

SCADA

SCADA stands for 'supervisory control and data acquisition'. It offers an automatic control and monitoring mechanism to a specific system for different types of field equipment such as motors, pumps, circuit breakers, transformers and other electrical and mechanical devices. A SCADA system is normally made up of master station computer equipment with remote connection and interface to programmable logic controllers (PLCs) or remote terminal units (RTUs).

The purpose of a SCADA system is to provide a real-time supervisory control and monitoring function for various applications. By adopting SCADA technology, users can improve the efficiency of data collection, enhance system quality and reduce operation and maintenance cost. Nowadays, SCADA systems are widely used in production plants, industrial processes, utilities' system control and E&M system control. The size of the system may range from a few 100 to over 100,000 input/output data points requiring control execution. In electricity supply utilities SCADA typically features in the energy management system (EMS) and distribution management system (DMS) to control power systems that generate, transmit or distribute electricity.

Usually, a SCADA system is equipped with an appropriate man-machine interface (MMI), graphical facilities for process visualisation, alarm management and plotting of historical trends. Depending on the application's reliability requirement, a SCADA system may also be equipped with cold standby or hot standby. A cold standby allows some time for the backup system to start upon the failure of the main system. A hot standby normally has 100% redundancy in case of a hardware failure. The system architecture must therefore be designed to meet the performance requirement specific to the application. An advanced SCADA system thus provides a scalable, flexible and reliable solution for many sophisticated control and automation applications.

The ElectricalBlog is contributed by Electrical Division. If you would like to know more about this topic please contact the Division Hon. Secretary Ir Gary Ko, cwko@kumshing.com.hk