

Time code processor

Smpte and Ebu reader

General description

This is a general purpose play speed time code reader that can either drive a Powertip PC1601L LCD module or the custom 8 digit LED display

It is unmounted and is designed for rear panel fixing. The mounting dimensions are the same as a Powertip PC160-L LCD module.

The controller board is mounted behind the LED display board or LCD module. Various software builds are available, according to display type.

Specifications

Power

Nominal 12V DC. Display dependent

LCD a nominal 20mA when running without the back light

Sensitivity

200mV peak to peak nominal.

Connectors

P1

7 segment 8 digit LED connector

Pin 1 Clock

Pin 2 Ground

Pin 3 Output enable, active low

Pin 4 Vdd to LED drivers

Pin 8 Latch enable

Pin 9 Serial data in

Pin 10 Ground

This is also the factory programming connector

CN2 SIL connector which will align with the Powertip PC1601 L module.

CN3 The LCD back light has to be hard wired Nominally limited to 100mA.

CN4 LCD back light control. Short pins 2 and 3 to turn off the back light

CN5 Time code in, balanced. Minimum signal level 200mV p-p, max 10V p-p

CN6 DC in. Load dump protection to 60V. Reverse polarity protected.

CN7 General purpose input/output signals. Software dependent

CN8 LED intensity control (TBD)

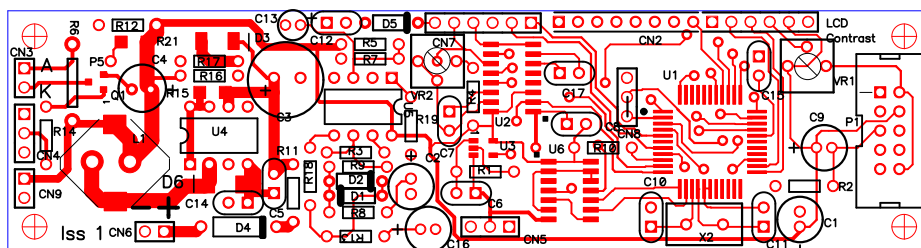
CN9 5V power to the LED display. There are power restrictions on this.(TBD)

CN7 will generally be the user interface

Pins 4 and 5 are ground and 5V power. The 5V line is not short circuit proof.

Pins 1 and 2 are the UART, pin 2 will send data to an external device, Pin 1 can be used as a switch input.

If the LED module is in use then the physical connections to the LCD connector can be used for added features (TBD, of course)



Time code decoding

The time code is that which is defined in

http://www.ebu.ch/CMSimages/en/tec_text_n12-1999_tcm6-4753.pdf

This controller board will decode Time code between frame rates of 23.976 and 30 frames per second.

The reader software does not currently display "+ 1 frame" so is not really acceptable for slating purposes.

Software options

First choose a display type. This will define the software functions that will be available. A board with software loaded for the LCD will not work with the LED module, and vice versa.

LCD

This will display either Time code or user bits depending on a switch connected to CN7.

LED

This is generally functionally identical to the LCD software. The main difference is that the LCD is loaded, a character at a time throughout the Time code frame, while the LED is loaded during the Time code syncword. There are differences in the power supply operation as well.

The frames decimal point will light when the dropframe timecode flag is detected

Using a different LCD

This board generally conforms to the industry standard pinout. It should, in theory, drive many similar display modules, but the character mapping will be different.

The Powertip PC0802 module has been proven to work, but requires hard wiring as the pinout is different, but only requires a minimal software change.

Serial Port and freeze function

A freeze function is available, again using CN7. This will freeze the display for (TBD) seconds, and will automatically send the ASCII equivalent of the Time code through the serial port, (CN7) with a CR/LF terminator.

The baud rate is 9600 Baud N81. The output is 5V logic and will need an external converter if it is to be used for RS232 or USB interfaces.

Software Updates

Unfortunately these cannot be done in the field

This is a provisional specification. Issue2 22nd April 2008

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