

# CG APPLICATIONS

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<b>Application Note :</b>	<b>September 2010</b>
<b>Market involved :</b>	<b>Renewable Energy</b>
<b>Product :</b>	<b>RSQK Series</b>
<b>Customer :</b>	<b>Wind Turbines</b>
<b>Subject :</b>	<b>Providing an effective and reliable synchronisation to the grid via RSQK softstarters</b>

## CUSTOMER ISSUE :

During the synchronisation of the wind turbine to the network grid, high inrush currents may be present, causing higher stresses on the mechanical components of the system.

Such stress couplings and gears in the system leading to increased maintenance costs and more frequent system downtimes.

In the case of wind turbines, a trouble-free operation is required due to the not so easy access to the system.

## OUR SOLUTION:

The RSQK softstarters can work up to operational voltages of 690VAC and can be configured to work in reverse mode to effectively control the synchronisation process of the wind turbine to the network by ramping the generator voltage up to the system voltage .

The additional Top of ramp relay output may be used to signal to the wind turbine controller the instance when the bypass contactor needs to be triggered.

At this moment, the wind turbine's power factor capacitors are connected and the turbine rotor accelerates the generator to a higher than synchronous speed, allowing generation to begin.

## ACHIEVED BENEFITS:

- A reduction in the magnetic in-rush currents by a factor of 10, when compared to starting the generator direct on line, is achieved.
- This reduction in the inrush currents results in less mechanical stresses on the system components thus minimising the maintenance costs and most importantly reduction in the system downtime.