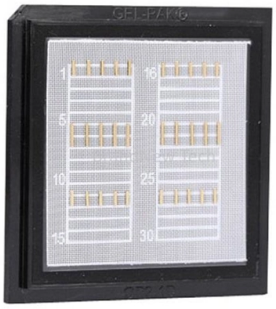
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Distribution Network Automation Terminal Information Point Table



Overview

In this paper, the demand for distributed control applications for feeder real-time topology is analyzed.

Key Takeaways

A Distribution Network Automation Terminal Information Point Table organizes all I/O points, communication interfaces, and functional modules of a remote terminal unit (RTU) for monitoring and controlling distribution automation systems.Overview

A Distribution Automation (DA) Terminal Information Point Table is a structured reference used in substation and feeder automation to map all input and output points of an RTU or automation terminal. It defines how field devices, sensors, and actuators are connected, monitored, and controlled. This table is essential for SCADA integration, fault detection, Volt/VAR control, and other DA applications .

Typical Components
• Binary Inputs (BI)
• Status signals from switches, circuit breakers, and relays

• Examples: breaker open/close, disconnector position, alarm signals

• Often mapped to IEC 61850 or DNP3 logical nodes

• Binary Outputs (BO)
• Control commands to field devices

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• Examples: trip/close commands for breakers, relay actuation

• Can include secure command outputs for safety-critical operations

• Analog Inputs (AI)
• Measurements from sensors and transformers

• Examples: voltage, current, temperature, power factor

• Supports standard ranges like 4–20 mA, ±10 V, or Pt100/Pt1000 for temperature

• Analog Outputs (AO)
• Control signals for devices requiring continuous adjustment

• Examples: tap changer control, voltage regulator setpoints

• Can be voltage or current controlled

• Communication Interfaces
• Protocols: IEC 61850, IEC 60870-5-104, DNP3 TCP/IP, Modbus TCP

• Supports multiple simultaneous protocols and redundant network configurations

• Enables integration with SCADA, DERs, and other DA devices

• I/O Expansion Modules
• Modular RTUs allow adding extra I/O rows or 19” racks

• Each row can host multiple analog or digital modules

• Supports flexible configurations for feeders, substations, or distributed energy resources

Table Structure ExamplePoint IDTypeDescriptionRange/StatusProtocol MappingNotesBI001Binary InputFeeder breaker statusOpen/ClosedIEC 61850/GOOSELocal and remote monitoringBO001Binary OutputFeeder breaker tripCommandDNP3 TCP/IPSecure outputAI001Analog InputFeeder current0–5 kAModbus TCPCT connectedAO001Analog OutputVoltage regulator setpoint0–10 VIEC 61850Continuous controlBI002Binary InputTransformer temperature alarmAlarmIEC 61850Pt100 sensorApplications
• Fault Location, Isolation, and Service Restoration (FLISR)

• Volt/VAR control for reactive power optimization

• Direct Transfer Trip between substations

• Predictive maintenance using transformer and feeder monitoring
Best Practices
• Use modular RTUs to allow flexible expansion of I/O points

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• Map all points to standardized protocols for interoperability

• Include redundancy in communication and processing for high availability

• Maintain a centralized Field Network Director (FND) or SCADA system for configuration, monitoring, and zero-touch deployment This table ensures that all field devices and automation points are systematically documented, enabling efficient operation, control, and maintenance of the distribution network.

Article Content

Distribution Automation Design Guide, 3

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Support

This Distribution Automation (DA) architecture is a fundamental part of any Cisco network, providing enhanced, end

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To improve the management efficiency of network information in distribution automation terminals, a study was

Distribution Network Topology Identification Based on IEC 61850

In this paper, the demand for distributed control applications for feeder real-time topology is analyzed. Based on IEC 61850 modeling

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Intelligent acceptance systems for distribution automation

The distribution automation system consists of three parts: the master station, communication network, and terminal devices .

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Distribution Automation Handbook

The handbook describes various power distribution system constructions and elements there-of, technical considerations, distribution

Distribution Automation Handbook

In the following, the distribution power transformer features, construction and protection and their influence to the complete

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Appendix B Project Drawing List

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Location and details of accessories (current transformers, temperature monitors, valves, ...)

Design of Distribution Automation System and Terminal ...

Experimental results show that the method proposed in this paper can effectively improve the quality of monitoring and

Research on the distribution automation system based on IEC61850

Abstract—In order to solve interoperability of the distribution automation devices and Plug and Play issues, propose intelligent power

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