

Digital EnvoyTM

DECT-2600 Series

Emergency Alert Controller – User Guide

P/N AX0003 Rev B

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SECTION 1

INTRODUCTION

The purpose of this manual is to provide applications information and installation instructions for the Series DECT-2600 Digital Envoy™.

The Digital Envoy™ is used to process alert information received from the national Emergency Alert System (EAS) and transfers it to a cable TV systems digital network, for delivery to subscribers. Signals sent over the Emergency Alert System are transmitted via AM or FM radio and are received by an EAS Receiver Decoder. The decoded radio signals are stored as both data and digitized audio signals within the EAS decoder.

When the decoder has received an EAS message, it will alert the Digital Envoy™, which will then interact with the decoder to transfer the message. The Digital Envoy™ will analyze the message and encode the audio and associated text as digital files. The Digital Envoy™ will then transfer these files along with a command string to an Emergency Alert Receiver Server (EARS) or Applications Server. The Applications Server in turn relays the alert conditions to the Digital Network Control System (DNCS) for transmission to the digital set-top units.

The Digital Envoy™ will function as a stand-alone unit connected between an EAS decoder and an Applications Server. The Digital Envoy™ can also be integrated with a Cable Envoy™ system or other character generator equipment to provide a simultaneous display of crawl or page displays for use with analog channels.

This guide discusses the EAS – Digital Envoy™ applications and provides installation instructions, set-up procedures, testing methods and debugging procedures for the system. Applications using the Digital Envoy™ located at remote hub sites for Hub Specific Messaging of EAS alerts are also provided.

The Digital Envoy™ controller complies with, the SCTE and Scientific Atlanta's specification DVS/168 for "EMERGENCY ALERT SYSTEM Interface for Digital Cable Network"

Terminology

Common terms and acronyms used in this document are as follows:

- EAC --- Emergency Alert Controller
- EARS --- Emergency Alert Receiver Server (Applications Server)
- DNCS --- Digital Network Control System
- HCT --- Home Communications Terminal
- FTP --- File Transfer Protocol
- GUI --- Graphical Users Interface
- MAC --- Master Alert Controller (Digital Envoy at Headend)
- RAC --- Remote Alert Controller (Digital Envoy at remote location)

Types of alert messages transmitted via the system include:

- EAM --- Emergency Alert Message
- EAS --- Emergency Alert System
- EAN --- Emergency Action Notification
- EAT --- Emergency Action Termination
- EOM --- End of Message
- RMT --- Required Monthly Test
- RWT --- Required Weekly Test

SECTION 2

EMERGENCY ALERT SYSTEM

Overview

The Emergency Alert System is a communications network designed to alert the nation, by radio or television broadcasts, in the event of a national emergency. If such an emergency were to occur, all radio stations, television broadcasters and cable TV systems would be either tuned automatically to an official alert channel, or would direct viewers/listeners to tune to an official alert station.

Although the EAS system has never been activated for national emergencies, it is used extensively for providing weather warnings, watches and local emergencies. Alerts may be initiated by a regional office of the National Weather Service (NWS), an Office of Emergency Management (OEM) or by local civil authorities.

The EAS network includes all TV and radio broadcasters throughout the United States. Each broadcast station can relay EAS radio signals received from one or more stations, to other stations, resulting in a “web” network linking all broadcasters throughout the nation.

In the event of an alert condition being initiated from a location, an EAS alert signal will be transmitted by AM and/or FM radio to one or more local broadcast stations. If a broadcast station is within the affected region, it will retransmit the alert condition to other broadcasters in adjacent regions. The process is repeated until all broadcasters within the affected region have relayed the alert condition.

The geographic designations for locations are determined by the Federal Information Processing System (FIPS) codes. These codes comprise six numeric digits, which designate the State, (two digits), County (three digits) and a portion of the County (one digit). Should an alert condition encompass a large region, many FIPS codes may be included within an EAS transmission.

EAS Emergency Signal Structure

Each EAS emergency alert signal is comprised of an emergency audio message, an attention signal and data transmissions. The data transmissions consist of a stream of data bits, each data bit being represented as a frequency (i.e. audible tone) and each space bit being represented by an alternate frequency (i.e. frequency shift keying FSK).

Audio Header Sequence

The audio header sequence consists of three bursts of audible data. Each burst is a stream of data, beginning with an “EZEZ” preamble, and followed by encoded information describing the originator, type of alert condition, the affected regions, the alert duration, its origination time and the originating station.

Audio End of Message (EOM)

The EOM signal consists of three bursts of audible data transmitted at the end of an EAS transmission sequence. An EOM is also used to signal the termination of an Emergency Action Notification condition, which may be in effect for several hours.

Attention Signal

During an EAS alert, an attention signal is transmitted following the transmission of the audible header signal. The attention signal consists of dual tones of 2 to 25 seconds duration.

Text Translation

A text description of the event is composed from the encoded header data. The text provides an English (or Spanish) description of the event including all locations affected, the duration of the event and the origination of the alert.

Types of Alert conditions

There are three types of alert conditions transmitted by the EAS system. Each alert condition affects the presentation of alert messages by the set-top units. They are:

1 - Emergency Action Notifications, (EAN)

An EAN is provided for use by the White House to signal a national emergency. When this signal is received, all digital set top units within a system will be automatically switched to a predetermined analog TV channel. The selected channel will carry official information concerning the emergency.

The set top units will remain on the official alert channel until the emergency condition is terminated by receipt of an EOM signal.

2 - Required Weekly Tests (RWT)

The RWTs are transmitted weekly by the cable system to ensure that the EAS equipment is functioning correctly. The RWT consists of:

- An audible header signal
- An end of message signal
- A text message indicating that a weekly test is being performed.

The set top units will typically play the audio header and EOM signal once, and display the text indicating that a weekly test is being performed.

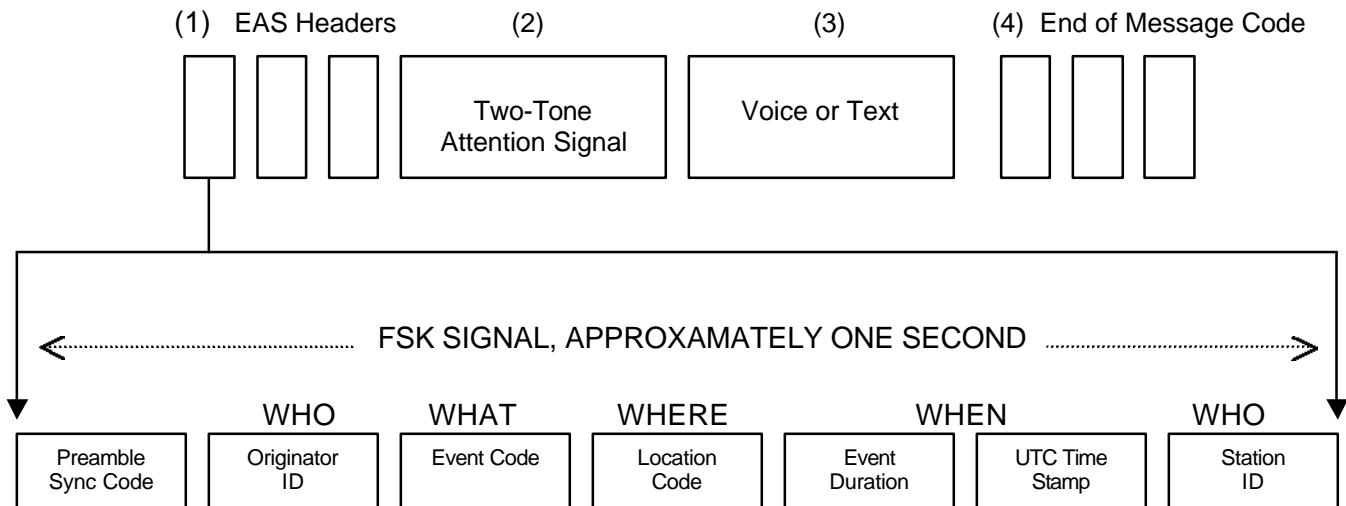
3 - All other EAS alerts

All other EAS alerts include weather warnings, watches, advisories, civil alerts and notifications. Emergency Action Terminations (EAT) and Required Monthly Tests (RMT) also function identically as these EAS alert conditions. The format for all these tests include:

- An audible header signal
- A two tone attention signal
- An audio message concerning the event (optional)
- An end of message signal
- A text message describing the event.

The set top units will typically play the audio header, attention tone and EOM once and display the Alert message for the duration of the alert.

EAS Message Format



Notes:

- 1) Headers are repeated 3 times
- 2) Not used in weekly tests
- 3) Optional
- 4) EOM is repeated 3 times

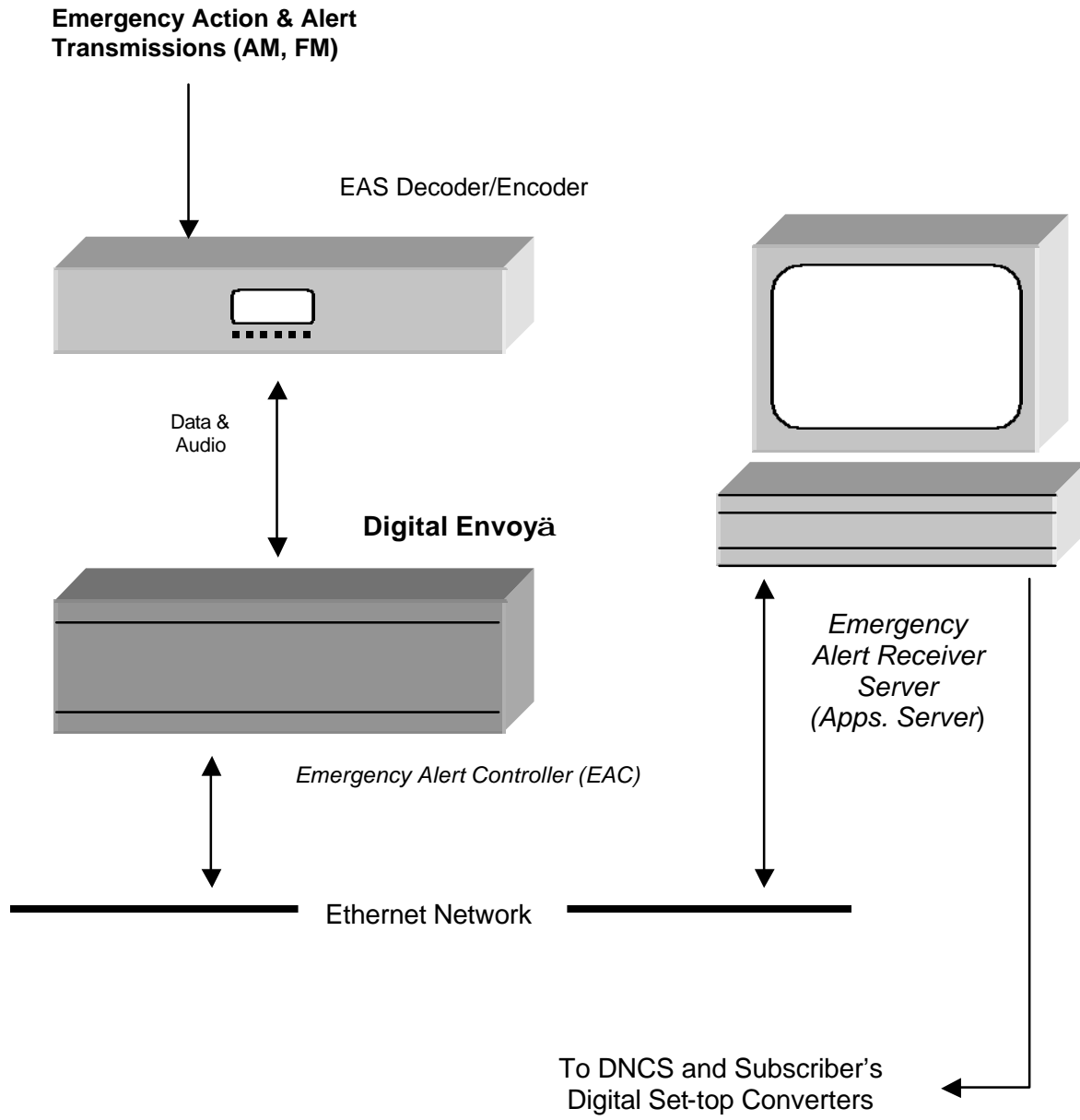


Fig. 1 Digital Envoy™ Application Diagram

SECTION 3

SYSTEM DESCRIPTION

Digital Envoy™ – Emergency Alert Controllers are used to process alert information received from the national Emergency Alert System (EAS), for the purpose of distributing the associated text and audio information over a cable TV systems network, for presentation on subscriber's digital set-top converters.

EAS alert messages which are received via AM, FM and NOAA radio, consist of information about the type of alert, time when issued, duration, affected regions, along with audio information. Affected regions may range from a ninth part of a county, to several counties as determined by regional FIPS code identifiers. EAS Decoder/Encoders are used to detect the EAS radio transmissions for local regions, and to transfer decoded signals to a Digital Envoy™ for processing.

Each Digital Envoy™ checks the EAS transmission for the type of alert, area FIPS codes, and tests for duplication of issued alerts. If an alert is valid, the Digital Envoy™ will encode the EAS audio and text information as digital files, then transfer these files, with commands, to the cable systems Digital Network Control System (DNCS). The DNCS in turn transmits the alerts to the Home Communications Terminals (HCTs) i.e. digital set-top units, located within affected regions.

Headend Equipment

One Digital Envoy™ and EAS Decoder will be installed at a cable system's headend and will communicate with the DNCS via an Ethernet link. The headend Digital Envoy™ also acts as a 'Master Alert Controller' by receiving alerts from other Digital Envoys located at remote sites. The Master Alert Controller tests all received alert information for duplication, logs the events, and then transfers the valid alerts to the DNCS.

Remote Site Equipment

Additional Digital Envoys and EAS Decoders may be deployed at distant hub sites to detect and process EAS alerts that are beyond the detection range of the headend equipment. Digital Envoys, configured as 'Remote Alert Controllers', transfer alert information from remote sites to the Master Alert Controller at the headend, via the cable system's ATM facilities.

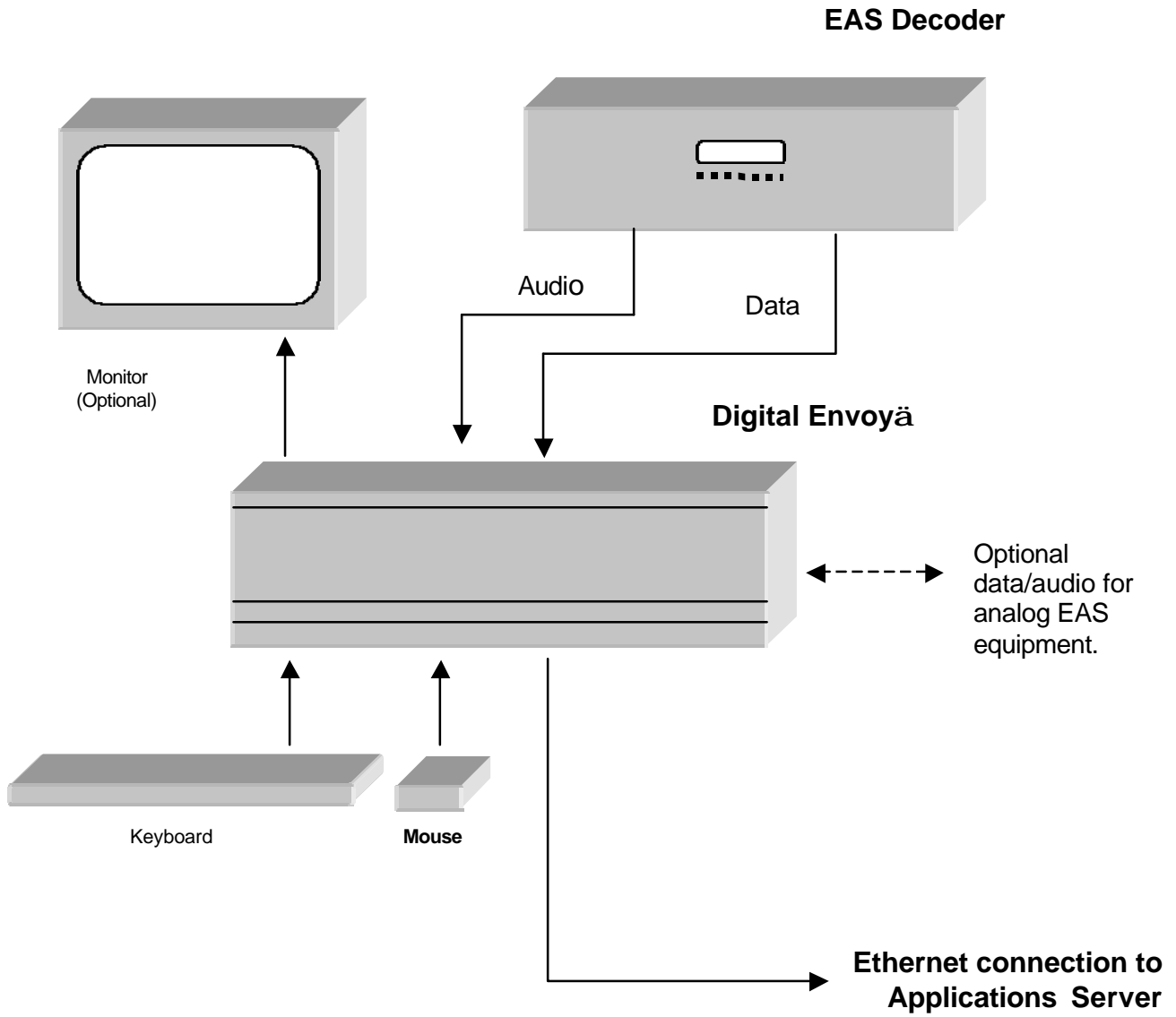


Fig. 2 Digital Envoy™ Connections

SECTION 4

INSTALLATION

What is supplied

Each DECT-2600 Digital Envoy™ is provided with the following equipment:

- 1 -- 5-1/4" Rack mounted Digital Envoy™ System
- 2 -- Rack mounting side panels
- 1 -- Keyboard
- 1 -- Mouse
- 1 -- Audio cable
- 1 -- 9 pin data cable
- 1 – Installation guide
- 1 – Windows manual w/CD

What is not supplied

- Video monitor
- Ethernet interface cable (for connection to the application server network).

Application Software

Application software for the Digital Envoy™ is preinstalled, and will run upon start up. The Digital Envoy™ uses Windows '98 as its operating system. Windows desktop has; Explorer, MS DOS prompt and Digital Envoy™ shortcuts installed on the Windows desktop setup. Windows desktop is accessible by exiting the Digital Envoy™.

Mounting

Mounting the Digital Envoy™ requires 5-1/4" H of 19" W rack space. Provision for a minimum of 1-3/4 inches of space should be provided above and below the unit to provide effective ventilation. Mounting plates are provided for placement on either side of the rack.

Cables & Connections

The following ports and connections are available at the rear of the Digital Envoy™.

- 115 VAC Power Cable attaches between the power socket and a 117 +/-10% 40 watt power source. For -48 VDC input see Options – Section 11.
- EAS DATA A 9-pin RS232c data cable connecting between the Digital Envoy™ and an EAS decoder.
- EAS AUDIO Uses an audio cable with a RCA audio jack for connection between the Digital Envoy™ and the terminal strip on the EAS decoder.
- CG DATA A 9-pin RS232c data cable connecting between the Digital Envoy™ and analog display system.
- CG AUDIO Uses an audio cable with a RCA audio jack for connection between the Digital Envoy™ and the equipment for analog displays.
- NETWORK Provided for connection to the EARS Ethernet network. Requires an eight-conductor Category 5 cable.
- KBD Provided for connection of a keyboard during set-up.
- MOUSE Input provided for connection of a mouse during set-up.
- MONITOR For connection of a monitor during set-up.

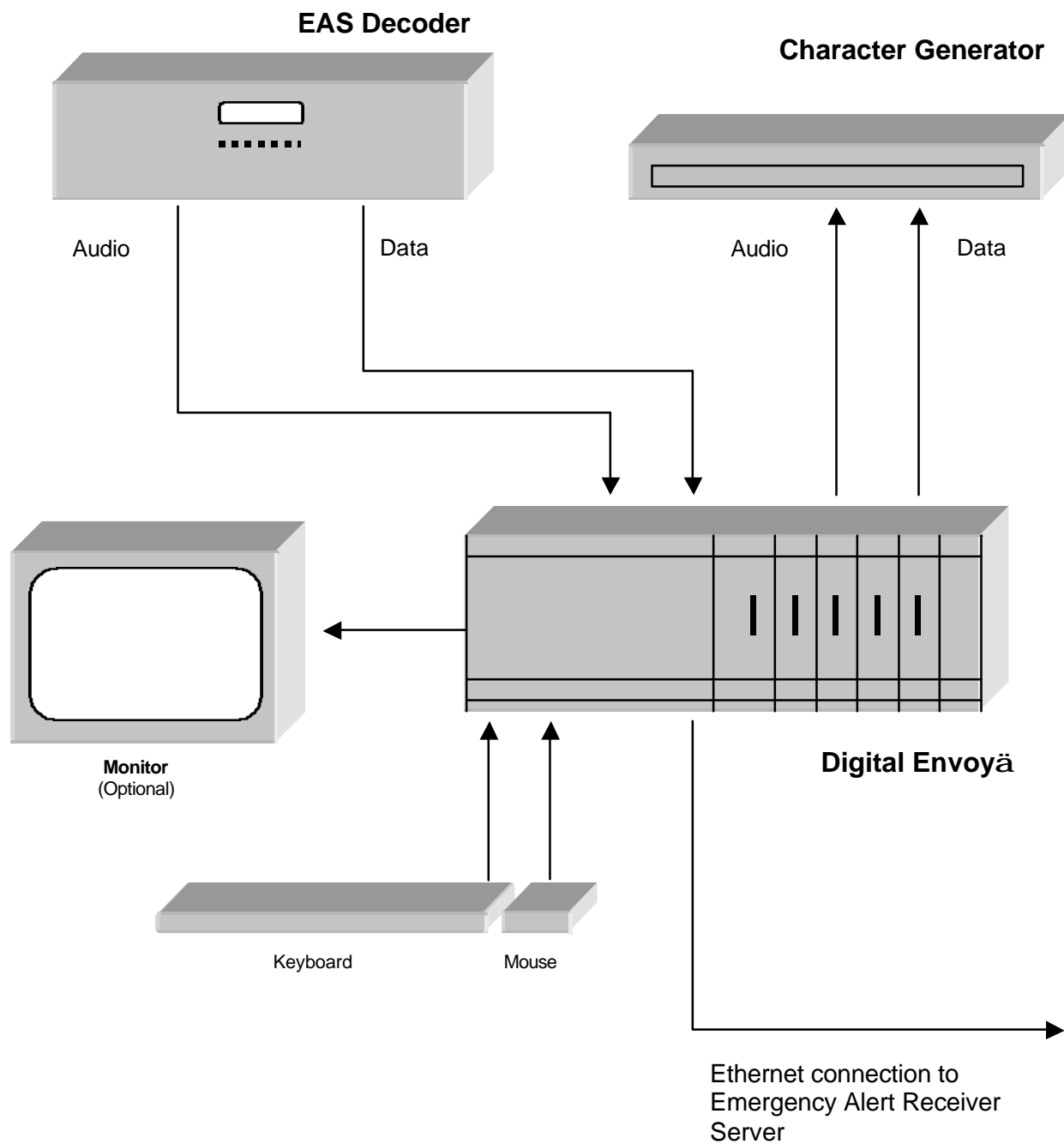


Fig. 3 – Digital Envoy™ / Character Generator Connections

SECTION 5

CHARACTER GENERATOR INTERFACE

EAS alert messages may be shown on analog channels by either replacing each channel's video with a full page video-text display, or by activating a 'crawl' type display that is overlaid on a program channel's video. Cable systems may choose to have a number of their premium analog channels equipped with crawl type displays, and to override other channels with a full-page videotext display.

The DECT-2600 series Digital Envoy™ racks accommodate optional equipment for displaying both full-page and crawl type displays used to display EAS messages on analog channels. The optional equipment incorporates Cable Envoy™ components that are widely used for the display of EAS alerts and text messaging.

Overriding Program Video & Audio

To override program video requires a full-page videotext display, an EAS audio signal, and a control relay used to activate the program override equipment. These functions are provided with a CEMS0200 option that can be plugged directly into the Digital Envoy™ rack. (See options CEMS0200, Section 12). External override equipment used to switch program channels to a videotext display, may include baseband switches, an IF modulator and IF switches, auxiliary input switching on channel modulators, or by RF switching using a Comb Generator.

Crawl Displays

Displaying EAS crawl messages on program channels requires that each channel is equipped with a 'text crawl channel unit' that will sync lock to the program video and overlay the crawl message when activated. Audio override circuitry is also provided to replace the program audio with an EAS audio. (See options CECR0225, CMRU0320 and MCM 0500, Section 12)

Digital Envoy™ Interface

Whenever alerts have been processed by the Digital Envoy™ and sent to the DNCS, alert text and audio outputs are provided for the analog display equipment.

The CG Interface is cable connected to the Digital Envoy™ using an RS232c data connection and an audio connection.

Connect the Digital Envoy™ to the Cable Envoy™ Character Generator as follows:

1. Connect the "CG Data" output from the Digital Envoy™ to the character generator "EAS Data" input using a 9-pin RS232 cable supplied with the character generator.
2. Connect the "CG Audio" output from the Digital Envoy™ to the character generator "EAS Audio" input using an RCA audio cable supplied with the character generator.

For installation of the Cable Envoy™ equipment, see the "Cable Envoy™ Installation Guide".

SECTION 6

EAS DECODER SETUP

The Digital Envoy™ may be used with a variety of EAS Decoder/Encoders. Consult the factory to check compatibility for a particular EAS Decoder/Encoder model.

Using the HollyAnne MIP-921 EAS decoder

The MIP-921 decoder is supplied with the following equipment:

- 3-1/2" rack mounted decoder unit
- Power transformer unit
- Data cable

The MIP-921 firmware required for use with the Digital Envoy™ is Version 6.1.5. The firmware version is displayed on the MIP-921's LCD display when power is applied to the unit. Disconnect and re-apply power to verify firmware version.

Connect the MIP-921 EAS Decoder to the Digital Envoy™ as follows:

1. Connect the "COMM 2" data output on the MIP-921 to the "EAS Data" input using a 9-pin RS232 cable (supplied with the Digital Envoy™)
2. Connect the "Audio Out" signals from the MIP-921's rear terminal strip to the "EAS Audio" input using the 2 wire/RCA phono connector cable (supplied with CG.)

Setting up the MIP-921

At time of installation, the MIP-921 has to be programmed for the area served by the system and the type of alerts it has to receive. The MIP-921 also has to be set to the correct time zone and daylight or mean time.

Note: All of the Emergency Alert Equipment uses Greenwich Mean Time (GMT), also referred to as ZULU time. When transmitting alert conditions to the Digital Envoy™, the MIP-921 translates its local time settings to GMT settings. Care must be taken to ensure that the **correct local time** is set, and that the **correct time zone** is entered, otherwise the alert messages will either be missed or will be active for a longer period than necessary.

Consult the MIP-921 user manual for setup instructions.

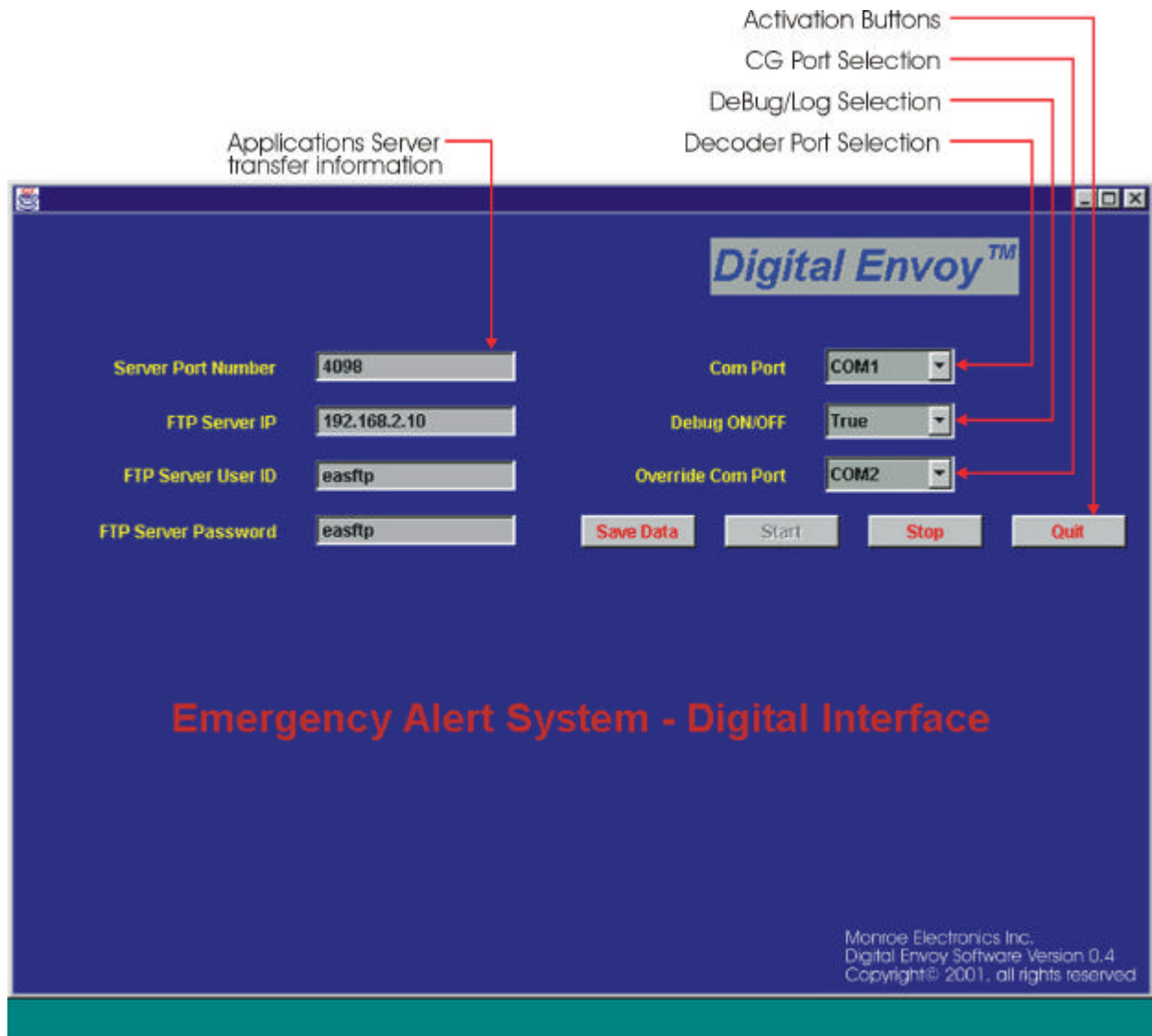


Fig. 4 – Digital Envoy Graphical User Interface

SECTION 7

GRAPHICAL USER INTERFACE (GUI)

The graphical user interface, refer to figure 4, shows entry fields as follows:

Server Port ---	For entry of the Applications Server TCP port. Default setting is '4098'.
FTP Server IP ---	IP address of the Applications Server. Typical setting 198.163.2.10
FTP Server user ID ---	Applications Server ID. Default setting is 'easftp'.
FTP Server password ---	Applications Server password. Default setting is 'easftp'.
Com Port ---	Communications port used between the Digital Envoy™ and the EAS decoder. The normal setting is 'COM 1'.
Override Com Port ---	Communications port used between the Digital Envoy™ and the character generator. Normal setting is 'COM 2'.
Debug ON/OFF ---	Used for monitoring system activity. When 'ON' is selected, a log file will be generated.

Function buttons

There are four function buttons:

Save Data --	Records entered settings.
Start --	Runs the Digital Envoy™ application.
Stop --	Halts the application.
Quit --	Exits the application and returns to Windows Desktop.

Task bar

Selecting the 'JAVA' button on the lower task bar will display a DOS window positioned in the lower center of the GUI.

The DOS display is useful for monitoring system activity and verifying that transfers between the MIP-921 and Digital Envoy™, and between the Digital Envoy™ and the Applications Server, are occurring.

SECTION 8

SYSTEM SET-UP PROCEDURE

Once the Digital Envoy™ is connected to the EAS Decoder, an IP address for the EARS, a port number, password and user ID must be entered.

An IP address will also be required for the Digital Envoy™ unit to enable FTP transfers. The Digital Envoy™ address will be similar to the EARS IP with the last digits changed.

Proceed as follows:

1. Apply power to the Digital Envoy™.
 - The PC will boot into the Digital Envoy™ application and display a setup GUI: i.e. “Emergency Alert System – Digital Interface”.
2. Exit the Application by selecting ‘Stop’ and ‘Quit’ on the GUI.
 - The unit will now display the Windows 98 desktop with a DOS window.
 - Exit the DOS window to terminate the application.
3. Enter the IP address for the Digital Envoy™ unit.
 - From Windows desktop, select the ‘Start’ button, then ‘Settings’, ‘Control Panel’, ‘Network’,
 - From the list of items, select TCP/IP, then ‘Properties’.
 - Enter the units ‘IP Address’, then select the OK button to exit.
4. Reboot the PC.
 - Select the ‘Start’, ‘Shut Down’, ‘Restart’.
 - The system will now reboot and display the setup GUI.
5. Enter the data into the fields displayed by the GUI as follows.
 - Click on the “Stop” button to halt the application.
 - Enter appropriate data into each field, example;

Server Port Number 4098 (default port #)

FTP Server IP 192.168.2.10 (example)

FTP Server User ID easftp (default ID)

FTP Server Password easftp (default Password)

- When entered, click on ‘Save’ to record the data.
- Click on ‘Start’ to run the application.

SECTION 9

Testing the System

When the application is running, (i.e. after booting from power up or by clicking on the 'start' button on the GUI), click on the 'JAVA' bar on the lower toolbar to display the DOS display. The DOS display will show a history of activity, such as:

```
'Connected to COM1'  
'Connected to COM2'
```

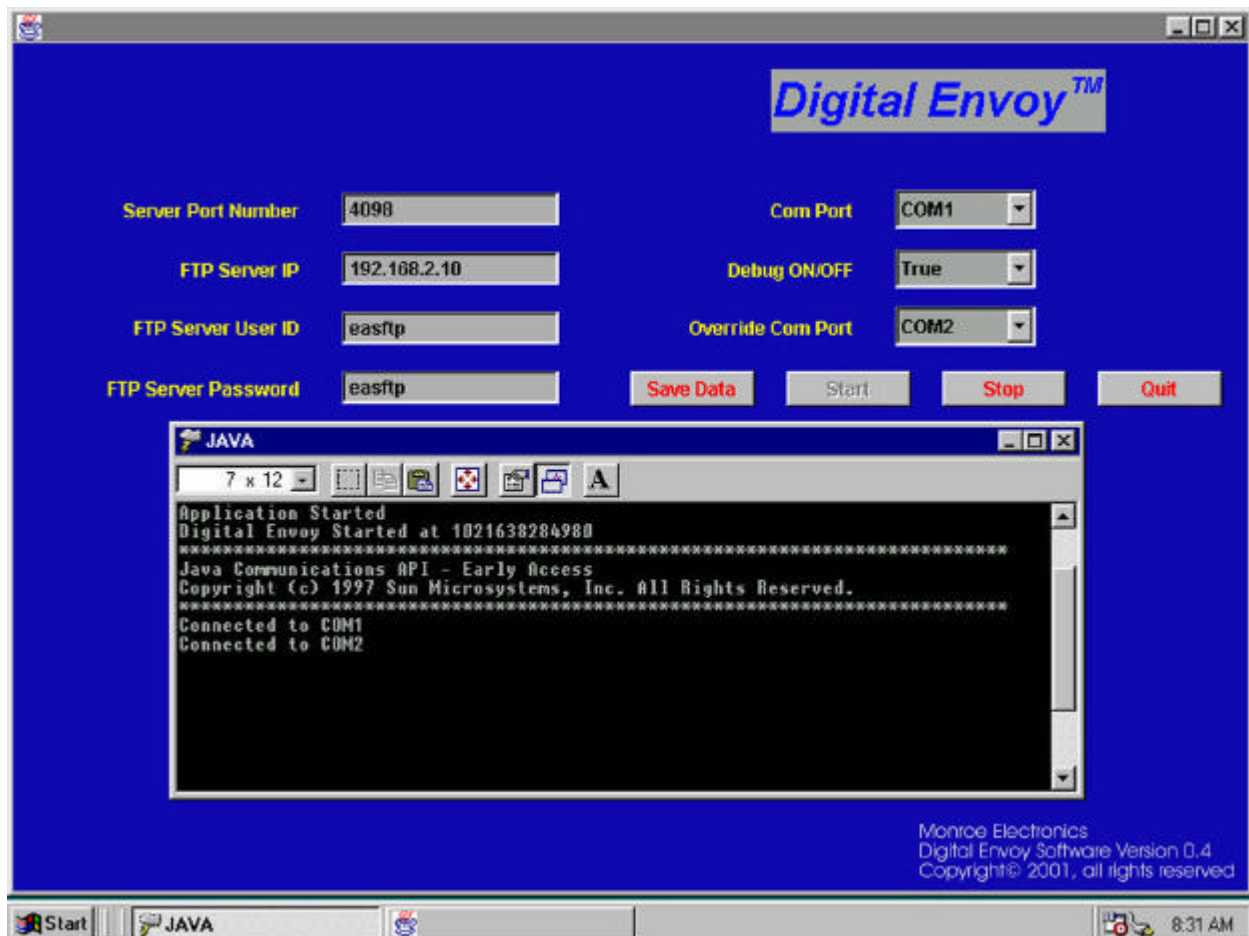


Fig. 5 – Digital Envoy GUI with DOS display

Running a Required Weekly Test (RWT)

A RWT may be initiated from the MIP-921 by using pushbuttons and observing the LCD display on the MIP-921 front panel.

To activate the weekly test from the MIP-921:

- Depress the 'MODE' pushbutton. This will cause the MIP-921 to display various options on the LCD display.
- Respond by depressing the 'NO' button until the message "SEND WEEKLY TEST" is displayed.
- Depressing the 'YES' pushbutton will cause the MIP-921 to send an EAS text string to the Digital Envoy.

Monitoring Digital Envoy™ activity in response to the RWT, the DOS display should show the following responses:

- a. An EZEZ----- text string will be received from the MIP-921.
- b. The display will show an analysis of the string message followed by an English, (or Spanish) text message describing the alert condition.
- c. The unit will initiate the playing of the Audio Header, which should be heard as three bursts of audio data.
- d. The audio EOM will then be played, which will be heard as three shorter data bursts.
- e. A text file (nnnnnn.TXT) will then be transferred to the server, followed by an audio file (nnnnnn.WAV). The nnnnnn will be a unique numeric designation for the file names. The display will show FTP file transfer activity.
- f. A command string will then be sent to the Applications Server. A message will be displayed indicating that the command string was transferred to a specific IP address and Port number.
- g. A '0' response should be received from the server, indicating a successful transfer.
- h. When the DNCS has received the files and command string, it will relay the alert condition to the digital set-tops.
- i. The system is now ready to process new alert conditions.
- j. Should an '0' response not be received, or if the foregone sequence does not occur, then the system should be tested and debugged to determine the source of the problem(s), see section 10.

SECTION 10

DEBUGGING THE SYSTEM

Ping the Applications Server

To ensure proper communications have been established within the network, the Applications Server should be 'pinged' to determine if it is responding to the Digital Envoy™.

- To ping the Applications Server, exit the Digital Envoy™ application, select the DOS prompt icon from Windows Desktop.
- The DOS screen will be displayed with the C:\WINDOWS> prompt.
- Enter the command: ping xxx.xxx.xxx.xxx (ret.), where xxx.xxx.xxx.xxx is the IP address of the Applications Server.
- If the Applications Server is attached, a typical response such as '(IP address) is ready' will be received, indicating a good connection. Otherwise a 'time-out' message will be displayed.
- If a time-out message is displayed efforts must be made to establish connection. Check that the correct IP address for the Applications Server was entered, or that the physical Ethernet connection is properly installed. Communications between the Applications Server and the Digital Envoy™ must be established before proceeding.

If the response to the 'ping' command was successful, return to Windows by typing 'Exit'.

Ping the Digital Envoy™

This test will confirm if the Digital Envoy™ is able to receive communications from the Applications Server.

- From the Applications Server console, enter the command: ping xxx.xxx.xxx.xxx (ret.), where xxx.xxx.xxx.xxx is the IP address of the Digital Envoy™.
- If the Digital Envoy™ is attached, a response such as '(IP address) is ready' will be received, indicating a good connection. Otherwise, a 'time-out' message will be displayed.
- If a time-out message is received, check to determine that the correct IP address was entered into the Digital Envoy™.
- From Windows Desktop, select the 'Start', 'Settings', 'Control Panel', 'Network'.
- From the list of items, select 'TCP/IP', then 'Properties'.
- Check / correct the entered 'IP Address'.
- When entered, select the OK buttons to exit.

Note: If the IP address has been changed then restart the Digital Envoy™ (i.e. by selecting 'Start', 'Shut Down', 'Restart').

Checking the FTP Transfers

The .TXT and .WAV files transferred from the Digital Envoy™ to the Applications Server may be destined for the wrong directory in the Applications Server. The files should be in the

"/export/home/easftp/" directory.

If these files are not present, check the Applications Server systems configuration for the

easftp - FTP file directory, User ID and Password settings

A File Find for the .WAV and .TXT files is helpful for locating the file transfer destination directory.

Check the Command String Response

At the end of the alert processing activity displayed on the DOS window, a message "Info sent to SA server ----" will be displayed. A "0 no error" response message should be received in response to transferring the string. If the 0 response is received, then the interaction between the Digital Envoy™ and the Applications Server is responding correctly. Error responses from the Applications Server may include:

- Response 1 --- Missing required descriptor
- Response 2 --- Invalid descriptor
- Response 3 --- Discarded the message -----Check EAS decoder clock
- Response 4 --- No files exist -----Check FTP files transfer
- Response 99 – Unspecified error

If no response, check the Applications Server which may require rebooting.

Check Set-top Unit Activity

Within a couple of minutes after an EAS alert transfer to the Applications Server, the digital set-top units should activate an EAS message display, with audio. If this does not happen, check that the clock setting is correct on the EAS decoder (MIP-921) and ensure that the Applications Server is functioning properly.

Check Clock Setting

The clock setting on the EAS decoder determines the start time for an alert when an EAS transmission is received or when a Required Weekly Test is initiated from the MIP-921. The MIP-921 uses this time, plus the time specified for the duration of the alert, to state the end of the alert in the text message (i.e. ---UNTIL 9:24 PM).

To check that the MIP-921 is at the correct time, initiate an RWT from the MIP-921 and observe the resulting text string displayed in the DOS window. This time should be the current plus 15 minutes, for a weekly test. If this time is not correct, consult the MIP-921 user manual for set-up instructions.

Log File

If the Debug ON/OFF selection in the GUI display is set to 'TRUE', a log file will be maintained of the Digital Envoy™ activity. To observe the Log file,

- Click the 'Stop' button on the GUI.
- Click the 'Shrink' button on the top right side of the GUI.
- Click the 'Shrink' button on the top right side of the DOS Window.
- Click the Windows Explorer Icon.
- Navigate through Explorer to select the C:\java\altronix\ directory.
- Double click on the 'log.log' file within the Altronix directory.
- Select the WORDPAD viewer. The log file may now be reviewed.

To return to the Digital Envoy™ GUI:

- Exit WORDPAD, then exit Explorer,
- Click on the Envoy and Java selections on the Task-bar.

SECTION 11

DISTRIBUTED EAS SIGNALING

Cable systems with distributed hub sites that are beyond the regional FIPS coded area of the cable systems headend, have to be able to alert subscribers at these distant sites whenever EAS alerts are activated for that region.

Implementing EAS alerting for remote hub sites requires that EAS decoding equipment be placed at each remote hub site and programmed to receive alerts corresponding to the FIPS code for that region. When an alert occurs, the alert information must be displayed on all television channels served by the hub site.

Digital Video Signaling

For systems that are transmitting digital video channels to digital set-top units, the EAS alert information has to be transferred from each remote hub site, to the controlling Digital Network Control System (DNCS), located at the serving headend, for distribution to the respective digital set-top units

The decoded EAS text and audio information received at each remote hub site must be digitized, formatted, then transferred to the headend. Data transfers between hub sites and headend are via an Ethernet link, using TCP/IP formats, and transmitted over the cable system's forward and reverse data channels (i.e. via the cable systems ATM network).

At the headend, equipment is required to intercept the EAS data transmissions from each hub site, log each event, then transfer the information to the DNCS (See Fig. 6). The DNCS will then direct the alert information to the set-top units within the effected area.

Remote Site Equipment

Equipment required at the remote site consists of an EAS decoder/encoder, equipped with AM, FM and/or NOAA radio receivers that are programmed to receive any EAS transmissions pertinent to that location. The EAS decoder transfers the alert audio and text information to a Digital Envoy™ – Remote Alert Controller (RAC). The RAC digitizes the audio signals, formats and transfers the information to the headend using File Transfer Protocol (FTP).

Headend Equipment

Equipment required at the headend includes an EAS decoder/encoder and a Digital Envoy™ – Master Alert Controller (MAC). The MAC acts to transfer alert information from the local EAS decoder to the DNCS. The MAC also monitors, receives and transfers all alert transmissions from the hub sites to the DNCS. The MAC logs the occurrence of each alert incident for each location and may provide a printout of these events. Note: the logging function performed by the MAC is necessary to comply with FCC record keeping requirements.

Once the DNCS has received an alert, it will use the FIPS information within the alert data to direct the audio and text files to the digital set-top units located within the affected area. The set-top units will present the audio and alert text in a format specified by the DNCS software.

EAS Data Transmission Paths.

Figure 7 illustrates the typical communications equipment deployed throughout a modern Cable TV system. At each remote hub location, EAS signals received by the Digital Envoy™ -RAC are encoded into files and given an IP address of the Master Digital Envoy™ - MAC located at the headend. The files are then transferred onto a local Ethernet network using FTP and TCP/IP protocols. A local Router/Switcher then directs the file transmissions to the headend Ethernet network. The headend router directs the EAS file transmissions to the Digital Envoy™ MAC.

Transmissions to the headend typically occur over the cable system's Wide Area Network WAN, using the Out-of-Band Reverse and Forward data channels. The combination of routers and QPSK modems at the headend and remote hub sites, interchange the data on the WAN.

The headend MAC logs the receipt of all EAS transmissions received from remote sites, along with any transmissions from a local EAS decoder. The MAC then transfers the files to the DNCS via the EAS Applications Server. The DNCS in turn, transmits the EAS messages to the appropriate digital set-top boxes using the Service Information band within the MPEG-2 Transport streams.

Analog Channel Displays

EAS alerts may also be inserted on analog TV channels that are received or originated at remote hub sites. The Cable Envoy™ System inserts alert messages either as a text crawl on individual channels, or as a full-page display to override channels. The alert audio message and EAS alert tones may override each TV channel's audio signal for one or more replays as required by the level of emergency alert. The Cable Envoy™ equipment interfaces with the Digital Envoy™ – Remote Alert Controller via a RS232c data connection and a 600-ohm audio connection.

The Cable Envoy™ system configured for remote hub sites comprises a Remote Server Rack and number of Client Racks as required accommodating channel crawl circuitry. If all channel overrides are used, then a CEMS0200 override controller with expansion options, may be used.

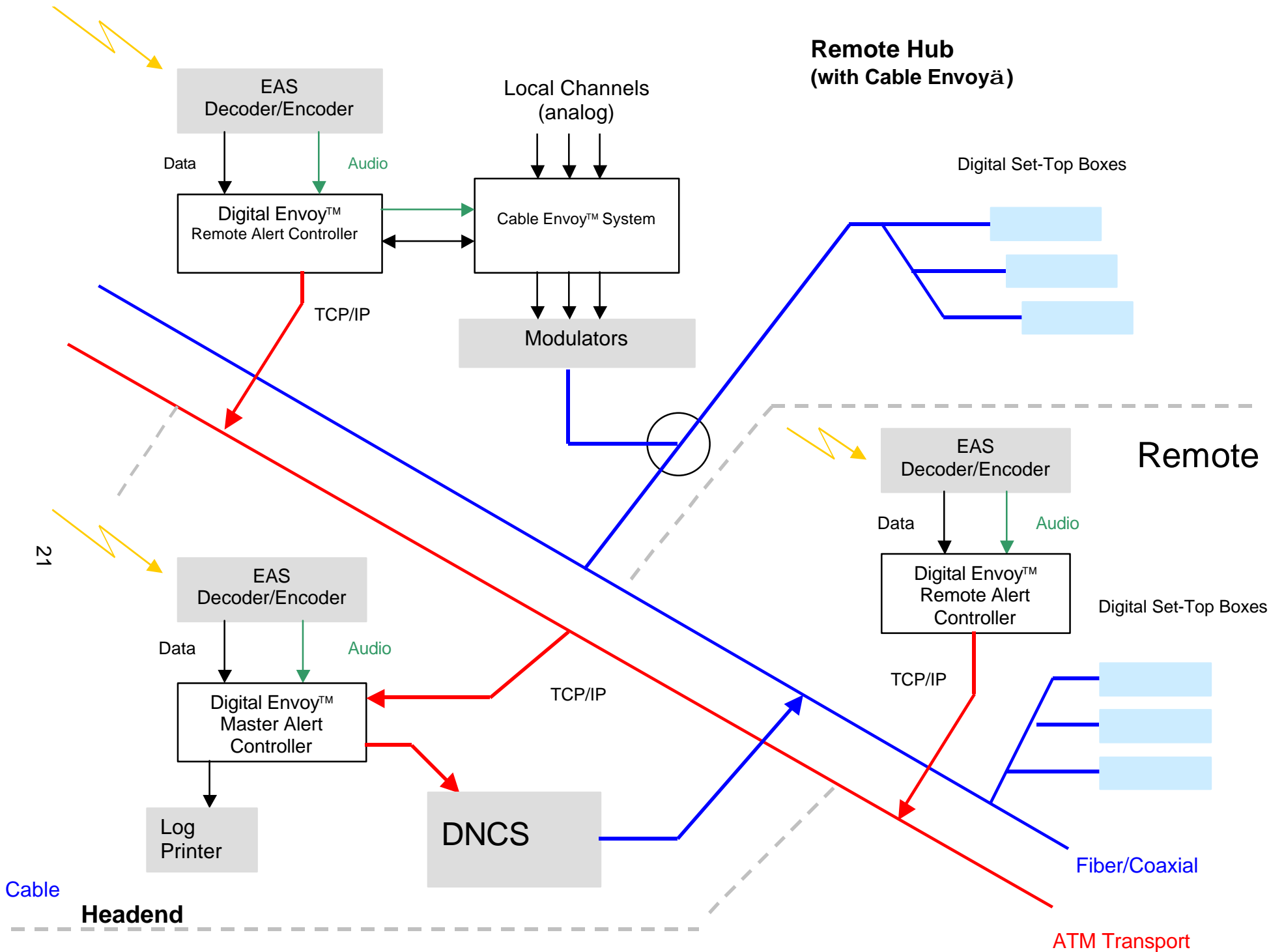
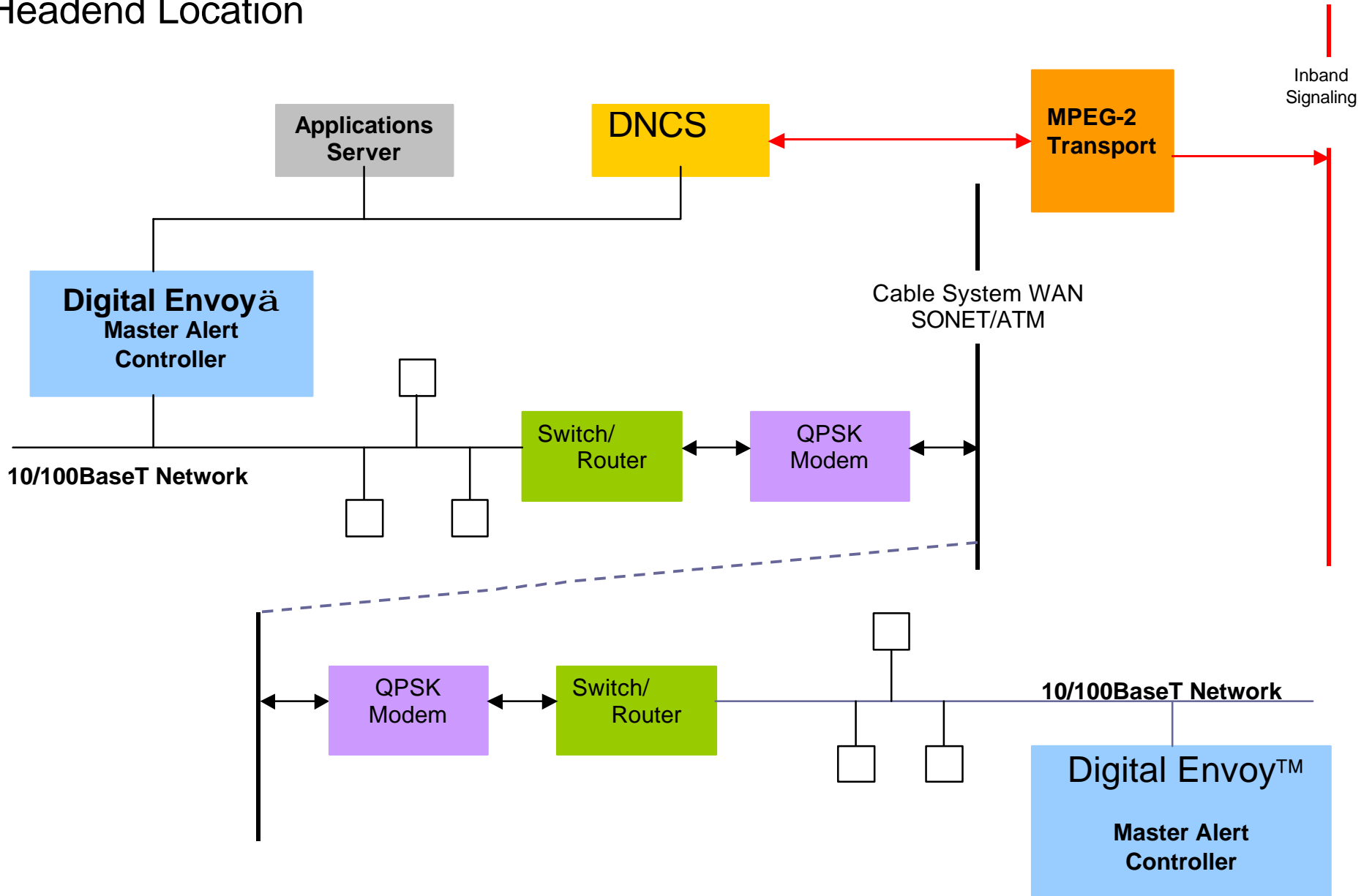


Fig. 6 Distributed EAS Signaling

Headend Location



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Fig. 7 – Typical Transmission Paths

Unattended Hub Location

SECTION 12

WARRANTY

Monroe Electronics, Inc. warrants to the owners, each instrument and sub-assembly manufactured by them to be free from defects in material and workmanship for a period of two years after shipment from factory. This warranty is applicable to the original purchaser only.

Liability under this warranty is limited to service, adjustment or replacement of defective parts (other than fuses and batteries) on any instrument or sub-assembly returned to the factory for this purpose, transportation charges prepaid.

This warranty does not apply to instruments or sub-assemblies subjected to abuse, abnormal operating conditions, or unauthorized repair or modification.

Since Monroe Electronics, Inc. has no control over conditions of use, no warranty is made, or implied as to the suitability of our product for the customer's intended use.

THE WARRANTY SET FORTH IN THIS ARTICLE IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES AND REPRESENTATIONS, EXPRESS, IMPLIED OR STATUTORY INCLUDING, BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. Except for obligations expressly undertaken by Monroe Electronics, in this warranty, Owner hereby waives and releases all rights, claims and remedies with respect to any and all warranties, express, implied or statutory (including without limitation, the implied warranties of merchantability and fitness), and including but without being limited to any obligation of Monroe Electronics with respect to incidental or consequential damages, or damages for loss of use. No agreement or understanding varying or extending the warranty will be binding upon Monroe Electronics unless in writing signed by a duly authorized representative of Monroe Electronics.

In the event of a breach of the foregoing warranty, the liability of Monroe Electronics shall be limited to repairing or replacing the non-conforming goods and/or defective work, and in accordance with the foregoing, Monroe Electronics shall not be liable for any other damages, either direct or consequential.

RETURN POLICY TO FACTORY

Materials returned to Monroe Electronics must have a Return Material Authorization number. To obtain a RMA number, contact our A/V Switching & Control Customer Service at 585-765-2254 or fax 585-765-9330. Customers have 30 days to determine that the product ordered fills their need and performs as described in Monroe's literature. Units returned for approved repair or credit, must be in the original packaging including all parts and paperwork plus be in very good physical condition. If not, the customer is billed the cost to refurbish the unit and for missing accessories and merchandise. No products may be returned for exchange or credit after 12 months of the shipment date. Monroe reserves the right to repair or replace units under warranty.