

Article

Power conditioning – Samsung use ABB technology to protect their mega investment in China



ABB is providing Samsung with a power protection solution for phase two of their \$3 billion liquid crystal display (LCD) production facility in Suzhou, China. Phase two will implement five PCS100 Industrial UPS-I systems, a total of 10,500 kVA, to protect against crippling power disruptions, preventing loss of materials and resources. Along with phase two, phase one of this mega investment is currently protected by eight PCS100 UPS-Is – bringing the total installed amount after completion of phase two to 27,000 kVA.

Samsung's \$3 billion LCD production facility in Suzhou is the biggest single investment ever made by a South Korean company in China. The state-of-the-art facility is safeguarded from the most common power quality issue – voltage sags – and the power quality solution is one of the many that ABB has supplied to semiconductor companies in Asia.

Situated within Samsung's huge production complex at Suzhou Industrial Park in Jiangsu province, the 7.5 generation fabrication line is capable of producing 100,000 glass substrates per month. The facility will mainly produce 48-inch and 55-inch full HD and 4K ultra HD LCD panels using these glass substrates, measuring 2200 mm x 2500 mm. Together with Samsung's existing LCD module production plant at its Suzhou complex, the new LCD line enables Samsung to create an integrated LCD production base for China – by far the world's largest market for LCD televisions.

Providing protection

To ensure that production at its multi-billion dollar plant is not brought to a standstill by power failures, voltage sags or other electrical disruptions, Samsung selected ABB to provide the facility with a power protection solution.

For Samsung, the most important feature of ABB's PCS100 UPS-I was the small footprint of the system, and that it was able to fit into the equipment room for phase two. The phase two electrical rooms were designed to the same specifications as phase one (where the eight other PCS100 UPS-Is are located), making for a seamless transition. Another important feature was that the PCS100 UPS-I is a single conversion UPS with an ultra-capacitor energy storage system coupled to a back-up inverter system, allowing the downstream load to remain operational during short power outages and very deep voltage sags.

ABB's Power Conditioning sales manager, Andrew Hiscock, commented on this achievement. "While we have great reliability and product performance, this is the standard level expected by Samsung, and our competitor's product is also very reliable, so maintaining our build quality is critical. We are still the only company with a 3,000 kVA UPS system in a Samsung facility."

Among the many differentiating features of the PCS100 UPS-I solution for semiconductor applications are:

- Short payback time, typically less than 12 months
- Large low voltage power capacity of 16.5 MVA (most other solutions require medium voltage systems for this capacity)
- Ultra-fast transfer time of less than 2 milliseconds
- Exceptionally small footprint – 50 percent smaller than competing solutions
- Long and more economical operating life – 15 years compared to the three to five years of UPS batteries
- Comprehensive customer support

ABB provide protection to other Samsung facilities

Other Samsung facilities that have implemented ABB's power protection solutions include the Xi'an facility in China. This plant selected 22 PCS100 UPS-I units for its \$7 billion NAND flash plant. The plant has a monthly output of 100,000 nanometer chips and has been operating since the end of 2013. NAND chips are used primarily in memory cards, USB flash drives, solid-state drives, and similar products for data storage and transfer. To date, ABB has supplied more than 1,256 systems (AVC, UPS-I and RPC) – a total of 978.8 MVA of PCS100 power protection solutions – to high-tech semiconductor and flat panel LCD manufacturing facilities worldwide.

To find out more about ABB's PCS100 UPS-I solutions:

Web: www.abb.com/ups

Video: [The features of the PCS 100 UPS-I](#)

Email: powerconditioning@abb.com



PCS100 UPS-I website



ABB's PCS100 Industrial UPS that has been installed for phase one in Samsung's Suzhou facility to protect against voltage sags