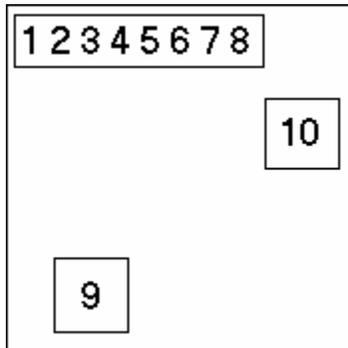


## OH3HRK's repeater controller v2.01 manual ... oh3hrk@sral.fi

### Pins of the device:



- 1 --- Voltage, +7V - +20V
- 2 In DTMF and 1750 Hz input.
- 3 Out Transmitter on. Pulled to ground when TX should be on. (no big currents)
- 4 Out Audio out (very weak)
- 5 Out Mute, +5V when speech should be to the transmitter, grounded when it should be muted.
- 6 Out Remote controlled output (RB6 pin)
- 7 In Squelch input, when squelch open, should be grounded
- 8 --- GND
- 9 --- Audio volume
- 10 -- 1750 Hz tone set

### EEPROM settings: (set with a PIC programmer)

```
0000: 4F 48 33 52 41 43 2D 2D OH3RAC--
0008: 4F 48 33 52 41 43 2D 2D OH3RAC--
0010: 4F 48 33 52 41 43 2D 2D OH3RAC--
0018: 43 4C 3C 0A EF 11 08 07 CL<.i...
0020: 44 45 20 4F 48 33 52 41 DE OH3RA
0028: 43 20 4C 41 48 54 49 20 C LAHTI
0030: 4B 50 32 30 54 58 2D 2D KP20TX--
0038: 2D 2D 2D 2D 00 00 00 00 ----....
```

```
00-07 - Beginning CWID
08-0F - Middle CWID
10-17 - Ending CWID
18-19 - Closing characters (CL)
1A - How long people can talk on their turn before the repeater closes? (3C = 60 sec)
1B - How often the middle CWID is given? (0A = 10 min)
1C - CW freq, smaller is lower (EF)
1D - CW speeds, smaller is faster (11)
1E - For how long people can be without transmitting until the TX closes? (08)
1F - After that how long does it take to close the repeater and
    give the ending CWID(07)
20-3B - CW Info that can be heard after opening the repeater with DTMF *0
3C-3F - Counters that you can hear and clear from the settings menu.
```

In the CW texts you can use a "-" for empty space, it doesn't make a pause like a space char. Other chars:

```
1A=Ä 1B=Å 1C=Ö 1D=(KA) 1E=(KN) 1F=(SK)
```

## DTMF commands:

- \* Opens the repeater like 1750 Hz
- \*0 Opens the repeater and gives locator, place name and the call (the CW info that you can set when programming)
- \*9 Closes the repeater
- #9 Closes the repeater
- A234 Settings mode (you will hear SET)
  - \* exit the settings mode
  - Numbers 0-8 will close the repeater for a while: (you will hear a number, then R)

Number:	0	1	2	3	4	5	6	7	8
Minutes:	5	10	20	30	40	50	60	120	240
  - 9 closes it permanently (you need to cut power off)  
After closed, the green LED will flash in a different way.
  - # Gives the counters "OPN ???? ???? = QSO ???? ???? = K" - IN HEX FORMAT!!!  
OPN=Openings, QS=QSOs (at least 5 turns) ... after this  
\*=return to settings mode, #=clears and returns to the settings mode (you will hear R)
  - A Turns off RB6 (pin 12) (0V).. When controller powered on, always +5V
  - B Turns on PIN RB6 (+5V). For remote controlling something.

## Parts list:

- 4 x 1nF polyester cap
- 5 x 0.1uF polyester cap
- 1 x 1uF 16V electrolytic cap
- 1 x 4.7uF 16V electrolytic cap
- 1 x 10uF 16V electrolytic cap
- 1 x RED led
- 1 x GREEN led
- 3 x 220 ohm 1/4w
- 1 x 3.9k 1/4w
- 2 x 4.7k 1/4w
- 1 x 71.5k 1/4w
- 1 x 390k 1/4w
- 1 x BC548
- 1 x 78L05
- 1 x 567
- 1 x MT8870 or equivalent. (some decoders needs pins 5,6 grounded to work in this circuit)
- 1 x PIC16F628
- 1 x 3,579 MHz XTAL
- 1 x 5k good quality trimmer
- 1 x 20k trimmer

Some IC Sockets & Connectors for the PC board.

## Other things:

- Use the trimmer to set the opening tone detection freq. (1750 Hz).
- No support for subtone, sorry...
- Feel free to use in any way you like.
- The tone detector part SHOULD be more temp. stabile in this version.
- v2.01 - changed some caps on the audio path ;}