



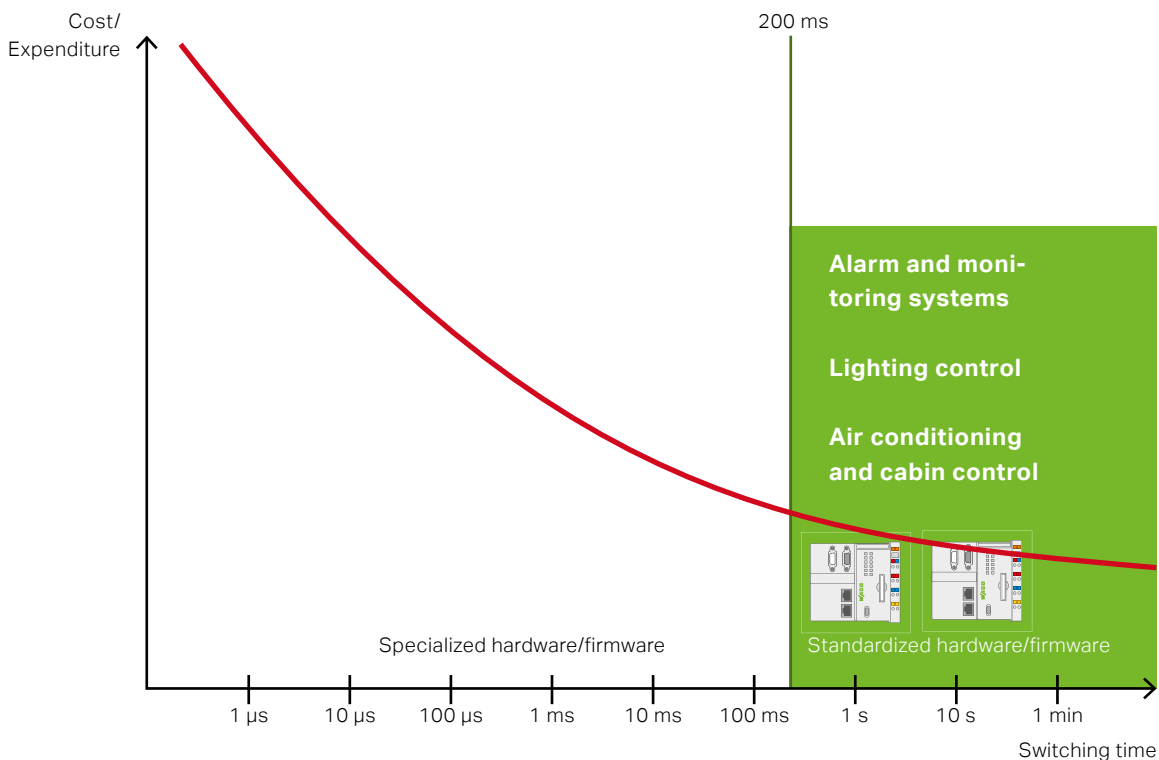
# Application-Based Controller Redundancy

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

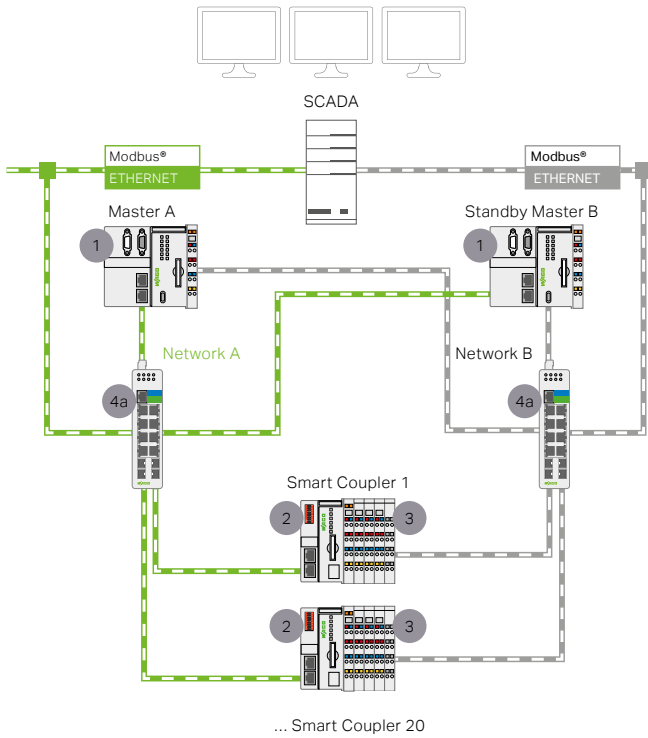
communicate with higher-level SCADA systems via the Modbus-TCP protocol. The redundant connection is performed over two separate networks.

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.

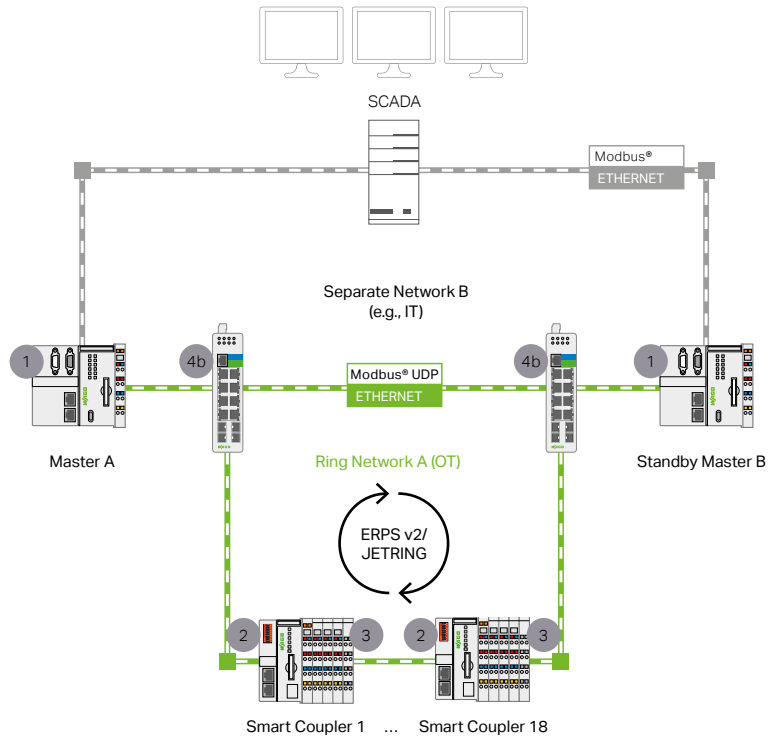
Typical switching times after a PLC failure are within DNV GL requirements when used in typical alarm and monitoring systems.

# 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

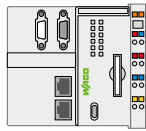
SINGLE LAN			
Position	Item	Description	Quantity
1	750-8212 or PFC 200 G2	Master/ Standby Master	2
2	750-8101	Controller/Smart Coupler	1-18
3		Intrinsically Safe and Standard I/O Modules (incl. Complex Mail-box Modules)	1-24
4b	852-1305 or 852-303	Industrial Managed Switch	2

## Switching Time

	DUAL LAN	SINGLE LAN
Network	Uninterruptible	200 ms
PLC	200 ms	200 ms
System	200 ms	200 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**

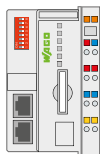
**2. Load framework project**

**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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