



## CIT Relays and Switches for the Elevators, Escalators, and Other People Moving Equipment

Electromechanical relays and switches are extensively used in elevator, escalator, and people mover controls, both within the control systems and at the user interface. Relays are typically employed for the mechanical control of these systems, while anti-vandal switches are prominently used due to their durability and visibility. Here's how they are used:

### Relays in Elevators, Escalators, and People-Moving Equipment

#### 1. Control Logic and Automation:

- **Relay Logic:** In traditional systems, relays are used to implement control logic for elevators and escalators. This involves using relays to process signals from various sensors and switches, enabling or disabling motors, brakes, and other components based on the state of the system.
- **Sequencing and Timing:** Relays can sequence operations, such as controlling the order in which doors open and close and manage timing delays for safety and comfort.

#### 2. Safety and Interlock Systems:

- **Emergency Stop:** Relays can be part of an emergency stop system, cutting power to the motor and applying brakes in case of an emergency.
- **Door Interlocks:** Relays ensure that elevator doors cannot open unless the elevator is properly aligned with the floor, and that the elevator cannot move if the doors are not securely closed.
- **Overload Protection:** Relays can detect overload conditions and disconnect power to prevent damage to the equipment or ensure safety.

#### 3. Motor Control:

- **Starting and Stopping Motors:** Relays control the power supply to the motors that drive elevators and escalators, enabling them to start, stop, or change direction.
- **Speed Control:** In more advanced systems, relays can work with variable frequency drives (VFDs) to control the speed of the motors, allowing for smooth acceleration and deceleration.

### Switches in Elevators, Escalators, and People-Moving Equipment

#### 1. User Interface and Control:

- **Call Buttons:** In elevators, call buttons on each floor allow users to request an elevator. The button press activates a switch, sending a signal to the control system to dispatch an elevator to the requested floor.



- **Destination Control:** Inside the elevator, switches are used in the form of buttons for selecting floors. Each button press is registered by the system to determine the elevator's destination.

## 2. Safety and Detection:

- **Limit Switches:** These switches detect the position of the elevator car or escalator steps. For instance, in an elevator, limit switches can detect when the car reaches the top or bottom of the shaft and ensure it stops safely.
- **Door Sensors:** Switches and sensors detect whether elevator doors are fully open or closed. They can prevent the elevator from moving if the doors are not properly closed, enhancing passenger safety.
- **Obstacle Detection:** On escalators and moving walkways, switches can detect obstacles or foreign objects, triggering the system to stop to prevent accidents.

## 3. Operational Control:

- **Maintenance Mode:** Switches are used to put the equipment into maintenance mode, allowing technicians to control the system manually for servicing without affecting the regular operation.
- **Access Control:** Some switches control access to restricted floors or areas, such as in secure buildings where only authorized personnel can access certain floors.

## Integration and Modern Systems

Modern elevators, escalators, and people-moving equipment increasingly use sophisticated control systems that integrate relays and switches with microcontrollers, programmable logic controllers (PLCs), and networked systems. These advancements allow for more precise control, improved safety features, and enhanced user experiences, such as touchless controls and smart dispatching systems that optimize traffic flow.

High reliability is essential given the heavy usage and long-term operational requirements of these systems. The relays and switches showcased here are currently in use worldwide in elevators, escalators, and people movers. CIT Relay & Switch offers a broad range of relays and switches for this industry and can custom design products to meet specific needs. CIT provides the expertise required to select the correct switch or relay for your application.



**CIT Relays used in Elevators, Escalators, and other People Moving Equipment:**

- [J104 Series](#)
- [J107F Series](#)
- [J114AF Series](#)
- [J115F1 Series](#)
- [J115F2 Series](#)
- [J115F3 Series](#)
- [J151 Series](#)
- [J152 Series](#)

**CIT Switches used in Elevators, Escalators, and other People Moving Equipment:**

- [Anti-Vandal Switches](#)
- [Toggle Switches](#)
- [Pushbutton Switches](#)
- [Tactile Switches](#)
- [Snap-Action Switches](#)