

# Three phase Hybrid Inverter

Installation and Operation Manual

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**Afore**

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# 1. About This Manual

## 1.1 Scope of Validity

This manual mainly describes the product information, guidelines for installation, operation, maintenance and troubleshooting. And this manual applies to Afore Three phase Hybrid Inverter.

AF3K-TH    AF4K-TH    AF5K-TH    AF6K-TH    AF8K-TH    AF10K-TH  
AF12K-TH    AF15K-TH    AF17K-TH    AF20K-TH    AF25K-TH    AF30K-TH

Please keep this manual available all the time in case of any emergency.

## 1.2 Target Group

This manual is for qualified personnel. The tasks described in this manual must only be performed by qualified personnel.

# 2. Safety & Symbols

## 2.1 Safety Precautions

1. All work on the inverter must be carried out by qualified electricians.
2. The PV panels and inverter must be connected to the ground.
3. Do not touch the inverter cover until 5 minutes after disconnecting both DC and AC power supply.
4. Do not touch the inverter enclosure when operating, keep away from materials that may be affected by high temperatures.
5. Please ensure that the used device and any relevant accessories are disposed of in accordance with applicable regulations.
6. Afore inverter should be placed upwards and handled with care in delivery. Pay attention to waterproof. Do not expose the inverter directly to water, rain, snow or spray.
7. Alternative uses, modifications to the inverter not recommended. The warranty can become void if the inverter was tampered with or if the installation is not in accordance with the relevant installation instructions.

## 2.2 Explanations of Symbols

Afore inverter strictly comply with relevant safety standards. Please read and follow all the instructions and cautions during installation, operation and maintenance.



### Danger of electric shock

The inverter contains fatal DC and AC power. All work on the inverter must be carried out by qualified personnel only.



### Beware of hot surface

The inverter's housing may reach uncomfortably hot 60°C (140°F) under high power operation. Do not touch the inverter enclosure when operation.



### Residual power discharge

Do not open the inverter cover until 5 minutes after disconnection both DC and AC power supply.



### Important notes

Read all instructions carefully. Failure to follow these instructions, warnings and precautions may lead to device malfunction or damage.



Do not dispose of this device with the normal domestic waste.

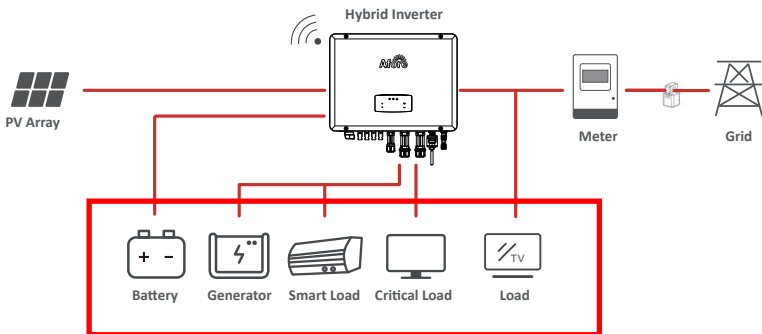


Refer to manual before service.

## 3. Introduction

### 3.1 Basic Instruction

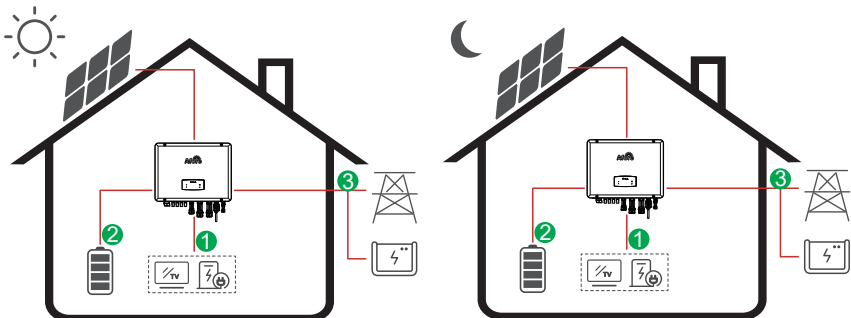
The Afore AF-TH Three phase Hybrid Inverters are designed to increase energy independence for homeowners. Energy management is based on time-of-use and demand charge rate structures, significantly reduce the amount of energy purchased from the public grid and optimize self-consumption.



### 3.2 Operation Modes

#### 3.2.1 Self-use

The Self-Use mode is for the regions with **low feed-in tariff and high electricity prices**. The energy produced by the PV system is used to optimize self-consumption needs. The excess energy is used to recharge the batteries, any remaining excess is then exported to the grid.



**Energy flow:**

PV → Load → Battery → Grid

 **Note:** **Advance Setting**

When select 0 W under P\_Feed menu, the inverter will export zero energy to the grid.

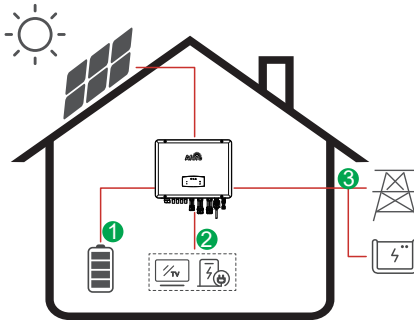
When select xx W under P\_Feed menu, the inverter will export customized energy to the grid.

### 3.2.2 Time of Use

The Time of Use mode is designed to reward customers who do their part to reduce demand on the electric grid, particularly during peak usage periods. Use most of your electricity from PV energy and during off-peak time periods, and you could significantly lower your monthly bill.

#### A. Charge Setting

##### PV Charge Mode

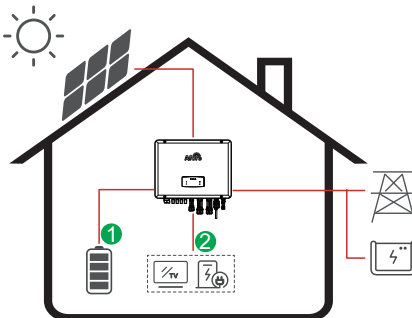


4 periods of time charge setting.

**Energy flow:**

**PV → Battery → Load → Grid**


##### AC Charge Mode



4 periods of time charge setting.

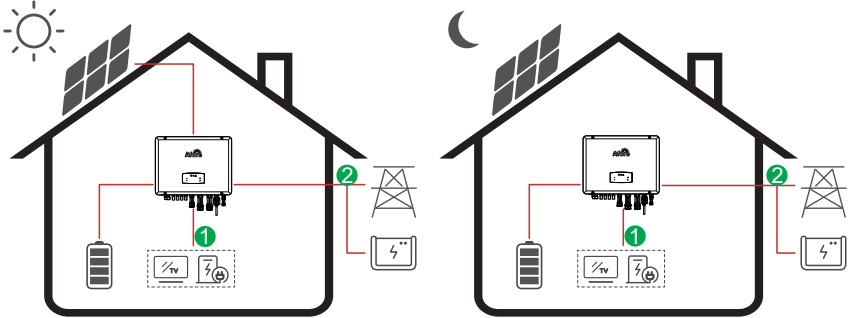
**Energy flow:**

PV and Grid → Battery → Load

 **Note:** After select AC charge, the AC will also charge the battery when the PV is low or no PV.

### B. Forced discharge

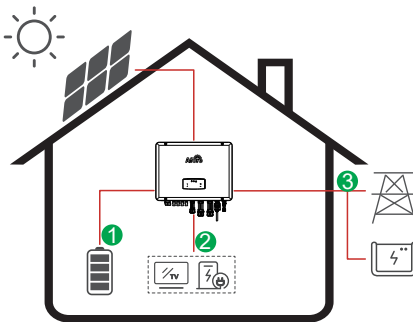
4 periods of time discharge setting



Energy flow: Battery and PV → Load → Grid

### C. Forbidden Discharge

4 periods of time discharge setting, **the battery will be charged firstly.**

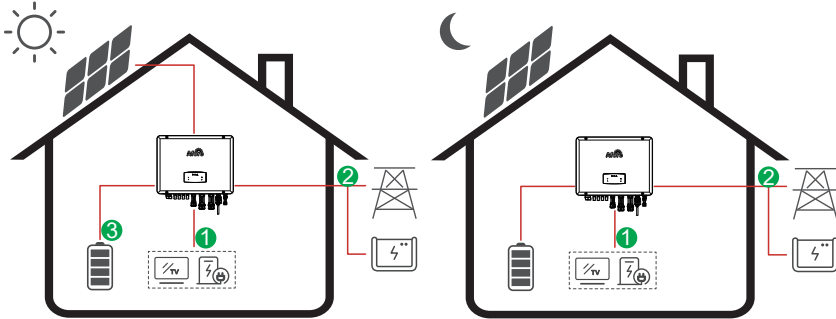


Energy flow:  
PV → Battery → Load → Grid



### 3.2.3 Selling First

The Selling First mode is suitable for the regions with **high feed-in tariff**.

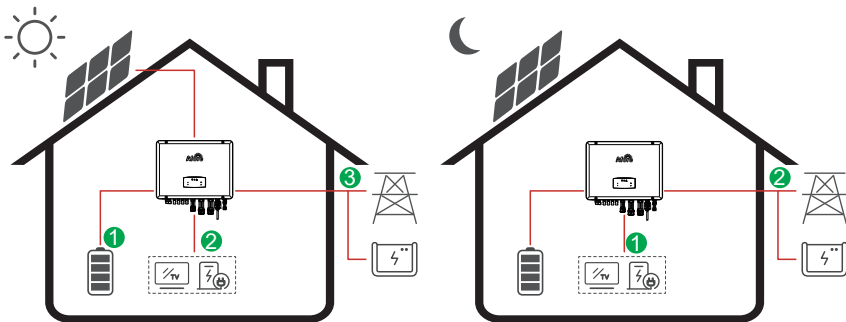


**Energy flow:**

**PV → Load → Grid → Battery**

### 3.2.4 Back-Up

When the grid fails, the system will automatically switch to Back-Up mode. The back-up loads can be supplied by both PV and battery energy.



**Energy flow:** PV → Battery → Load → Grid

## 4. Installation

### 4.1 Pre-installation

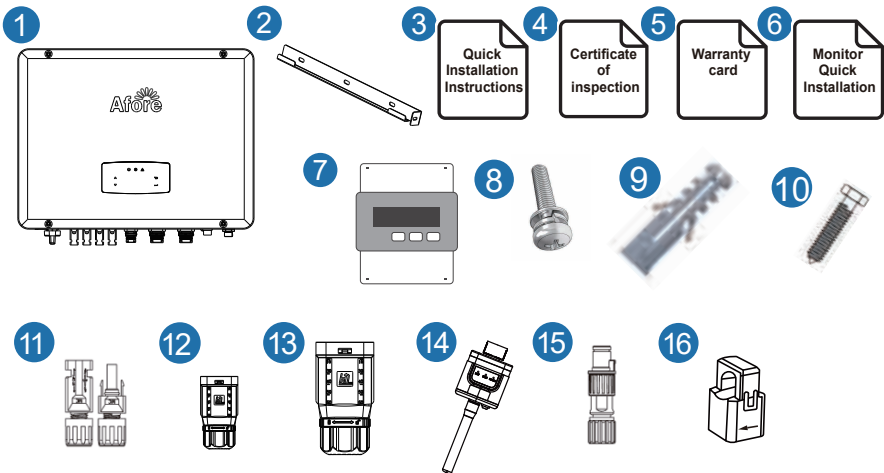
#### 4.1.1 Unpacking & Package List

##### Unpacking

On receiving the inverter, please check to make sure the packing and all components are not missing or damaged. Please contact your dealer directly for supports if there is any damage or missing components.

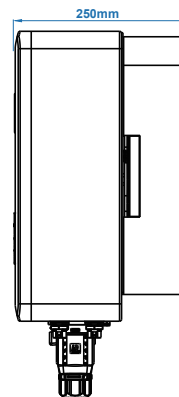
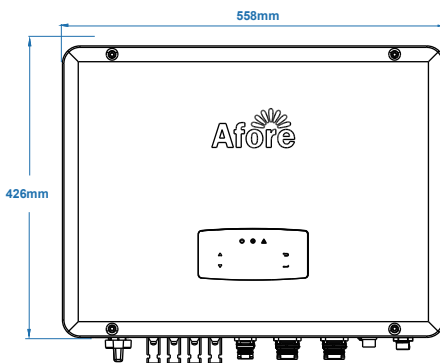
##### Package List

Open the package, please check the packing list shown as below.

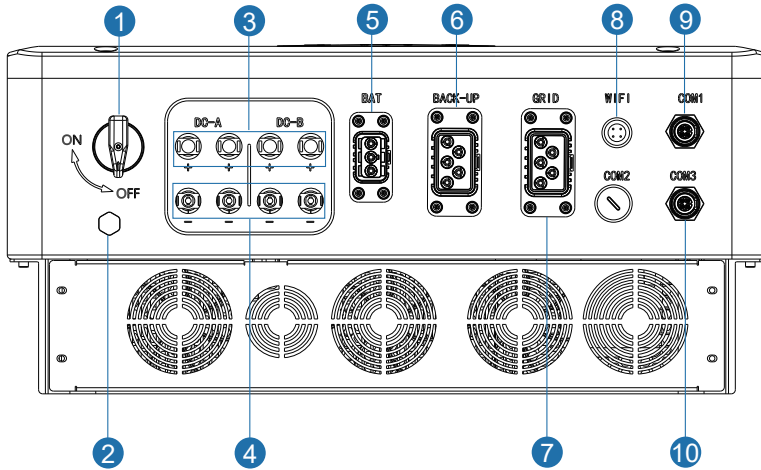


No.	Qty	Items	No.	Qty	Items
1	1	Hybrid Inverter	9	1	Expansion Tube
2	1	Wall Mounting Bracket	10	1	Bracket Screw
3	1	Quick Installation Instructions	11	2	Battery Terminals
4	1	Inspection Certificate	12	8	PV Terminals
5	1	Warranty Card	13	2	AC Terminals
6	1	Monitor Quick Installtion	14	1	Monitor Module
7	4	Smart Meter (Optional)	15	2	Zero-Injection Connector
8	1	Security Screw	16	3	CT (Opitonal)

### 4.1.2 Product Overview



### Inverter Terminals

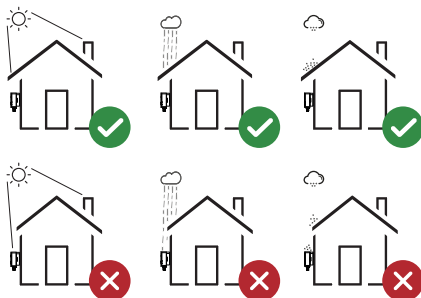


No.	Items	No.	Items
1	DC Switch	6	BACK UP
2	Waterproof Ventilating Valve	7	Grid Port
3	DC Connectors ( + ) For PV Strings	8	Wifi Port
4	DC Connectors ( - ) For PV Strings	9	Zero-Injection Port
5	Battery Port	10	Zero-Injection Port

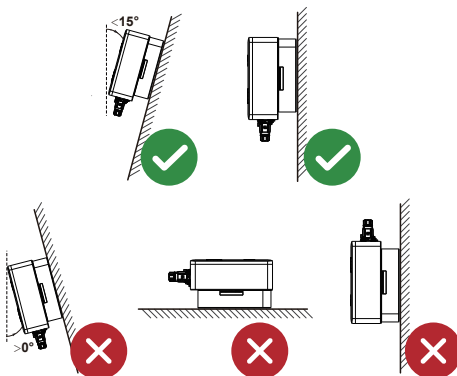
### 4.1.3 Mounting Location

The inverters are designed for indoor and outdoor installation (IP65), to increase the safety, performance and lifespan of the inverter, please select the mounting location carefully based on the following rules:

- The inverter should be installed on a solid surface, far from flammable or corrosion materials, where is suitable for inverter's weight and dimensions.
- The ambient temperature should be within -25 C ~ 60 C (between -13 °F and 140°F).
- The installation of inverter should be protected under shelter. Do not expose the inverter to direct sunlight, water, rain, snow, spray lightning, etc.



- The inverter should be installed vertically on the wall, or lean back on plane with a limited tilted angle. Please refer to below picture.



- Leave the enough space around inverter, easy for accessing to the inverter, connection points and maintenance.

