

CTCSS Display

CTCSS decoder/display kit with 2x8 line LCD display.

Our CTCSS decoder/display can decode and display the 10 CTCSS tones used in the UK for repeaters as listed below.

It also has a tone valid output which can be programmed to signal the presence of one tone in particular.

Connecting a button or link between the 'set tone' input pin and 0V allows the tone valid function to be programmed. Press the button or make the link, send the decoder the desired CTCSS tone from another radio or function generator and then release the button or break the link while the tone is present, that tone has been stored and its presence will be indicated on the tone valid output pin.

There is also a delayed version of the tone valid output too, this output reacts immediately to the detection of the programmed tone but has a 0.5 second drop out delay.

These outputs are 0 to 5V and should not be loaded more than 5mA. Please see the circuit diagram for pin locations.

The 'contrast' preset should be adjusted for best display contrast between text and back ground; there will be nothing on the display over a large amount of the preset's range. The 'input sensitivity' preset should be adjusted to just past the detection point on a good signal.

Complete kit of parts including pre-programmed PIC micro, gold plated PCB, LCD display, nuts bolts and spacers.

Runs from 7 to 16V DC at a few mA.

This kit is supplied with a backlit display, the backlight requires 4.05V at up to 60mA (e.g. 13.8V via a 220 ohm ½ watt resistor NOT SUPPLIED). The backlight is not connected in any way to the decoder PCB.

Please make sure you fit the pins for the display connection on the back of the PCB as shown in the pictures.



All parts shown in the assembled photo are included in the kit.

[A circuit diagram is on the last page of this document.](#)

Tone set:-

Tone A = 67Hz
Tone B = 71.9Hz
Tone C = 77Hz
Tone D = 82.5Hz
Tone E = 88.5Hz
Tone F = 94.8Hz
Tone S = 100Hz
Tone G = 103.5Hz
Tone H = 110.9Hz
Tone J = 118.8Hz

For best performance the decoder needs to be fed with un-filtered RX audio, so that sub-audio frequencies are not removed before the decoder.

On the back of many Amateur Radio transceivers there is a 6 pin Packet Radio (TNC) connector, this often has an RX audio output for use with a 9600 baud TNC and is usually un-filtered.

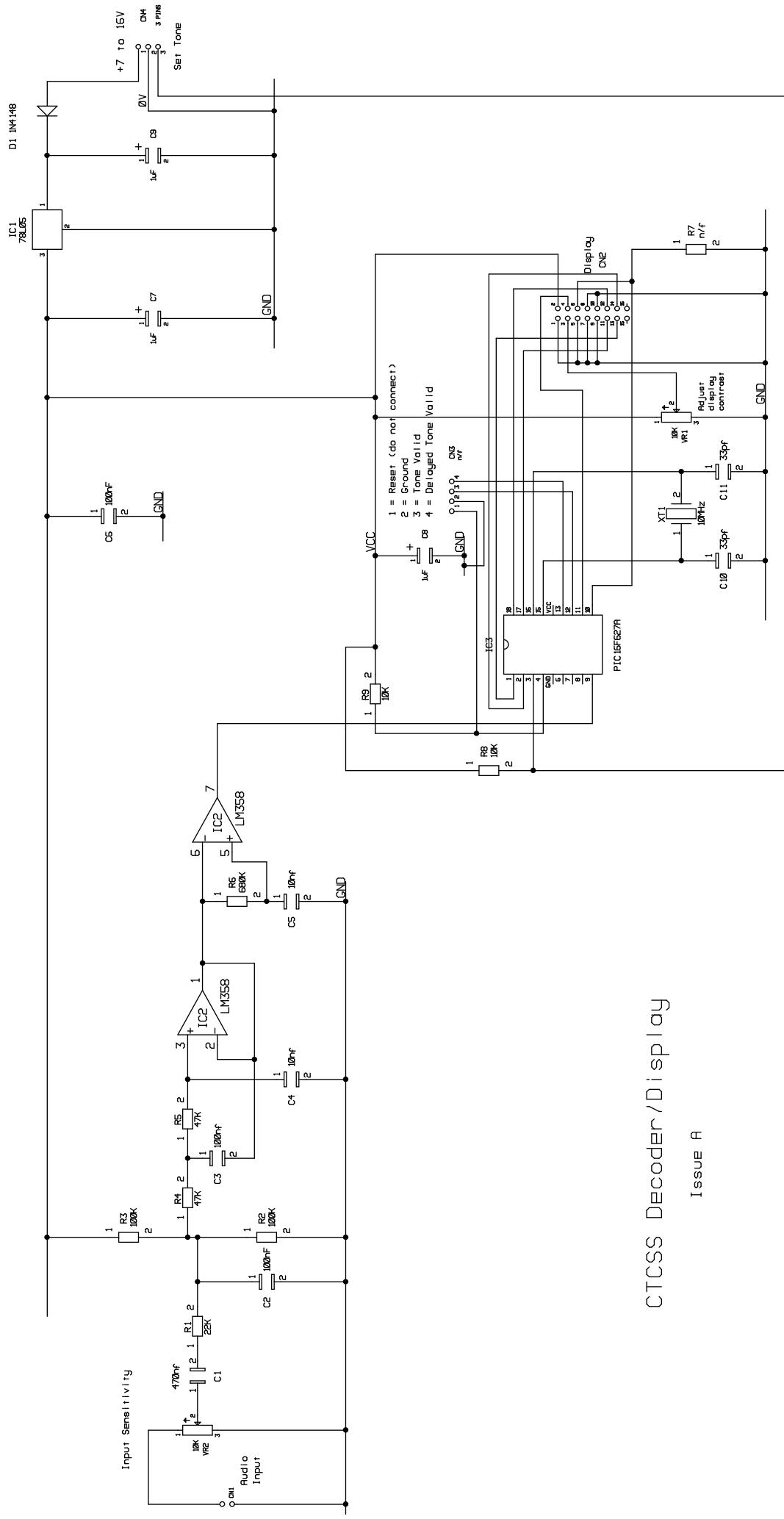
We can offer a cable with the 6 pin plug already fitted.

CTCSS Display Parts List

IC1	78L05
IC2	LM358
IC3	PIC16F627A (programmed)
D1	1N4148
XT1	10MHz crystal
R1	22K
R2, 3	100K
R4, 5	47K
R6	680K
R7	not fitted
R8, 9	10K
VR1, 2	10K variable
C1	470nF (marked 474)
C2, 3, 6	100nF (marked 104)
C4, 5	10nF (marked 103)
C7, 8, 9	1uF observe polarity
C10, 11	33pf
CN1	2 pins
CN2	7+7 pins (supplied as 3+3 & 4+4)
CN3	4 pins
CN4	3 pins

Also supplied:-

CTCSS display PCB Issue A
Crystal insulator pad
3+3 & 4+4 sockets for display
LCD display
4 x nuts, bolts and spacers



CTCSS Decoder/Display

Issue A