Model 25
Programmable Encoder

GENERAL FEATURES

- Reliable multi-microprocessor design
- High reliability precious metal used on all keyswitches
- All field programming contained in nonvolatile RAM
- Up to 13 different signaling formats at once
- Easy format addition using reprogrammable plug-in memory
- Capable of DTMF, Quickcall 1 (2+2), or other dual-tone formats
- Crystal controlled for accuracy and stability
- Shallow profile, fully enclosed cabinet protects circuitry
- Plug-in terminal blocks ease installation
- 12 Volt DC operation
- Controls up to 8 transmitters
- Different alert tones distinguish urgency level of calls
- 29 Instant Call buttons
- Motorola, G.E., and Reach two-tone code plans included
- 5/6 Tone, Custom Calls, DTMF, 1500 Hz, and 2805 Hz formats included
- Golay digital paging format available

OPERATOR FEATURES

- Instant Call buttons allow one or more calls by pressing single button
- Instant Call buttons show button status via an integral LED
- Instant Call buttons may be queued even while transmitting
- RS-232 port allows call logging, programming, or CAD operation
- Large label area for each Instant Call button
- 4-digit LED display shows pager codes and encoder status
- Beeper indicates operator error and completion of stack pages
- Extensive self-test/self-diagnostic features
- 24-hour real-time clock available
- Single key repage of previous entry
- Indicator LEDs show status of channels
- Automatic transmitter keying and microphone muting
- Fully field programmable:
    RS-232 port attributes

    Channel attributes
    Format attributes for up to 13 formats
    200 custom two-tone calls (option)
- Keypad entry of all codes
- Keypad entry of digital display page messages

Introduction

The Zetron Model 25 programmable encoder is suitable for use in any radio dispatch system. Pagers, mobiles, and radio-controlled equipment can be quickly selected using a single instant call button depression. The instant call pushbuttons can be programmed in the field to generate any signaling format resident in the encoder. In addition to calling individual pagers, each instant call button can be assigned a stack of calls, causing the encoder to automatically sequence through a number of pagers and mobiles. To minimize operator error in critical situations the Model 25 can also automatically select the correct channel prior to sending the page. The Model 25 contains 8 relays for use in automatic channel selection.

The instant call panels also maintain the status of the dispatched calls. An indicator associated with each pushbutton flashes after the call has been sent until manually cleared.

The calls to be assigned to the instant call buttons can be programmed from the numeric keypad or from a CRT attached to the RS-232 serial interface. The Model 25 is capable of all common formats including G.E., Motorola, Reach, 5/6 Tone, DTMF, 1500 Hz, and 2805 Hz. The special custom call format allows the user to specify the tone frequencies for both single and two-tone sequential paging. This format provides compatibility with Plectron pagers. An RS-232 port is provided to allow connection of a logging printer or to allow remote control of the encoder via a CRT or computer.

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Keypad Operation

The keypad provides a means of extending the call capability past the number of instant call buttons through manual entry. Keypad operation allows access to the same codes that the instant call buttons normally call via a 5-button sequence. This provides a redundant entry system. Programming is also possible from the keypad if a CRT or computer is not available.

The display on the front panel combined with the beeper provides positive feedback during manual operation or programming. With the real-time clock option, the time is displayed on the front panel while the encoder is idle.

The SEND keys on the panel allow manual selection of one of four channels on which to transmit. The LEDs next to each SEND key show the busy or selected status of the channels. The ENTER and CLEAR ENTRY keys are helpful in programming call stacks. The ALERT key is used to manually send alert tones from the tone output. The alert tone will continue while the key is held down. Pressing the RESET key will halt any call in progress, clear all indicators and bring the encoder to the idle state.

Essentially anything that can be done from the keypad may also be done from a CRT or computer in remote control.

Instant Call Operation

For fast access to individual or sequence calls, the Instant Call buttons are used. When the button is pressed the encoder can automatically select the correct channel. Up to 16 pushbuttons may be pressed in a sequence without waiting for the pages to be transmitted. When the button is pressed an LED associated with each button is illuminated. The LED flashes after the page has been sent. The CLEAR key is used to reset the flashing light or to remove a pending page. The operator can select the instant call buttons and send after reviewing the selected pages, or the unit can commence the paging sequence as soon as the first button is pressed.

Installation

The Model 25 fits into a standard 19" console opening. All electrical connections are through plug-in screw terminal blocks. Strain relief for the cables is provided on the back of the panels. The legend on the back panels clearly indicates the use of each connection. All jumpers and level adjustments are easily accessed through the back panels. A steady tone can be generated by a special keyboard sequence to facilitate adjustments.

The RS-232 connector may be removed from the front of the unit and brought out of the back. A plate is supplied to cover the connector opening. For service, the back panel conveniently hinges down exposing fuses, test points, and cables. DPDT relay contacts are available for push-to-talk and audio switching. Normally open, grounding contacts are provided to select 8 separate transmitters. Minor field modifications allow reconfiguring of the transmitter contacts to SPDT. The channel status of up to four channels can be connected to inputs with selectable impedance. The busy status is shown on the front panel and transmission on that channel is inhibited when the input is low. Connections to auxiliary panels consist of 4-wire

cables which form a loop. Should problems arise, an extensive self-diagnostic may be invoked to help define the trouble.

Programming

A standard Model 25 includes Motorola, G.E. and Reach two-tone sequential formats. The user can program which code plans are active, and which pagers are to be called from the Instant Call buttons. The timing may also be selected for each separate code plan. Sequences of pages may also be defined and allocated to a particular instant call button along with their channel assignments.

If other optional formats are installed then certain operating parameters are also defined during programming. With the custom call format, the user can specify the tones and timing for each call.

Programming from the Keypad
The Model 25 may be fully programmed from the front panel keypad. All format and operational information is entered through the keypad in response to command prompts on the front panel LED display.

Programming from a CRT or Computer
Connecting a CRT display or IBM-compatible computer to the Model 25's serial port provides a more descriptive means of programming, since all programming may be visually confirmed on the screen. When programming from an IBM-compatible computer, any communication or terminal emulation program may be used to communicate with the Model 25.

M25 Computer Configuration Package

This optional package contains a Model 25-to-IBM connecting cable, the Model 25 Computer Configuration Program, and an instruction manual. The program runs on any IBM-compatible computer and provides a means to interactively program, review, print, and store the entire configuration of the Model 25 on disk for backup purposes. Should the Model 25 ever need reprogramming, the backup configuration may be downloaded to restore the entire configuration.

SPECIFICATIONS

GENERAL SPECIFICATIONS

Signaling Formats:	Motorola, G.E., or Reach two-tone
Formats:	Quickcall 1 "two plus two" Five/six-tone sequential Plectron and custom calls 2805 Hz rotary dial 1500 Hz pulse dial DTMF
Call Capacity:	13 blocks of mixed formats Two-tone - Full code plan capacity (1000 calls) Quickcall 1 - Full format capacity Five-tone - Full format capacity Plectron/custom - 200 calls total in encoder 2805/DTMF - Full format capacity (3 to 8 digits)

Special Features

Display:	Four 0.4" 7-segment readouts. Utilizes some alphanumeric operator messages Low RFI non-multiplexed drive
Channel busy LEDs:	4 indicators show status of channels
Keyswitches:	16-key "DTMF" keypad, keys are provided for channel selection, stack editing, and alerts
Instant Call Keys:	29 Instant Call keyswitches with integral LEDs to show status One clear key to clear the status
Instant Call Queue:	16 Instant Call buttons are remembered in the sequence in which they were pressed
Call Stacks:	One keyboard stack plus 206 programmed stacks
Alerts:	4 separate Alert tones: fast siren, slow siren, beeps, and high-low warble
Re-Page:	The last entry or keyboard stack is executed if the next key after a call is a SEND key
Programming:	Attributes for computer port, channels, formats, stacks and optional custom calls may be programmed
Self-test:	A limited self-test is executed while the unit is idle, extensive self-tests are executed at user discretion
Expandability:	Additional formats may be added to the unit in the field using a reprogrammable plug-in memory
Options:	24-hour, Real-time clock; Programming disk (IBM-PC or compatible); Computer Configuration Package Extra Instant Call labels; Extra Instant Call red key tops; RS-232 cable; Power supply (120V AC to 12V DC)

ELECTRICAL SPECIFICATIONS

Frequency Range:	250 to 3200 Hz
Frequency Accuracy:	+/-0.1%
Audio Output:	Balanced, 600-ohm impedance
Amplitude:	Adjustable, -60 dBm to +10 dBm (0 - 7.5 V pk-pk, into 600 ohms)
Tone Distortion:	2% nominal from pure sinewave
Pre/de-emphasis:	Factory set to +/-1 dB over range, (may be field altered to +/-6 dB per octave)
Digital Data Output:	RS-232 logic levels. Selectable polarity
Digital Mode Output:	RS-232 logic levels -3 to -12 V DC analog +3 to +12 V DC digital
TX Controls:	Audio switch: one DPDT relay PTT: one DPDT relay Channel select: 8 contacts, ground when transmitting (configuration may be field altered) All relays rated at 1 A at 26 V AC
TX Monitors:	4 channel busy monitors each with high or low impedance selection. Inputs are common ground
Computer Port:	RS-232, 8 bits, no parity, 1.5 stop bits. Baud rate: logging printer, 600 baud; remote control, 150, 600, 4800 baud. Full duplex when in remote control. CTS "busy" input available
Power Supply:	11 to 15 V DC at 2.5A max, 1A standby.
Operating Temp.:	0 to +65 degrees Celsius

Size/Weight

Encoder:	5.25"H x 19"W x 4.75"D / 5.5 lb

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The Power to Respond

See Zetron price list for option pricing.
Specifications subject to change without notice.

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