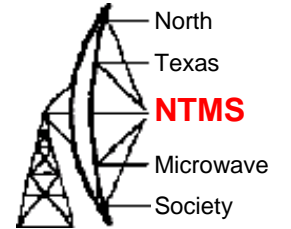


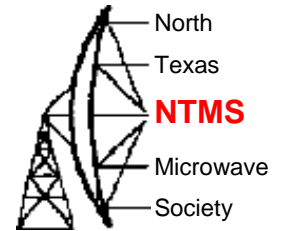
W5HN



# The new W5HN beacon keyer

Dave Robinson WW2R

# The old keyer



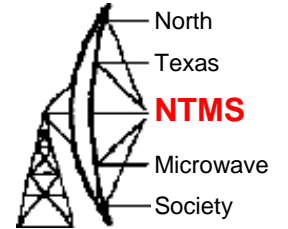
Keyer Currently used on the 902/1296MHz beacon

Transmits callsign , location and telemetry information

Telemetry: 902 Power output, 1296 Power output, Beacon supply volts, Chassis temperature. (Only 4 channels).

Uses 16C711 one time programmable PIC

# New keyer requirements



New beacon package would have 4 bands so Wes, WA5TKU suggested it would be nice to have more Telemetry channels

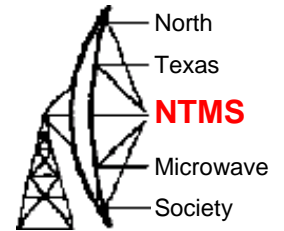
4 RF outputs

4 beacon temperatures

Power supply current

Power supply volts

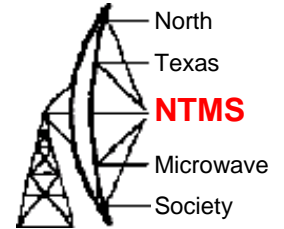
# Which PIC?



It had to be another PIC! After a lot of research the 16F886 was chosen due to the following features:-

- 10-bit 11 channel A/D Converter
- Internal Oscillator selectable 32kHz thro 8MHz
- In-Circuit Debug (ICD) via two pins
- 25 I/O pins 28 pin package
- Flash program memory
- \$3

# Programmer

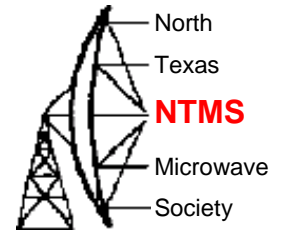


Needed new one which could debug and program

Discovered through G4DDK the Microchip PICKIT 2 in circuit programmer / in circuit debugger, on offer from Microchipdirect for \$39.99



# Current Sensor



Use Allegro micro hall effect sensor as used in W1GHZ current meter

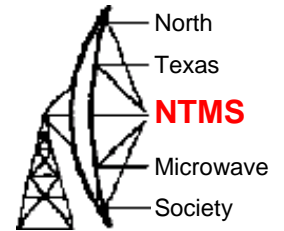
Using ALCS713ELCTR-30A sensor

$0.5V = 0A$   $4.5V = 30A$

SOIC 8 Package!

Also available in 50,75 and 100A versions (bigger package)

# Temperature Sensor



Use LM34DZ sensor again

Produces 10mV/degree F (e.g. 100F=1V)

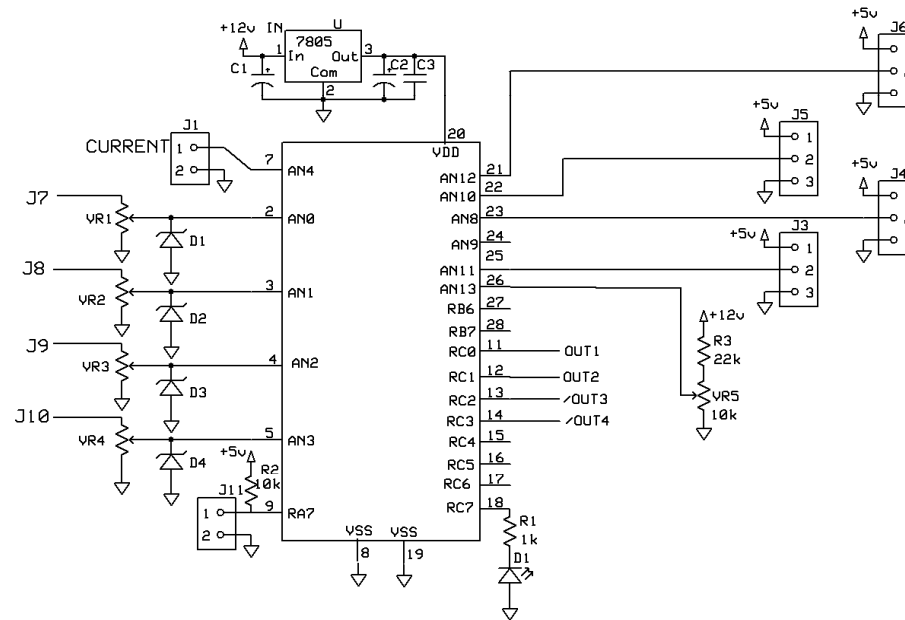
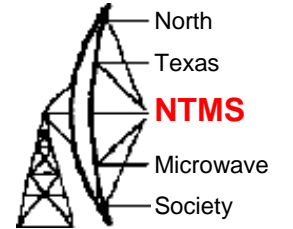
Needs 5V supply

## Power meter Inputs

4 inputs through 10 turn potentiometer to set level

5.1V zener on each input to protect PIC from excess voltage

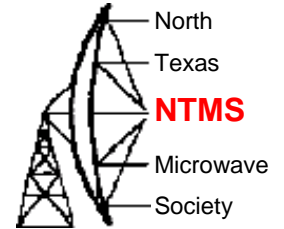
# Circuit



J1 SCALING SET UP FOR ACS13-30 CURRENT SENSOR  
 J3,4,5,6 SCALING SET UP FOR LM342 TEMPERATURE SENSORS  
 J2, 7,8,9,10 NO SCALING  
 EARTH J11 TO SEND ONLY TELEMTRY  
 D1-4 1N751  
 VR1-5 10k

<b>FRE Engineering</b>		
<b>W5HN Beacon Keyer MK2</b>		
David Robinson	Rev 1.0 2/24/2009	Page 1

# Connections



J1 setup in software as current sensor.

J2 monitors the 12V supply voltage of the beacon

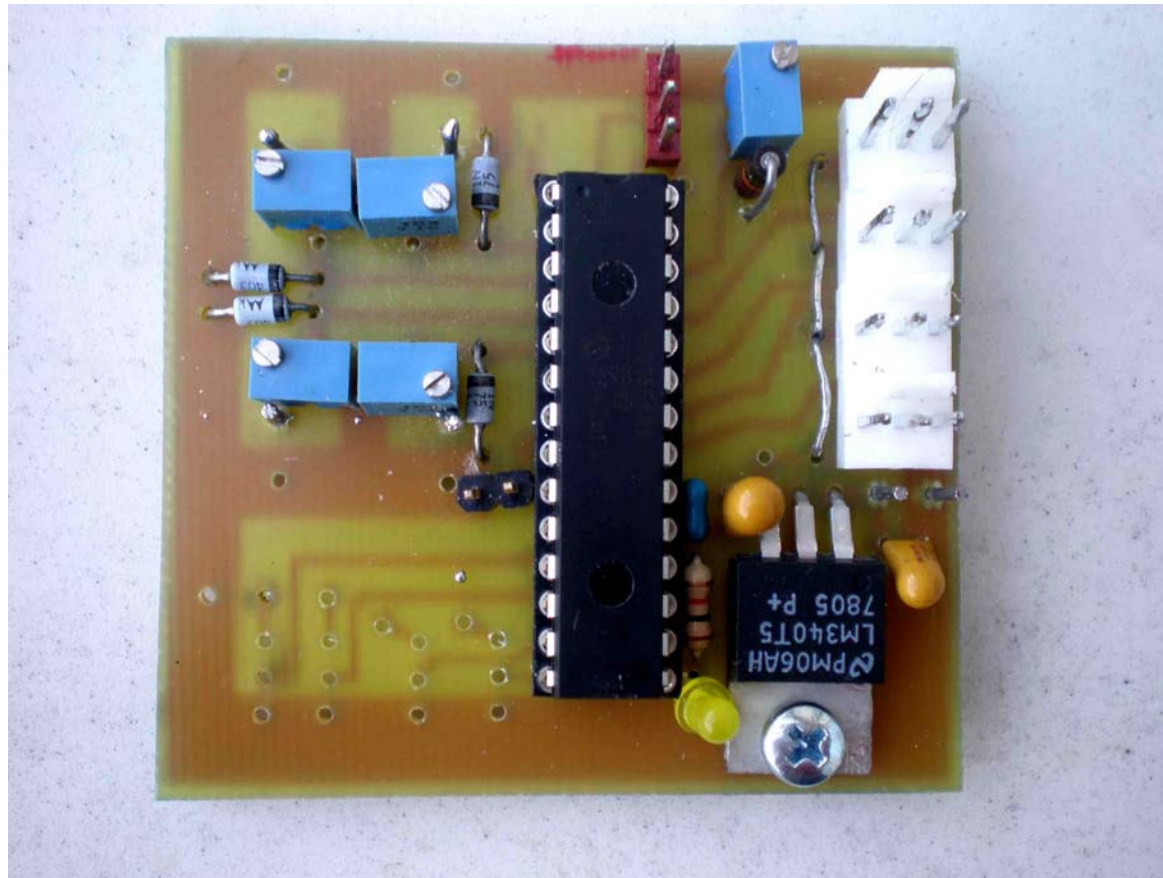
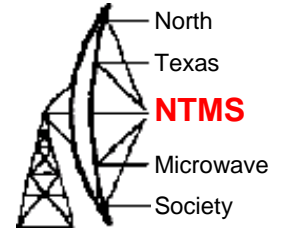
J3,4,5,6 setup in software for LM34DZ temp sensors

J7,8,9,10 power output monitors

J11 is earthed so beacon will just send telemetry

All telemetry 3 digits, 255 maximum value.

# W5HN KEYER PCB



TTL level outputs drive the beacon modules directly