

# The P-7 and P-8 Series

A New Keyboard Designed Exclusively For The Land Mobile Industry!

**P-7V** 12-Key Vertical DTMF-Encoder

**P-7H** 12-Key Horizontal DTMF-Encoder

**P-8V** 16-Key Vertical DTMF-Encoder

Pipo Communications' reputation for quality and reliability is reinforced with the P-7 and P-8 series — the first of their kind to be specifically designed with **steel keys** and **waterproof, dustproof sealed gold dome contacts**. This high-quality DTMF-encoder and keyboard is a new design for the demanding Land Mobile Industry. These units have been fully tested and are ready for a custom installation on radios or systems that are exposed to harsh or abusive environments.

## Features:

- STEEL KEYS
- WATERPROOF, DUSTPROOF SEALED GOLD DOME CONTACTS
- Miniature Design Fits Most Radios
- Miniature Electronics w/Output Level Adjustment
- Brass Inserts w/Stainless Steel Screws
- No RFI
- Wide Temperature Range - 22° to + 160°F
- Low Distortion — High Audio Output Will Drive Any Radio
- Wide Operating Range 4 to 16 VDC
- All keyboards come in black; available in dark brown for Standard Communications HX Series

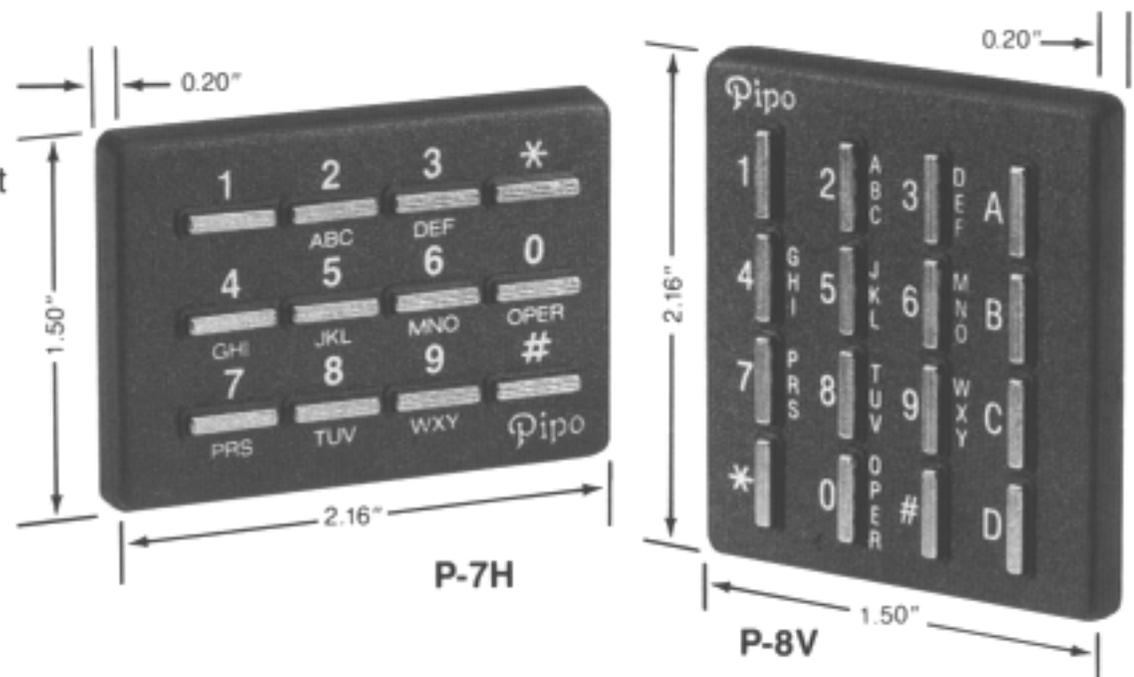
## Pipo Encoders Are Rugged & Reliable

Pipo Communications is in the business of manufacturing Touch-Tone Encoders of premium quality. Encoders are increasingly being used in critical situations such as emergency communications, military, RCC's, industrial installations and others where, we believe, encoder failure cannot be tolerated.

WORKMANSHIP is superior and QUALITY CONTROL is rigid.

Every encoder that Pipo manufactures will perform flawlessly when installed and for many years in the future.

SAME DAY SERVICE. Normally our units are delivered straight from stock and sent the same day you order. Orders of one to five units are shipped UPS 2nd Prepaid.



## Specification Sheet

P-7V     P-8V

P-7H

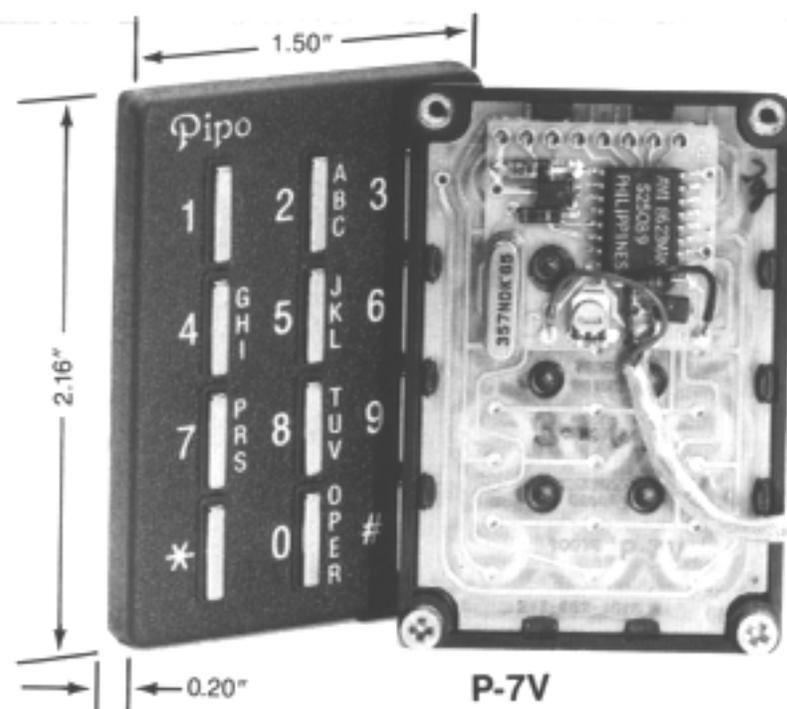
## Options

Keyboard and Electronics Detached

Flex Cable

1/2"    1.0"    2.0"    3.0"    6.0"

No Pins



Mail  
Order  
To:

**Pipo Communications**

*Emphasis is on Quality & Reliability*

PIPO COMMUNICATIONS  
1516 CASSIL PLACE  
HOLLYWOOD-CALIFORNIA 90028-7106  
323-466-5444

# DTMF Encoder Specifications

## Description

The P-7 is a 12 Key DTMF Encoder  
The P-8 is a 16 Key DTMF Encoder

Sealed Gold Dome Contacts and Steel Keys are the most reliable contact system available to tolerate high & low temperature extremes over a prolonged period of cycling. This is a demand that rubber keys cannot provide.

The P-7 and P-8 Series consist of a high quality keyboard and a miniature electronics circuit. They offer the choice of mounting the electronics directly behind the keyboard or in a remote location apart from the keyboard, without being subject to RFI. Flex cable is an option for remote mounting.

## Mounting

The P-7 or P-8 is supplied with mounting template and all necessary hardware for installation.

- Using the template, carefully select the encoder position.
- After the position has been selected, prepunch the object using the template as a guide. Drill carefully for the screws and cut out the hole for the miniature electronics.
- Use the stainless screws supplied (2/56" x 1/4") for fastening. Do not overtighten.

## Power Connections

P-7 & P-8

4-16 VDC @ 1 ma stby. 6 ma keyed @ 8V

Shield . . . . . Negative      Black . . . . . Audio Out  
Red . . . . . Positive

## Output

Connect the audio output (black) to the microphone or audio input of the transmitter. Output level to the transmitter is adjusted by the trimpot on the board. To adjust, use a miniature tool of the proper dimension. Output level is more than adequate to drive most transmitters. If more level is necessary bridge R3, the 51KΩ resistor with a 1KΩ. Maximum output is +2dB @ 600 ohms (3V PP).

- \* PIN 10 of the IC (eyelet +, on PC) will sink a max of 1 ma with a voltage drop of .2v w/ 3.5v supply @ pin 1.
- \* PIN 15 of the IC is used as a STI (single tone inhibit). To enable the STI cut the PC circuit from pin 15 to pin 1 on circuit side. UNIT IS NORMALLY STI OFF (PC NOT CUT).
- \* PIN 16 of the IC is Audio. A + Voltage is available for external drive. Use a diode for isolation (1N914). Voltage output is 3-4v @ 1 ma, w/7-9v @ Red Wire

Touch Tone® format frequencies are:

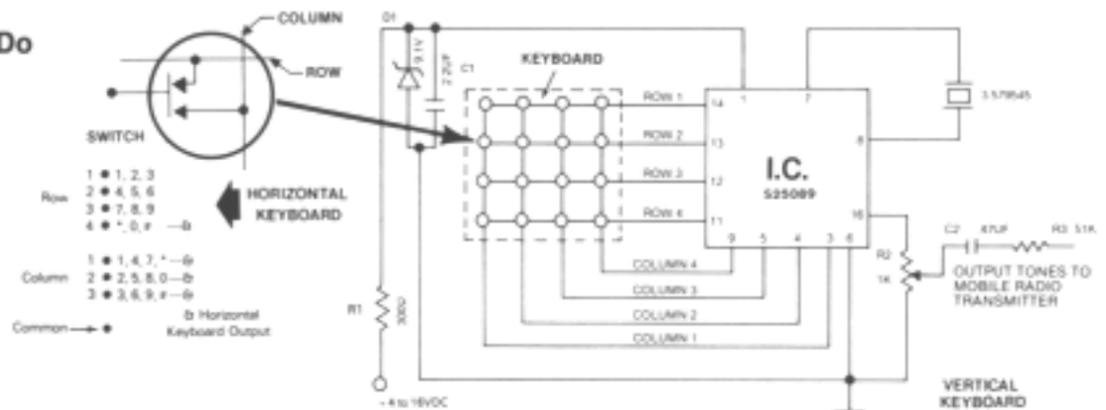
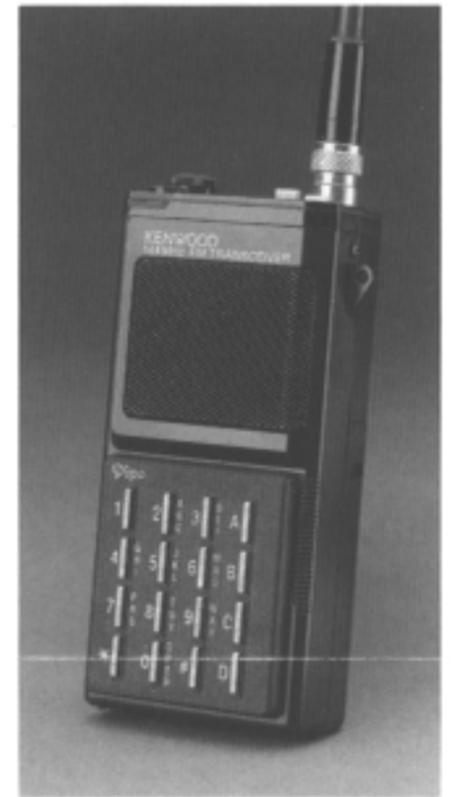
® AT & T

LOW TONE GROUP				HIGH TONE GROUP			
ROW	SPECIFIED	PIPO	% ERROR	COL	SPECIFIED	PIPO	% ERROR
1	697 Hz	699.1 Hz	+0.30	1	1209	1215.9	+0.57
2	770	766.2	-0.49	2	1336	1331.7	-0.32
3	852	847.4	-0.54	3	1477	1471.9	-0.35
4	941	948.0	+0.74	4	1633	1645.0	-0.73

Although encoder output frequencies differ by a small amount, it will function properly and reliably because it is within the maximum Bell tolerance of ± 1-1/2%.

## Service

Do Not use spray or contact cleaners. Contacts on the Keyboard are sealed. To clean, use only a damp cloth. All parts of the Pipo Encoder are replaceable. If repair or replacement is necessary, return the bad part or unit, please give a description of the problem to better serve you. Unit may be returned for repair via mail or UPS.



## Level Setting



NOTE: Not all transmitters have an audio gain control.

1. Set the IDC (Instantaneous Deviation Control) to ± 5 KHz. This is done by driving the transmitter into limiting by a loud whistle or tone at the microphone. Transmitter will not go higher than 5 KHz after the deviation is set to ± 5 KHz. Do not touch or disturb IDC or deviation control after it is set.
2. Some transmitters have an audio gain adjustment (do not confuse with the deviation control). Set this for your situation, depending upon background noise and your voice and microphone characteristics.
3. To set Encoder Output Level after all previous steps have been completed: Key transmitter, touch No. 2 and set output level control so the transmitter deviates ± 3 KHz. Your transmitter is now properly set.

For operation through a 2/3 system where tones will be repeated, set tone for 2.4 KHz deviation.

## Dimensions

