Y&H GMI-300W-220V-IT

Y&H 300W Grid Tie Micro Inverter User Manual

Model: GMI-300W-220V-IT
Brand: Y&H

1. Introduction

The Y&H 300W Grid Tie Micro Inverter is a compact unit designed to convert direct current (DC) power from solar panels directly into alternating current (AC) power. This AC power can then be used to supply household appliances and connect to the electrical grid. The inverter's AC output is synchronized and in phase with the utility grid, ensuring seamless integration.
This inverter utilizes Maximum Power Point Tracking (MPPT) technology, achieving an efficiency of over 98%. The peak conversion rate is approximately 80%. When calculating the required solar panel power, consider an approximate 80% conversion rate for both the solar panel and the inverter. For example, to achieve 150W output from the inverter, connect it to a solar panel of approximately 234W (234W * 0.8 * 0.8 = 149W). The solar panel power must not exceed 300W.

2. Safety Information

- Read all instructions and warnings before installation and operation.
- Installation must be performed by qualified personnel.
- Ensure the solar panel's Vmp (voltage at maximum power) is within the MPPT range of 24-40V for optimal efficiency. Using 12V panels or operating in low sunlight conditions (below 18V) can lead to unstable inverter operation and potential damage.
- The solar panel power connected to this inverter must not exceed 300W.
- This Micro Grid Tie Inverter is not designed to work with batteries.
- The inverter generates heat during operation. Its aluminum alloy casing is designed for heat dissipation. It features overheat protection, which will automatically reduce output or stop operation if temperatures become too high. The unit will restart after cooling.
- Install the inverter in a well-ventilated, dry, and cool location to prevent overheating and ensure longevity.

3. Product Features

- Grid Tie Inverter with MPPT Range 24-40V.
- Recommended Solar Panel Voltage: Vmp 30-39V; Voc 38-46V.
- Maximum solar panel power: 300W.
- CE Certified.
- High efficiency (over 98% with MPPT technology).
- Pure Sine Wave output.

4. Package Contents

Upon opening the package, please verify that all items are present and undamaged:

- 1x Y&H Grid Tie Micro Inverter (300W)
- 1x AC Cable (30CM)
- 1x English User Manual

5. Setup and Installation

5.1 Basic Structure and Dimensions

Familiarize yourself with the inverter's components and physical dimensions before installation.

Image: Basic structure of the Y&H 300W Grid Tie Micro Inverter, highlighting its components and connection points.

Image: Detailed dimensions of the inverter unit in millimeters.

5.2 Wiring Schematics

Follow the appropriate wiring diagram for your specific grid configuration. Ensure all connections are secure and comply with local electrical codes.

Image: Wiring diagram for 120/230VAC Single Phase grid connection.

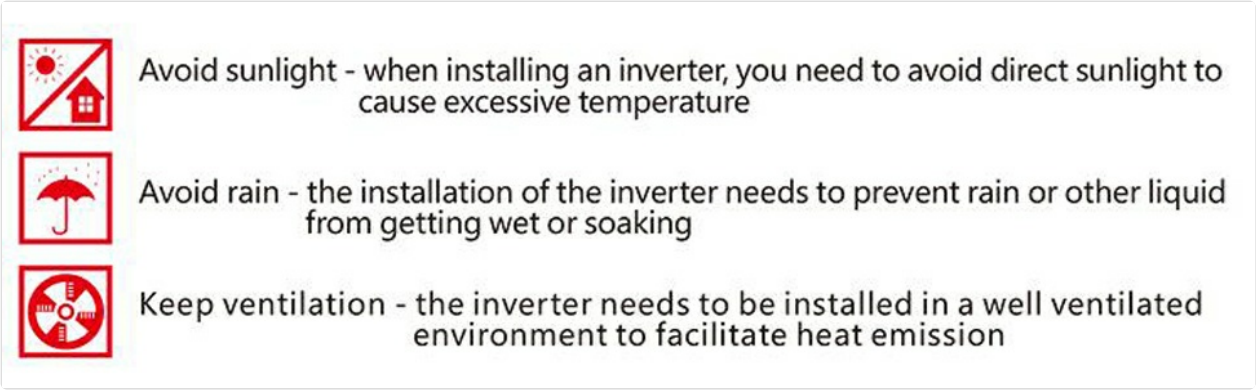

Image: Wiring diagram for 230VAC 2-Phase (208/240V) grid connection.

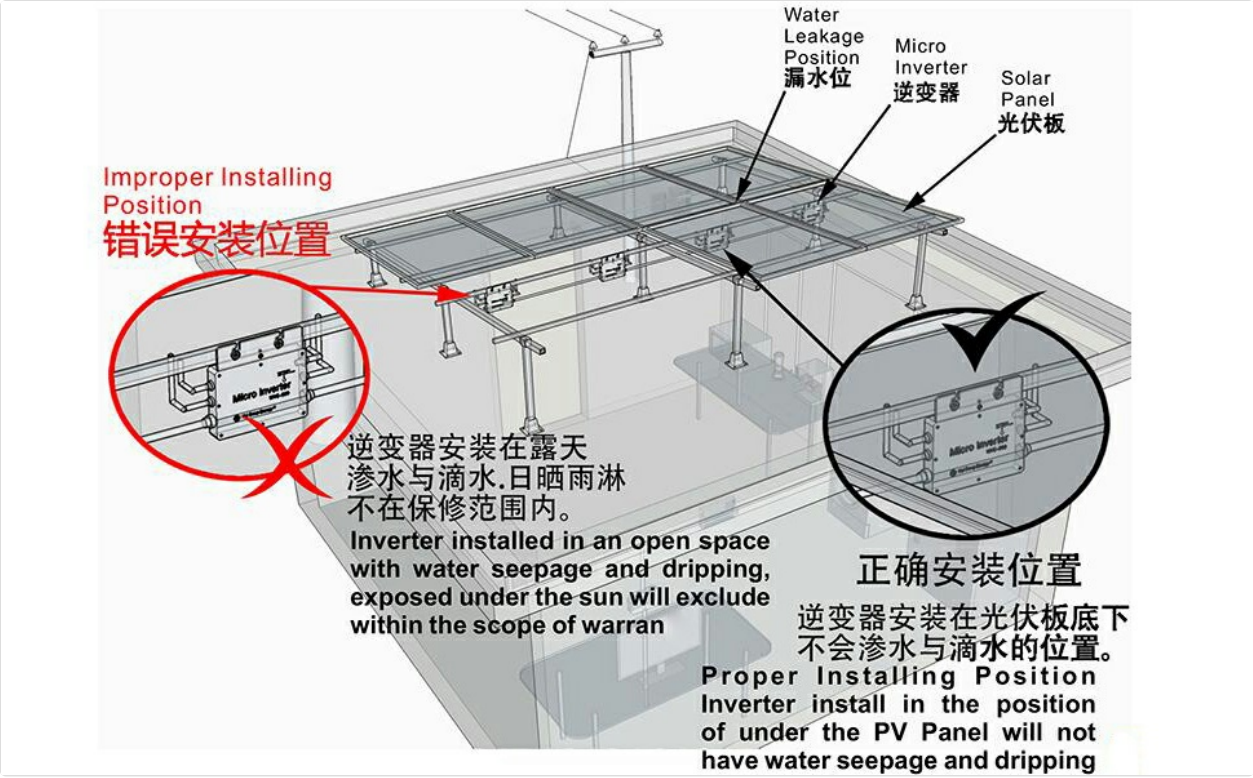

Image: Wiring diagram for 120VAC 3-Phase (208/240V) grid connection.

5.3 Installation Environment Guidelines

Proper installation environment is crucial for the inverter's performance and lifespan.

Image: Visual guidelines for inverter installation environment.

- **Avoid direct sunlight:** Install the inverter in a shaded area to prevent excessive temperatures.
- **Avoid rain:** Ensure the installation location protects the inverter from rain or any other liquid exposure.
- **Ensure ventilation:** The inverter requires a well-ventilated environment to facilitate proper heat dissipation.

Image: Comparison of improper and proper inverter installation positions.

Proper Installation Position: Install the inverter underneath the PV panel where it will not be exposed to water seepage, dripping, or direct sunlight. Improper installation in an open space with water seepage and dripping, exposed to the sun, will void the warranty.

5.4 Connection Steps

A simplified connection diagram is provided below for reference.

Image: Simplified diagram illustrating the connection from solar panels to the inverter and then to the home grid.

1. Connect the DC output cables from your solar panel(s) to the PV input connectors on the micro inverter. Ensure correct polarity.
2. Connect the AC output cable from the micro inverter to the provided 30CM AC cable.
3. Plug the AC cable into a standard electrical outlet in your home, connecting it to the utility grid.
4. Verify all connections are secure before powering on the system.

6. Operating Instructions

Once properly installed and connected, the Y&H 300W Grid Tie Micro Inverter will automatically begin converting DC power from your solar panels into AC power and feeding it into your home's electrical grid. The inverter's status indicator light will provide feedback on its operation.

- **Automatic Operation:** The inverter is designed for automatic operation. It will start converting power when sufficient sunlight is available and synchronize with the grid.
- **Grid Synchronization:** The inverter will only operate when it detects a stable utility grid connection. In the event of a grid outage, the inverter will automatically shut down for safety (anti-islanding protection).
- **Monitoring:** While this model does not include advanced monitoring features, you can observe the status indicator for basic operational status.

7. Maintenance

Regular maintenance helps ensure the longevity and optimal performance of your micro inverter.

- **Cleaning:** Periodically clean the exterior of the inverter to remove dust and debris. Ensure the cooling fins are clear for proper heat dissipation. Use a dry, soft cloth. Do not use liquid cleaners.
- **Connection Checks:** Annually inspect all electrical connections (DC input from solar panels, AC output to grid) to ensure they are tight and free from corrosion.
- **Ventilation:** Regularly check that the installation area remains well-ventilated and free from obstructions that could impede airflow around the inverter.
- **Environmental Conditions:** Ensure the inverter remains protected from direct sunlight and moisture as per installation guidelines.

8. Troubleshooting

If you encounter issues with your Y&H Micro Inverter, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
Inverter not producing power / Status indicator off	No DC input from solar panels; Insufficient sunlight; No AC grid connection; Overheat protection activated.	Check solar panel connections and sunlight levels. Verify AC cable is securely plugged into the grid. Allow inverter to cool down if hot.
Low power output	Insufficient sunlight; Solar panel Vmp outside MPPT range; Dirty solar panels; Overheat protection reducing output.	Ensure optimal sunlight exposure. Verify solar panel specifications match inverter requirements. Clean solar panels. Ensure proper ventilation for the inverter.
Inverter repeatedly restarting	Unstable DC input voltage (e.g., from 12V panels or very low light); Grid instability.	Ensure solar panel Vmp is consistently within 24-40V. Consult a qualified electrician to check grid stability.
Inverter is hot to the touch	Normal operation heat; Poor ventilation; Direct sunlight exposure.	Ensure the inverter is in a well-ventilated, cool, and shaded area. This is normal, but excessive heat can trigger protection.

If the problem persists after attempting these solutions, please contact customer support.

9. Specifications

Feature	Specification
Model Number	GMI-300W-220V-IT
Product Dimensions (L x W x H)	25 x 9 x 5 cm
Weight	550 grams
DC Input Voltage Range	18V-50V
MPPT Voltage Range	24V-40V
Recommended Solar Panel Vmp	30-39V
Recommended Solar Panel Voc	38-46V
Max Solar Panel Power	300W
AC Output Voltage	220V
AC Output Waveform	Pure Sine Wave
Efficiency (MPPT)	>98%
Peak Conversion Efficiency	80%
Certifications	CE
Country of Origin	China

10. Warranty and Support

Y&H provides a **12-month warranty** for this product, covering manufacturing defects and malfunctions under normal use. Additionally, a **30-day free return** policy is offered.
For any questions or assistance during use, please do not hesitate to contact Y&H customer support. Please have your model number (GMI-300W-220V-IT) and purchase details ready when contacting support.