# 90W AC-DC High Reliable PCB-Mount Green Industrial Power Module IRM-90 series

User's Manual
Click Me



(IRM-90)



(IRM-90-xxST)

UL62368-1 IEC62368-1 BS EN/EN60335-1 BS EN/EN62368-1 TPTC004

ECO Automate Industrial Security Network Telecom

## Features

- 3.43"x2.05"compact size
- PCB,chassis or screw terminal mounting version
- Universal input 80~305Vac
- No load power consumption<0.3W
- EMI BS EN/EN55032 ClassB without additional components
- Wide operating temp. rage -40~+85℃
- 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

## GTIN CODE

MW Search: https://www.meanwell.com/serviceGTIN.aspx

## 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 potted with 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 0.3W, 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

IRM - 90 - 12 ST

- Blank : PCB mounting style
- ST : Screw terminal style

- Output voltage(12V/15V/24V/48V)
- Rated wattage
- Series name

# 90W AC-DC High Reliable PCB-Mount Green Industrial Power Module IRM-90 series

## SPECIFICATION

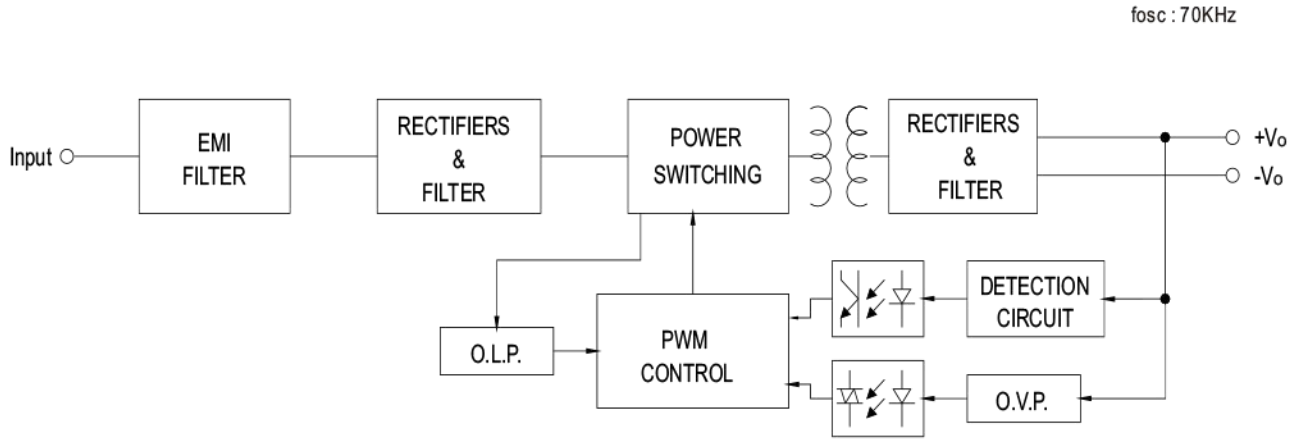
| MODEL | | | IRM-90-12 ☐ | IRM-90-15 ☐ | IRM-90-24 ☐ | IRM-90-48 ☐ |
|---|---|---|---|---|---|---|
| OUTPUT | DC VOLTAGE | | 12V | 15V | 24V | 48V |
| | CURRENT | Peak(10 sec.) | 7.37A | 6.23A | 4.13A | 2.07A |
| | | Convection | 6.7A | 5.67A | 3.75A | 1.88A |
| | RATED POWER | Peak(10 sec.)Note.2 | 88.4W | 93.5W | 99W | 99.2W |
| | | Convection | 80.4W | 85.05W | 90W | 90.2W |
| | RIPPLE & NOISE (max.) Note.3 | | 120mVp-p | 150mVp-p | 200mVp-p | 240mVp-p |
| | VOLTAGE TOLERANCE Note.4 | | ±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 Note.5 | | 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.) Note.6 | | < 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 |
| | | | Protection type : Shut down o/p voltage, re-power on to recover | | | |
| | OVER TEMPERATURE | | Protection type : Shut down o/p voltage, re-power on to recover | | | |
| ENVIRONMENT | WORKING TEMP. | | -40 ~ +85℃ (Refer to "Derating Curve") | | | |
| | WORKING HUMIDITY | | 20 ~ 90% RH non-condensing | | | |
| | STORAGE TEMP. | | -40 ~ +85℃ | | | |
| | TEMP. COEFFICIENT | | ±0.03%/℃ (0 ~ 50℃) | | | |
| | SOLDERING TEMPERATURE | | Wave soldering: 265℃,5s (max.); Manual soldering: 390℃,3s (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 Note.7 | | Ⅲ; EN62368-1;altitude up to 2000 meters | | | |
| SAFETY & EMC (Note 8) | SAFETY STANDARDS | | IEC62368-1, IEC60335-1, Dekra BS EN/EN60335-1,BS EN/EN62368-1,UL62368-1, TUV BS EN/EN62368-1, EAC TP TC 004 approved | | | |
| | WITHSTAND VOLTAGE | | I/P-O/P:4KVac | | | |
| | ISOLATION RESISTANCE | | I/P-O/P:100M Ohms / 500Vdc / 25℃/ 70% RH | | | |
| | EMC EMISSION | | **Parameter** | **Standard** | **Test Level / Note** | |
| | | | Conducted | BS EN/EN55032 (CISPR32),BS EN/EN55014-1 | Class B | |
| | | | Radiated | BS EN/EN55032 (CISPR32),BS EN/EN55014-1 | 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,BS EN/EN55014-2 | | | |
| | | | **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 | | 5088.4K hrs min. Telcordia SR-332 (Bellcore) ; 609.9K hrs min. MIL-HDBK-217F (25℃) | | | |
| | 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**

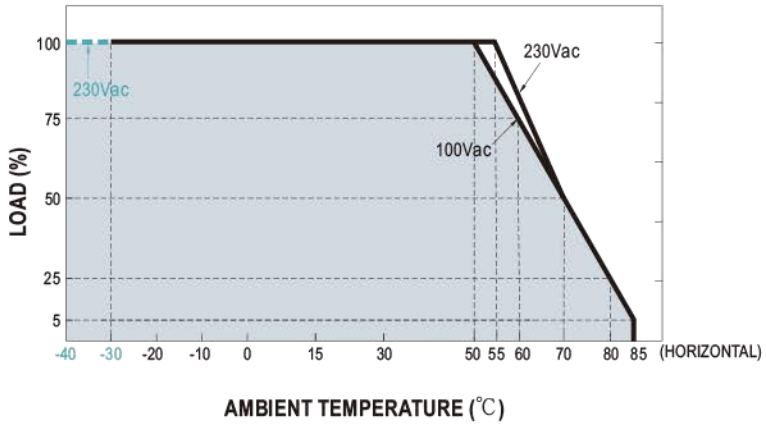
1. All parameters NOT specially mentioned are measured at 230Vac input, rated load and 25℃ of ambient temperature.
2. 33% Duty cycle maximum within every 30 seconds. Average output power should not exceed the rated power.
3. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire 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℃/1000m with fanless models and of 5℃/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 https://www.meanwell.com//Upload/PDF/EMI_statement_en.pdf )

※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx

## ■ Block Diagram

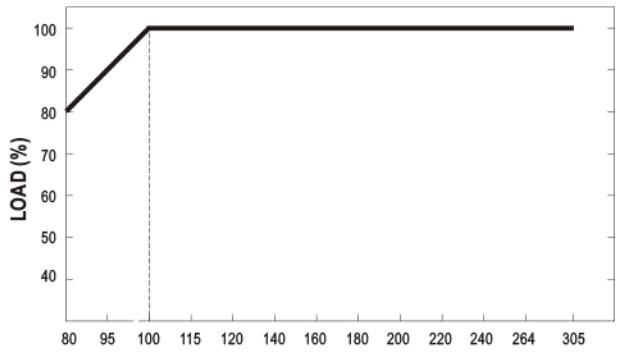



## ■ Derating Curve




AMBIENT TEMPERATURE (℃)

## ■ Output Derating VS Input Voltage



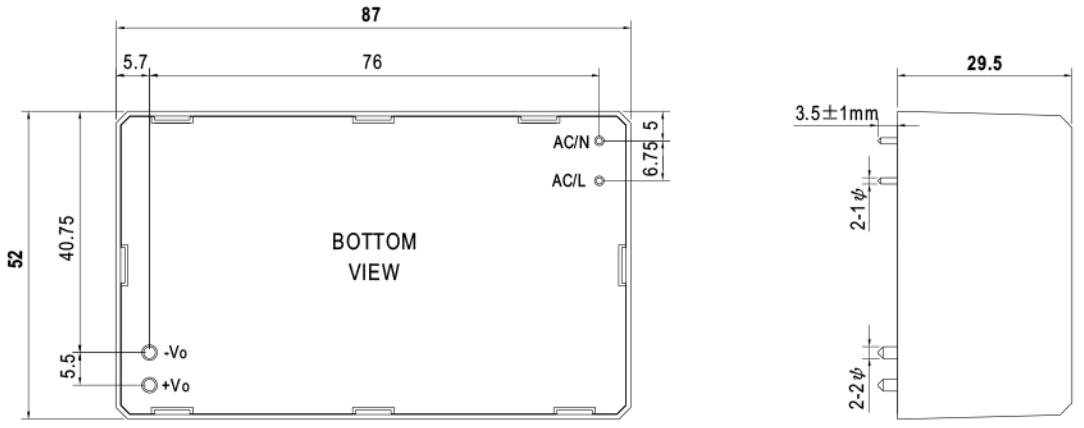

INPUT VOLTAGE (Vac) 60Hz

## ■ Mechanical Specification

(Unit:mm, Tolerance:±1mm)

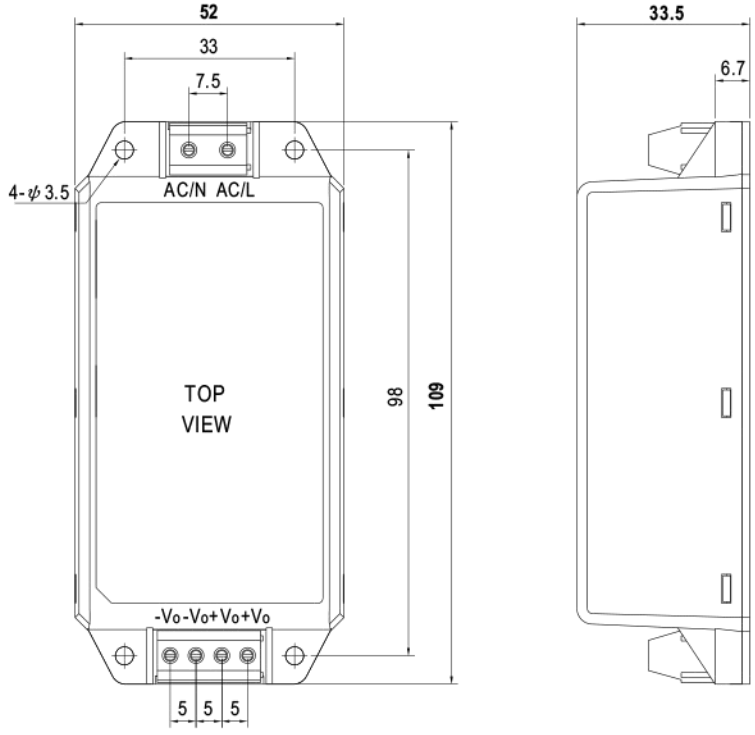
Case No.IRM60

• **PCB mounting style ( IRM-90 )**




AC/L, AC/N P/N diameter:1ψ
+Vo, -Vo P/N diameter:2ψ

• **Screw terminal style ( IRM-90-xxST )**




## ■ Installation Manual

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