



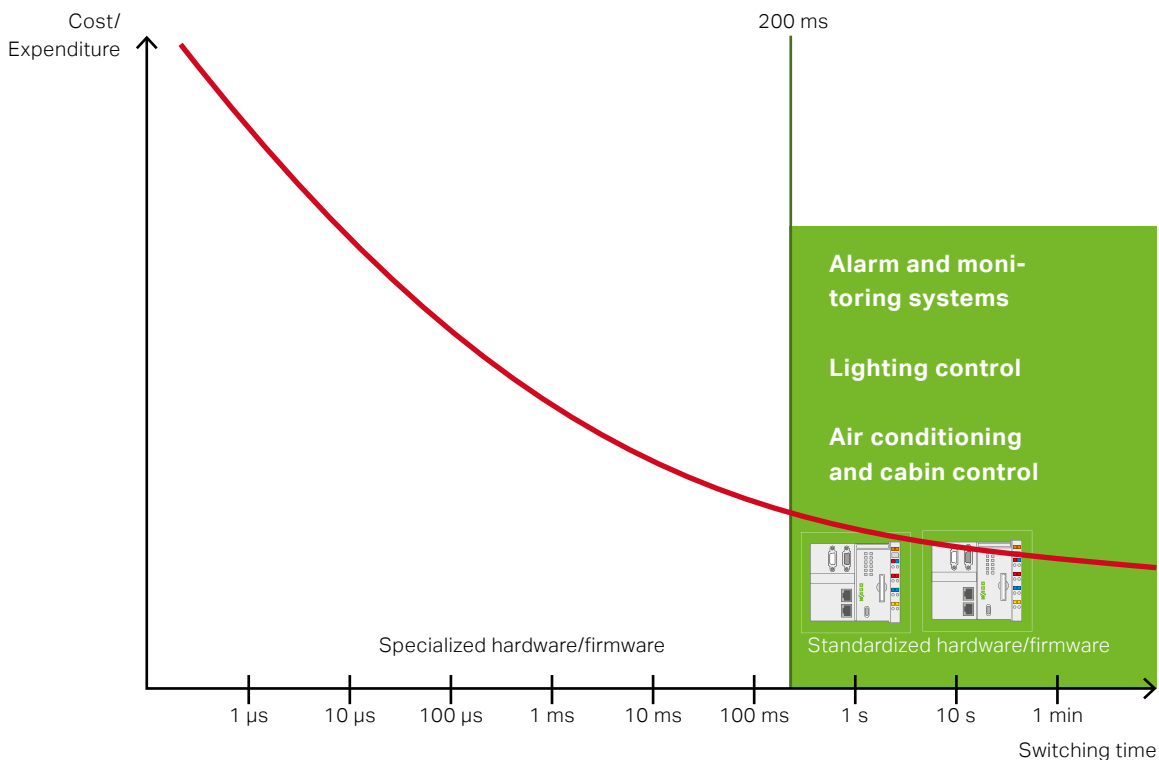
Application-Based Controller Redundancy

Increased Availability in Alarm and Monitoring System



High Availability on Standard Components

- Increase availability (lengthen service life, reduce fault effects)
- Collect and bundle data
- Simple/slow control loops



Application-Based Controller Redundancy

WAGO's **e!COCKPIT** engineering software tool is the intuitive programming environment for the controller. The multi-node programming environment can easily transmit the PLC program to both PLCs. For the application-based controller redundancy to be used, a software library with the necessary synchronization functions must be linked to the master PLC. The library offers the possibility of redundantly linking subnodes using a dual LAN. The subnodes, also known as smart couplers, do not have to be programmed; they can be simply booted from an SD card and then configured using an integrated webserver. A large number of the available analog/digital and complex 750 Series I/O Modules are automatically detected.

Process mapping is also automatically made available to both higher-level Master PLCs. These Master PLCs can

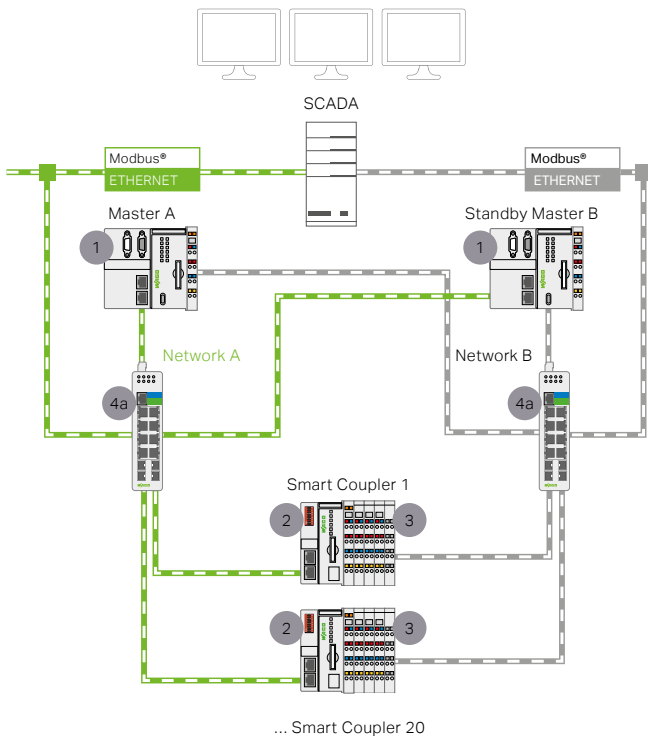
communicate with higher-level SCADA systems via the Modbus-TCP protocol. The redundant connection is performed over two separate networks.

The solution's design corresponds to an SPOF-tolerant system, which means that any occurring fault – like a voltage supply failure, a poor LAN connection, switches, or controller – can always be compensated for. Doubling the ETHERNET topology and the redundant message transmissions enable instantaneous switching during a network fault.

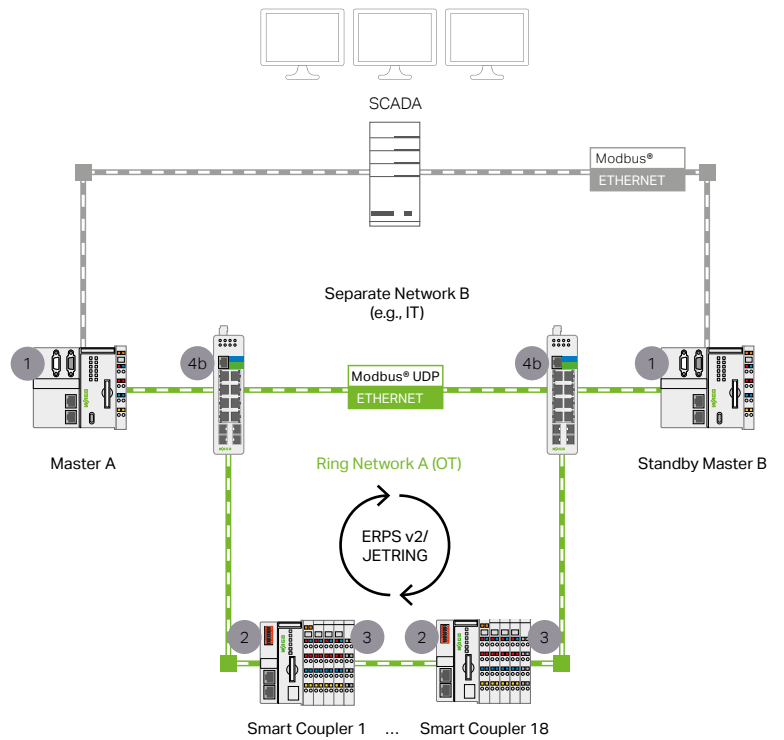
Typical switching times after a PLC failure are within DNV GL requirements when used in typical alarm and monitoring systems.

Openness in the Network Topology

Controller Redundancy in a DUAL LAN



Controller Redundancy in a SINGLE LAN



Parts List

| DUAL LAN | | | |
|----------|------------------------|--|----------|
| Position | Item | Description | Quantity |
| 1 | 750-8212 or PFC 200 G2 | Master/ Standby Master | 2 |
| 2 | 750-8101 | Controller/Smart Coupler | 1-20 |
| 3 | | Intrinsically Safe and Standard I/O Modules (incl. Complex Mail-box Modules) | 1-24 |
| 4a | 852-111 | Industrial ECO Switch | 2 |

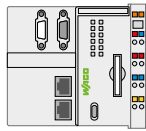
| SINGLE LAN | | | |
|------------|------------------------|--|----------|
| Position | Item | Description | Quantity |
| 1 | 750-8212 or PFC 200 G2 | Master/ Standby Master | 2 |
| 2 | 750-8101 | Controller/Smart Coupler | 1-18 |
| 3 | | Intrinsically Safe and Standard I/O Modules (incl. Complex Mail-box Modules) | 1-24 |
| 4b | 852-1305 or 852-303 | Industrial Managed Switch | 2 |

Switching Time

| | DUAL LAN | SINGLE LAN |
|---------|-----------------|------------|
| Network | Uninterruptible | 300 ms |
| PLC | 200 ms | 200 ms |
| System | 200 ms | 300 ms |

Easy System Commissioning

Master



750-8212 or
PFC 200 G2



Library for
e!COCKPIT



DRM License
2759-0245/0211-1000

1. Load library into e!COCKPIT

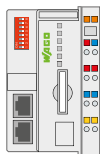
2. Load framework project

3. Add DRM license

4. Program and start application

Redundant data space: max. 1468 bytes

Smart Coupler



750-8101



758-879/0000-3102



Image Files (DUAL or SINGLE)

1. Copy image onto SD card

- Use supplied application note
- Generate system image on the SD card
- Set IP address via DIP switch

2. Start smart coupler

3. Copy SD card onto controller

- Use Web-Based Management

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