



FEATURES

- Decodes H.E.A.R. signaling sent from ambulances and hospitals
- Compatible with 1500 Hz “digital dial” and DTMF systems
- Recognizes up to 16 programmable addresses
- Supports individual, group, and all-call decoding
- Outputs standard EIA function tones when activated
- Transpond feature gives positive acknowledgment to originator
- Compatible with modern base station radios

INTRODUCTION

Many hospitals are equipped with a two-way radio system to provide communication with ambulances and other urgent care facilities. These are often part of a nationwide **Hospital Emergency and Administrative Radio** or “H.E.A.R.” system. Originally installed in the 1970’s, these systems support routine communications and are used to coordinate resources especially in times of an emergency or disaster. The H.E.A.R. system provides an alternative means of communication between hospitals should the public telephone system become overburdened or disabled.

Most of the original H.E.A.R. base stations and remote control units were specially built Motorola or GE models. Unfortunately, newer base stations being sold today lack the H.E.A.R. functionality. Until the development of the Zetron H.E.A.R. Decoder, upgrading a base station meant sacrificing the H.E.A.R. system. The Zetron H.E.A.R. Decoder is an external accessory device that facilitates the replacement of obsolete base station radio equipment and provides an upgrade path to newer technology.

OPERATION

The H.E.A.R. system provides a “selective calling” feature to alert an individual hospital, or group of hospitals. An ambulance team can place a call to a specific hospital without interrupting other hospitals on this same frequency. Hospitals can place calls to other hospitals just the same as the ambulance teams. Some hospitals can respond to multiple callcodes; one for individual calls, and one for area-wide group calls. This provides the capability to alert multiple hospitals with a single radio transmission.

The Zetron H.E.A.R. Decoder monitors audio on the radio channel for dialing that matches any of up to 16 programmable call codes. When a match is detected, the unit generates a tone remote control (TRC) function sequence which causes the base station or remote to unmute the receive audio path. This allows the selected personnel to hear the incoming call from an ambulance or other hospital. A second TRC function sequence may be sent for other purposes.

Positive confirmation that the audio channel is open can be sent to the originating party if desired. This “transpond” function will transmit a selectable alert tone from the base station to the caller. It can be used as a “go-ahead-and-speak” prompt, or to acknowledge successful reception.

SETUP

A 2-line by 16 character LCD display is used to show decoding activity, as well as for menu driven programming and to review programmed settings. A simple, two-button interface controls all programming functions without the need for external adapters or equipment. For specific base station radios, installation is as simple as plugging in the unit.

REMOTE CONTROL UNITS

The H.E.A.R. Decoder works in conjunction with Zetron tone remote control units. The Models 280 and 284 can upgrade, replace, or be used along with most existing H.E.A.R. remotes. These offer access to the base station from multiple locations, and are usually located in the emergency room, radio room, and admitting areas of the hospital. (Please see the Model 280 and 284 product data sheets for more information).

MULTIPLE BASE STATION CONTROL

Hospitals with multiple base station radios may use a Zetron Model 284 to control up to four radios. A backup H.E.A.R. radio may be located on-site in case of primary base station failure. Other radios such as mutual aid or trunking units may be controlled using a single Model 284, reducing desk space and equipment costs. Zetron also offers communication consoles to fit most any application.

SPECIFICATIONS

ENVIRONMENTAL

Power	+10.5 to +16.0 VDC, < 1 Amp
Temperature	-30° to +70° C (except 0 to 50° C for LCD)
Size	5.5" W x 6.25" D x 1.4" H 1.75" x 19" Rack panel mount option
Weight	1 pound (0.5Kg)

GENERAL

Adjustments	Rx audio level, line output level, LCD contrast
Indicators	2-line by 16 character LCD, backlit
Configuration and setup	Menu driven, via front panel switches and display

RECEIVER INTERFACE

Connector	10 pin x .156" Molex type connector
Signals required	+12VDC supply, ground, discriminator audio, carrier detect
Input impedance	> 30 K Ω
Receive audio level	0.1 to 1 Vrms
DTMF decoder sensitivity	\leq 14 dB SINAD
Pulse dial decoder sensitivity	\leq 9 dB SINAD, minimum 40% channel deviation
Pulse decoder bandwidth	1500 Hz \pm 50 Hz minimum
Make / break ratio	35/65 to 55/45
Acceptable rate	Pulse dial: 8 to 20 PPS, DTMF: \geq 40 ms digits and gaps

WIRELINE OUTPUT

Line type	2-wire 600 Ω EIA tone remote control audio circuit
Connector	2-wire detachable screw terminal
Secondary protection	High voltage MOV clamp and fusible resistors

Audio output impedance	> 6000 Ω inactive < 650 Ω active
HLGT output level	Adjustable, -16 to +6 dBm
HLGT frequency accuracy	2175 Hz \pm 5 Hz
HLGT tone duration	120 ms, +5/-0 ms
Function tone accuracy	< 1%
Function tone duration	40 ms, +5/-0 ms

PROGRAMMABLE SETTINGS

Decode addresses	16 selective call address of up to 16 digits each. DTMF includes 0-9, *, #, A, B, C, D
Unmute function for each address	Disabled or 650 - 2050 Hz EIA function tone, typically sent to unmute the receiver
Aux function each address	Disabled or 650 - 2050 Hz EIA for function tone for auxiliary purposes
Transpond alert each address	None, warble, 1, 2, or 3 beep alert for tones can be sent for call acknowledgment
Mode	Decode 1500 Hz "digital dial" only, decode DTMF only, or decode both
Tx function	650 - 2050 Hz EIA function tone for base station transmit (for transpond feature)
Unmute on pulse dial	Selectable: immediate (after address decodes) or after 1500 Hz tone stops
Transpond on pulse dial	Selectable: after 1500 Hz tone stops, or after COR drops
Transpond alert tone level	0 dBm, -6 dBm, or -12 dBm