

Four elevators controlled by CANopen Lift

Thor Engineering has supplied the control systems for the elevators in London's Labs house. Two of the four elevators serve ten floors.

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Exemplary usage of CANopen Lift on a single lift controller (Source: Thor Engineering)

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The CANopen-based four-elevators group installed in the Labs building uses the Thor-NX-T2 controller. Intelligent Lifts & Escalators was the installing company. Hisselektronik provided the control cabinets. Two out of the four elevators serve ten floors, the other two elevators serve the parking garage floor additionally, resulting in a total of 11 floors. All four lifts are traveling with a maximum velocity of 2 m/s.

The control systems use embedded CANopen networks conforming to the CiA 417 application profile. Unlike CANopen device profiles, CiA 417 describes the complete lift control system, using fixed and pre-defined PDOs and CAN-ID. This minimizes the setup effort. A general approach on how a single-lift's devices are installed is shown in Figure 1. Usually, the Thor-NX-T2 features two independent CAN interfaces. One is used to connect the devices used for the single lift's general functionality, the second interconnects the lift shafts and other lift group members with each other.

The controller is the only device that is connected to both CAN interfaces. The Labs house project is an example how the different device manufacturers join together, in order to deliver a complete elevator system. All selected devices were compliant with the CiA 417 profile, to ensure a reliable communication and minimize the required work to setup the lift system. To control the drive and thus the traveling speed, every lift system is equipped with a 4CS drive inverter by Ziehl-Abegg. The Limax sensor by Elgo provides the car position, which is directly connected to an LXC I/O-card by Safeline on top of the cabin. A 10-inch TFT Elfin is used inside the car as display unit. The car-call and the door-control buttons are connected to the IO8- boards by Safeline. The MiDrive door drive unit by Meiller opens and closes the car doors. All these mentioned devices communicate via the same CANopen network segment.

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