DSchmidt Technologies' 4 Channel DTMF to RS232 Decoder
(part # 4CH-DTMF)

Overview

This 4 channel DTMF to RS232 decoder will decode DTMF tones from 4 independent audio sources and send its ASCII value out the RS232 port. The serial port is configured at 9600 baud, 8bits, no parity, 1 stop bit.

Features

- In assembled form. Hook up the audio input and a power supply and it's ready!
- True RS232 output voltages
    o On board RS232 DB9F connector
    o RS232 9600,8,n,1 baud output
- On board RCA audio input connector X 4
    o Minimum tone ON/OFF durations of 40mS/40mS
- Channel LED tells you when a valid tone is decoded and from a particular channel
- Wide power input voltage range (7-24 VDC), 60mA current draw
    o Green power LED shows when power is applied
    o On board DC input jack accepts 5.0mm x 2.1mm plugs and is auto polarity sensing
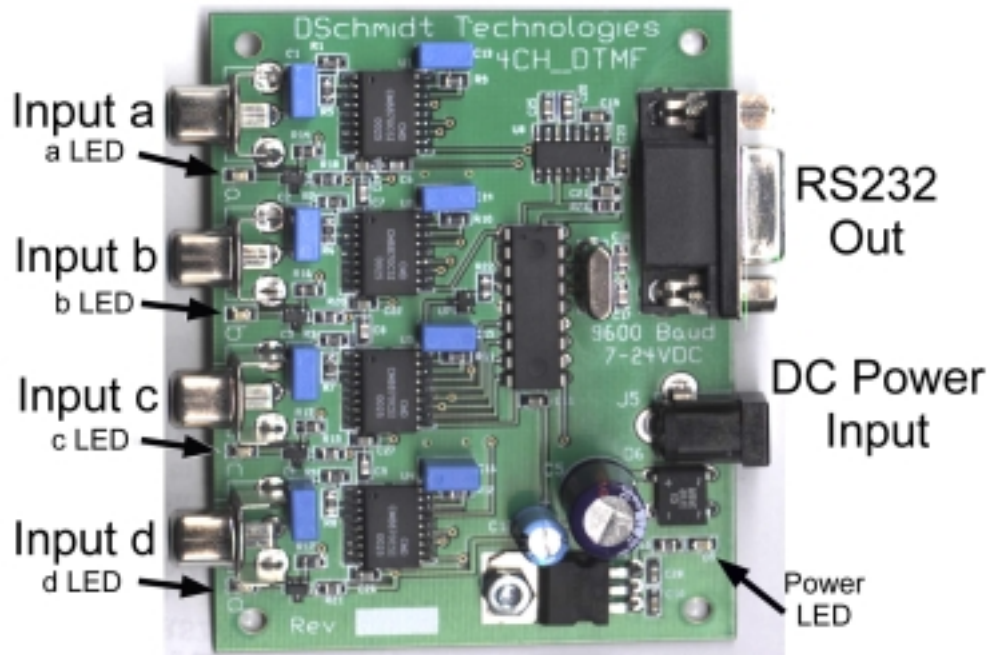
Hookup

The unit comes assembled and is tested before shipment. An external wall adapter supplying a voltage between 7 to 24VDC and of at least 60mA should be used. The DC power jack accepts a 5.0mm x 2.1mm plug and is auto polarity sensing.

The user must hook up the audio input to the desired source. The on-board phono jack accepts line level audio input. Connect this jack directly to your audio source. DO NOT CONNECT A TELEPHONE LINE DIRECTLY TO THIS JACK! The voltage levels from a telephone line are too great to be used directly.

If you wish to hook this decoder to your phone line and a computer at the same time, you will need to do so using a 1:1 isolation transformer (also known as a 600:600 phone transformer). This will electrically isolate the two from each other. See sample circuit shown later in this document. Each channel will require its own isolation transformer.

Circuit Board Layout with Audio and Power Connection Locations

RS232 Connection

The on-board DB9F connector is configured as a standard, transmit only, PC serial port. All handshaking lines have been jumpered together. Communication is performed at 9600 baud, 8 bits, no-parity, 1 stop bit.

Operation

As tones are received on a particular channel, the LED for that channel will light for the duration of the tone. The tone will then be decoded and the ASCII value of this tone will be sent via the RS232 port, preceded by the channel ID. The table below shows what the unit will output for a given DTMF tone on a given channel.

DTMF Tone	Input Channel			
	a	b	c	d
1	a1	b1	c1	d1
2	a2	b2	c2	d2
3	a3	b3	c3	d3
4	a4	b4	c4	d4
5	a5	b5	c5	d5
6	a6	b6	c6	d6
7	a7	b7	c7	d7
8	a8	b8	c8	d8
9	a9	b9	c9	d9
0	a0	b0	c0	d0
#	a#	b#	c#	d#
*	a*	b*	c*	d*
A	aA	bA	cA	dA
B	aB	bB	cB	dB
C	aC	bC	cC	dC
D	aD	bD	cD	dD

Two digits are send out the RS232 port for every tone received, the first of which is the channel ID, the second is the DTMF ID.

Board Dimensions