

ABSTRACT

The amount of information, which is generated in the substation automation systems, has grown exponentially since the introduction of intelligent electronic devices (IED). Until recent years substation communication between IED was realized with proprietary protocols. This led to communication problems in the system with IEDs from different vendors, and made many organizations to suffer from economical and technical sanction or companies' monopoly. The International Electro-technical Commission IEC 61850 standard was introduced in order to harmonize substation communication and gain interoperability between several vendors.

The conventional information communication exchange between devices was hardwiring cables information exchange. Recently Generic Object Oriented Substation Events (GOOSE) communication is used. GOOSE enables the transmission of these signals via Ethernet network, therefore creating a system that is more easily expandable, easy to maintain and reducing of hard wiring cost.

The standard divides substation communication into three levels, station level, bay level and process level.

This study is focusing on Generic Object Oriented Substation Events (GOOSE) communication between Intelligent Electronic Devices (IED) in the bay level and its applications. International Electro technical Commission IEC61850 uses Substation Configuration Language (SCL), which is based on Extensible Markup Language (XML) for the configuration of the automation system. The configuration includes substation topology, addressing and substation specification. The specifications are to be produced with software designed for this task. In this study the configuration software tool in use is (HELINK STS).