

# Pipo<sup>®</sup> Communications

Emphasis is on Quality and Reliability  
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## SMART DTMF ENCODER

### STEEL KEY MODELS

(9 Memories)

(w/PTT Relay & PTT Hold POT Adj.)

- PK-1K v6.5, 12 Key
- PK-2K v6.5, 16 Key
- PK-7VK v6.5, 12 Key
- PK-7HK v6.5, 12 Key
- PK-8K v6.5, 16 Key

### STEEL KEY MODELS

(99 Memories & ANI/ENI)

(w/PTT Relay)

- PK-1K ANI v6.5, 12 Key
- PK-2K ANI v6.5, 16 Key

### STEEL KEY MODELS

(9 Memories)

(w/PTT Transistor)

- PK-3 E1 v6.5, 12 Key
- PK-3 E1 v6.5, 16 Key
- PK-3 E2 v6.5, 12 Key
- PK-3 E2 v6.5, 16 Key

**FIRMWARE VERSION: 6.5**  
**HARDWARE VERSION: v6**

**COPY REVISION: 09/19/2024**  
**RELEASE DATE: 06/11/2018**

## FEATURES

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- DTMF MEMORY DIALING 9 MEMORIES
- DTMF STORE & SEND
- DTMF SINGLE TONE GENERATOR
- VARIABLE SINGLE TONE GENERATOR (50 HZ TO 5 KHZ)
- ONE TOUCH SEND (OTS)
- NO DTMF FREQUENCY ERROR
- WIDE VOLTAGE OPERATING RANGE (6 TO 26 VDC)
- WIDE TEMPERATURE OPERATING RANGE (-22 °F TO 160 °F)
- STEEL KEYS
- SEALED GOLD DOME CONTACTS
- WATER RESISTANT / DUST PROOF
- PTT KEYING RELAY W/POT ADJ. DELAY
- LEVEL OUTPUT POT ADJUSTABLE
- HIGH OR LOW IMPEDANCE OUTPUT
- PIEZO SIDE TONE

## CONNECTIONS

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### **PK-1/2K v6.5 – INPUTS/OUTPUTS**

#### WIRE:

RED ..... (J1-P1) ..... (+) 6-26 VDC  
GREEN ..... (J1-P2) ..... (-) GROUND  
BLACK ..... (J1-P3) ..... AUDIO OUT  
BROWN ..... (J1-P4) .... RELAY CONTACT\*  
BROWN/WHITE ..... (J1-P5) .... RELAY CONTACT\*  
(\*SPST 26 Watts 1A @ 26 VDC, Resistive Load)

(\*\*collector output goes low, 200 mA max @ 20 VDC)

#### CONNECTION:

#### JUMPER:

(JP1) ..... MEMORY DISABLE ..... (CLOSE)  
(JP2) ..... ST & SEND DISABLE ..... (CLOSE)  
(JP3) ..... HIGH IMPEDANCE ..... (OPEN)  
(JP3) ..... LOW IMPEDANCE ..... (CLOSE)  
(JP4) ..... PTT RELAY COIL ..... (CLOSE)\*  
(\*Installed)

#### PCB EYELET:

(G) ..... GROUND  
(M) ..... MIC MUTE TRANSISTOR\*\*  
(PTT) ..... PTT XMTR TRANSISTOR\*\*  
(\*\*collector output goes low, 200 mA max @ 20 VDC)

#### ADJUSTMENT:

(P1) ..... LEVEL OUTPUT POT ADJ.  
(P2) ..... PTT HOLD DELAY POT ADJ. (0 to 4 sec)



## INSTRUCTIONS

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### BASIC OPERATION

#### **DTMF LAST NUMBER REDIAL (LNR)\***

PRESS \* + # (TOGETHER) THEN RELEASE TO SEND.  
\*VOLATILE MEMORY, CLEARS WITH POWER OFF

#### **DTMF STORE AND SEND\***

**TO STORE:** PRESS \* + 0 (TOGETHER, TWICE), FOLLOWED BY NUMBERS TO STORE.  
**TO SEND:** PRESS 0 + # (TOGETHER), TWICE.

#### **DTMF MEMORY DIALING (1 TO 9 LOCATIONS, 30 DIGITS EACH)**

**TO STORE:** PRESS \* + 0 (TOGETHER), THEN 1 (FOR MEMORY 1 LOCATION) FOLLOWED BY THE NUMBERS TO STORE.

**TO STORE:** PRESS \* + 0 (TOGETHER), THEN 2 (FOR MEMORY 2 LOCATION) FOLLOWED BY THE NUMBERS TO STORE.

**TO SEND:** MEMORY 1 LOCATION, PRESS 0 + # (TOGETHER) THEN 1.

**TO SEND:** MEMORY 2 LOCATION, PRESS 0 + # (TOGETHER) THEN 2.

### SPECIAL FEATURES

#### **DTMF SINGLE TONE GENERATOR**

(PRESS 0 + 1 (TOGETHER) = 697Hz  
(PRESS 0 + 2 (TOGETHER) = 770Hz  
(PRESS 0 + 3 (TOGETHER) = 852Hz  
(PRESS 0 + 4 (TOGETHER) = 941Hz  
(PRESS 0 + 5 (TOGETHER) = 1209Hz  
(PRESS 0 + 6 (TOGETHER) = 1336Hz  
(PRESS 0 + 7 (TOGETHER) = 1477Hz  
(PRESS 0 + 8 (TOGETHER) = 1633Hz  
(PRESS 0 + 9 (TOGETHER) = 1000Hz

#### **VARIABLE TONE GENERATOR (50Hz TO 5kHz)**

PRESS \* + 0 + # (TOGETHER) FOR 3 SECONDS, THEN RELEASE. (STARTS AT 1kHz)  
PRESS \* TO DECREASE FREQ., PRESS # TO INCREASE FREQ. (50Hz INCREMENTS)  
PRESS 0 TO RETURN TO 1kHz TONE. PRESS ANY KEY TO EXIT FEATURE.

#### **VERISON ID**

PRESS \* + 1 (TOGETHER) FOR VERSION ID

#### **ONE TOUCH SEND (OTS) ACTIVATION**

TO ENABLE PRESS \* + # (TOGETHER) FOR 10 SECONDS, RELEASE AFTER DUAL-BEEP. ENTER 55 DUAL-BEEP THEN #.  
TO DISABLE PRESS \* + # (TOGETHER) FOR 10 SECONDS, RELEASE AFTER DUAL-BEEP. ENTER 54 DUAL-BEEP THEN #.

#### **OTS (1 TO 9 LOCATIONS, 30 DIGITS EACH)**

**TO STORE:** PRESS \* + 0 (TOGETHER), THEN 1 (FOR MEMORY 1 LOCATION) FOLLOWED BY THE NUMBERS TO STORE.

**TO STORE:** PRESS \* + 0 (TOGETHER), THEN 2 (FOR MEMORY 2 LOCATION) FOLLOWED BY THE NUMBERS TO STORE.

**TO SEND:** MEMORY 1 LOCATION, PRESS 1.

**TO SEND:** MEMORY 2 LOCATION, PRESS 2.

### SPECIFICATIONS

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POWER & CURRENT .....	w/Relay	6-26 VDC	>600 $\mu$ A stby	45 mA Operate
	w/Transistor	6-26 VDC	>600 $\mu$ A stby	8 mA Operate
TEMPERATURE .....	-22 °F to 160 °F			
MEMORY .....	9 Locations, up to 30 Digits Each, Store & Send, Last Number Redial			
MEMORY ANI Version .....	99 Locations, up to 30 Digits Each, Store & Send, Last Number Redial, End Wait & ANI/ENI			
AUDIO OUTPUT .....	Adjustable -2 dB Max @ 600 Ohms			
(unbalanced hi-Z audio output) .....	No Load = 0 dBm, 775 $\mu$ V, rms, 2v pp			
(unbalanced hi-Z audio output) .....	600 Ohm Load = -40 dBm			
(unbalanced low-Z audio output) ....	51k Jumped, 600 Ohm Load = +1 dB			
DISTORTION .....	Less than 2%			
HIGH SPEED SIGNALLING .....	5 dps (100/100 ms) *DEFAULT, 10 dps (50/50 ms), 20 dps (25/25 ms)			
PTT SEND DELAY .....	800 ms			
PTT HOLD DELAY .....	1 sec			

## USER LEVEL PROGRAMMING

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\*1 = 1 KHz Tone  
\*2 = CW/Morse ID Dot (.) (770Hz) (1 Time Unit)  
\*3 = DTMF "A"  
\*4 = CW/Morse ID Pause Between Letters (3 Time Units)  
\*5 = CW/Morse ID Dash (-) (770Hz) (3 Time Units)  
\*6 = DTMF "B"  
\*7 = SET TO CUSTOM SPEED  
\*8 = CW/Morse ID Pause Between Words (7 Time Units)  
\*9 = DTMF "C" \*\* = DTMF "\*"   
\*# = DTMF "D"  
\*\* = DTMF "\*"   
  
#0 = WAIT  
#1 = 20 DPS  
#2 = 10 DPS  
#3 = 5 DPS  
#4 = PAUSE 1-3-5 SEC w/PTT Drop (Time Set at TLP=34, 35, 36)  
#5 = PAUSE 1-3-5 SEC w/PTT On (Time Set at TLP=34, 35, 36)  
#6 = DIGIT EXPAND 200ms  
#7 = DIGIT EXPAND 2sec  
#8 = MEMORY CONNECT  
#9 = LONG PAUSE ADJ 1-4 MIN w/PTT Drop (Time Set at TLP=37, 38)  
## = DTMF "#"

### EXTRAS (WHEN USING MORSE CODE)

#3 = 12wpm (5 DPS) 1 Time Unit = 100Ms  
\*7 = 18wpm (CUSTOM SPEED) 1 Time Unit = 66.7ms  
#2 = 24wpm (10 DPS) 1 Time Unit = 50mS  
#1 = 48wpm (20 DPS) 1 Time Unit = 25Ms

\*Note: If OTS is Enabled (TLP=55) will not accept ULP Commands.  
If needed, program memory first with OTS Disabled (TLP=54).  
Once complete, Re-Enable OTS (TLP=55).00 ..... MANUAL SEND (DEFAULT)

## TECH LEVEL PROGRAMMING

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(\*+#) (10sec) = ENTER TECH LEVEL PROGRAMMING

(#) = EXIT TECH LEVEL PROGRAMMING (or wait 10 seconds, exits automatically)

00 ..... MANUAL SEND (DEFAULT)  
01 ..... AUTO STORE & SEND: Sends 2.3 sec after the last entry.  
02 ..... HI TONE 0dB (FLAT)  
03 ..... HI TONE +2dB (DEFAULT)  
06 ..... AUDIO OUTPUT DELAY: Delay between PTT & AUDIO OUTPUT, for MANUAL DIAL only.  
06 sets to 0 ms (DEFAULT)  
Each 6=200 ms, 2 sec max.  
When pressing keys, the AUDIO OUTPUT DELAY occurs on the 1st digit only.  
Each digit thereafter has no delay. Resets to DELAY function after 2.3 seconds  
of no key action. Does NOT delay PTT.  
07 ..... MANUAL DTMF OUTPUT TIME: CONTINUOUS (DEFAULT)  
08 ..... MANUAL DTMF OUTPUT TIME: 200 ms  
09 ..... MANUAL DTMF OUTPUT TIME: 500 ms  
17 ..... PTT AUDIO OUTPUT DELAY ADJ: DELAY after PTT, for all ANIs, MEMORIES & LNR.  
17 clears PTT Delay to 0 ms (DEFAULT=800 ms)  
Each 7 adds 200 ms, 3 sec max.  
18 ..... PTT KEY HOLD DELAY ADJ: MANUAL DIAL ONLY  
18 Clears PTT Delay to 0 ms (DEFAULT=1.0 sec)  
Each 8 adds 500 ms, 10 sec max.  
TLP=18 Disabled on Models with a PTT HOLD POT  
20 ..... SOUNDER: OFF  
21 ..... SOUNDER: LEVEL LOW  
22 ..... SOUNDER: LEVEL HIGH (DEFAULT)  
23 ..... SOUNDER: SINGLE TONE (DEFAULT)  
24 ..... SOUNDER: DTMF  
30 ..... DTMF SPEED: CUSTOM SPEED, Time Set at TLP=40 Off & TLP=41 On  
31 ..... DTMF SPEED: 20 dps  
32 ..... DTMF SPEED: 10 dps  
33 ..... DTMF SPEED: 5 dps (DEFAULT)  
34 ..... PAUSE DELAY: 1 sec (DEFAULT)  
35 ..... PAUSE DELAY: 3 sec  
36 ..... PAUSE DELAY: 5 sec  
TLP=34, 35, 36 Time Set for ULP=#4 w/PTT Drop & ULP=#5 w/PTT On  
37 ..... LONG PAUSE DELAY: 1 minute (DEFAULT)  
38 ..... LONG PAUSE DELAY: 4 minutes  
TLP=37, 38 Time Set for ULP=#9 w/PTT Drop  
40 ..... CUSTOM SPEED: (Time OFF): Ex: 400015 = 15 ms Tone Off (max time 9999ms=10sec)  
41 ..... CUSTOM SPEED: (Time ON): Ex: 410124 = 124 ms Tone On (max time 9999ms=10sec)  
with TLP=30 Enabled  
42 ..... Disable PTT & Sidetone  
43 ..... Enable PTT & Sidetone (DEFAULT)  
54 ..... Disable OTS (One Touch Send) (DEFAULT)  
55 ..... Enable OTS (One Touch Send)  
80 ..... DTMF TONE TEST SHORT: single DTMF tones (2.3 sec), digits 0-9 ABCD\*#  
(2.3 sec), any key to stop, AKS.  
81 ..... DTMF TONE TEST LONG: single DTMF tones (10 sec), digits 0-9 ABCD\*#  
(2.3 sec), any key to stop, AKS.  
82 ..... DTMF SPEED TEST: 0-9 ABCD\*# @ 5dps #4 @ 10dps #4 @ 20dps, any key to stop, AKS.  
86 ..... MEMORY PROGRAMMING TEST: #1 01234567 #2 89\*\*## \*3 #3 \*6 \*9 #6 \*#  
(Loads all Memories 1-9)  
97 ..... MEMORY CLONE RECEIVE Clone receive into \* on PCB. "Beep-Beep" will acknowledge  
completion. Will not AUTO CLOSE.  
98 ..... DEFAULT Defaults all functions.  
99 ..... DEFAULT + MEMORY CLEAR Defaults all functions and clears all memories.