



Just in Case: Redundancy Concepts for Telecontrol Systems

Safety and availability of power grids have ultimate priority – this is particularly true for systems that supervise and control critical infrastructures, i.e. telecontrol systems. Therefore, not only SCADA systems and central gateways, but also telecontrol devices (RTUs) are increasingly being taken into account in the development of redundancy concepts.

We from IDS have developed redundancy solutions for our ACOS 750 telecontrol system to make sure that your installations and systems remain fully functional and surveillable in the event of various outage scenarios. The following redundancies are available:

1. Redundant central gateways
2. Redundant CPUs ***NEW***
3. Redundant communication pathways
4. Redundant power supply

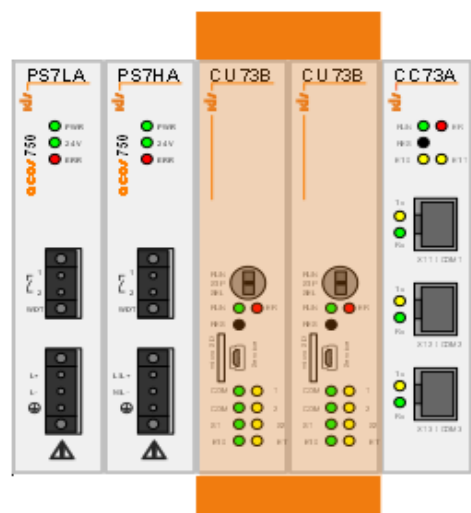
1. Central Gateways

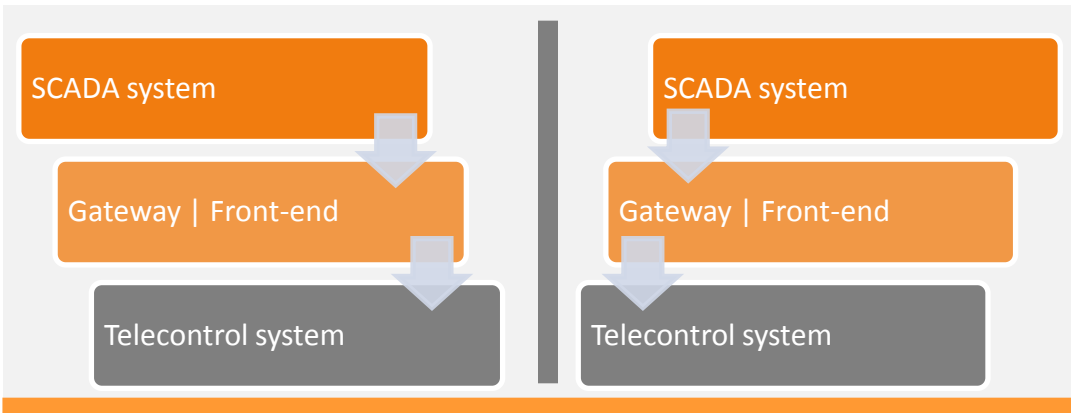
Gateways act as interfaces between the SCADA system and the process level. They can be operated as redundant gateways at the same site or on different sites. For this purpose, ACOS 750 offers functions for grid separation and segmentation, the management of redundant communication pathways as well as functions to ensure IT security, e.g. encryption of communication paths with RTUs in the field. It is also possible to use the gateway function on standard IT components and integrate it into the server infrastructure.

2. Redundant CPU

By using an SB7RA-16 rack, an ACOS 750 RTU can be operated with two redundant CPUs. These CPUs operate **independently in the hot-standby mode** and are in charge of communication with the central gateways.

Both the I/O level and communication links of lower-level RTUs have a simple structure and operate via additional I/O and communication modules which can also be operated centrally. In the event of faults, switchover between the CPUs takes place automatically and nearly without interruption, thereby preventing the loss of information.





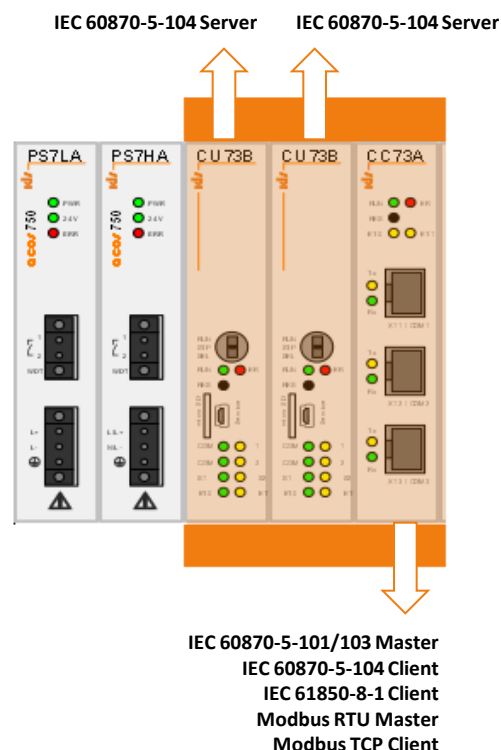
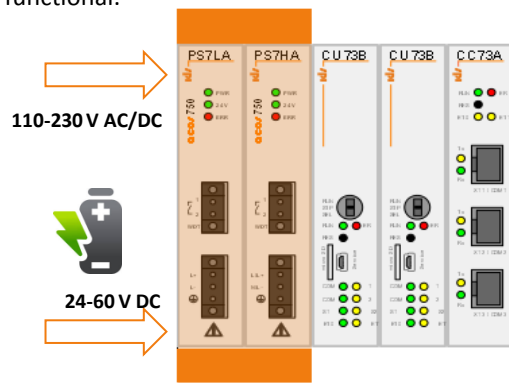
3. Communication Pathways

Redundant communication paths between the process level and central gateways can be implemented in different ways: firstly, on the **network level**, e.g. through building up communication rings (SW72B).

On the other hand, it is possible to use a variety of technologies and media (internet, mobile communication, in-house cables). Here, **optimal control and management** of communications is done via the gateways and the **higher-level SCADA system**, respectively. Outages are detected automatically, and redundant pathways are activated.

4. Power Supply Redundancy

In the event of power outages or a failed power supply unit, it is vital that the telecontrol equipment remains fully functional.



There are different approaches to ensure continuous system availability: for instance, an uninterruptible power supply can be implemented by means of **suitable back-ups (UPS)**. Additionally, it is possible to install **redundant power supply units**. With this approach you can also combine different voltage levels.

Would you like to learn more about the different redundancy concepts? Your sales contact is happy to answer your questions!