



CASE STUDY

Singapore is working towards being a Smart Nation with the help of Pfannenbergl

Four parties, 3 months of technical discussions, 6 months of testing and 9 months on installations, Pfannenbergl takes advantage of our readily available & proven DTS-3000 cooling units

Pfannenbergl is now thermal managing part of Singapore Electronic Road Management System.

Application: Outdoor Transmission Stations located Island wide. These stations are to enhance the coverage of the wireless network connection. The hot and wet climate in Singapore is the main challenge to these Electrical enclosures.

Executive Summary

Singapore is building the World's First Smart Nation system by harnessing Technology to the fullest with the aim of improving the lives of their citizens. The Singapore Land Transport Authority is now enhancing the network coverage of their Electronic Road Management System with Pfannenbergl, thermal management solution for their Transmission stations island wide.

Challenges

This project involved 4 parties, the Consulting Company, System Integrator, Panel builder and Thermal Management Specialist (Pfannenber). From 2012, we have the initial contact to this project, and to the installation of the last transmission station in 2015 (Q2). Much time were spent to finalize on the technical specification, set-up, trial stations and acceptance test on these outdoor transmission stations, located at the rooftops of residential and commercial buildings operating 24/7.

The proto type test station is essential because this new system is designed for new coverage locations with the plan to replace the existing 15 year-old systems. Hence, robust and service friendliness is a must as these new systems as they are meant to last the next 20 years.



Results, Return on Investment and Future Plans

September 1998, Singapore implemented the Electronic Road Pricing (ERP) System to better manage the road traffic situation. Progressively, 1000 stations were in place for the past decades and more are in the pipelines.

Pfannenber is now thermal managing the new designed transmission stations of the Electronic Road Management System.

With the Smart Nation Vision, Pfannenber will not only be serving the Nation Infrastructure needs. We can be expecting more opportunities in contributing to the building of the Smart Nation.

This project has also enabled Pfannenber to tie up with the Singapore government One-stop Solution partner, System Integrator and panel builder.

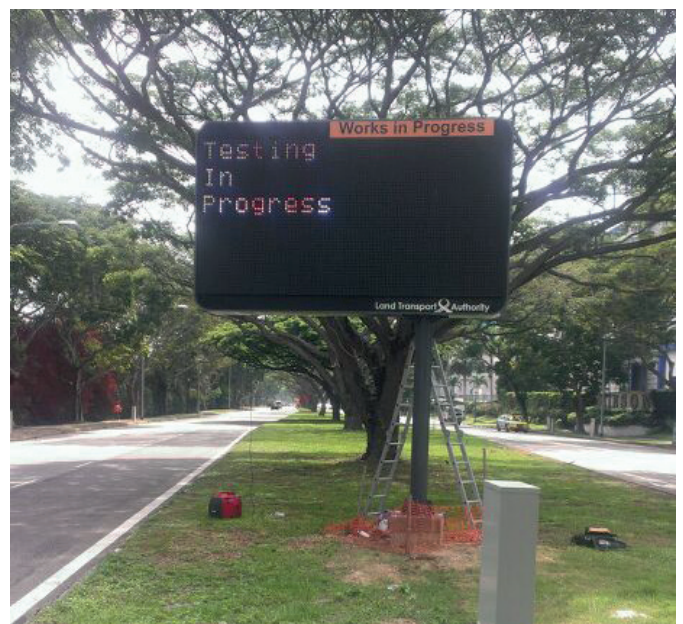


How Product Helped

Singapore climate is generally characterized as hot (23 °C to 33 °C), high humidity (average is 95%) and with abundant rainfall. So it is almost always warm and wet throughout the year.

Pfannenber DTS-3000 series is particularly suitable for this application, with its high IP56 protection system and low maintenance.

The earlier system supplied by competitors were heavily customized with specially designed cover to achieve the required high IP rating.



Next step:

The vision of Singapore towards being a SMART Nation has also increased the complexity, capabilities & function of these Transmission Stations. As these stations will not only be used for managing the Electronic Road Pricing (ERP) system, they will also be used to monitor & transmit information such as road traffic condition, traffic surveil-

lance camera and speed camera etc. The old ERP Transmission stations will progressively be replaced with the new System.

Pfannenber is currently also providing the preventive maintenance to ensure these newly installed transmission stations are functioning effectively & reliably.

Facts at a glance

Task	Thermal Management of Outdoor Electronic Road Management Transmission stations.
Project period for equipment installation	2014 / 2015
Challenges	<ul style="list-style-type: none"> • 24/7 application • Outdoor application with hot, wet and high humidity environment. • Strict government directive and accessibility to after Sales Service support.
Technique applied	DTS-3165 x 20 units
Success factors	<ul style="list-style-type: none"> • Equipped with Outdoorversion – DTS - 3000 • Timely response (Calculation, trial unit and after sales service support) • Competent partners

Summary

Singapore is marching towards being a SMART Nation and an Electronic Road Management System will be one of the key initiatives to connect the country at all times. The collaboration with our competence partners, took us nearly 3 years, from the day of initial contact to the installation of the last Transmission station.

Effective Cooling of sensitive equipment in Outdoor cabinets, located in a hot and humid environment like Singapore is a constant challenge. Pfannenber is proud to be able to play a part in the building of a SMART Nation in Singapore with our DTS 3000 series.