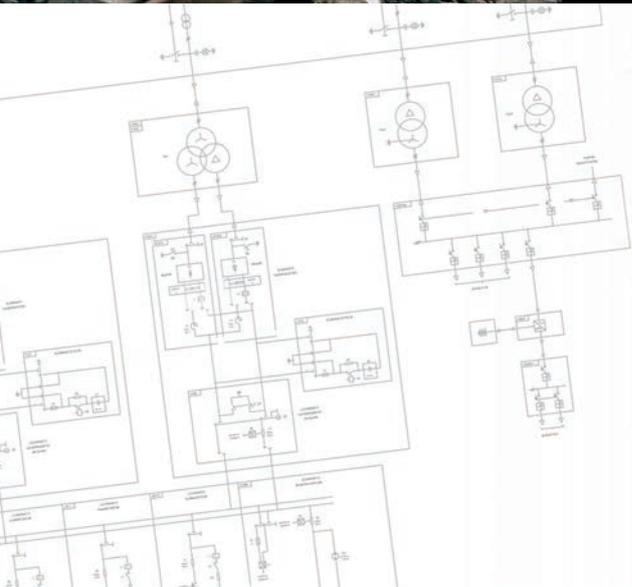


Railway Energy System

Substation automation



Substation Automation

The automation and control system allows full management of the Substation with the latest control technologies.

The key word is complete integration among local compartment automation and the mimic panel of the Substation and the remote central control room (OCC). Integration means not only simplification of the wiring but an exchange of complete and rich informations for a more efficient substation management and effective planning of maintenance.

The integration starts from the local compartment where PLC / RTU are installed for local acquisition and control, connected to a Substation local network that allows data transmission to the station control system. Also IED devices are interconnected to the system.

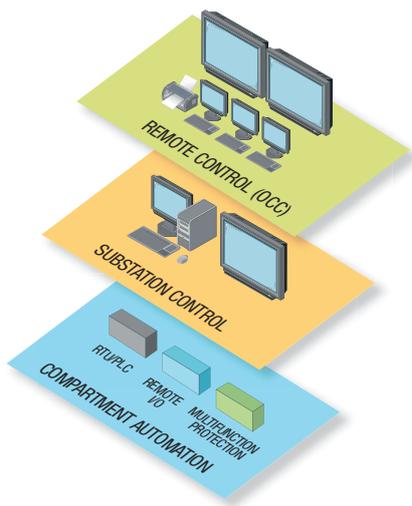


Communication

Ethernet networks provide a high-speed data exchange and optical fiber cabling allows immunity to electromagnetic interferences present in the substation.

The most common electrical protocols are used:

- IEC 61850
- IEC 60870-5-101/103/104
- DNP3
- Modbus TCP/Ethernet/IP/ Profinet/S7/and more

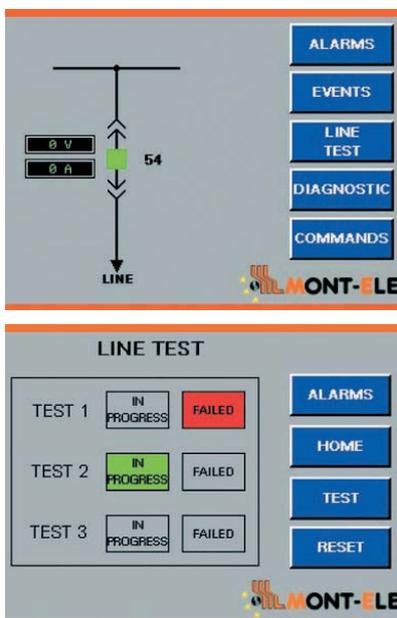
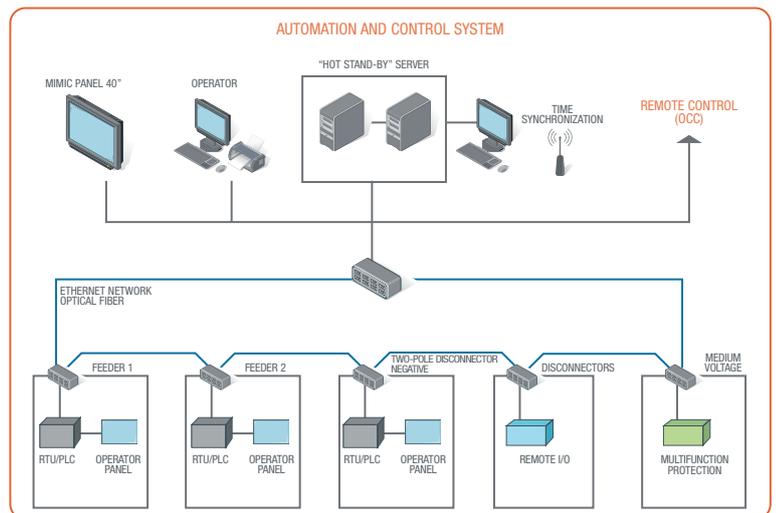


System

Integration provides a hierarchy of control:

- Local Compartment - data are collected directly on the switchboard
- Substation - the informations are concentrated in the Substation supervision system that controls the plant
- Remote control - using protocol communication signals, alarms and commands are exchanged

Typical architecture of a Substation Automation control system:



Local compartment automation

Inside the switchboards are installed the acquisition and control equipment PLC / RTU that are programmed with software according to IEC 61131-3.

The following functions are realized:

- Interlocks
- Line test
- Function of thermal imaging of resistance line test
- Alarms
- Local and remote commands
- Communication management
- Integrations with IED
- Compartment diagnostic

It's available the installation of a touch-panel for:

- Command of controlled equipments
- Support to command operations
- Local alarms registration
- Local events registration
- Setting of logic parameters
- Diagnostic data visualization



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The information in this document contains general description of the technical options which do not always have to be present in individual cases. Therefore, the required performance characteristics must be defined in individual cases during conclusion of the contract.

In view of the constant evolution in standards and design, and due to the continuous development, the characteristics of the elements contained in this catalogue are subject to changes without prior notification.

These characteristics, as well as the availability of components, are subject to confirmation by Mont-Ele's Technical Sales Department. Not valid as a contractual item.

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