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Intelligent Overlay System

General

The MCE IOS Intelligent Overlay System provides state-of-the-art microprocessor technology for existing groups of elevators with relay logic controls. The Intelligent Overlay System uses either M3 or AIM group control technology. For Group System specifications and details, refer to [Section 7](#).

IOS Intelligent Overlay System dramatically reduces hall call “waiting” time while improving performance and dispatching reliability for older relay logic systems. Since MCE’s group system does not differentiate between overlay controllers and new MCE controllers, car controllers can be replaced one at a time. This allows incremental modernization which can frequently overcome otherwise insurmountable budget limitations.

All M3 and AIM Group System features are available with the MCE Intelligent Overlay System. These features include fire service, hospital service, emergency power, security, remote monitoring, etc. Thus, it is possible to bring an elevator system up to date and meet code requirements with an IOS upgrade. In addition to substantially reduced hall call waiting times, IOS eliminates a majority of the original logic relays, so less maintenance is required. In most cases, complete dispatching and/or auxiliary cabinets can be removed.

This section describes basic Intelligent Overlay System hardware and identifies the signals that must be provided as well as the signals the group overlay system generates to be used by the power control subsystem. Providing proper signals to the IOS is essential. Therefore, it is important to make sure adequate documentation is available and that proper signals are generated and used.

In This Section

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System Hardware

The Intelligent Overlay System shall consist of a group cabinet and one overlay interface cabinet per individual car.

The contractor or customer must provide interconnection details in the form of as-built wiring diagrams, including power control subsystem terminal numbers. Hardware shall be manufactured according to diagrams provided by the elevator contractor.

The group cabinet shall include the computer and input/output boards necessary for the hall calls and other signals required for group operation. It shall also include the high speed serial interface connections to individual overlay interface cabinets, and peripheral equipment such as CRT terminals, modems, and printers.

The overlay interface cabinet shall include the computer, high speed serial interface connection, input/output boards and relays. The input signals shall be taken from the existing power control subsystem and connected to the overlay interface cabinet.

Group Cabinet Signals

Inputs to the group cabinet shall be provided to the designated terminals at specified voltages in the form of a contact closure. The following list includes some of these inputs:

- Front and/or Rear Hall Call Signals
- Main and Alternate Fire Recall Floors
- Emergency Power Signal
- Spare Inputs are Available for Special Applications

Outputs shall be available for special applications.

Call registration and lamp acknowledgment shall be by means of a single wire per call.

Overlay Interface Cabinet Inputs

Inputs to the overlay interface cabinet shall be provided to the designated terminals at specified voltages in the form of contact closures and shall include the following:

- Car position shall be provided by contact closures, one per floor. More than one contact may be closed only when the car is moving from one floor to another. The position shall change from the previous floor to the new floor when the new floor is first seen. The position shall be the advanced or stopping position and shall be made active prior to the car being in a position to stop at a floor.
- Signals shall be provided, one for each car call. Call registration and lamp acknowledgment shall be by means of a single wire per call.
- One signal shall indicate activation of each of the following devices: door open button, door close button, safety edge, photo electric eye, door open limit (open when doors are fully open), door close limit (open when doors are fully closed), and door zone.
- One signal shall indicate each input (off, hold, and on) from the in-car fire service switch and the car call cancel button.
- One signal shall be provided to indicate that the car is on inspection.
- One signal shall be provided to indicate that the car is on automatic operation. This signal shall become inactive if the car is on independent service.
- Two signals shall be provided to indicate that the car is in motion, one for the up direction, one for the down direction.
- One signal shall be provided to indicate that the car is operating at contract speed or accelerating to contract speed. This signal shall open when the car begins to slow down or is stopped.
- One signal shall be provided to indicate that the car is loaded to a predetermined capacity or greater.

In addition to these signals, there shall be spare inputs available per car which may be assigned for a specific purpose.

Overlay Interface Cabinet Outputs

- Outputs of the overlay interface cabinet shall be in the form of contact closures.
- One signal shall indicate that there is a demand above the position of the car.
- One signal shall indicate that there is a demand below the position of the car.
- One signal shall indicate that the motor generator may be started in response to a demand.
- One signal shall activate to slow down and stop the car.
- One signal shall activate the up hall lantern.
- One signal shall activate the down hall lantern.
- One signal shall activate to open the doors.
- One signal shall activate nudging.
- One signal shall indicate that the car has accepted Fire Recall Phase I and another signal shall indicate that the car is in motion in order to bypass the in-car emergency stop switch.
- One signal shall activate the fire warning indicator.
- One signal shall activate the fire warning light.
- One signal shall activate the passing floor gong.

In addition to these signals there shall be additional spare output signals that may be assigned for a specific purpose.