

Dial Access Paging Terminal**FEATURES**

- Capacity up to 1000 users
- Feature Programming
 - Programming of range of users minimizes time and effort
 - Program from phone or video display
 - Battery backup for database storage
- Pager Programming Options:
 - Voice pager time limit
 - 4 transmitter zone steering
 - Both tone & digital numeric display pagers
 - Group paging
- Local operator priority override
- System voice prompts option
- Call counting/accumulation option
- One to three phone lines:
 - End-to-end
 - DID (immediate dial or wink start)
 - PBX (loop trunk, E&M type I, ground start, or station)
- Dial click decoding for rotary phones option
- Talk-back option
 - Mobile-to-land line, land line-to-mobile, mobile-to-mobile, and mobile-to-pager calling
 - Simplex or half-duplex
- Transmits morse code station ID

INTRODUCTION

The Model 64 DAPT-Plus Dial Access Paging Terminal is suitable for automated paging systems in factories and hospitals or for small RCC/PCP service. With the capability to encode the signaling formats required by most pagers and mobiles, this terminal easily automates existing manual paging systems. It is also suitable for replacing or backup of older systems with outdated format/capcodes.

FEATURE PROGRAMMABILITY

Most of the features of the Model 64 can be field-programmed by the user. These options are stored in a database inside the Model 64. Programming can be done from a touch-tone phone or using a video display terminal via an optional modem/RS-232 interface.

Pager Programming

The Model 64 database is designed for simple and efficient pager programming. Paging format tone plans, digital function codes, radio zone steering, and pager capcodes are programmed individually for each subscriber.

Temporary pager invalidation prevents access to a pager if the person is unavailable or has not paid for service. When an invalidated number is accessed, the caller hears a distinct error tone.

Single command programming for a range of pagers and a "copy user settings" command (with auto-increment of pager capcodes) eliminates repetitive data entry.

Voice Pager Programming

One of four programmable voice time limits can be assigned to each tone-and-voice paging subscriber. If the caller stops speaking before the maximum time limit expires, the built-in VOX circuitry terminates the message after a programmable "quiet time" (typically 3 seconds). Note: Voice messages are transmitted live from the telephone callers to the radio pager subscribers. For high throughput applications that require voice storage and forwarding, consider the Zetron 640 or 2000 Series Paging Terminals.

Display Pager Programming

The Model 64 supports the most popular digital display paging formats. Display message limits are set automatically when the type of pager is programmed for the subscriber.

Group Paging Option

A group of different types of tone-and-voice pagers and mobiles can be alerted in sequence and sent a voice message simultaneously when a single subscriber number is called. Additionally, a display message can be sent to a group of different tone-and-display pagers. This option provides 10 such groups that are each programmed with 2 to 10 pagers. Groups can be extended to more than 10 pagers by using pagers programmed with common pager addresses which can be alerted as a single pager.

Database Preservation

A nonvolatile memory chip containing the system and subscriber programming settings has a battery that preserves memory for 4 years of power loss.

SAMPLE PROGRAMMING COMMANDS

General

- Initialize program memory
- Display invalidated pagers
- Set voice limits (4 values)
- Activate calibration modes
- Set security pass-code
- Set Morse code ID
- On/off mobile channel auto ID
- Set voice VOX (0-9.9 sec)

User Settings

- (In)validate pager
- Assign voice limit to pager
- Set radio zone for user
- Assign paging format to pager
- Set capcode for pager
- Set function code for pager
- Set tone groups and timing
- Copy user settings to a range of pagers (auto-increment capcode)

Voice Prompts Option

- Record new prompt
- Play voice prompt
- Erase voice prompt
- Erase all voice prompts

Talk-Back Option

- Set mobile for 1-way/2-way
- Set range for 1-way/2-way
- Call time limit (0-990 sec)
- Mobile activity (0-90 sec)
- Warning time (0-990 sec)
- Mobile hold (0-9.9 sec)
- Mobile originate on/off
- Mobile security code on/off
- Toll restrict 1-/0-/none
- Auto-dial telephone number
- VOX paging operation
- Phone VOX (0-9.9 sec)
- Simplex/half-duplex
- CAS or VOR mobile

MODEM/RS-232 PORT OPTION

An optional RS-232 card makes it possible for the Model 64 to communicate with an external computer or dumb terminal.

External Display Terminal

The modem/RS-232 option allows the Model 64 to connect to a terminal device either directly via an RS-232 port, or remotely via a 300/1200 baud modem. User-friendly menus guide the user through programming the Model 64. All of the programming commands are accessible through the terminal except for the voice prompt commands. DTMF programming remains unaffected by the addition of this option.

ZCU Communication Software Option

The ZCU software allows a standard IBM PC compatible to be used as the external display terminal, and can up/download the database in the form of a standard ASCII file. Please see the ZCU specification sheet for more information.

Call Counting Option

The Model 64 call counting option tracks the number of pages per subscriber. This is useful for billing based on the number of pages a subscriber receives. The call counts are downloaded via the ZCU software. These counts can be imported into the optional Zebra billing software, which provides a full accounts receivable system tailored for radio service providers. Please see the Zebra specification sheet for more information.

VOICE PROMPTS OPTION

The Model 64 can be equipped with an optional voice prompt card that gives verbal instructions to untrained callers, instead of the standard beep and tone prompts.

The operator can record these messages in their own language from any touch-tone telephone. High quality recordings make the prompts easy to understand, unlike some synthesized systems.

Typical voice messages might be:

1. Hello. You have reached a radio paging system.
2. At the tone, speak your message.
3. At the tones, key in your telephone number.
4. That number is not in service.

TALK-BACK OPTION

The talk-back option allows two-way communication between telephone (land line) callers and mobile radio users including: land line-to-mobile, mobile-to-land line, mobile-to-mobile, and mobile-to-pager calling. The Model 64 supports simplex and half-duplex radio stations with carrier or voice-operated audio switching.

The Model 64 provides pulse dial and regenerated DTMF dialing for mobiles equipped with DTMF keypads to make mobile-to-land line calls and signal pagers or other mobiles. Toll restriction can prevent mobiles from calling telephone numbers prefixed by "1" or "0". Even mobiles without DTMF keypads can place telephone calls. By quickly keying their PTT twice the Model 64 automatically dials a preprogrammed number.

TELEPHONE INTERFACE

A choice of interfaces guarantees compatibility with any telephone system - central office or PBX. Up to three telephone interface cards can be installed, which each handle a separate line. There are two types of cards: Telco cards or Dual cards.

Telco Cards

The Telco card handles DID, end-to-end, and DTMF Overdial type lines. Up to three of these cards can be installed in a system. However, if more than one telephone line is used and any one is a DID line, the Dual card option should be installed.

Dual Cards

The Dual card handles telephone company DID lines (either immediate or wink start), or PBX lines (either loop start, E&M type I, ground start, or station). The Dual card connects to two central office DID or PBX trunk lines, or one line of each type. One of these cards can be installed in the system, and if desired, an additional Telco card can be installed.

Line Types

Selector level (DID) input is most commonly used in RCC/PCP service from a telco central office. The caller dials a normal telephone number, and the last 2, 3, or 4 digits of this number are sent to the paging terminal automatically by the telephone company, selecting the particular subscriber to be paged. A single DID line can handle an entire block of 100 or 1000 subscribers.

The Model 64 answers calls to other types of lines (end-to-end, loop start, ground start, or E&M tie line) with a beep tone. The caller then keys in the pager number using a touch-tone telephone.

Dial Click Decoder Option

If the caller has a rotary (pulse-dial) telephone, the optional dial click decoder card is required. Note: The viability of dial click decoding depends on the type of telco central offices serving each of the callers and the paging terminal. Consult Zetron for specifics.

Tone-Only Call Storage Option

With the Dual card two callers on DID lines can access the system simultaneously because the card's own microprocessor answers the DID line and stores the last few digits of the subscriber's phone number while another paging call is already in progress. Tone-only calls are put in queue for transmission when the radio channel is available.

Model 103 Paging Entry Station Option

The Model 103 provides direct access for entering voice and numeric paging messages into the Model 64 paging terminal. It is a small desktop device that has a manual keypad, a gooseneck microphone, and an LED display. Up to three separate entry stations can be connected to the Model 64. Please see the Model 103 specification sheet for more information.

BEEP PROMPTS

Prompt Tones	Meaning to Callers
Single beep	Ready for pager number or voice message
Double beep	Talk-back time limit warning
Triple beep	Programming settings failure
Constant beep	DAPT-Plus hardware failure
3 Quick beeps	Ready for display message
Chirp	Ready for programming command
Ringing	Paging terminal busy
Uneven ringing	Radio channel busy
Quick beep	Ready for next program value
Busy tones	Invalid client number, error, or paging complete

Operator Override

Normally, while one caller is being serviced, the system supplies ringing tones to other callers attempting to access the system. In emergencies, a switchboard attendant can override any call in process.

RADIO INTERFACE

The Model 64 interface signals select radio modulation mode, carry audio tones and voice, handle digital paging data, provide push-to-talk keying, inhibit paging when the radio channel is in use, and activate audio switching from two-way mobiles. In addition, transmitter control signals are flexible enough to connect to a wide variety of network and remote transmitter controllers, simulcast controllers, or dispatch consoles. The Model 64 is rugged enough to withstand the rigorous environment of radio sites. Most installers co-locate the paging terminal with the radio equipment and run the telephone lines to the radio site.

Remote Transmitter Control

In situations where co-locating the paging terminal with the transmitter is not practical, the Model 64 can operate a remote transmitter through a control link such as RF, microwave, or telephone. Control equipment at each end of the link combines the audio, keying, modulation mode, and digital data into a composite signal for transmission through the link.

Zetron's Model 33 Paging Network Controller can be used to remotely control the transmitter(s) via a wireline, microwave, or RF link. The Model 33 uses the industry standard Motorola PURC[®] protocol. Zetron's Model 66 Transmitter Control Unit can be used in conjunction with the Model 33 to remotely control the transmitter(s). Please see the Model 33 and 66 specification sheets for more information.

Zone Addressing

Wide-area paging systems can be designed to avoid the expense of simulcast equipment. By arranging the geographical paging area into zones that do not overlap, the central paging controller can select each zone in sequence and reach all paging subscribers.

Or if necessary, simulcast transmitters can be used. With zone addressing, the Model 64 gives access to subscribers in four different geographic radio zones. Each pager can be programmed for zone coverage in any one of the four radio zones. In addition, the zones may be sequenced for transmission in any two of the four radio zones for even greater coverage.

Pager Formats

Analog capable transmitters are able to handle conventional tone and voice signaling such as 2-Tone, 5/6-Tone, 2805Hz, and DTMF. Some display pagers also operate on analog transmitters - HSC and Multitone. Newer pagers such as POCSAG and Golay Sequential Code (GSC) type pagers require true direct-FM FSK digital transmitters. Even though some

transmitters are designed for DPL/DCG signaling, they may not be able to handle the unbalanced modulation of digital paging data. Be sure to ask the transmitter manufacturer if the radio is direct NRZ FM.

Mobile Channel ID

The Model 64 can be field-programmed to monitor activity on its radio channel from mobile subscribers. Following activity, the terminal transmits the Morse code station ID to maintain FCC compliance.

SPECIFICATIONS

GENERAL SPECIFICATIONS

Call Capacity	200 or 1000 users
Signaling Formats	2-tone Motorola, G.E., Reach 5/6-tone EIA, ZVEI, CCIR, CCITT HSC display and voice POCSAG (512 Baud) digital display GSC digital display and voice 2805 Hz mobile DTMF mobile
Morse Code ID	1024 Hz at 20 words/minute Field programmable 15- or 30-minute intervals 0 to 8 characters long
Transmitter Zones	4 zones, sequencing of 2
Power Supply	120/240V AC +/- 15%
Operating Temp.	0 to 65 degrees Celsius
Size	3.5"H x 16"W x 10.5"D
Weight	9 lb.

SIGNALING SPECIFICATIONS

Frequency Range	200Hz to 3500Hz
Amplitude Stability	+/-1.0dB maximum
Tone Freq. Accuracy	+/- 0.1%
Tone Freq. Stability	+/-0.005%

TELEPHONE INTERFACES

Type (field-configurable)	End-to-end DID, immediate dial or wink start PBX ground start PBX loop start trunk PBX E&M tie-trunk Type I Local Touch-Tone telephone Rotary dial click detector
Connector	RJ11-C modular
Answer Delay	Programmable (0 to 7 rings)
Forced Disconnect	8-second time-out on end-to-end PBX may require trunk access VOX time-out (programmable)
Protection	High voltage varistors
FCC Registration	Part 68, complies with FCC Part 15

TRANSMITTER INTERFACE

Audio Output	Balanced 600-ohm, 0 to 5V pk-pk Single ended 0-300 mV pk-pk
Control Relays	1 Amp rating at 26V AC PTT analog DPDT, PTT digital DPDT
Digital Data	Bipolar RS-232, programmable polarity
Digital Mode	12V logic, polarity jumper selectable
CAS/COR input	Voltage level or contact closure, 0.5V threshold, polarity jumper selectable
Zone Select	Open collector, binary select
Transmitter Request	RS-232 logic, programmable polarity
Transmitter Busy	Voltage or contact, polarity jumper selectable
Connector	Detachable screw terminal strip(s)

RECEIVER INTERFACE

Base Station	Simplex or half-duplex
Audio Switching	Mobile carrier control Simplex smart VOX COR or voice operated Programmable hold (0-9.9 sec)
Receive Audio Input	Unbalanced, range select jumper Level 0.15V to 20V pk-pk (-23dBm to +19dBm)
Two-Way	Landline-to-pager or mobile Mobile-to-landline, pager, or mobile Programmable enable per subscriber or range of subscribers Origination enable/disable Connect on key-up, "*", or "*" + 3-digit code Disconnect code "#" Programmable limit (0-990 sec) Programmable activity (0-90 sec) Programmable warning time
Call Placement	DTMF to 10 pps conversion DTMF direct dial through DTMF regeneration (150/50 ms on/off) Toll restrict 1- or 0- enable/disable Emergency dial with 2 PTT clicks

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