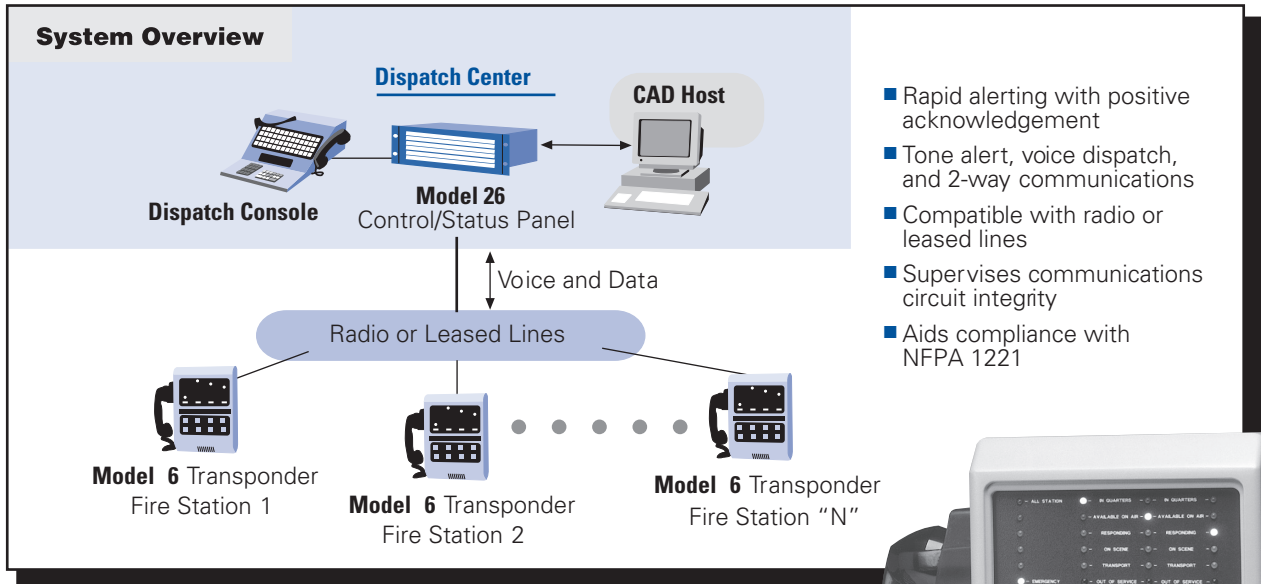


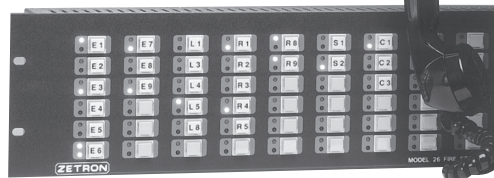
An Engineered Solution to Fire Station Alerting and Dispatching



SYSTEM OVERVIEW

Zetron's Model 6/26 Fire Station Alerting System is comprised of two main components: the Model 6 Fire Station Transponder and the Model 26 Status/Control Panel. The Model 6 resides in the fire station and provides an audio interface to the station's PA system, a data interface to the station printer, and visual status indicators. The Model 26 resides in the dispatch center and provides buttons for dispatching, indicators to present status, and a computer interface for automated dispatching.

This system offers a degree of speed, reliability, and efficiency not found in other fire dispatch equipment. At the dispatch center, alerts are initiated with a single key press on the Model 26 or via command from a CAD host. The resultant data packet signaling the alert is transmitted to the designated fire station Model 6 in less than 1/10 of a second - upon receipt, the alert is automatically



Model 26



Model 6

acknowledged. In the unlikely event that the alert is not received on the first transmission, the Model 26 immediately resends the alert up to four times to ensure its successful receipt. In this manner, the Model 6/26 is fully compliant with the requirements of NFPA 1221 for "Acknowledging Receipt of Dispatched Alarms".

When the alert packet is received, the Model 6 connects itself to the fire station's public address system and initiates a "tone-out" using an internal tone-generator. The tone-out starts out at a low level and steadily becomes louder over a user defined period of time - this feature allows fire fighters to be awakened without unnecessarily startling them during night alerts.

At the same time, control relays in the Model 6 turn on the fire station lights, secure the galley range, raise the bay doors, or perform other actions that will reduce response time.

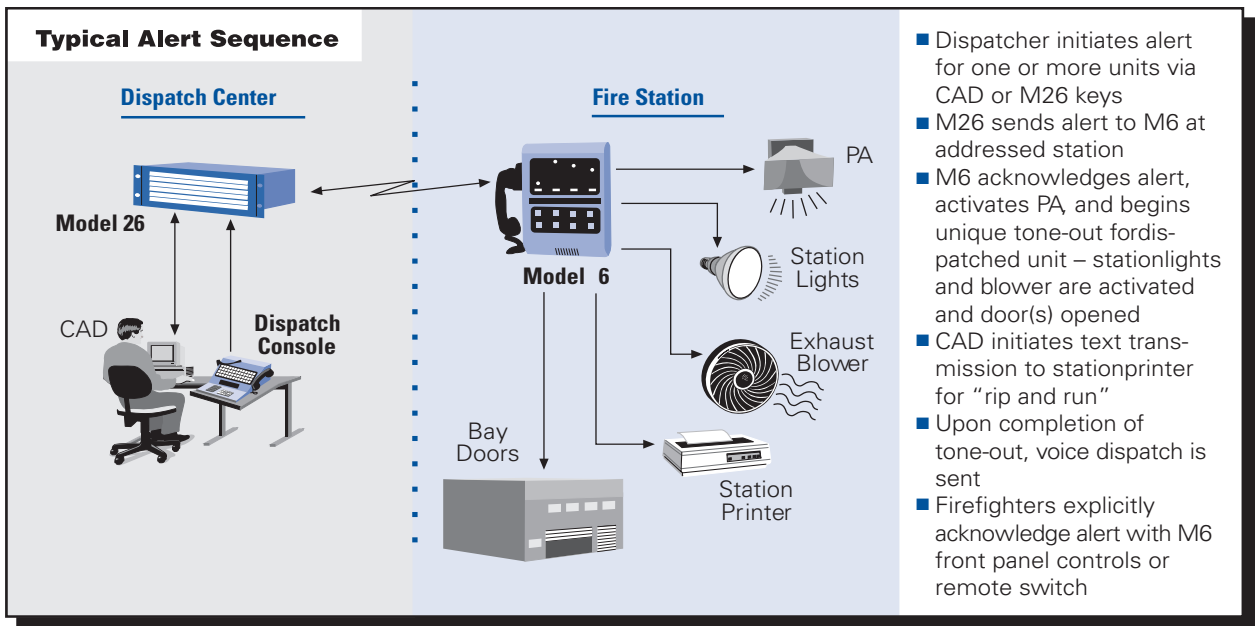
Following tone-out, the Model 6 signals the dispatch center that the station PA is ready for voice dispatch. The Model 26 suspends data transmission, making the communications media available for voice transmissions. Typically, the Model 26 is connected in parallel with the dispatcher's console such that fire dispatch appears as a channel on that console. The dispatcher presses the PTT and announces the dispatch using the console microphone. In the absence of a dispatch console, audio can be input to the Model 26 directly from a handset or user-provided microphone.

Besides automatic acknowledgments, the Model 6 provides a variety of ways for fire fighters to notify the dispatch center that they are responding to the alert.

This notification is time stamped and printed out or, more commonly, sent to CAD. By automating the logging process, there is little question as to the precise time of first unit response.

When the Model 6 signals that a unit is responding, that unit's updated status is displayed on both that station's Model 6 and the dispatch center's Model 26. Subsequent changes in status (e.g. first unit on scene) are manually input by the dispatcher based upon radio reports received from the apparatus. All status changes received by or input to the Model 26 are forwarded to CAD, if connected.

When the Model 26 isn't sending alerts or status updates, it performs background polling to ensure the integrity of the communications medium and the Model 6 transponders. This polling meets the requirements of NFPA 1221 for "Supervision of Dispatch Circuits."



MODEL 26 FEATURES

The Model 26 is available in two configurations: a primary Status/Control Panel, and an Auxiliary Status Panel. The Status/Control panel features 60 buttons for alerting stations or individual apparatus within a station. Two LED indicators associated with each button present the status of the stations and their apparatus. Each button is factory programmable, thus users can specify a custom layout that best meets their application needs. In the event that more than 60 buttons are required, up to three Auxiliary Status Panels can be added for a total of 240 buttons at an operator position. Multiple Status/Control and Auxiliary Panels may be "daisy-chained" to provide up to 8 operator positions within the dispatch center.

Since the Model 26 keeps track of station/apparatus status with its microprocessor, it qualifies under NFPA 1221 as a Class 3 CAD system to serve as a back-up to the primary system.

Internal to the Status/Control Panel is a 1200 baud FSK modem which allows data packets to be sent over a variety of analog communications media including leased telephone

lines (2/4 wire) or radio. Since the amount of information contained within each packet is small, the 1200 baud data rate provides a good balance between speed and reliability.

A serial data port on the rear apron of the Model 26 supports connection to a logging printer or a CAD interface. This allows an external CAD host to effectively "press buttons" on the front panel of the Model 26 and receive status updates on stations and apparatus. The control protocol is available from Zetron upon request, and a number of major CAD suppliers have already implemented it in their software products.

MODEL 6 FEATURES

One or two Model 6's are installed at each fire station and perform the communications, alerting, and control functions described above. A primary Model 6 can support one station and three apparatus. If the station has more than 3 apparatus, a secondary Model 6 extends the capacity to a total of 7.

The Model 6 front panel is arranged in four columns of LEDs and buttons. The LEDs indicate alert, station, and apparatus status, while the buttons are used to acknowledge alerts or change status. Acknowledgment can be accomplished locally by pressing a button, or remotely with a switch connected to one of the Model 6's sense inputs. These inputs may be connected to external switches, to a photo cell sensor, or even a fire/intrusion alarm. The specific response (e.g. acknowledge alert, send alarm, etc.) to a sense input is defined by the Model 6's programming, and may readily be changed in the field with a PC.

A primary audio port is provided for interface with a radio or leased telephone line - this port can accept both data packets and voice. An auxiliary "voice only" audio port is provided for those users who wish to use separate communications media for voice and data. For sending alert tones or voice to the station Public Address System, an audio output port with two PA control relays is provided. Seven distinct user-selectable alert tones are available. These are typically assigned so that each apparatus has a unique tone. This feature allows fire station personnel to determine the nature of the alert even before the voice dispatch.

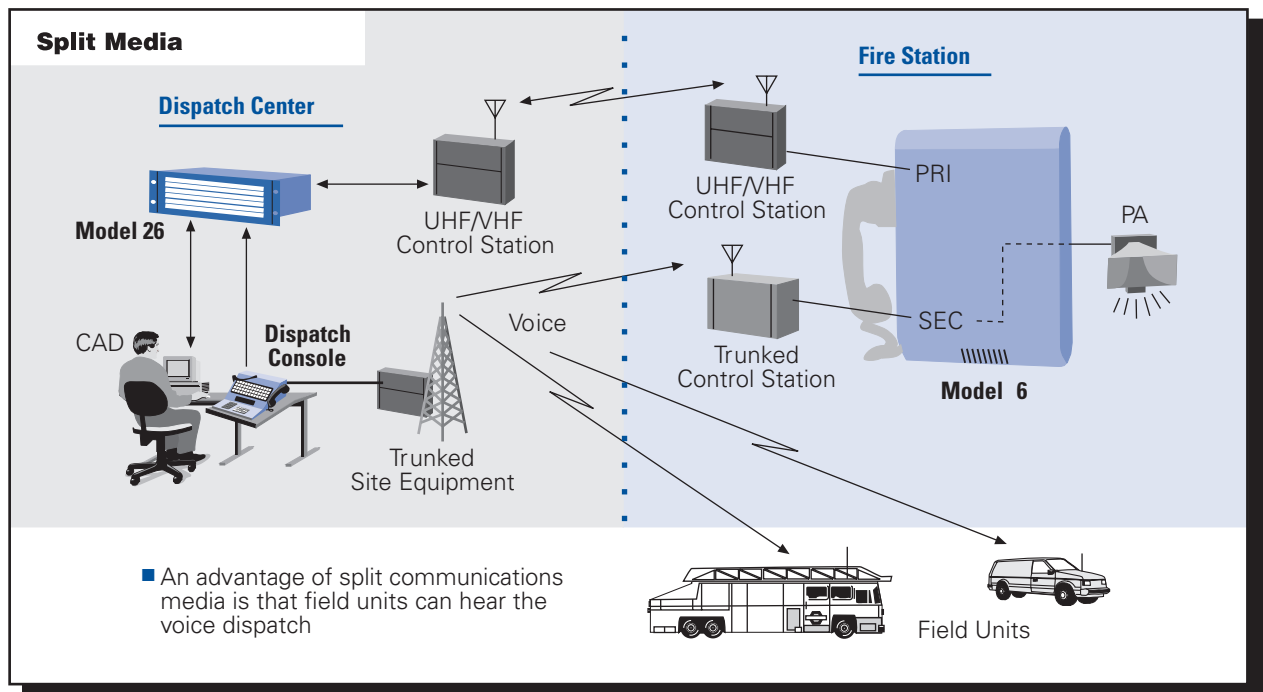
The Model 6 has the ability to switch between Day and Night modes. In Day mode all stations hear every alert sent by dispatch over the PA system. In Night mode, a station only hears calls for apparatus at their station.

If the companion Model 26 is interfaced with CAD, the Model 6's RS-232 serial port may be used with a printer for "rip and run" printed dispatches.

Each Model 6 comes standard with 4 DPDT relays capable of switching 240 VAC at up to 10 amps. These relays are provided for the control of external fire station electrical equipment such as house lights, exhaust blowers, bay doors, and traffic lights. The functionality of these relays is field programmable.

An optional Expanded Relay Unit adds 6 relays that are under Dispatch control.

When the Model 6 is operating in Night mode, an optional handset is available to provide half-duplex communications with the dispatch center. The handset can also be used to make announcements over the station PA. In Day mode, the handset is offline.



COMMUNICATIONS CIRCUITS

Virtually any voice-grade communications circuit can be used to connect the Model 26 at the dispatch center with the fire station Model 6's provided that all Model 6's on the network can "hear" the other fire stations. Due to the Model 26's periodic polling, Zetron recommends dedicating the circuit to fire alerting only and not attempt to share it with other voice users.

The most commonly used circuits for the Model 6/26 system are conventional VHF/UHF radio and leased 2-wire or 4-wire lines. In the latter case, the telco can provide bridging and line equalization at the central office. A number of systems

have been successfully implemented with 800 MHz trunked radios. In general, for larger installations (> 30 stations) leased lines are the preferred medium.

By using the Model 6's Auxiliary Audio port, separate communications media may be used for voice and data. A common application of split media involves the use of wireline or VHF radio for data while the voice dispatch is sent over an 800 MHz trunked channel. In this manner, mobile units in the field can always hear the voice part of the dispatch.

SPECIFICATIONS

MODEL 6 SPECIFICATIONS

Controls	Eight push-buttons: two for each vehicle to change and acknowledge vehicle status
Indicators	Thirty Light Emitting Diodes: (7 LEDs/ vehicle display status and 2 LEDs to indicate "transmit" and "PA" activity.
External Inputs	Four opto-isolated inputs for status monitoring. Inputs may be configured to detect contact closure or voltage level
Control Relays	Four undedicated, independently controlled DPDT relays Contacts rated at: 10 A at 30 VDC or 120 VAC 10 A at 240 VAC 1/3 HP at 120 VAC
Field Configuration	Using a terminal plugged into the Model 6 the following parameters can be set: Communications mode; Key-up delay; Retry period; Enable/disable units for status display; Relay activation criteria; Relay reset criteria; Tones output by alert commands; Tone ramp-up time and duration; Polarity of external inputs Model 6 address set by DIP switches Other functions set by jumpers
Data Signaling	1200 baud FSK. Protocol includes automatic acknowledgment of each transmission and automatic retries after time-out
Receiver Interface	10K ohm or 600 ohm balanced, DC blocking audio input, -40 dBm sensitivity, COR input or internal VOX detection
Transmitter Interface	600 ohm balanced audio output at -45 to 0 dBm
PA Interface	600 ohm balanced audio output at -45 to 0 dBm. DPDT audio switching relay, DPDT PTT relay
Power Requirements	120 VAC (+/- 10%), 50/60Hz power supply included. Unit may also be powered by external 12 to 15 VDC (unregulated) power supply, 1.5A maximum current
Operating Temperature	0 to +65 degrees Celsius
Size	13"H x 9"W x 4.5"D (W = 13" with handset)
Weight	8 lb.
FCC Compliance	Complies with Part 15 of FCC rules

Handset/Hookswitch: Supports half-duplex use of communications channel for "talk-back" from station to dispatch center
Also supports local PA announcements

COMMUNICATIONS CIRCUIT SPECIFICATIONS

Communications Media	VHF/ UHF/ 800 MHz/ 900 MHz radios (local control only – requires separate tone panel for tone remote operation) Leased telephone lines
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MODEL 26 SPECIFICATIONS

Switches	60 momentary, high-reliability push-button switches per panel
Indicators	One red and one green LED indicator for each switch. Switch indicators display vehicle and station status
Expansion	Up to three expansion panels may be attached to Model 26 status/control panels, each providing an additional 60 keys and LED pairs Up to eight Model 26 status/control panels can be connected together to allow dispatching from several dispatch positions
Printer/CAD Port	Serial (RS-232) port allows interfacing to a CAD system (9600 baud) or a logging printer
Configuration	Button functionality and number of stations – factory programmable to customer specifications Model 26 address set by DIP switches (field) Other functions set by jumpers (field)
Data Signaling	1200 baud FSK includes automatic acknowledgment of each transmission and automatic retries after time-out
Receiver Interface	10K or 600 Ohm balanced, DC blocking audio, -40dBm sensitivity, COR input or internal VOX detection
Transmitter Interface	600 Ohm balanced audio output at -45 to 0 dBm
Power Requirements	12 to 14 VDC, 3.5 A maximum current requirement, .75 A typical, 120 VAC power supply optional
Operating Temperature	0 to +65 degrees Celsius

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