

Anti Reverse Limiter(Smart Switch) User Manual

1. Anti reverse current introduction

System with Anti Reverse Limiter

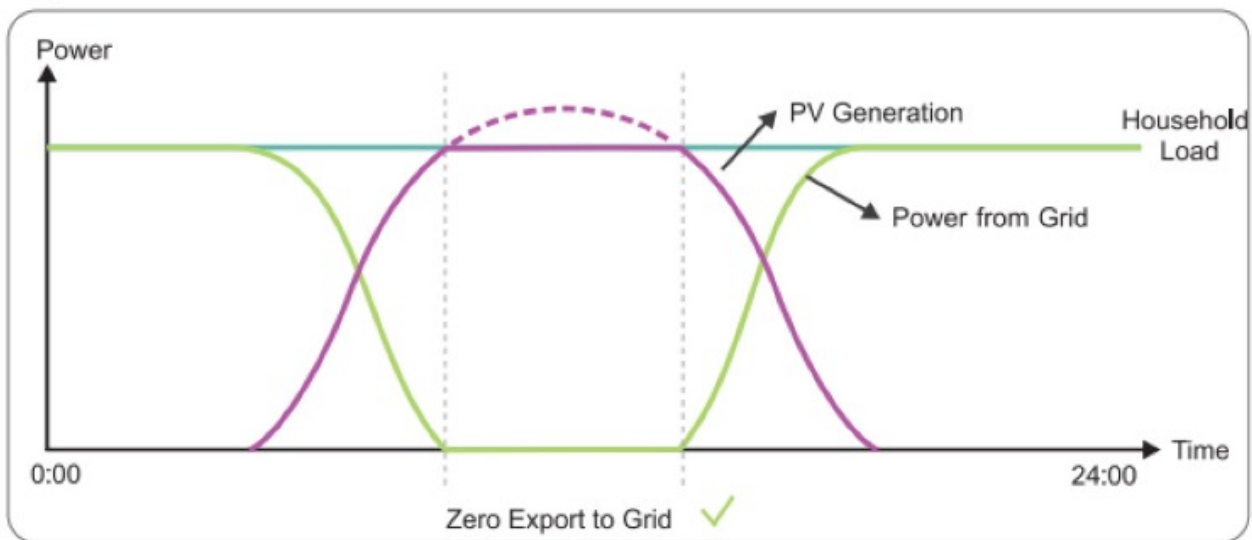


Fig1-1 Anti reverse system diagram

The anti-reverse device integrates a current detecting unit which will monitor the loads power consumption:

1) The anti-reverse device will stay in sleep mode when the loads is getting power from both the pv system and the grid in the case that the pv power less than loads power consumption.

2) The anti-reverse device will be automatically started when the pv power supplies more power than the loads needs, and will auto degrade the pv power generation until the pv power become equate to the current loads consumption.

The anti-reverse system has 2 model as three phase model and single phase model, can cover industry and commerce and residents photovoltaic application.

2. Installation instructions

2.1 Interface description

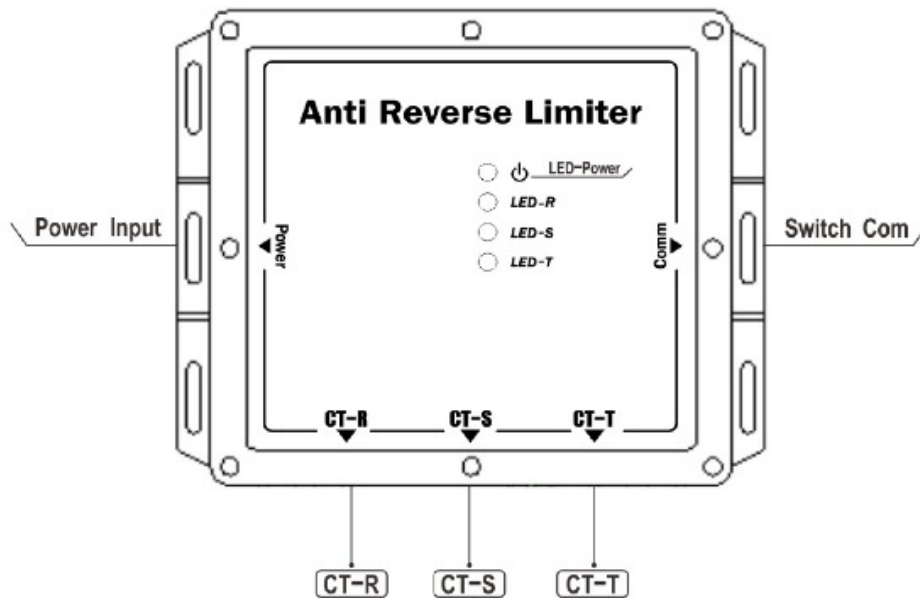


Fig 2-1 Limiter diagram

Limiter diagram

Name	Description
Power Input	Power line
CT-R	Connected to R phase CT clamp
CT-S(only for three phase)	Connected to S phase CT clamp
CT-T(only for three phase)	Connected to T phase CT clamp
Switch Com	Connected to inverter com
LED-Power	Led will turn on after power input connected
LED-R	<ol style="list-style-type: none"> 1) Led will turn off if r phase of power input not connected 2) Led will blink, on 2 seconds and off 2 seconds if power consumption on r phase from grid larger than 300 watts 3) Led will blink, on 0.5 seconds and off 0.5 seconds if power reverse to grid on r phase larger than 300 watts 4) Led will be on continuously if power from or reverse to grid on r phase less than 300 watts
LED-S (only for three phase)	Similar behavior for S phase as LED-R
LED-T (only for three phase)	Similar behavior for T phase as LED-R

2.2 Three phase anti reverse system installation instructions

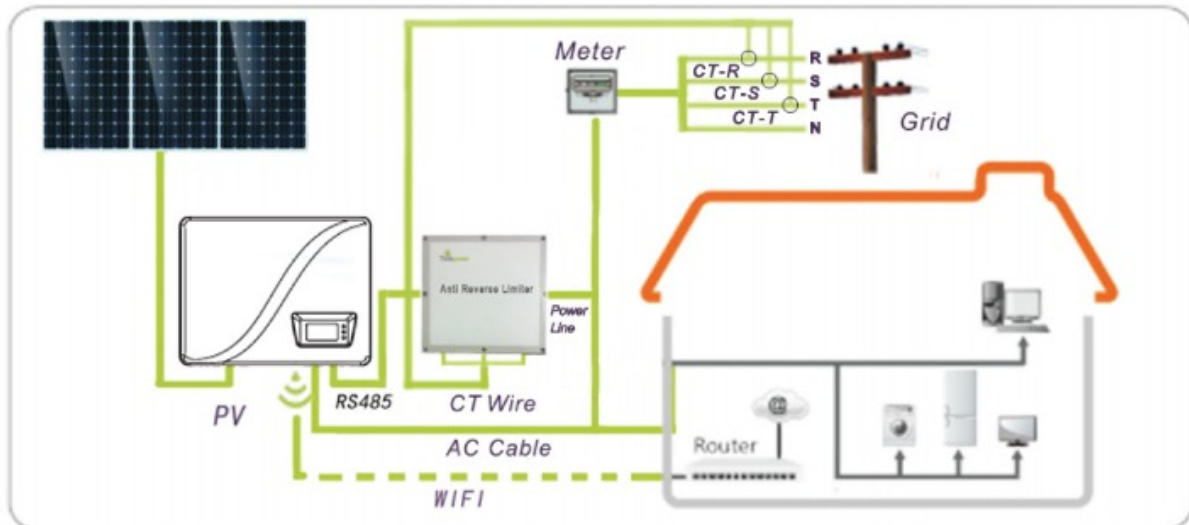


Fig 2-2 Three phase anti reverse system

2.2.1 Installation instructions

- ① **Connect the inverter to PV arrays and public grid, the same as normal on grid system.**
- ② **Connect communication cable between limiter and inverter**
 - a) Parts of communication terminal

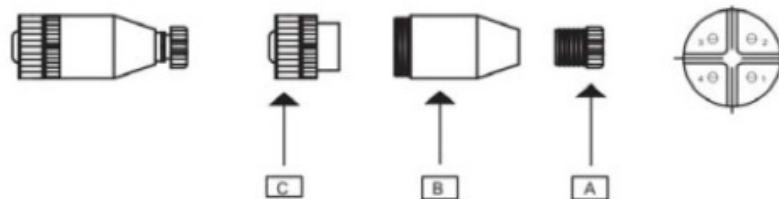


Fig 2-3 Parts of communication terminal

b) Preparation for communication cable

- Let one end of communication cable cross through part A, B, and then screw it to part C
- Connect the blue line to 3 and connect brown line to 4
- The same step for the other end of communication cable.

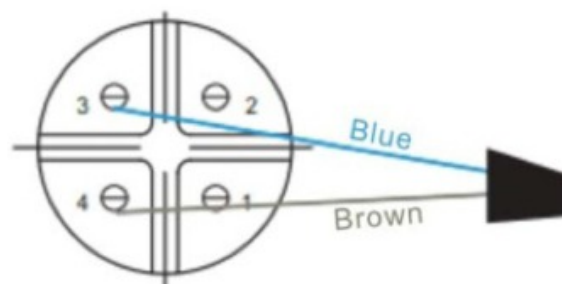


Fig 2-4 Preparation for communication cable

c) Connection of communication cable

Insert the above cable terminals into RS485 terminal of inverter and to Comm terminal of limiter.

③ Connection of power line of limiter and CT clamp

Installation position of CT:

Three phase anti reverse limiter has 3 CT clamps, CT should be installed between meter and grid accordingly before meter.

Note: The CT clamp has arrow symbol, it's direction should follow "Grid Side" to "Meter Side".

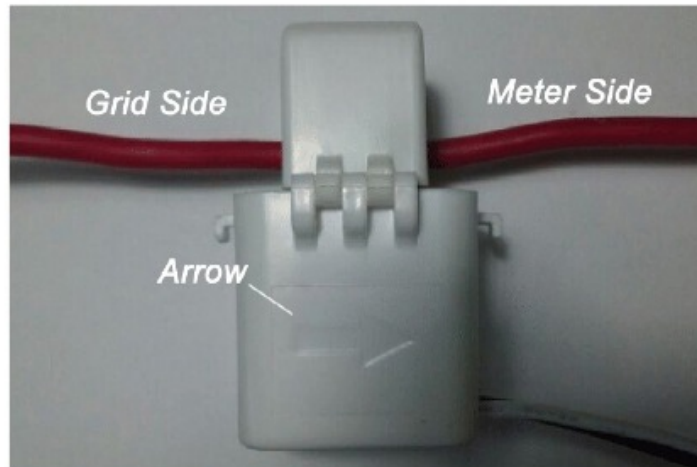



Fig 2-5 CT Connection

Follow Fig2-5,

- a) R phase wire pass through the CT1 in the direction of the arrow on the CT clamp, and connect the CT1 to CT-R terminal of limiter;
- b) S phase wire pass through the CT2 in the direction of the arrow on the CT clamp, and connect the CT2 to CT-S terminal of limiter;
- c) T phase wire pass through the CT3 in the direction of the arrow on the CT clamp, and connect the CT3 to CT-T terminal of limiter;
- d) The power line is a four core cable with color yellow, green, red and blue. Connect the yellow wire to R phase of the grid, green to S phase, red to T phase and blue to neutral.

2.2.2 Installation verification

You can follow below steps to verify if your installation is correct.

- ① Keep the power line of limiter connected
- ② Unplug the AC connecter of the inverter
- ③ If the  symbol on the inverter screen blink 2 seconds on and 2 seconds off, it means com cable connection between inverter and limiter is OK
- ④ Plug CT-R, Unplug the CT-S and CT-T terminal of the limiter.
- ⑤ Turn on some power consumption equipment to make R phase load larger than 300 watts, the LED-R on limiter should blink 2 seconds on and 2 seconds off, if not, check if the direction of R phase CT clamp reversed.
- ⑥ Plug CT-S, unplug CT-R and CT-T, turn on some power consumption equipment to make S phase load larger than 300 watts, the LED-S on limiter should blink 2 seconds on and 2 seconds off, if not, check if the direction of S phase CT clamp reversed.
- ⑦ Plug CT-T, unplug CT-R and CT-S, turn on some power consumption equipment to make T phase load larger than 300 watts, the LED-T on limiter should blink 2 seconds on and 2 seconds off, if not, check if the direction of T phase CT clamp reversed.
- ⑧ Resume all connection, the anti reverse system will work normally.

2.3 Single phase anti reverse system installation instructions

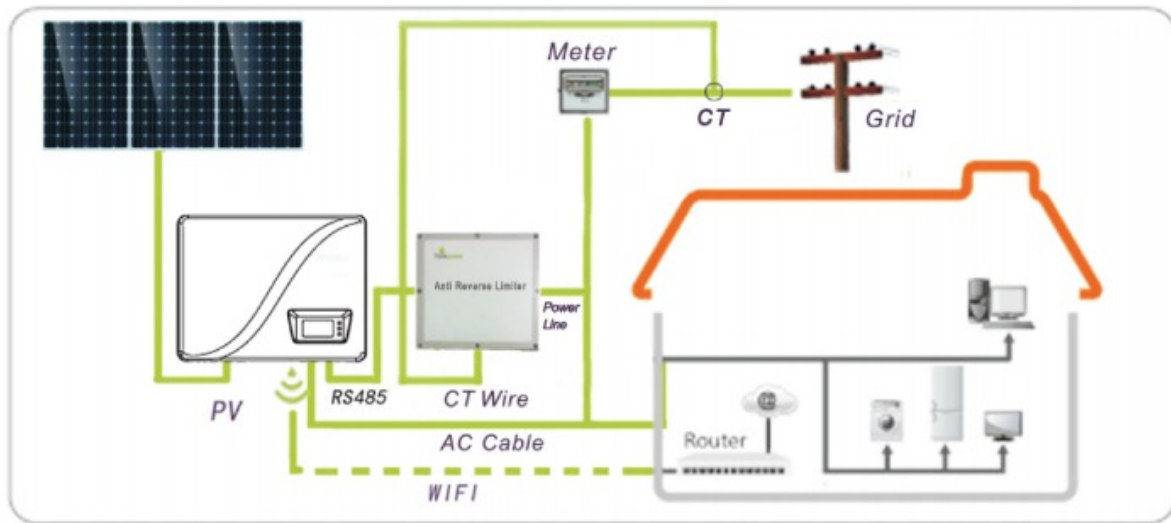


Fig 2-6 Single phase anti reverse system

2.3.1 Installation instructions

- ① Connect the inverter to PV arrays and public grid, the same as normal on grid system.
- ② Connect communication cable between limiter and inverter(Same as step 2 in chapter 2.2.1)
- ③ Connection of power line of limiter and CT clamp

Installation position of CT: Single phase anti reverse limiter has one CT clamp, CT should be installed between meter and grid accordingly before meter .

Follow Fig2-6,

- a) Live wire pass through the CT in the direction of the arrow on the CT clamp, and connect the CT to CT-R terminal of limiter;
- b) The power line is a two core cable with color blue and brown. Connect the blue line to neutral and brown to live

2.3.2 Installation verification

You can follow below steps to verify if your installation is correct.

- ① Keep the power line of limiter connected
- ② Unplug the AC connector of the inverter
- ③ Turn on some power consumption equipment to make load larger than 300 watts, the LED-R on limiter should blink 2 seconds on and 2 seconds off, if not, check if the direction of CT clamp reversed.
- ④ Resume all connection, the anti reverse system will work normally.