

Dial Access Paging Terminals for Display Pagers**DAPT ALPHA****FEATURES****Paging**

- 5,000 or 10,000 subscriber capacity
- Supports all popular digital paging formats
- Canned alphanumeric messages
- Flexible programming of pager groups
- Priority paging with live breakthrough
- Subscriber call counts
- System logs record details of every page sent

Telco Interface

- Support for alpha modem and numeric message entry on every telephone interface
- Two telephone interfaces (expandable to four)
- Configurable for a variety of telco line types

Radio transmitter control

- Remote transmitter tone control
- 16 transmitter zone addresses
- Sequential paging for up to 4Tx zones
- Transmits morse code station ID

Miscellaneous

- Easy on-screen programming with PC
- Total operator control of system settings
- Programming via any dial up line
- Telephone line and radio channel traffic statistics
- Call counting/accumulation
- System alarm output

OPTIONS

- Dual telephone interface card
- Dial click detector
- MF (Multi Frequency) telco signaling decoder
- Floppy disk backup
- TNPP networking interfaces
- TAP Outdial interfaces
- Parallel printer port for page logging

INTRODUCTION

The Model 640A DAPT ALPHA paging terminal is a powerful and inexpensive paging terminal that is ideal for high-throughput alphanumeric paging applications. The Model 640A DAPT ALPHA is a dial-access paging terminal designed to provide advanced features for systems with moderate capacity requirements. The DAPT ALPHA units offer exceptional value by providing a powerful system in a compact package at an attractive price. What makes the DAPT ALPHA units so powerful is a wide range of standard features - features that are costly options with other paging terminals.

With the DAPT ALPHA's power comes flexibility. The rich feature set means that the basic unit is suitable for almost any application. Specific configurations, such as telephone interface signaling and transmitter control parameters, are easily set in the field. Other functions automatically adapt to the requirements of the moment. For example, the telephone interface can handle numeric or alphanumeric message entry based upon which pager the user calls. Another example of this adaptability is access for system management: it can be connected either by modem through any dial-up line used for paging or by direct serial connection, depending on the method the system operator uses at the time.

APPLICATIONS

DAPT ALPHA's support for a large number of subscribers makes it ideal for wide-area paging systems that require multiple operators entering alphanumeric pages. Call counts and traffic statistics allow the operator to monitor system usage. Remote transmitter control is provided for wide area coverage. For ventures with multiple service areas, the TNPP interface option allows the DAPT ALPHA to network with paging terminals in other locations.

Paging Formats

All the popular paging formats are supported by the DAPT ALPHA. The terminal comes with HSC, Golan, POCSAG, Multitone, and NEC D3 formats. Formats other than those shown may be available, please contact Zetron for additional formats.

Alphanumeric Paging

The demand for alphanumeric paging services is continually growing. Because of this rising demand, the DAPT ALPHA has been designed to support a variety of alphanumeric input methods. Every telephone interface on the DAPT ALPHA is equipped with a modem so that it can process calls from remote alphanumeric entry devices.

Alphanumeric messages can also be accepted from a number of different devices, including dedicated alphanumeric entry stations, personal computers running alpha paging software, nurse call systems, and automated monitoring systems, connected both locally via serial cable and via modem. See the sections on "TAP paging" and "TNPP networking" for additional information about remote alphanumeric page entry.

The DAPT ALPHA also supports direct operator entry of alphanumeric messages from a VDT or PC. Its user friendly interface displays the user name, alerts the operator when a numeric-only pager is selected, and lets the operator edit the message if it exceeds the maximum length for that pager.

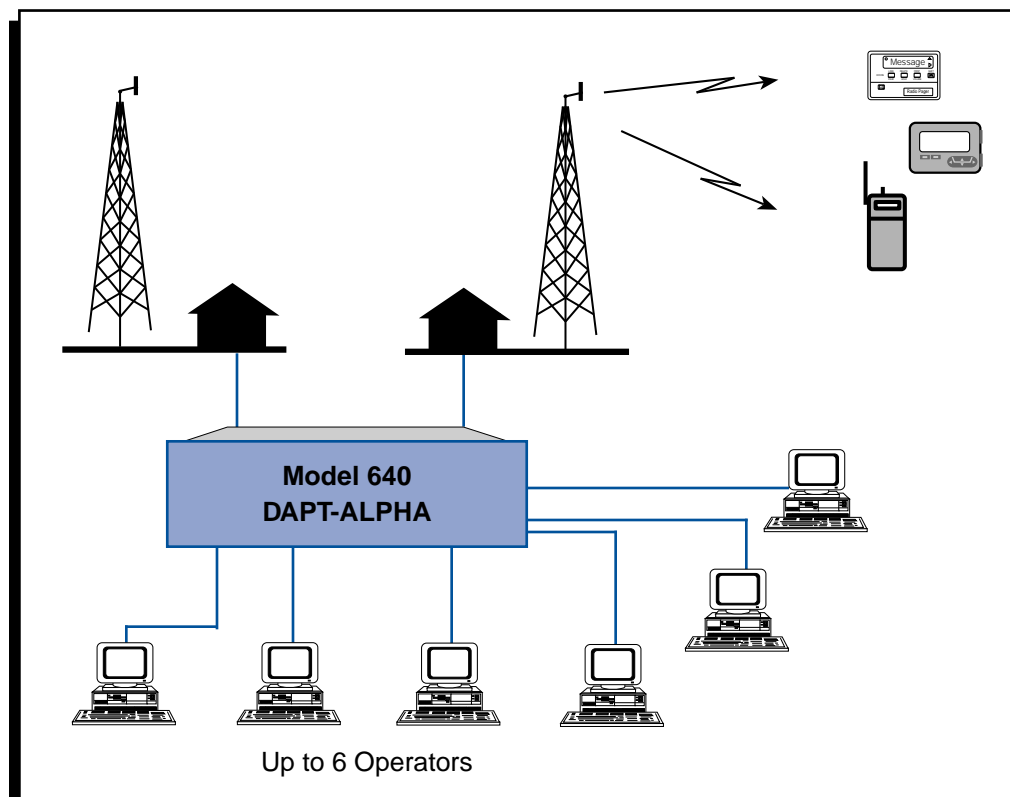
For cases when alphanumeric paging is desired but no entry device is available, the DAPT ALPHA allows the caller to use the DTMF keypad of the telephone to "speed dial" any of up to 100 canned alphanumeric messages that have been programmed by the system operator. The caller can include more than one canned message in a page, and can even insert numbers among the alphanumeric messages that are selected. In addition, alphanumeric text can be spelled out using any DTMF telephone key pad.

Priority Paging

Six levels of paging priority are supported, including "next out" and "breakthrough". These priorities can be assigned both on a per-pager and on a per-interface basis. This allows key pagers to be set so that they are always the next out regardless of current traffic. The interrupted page is stored and resent after the emergency page.

Group Paging

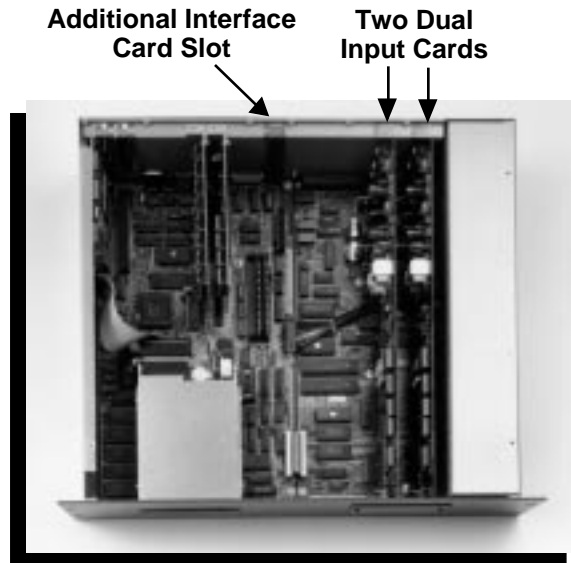
Group paging is supported both for specific formats, such as two-tone group call, as well as for formats that do not inherently have group call capability. This feature supports 50 groups of 10 pagers each. Each group can mix dissimilar pager formats. For maximum flexibility, a group can be a member of another group, and an individual pager can be in several groups at once.



INTERFACE CARDS

The DAPT ALPHA comes with one Dual Input card that can be field-configured as either an RS-232 serial connection (typically to support TAP) or a telco line. A second Dual Input card can optionally be installed.

Another interface card slot can optionally contain any one of the following: (1) A TNPP card to support networked paging terminals. (2) A dedicated high-speed serial TAP Input. (3) A dial up TAP Output to another paging terminal's TAP input.



Telephone interface

Telco line types

Direct Inward Dial (DID) or E&M input from a telco central office is most commonly used by wide area service providers. The caller dials a telephone number, and the last 2 to 7 digits of this number are sent to the terminal automatically by the telephone company, selecting the particular subscriber to be paged.

Other types of lines (end-to-end, loop start, or ground start) are answered with a beep tone and/or voice prompt. The caller then keys in the pager number using a touch-tone telephone. In-plant systems often use these line types from their PABX.

The Dual Input card handles telephone company DID lines (either immediate or wink start), end-to-end, and DTMF Overdial line. It also handles PBX lines (either loop start, E&M type I, ground start, or station). For applications that require E&M 4-wire audio lines, a different card can be supplied. Since these telephone interfaces (except 4-wire audio E&M) can be easily configured on-site, the DAPT ALPHA prepares the system operator for future changes in the phone system.

With its display page storage, the DAPT ALPHA can process calls on all lines at once. This reduces the number of busy signals confronting callers and increases the overall efficiency of the terminal.

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 specific applications.

Dual multifrequency decoder (option)

Most Telco trunks to a customer use Dual Tone Multi-Frequency (DTMF) signaling. However, in some instances, Multi-Frequency (MF) lines may be supplied by the phone company. This option supports MF for both trunks on a Dual card.

TAP paging (option)

Early in the development of paging terminals, a standard protocol for sending alphanumeric pages to a paging terminal was developed by Motorola and IXO called Telocator Alphanumeric Protocol (TAP).

TAP interfaces of 300 or 1200 baud are supported by the Dual Input card when it is configured for either serial or telco ports. The telco lines have alphanumeric messaging input modems which handle TAP when the DID number dialed by the caller is configured for TAP. In addition, a dedicated Dual Serial Card can be installed which supports 2 serial TAP interfaces up to 9600 baud.

The outdial TAP Interface module is intended for sending small to medium volumes of display pages from one terminal to another. It may be used to extend the coverage region for some users of an in-plant paging system, by calling up an external paging service with an "Alpha" port.

TNPP Networking (option)

The need to tie paging terminals together in a network is as old as the radio paging industry itself. The industry standard for networking paging terminals, TNPP, uses packets of data that are distributed among terminals in a network. A packet can contain the address of the destination paging terminal(s), the information about the page itself, error-checking information, and other elements necessary for communication. A paging terminal that receives a packet can tell which pages to transmit, which ones to pass along to other terminals in the network, and whether any information has become corrupted. A typical packet transfer takes place in less than a second. With duplex systems, communication between terminals ensures that any failure to deliver a packet is reported and corrected.

TNPP networking is made possible with either the Unidirectional TNPP Interface Card (for satellite downlink) or Bidirectional Dual TNPP Interface Card (for full-duplex, land-based networks). The Unidirectional TNPP Network Interface Card comes with 1 input port. The Bidirectional TNPP Network Interface Card comes standard with 2 ports.

PAGING TRANSMITTER INTERFACE

Direct transmitter control

For direct control of a paging transmitter, digital outputs from the DAPT ALPHA can modulate the FSK (frequency shift keying) input of the paging transmitter and change its modulation between analog (AC) and digital (DC) modes.

Remote transmitter control

The DAPT ALPHA is capable of controlling remote transmitters by encoding the paging site address, analog/digital mode, and transmitter key-up information as audio tones (Motorola PURC® tone protocol) which can be sent over telephone lines or a radio link.

Zetron's Model 66 Transmitter Controller Panel can be used at the transmitter site for controlling transmitters that do not support the PURC® protocol. If a radio, microwave, or wireline control link is not available to connect the paging terminal to the remote transmitter site, the Model 63 DiaLink can be used to connect via a dial-up telephone line. Please see the Model 63 and Model 66 specification sheets for additional information.

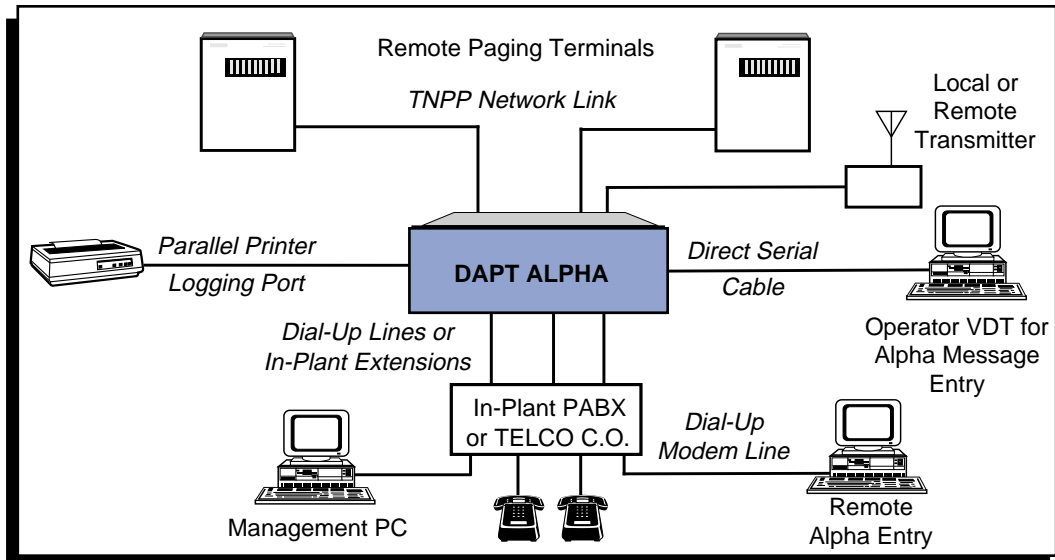
Zone Addressing

The DAPT ALPHA can individually select among 16 transmitter zones so that the system can send pages to specific

zones. Each page sent can be repeated up to four times, each time with a different zone address. This allows wide area coverage with multiple transmitters without the expense of simulcasting equipment.

Shared channel support

Some paging channels are shared with co-channel carriers or mobile subscribers. In these systems, it is necessary for the transmitter sites to notify the paging terminal when the channel is clear for transmission. The DAPT ALPHA recognizes the COR/CAS signal (from a receiver monitoring the frequency) sent back to the terminal. The paging terminal stores and sends pages destined for that zone once the "busy signal" is cleared.



SYSTEM MANAGEMENT

In the area of programming and data retrieval, the DAPT ALPHA provides an effective combination of power and ease of use. The terminal can be programmed with a PC or video display terminal, which can access the terminal either through a direct serial connection or via modem through any of the phone lines used for paging. Because the system can be accessed via phone line, factory support technicians can easily call the system to resolve any issues that may arise. The on-screen menus are kept simple so any clerical person can be quickly trained in basic operations such as adding or deleting pagers. For fine tuning system operation, the DAPT's software replaces confusing DIP-switch settings and cryptic file editing with straight forward menus.

Even though the DAPT ALPHA is easy to manage, a wealth of information is available to help monitor system activity. Subscriber call counts can be sorted and

displayed according to frequency of use so that the system operator can spot pagers that are over used or under used. To alert system operators to potential degradation of service levels before they become problems for the users, traffic statistics are available to report the levels of trunk activity and radio channel loading. A PC can be used to retrieve system logs which show records of events in the system, including the date, time, ID number, and type of pages the system sends. The DAPT ALPHA is also equipped with a system alarm output so that system faults, such as a power failure or automatic system reboot, can be signaled to an external alarm.

Parallel printer port (option)

The parallel printer port will allow the DAPT ALPHA to print a log of all pages processed by the terminal.

ZETRON SUPPORT

Because providing the best customer support possible is a top priority at Zetron, extra efforts ensure that system operators have the resources available to properly manage and maintain their DAPT ALPHA units. This helps to prevent problems and minimize down time if a problem does occur. Emergency support is available around the clock, so that factory response to critical problems is never more than a few minutes away. A Spare Boards Kit is offered to make replacing damaged boards in the field a quick and easy process.

Factory training is available for in-depth knowledge of the DAPT ALPHA architecture, programming, installation, and maintenance.

RELATED ZETRON PRODUCTS (OPTIONAL)

Many Zetron products work in concert with the paging terminals. Integration of Zetron products can benefit the system operator in three ways: by making system design simpler with applications expertise; by making implementation smoother; and by making support easier through use of a single manufacturer.

Model 55B Page Buffer

The Model 55B stores pages received from a terminal for later transmission. The Model 55B can monitor a COR input at the transmitter site to prevent transmission of pages when the frequency is busy.

Model 55D Digital Repeater

The Model 55D extends paging range for POCSAG digital pages when it is connected to a receiver and transmitter tuned to the paging frequency. 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 and a second link frequency.

Model 61 Network Access Paging Encoder

The Model 61 receives TNPP data via an RS-232 port from a satellite downlink, wireline, or radio link, encodes pages into POCSAG or Golay format, and batches them for transmission. Its internal buffer and COR input makes it ideal for remote sites that need to monitor for co-channel activity before paging.

Model 62 Simulcast Delay Unit

The Model 62 provides a low cost, precise, adjustable analog delay for simulcast configurations. It assures the audio modulation is identical for each transmitter by delaying the audio signal to compensate for different link propagation paths.

Model 63 DiaLink

The Model 63 makes it possible to control remote transmitters via a dial-up telephone line. Up to 16 remote sites can be controlled using a single base unit. This allows carriers to reach areas where radio and wireline links are unavailable or too costly.

Model 66 Transmitter Control Panel

The Model 66 interfaces with most transmitters on the market and accepts remote control tone signaling from the terminal. It can be equipped with a Transmitter Address Decoder option for multiple zone addressing, and a Simulcast Delay option for simulcast applications.

The Model 66 is also recommended for in-plant applications where a single transmitter is located more than 30 feet from the terminal. The Model 66 provides electrical isolation and reduces installation costs because only a two-wire interface is needed between the terminal and the transmitter location.

Model 68 Transmitter System Controller

The Model 68 interfaces directly with the radio channel output of a terminal to steer transmitter control signals to up to 16 separate interfaces. This allows a combination of RF, wireline, and microwave links to be controlled from one radio station card output.

Alarm Monitoring Systems

Zetron's alarm monitoring systems (M1512, 1514, 1550 and 7030) can initiate display and voice pages to a terminal whenever an alarm condition is met.

Model 1515 VeriPage

The Model 1515 continually monitors a paging system and verifies accurate operation of the terminal. If any VeriPage page is initiated, but not received, voice messages and/or pages can be sent to another phone number to alert operators of the malfunction.

Alphanumeric Page Software

The following programs send alphanumeric pages to a paging terminal. Connected to the paging terminal is via direct RS-232 connection or via modem.

AlphaZ supports an operator on a single PC.

AZNET supports multiple users on a network of PCs.

ZAPP! software is designed for use by multiple numbers of PC operators entering messages.

Epage adds paging capabilities to a network server by converting standard Email into alphanumeric pages and sending them to a paging terminal.

Pagem is a utility program designed to be used with existing application software, such as dispatching, event/alarm monitoring, or electronic mail programs.

ZEBRA Billing Software

ZEBRA is Zetron's invoicing and accounts receivable system. It imports data from the paging terminal and generates invoices which are tracked in the accounts receivable records for each customer. Several rate structures (flat-rate or per-usage) can be used to support multiple service packages sold by the operator.

DeadBolt Surge Arrestor

The DeadBolt can be installed on any phone line that leads to a valuable electronic device to protect against surges, lightning, and powerline cross. It also suppresses line-related UHF and VHF interference.

SPECIFICATIONS

GENERAL

Call Capacity	5,000 expandable to 10,000*
Signaling Formats	HSC; Golan; POCSAG 512 and 1200 baud, NEC D3; Multitone Mk IV/V/VI

* Note: Subscriber capacities of more than 1,500 can only be supported when pages are entered by operators through the serial port input. The normal throughput limitations of dial-up telephone lines may result in excessively busy conditions if the 4 telco ports are used to support more than 1,500 subscribers.

ALPHANUMERIC PAGING

Maximum characters	500
Protocols	TAP, manual VDT operator support

Modem Input

Number of interfaces	One modem per telephone interface (telephone interface can handle modem and tone/numeric traffic on a per-call basis)
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Modem type	Bell 103/212, Bell 212, CCITT v.21/v.22
Baud rates	300, 1200

Direct Serial Input

Dual Input card	Two interfaces (each Dual Input is field-configurable for either serial or phone line; configuring for a serial port disables phone line) - 300, 1200 baud
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Dual Serial port card	Two interfaces - 300, 1200, 2400, 4800, or 9600 baud
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Signals supported	TX, RX, GND
Connector	Male DB 9-pin

Canned Alpha Messages	100 field-programmable messages of 30 characters each, caller-initiated by DTMF telephone input
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Direct Serial Output (TAP Outdial Option)

Number of Interfaces	One
Baud Rates	300, 1200, 2400, 4800, or 9600 baud
Signals supported	TX, RX, GND
Connector	Male DB 9-pin

TELEPHONE INTERFACES

Number of interfaces	2, expandable to 4
Line types (field-configurable)	End-to-End; DID (immediate or wink start); PABX (ground or loop start); PABX E&M tie trunk type I; direct-connect local DTMF telephone
Input signaling	Pulse or DTMF
Options	Rotary dial click detector, MF Type 2A decoder
Line coupling	600-ohm transformer, adjustable balance duplex hybrid
Connector	Male RJ21

TNPP INTERFACE (OPTION)

# direct connections	2 (bidirectional), 1 (unidirectional)
# addressable nodes	32 inbound, 32 outbound
Network media	Programmable for dedicated wireline, packet radio, wireline packet network, satellite downlink (simplex receive)
Baud rates	300, 1200, 2400, 4800, 9600
Interface type	Serial RS-232, (TX, RX, GND)
Connectors	Male DB 9-pin

TRANSMITTER INTERFACE

Transmit audio	Balanced 600 ohm transformer, 250 Hz to 3500 Hz +/- 1 dB, selectable flat tone or -6dB per octave de-emphasis
Receive audio	Balanced 600 ohm transformer, adjustable level -20 dBm to +10 dBm
Format encoding	digital data stability +/- 2 ppm
Control relays	Analog PTT, digital PTT, auxiliary PTT
Digital data	RS-232 compatible, field-programmable polarity and timing
CAS/COR Input	Selectable polarity, TTL or contact closure
Transmitter request	RS-232
Transmitter busy	Selectable polarity, TTL or contact closure
Station ID	Field-programmable, Morse code at 1200 Hz and 20 wpm
Zone address select	4 binary outputs (for 16 zones), open collector, 40mA sink, up to 4 sequenced zones per page
Tone remote control	Motorola PURC® (analog-type), transmitter address knockdown tones
Talkback paging	2-tone and 5/6-tone encoding, half- and full-duplex base stations

SYSTEM MANAGEMENT

Modem access	1200 baud, accessible through any dial-up telephone interface
Direct serial access	300, 1200, 2400, 4800, 9600 baud male DB 9-pin connector
Programmable pager groups	50 groups of 10 members each, groups can be members of other groups
System log paging records	Date, time, input port, pager ID, type of page length, contents of numeric page
Traffic statistics	Trunk busy time on hourly basis, page queuing wait time on hourly basis, maximum and average values, 7-day history

PARALLEL PRINTER PORT (OPTION)

Connectors	Female DB 25-pin
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PHYSICAL

Dimensions	5.25"H x 17"W x 15.5"D with 19" rackmount ears
Weight	16 lb.
Power Supply	110/240 v AC +/- 15%, 50-60 Hz, 80 w

ENVIRONMENTAL

Operating temp.	Without floppy disk: 32 - 122 °F (0 - 50 °C) With floppy disk: 41 - 113 °F (5 - 45 °C)
Humidity	Without floppy disk max. 90% non-condensing With floppy disk max. 80% non-condensing

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