

# **OPERATING INSTRUCTIONS**

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# RAYMER MODEL ZP-3A ZONE PAGE CONTROLLER

| ENAVINEE  MODEL ZP-3A  ZONE PAGE CONTROLLES - 3 ZONES AND ALL-ZONE  1   2   2   2004 |  |
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|                                                                                      |  |

#### SPECIFICATIONS

#### INPUT:

IMPEDANCE - 600 ohms — MAX. LEVEL - +4dbm — MAX. D.C. - 50ma

## OUTPUT:

IMPEDANCE - 600 ohms (Single Zone) — 150 ohms (All Zone)

INSERTION LOSS: - 3db @ 600 ohms — -2db @ 150 ohms

FREQUENCY RESPONSE: - ±2db 300 - 8000Hz

### RELAYS:

ACTIVATE FREQUENCY: - Zone 1 697Hz — Zone 2 770Hz — Zone 3 852Hz — All Zone 941Hz ACCURACY - ±2%

CONTACT RATINGS - AC 50VA — (RESISTIVE LOAD) - DC 30VA

CONTACT RATINGS - AC 20VA - (INDUCTIVE LOAD) - DC 10VA

#### RESET:

EXTERNAL - Switch Close DIAL TONE - 350Hz ± 5% SILENCE DETECT - 3-30 SEC (Adj.)

## POWER REQUIREMENT:

120V. AC 60Hz .13A or 24V. DC 400 ma

## SIZE AND WEIGHT:

WIDTH: 10%" — HEIGHT: 6-%" — DEPTH: 3-%" — WEIGHT: 3 lbs.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

## DESCRIPTION

The Model ZP-3A Zone Page Controller expands a 600 ohm paging output port from a phone system, (or suitable paging adaptor) to three zones and all-page, as selected by means of the tones from the touch pad on the phone used as the paging source.

Zone control by the ZP-3A is made by means of three separate relays with double pole-double throw contacts. These may be connected to switch either amplifier inputs or outputs as needed to meet the requirements of the specified installation. The audio signal input and output of the ZP-3A in the "zone" mode is through a 1:1 coupled 600 ohm transformer. This circuit may be used for either oneway or two-way paging. In the "all zone" mode, this transformer output is amplified to provide the 150 ohm source necessary to drive all three zones and may only be used as a one-way paging port.

Access time to the paging output is automatically terminated by the dial tone, otherwise, the access time is limited by a voice activated circuit which resets the unit 3 to 30 seconds after voice communication stops. Ambient line noise and dial tones are automatically muted when not paging.

The Model ZP-3A is housed in a sturdy wall mounted steel cabinet 10-½" wide by 6-¾" high by 2-¾" deep with two metal flanges which permit surface wall mounting. A hinged service cover allows access for installation and adjustments. The entire unit is finished in a beige color baked enamel. Weighing only 3 lbs., the ZP-3 controller operates from 120 volts AC 60Hz with a power consumption of 16 watts or 24 Volts DC @ 400 ma.

## UNPACKING

The unit should be removed carefully from the carton and inspected for any possible damage in transit. If there is any evidence of damage which might have occurred in shipment, immediately notify your supplier or the transportation company which delivered it. Claims for damage sustained in transit must be made upon the carrier. Save all packing material for the claim agent who will supply you with the proper forms and give you the necessary instructions for filling out a claim.

NOTICE— Carton contains both ZP-3A unit and power pack. DO NOT discard packing material until you have removed power pack from box marked "POWER SUPPLY INSIDE".

#### INSTALLATION

The unit may be secured to a flat mounting surface by the use of #6 screws through the holes provided in the mounting flanges. Do not store or operate the unit in areas where the ambient temperature exceeds 140 degrees F.

Since the ZP-3A contains an audio transformer, it should not be mounted in close proximity to equipment which generates a strong magnetic field such as power transformers or motors. This field will be induced into the unit and appear as hum or noise in the output of the amplifier to which it is connected.

To make circuit connections to the ZP-3A, the circuit board must be exposed. To do this, loosen the four screws on the sides of the unit and hinge the cover upward. The input, output and relay connections are made by means of the screw terminal strips along the lower edge of the printed circuit board. For continued safety, return the cover on the unit and tighten the mounting screws when the installation is complete.

#### POWER CONNECTIONS

Power connections are made either by means of a 3.5 millimeter jack or screw terminals. The power pack provided with the unit is equipped with a matching 3.5 millimeter plug to simplify the power connection.

If 120 volt power is not available to operate the power pack, the unit may be operated from a 24 volt DC power source by using the screw terminals marked 24V. This voltage must not exceed 30V at any time and be capable of providing 400 milliamperes.

## INPUT CONNECTIONS

Input connections are made by means of two screw terminals on the face of the printed circuit board marked 600 ohm input. This input is designed to provide a balanced 600 ohm termination for the paging access outport of registered equipment such as a PABX or switchboard. Such equipment contains the protective circuitry as required by the FCC and has the appropriate registration. When connected in this manner, no FCC number is required.

NOTE: THIS IS NOT TERMINAL EQUIPMENT AND MAY NOT BE DIRECTLY CONNECTED TO THE NATIONAL TELECOMMUNICATIONS NETWORK.

Before beginning the installation of the ZP-3A, make certain that the zone controller will be compatible with the telephone system. The audio signal from the paging port (or paging adaptor) MUST include both voice and the DTMF dialing tone. Rotary or pulse dialing will not activate the ZP-3A.

Compatibility may easily be tested by connecting a telephone line test set across the two wires intended for the input to the controller. While listening in the test set, have someone access the page and talk, then press the tone pad several times. Both the voice and the tone signals must be audible in the test set. In some phone systems the tones are inhibited from the paging port and the ZP-3A will not be compatible for zone control. In such a case, another output port must be used which does not inhibit the tone signals.

## **RELAY CONNECTIONS**

Before connecting the ZP-3A Zone Controller to any paging equipment, note that there are some restrictions which apply to the relay circuits for proper operation:

1) The maximum current rating of each relay contacts is 2 amperes at 24 volts DC with a non-inductive load. However, the maximum capacity of each contact is reduced to 20 volt amperes when AC voltage is operated into a inductive load. Therefore, the maximum wattage switched by each contact should be limited to 20 watts to prevent shortened service life of the relay. When switching loads greater than the relay contact ratings, use a Raymer Model RSP-1 Self Powered Relay to repeat the function of the ZP-3A contacts to switch a greater load.

2) Do not connect both the input and output circuits of an amplifier to the two switched contacts of the same relay. The feedback through the capacity between these circuits will cause the amplifier to go into oscillation.

#### WARRANTY NOTICE

DAMAGE TO THE RELAY CONTACTS IS NOT COVERED BY THE WARRANTY. POWER THROUGH THESE CONTACTS SHOULD BE LIMITED AS INDICATED IN THE INSTRUCTIONS.

## ZONE PAGING ARRANGEMENTS

There are a number of methods to achieve zone paging --- each depends on the functions required and the physical nature of the installation. The relay contacts of the ZP-3A may be wired in a variety of ways to provide zone selection by any one of three methods: 1) switching the output of an amplifier to the speakers in each zone; 2) switching the paging signal to the input of an amplifier in each zone, and 3) switching control circuits other than audio which activates zone equipment.

The advantages and disadvantages of each method should be evaluated in the initial design stage. Example: The cost saving advantage of using only one amplifier and switching its output may be out weighed by other considerations. These include the need for external relays on high wattage circuits, the necessity of very large wire on exceptionally long speaker runs, and background music interruption of non-page zones unless an additional music amplifier is included. On the other hand, the additional cost of separate paging units for each zone may be outweighed by the requirements of the installation. These would include the ability to use a phone pair to page over very long distances, or the ability to mix different types of functions in the same system such as talk-back amplifiers and background music receivers.

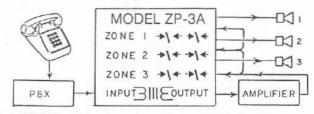


FIGURE 1: Basic application switches 3 speaker loads up to 20 watts each. Amplifier may be either paging only or talk-back type.

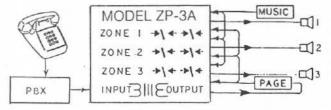


FIGURE 2: SEPARATE MUSIC SOURCE PREVENTS INTERRUPTION OF MUSIC IN ZONES NOT BEING PAGED.

## 1 DIGIT/2 DIGIT SWITCH

The 1 DIGIT position of this switch should be used on 2-way talkback systems where an alert tone is necessary. In this position the touch pad tone is not muted in the paging output and may be used as an alert signal.

When the switch is in the 2 DIGIT position the touch pad tne is muted. The switch should be in the 2 DIGIT position the touch pad tone is muted. The switch should be in th 2 DIGIT position in most installations to prevent the tone from being heard through the paging system.

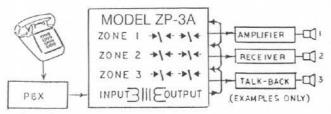


FIGURE 3: INPUT SWITCHING APPLICATION MAY BE USED WITH DIFFERENT TYPES OF PAGING EQUIPMENT WITH 600 OHM INPUTS.

## OPERATION

The first step in activating a zone page is to access the paging port by the normal method required by the phone system in use. In most cases this is a tone button code.

Other methods may include the use of the com line button on 1A2 key systems or direct access by non telco connected instruments by using the Raymer Model TAP as the talk battery. When the page port has been accessed, depress the tone button for the zone desired. Any button in each row will select a Zone

Zone 1 -- These are buttons 1, 2 & 3

Zone 2 -- Selected by buttons 4, 5 & 6

Zone 3 -- Selected by buttons 7, 8 & 9

Any button on the bottom row activates all three zones for ALL-PAGE. Use of the 0 is preferred because the \* and # are reserved for special functions in many systems. The phone is now connected as the paging source until any one of three disconnect functions occurs:

- There is silence on the phone line for a period of 3 to 30 seconds as preset by the TIME adjust on the circuit board.
- A dial tone is present because the paging phone is "hung-up".
- 3) The RESET circuit is activated by a switch closure from the phone system of as priority page arrangement.

When the page is completed and the zone paging relays reset, the audio output from the ZP-3A is automatically muted until the next zone page.

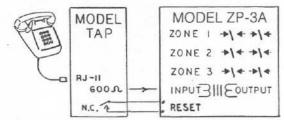


FIGURE 4: Model TAP provides talk battery for phones not connected to PBX or for Centrex application. Relay contact on TAP resets ZP-3 when phone is on hook.

#### MAINTENANCE

Properly installed the Raymer Model ZP-3A should give years of trouble free duty under normal operating conditions. Any service or repairs should be performed at the factory to insure continued proper operation. Units requiring service should be shipped freight prepaid to: Cetec Raymer, 7315 Fulton Ave., North Hollywood, CA 91605.

In the event that a relay fails, it may be replaced with a Cetec Raymer No. 095-0933-00 replacement part. These plug-in relays should be handled with care to prevent the pins from becoming bent and not seating properly in the socket. For safety purposes the power to this unit and all associated equipment should be disconnected while changing these relays or making any adjustments or connections to the unit. No other components on the ZP-3A are customer replaceable items. DO NOT remove any integrated circuit from its socket. Several C-MOS devices in the unit may be destroyed by the static charge caused from improper handling.

### WARRANTY

This unit has been very carefully inspected and is warranted to be free from defects in material and workmanship under normal use and service for a period of one year from date of sale to the original purchaser. This Warranty does not extend to any unit which has been subject to abuse, misuse, neglect, accident, improper installation, or alterations. The obligation of Cetec Raymer under this Warranty is limited to the repair of any defect in material or workmanship and/or the replacement of any defective part, provided the unit is returned to Cetec Raymer transportation paid within the year.

It is recommended that any unit on which service is required be processed, through your distributor or installation company wherever possible.

This Warranty is expressly in lieu of all other Warranties, expressed or implied, and of all other obligations or liabilities on our part. We neither assume nor authorize any other person to assume for us any other liability in connection with the products manufactured by Cetec Raymer.

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