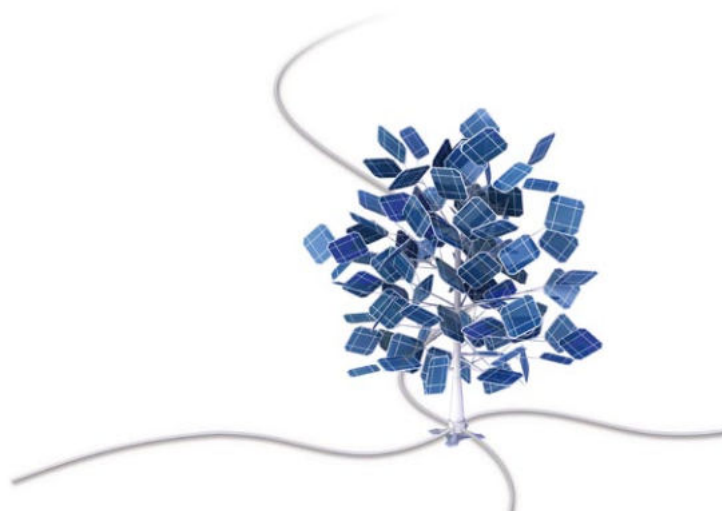


# TECHNICAL INFORMATION

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2012 - n°1



## Requirements for medium and low- voltage transformers connected to Sirio Central Inverters MT range.

## Summary

This document describes the requirements of medium or low-voltage transformers that are connected to Sirio Central Inverters HV-MT.

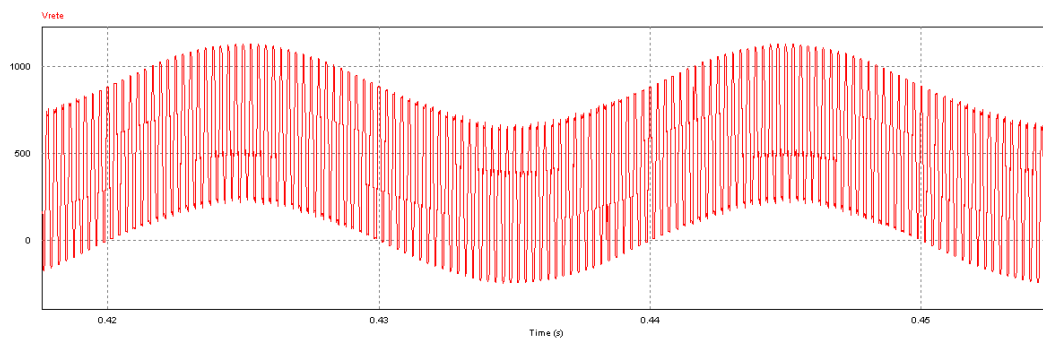


*AROS Solar Technology disclaims any responsibility for supply of transformers that have not been purchased through its sales network.*

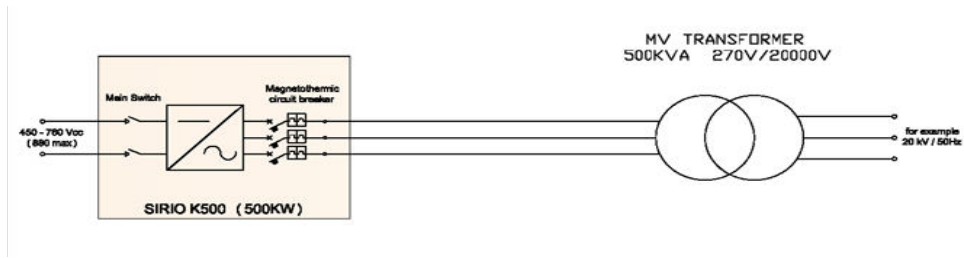
# Technical properties for medium-voltage transformers

In case the medium-voltage transformers are not supplied from AROS Solar Technology, please pay attention that the transformers have the following technical features:

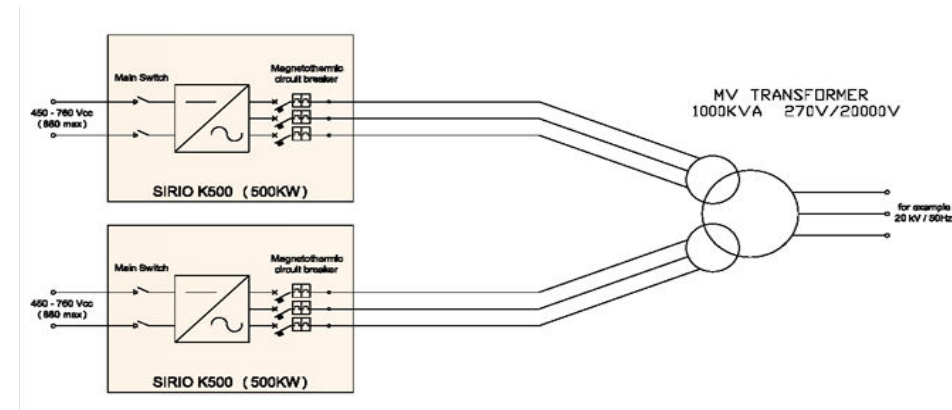
1. The transformer must be suitable for operation with PWM inverters that have a waveform regarding ground similar to that shown in the following diagram.



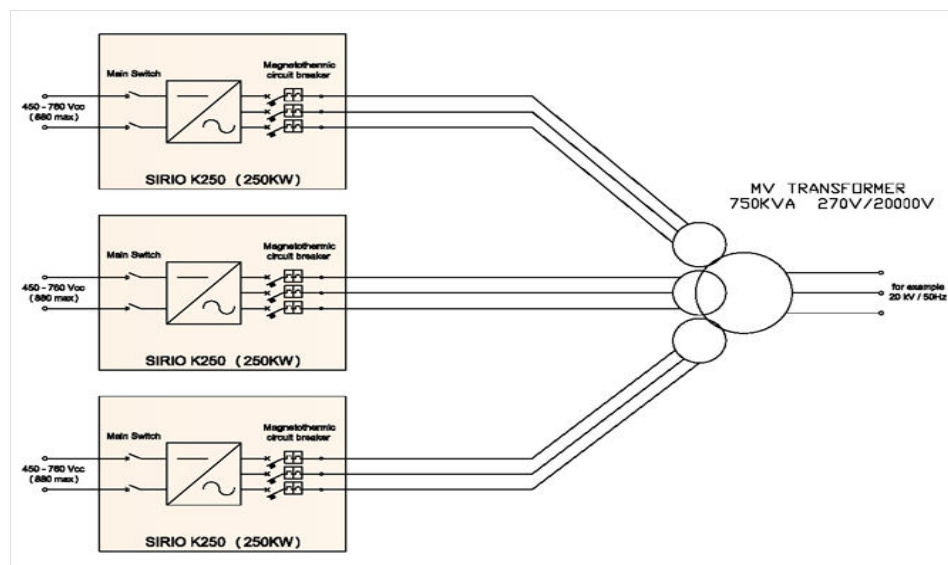
2. The transformer must be designed for the voltages that arise during pulsed operation of the inverter. In the worst case of the pole ground the voltages can reach a magnitude of maximum 1200V regarding ground. The rms-value of the voltages regarding ground is maximum 600V.
3. The transformer must be designed for voltages on its low-voltage windings that can exhibit a voltage gradient  $dV/dt$  of up to  $500 \text{ V}/\mu\text{s}$  regarding ground. The line-to-line voltages are sinusoidal.
4. A shield winding that is grounded to the tank is necessary between the low-voltage windings and the high-voltage windings. This serves as an additional  $dV/dt$  filter.
5. Each inverter needs a separate galvanically isolated low-voltage winding.



**Example of connection with 1 Sirio HV –MT Inverter**



**Example of connection with 2 Sirio HV –MT Inverters**



**Example of connection with 3 Sirio HV –MT Inverters**

- The medium-voltage transformer may be 10KV, 15KV, 20KV, 22KV, 25KV, 30KV or 35KV. However, it may be necessary to connect Sirio Inverters HV-Mt to the low-voltage grid. In this case upper voltages of 400V or 415V are usual.

7. The impedance voltage  $Z$  (%) of the transformer must, in relation to every inverter, be 6% in each case. Impedance voltage tolerance is 10%.
8. During thermal rating, the load curve and the ambient conditions at the respective installation site should be taken into account.
9. No neutral point is required on the low voltage side. If a neutral point is nevertheless present on the low-voltage side, this neutral point must not be either connected or grounded.

***NOTE FOR THE INSTALLATION***

We would remind that the connecting cables between the Sirio Inverter HV-MT and the transformer must be shielded and the length should not exceed 10-15 meters.