



90W Single Output Moistureproof Adaptor

OWA-90E series

User's Manual



IP67



EAC CE

## ■ Features

- Universal AC input / Full range
- Built-in active PFC function
- High efficiency up to 91%
- No load power consumption<0.15W
- Energy efficiency Level VI
- Comply with EU ErP
- Meet CoC Version 5(Except for 12V)
- Protections: Short circuit / Over current /  
Over voltage / Over temperature
- Class II power unit, no FG
- Fanless design, cooling by free air convection
- 5 years warranty

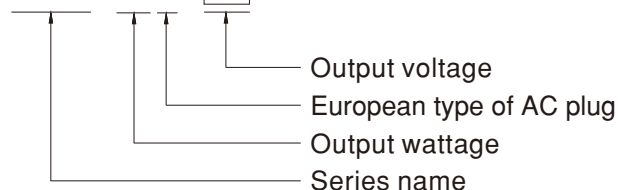
## ■ Description

OWA-90E is a 90W AC/DC, class II (without earth pin) external power supply series pinpointing the moistureproof feature. The fully-potted silicone inside the plastic enclosure enhances the heat dissipation; it also benefits that the OWA-90E is approved for IP67 level so that this series specializes the application in which the damp, humidity or dust resistance is needed for the external power supply. OWA-90E follows the latest energy efficiency demand, and is compliant with EU ErP and meets Code of Conduct(CoC) Version 5(Except for 12V); the no load power consumption is less than 0.15W. It is certified with EN 61558-2-16; moreover, the compliance to EN 60335-1 for selected models can greatly simplify the system design such as household appliances.

OWA-90E adopts the universal input range from 90VAC to 264VAC, and incorporates a built-in PFC function. With the working efficiency up to 91%, OWA-90E is cooled by free air convection; the working temperature ranges from -40°C to +70°C.

## ■ Model Encoding

OWA - 90E -12



## ■ Applications

- Robotic lawn mower
- Household appliance
- Battery charging
- General electronic products in dusty or humid environment

## ■ GTIN CODE

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



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**OWA-90E** series**SPECIFICATION**

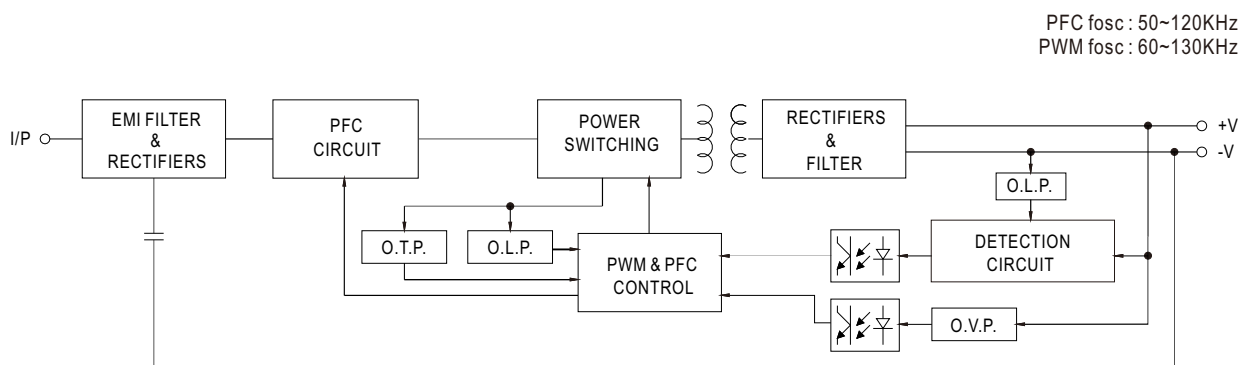
| MODEL               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | OWA-90E-12                                                                                                         | OWA-90E-15 | OWA-90E-20 | OWA-90E-24 | OWA-90E-30 | OWA-90E-36 | OWA-90E-42 | OWA-90E-48 | OWA-90E-54 |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|
| OUTPUT              | DC VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 12V                                                                                                                | 15V        | 20V        | 24V        | 30V        | 36V        | 42V        | 48V        | 54V        |
|                     | RATED CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 7.5A                                                                                                               | 6A         | 4.5A       | 3.75A      | 3A         | 2.5A       | 2.15A      | 1.88A      | 1.67A      |
|                     | RATED POWER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 90W                                                                                                                | 90W        | 90W        | 90W        | 90W        | 90W        | 90.3W      | 90.24W     | 90.18W     |
|                     | RIPPLE & NOISE (max.) <small>Note.2</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 150mVp-p                                                                                                           | 150mVp-p   | 150mVp-p   | 150mVp-p   | 200mVp-p   | 200mVp-p   | 250mVp-p   | 250mVp-p   | 350mVp-p   |
|                     | VOLTAGE TOLERANCE <small>Note.3</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ±4.0%                                                                                                              | ±4.0%      | ±4.0%      | ±3.0%      | ±3.0%      | ±2.0%      | ±1.0%      | ±1.0%      | ±1.0%      |
|                     | LINE REGULATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ±0.5%                                                                                                              | ±0.5%      | ±0.5%      | ±0.5%      | ±0.5%      | ±0.5%      | ±0.5%      | ±0.5%      | ±0.5%      |
|                     | LOAD REGULATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ±1.5%                                                                                                              | ±1.0%      | ±0.5%      | ±0.5%      | ±0.5%      | ±0.5%      | ±0.5%      | ±0.5%      | ±0.5%      |
|                     | SETUP, RISE TIME <small>Note.4</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 500ms, 80ms at 95% load    115VAC / 230VAC                                                                         |            |            |            |            |            |            |            |            |
| HOLD UP TIME (Typ.) | 16ms at full load    115VAC / 230VAC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                    |            |            |            |            |            |            |            |            |
| INPUT               | VOLTAGE RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 90 ~ 264VAC    127 ~ 370VDC                                                                                        |            |            |            |            |            |            |            |            |
|                     | FREQUENCY RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 47 ~ 63Hz                                                                                                          |            |            |            |            |            |            |            |            |
|                     | POWER FACTOR (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | PF>0.98/115VAC, PF>0.96/230VAC at full load                                                                        |            |            |            |            |            |            |            |            |
|                     | EFFICIENCY (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 89%                                                                                                                | 90%        | 90%        | 90%        | 90%        | 91%        | 91%        | 91%        | 91%        |
|                     | AC CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0.95A / 115VAC    0.5A / 230VAC                                                                                    |            |            |            |            |            |            |            |            |
|                     | INRUSH CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | COLD START 60A(twidth=550μs measured at 50% Ipeak) at 230VAC                                                       |            |            |            |            |            |            |            |            |
|                     | LEAKAGE CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <0.25mA / 240VAC                                                                                                   |            |            |            |            |            |            |            |            |
| PROTECTION          | OVERLOAD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 105 ~ 115%<br>Protection type : Hiccup mode, recovers automatically after fault condition is removed               |            |            |            |            |            |            |            |            |
|                     | SHORT CIRCUIT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Hiccup mode, recovers automatically after fault condition is removed                                               |            |            |            |            |            |            |            |            |
|                     | OVER VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 15 ~ 17V                                                                                                           | 17.5 ~ 21V | 23 ~ 27V   | 28 ~ 34V   | 34 ~ 40V   | 41 ~ 46V   | 46 ~ 54V   | 54 ~ 60V   | 59 ~ 66V   |
|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Protection type : Shut down o/p voltage, re-power on to recover                                                    |            |            |            |            |            |            |            |            |
|                     | OVER TEMPERATURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Shut down o/p voltage, re-power on to recover                                                                      |            |            |            |            |            |            |            |            |
| ENVIRONMENT         | WORKING TEMP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | -40 ~ +70°C (Refer to "Derating Curve")                                                                            |            |            |            |            |            |            |            |            |
|                     | WORKING HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 20 ~ 95% RH non-condensing                                                                                         |            |            |            |            |            |            |            |            |
|                     | STORAGE TEMP., HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | -40 ~ +80°C, 10 ~ 95% RH                                                                                           |            |            |            |            |            |            |            |            |
|                     | TEMP. COEFFICIENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ±0.03%/°C (0 ~ 50°C)                                                                                               |            |            |            |            |            |            |            |            |
|                     | VIBRATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes                                            |            |            |            |            |            |            |            |            |
| SAFETY & EMC        | SAFETY STANDARDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | EN61558-1,-2-16 listed; EN60335-1 listed(except for OWA-90E-42,48,54); EAC TP TC 004,IP67 approved                 |            |            |            |            |            |            |            |            |
|                     | WITHSTAND VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | I/P-O/P:3.75KVAC                                                                                                   |            |            |            |            |            |            |            |            |
|                     | ISOLATION RESISTANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | I/P-O/P:100M Ohms / 500VDC / 25°C/ 70% RH                                                                          |            |            |            |            |            |            |            |            |
|                     | EMC EMISSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Compliance to EN55032 (CISPR32) Class B, EN55014-1,EN61000-3-2,-3;EAC TP TC 020                                    |            |            |            |            |            |            |            |            |
|                     | EMC IMMUNITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Compliance to EN61000-4-2,3,4,5,6,8,11, EN55035, EN55014-2, light industry level (surge L- N : 2KV), EAC TP TC 020 |            |            |            |            |            |            |            |            |
| OTHERS              | MTBF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3044.3K hrs min. Telcordia SR-332 (Bellcore)    292.9K hrs min.    MIL-HDBK-217F (25°C)                            |            |            |            |            |            |            |            |            |
|                     | DIMENSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 171*63*37.5mm                                                                                                      |            |            |            |            |            |            |            |            |
|                     | PACKING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0.92Kg; 16pcs/15.7Kg/1.01CUFT                                                                                      |            |            |            |            |            |            |            |            |
| NOTE                | 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.<br>2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.<br>3. Tolerance : includes set up tolerance, line regulation and load regulation.<br>4. Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time.<br>※ Product Liability Disclaimer : For detailed information, please refer to <a href="https://www.meanwell.com/serviceDisclaimer.aspx">https://www.meanwell.com/serviceDisclaimer.aspx</a> |                                                                                                                    |            |            |            |            |            |            |            |            |



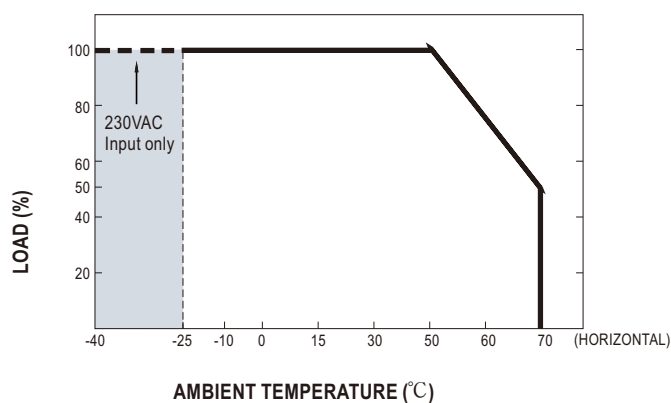
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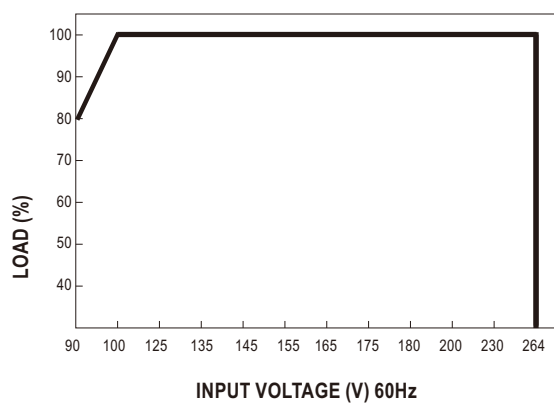
### ■ Block Diagram



### ■ Derating Curve



### ■ Static Characteristics



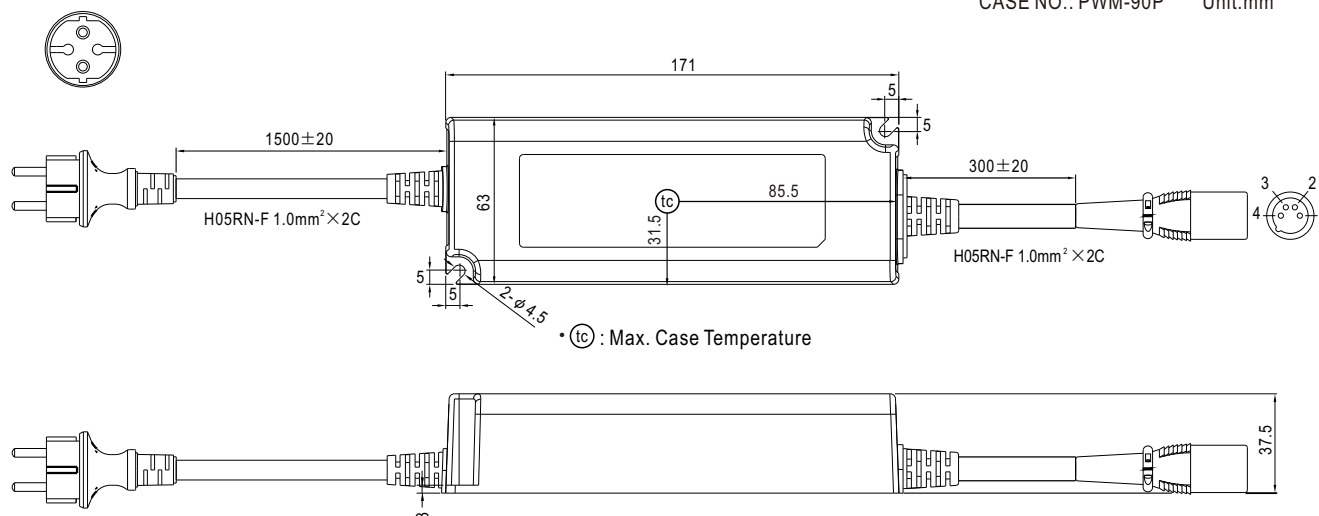


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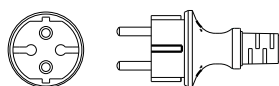
### Mechanical Specification

CASE NO.: PWM-90P Unit:mm



### Input Plug Type

All standard models : CEE 7/7



### Output Plug Assignment

| Model Category     | Plug Description                                | Plug Picture | PIN NO. | OUTPUT |
|--------------------|-------------------------------------------------|--------------|---------|--------|
| For standard model | XLR 4P, NEUTRIK NC4MX, or equivalent            |              | 1,2     | +V     |
|                    |                                                 |              | 3,4     | -V     |
| For optional model | Lumberg 3611 03, or equivalent                  |              | 1       | +V     |
|                    |                                                 |              | 2       | float  |
|                    |                                                 |              | 3       | -V     |
| For optional model | XLR 3P, NEUTRIK NC3MX, or equivalent            |              | 1       | +V     |
|                    |                                                 |              | 2,3     | -V     |
| For optional model | CHOGORI 22002411-01 or equivalent               |              | 1       | +V     |
|                    |                                                 |              | 2       | -V     |
| For optional model | Unicable UT-D170F4-2P or equivalent             |              | 1       | +V     |
|                    |                                                 |              | 2       | -V     |
| For optional model | Unicable UT-D224-2P or equivalent               |              | 1       | +V     |
|                    |                                                 |              | 2       | -V     |
| For optional model | 2.1φ x 5.5φ x 11 mm, center +, tuning fork type |              | CENTER  | +V     |

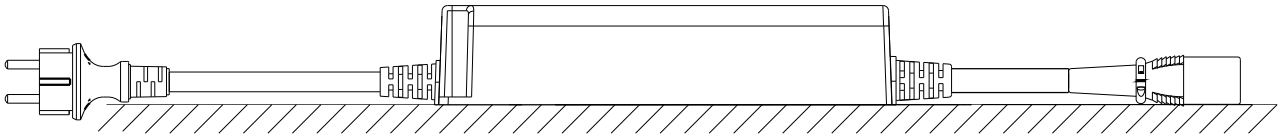
※ For details, please contact MEAN WELL.



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**OWA-90E** series

■ **Recommend Mounting Direction**



■ **Installation Manual**

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