MACH ALERT™
FIRE STATION ALERTING and AUTOMATION

Summary of Features

(October 12, 2016 - v013)

MACH Alert is an industry leader in Fire Station Alerting and Automation (FSAA). Our proven design meets and exceeds NFPA-1221 and NFPA-1710 requirements, giving the user state-of-the-art functionality and reliability within the fire and medical emergency alerting process. The rigorously tested hardware and software components give dispatchers the confidence and the tools to get first responders on the road faster than ever —while reducing stress and keeping their focus on the job.

This document provides a summary of core product features and add-on options available in our current **MACH Alert** *Version 7.5*

[MOTOROLA SOLUTIONS Official MACH Alert Information Page](#)

MOTOROLA SOLUTIONS

Core Product Features

Key Functionality

- Proven reliability to alert multiple stations controllers near-instantaneously over Internet Protocol (IP) connections
    - No prolonged poll cycles
- Alerts multiple stations rapidly over data radio networks
    - Broad support for different radio network configurations
- System allows for configuration changes with never having to go offline or disrupt dispatchers
- No manual reset required between alerts
- Designed to integrate with existing network and dispatch infrastructure
- Base system supports up to 127 fire stations
- Supports up to 20 distinct areas and 10 unique CAD vendors
    - Ideal for multiple-agency centers
- Scalable to fit the needs of any municipality's emergency services infrastructure
- Utilizes Motorola's new ACE3600 high-performance controller offering enhanced reliability.

Motorola ACE3600 Remote Terminal Unit

Standards-compliant

- NFPA 1221-compliant for Emergency Services Communication Systems
  - Redundant dispatch circuits
  - Independent backup power sources
  - Unique alarms
  - Constant system Integrity monitoring and logging on FSAA servers
  - Redundant communications links
  - Designed to improve turnout times
  - Independent dispatch voice circuit
- NFPA 1710-compliant for Organization and Deployment of Emergency Operations
- Station Controllers manufactured in a UL-508a approved facility
  - UL-listed
  - CUL-listed
- Designed to help dispatch centers meet current ISO standards

Information Assurance Certified

- Complies with military and federal agencies' Information Assurance (IA) policies
- MACH Alert is tested and validated against the Motorola MotoPatch CD every month to ensure that all MACH Alert systems can be patched to the high standards set by Motorola.
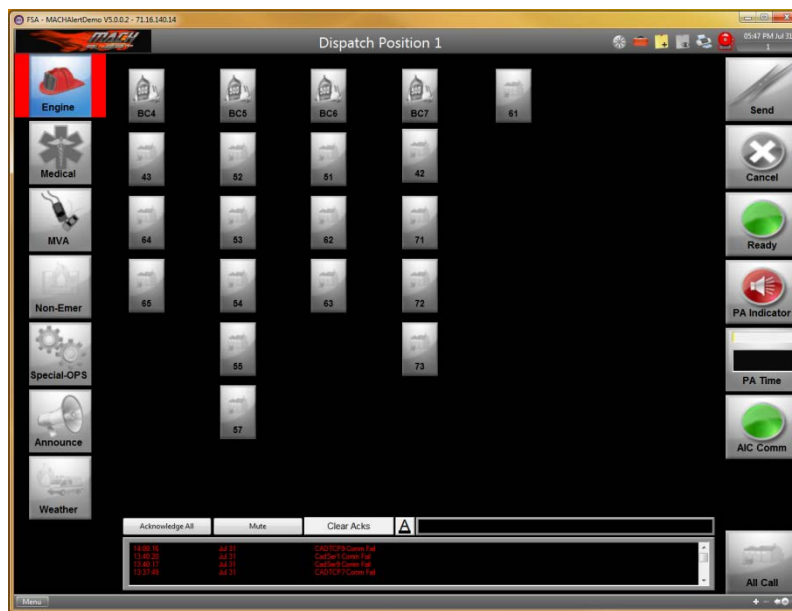
Network Support

- Internet Protocol (IP) networks
  - Dedicated Wired
  - Dedicated Wireless
  - Virtual Private Network (VPN)
- Radio data networks
  - Digital Project 25 (including ASTRO®25 Integrated Voice & Data)
  - Analog Trunked
  - Analog Conventional
- Cellular networks

Reliability and Redundancy

- Utilizes Motorola's ACE3600, a proven high-performance Remote Terminal Unit (RTU) designed for industrial use
- NEMA-rated enclosures protect in-station hardware from damage

- Locking doors and tamper detection switches standard
- Upgraded enclosures available for outdoor use
- Redundant server components guard against failure
  - Dual power supplies
  - RAID 1 hard drive configuration
- Internal battery backup for Station Controller and Alerting Interface Controller
- Separate voice and data links
- Redundant communications prevent single points of network failure
  - Alerts are sent over both links simultaneously
- Automatic alert retry in case of transmission failure

Manual Dispatch Graphical User Interface (GUI)

Dispatching

- Dispatch operators may manually issue alerts from client software
  - Intuitive graphical user interface (GUI)
  - Multi-station select buttons instantly select pre-configured groups of stations on the GUI
- Client software co-habits on most dispatch console models (including Gold Elite and MCC7500)
  - No additional hardware required at dispatch positions
  - Utilize existing monitors
- Dispatch manually via secure connection from remote locations, such as
  - Fire department offices
  - Mobile command centers

- Secondary dispatch sites
- Or from any configured PC or laptop on network with proper credentials
- Supports up to 60 active dispatch positions simultaneous.

- Dispatch operators receive live system feedback from the GUI
  - PA system status
  - Remaining time to talk
  - Positive acknowledgement (ACK) of alerts received by fire stations
  - Real audio confirmation
  - Status updates from other dispatch positions
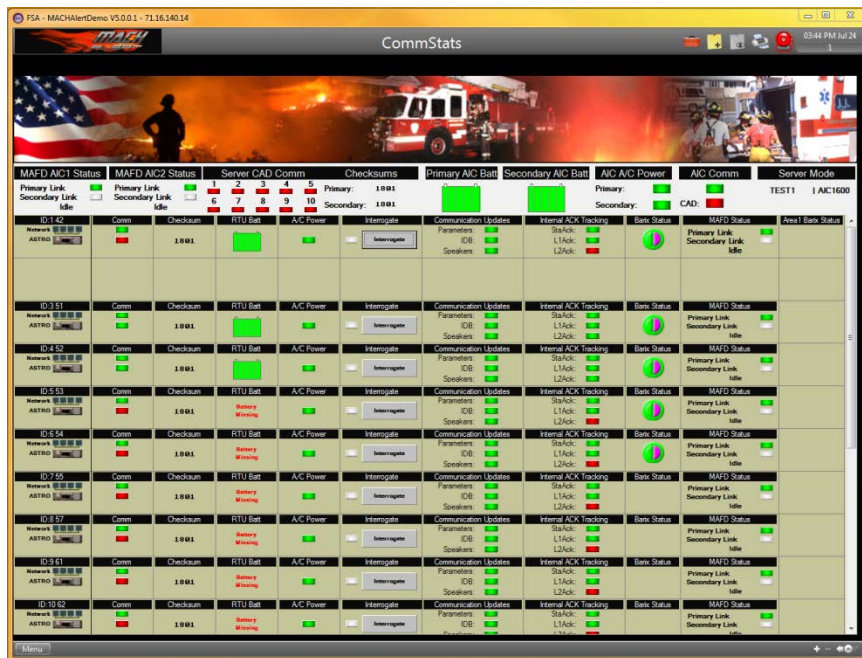 - Bay doors (Open/Closed)

Fire Station

- All-in-one Station Controller design to reduce clutter and tampering
  - Intrusion sensor creates alarm when Station Controller accessed(Reported to dispatch)
- Ramped "heart saver" alert tones for each alert sequence
  - 35+ default tone library pre-loaded
  - Custom tones supported
- Audio and lighting zone support
- Configurable outputs can automate external fire station equipment, including
  - Appliances
  - Bay door motors
  - Exhaust systems
  - Gas valves
  - Light contacts
  - Traffic light controllers

System Monitoring and Notifications

- Automatic monitoring for system health and status
- Alarms notify key personnel of failure states
  - Visual and audible alarms at dispatch positions
  - Alerts via e-mail and phone, configurable based on recipient and failure type
- Critical indicators are monitored by default, including
  - Alert acknowledgement/non-acknowledgement
  - Alerting Interface Controller status
  - Communication link status
  - Confirmation of audio output at fire station

- Server status
- Station Controller status
- Station Controller power
- Station Controller battery level
- Station Controller intrusion sensor
- Configurable inputs can monitor external hardware
  - Bay doors
  - Generators
  - Station fire alarms

Communications Status Screen

Event Logging

- All dispatch operator interactions logged and time-stamped
- All monitored indicators recorded for troubleshooting
- Automatically generate ad hoc reports
  - Reports may be e-mailed to selected personnel
  - Personnel rosters may be set up on a station-by-station basis.

Optional Product Features

Computed Aided Dispatch (CAD) Integration

- Alert directly from the CAD system
    - Dispatch operators may monitor alerting process via lightweight CAD monitor GUI
- CAD can bypass the MACH Alert server in case of failure
- Hardware interface via IP or direct serial connection
- Software interface via the Motorola Fire Dispatch Protocol (MFD-P)
    - *Compatible with all CAD vendors capable of supporting MFD-P*
- Remote *MACH Alert* CAD Testing Lab available for CAD vendor use

Multi-CAD Support

- Supports input from up to 10 separate CAD systems simultaneously

Redundant Dispatch Hardware

- Secondary Alerting Interface Controllers (AIC) and/or MACH Alert servers available
    - May be installed at a secondary dispatch site for geographic redundancy
    - Seamless automated switching between hardware in case of failure

Text-to-Speech in the Fire Stations

- Lifelike computer generated voice announcements play over fire station PA systems after alert tones
    - State of the art speech engine
    - Generated at the fire stations
    - Dispatch operators may still speak over open PA afterwards
- Customizable lexicon ensures correct pronunciation
- Text may be automatically retrieved from an interfaced CAD system
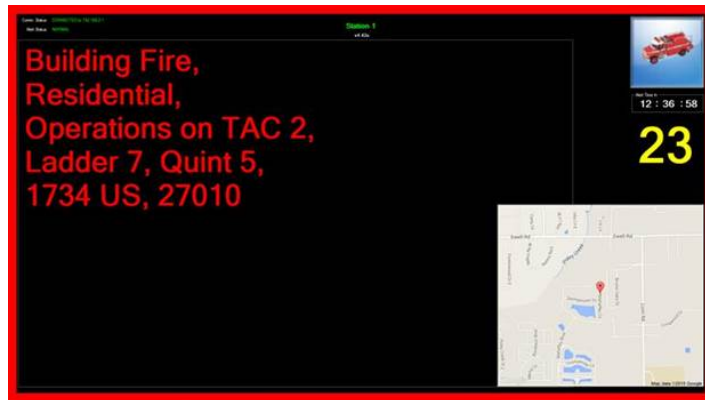- Text may be manually entered by dispatch operators in the client GUI

Text-to-Speech Over-the-Air

- Transmits text-to-speech announcements over the dispatch radio channel
    - Heard by first responders on mobile radios
    - Generated at the dispatch center
- Supports alert tone transmission over radio
- May be purchased in addition to or in lieu of standard Text-to-Speech package
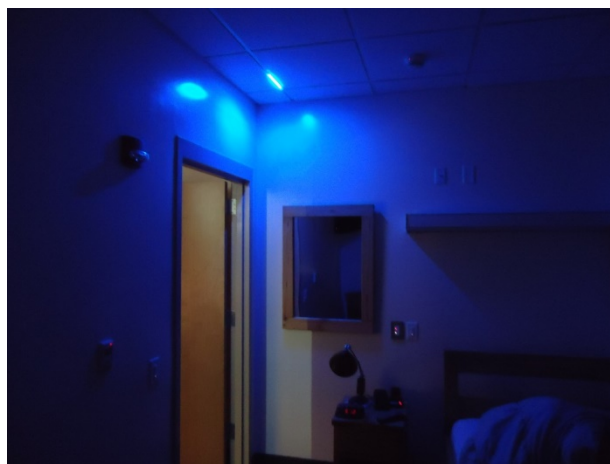
Incident Display Boards (IDB)

- Displays incident type and information
    - Manually-entered or automatic-from-CAD text messages
    - Countdown timer
    - Map of incident location
- Configurable default display for non-alert state
- HDMI compatible for HDTV or computer monitor connections.
- Ability to connect multiple IDB's in a station

Incident Display Board

LED Lighting

- LED light strips illuminate upon alert
    - LED color programed to correspond to different alert types

LED Lighting

Rip and Run Printer

- Can be located anywhere in the fire station
- Data sourced from CAD or can be manually entered
- Sends alarm feedback to dispatch console for any errors
- Supports thermal printers via a serial interface

Bunk Selector Switches

- 6-button switches installed in personnel bunk rooms
- Install in up to 24 bunk rooms at a single station
- Occupants may select which type of alerts to receive
    - For selected alerts, "heart saver" audio and lighting is activated in the bunk room
    - Bunk rooms are not disturbed for non-selected alerts

Last Man Out Button

- Manual acknowledgement pushbutton
- Acknowledgement reflected on client GUI

Turnout Timer

- LED countdown timer from receipt of alert
- Configurable settings
    - Countdown time interval and automatic reset
    - Countdown time is configurable based on alert type
    - Chimes

Turnout Timer Display

MACH Alert Zone-Based Alerting

- Emulates the sequence of alerting operations featured in Motorola's FSA4000 systems

- Each audio zone in a station can be assigned a specific tone chosen by the customer

- Zone tones can be utilized in addition to or in lieu of the incident type tones

- Standard feature with the MACH Alert *core package*

MACH Alert Apparatus-Based Alerting

- Enables the ability to select apparatus items on the manual alerting interface, receive apparatus requests from CAD when the CAD interface is used, and play a different tone at the station for each apparatus selected in the alert

- Gives dispatchers the ability to manually relocate each apparatus to any station and still receive its unique call alert tone.