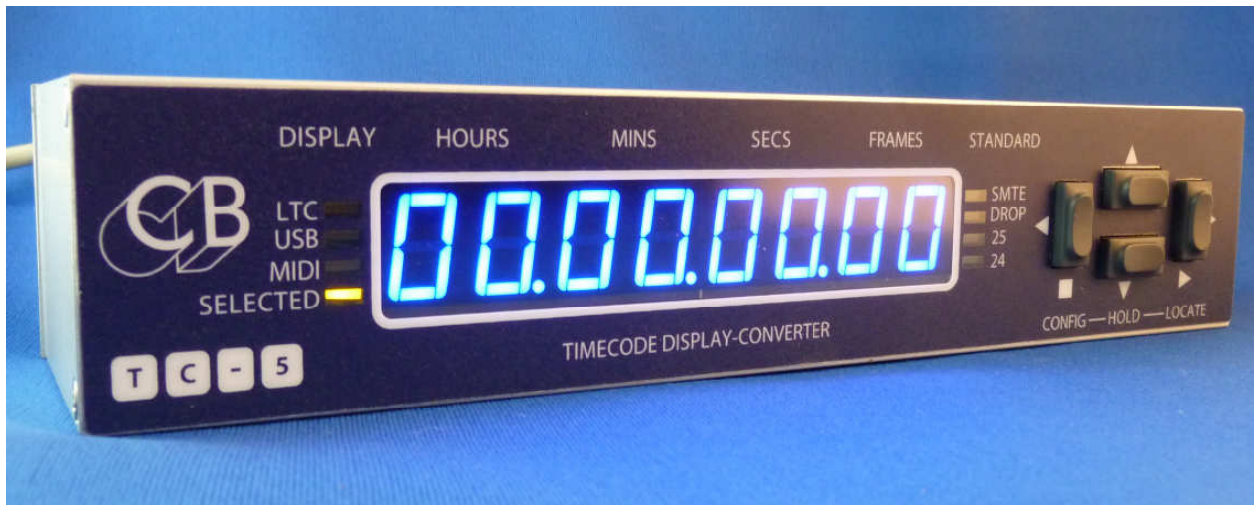




TC-5 LTC-Midi-USB-Display/Converter



- * **Large (0.56"/ 14 mm) Ultra Bright LED Display**..... Easy to Read
- * **Source LTC** **Output: Regenerated LTC, Midi, USB Midi**
- * **Source Midi** **Output: Regenerated LTC, Midi, USB Midi**
- * **Source USB Midi**..... **Output: Regenerated LTC, Midi, USB Midi**
- * **Source Virtual Machine**..... **Output: Regenerated LTC, Midi, USB Midi**
- * **Virtual Machine** **Controlled from 5pin Din and USB MMC Commands**
- * **Reference Inputs** **Video, Word Clock or Source**
- * **Timecode Regeneration**..... **Dropout and Jitter Suppression**
- * **Front Panel Controls** **Full control and setup**
- * **FP Start, Stop, Locate** **MMC to selected Timecode Source**
- * **Auto Configure**..... **From MTC, LTC or Video Syncs**
- * **Auto Detect Word Clock** **Presence and Frequency**
- * **Auto Detect Video Syncs** **SD Video, HD Video and Frame Rate**
- * **GPIO Port** **Start, Stop, Locate, Coincidence detector**
- * **User Configuration and Software Update**.....**Windows or Mac**
- * **1U 1/2 Rack (8.5x1.75", 216x44mm)**.....**Supplied with Optional Rack Mount Kit**

The TC-5 is a professional MTC/LTC interface with LED display, Video Sync, Word Clock input and USB port. The TC-5 is designed to be equally at home in Audio, Video and Lighting Environments, applications include Digital Audio Workstations, Non Linear Video Editors, Mixing Consoles, Show Control and Lighting Control.

As a test tool the TC-5 can also check the frequency of Timecode, MTC, Video and Word Clock. The TC-5 can also compare LTC with MTC

Audio Only Environment

When using timecode in a digital audio environment it is important that the timecode frame rate is locked to the incoming sample rate. The TC-5 is designed to use

wordclock as a reference source. When the TC-5 is referenced to wordclock and jammed to a timecode source the generator is phase aligned to the source after 10 frames, the timecode then free runs locked to wordclock.

Audio and Video Enviroments

In a Audio+Video environment there are two referece sources Wordclock and Video Syncs. They should always be locked, an easy way of doing this is to use a combined Video Sync and Wordclock generator. The timecode should be locked to the videosyncs as there are 1920 wordclocks to every video frame (48KHz/25fps). Locking to video syncs ensures that the audio keeps the correct phase relation ship to the video.

But when do you use lock to source?

Audio sources are not always locked to an external reference, in this case the TC-5 can be used in two possible ways.

- 1) If the audio source will lock to MTC then you can use the virtual machine in the TC-5 to generate both LTC and MTC locked to an external reference.
- 2) Generate LTC and MTC locked to the incoming LTC or MTC, the TC-5 averages the incoming timecode over 256 frames so as to minimise the jitter on the outgoing timecode.

Lock Indication

Until the timecode output is locked to video syncs or to a external source the Timecode Standard LED will flash.

Operational Modes	
LTC -> Midi+USB+LTC	Read LTC(Smpte), convert to Midi Timecode on USB and 5 pin Din, Regenerate LTC Output
MTC -> LTC+USB	Read MTC(Midi timecode) from 5 pin Din Midi Input, convert to LTC and USB-MTC
USB -> LTC+Midi	Read MTC(Midi timecode) from USB-Midi Input, convert to LTC and 5 pin Din MTC
VMC -> LTC+Midi+USB	Generate LTC, MTC-USB and MTC 5 pin Din from virtual machine, controlled from the front panel or MMC(Midi Machine Control) on USB or 5 pin Din Input
Biphase ->LTC+Midi+USB	Count Biphase at 2 or 10 ppF, convert to LTC Timecode and Midi Timecode on both USB and 5 pin Din (Not yet Implemented)

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