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1. GENERAL DESCRIPTION

The Microcare Grid Tied Limiter (GTL) is ONLY COMPATIBLE WITH THE MICROCARE Grid Tied Inverters. To be used where feeding back into the grid is not allowed or not profitable to the user. The Grid Tied Limiter will insure that the Grid Tied Inverter will only ever provide as much power as the load is using at any given time.

The GTL prevents the Grid Tied Inverter from exporting power back into the Grid. The GTL will measure the power required by the load and notify the grid tied inverter to Limit the power generated to equal that of the AC Load. Because no extra power is generated no power can be exported.

2. GRID TIED LIMITER OVERVIEW

Fig 2.1: Grid Tied limiter Front View

Fig 2.1: Grid Tied Limiter Bottom View
· The grid tied inverter feeds all of the power available from the solar panels (A1) to the AC Load (A2), all excess power is then exported to the Grid (A3). If the Grid fails (Grid V = 0v) then the grid tied inverter will turn off.

· When the Grid comes back on line the grid tied inverter will export power back again.

· If the grid tied inverter is producing less power than what is required by the AC LOAD then the load will be supplemented with power from the Grid (B1).

· If the grid tied inverter is producing more power than what is required by the AC LOAD then the excess power will be exported to the Grid (A3).

· Power Meters (Except Smart Meters) are not aware of the direction of power flow. They will charge for power in both directions and this is a problem. (B1 and A3).

· The GRID TIED LIMITER will fix this problem by preventing the export of power to the grid (A3).
4. SYSTEM WITH THE GRID TIED LIMITER

- The GRID TIED LIMITER prevents the Grid Tied Inverter from exporting power back into the Grid (A3).

- The GRID TIED LIMITER measures the power required by the load (A2) and notifies the grid tied inverter to limit the power generated (A1) to equal that of the AC Load (A2).

- Because no extra power is generated no power can be exported (A3).
5. SYSTEM SETUP AND FUNCTION

Grid Tied Limiter – Status LED’s

<table>
<thead>
<tr>
<th>LED</th>
<th>LED Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>POWER – Green LED</td>
<td>Flashing</td>
<td>Power is present</td>
</tr>
<tr>
<td>COM – Green LED</td>
<td>Solid On</td>
<td>There is communication with the grid tied inverter through the RS485 Connection</td>
</tr>
<tr>
<td>LIMIT – Yellow LED</td>
<td>Solid On</td>
<td>The GRID TIED LIMITER is restricting the power produced by the grid tied inverter.</td>
</tr>
</tbody>
</table>
6. **START UP PROCEDURE (Very important to follow these steps)**

- Ensure that all Circuit Breakers are in the off position.
- Turn on the Grid Circuit Breaker and then the Grid Tied Inverter Circuit Breaker.
- When communications are established (GREEN COM LED is ON) and Grid Tie is connected to Grid Via internal Relay.
- Turn on AC Load Circuit Breaker.

If NO connection can be established between the Grid Tied Limiter and the Grid Tied Inverter, then the Internal Relay will remain OFF so as to ensure that there is no feedback to the Grid.
### OFFSET SELECTION - DIP SWITCHES 1 & 2

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>OFF</td>
<td>MODE 1</td>
</tr>
<tr>
<td>ON</td>
<td>OFF</td>
<td>MODE 2</td>
</tr>
<tr>
<td>OFF</td>
<td>ON</td>
<td>MODE 3</td>
</tr>
<tr>
<td>ON</td>
<td>ON</td>
<td>NO LIMIT</td>
</tr>
</tbody>
</table>
7.1 Mode 1

The Grid Tied Limiter will attempt to control the Grid Tied Inverter to create the exact amount of power required by the AC LOAD.

The Relay will turn off when:

- Communication between the Grid Tied Limiter and the Grid Tied Inverter is Lost.

7.2 Mode 2

The Grid Tied Limiter will attempt to control the Grid Tied Inverter to create 50W less than the amount of power required by the AC LOAD. (1000W Required Load; Grid Tied Inverter will create 950W.)

The Relay Will Turn Off When:

- Communication between the Grid Tied Limiter and the Grid Tied Inverter is Lost.
- When The Load is less than 100W required for a length of 6 seconds.
- The Grid Tied Inverter takes longer than 6 seconds to ramp down to the required power of the AC LOAD.

7.3 Mode 3

The Grid Tied Limiter will attempt to control the Grid Tied Inverter to create 100W less than the amount of power required by the AC LOAD. (1000W Required Load; Grid Tied Inverter will create 900W.)

The Relay Will Turn Off When:

- Communication between the Grid Tied Limiter and the Grid Tied Inverter is Lost.
- When The Load is less than 100W required for a length of 3 seconds.
- The Grid Tied Inverter takes longer than 3 seconds to ramp down to the required power of the AC LOAD.

7.4 Disconnection procedure

When disconnecting the GRID TIED LIMITER from the grid tied inverter, the grid tied inverter will limit the maximum power output to the last value as set by the GRID TIED LIMITER. To correctly disconnect the GRID TIED LIMITER from the grid tied inverter, the settings on the GRID TIED LIMITER must be changed to the No Limit setting before removing the GRID TIED LIMITER from the grid tied inverter.
8. DESTRIER ELECTRONICS LIMITED CARRY- IN WARRANTY

Destrier Electronics warrants the GRID Tied Limiter against defects in workmanship and materials, fair wear and tear accepted, for a period of 3 (three) years from the date of delivery/collection for all equipment and is based on a carry-in basis. Where the installation of the product makes it impractical to carry-in to our workshops, Destrier Electronics reserves the right to charge for travel time and kilometres travelled to and from the site where the product is installed.

During this warranty period, Destrier Electronics will, at its own discretion, repair or replace the defective product free of charge. This warranty will be considered void if the unit has suffered any physical damage or alteration, either internally or externally, and does not cover damages arising from improper use such as, but not exclusive to:

- Reverse of battery polarity.
- Inadequate or incorrect connection of the product and/or of its accessories.
- Mechanical shock or deformation.
- Contact with liquid or oxidation by condensation.
- Use in an inappropriate environment (dust, corrosive vapour, humidity, high temperature, biological infestation.)
- Breakage or damage due to lightning, surges, spikes or other electrical events.
- Connection terminals and screws destroyed or other damage such as overheating due to insufficient tightening of terminals.
- When considering any electronic breakage except due to lightning, reverse polarity, over-voltage, etc. the state of the internal control circuitry determines the warranty.

This warranty will not apply where the product has been misused, neglected, improperly installed, or repaired by anyone else than Destrier Electronics or one of its authorised Qualified Service Partners. In order to qualify for the warranty, the product must not be disassembled or modified. Repair or replacement is our sole remedy. Destrier Electronics shall not be liable for damages, whether direct, incidental, special, or consequential, even caused by negligence or fault. Destrier Electronics owns all parts removed from repaired products. Destrier Electronics uses new or re-conditioned parts made by various manufacturers in performing warranty repairs and building replacement products. If Destrier Electronics repairs or replaces a part of a product, its warranty term is not extended. Removal of serial nos. may void the warranty.

All remedies and the measure for damages are limited to the above. Destrier Electronics shall in no event be liable for consequential, incidental, contingent or special damages, even if having been advised of the probability of such damages. Any and all other warranties expressed or implied arising by law, course of dealing, course of performance, usage of trade or otherwise, including but not limited to implied warranties of merchantability and fitness for a particular purpose, are limited in duration to a period of 3 (three) years from the date of purchase.

Life Support Policy:
As a general policy, Destrier Electronics does not recommend the use of any of its products in life support applications where failure or malfunction of the Destrier Electronics product can be reasonably expected to cause failure of the life support device or to significantly affect its safety or effectiveness.

Destrier Electronics does not recommend the use of any of its products in direct patient care. Destrier Electronics will not knowingly sell its products for use in such applications unless it receives in writing assurances satisfactory to Destrier Electronics that the risks of injury or damage have been minimised, the customer assumes all such risks, and the Liability of Destrier Electronics is adequately protected under the circumstances.

Caution:
Our products are sensitive. While all care is taken by us to dispatch goods with adequate packaging, Destrier Electronics is not responsible for any damages caused to products after they have left our premises.
9. **REGISTRATION OF MY MICROCARE PRODUCT**
Please register your product online at www.microcare/register-my-product

Also complete the form below as a hardcopy reference for technical support.

<table>
<thead>
<tr>
<th>Product Serial Number:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Description:</td>
</tr>
<tr>
<td>Date Purchased</td>
</tr>
</tbody>
</table>

Where was the product was purchased?

<table>
<thead>
<tr>
<th>Company Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Person</td>
</tr>
<tr>
<td>Contact Number</td>
</tr>
<tr>
<td>E-mail Address</td>
</tr>
</tbody>
</table>

Installation Company Information:

<table>
<thead>
<tr>
<th>Company Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Person</td>
</tr>
<tr>
<td>Contact Number</td>
</tr>
<tr>
<td>E-mail Address</td>
</tr>
</tbody>
</table>

Details of Product Owner

<table>
<thead>
<tr>
<th>Name &amp; Surname</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
</tr>
<tr>
<td>City &amp; Province</td>
</tr>
<tr>
<td>Contact Number</td>
</tr>
<tr>
<td>E-mail Address</td>
</tr>
<tr>
<td>Date Installed</td>
</tr>
</tbody>
</table>

Microcare: 1st Floor, Neave Industrial Park, Korsten, Port Elizabeth
P.O.Box 7227, Newton Park, 6055
Tel: 041 453 5761, Fax: 041 – 453 5763
Technical Support e-mail: support@microcare.co.za
Website: www.microcare.co.za

Registration by fax: 041 – 453 5763
Registration by e-mail: support@microcare.co.za/register-my-product