

PIPO COMMUNICATIONS DTMF ENCODER WITH ANI

STEEL KEY MODELS

(with PTT relay)
PK-1K, ANI 4.0
PK-2K, ANI 4.0

MINIATURE STEEL MODELS

(with PTT transistor)
PK-7V, ANI 3.2
PK-7H, ANI 3.2
PK-8V, ANI 3.2

VERSION 4.0 SPECIFICATIONS
VERSION DATE 09/21/94

MX - LAST COPY CORRECTION 02-25-02 11:00AM

SPECIFICATIONS:

POWER & CURRENT.....w/relay 6-30 VDC, 9ma stby 40ma operate
w/transistor 6-30 VDC 9ma stby 14ma operate
TEMPERATURE.....-22 to 160 +F
ANIProgrammable in two keypad locations, * and #, up to 30 digits each
MEMORY25 Locations, up to 30 digits each
AUDIO OUTPUT.....Adjustable -2DB max @ 600 ohms
DISTORTIONLess than 3.5%
HIGH SPEED SIGNALLING5 dps (100/100ms), 10 dps (50/50ms), 20 dps (25/25ms)
RELAY CONTACTSPDT 60 Watts (2A @ 30 VDC)
TRANSISTOR OUTPUTFor PTT & AUDIO MUTE 100 ma @ 12 VDC
KEYBOARD DEBOUNCE25ms
PCB-INPUT PAD DEBOUNCE50ms

INPUTS/OUTPUTS:.....There are 9 wires and 3 PCB eyelets:

WIRES:

P1
BROWN/WHITE.....(P1-A)PTT out
GREEN(P1-B).....Ground
BROWN.....(P1-C).....PTT out
BLACK.....(P1-D)DTMF out
RED.....(P1-E).....+ Vcc
P2
-(P2-A)Disables keyboard. (CAUTION) Activated by low input (GND) 1 second minimum. Manual reset by a special code...reset from tlp;950000. * and # ANI on PCB not disabled.
WHITE.....(P2-B).....External audio mute, collector output goes low. Also for Cloning SEND; tlp 96.
GRAY(P2-C).....Resumes sending after a WAIT command. Activated by low input (GND).
YELLOW(P2-D)Sends # ANI. Activated by low input (GND), 50 ms minimum.
* and # ANI both have a 400 ms PTT SEND DELAY(DEFAULT)
Adjustable from tlp; 17.
BLUE(P2-E).....Sends * ANI. Activated by low input (GND), 50 ms minimum. Also for cloning RECEIVE; tlp 97.

PCB EYELETS:

GND.....Ground
CXmtr PTT, collector output goes low 100 ma max.
K.....Relay NC contact.

MX.....

VER32 9/12/91.....No AKS, No MEM CON,No#33,No Clone
VER32 11/12/91.....AKS, MEM CON,No#33
VER32 2/14/92.....TLP 31-33 + For all loc
VER32 2/27/92.....Same as 2/14...+Compatible
VER33 10/22/92.....*2=, (50ms) *5= - (150ms) *4=Pause (100ms) @10DPS (CW/MORSE ID)
VER34 2/08/93.....*7=(tlp 40/41) (tlp 30)
VER35 9/12/94.....*1 1002 hz in the pgm mode
VER40 9/21/94.....MEM read and write, c8 & c8a micro

OPERATIONS and USER LEVEL PROGRAMMING

PROGRAMMING KEYS:

THE *, 0, AND # ARE USED FOR: PROGRAMMING FUNCTIONS
ACTIVATING PROGRAMMED FEATURES
DTMF TONES

REFERENCE:m=Manual Dial
.....tm=Temporary Memory
.....ulp=User Level Programming
.....tlp=Tech Level Programming

TO USE:m.....DIRECT DTMF ENCODING, Keys 1-9 and A-D (16 Key version) instantly generate DTMF tones.
(Manual Dial) * , 0, and # must be pressed for at least a 1/2 second when it is the first key pressed. (Unit auto resets 2.3 seconds after the last keystroke.)

SIDETONE:Beeps Confirm:
USER LEVEL OPERATION:DTMF, Memory, ANI, Store & Send, LNR, Errors, Keyboard-Auto-Reset after 2.3 seconds, Version Announcement.
USER LEVEL PROGRAMMING:Memory Open, Entry, Full, Auto Close and Errors.
TECH LEVEL PROGRAMMING:Open, Entry, Errors, Auto Close and Forced Close.

ANI SEND:* * Sends the ANI * position.
.....# # Sends the ANI # position.

MEMORY SEND:25 Places, 30 digits max.
EXAMPLE: To program memory 01#01. To send.....001
To program memory 25#25. To send.....025
Press any key to stop, AKS.

LNR:tm (Temporary Memory).....LAST NUMBER REDIAL000 will send last manually dialed number. 10 DPS (DEFAULT).
Adjustable from tlp;31-33 (Tech Level Programming). Power off clears tm.

AKS:ANY KEY STOP. Any key pressed will stop sending.

VERSION ID:*1 will announce Version by number of Beeps, 1 sec & 100 ms, e.g., " ----" = ver 4. 0

CW/MORSE ID:*2= DOT (50ms) 770hz ref: 10DPS=20WPM= 50/150 100ms Pause (tlp32)
.....*4= PAUSE (100ms) 5DPS=10WPM=100/300 200ms Pause (tlp33)
.....*5= DASH (- 150ms) 770hz

PTT DISABLE:tm*0 will Disable PTT & SIDETONE. All other functions and output remain normal.
.....*8 will Enable PTT. Power off, then on = PTT Enable.

MANUAL STORE & SEND:tm30 digits max. Sends @ 10dps. (DTMF MEMORY STRING ADJUSTABLE)
0*.....("Beep Beep").....ENTER numbers -----, Auto Close. ("Beep Beep").
0#.....Sends numbers.....Clears with 0*.

AUTO STORE & SEND:tlp30 digits max.
Manually entered digits are stored and sent 2.3 seconds after the last digit entered. tlp;00-01.
Will send at the LNR speed, 10 DPS DEFAULT, adjustable from tlp;31-33.

PROGRAMMING EXAMPLE

EXAMPLE 1:-----1 323 466 5444 into MEMORY LOCATION 01

PRESS #01...Wait for the SIDETONE ("Beep Beep")...this confirms that the memory 01 is open and waiting for the number to be entered.

ENTER the desired numbers...e.g., 1 323 466 5444.
After 2.3 seconds from the release of last keystroke the memory auto closes...confirmed by "Beep".

TO SEND:Press 001.....This sends memory location 01.
.....025.....This sends memory location 25.
Press any key to stop, AKS.

EXAMPLE 2:-----#3#4#2#0
(5dps) 176 (PAUSE W/PTT drop) (10dps) 1 323 466 5444, (WAIT) *80# into MEMORY LOCATION 02

For Memory Location 02 using SPEED ADJ, PAUSE ADJ and the WAIT state, the number and command sequence to be programmed is...#3 176 #4#2 1 323 466 5444 #0 **80##.
(Numbers preceded by # indicate DIAL SPEED, PAUSE and WAIT functions).
(To enter a * or # into the string, enter * or # twice, e.g., **80##; this will reproduce as a *80#.)

PRESS #02...Wait for the SIDETONE ("Beep Beep")...this confirms that the memory 02 is open and waiting for the number to be entered.

ENTER the desired numbers...e.g., #3 176 #4#2 1 323 466 5444 #0 **80##.
After 2.3 seconds from the release of last keystroke the memory auto closes...confirmed by "Beep."

TO SEND:Press 002.....This sends your Memory Location 02.
Press any key to stop, AKS.

EXAMPLE 3:-----MEMORY CONNECT.Programming memory 03, LONG PAUSE and connecting to memory 04.

#9#804
1 323 466 5444 (LONG PAUSE) 1 323 466 5444 (MEMORY CONNECT to MEMORY LOCATION 04)

Memory Connect (#8) is ENDLESS. This STRING ADJUSTMENT is limited by the system requirements and by your imagination. This Command (#8) will connect MEMORIES to MEMORIES in conjunction with any MEMORY STRING ADJUSTMENT and WILL LOOP.

PRESS #03...Wait for the SIDETONE ("Beep Beep")...this confirms that the memory 03 is open and waiting for the number to be entered.

ENTER the desired number...e.g., 1 323 466 5444 #9 1 323 466 5444 #804
After 2.3 seconds from the release of last keystroke the memory auto closes...confirmed by the "Beep".

PRESS #04...Wait for the SIDETONE ("Beep Beep")...this confirms that the memory 04 is open and waiting for the number to be entered.

ENTER the desired number...e.g., 1 323 466 5444.
After 2.3 seconds from the release of the last keystroke the memory auto closes...confirmed by "Beep".

TO SEND:Press 003...This sends your Memory Location 03 and connects to memory 04.
NOTE: if a #803 were placed at the end of memory 04, a LOOP would occur.
Press any key to stop, AKS.

EXAMPLE 4:-----CW/MORSE ID...*2 is A DOT, *5 is a DASH, *4 is a PAUSE
PROGRAMMING "CQ" into memory 1 and repeating...
"C" (pause) "Q" (1sec pause w/ptt) (memory connect to memory 01)
- . - . - .
*5*2*5*2 *4 *5*5*2*5 #5 #801

TO SEND:Press 001...This sends your Memory Location 01. #801 commands a loop; memory will continue to send.

EXAMPLE 4A:-----CW/MORSE ID...
PROGRAMMING "WB6BJM" into memory 01,03,04 (this will also program into the AE-1)

MEMORY 1: "W" (pause) "B" (pause) (memory connect to memory 03)
 $\cdot \overline{2} \overline{5} \overline{5}$ *4 $\overline{5} \cdot \cdot \cdot \cdot$ *4 #803

MEMORY 3: "6" (pause) "B" (pause) (memory connect to memory 04)
 $\overline{5} \cdot \cdot \cdot \cdot$ *4 $\overline{5} \cdot \cdot \cdot \cdot$ *4 #804

MEMORY 4: "J" (pause) "M"
 $\cdot \overline{2} \overline{5} \overline{5} \overline{5}$ *4 $\overline{5} \overline{5}$

TO SEND:Press 001...This will send MEMORY 01,03 and 04...ANY OTHER STRING MAY BE ADDED.

DTMF MEMORY STRING ADJUSTMENTS (ulp)

SPEED ADJ:.....#1 (20dps 25/25 ms)
ulp #2 (10dps 50/50 ms)(DEFAULT)
(User Level Programming) #3 (5dps 100/100 ms)

PAUSE ADJ:.....#4 1 sec w/ptt drop, each #4 extends 1 sec, max pause=mem space....
ulp tlp;34-36.....1 sec (DEFAULT)
#5 1 sec w/ptt on, each #5 extends 1 sec, max pause=mem space
tlp;34-36.....1 sec (DEFAULT)

DIGIT EXPAND:.....#6 Adds 200 ms for each #6 entered, max=mem space=2.8 sec.
ulp #7 Adds 2 sec for each #7 entered, max=mem space=28 sec.

MEMORY CONNECT:.....#8 Connects memories. Connects to any memory number, WILL LOOP; sends continuously.
ulp To stop; AKS.
#802 Connects to memory 02
#825 Connects to memory 25
#800 Connects to STORE & SEND
#8* Connects to * ANI
#8# Connects to # ANI

LONG PAUSE: ADJ#9 1 minute w/ptt drop, each #9 extends 1 minute, max pause=mem space....
ulp tlp;37-38.....1 minute (DEFAULT)

WAIT:.....#0 WAIT...Stop Send.
ulp PTT drops.
Resumes sending by any keypad depression.
Resumes sending by low voltage (GND) on GRAY wire (P2-C).

FOR MEMORY DIAL PROGRAMMING ONLY:

16 KEY OUTPUT FROM 12 KEYPress *3, produces "A" tone
ulp Press *6, produces "B" tone
Press *9, produces "C" tone
Press *#, produces "D" tone

TECH LEVEL PROGRAMMING (tlp)

TO ACCESS:.....tlpPress # and * simultaneously for 3 SECONDS. "Beep-Beep" confirms the Tech Level
Program mode is OPEN. ENTER your options:

You may continue to enter as many options as you wish; "Beep-Beep" confirms each entry. Auto Close occurs 10 seconds after the last entry, or press # for instant closure.

00.....MANUAL SEND(DEFAULT)
01.....AUTO STORE & SENDSends 2.3 sec after the last entry.
02.....HIGH TONE 0db

03.....	HIGH TONE +2db	(-low).....	(DEFAULT)
06....m.....	AUDIO OUTPUT DELAY	DELAY between PTT & AUDIO OUTPUT06 sets to 0	(DEFAULT)
		Each 6=200 ms 2 sec max. For MANUAL DIAL only. 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.....	AUDIO OUTPUT DELAY after PTT (for all ANI's, MEMORIES, & LNR)17 clears PTT Delay to 400 ms	(DEFAULT)
		Each 7 adds 200 ms, max 3 sec†, next 7†† past 3 sec=00 ms PTT SEND DELAY. (†3 sec max=13 strokes, ††00 ms=14 strokes, 200 ms=15 strokes). Reset 17=400 ms	
18....m.....	PTT;KEY HOLD DELAY ADJ.....	MANUAL DIAL ONLY Clears PTT Delay to 100 ms	(DEFAULT)
		Each 8 adds .5 second, max 10 sec.	
20.....	Sounder Off		
21.....	Sounder Level Low		
22.....	Sounder Level High		(DEFAULT)
23.....	Sounder Single Tone		(DEFAULT)
24.....	Sounder DTMF		
30.....	ANI, MEMORIES, LNR, AUTO STORE & SENDTLP 40/41 Tone off/on time		
31.....	ANI, MEMORIES, LNR, AUTO STORE & SEND 20 dps		
32.....	ANI, MEMORIES, LNR, AUTO STORE & SEND 10 dps.....		(DEFAULT)
33.....	ANI, MEMORIES, LNR, AUTO STORE & SEND 5 dps		
34.....	PAUSE DELAY.....	1 sec.....	(DEFAULT)
35.....	PAUSE DELAY.....	3 sec	
36.....	PAUSE DELAY.....	5 sec	
37.....	LONG PAUSE DELAY	1 minute.....	(DEFAULT)
38.....	LONG PAUSE DELAY	4 minute	
MX 40.....	TONE OFF	0000=TIME OFF in ms. e.g. 400015=15ms off	
MX 41.....	TONE ON.....	0000=TIME ON in ms. e.g. 410047=47ms on (max time 9999ms;10sec)	
80.....	DTMF TONE TEST	SHORT Each single DTMF tone lasts 2.3 sec. Row 1,2,3,4 Column 1,2,3,4 Each digit 0-9 ABCD*# for 2.3 sec each. Press any key to stop, AKS.	
81.....	DTMF TONE TEST	LONG Same as 80 except tones last 10 sec each. DTMF tones last 2.3 sec. Press any key to stop, AKS.	
82.....	DTMF TONE TEST	0-9 ABCD*# @ 5dps #4 @ 10dps #4 @ 20dps	
MX 86.....	PROGRAM TEST A	#1 01234567 #2 89**## *3 #3 *6 *9 #6 *# (Loads all Memories 01-25) (99 clears).	
MX 87.....	PROGRAM TEST B		
MX 88.....			
MX 897476....	PROGRAM TEST C.....	Loads Number Sequence into * # ANI. 123 #4 #3 456 #5 #1 789 #60 #7 ** #0 ## *3 Program ANI to clear.	
90.....	Disables Keyboard		
91.....	Enables Keyboard		(DEFAULT)
950000.....	Keyboard Enable.....	Enables keyboard operation after it has been DISABLED by the "P2-A" input on P2.	

CUSTOM CODE AVAILABLE UPON REQUEST.

96.....MEMORY CLONE SENDClone Send from Mic Mute on WHITE wire (P2-B). * Will send. Upon completion of Cloning TLP will not AUTO CLOSE. # or Power off will close. Will not Clone * # ANI
 97.....MEMORY CLONE RECEIVEClone Receive into BLUE wire (P2-E). "Beep Beep" will acknowledge completion. Will not AUTO CLOSE
 98.....DEFAULTDefaults all functions.
 99.....DEFAULT/MEMORY CLEARDefaults all functions, clears all memories.

SINGLE TONE OUTPUTS

ROW/COLUMN	STANDARD DTMF TONES	PIPO	% DIFF
0+1= Row 1	697 hz.....	699 hz.....	+.30%
0+2= Row 2	770 hz.....	770 hz.....	0%
0+3= Row 3	852 hz.....	850 hz.....	-.20%
0+4= Row 4	941 hz.....	943 hz.....	+.20%
0+5= Col 1	1209 hz.....	1211 hz.....	+.16%
0+6= Col 2	1336 hz.....	1340 hz.....	+.29%
0+7= Col 3	1477 hz.....	1480 hz.....	+.20%
0+8= Col 4	1633 hz.....	1631 hz.....	-.12%
0+9= 1khz test tone.....		1002 hz.....	+.20%

COMMAND INDEX

*1..... Version ID	#1..... 20dps
*2..... . = 50ms	#2..... 10dps
*3..... "A"	#3..... 5dps
*4..... PAUSE=100ms	#4..... PAUSE 1-3-5 SEC w/PTT Drop
*5..... - = 150ms	#5..... PAUSE 1-3-5 SEC w/PTT On
*6..... "B"	#6..... DIGIT EXPAND 200ms
*7..... tlp 40/41 off/on time	#7..... DIGIT EXPAND 2sec
*8..... PTT ENABLE	#8..... MEMORY CONNECT
*9..... "C"	#9..... LONG PAUSE ADJ 1-4 MIN w/PTT Drop
*0..... PTT DISABLE	#0..... WAIT
**..... * ANI SEND	#*..... tlp
*#..... "D"	##..... # ANI SEND

*1.....1002hz in the pgm mode

MX 01 off less	98 off less
MX 02 on more	99 on more

MX ver35 09-12-94 Margin Set To 126
 MX PIP35 S.19 09-12-94
 MX.....all below this line
 EPROM, BPS Programmer
 Special Modifications for custom 950000 -NUMBERS ONLY-
 (screen)
 no errors
 m 300 303
 FF
 1,ret
 FF
 2,ret
 FF
 3,ret
 FF
 4,ret....New code is now 951234
 FOR 95 READ OUT, low to the 4 pcs, pwr up; dtmf will read out.

MX = MANUAL EXCLUDE