IEC 61850

The Future of Power System Automation

SISCO SYSTEMS INTEGRATION SPECIALISTS

THE IEC 61850 DIFFERENCE

The traditional approach to power system automation uses Remote Terminal Unit (RTU) protocols that were designed to provide operational efficiency over bandwidth-limited serial links. While such limitations remain for many applications, substation hardened equipment implementing modern networking standards (like Ethernet) now provide a cost effective means of enabling high-speed communications within the substation. Today, a new approach to substation integration is available that goes beyond RTU protocol.

IEC 61850 is an object-oriented model approach to how devices interact with network applications. It goes beyond a protocol standard by defining a comprehensive device and object model that uses understandable power system semantics. IEC 61850 provides a standardized framework for substation integration that specifies:

- **Communications requirements**
- **Functional characteristics**
- **Structure of data in devices**
- **Naming conventions for data**
- **Application device interaction and management**
- **Testing of standard conformity**

These models are mapped to a specific set of protocol profiles that are optimized and secured for each system functional area including data access, supervisory control, protection-oriented messaging, and transducer interfaces. As a result, IEC 61850 can be migrated to future networking technology without breaking the model because they are specified separately from the protocols.

FIELD-PROVEN INNOVATION

IEC 61850 represents an innovative approach to power system automation that leverages modern computer and networking technology to maximize reliability and performance while minimizing design, installation, and commissioning costs.

Since its release in 2002, IEC 61850 has been successfully implemented in thousands of substation systems across the world and is becoming the single most important international standard for power system automation.

WWW.SISCONET.COM

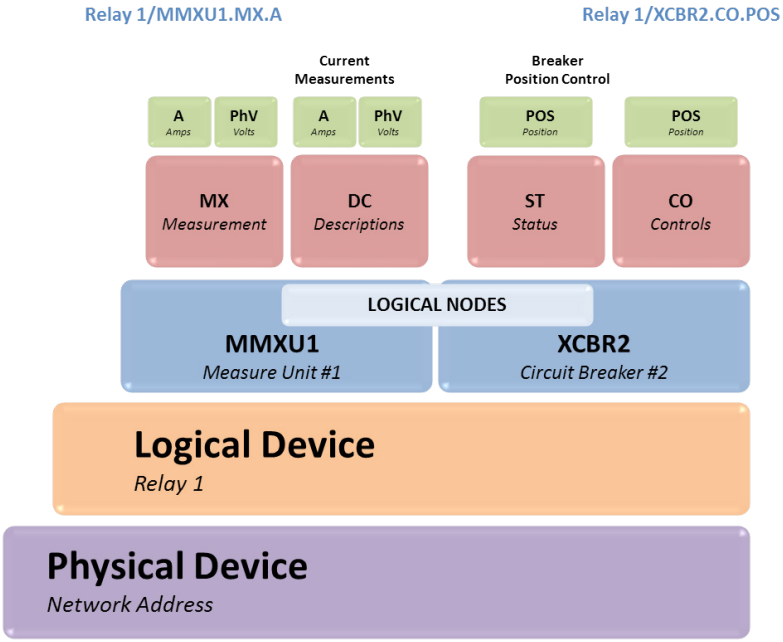
6605 19 1/2 Mile Road
Sterling Heights, MI 48314

P +1 (586) 254-0020
F +1 (586) 254-0053

FEATURES

IEC 61850 has a proven track record of delivering substation automation and integration benefits to both small and large utilities.

- Self-describing devices enable access to device configuration over the network dramatically reducing setup time and cost
- Standardized device-object models provide a higher level of interoperability that reduces variances between different types and vendors of devices lowering startup cost
- Substation Configuration Language (SCL) provides an XML file format that describes power system and device configuration for unambiguous specification of requirements eliminating procurement uncertainty while enabling offline configuration and exchange of system and device set information
- Standardized data naming conventions use power system context to avoid arcane number-oriented point tags and eliminates manual I/O to power function mapping simplifying setup and improving understandability
- Device models inherently support logical location of data and device functions enabling migration and coexistence of legacy systems
- Use of shared station level networking for data access, supervisory control, and process functions minimizes point to point wiring and dramatically reduces cost for incremental improvement of existing systems over time
- Multiple protocol profiles leverage modern networking technology to provide secure, optimized and reliable performance for a wider variety of applications including:
    - Station and bay control and monitoring
    - IED-to-IED protection messaging for intrabay, intrastation, and wide area remedial action
    - Transducer networks for CT/VT interfaces



IEC 61850 Object Names

6605 19 1/2 Mile Road
Sterling Heights, MI 48314
P +1 (586) 254-0020
F+1 (586) 254-0053