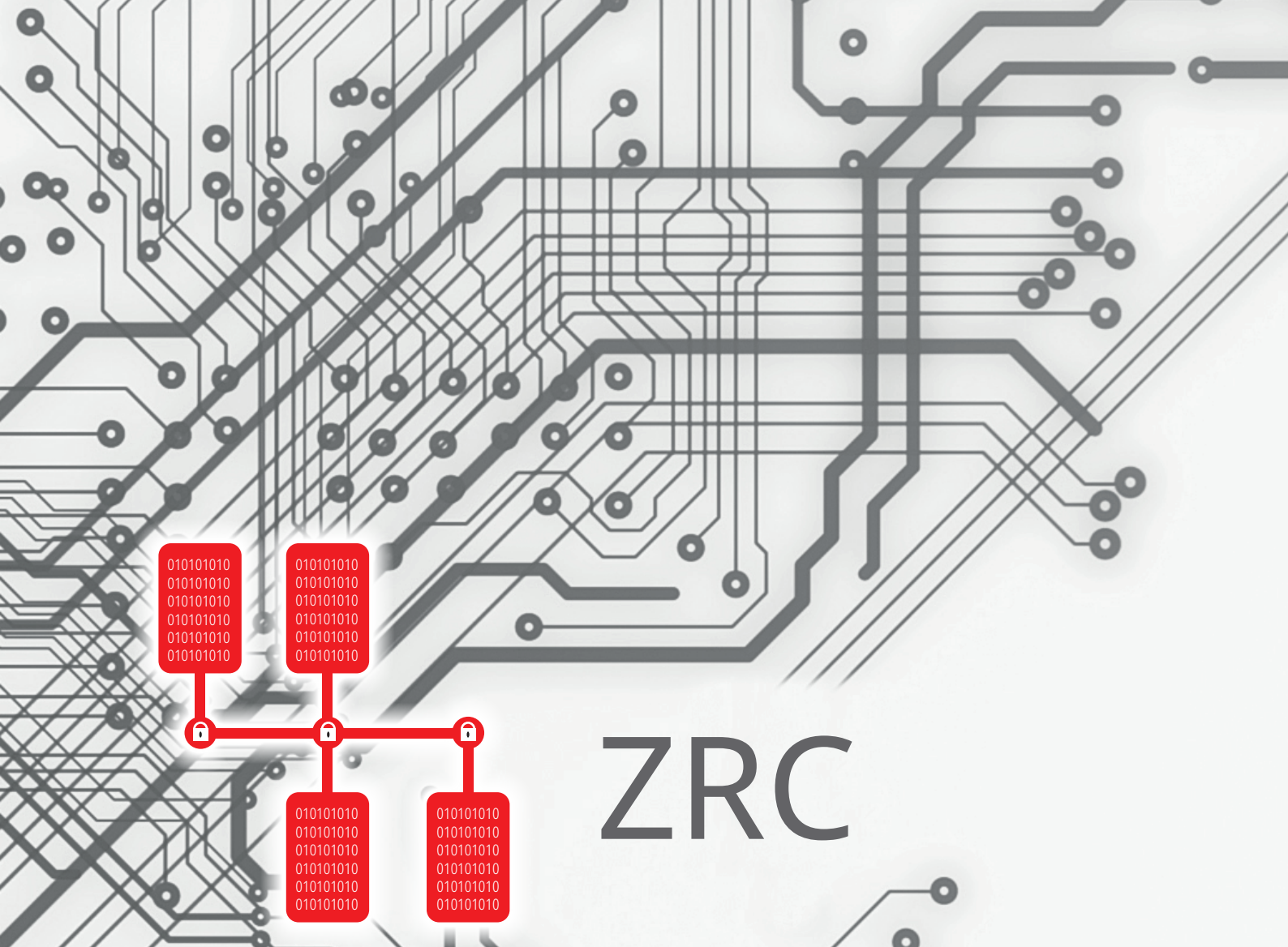




ZRC

Remote Control System



ZELSKO

Safe & secure data communication

Approval for railway operations

Definition & Core Features

- Remote control device of neighboring train stations
- ZRC – **Z**elisko **R**emote **C**ontrol
- Based on safe PLC, certified according to CEN SIL4 50126/28/29
- Receiving commands and issue them
- Receiving messages and logically interconnecting them
- Usage of existing remote control interfaces of the interlocking

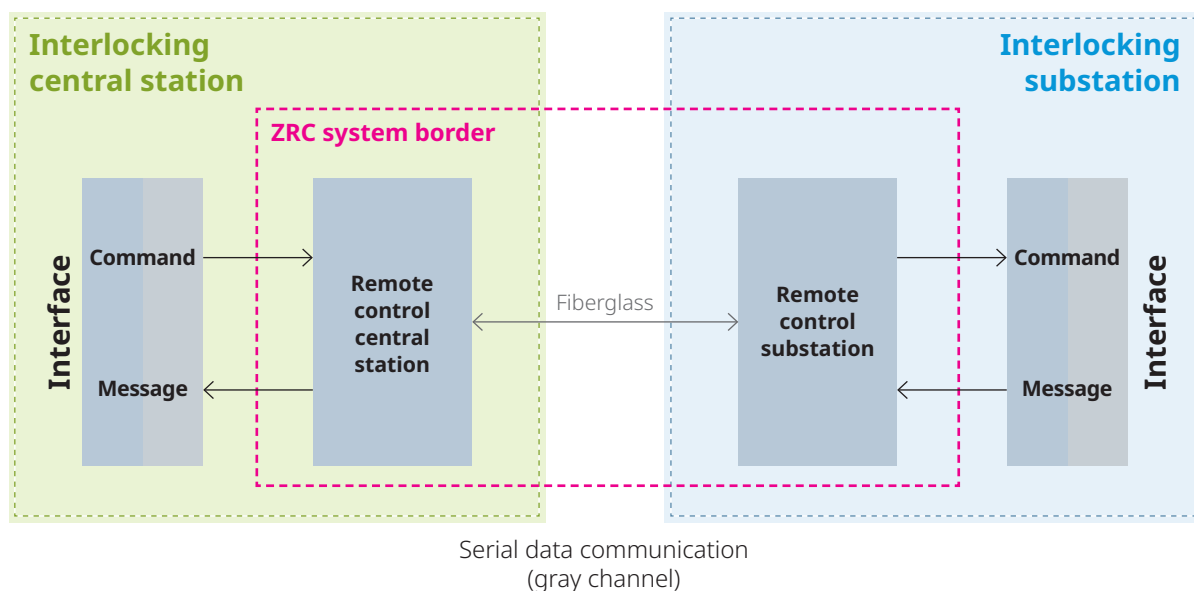
Safety Features

- Safe PLC System
 - Safe input reading, output signal and transmission
 - Self-monitoring modules 24/7 SIL4
- Safe Power Supply
- Galvanic isolation from the interlocking
- Protection against unauthorized or unknown operations
 - ZRC transmits
 - Interlocking acts
- Track Illustration
 - Redundant execution of occupied tracks
 - Redundant HW interface

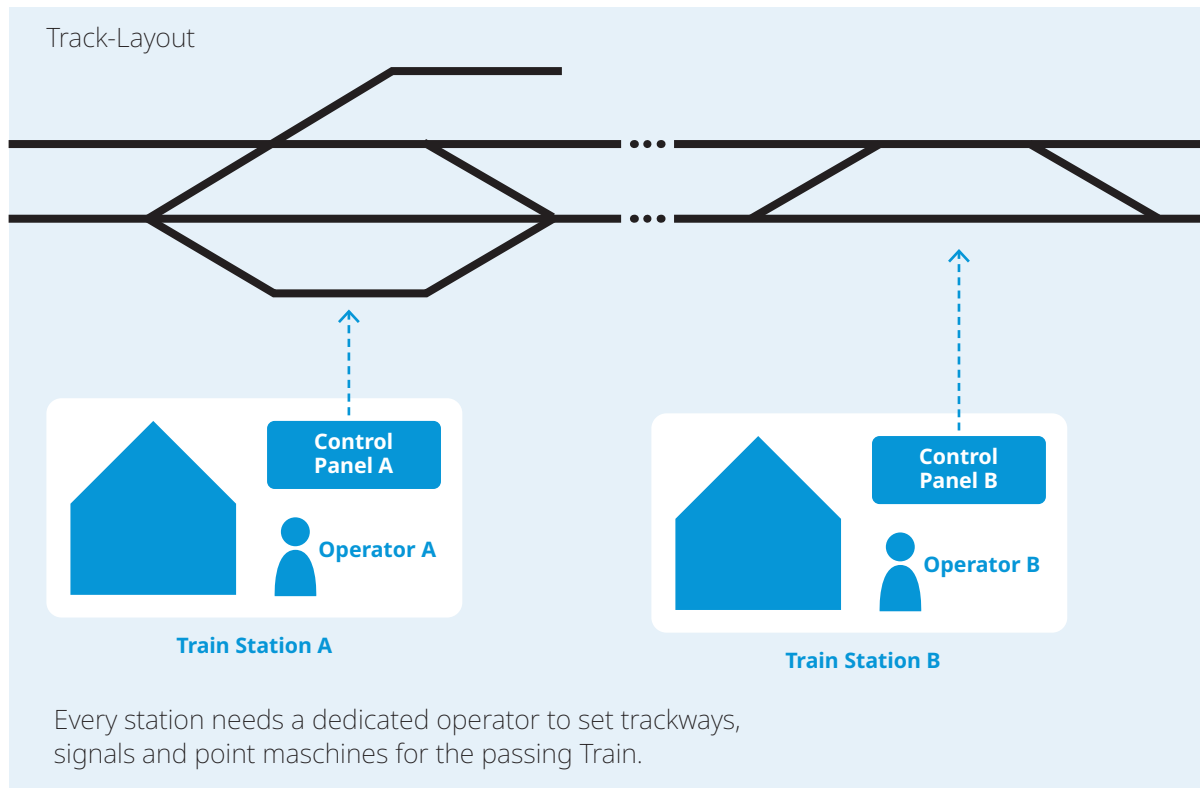
ZRC Processing

- Separated Command Groups
 - Interlocking Commands
 - Station Commands
 - Special Commands
- Single Button Monitoring
 - Interlocking & Station Commands
- Button “Home Position Test”
 - Check before Operation
- Two Button Operation
 - 500ms overlap
 - All Command Groups
- Command Check
 - Successful Two-Button Operation
 - Interlocking Commands
 - Check for actions requiring logging/recording
- Processing Printer
 - Interlocking Commands
- Transmission & Output
 - 2 seconds
 - Indication for Operator
- “Return Home” Check
 - Check after Operation

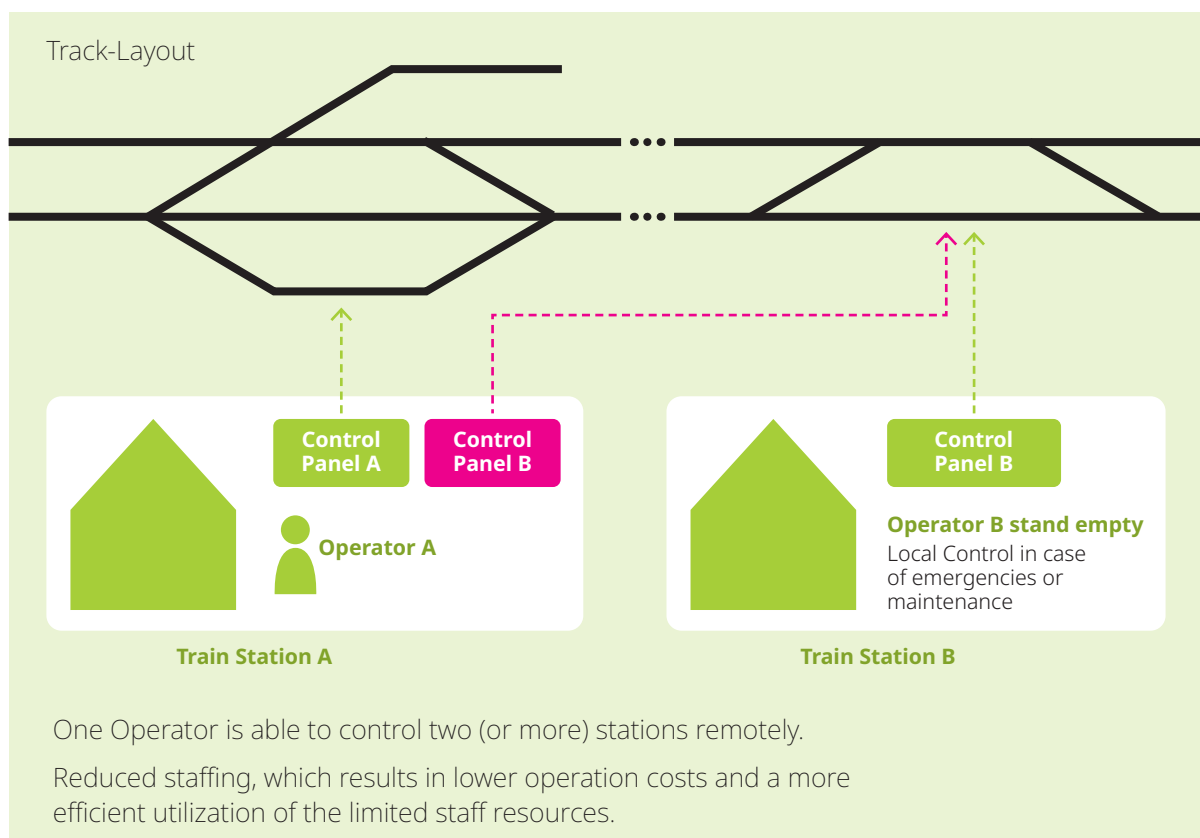
Zelisko safe data communication SIL4 – authorization for railway operation



Track Operation without Zelisko Remote control



Track Operation with Zelisko Remote control



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