

USER MANUAL

(Reverse Protector)

Working of Reverse protector

Function of grid tie inverter is to convert solar DC voltage into AC voltage, but the problem is grid tie inverter does not have control on output or generation current. It takes peak current from panel and supply to the output and if your load current (consumption) is less than inverter current then it feed the remaining current to the MSEB through energy meter. Nowadays our energy meter is a unidirectional, so if reverse current flows through it, it consider current as a consumption current and increase the meter reading.

Instead of reducing the billing amount you will get burden of extra bill, that's why reverse protector come in picture.

Reverse protector compares the consumption current and generation current, and if your consumption current (of any phase) is less than generation current then reverse protector switch of the grid tie inverter (switch of grid supply).

Reverse protector continuously monitor the difference of both the current and if consumption current goes higher than generation current (previously stored generation current) it switch on the grid supply to inverter.

After receiving grid supply current generation will be start after 30 second. This monitoring is going on continuously until you bypass the reverse protector.

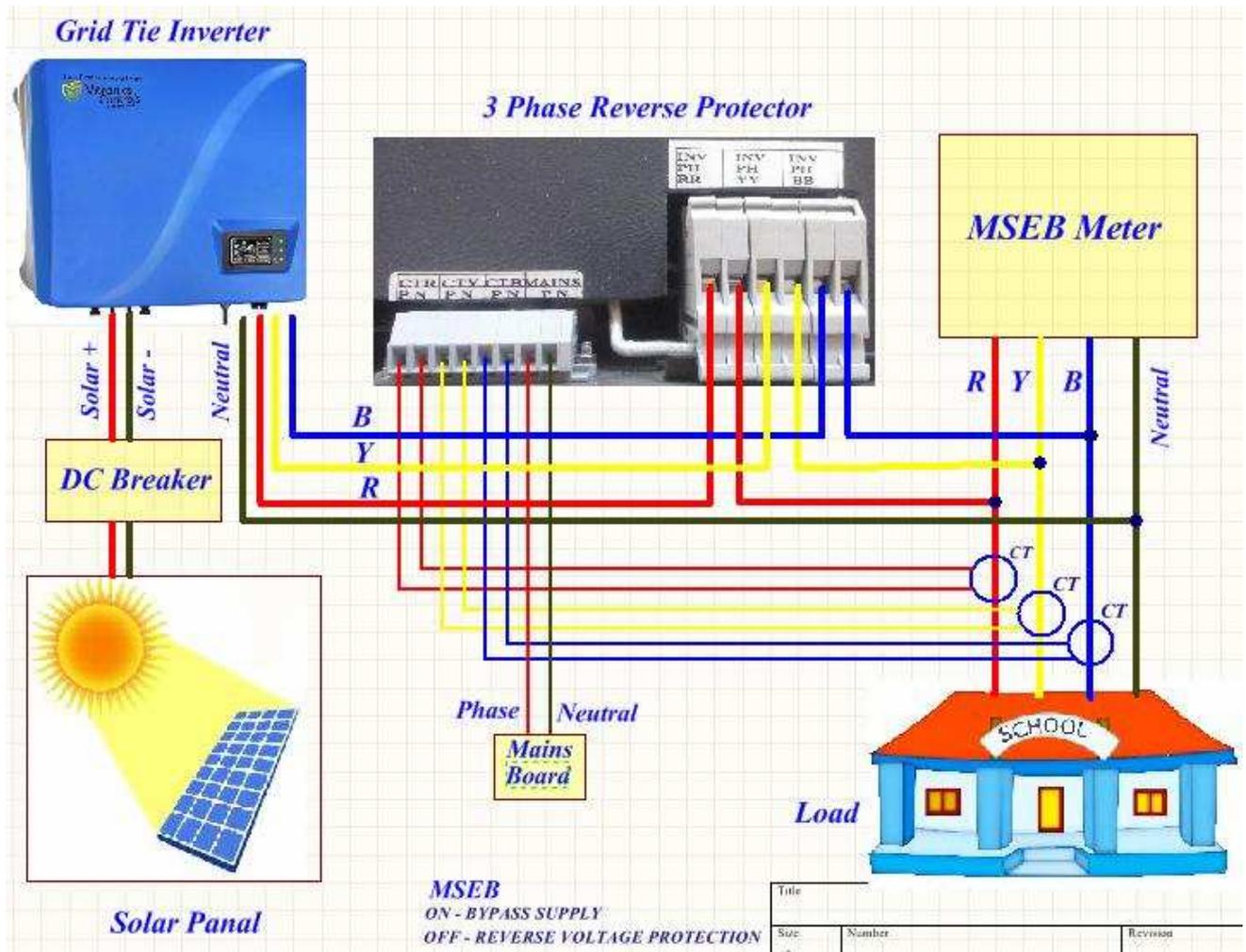
Installation

There are two models of Reverse Protector

1. Three phase reverse protector
2. Single phase reverse protector

1. Three phase reverse protector:-

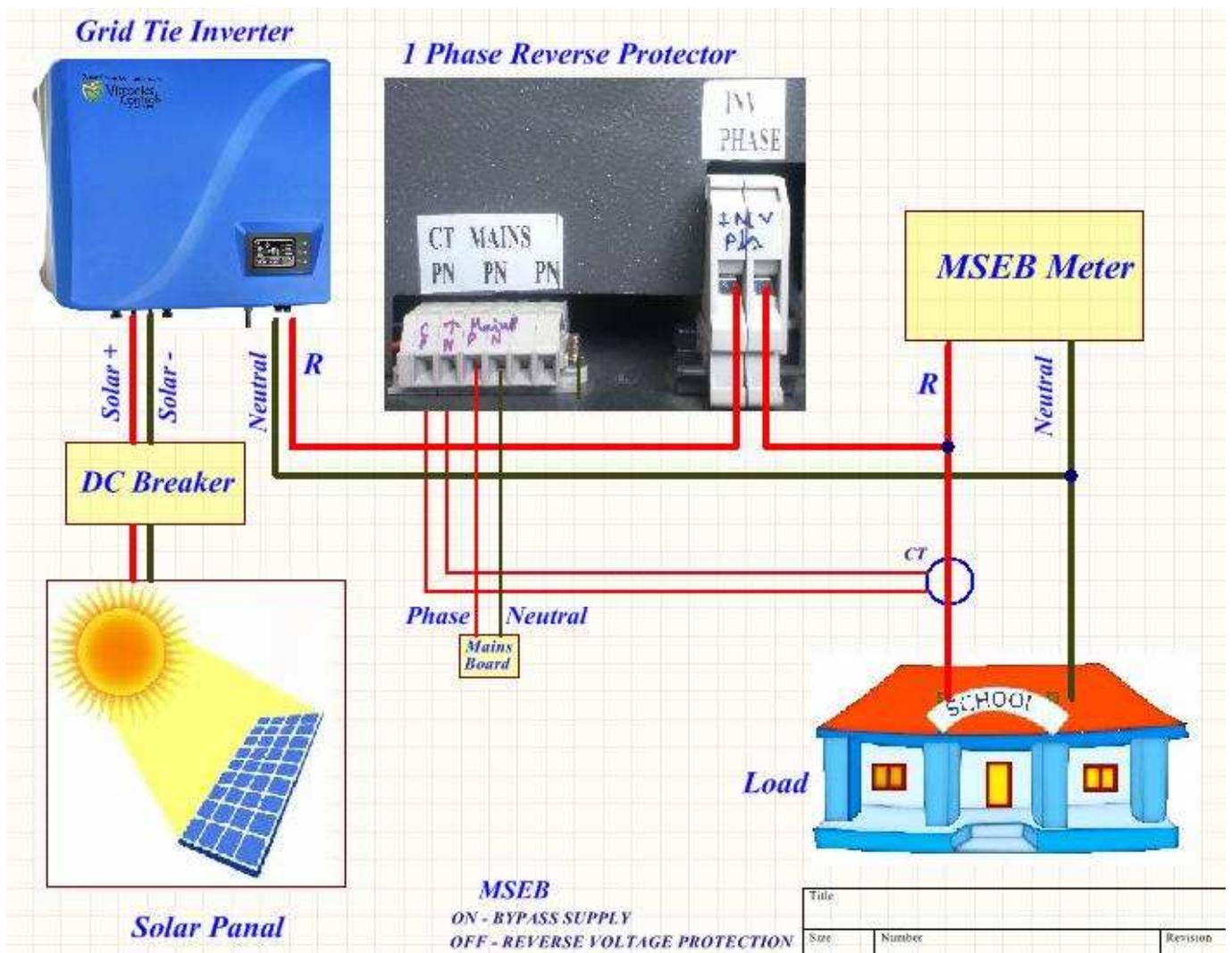
1. Switch OFF the grid tie inverter by using DC breaker or by removing solar positive wire from inverter.
 2. Switch OFF the MSEB supply.
 3. Short the neutral of inverter and MSEB directly.
 4. Connect R, Y & B phase of inverter in the first, third and fifth wega (big one) connector as shown in fig.
 5. Take three wires (red, yellow and blue) from second, fourth and sixth wega (big one) connector and connect them to R, Y and B phase from MSEB. ***There should be no load connected before this junction.***
 6. After junction put CT in each phase. ***All load cables must go through the CT.***
 7. Connect CT wires in respective slot of wega (small one) connector
 - First & second -- R phase CT
 - Third & fourth -- Y phase CT
 - Fifth & Sixth -- B phase CT
- There is no polarity of CT wires.***
8. Connect mains phase and neutral in seventh and eighth slot of wega (small one) connector. Take mains from any MSEB socket (power requirement for unit).
 9. Switch ON the grid tie inverter by using DC breaker or by connecting solar positive wire from inverter.
 10. Switch ON the MSEB supply.
 11. Put reverse protector MSEB in OFF condition for proper working of reverse protector.



2. Single phase reverse protector:-

1. Switch OFF the grid tie inverter by using DC breaker or by removing solar positive wire from inverter.
2. Switch OFF the MSEB supply.
3. Short the neutral of inverter and MSEB directly.
4. Connect inverter phase in the first wega (big one) connector as shown in fig.
5. Take RED wire from second wega (big one) connector and connect it to R phase from MSEB. **There should be no load connected before this junction.**

6. After junction put CT in phase wire. **All load cables must go through the CT.**
7. Connect CT wires in First & second slot of wega (small one) connector **There is no polarity of CT wires.**
8. Connect mains phase and neutral in third and fourth slot of wega (small one) connector. Take mains from any MSEB socket (power requirement for unit).
9. Switch ON the grid tie inverter by using DC breaker or by connecting solar positive wire from inverter.
10. Switch ON the MSEB supply.
11. Put reverse protector MSEB in OFF condition for proper working of reverse protector.



Note: for connecting wire in small wega connector, push the connector from top slot and insert wire in horizontal slot.

Reverse Protector Display



- For 3 phase reverse protector, display is continuously rotating showing current from grid tie inverter (G-CRT) and load current (L-CRT) for **each phase**.
- For 1 phase reverse protector, display is constant & showing current from grid tie inverter (G-CRT) and load current (L-CRT).
- Last section of LCD shows **status of grid supply to inverter**

L-CRT < G-CRT -- GRID OFF

L-CRT > G-CRT -- GRID ON

MSEB switch of reverse protector

ON -- bypass reverse protector unit

OFF -- reverse current protection is fully functional (**recommended**).

Reverse Protector Setting

1. When you connect mains supply to the unit, at the startup it shows company name. At that instant you have to press both the switches (red push buttons) simultaneously.
2. Display shows current percentage.
3. Set the percentage depends on your requirement.

- **Note:** current percentage is the difference of inverter current from load current to switch of the grid supply

Ex. If inverter current is 5 ampere. Assume current percentage is 20%. 20% of 5 ampere is 1ampere. That means if your load current goes below $(5-1=4)$ 4 ampere, only then reverse protector cut grid supply off otherwise it will be on.

- *Current percentage setting is done by engineer itself, so no need to change it.*

Warranty card

Warranty registration card

Customer information	Name : Address : Mobile no : E-mail : Zip code :
Product information	Name : Model no : Serial no : Invoice no : Purchase date :

Stamp and signature of authorized dealer

Warranty period months(12/24/36)

Customer signature

Warranty statement

To insure a delightful product experience vitronics recommends reading the user guide carefully and contacting our customer care helpline to understand the product warranty period and conditions. In the unlikely event that your vitronics product requires any support, please call our customer care number **020-26962548** or **09404731535** , or email us at service@vitronicscontrols.com .please visit our website www.vitronicscontrols.com for further support details.

Vitronics warrants that the product at the time of its original purchase is free of defects in material and workmanship.

Terms and conditions

1. *The warranty is given to the original purchaser ("customer") of the product.*
2. *For the entire warranty period vitronics controls or its authorized dealer will be at their discretion, without any charges repair/replace a defective part. Repair or replacement may involve the use of same or equivalent reconditioned unit. Vitronics will return the repaired system or can replace with another same or equivalent product to the customer in full working conditions. All replaced faulty parts or components will become the property of vitronics controls*
3. *For any product repaired or replace during the warranty period, the period of replaced product shall continue to be within warranty period for the remaining time of the original warranty period of original product.*
4. *The warranty will be automatically terminate on the expiry of warranty period, even in case of the product not being in use for specified period*
5. *The warranty will be invalidated if defects arising in company's opinion by reason of accident, rough handling, exposure to any kind of liquid(water, sweat, oils etc) exposure to moisture, dampness or exposure to extreme thermal or environmental conditions, neglect improper installation (if not taken by company or it's authorized dealer) fire flood or act of god or any other natural calamities or any other unauthorized repairs or done or carried out will have to be born by the purchaser*
6. *The company will not be held liable in any conditions for any loss or injury or damage caused to line or property or death and disability caused in any form of life for any reason whatsoever*
7. *The warranty will not apply if the original seals are found broken or tampered*
8. *Customer will get site service during warranty period from where he has originally purchased the system. In case if the customer has purchased system along with batteries from Mfgr. then & then the Mfgr. will provide on site service during warranty period only with ref. to the details mentioned in original invoice. In all other conditions at actual charges will be applicable.*
9. *For any claim under the warranty is subject to notifications to vitronics controls or vitronics controls authorized dealer for the alleged defect within a reasonable time of it's occurrence and in no event not later then expiry of warranty period.*
10. *All claims will be settled in pune jurisdiction only.*