# Sungrow New String Inverters for C&I PV Applications — SG33/40/50/110CX

The commercial and industrial (C&I) PV plants including some rooftops of industrial parks, schools, hospitals and office buildings are recognized as an ideal way of investing. However, the diverse applications of C&I rooftops, such as various capacities, different orientations, high temperature, extreme humidity and high corrosiveness, also pose tremendous challenges to the power plants. Often called "the heart" of any PV system, inverter directly determines the plant power generation and revenue. Sungrow provides its new string inverter series SG33/40/50/110CX covering complete application scenarios, which comprehensively considering the overall system cost, power generation efficiency, return of investment and O&M, so as to ensure that the power plant operates efficiently and get higher benefits.

Fig.1 SG110CX

Fig.2 SG33/40/50CX

Fig.3 1MW PV Project Utilizing SG110CX in Yecheon, South Korea

## "n + 1" Flexible Configuration, Lower Cost

For C&I power plants, Sungrow provides 33kW ~ 110kW power level string inverters to adapt to a wide range of applications. It can be seen from figure 4 that for rooftop applications with different capacities, the selection of inverters can follow the principle that the power of single inverter should be higher, and the number of inverters should be less. The flexible configuration of "n high-power string inverters + 1 low-power string inverter" can reduce the system cost effectively.

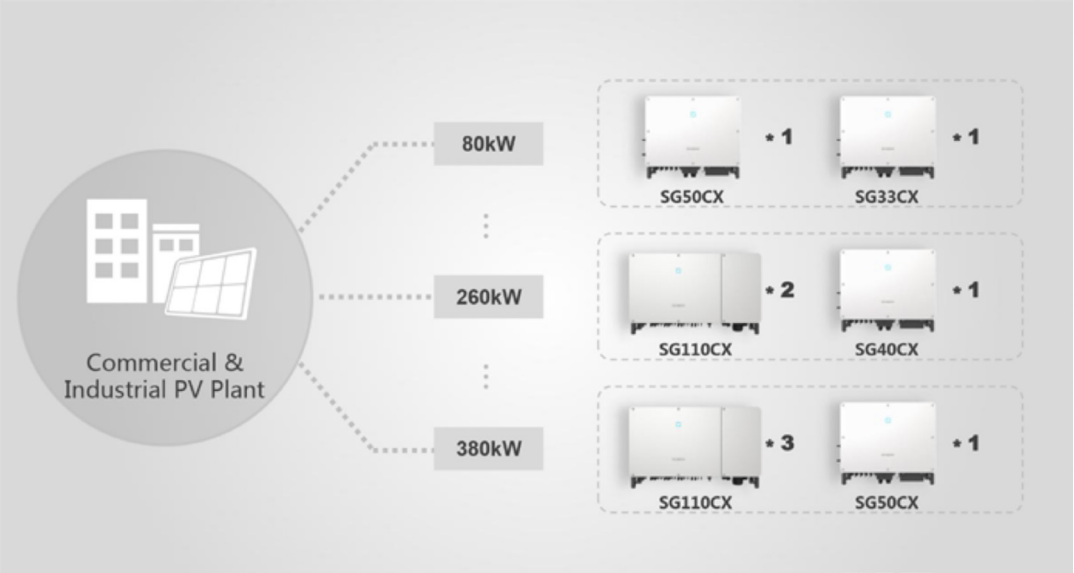


Fig.4 Flexible Configuration of Commercial and Industrial PV Plants

## IP66 Protection and C5 Anti-Corrosion, Higher Protection

In recent years, more and more PV power plants have been installed in coastal and desert areas which poses challenges to inverters. Sungrow string inverter series SG33/40/50/110CX have significant function and performance improvements. Featured IP66 protection and C5 anti-corrosion, they can be installed in harsh environments such as coastal or chemical industrial region and other typical harsh conditions.

- The inverter housing adopts the golden section ratio design, combined with intelligent LED, which has both aesthetic and technological feeling. The four corners and the edge cutting all adopt the arc-shaped design and the transition treatment to avoid protruding edges and sharp trimming, which are both humanized and affinity.

- The main part of the housing adopts aluminum alloy material which is widely used in aircraft fuel tank. It is formed by integrated die casting without any holes or cracks on the surface. The whole inverter is upgraded to IP66 protection level, which can effectively prevent dust and water vapor from entering. The inverter adopts polyester resin spraying, 316 stainless steel external fastener, 480 hours strict test, and reaches C5 anti-corrosion level. Multiple high-level protection can easily cope with all kinds of harsh environments.


Fig.5 High Protection Rating Adapts to Harsh Environments

## Smart Forced Air Cooling and Multiple MPPTs Compatible with Bifacial Modules, Higher Yield

General inverters often derate due to the high ambient temperature, particularly in summer the rooftop temperature will be even higher. Compared with natural cooling design, Sungrow inverter adopts smart forced air-cooling design, which can lower the internal ambient temperature and core component temperature of the inverter greatly. Figure 6 shows the commercial inverters SG110CX are used in a 500kW rooftop PV plant in Germany. With no derating at scorching heat, they significantly improve power generation efficiency and power output of the plant.

Fig.6 AC 500kW Rooftop PV Plant in Germany

With increasing attention towards the power generation and cost of the system, new PV technology are gradually applied in such as bifacial modules which require higher DC current input capacity and higher full-load operation capacity of inverter. Sungrow CX series inverters are all designed with multiple MPPTs as well as can run at full load for a long time due to components selection and advanced design, perfectly compatible with bifacial modules, which can solve the mismatch issues caused by the different orientation and partial occlusion of rooftop power plants. The perfect combination of the bifacial modules and the multiple MPPTs can further improve the power generation and bring higher yields.

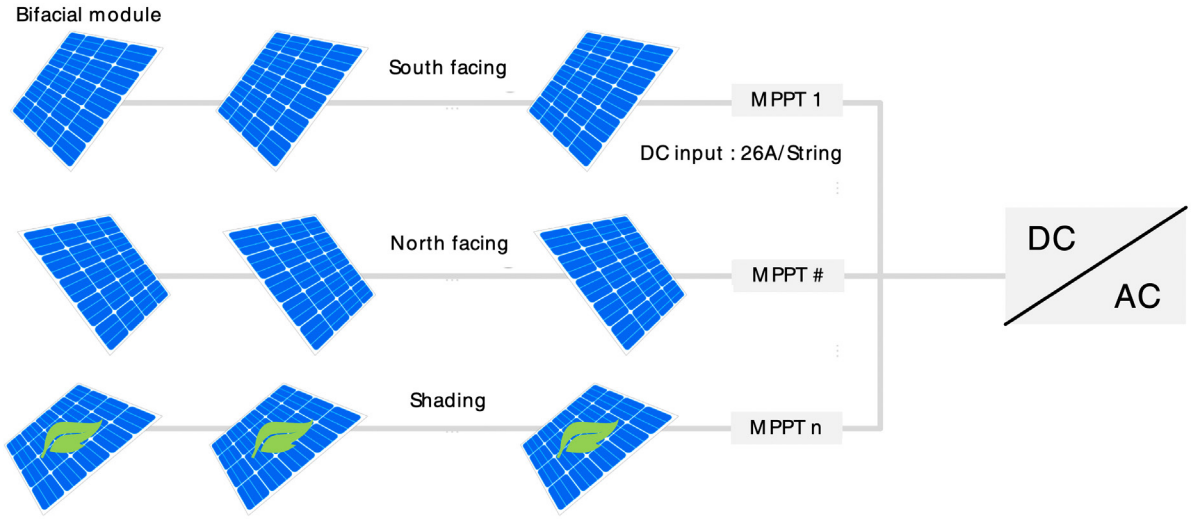


Fig.7 Multiple MPPTs Compatible with Bifacial Modules

## Flexible Monitoring Solution + IV Scanning, Easier O&M

Due to the different application scenarios and requirements of C&I PV plants, Sungrow flexibly designed a complete monitoring solution including wire and wireless communication solution shown as figure 8. The whole system supports online commissioning, remote monitoring via iSolarCloud Web/APP, and it has the ability of intelligent management. Meanwhile, Sungrow's monitoring solution supports I-V curve scanning and diagnosis which can finish a full-scale plant diagnosis in 15 minutes with the test result deviation for voltage and current less than 0.5%. The solution makes it easy to locate faults caused by dust shielding, glass panel cracking, dirt shielding, diode short circuit, gate line disconnect and PID attenuation in order to reduce power generation loss.

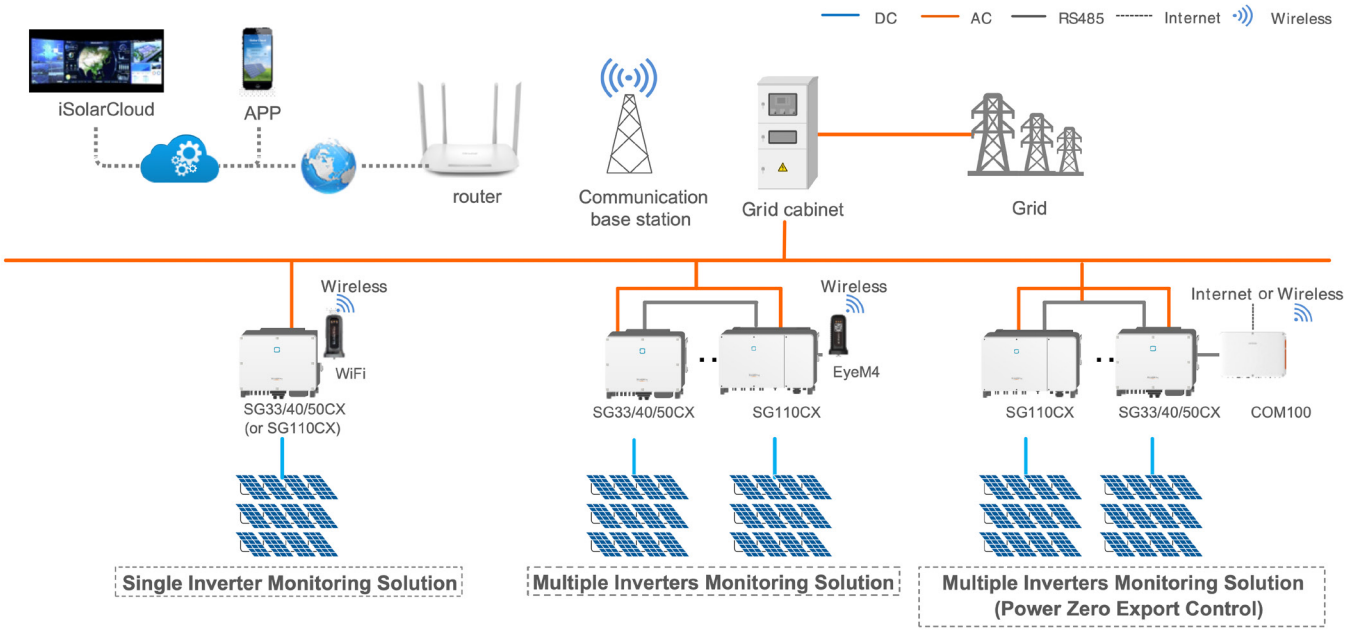


Fig.8 Commercial and Industrial PV Plants Monitoring Solution Configuration

## Summary

Sungrow SG33/40/50/110CX series inverters have a wide range of application scenarios and can be flexibly configured to reduce system costs significantly. It has multiple MPPTs and is compatible with bifacial modules, which can bring higher yields. IP66 protection and C5 anti-corrosion level make it easy to adapt to harsh environments. The smart monitoring solution can adapt to different field scenarios and accurately locate faults to ensure the power generation benefits of PV power plants. Due to so many advantages, these series have been widely deployed across the globe in diverse arrays of applications and environmental conditions.