Sinexcel MV PF Correction Solution &Guidance

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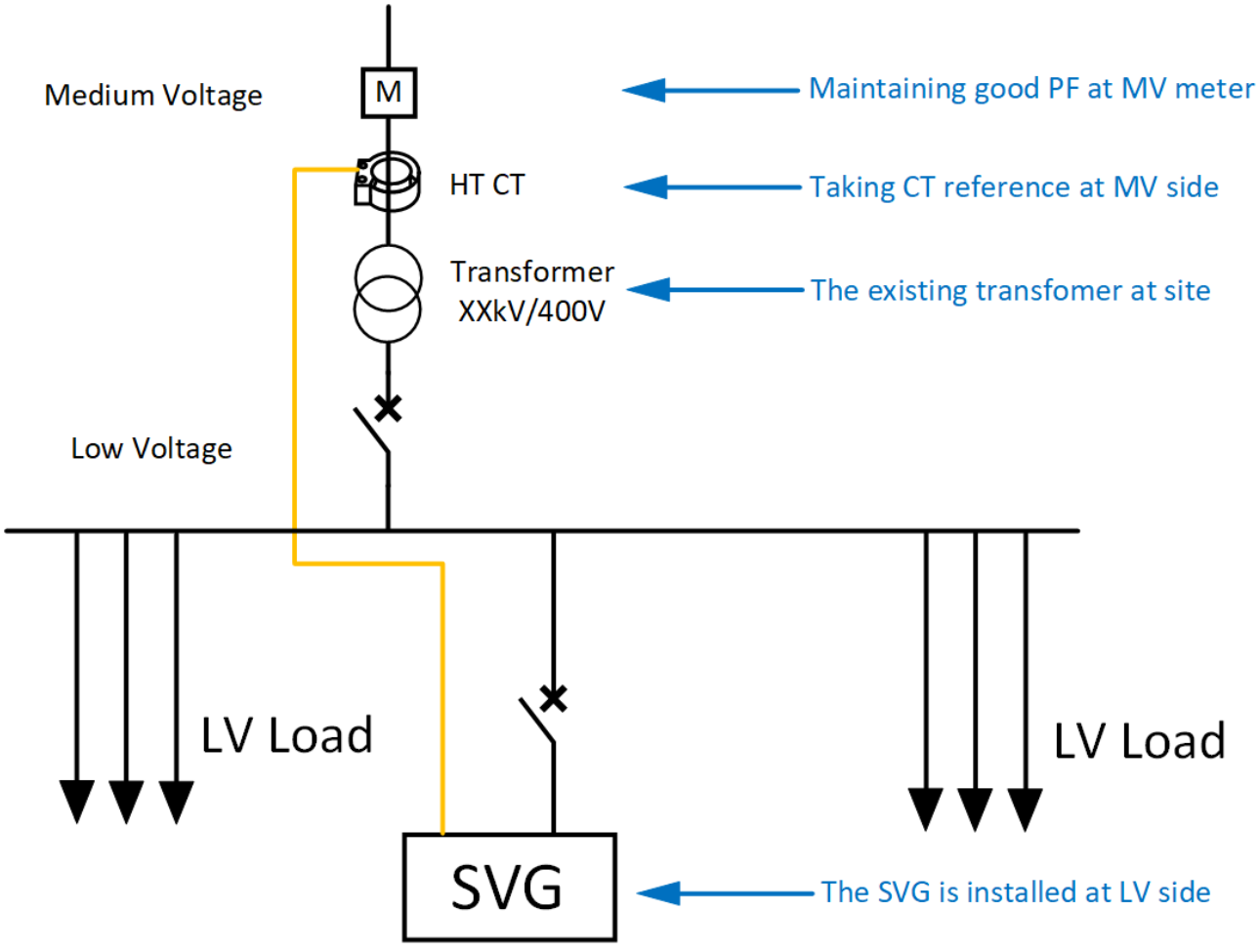
1. Background introduction

Sinexcel focus on power quality at low voltage since founded in 2007 and has developed a complete SVG production line at 208V/400V/480V/600V/690V for power factor correction.

In the past few years, there are some MV project inquiry coming to Sinexcel, the traditional solution 'SVG + step-up transformer' was provided to the customers. However, with the high cost of the step-up transformer, the solution provided is not as competitive as statcom solution.

Now Sinexcel has develop a new solution, which allows SVG to install at low voltage side but with CT reference at medium voltage side and maintaining good power factor at medium voltage side. In this solution, Sinexcel SVG only need to be installed at the secondary side of the existing transformer, so the cost of the extra transformer is avoided.



2.Solution introduction

2.1 Key product required:

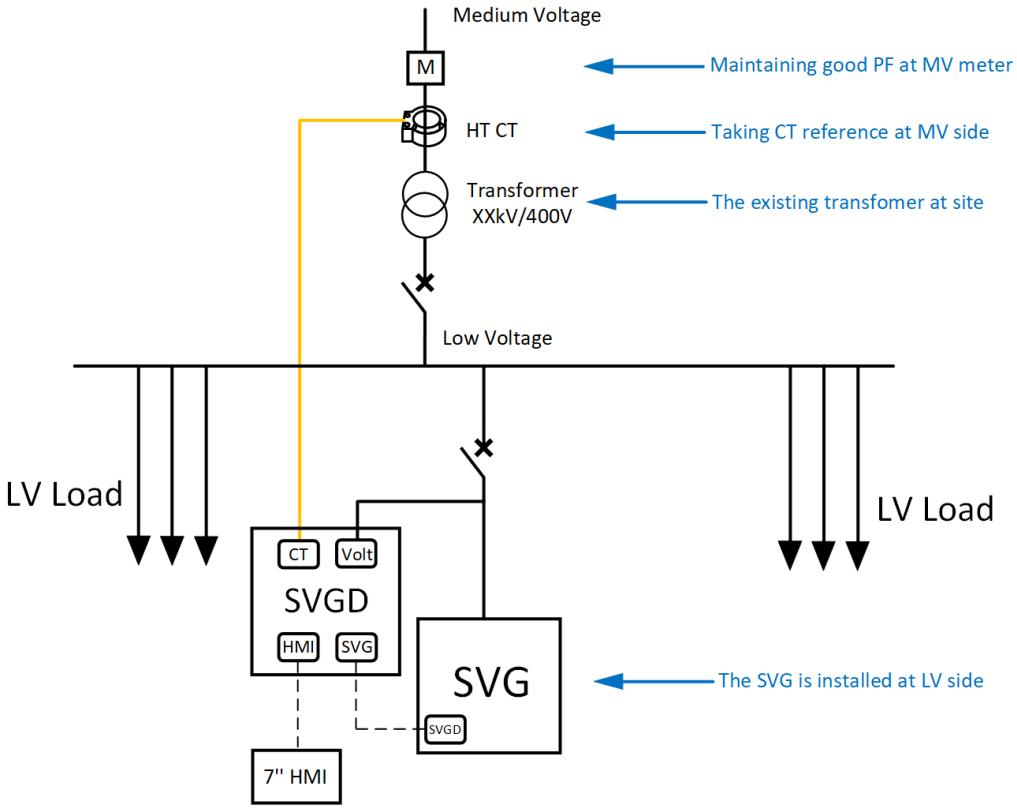
Sinexcel SVG

Sinexcel SVGD

Sinexcel 7-inch HMI

Note: This MV function has requirement on the software version of SVG, SVGD and 7-inch HMI. Customer need to confirm with Sinexcel product engineer whether the whole system could work before making the order.

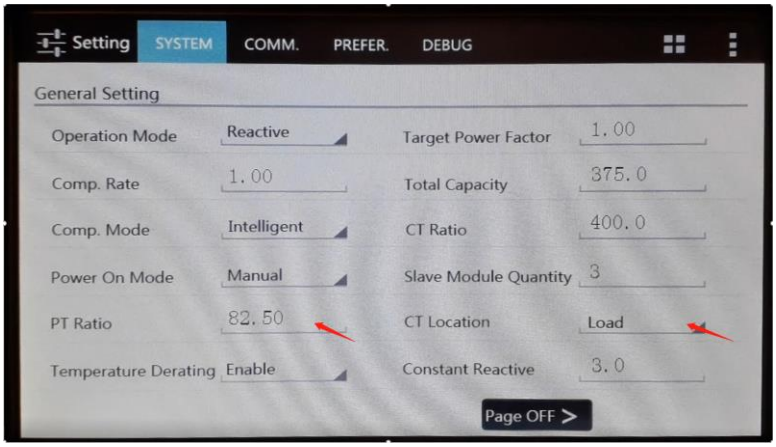
2.2 Detailed Wiring

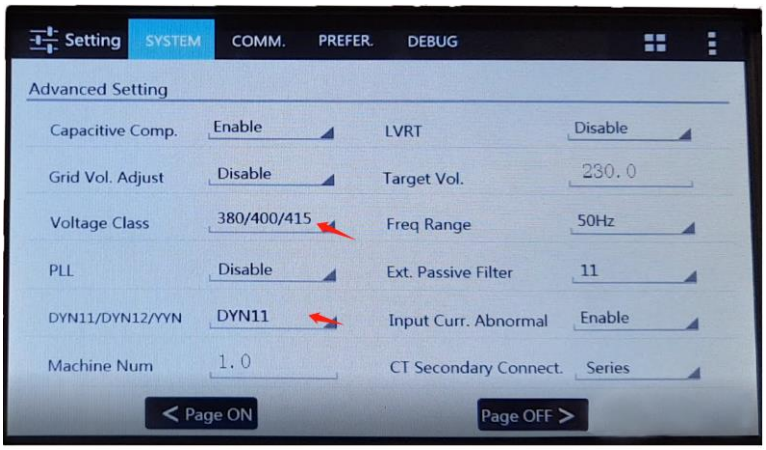


Detail wirng for MV project

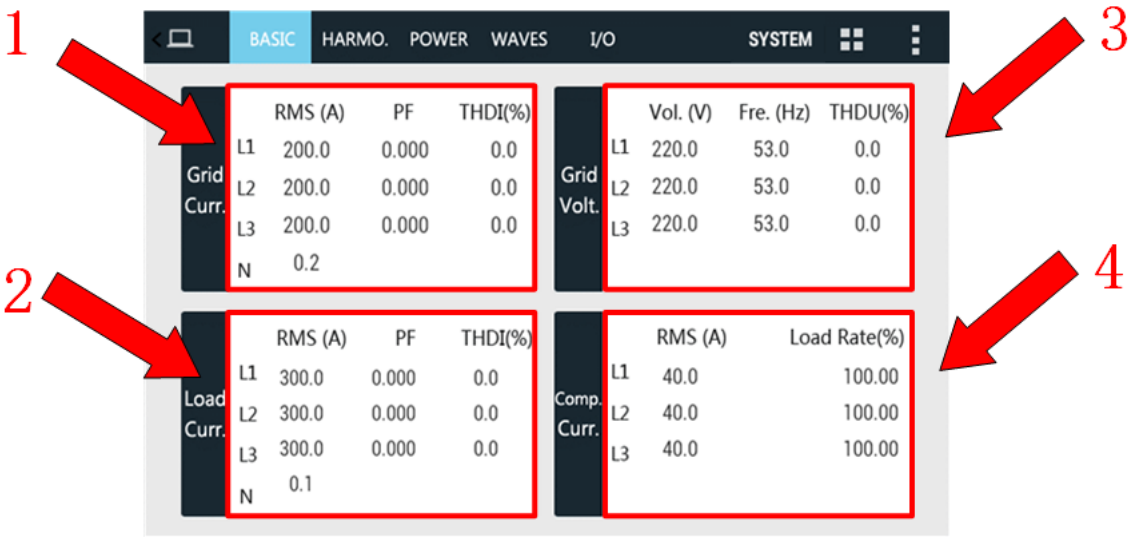
2.3 Key settings at 7-inch HMI

- The setting range from 0.1 to 90. When the transformer at site is 33kV/400V, the PT ratio should be set as 82.5. This parameter will influence the voltage RMS display in 7-inch HMI.
- The CT location could only be set to load side if SVGD is used.
- The voltage class is set to the voltage of secondary side of the transformer.
- The transformer type can only be set to Dyn11, Dyn12 or Yyn. The setting should be corresponding to the real transformer type at site.

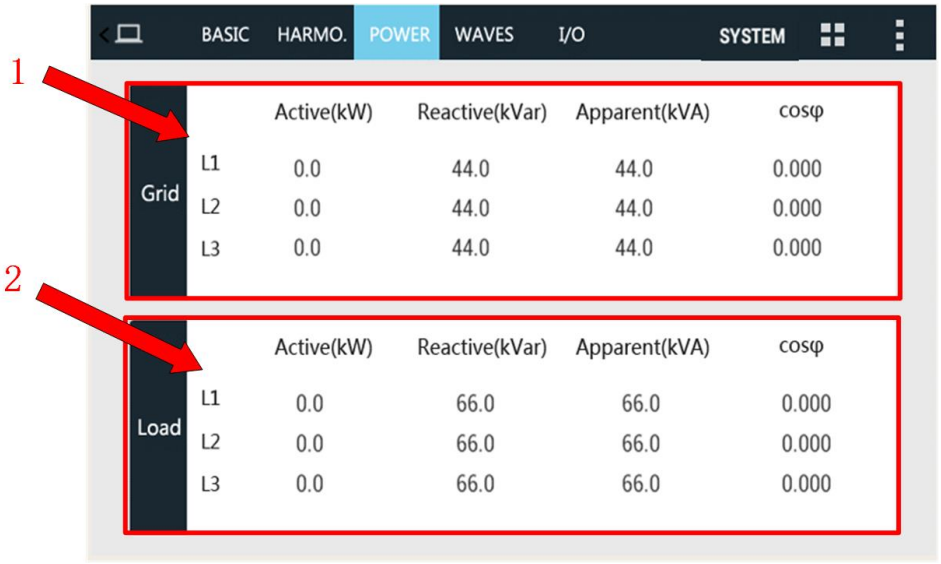




3.Data display



1. The compensation result is displayed at the first part. The data is measured by the CT of SVGD and shows the current information at medium voltage side after compensation.
2. The data at the second part has no meaning.
3. Voltage information is shown in the third part. The voltage here is calculated according the LV voltage and PT ratio. The frequency information and THDU information is also form low voltage side.
4. The real-time compensation current is shown in the fourth part. It is the compensation current at the low voltage side.



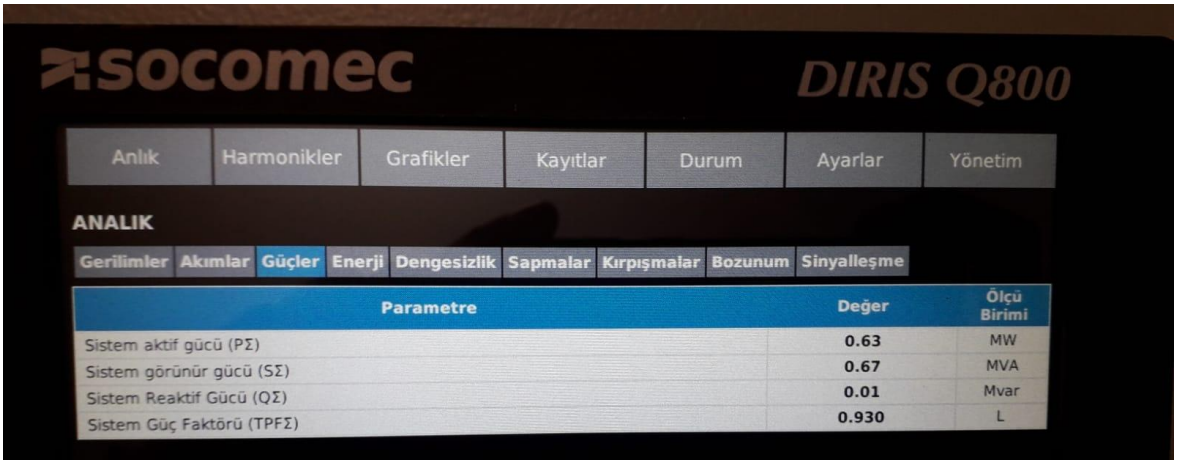
1. The compensation result is displayed at the first part. The data is measured by the CT of SVGD and shows the power information at medium voltage side after compensation.
2. The data at the second part has no meaning.

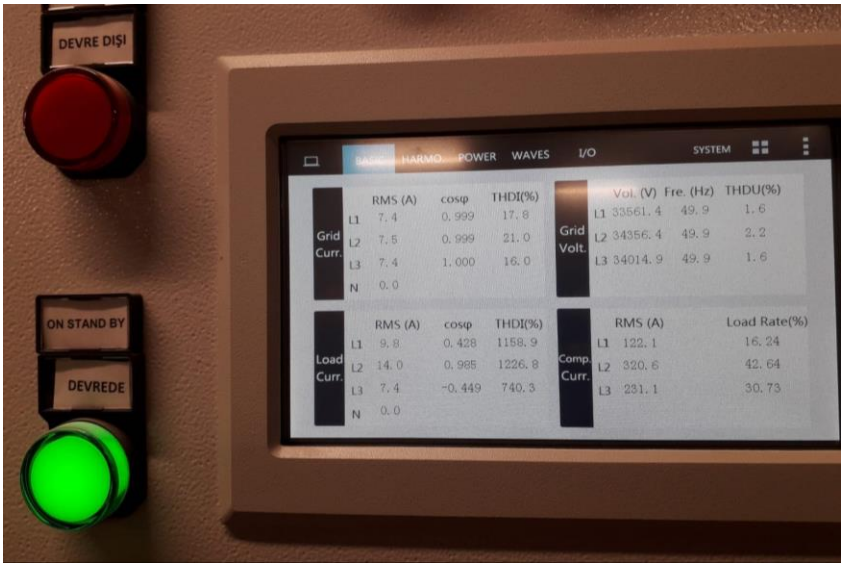
4. Precautions

- This MV solution has requirement on the software version of SVG, SVGD and 7-inch HMI. Customer need to confirm with Sinexcel product engineer whether the whole system could work before making the order.
- In some cases the electrical system is complex. Sinexcel require for all MV project, the customer should provide the detail single line drawing of the site and confirm what target performance they want. Sinexcel product engineer will take them into evaluation and provide the correct solution.
- The 120Ω resistor is required to connect at the CAN port of the first module and the last module.

5. Case sharing

5.1 Turkey Metro project





5.2 Indian 22kv project

Pls refer to document ‘Solidus Hi Tech -50KVAr SVG HT Application Note’