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CMS Central Monitoring System

General

CMS Central Monitoring System for Windows® is a comprehensive elevator management tool for institutions, contractors, building managers and owners with many elevators in the same building, in multiple buildings in the same city or even in different cities. CMS provides interactive monitoring and control for elevators. Emergency conditions or events are immediately displayed on the system monitor, maintenance personnel are notified via digital pager activation and a hardcopy is printed. CMS can be used as a data acquisition and adjustment tool and allows monitoring of selected events, emergency reports, analysis of elevator system performance, as well as the retrieval of other system information from a designated central location.

CMS elevator monitoring system consists of following subsystems:

- Central Monitoring System (CMS)
- Embedded Monitoring Interface (EMI)
- Communication Network (CN)
- Security Interface Software (SIS)

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CMS Central Monitoring System for Windows®

CMS is an interactive Microsoft Windows® based system that runs on an IBM-compatible personal computer (PC). CMS can be used for elevator modernizations as well as new installations. CMS can be connected to an MCE microprocessor-controller.

IMC controls with an M3 Group System offers the most extensive range of data retrieval and monitoring options. For other types of control systems, the level of available monitoring is dependent on the memory capacity of the controller microprocessor and its on-line status with the monitoring system. Please contact your MCE Sales Representative for details.

CMS General Specifications

The Central Monitoring System shall monitor the elevators attached to the system. When an elevator shutdown occurs, the elevator system shall initiate an emergency call to the elevator command center. The Central Monitoring System shall receive and process any emergency call by displaying the event on the monitor screen, sending a message to a pager, and printing the event on a designated printer.

While connected to the elevator system, the Central Monitoring System shall download and collect available data, which is organized in a database. This software shall provide easy-to-use pull-down menus, using the Microsoft Windows® based operating system, allowing the user to monitor and review the elevator performance database in various formats.

CMS shall also provide menus for monitoring the elevator system and where applicable, for altering various elevator system parameters. The individual user's interaction level with the system shall be defined by the monitoring system manager.

CMS Hardware

The Central Monitoring System shall be installed at a location appropriate to monitor all designated control systems. The CMS hardware shall consist of a personal computer (PC), monitor, printer, keyboard, and mouse. It shall contain all the appropriate internal and externally connected peripheral equipment necessary for that purpose.

Elevator Command Center Computer - Minimum requirements for CMS IBM compatible PC with:

- Pentium 233MHz Processor (Recommend 1.6GHz)
- 32 MB RAM (Recommend 512MB or greater)
- 1 GB hard disk (Recommend 20 GB or greater)
- RS232 Serial ports (2 or more)
- Parallel port
- 3.5" floppy disk drive
- CD-ROM Drive
- SVGA card
- SVGA monitor
- Parallel printer with cable (compatible with Microsoft Windows® 98SE, 2000, or XP)

CMS Connection Media Options

- Modem Connectivity: 1 or 2 modems at the PC. Phone lines (analog) required. (Recommend 2 modems, one for normal connectivity and one for receiving emergency events.)
- Line Driver Connectivity: 2 Line drivers, one at each end of the communication string. (Wire connection, good for up to 2 miles.)
- Ethernet Connectivity: Requires Ethernet Terminal Servers at each controller connection (group, simplex, duplex) and one at the designated CMS Station.
- Serial Connectivity: Serial cable at controller.

CMS Functional Specifications

Graphical User Interface - Central Monitoring System shall run under the Microsoft Windows® operating system. The user interface shall be based on the standard Windows interface and shall be similar to other Windows®' programs. If the user knows how to use other Windows' programs, he or she essentially knows how to use the monitoring system user interface.

While online with the controller, the Central Monitoring System shall provide various real-time display screens for system monitoring and diagnosis.

Online Help - The Central Monitoring System shall provide a complete and comprehensive online help system. A context-sensitive help program shall be provided to give the users hints and explanations of the current task.

Summary - This menu shall give a brief description of the system, including the job number, job name, number of cars, number of landings, number of openings per landing for each car, car labels, landing labels, fire service options, serial communication port definitions and other system options.

Individual Car Flags - This screen shall display a list of the selected car's internally generated computer flags for diagnostics.

Graphic Hoistway Display - The Central Monitoring System shall display the elevator system hoistway. That is, users shall be able to view a graphical representation of the elevator hoistway.

The graphic hoistway display shall include, but is not limited to, the following:

- Simulated Hoistway and Car Configuration
- Individual Elevator Position
- Individual Elevator Car Calls
- Individual Elevator Direction
- Individual Elevator Door Position
- Individual Elevator Status of Operation
- Individual Elevator Communication Status
- Registered Up and Down Hall Calls
- Controller Real-Time Clock Date and Time
- M3 Group Mode of Operation
- Estimated Time of Arrival (M3 only)
- Assigned Hall Calls to Individual Elevator (M3 only)
- Hall Call Waiting Time Per Registered Hall Call (M3 only)
- Remote Registration of Car and Hall Calls (M3 Only)

System Control and Adjustment (M3 and AIM only) - While online, the software shall provide various display screens for parameter adjustments.

System Parameter Menu - This menu shall allow the user to view and alter various M3 group system parameters including:

- Parking Floors and Their Priorities
- Hall Call Priority Times Per Landing
- Parking Floor Delay Time
- Parking Reassignment (Shuffle) Delay Time
- Group Mode of Operation
- Parameters Which Define Each Mode of Operation
- Parameters For Lobby Up Peak Operation
- Parameters For Traffic Identification
- Time Actuation of Programmed Group Configurations
- Change Lobby Floor or Invocation of Dual Lobby Operation

Individual Car Parameters Menu - This menu shall allow the user to view and alter various individual car parameters.

- Door Dwell Times
- MG Shut Down Time (If Applicable)
- Time Out of Service Time, Nudging Time
- Calculated Car Times (Not Adjustable): Door Opening Time, Door Closing Time, Through Time, Deceleration Time.

Emergency Notification - In case of elevator shutdown or any other designated emergencies, any attached elevator system shall automatically initiate a call to the Elevator Command Center. The ECC shall be capable of receiving the call, processing the data and routing the received data to the proper storage or output device (computer monitor, hard drive or printer). The system shall have the ability to page designated personnel to notify them of an emergency event.

The ECC shall always be in a ready state to answer an incoming call from any monitored elevator system. This will require the system to have more than one dedicated phone line and modem. (If modem connectivity is chosen.) The ECC shall store, in the database, a chronological listing of the emergency reports received from each monitored elevator system. The user shall be able to view or print these reports.

Pager Support - A programmable option shall be available to send a coded message to a technician's digital pager when the Elevator Command Center receives an emergency event notification. The system manager shall be able to select the active pagers and shall be able to program paging to be active based on a time schedule.

Programmable Events (M3 Release 4 products only) - The Central Monitoring System shall provide support for predefined and programmable events. System users shall be able to program the elevator controllers for the events to be monitored. Events shall be programmable to be stored in a controller file or be sent to the Elevator Command Center as an emergency event or both. The user shall be able to define the desired events from a list of controller specific inputs and outputs.

CMS Reports

The Central Monitoring System shall provide historical and performance reports for all attached M3 Group Systems. For other controllers, a limited number of reports (the first four in the list below) are available at all times; any additional reports require the controller to be continuously online. While viewing the reports, users shall be able to sort and select data to display the information in which they are interested. In addition to the predefined reports, the Central Monitoring System shall allow users to create customized reports. Reports shall be displayed in graphical and tabular formats. The graph type reports (bar graph, line graph and pie chart) shall be user configurable. Users shall be able to print the available reports. The reports, which are a function of the type of controller being monitored, shall include the following: hall call, car call and miscellaneous reports.

Average Wait Time Per Time and Direction (Graphical) - This report shall graphically display the hall calls average wait time per time and in each direction for the selected time period.

Number of Hall Calls Per Time and Direction (Graphical) - This report shall graphically display the number of hall calls per time and in each direction for the selected time period.

Group System and Car Controller Faults/Events Report - This report lists all the events generated by the group system and car computers. The report shall list the date and time each event has occurred along with a description of the event and its status. System users shall be able to display this report for multiple elevator systems, for particular events, for specific date and/or time.

Emergency Faults/Events Report - For a selected time period, this report shall provide a listing of the emergency events received by the Elevator Command Center. Users shall be able to display the report for multiple jobs, for particular emergency events, specific date and/or time and a specific car. The report shall also provide, for the selected time period, summary information such as the job with most emergencies, car with most emergencies and floors with most emergencies.

Hall Call Response in 15 Second Intervals (Tabular) - This report shall show the response to all hall calls registered for a particular elevator system. This report shall show the percentage of calls responses in 15 second intervals up to 90 seconds, and then greater than 90 seconds.

Hall Call Distribution (Tabular) - This report shall list all the hall calls registered for a particular elevator system for a selected time period. The list shall include, for every hall call, registration date and time, assigned car, car door (front or rear), floor where the call was registered, hall call direction (up or down), hallway (main or auxiliary) and wait time. The report shall also provide, for the displayed time period, a summary of the most used car, most used floor, total number of calls, average wait time, minimum wait time and maximum wait time.

Hall Call Performance (Tabular) - This report shall list, for every floor and in each direction (up and down), number of registered calls, average wait time, maximum wait time and minimum wait time.

Number of Hall Calls Per Landing and Direction (Graphical) - This report shall graphically display the number of hall calls for every landing, in each direction (up and down), for the selected time period.

Average Wait Time Per Landing and Direction (Graphical) - This report shall graphically display the hall calls average wait time for every landing, in each direction, for the selected time period.

Number of Hall Calls Answered Per Car (Graphical) - This report shall graphically display the number of hall calls answered by each car in the system for the specified time period.

Percent of Up and Down Hall Calls (Graphical) - This report shall graphically display the percentage of calls in the up and down directions for the selected time period.

User Customized Hall Call Reports (Tabular and graphical) - Users shall be able to construct tabular or graphical hall call reports from a list of stored data available in the database.

Car Call Distribution (Tabular) - This report shall list all car calls registered for a particular job for a selected time period. The list shall include, for every car call, registration date and time, assigned car, source and destination floors, door (front or rear) and travel time. The report shall also provide for the selected time period, a summary of the most active car, most traveled-from floor and most traveled-to floor.

Car Call Performance (Tabular) - This report shall list, for every car in the system, number of calls, average travel time, minimum travel time and maximum travel time. The user shall be able to select the display time period.

Number of Car Calls per Car (Graphical) - This report shall graphically display the number of car calls per car in a selected time period.

Number of Car Calls Per Landing (Graphical) - This report shall graphically display the number of car calls to every floor for a selected time period.

Average Travel Time Per Car (Graphical) - This report shall graphically display the average travel time for every car for a selected time period.

Average Travel Time Between Source and Destination (Graphical) - This report shall display, for a selected time period, the average travel time between the source and destination for each car.

User Customized Car Call Reports (Tabular or Graphical) - Users shall be able to construct tabular or graphical car call reports from a list of the stored data available in the database.

Access Control for Elevators Reports (Optional) - Several reports shall be available for the Access Control for Elevators (ACE) security. These reports shall display passenger information, secured car calls, hall call and car call security configurations. For details about Access Control for Elevators, refer to Section 14 and to the Elevator Security User Guide, 42-02-S024.

Relational Database

The system shall be programmable to automatically collect data from all the monitored elevator systems and update the database.

The system shall provide a multiple level of password protection for the usage of the system.

The system shall include a built-in relational database. All data collected from the monitored elevator systems shall be stored in the database. Incorporating the relational database shall allow the system to offer numerous search methods and selection criteria for viewing collected data.

Different elevator systems may be attached to the system. Consult your MCE Sales Engineer for details.

Embedded Monitoring Interface (EMI)

For controllers manufactured by MCE, all the necessary interface to the Central Monitoring System is embedded in the elevator control system. Specify the embedded interface for MCE controllers by requiring the CMS option for each controller. Any existing MCE controller can be upgraded to include the embedded interface.

Communication Network

Different communication networks can be used to allow an Embedded Monitoring Interface (EMI) to communicate with the CMS station. The most popular means of communication are phone lines using modems, hardwiring using line drivers or Ethernet with built in device servers installed in the controls. Device servers require a 10Base-T connection to a computer network supporting TCP/IP protocol.

CMS can be modified to meet customized communication network requirements. Consult your MCE Sales Representative.

SIS, Security Interface Software

SIS is designed to allow the CMS user to remotely access and manipulate the elevator system security software. This is a Windows-based software that allows security manipulation using a PC mouse (point and click). This is true whether the customer has standard elevator security CRT or the more enhanced Access Control for Elevators (ACE).