



FEATURES

- Repeat of POCSAG data on the main paging channel
- Eliminates the need for separate link infrastructure
- Eliminates need for costly simulcast equipment
- Supports 512 and 1200 baud POCSAG
- Large storage capacity - 17 minutes of 512 baud POCSAG
- Optional System Identification to eliminate retransmission of unwanted pages from other paging terminals
- Addressing - allows sequencing of up to 7 repeaters for wide-area coverage
- Periodically transmits Morse code station identification for FCC compliance
- Completely software controlled; no hardware PLLs

APPLICATIONS

- Low cost POCSAG paging fill-in repeaters for:
- Hospitals and other on-site applications
- Rural RCC and PCP wide-area systems
- Simulcast systems beyond the link transmitter range

INTRODUCTION

Extending the range of paging transmitter systems can be an expensive and difficult endeavor. When the loading on a paging channel is low, adding expensive simulcast transmitters is not cost effective. Zetron's solution is the Model 55D Digital Repeater.

The Model 55D extends paging range when it is connected to a receiver and transmitter tuned to the paging channel. It sequentially decodes, stores, and rebroadcasts POCSAG paging information to fill-in areas outside the main paging transmitter's range. The Model 55D uses the paging channel itself as a link to the remote site, eliminating the need for costly link equipment at the site.

The Model 55D monitors the paging frequency to prevent transmission of pages when the frequency is already in use by another system.

RELIABLE DATA STORAGE

The Model 55D samples paging information directly from a receiver's discriminator circuitry. When POCSAG paging data is detected, the Model 55D begins to "record" the digital paging information into a large RAM buffer. Sophisticated error-correction software eliminates noise, interference, and falsing on non-POCSAG pages as the data is stored into the buffer. When the original transmission is complete, the Model 55D closes its PTT relay and retransmits the buffered paging data.

SYSTEM ID OPTION

The System ID option blocks unwanted POCSAG pages. The System Identification Code (SID) is an industry standard that is generated by high-end paging terminals such as Zetron's 2000 Series and Model 640 to identify the paging terminal sending the message. When this feature is enabled, the Model 55D buffers only those transmissions that contain the correct SID.

REPEATER ADDRESSING

When the coverage area of multiple remote transmitters overlap, interference can cause garbled or missed pages. Standard solutions to this problem include simulcasting and zone sequencing. Simulcasting requires expensive, high-stability transmitters and sophisticated control equipment. The Model 55D provides an addressing feature which sequences up to seven repeaters. A master repeater sends a page to repeater #2, which relays the page to repeater #3, and so on.

PROGRAMMABLE COR DELAY

Under normal operation the Model 55D will wait at least 0.5 seconds after the channel busy (COR) indication has been cleared before transmitting. This filters short gaps in radio reception. There are DIP switches on the Model 55D which allow this wait time to be changed to 2.0 seconds. This allows repeaters to be sequenced by determining which should wait longer to transmit. This feature can be used to form a branch in a series of sequenced transmitters.

SPECIFICATIONS

Power Requirements: 10 - 14 VDC fused at 1A (500 mA nominal).
Modular wall transformer available for 120 VAC nominal operation

Size and Weight: 1.75"H X 19"W X 6.75"D
(Rack-mountable) 3 lbs

Temperature Range: 0 to +60 degrees Celsius
+32 to +140 degrees Fahrenheit

Radio Interface, Input (From/To Terminal or Receiver)

Digital Data: Wide voltage input range: 200 mV to
+/- 15 V. RS-232, CMOS, TTL or
discriminator output

Inhibit Output: (Active when buffer becomes full)
2 form C relay: 1 A MAX at 28 volts
(resistive load)

Radio Interface, Output (To/From Transmitter)

Data Output: CMOS or RS-232 levels (jumper
selectable). Jumper selectable
return to zero or open circuit when
transmission is completed

PTT Output: 2 form C relay: 1 A MAX at 28 volts
(resistive load)

COR Input: Relay closure to ground or CMOS voltage
levels. Optional 10K ohm pullup (jumper
selectable). Jumper selectable polarity.
Selectable 1/2 or 2 second delay

Front Panel Indicators and Controls

Power LED: Red power ON indicator
Receive LED: Green - Indicates receiving POCSAG data
Transmit LED: Green - Indicates that the unit is transmitting
Data LED: Green - Gives a visual indication of the quality
of reception. ON if code word had no errors,
OFF if errors were detected

Buffer 1/2 Full
Buffer 1/4 Full: Red - Binary indication of the of memory used
Digital Threshold: This adjustment is used to compensate for
+/- 5 volt DC offset of the input signal.
Additional internal jumper extends to
+/-15 volt signals

Logical Operation

Buffer Size: 256 Kilobytes = 17 minutes at 512 baud or
7.25 minutes at 1200 baud
Data Format: POCSAG transmissions at 512 or 1200 baud
Operating Mode: Simplex operation. Stores one or more
complete transmissions then outputs the
transmission as soon as the channel becomes
available
Error Correction: Up to two bit errors in the received code
word can be detected and corrected.
Uncorrectable code words are replaced by
idle codewords



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