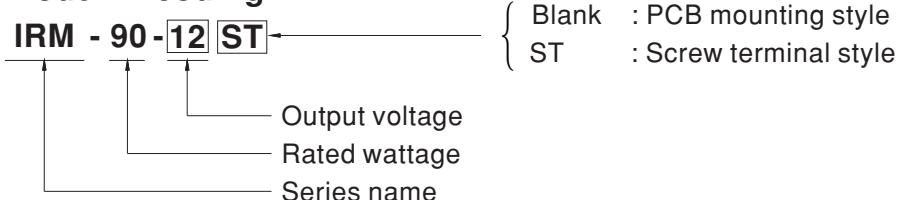
- 3.43"x2.05"compact size
- PCB,chassis or screw terminal mounting version
- Universal input 80~305VAC
- No load power consumption<0.21W
- EMI EN55032 ClassB without additional components
- Wide operating temp. rage -30~80°C
- Protections: Short circuit / Overload / Over voltage
- Cooling by free air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

## ■ 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 5G; 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 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



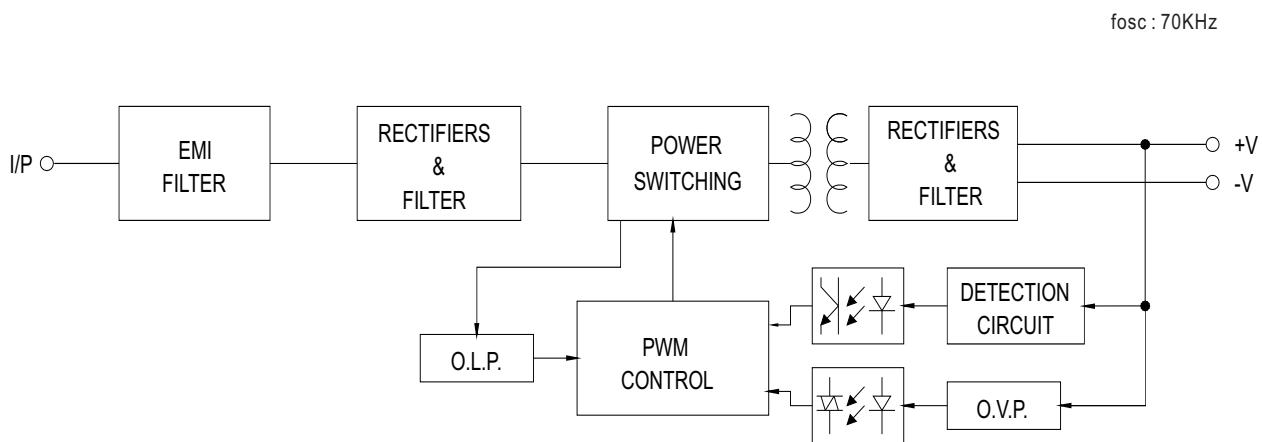
## ■ Applications

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

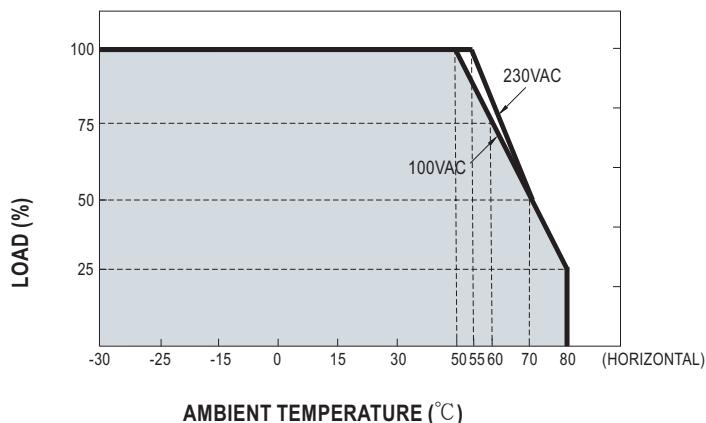
## SPECIFICATION

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	<b>DC VOLTAGE</b>	12V	15V	24V
	<b>CURRENT</b>	Peak(10 sec.) Convection	7.37A 6.7A	4.13A 5.67A
	<b>RATED POWER</b>	Peak(10 sec.) <sup>Note.2</sup> Convection	88.4W 80.4W	93.5W 85.05W
	<b>RIPPLE &amp; NOISE (max.)</b> Note.3	120mVp-p	150mVp-p	200mVp-p
	<b>VOLTAGE TOLERANCE</b> Note.4	±2.0%	±2.0%	±2.0%
	<b>LINE REGULATION</b>	±0.5%	±0.5%	±0.5%
	<b>LOAD REGULATION</b>	±1.0%	±0.5%	±0.5%
	<b>SETUP, RISE TIME</b>	1000ms, 30ms/230VAC	1000ms, 30ms/115VAC at full load	
	<b>HOLD UP TIME (Typ.)</b>	30ms/230VAC	10ms/115VAC at full load	
	<b>VOLTAGE RANGE</b> Note.5	80 ~ 305VAC	113 ~ 431VDC	
INPUT	<b>FREQUENCY RANGE</b>	47 ~ 63Hz		
	<b>EFFICIENCY (Typ.)</b>	92%	92.5%	93%
	<b>AC CURRENT (Typ.)</b>	1.9A/115VAC	1.1A/230VAC	
	<b>INRUSH CURRENT (Typ.)</b>	COLD START	30A/115VAC	65A/230VAC
	<b>LEAKAGE CURRENT (max.)</b> Note.6	< 0.25mA/240VAC		
PROTECTION	<b>OVERLOAD</b>	115% ~ 160% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed		
	<b>OVER VOLTAGE</b>	12.6 ~ 16.2V	15.8 ~ 20.3V	25.2 ~ 32.4V
	<b>OVER TEMPERATURE</b>	Protection type : Shut down o/p voltage, re-power on to recover		
ENVIRONMENT	<b>WORKING TEMP.</b>	-30 ~ +80°C (Refer to "Derating Curve")		
	<b>WORKING HUMIDITY</b>	20 ~ 90% RH non-condensing		
	<b>STORAGE TEMP.</b>	-40 ~ +85°C		
	<b>TEMP. COEFFICIENT</b>	±0.03%/°C (0 ~ 50°C)		
	<b>SOLDERING TEMPERATURE</b>	260°C ±5°C/10sec.max.		
	<b>VIBRATION</b>	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		
SAFETY & EMC (Note 8)	<b>OPERATING ALTITUDE</b> Note.7	III; EN62368-1;altitude up to 2000 meters by request		
	<b>SAFETY STANDARDS</b>	IEC62368-1, UL62368-1, TUV EN62368-1, EAC TP TC 004 approved; Design refer to EN60335-1(by request)		
	<b>WITHSTAND VOLTAGE</b>	I/P-O/P:4KVAC		
	<b>ISOLATION RESISTANCE</b>	I/P-O/P:100M Ohms / 500VDC / 25°C / 70% RH		
	<b>EMC EMISSION</b>	<b>Parameter</b>	<b>Standard</b>	<b>Test Level / Note</b>
		Conducted	EN55032 (CISPR32)	Class B
		Radiated	EN55032 (CISPR32)	Class B
		Harmonic Current	EN61000-3-2	Class A
	<b>EMC IMMUNITY</b>	Voltage Flicker	EN61000-3-3	-----
		EN55035, EN61000-6-2		
		<b>Parameter</b>	<b>Standard</b>	<b>Test Level / Note</b>
		ESD	EN61000-4-2	Level 3, 8KV air; Level 2, 4KV contact, criteria A
		RF field susceptibility	EN61000-4-3	Level 3, criteria A
		EFT bursts	EN61000-4-4	Level 3, criteria A
		Surge susceptibility	EN61000-4-5	Level 4, 2KV/L-N, criteria A
		Conducted susceptibility	EN61000-4-6	Level 3, criteria A
OTHERS	<b>Magnetic field immunity</b>	EN61000-4-8	Level 4, criteria A	
	<b>Voltage dip, interruption</b>	EN61000-4-11	>95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods	
	<b>MTBF</b>	310Khrs min. MIL-HDBK-217F (25°C);	1694.28Khrs min. Telcordia TR/SR-332 (Bellcore) (25°C)	
<b>DIMENSION</b>	PCB mounting style : 87*52*29.5mm (L*W*H)			
	<b>PACKING</b>	PCB mounting style : 0.197Kg;60pcs/11.8Kg/0.97CUFT	Screw terminal style : 0.219Kg;50pcs/12Kg/0.55CUFT	
<b>NOTE</b>	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature. 2. 33% Duty cycle maximum within every 30 seconds. Average output power should not exceed the rated power. 3. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 μf & 47 μf parallel capacitor. 4. Tolerance : includes set up tolerance, line regulation and load regulation. 5. Derating may be needed under low input voltages. Please check the derating curve for more details. 6. Leakage current was measured from primary input to DC output. 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). 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> )			

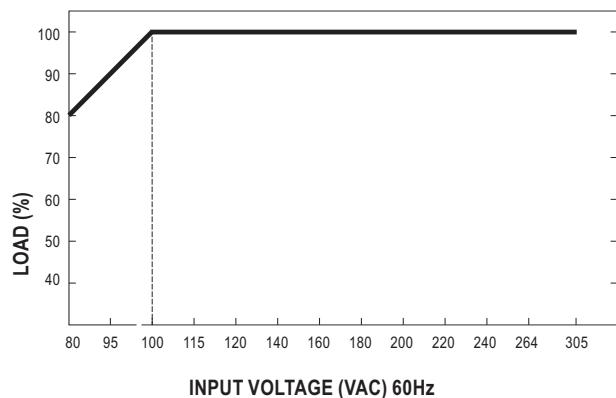
## ■ Block Diagram



## ■ Derating Curve



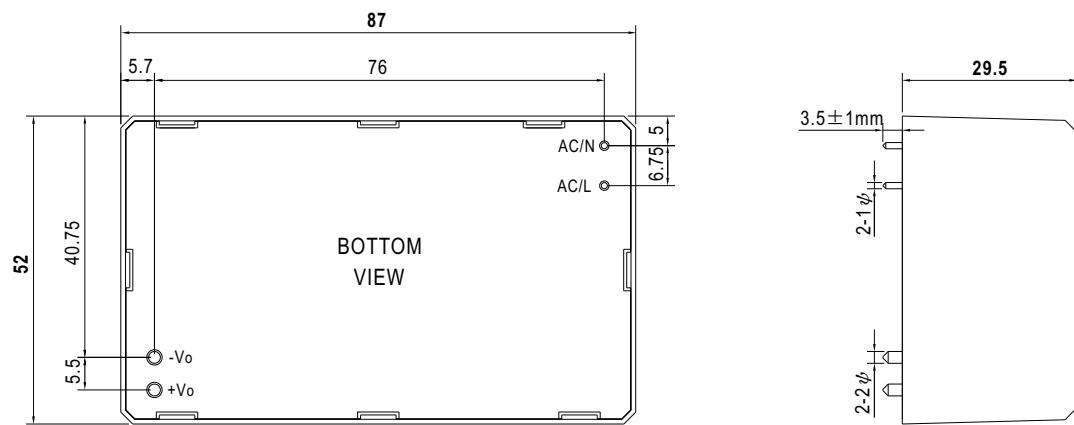
## ■ Output Derating VS Input Voltage



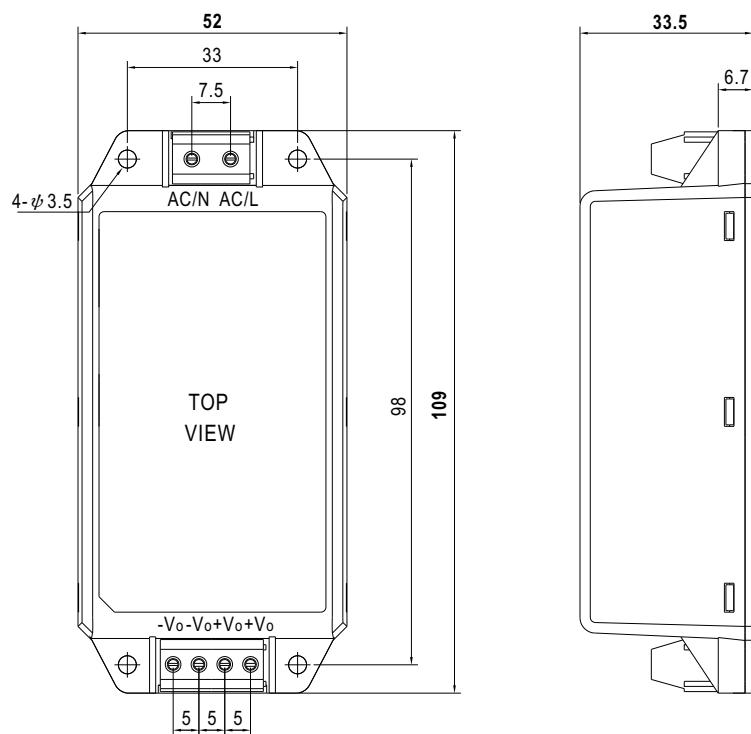
**■ Mechanical Specification**

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>