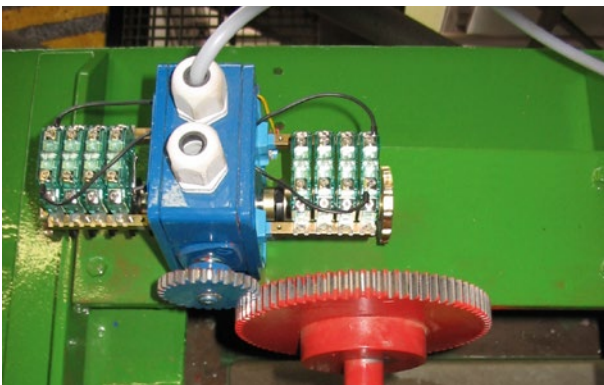




Locks: Exchanging mechanical cam switches against electronic position switches results in trouble-free monitoring of the lock gate

- 1:1 exchange solution requires no complex adaptations to the fail-safe PLC
- Positively driven safety relays ensure high switching accuracy
- Retain existing safety and performance levels (SIL 2 / PL d)
- Option: Modular expandability: Add (safety certified) speed switches as well as bus interfaces



Before: Mechanical cam limit switches exceeding discrepancy times caused disruption to operations.



After: U-ONE-SAFETY-Compact (USC 42) with 6 safety-certified position switches (SIL 2 / PL d).

Task

The Herbrum lock in Papenburg is the northernmost lock on the Dortmund-Ems canal. Until now, mechanical cam limit switches were used to monitor the position of the lock gate. The gates are raised and lowered at a slower speed between the pre-end and end positions. Operations were disrupted repeatedly because in connection with the installed reduction gear the discrepancy times of the mechanical switches (NO / NC) – monitored in a fail-safe PLC – were exceeded. The initial plan to upgrade the system with an absolute encoder and implement position monitoring in the PLC was considered to be too complicated and expensive. Consequently, the German Ems-North Sea Waterways and Shipping Authority sought an alternative solution that did not require complex adjustments to the PLC programming.

The Hübner Giessen solution

The USC 42 universal encoder systems are safety certified (SIL 2 / PL d) solutions that combine the high resolution of the integrated absolute encoder with the outstanding switching accuracy of the positively driven safety relays. As a result, they are the ideal solution for an 1:1 exchange with mechanical cam limit switches. Further benefits are user-friendly switching point configuration, saving and importing parameter data sets, straightforward calibration options via the preset input and real-time position data via a 4 – 20 mA current output.

Products

- USC 42 (U-ONE-SAFETY-Compact) with 6 safety-certified position switches (SIL 2 / PL d)
- Optional expandability: Add (safety certified) speed switches as well as bus interfaces