TCD-2
TIMECODE DISPLAY

USER GUIDE

Overview

The Nemesis TCD-2 is a standalone timecode display and generator with capability to read from LTC and MTC SMPTE sources.

A large, bright display with variable intensity makes the unit suitable for use in any environment.

Powered via USB, the unit can be connected to a computer, phone charger or portable battery pack. When connected to a computer, the TCD-2 will also appear as a USB MIDI device to allow direct MTC communication with a DAW or show control software.

When in generator mode the TCD-12can be allowed to free run, or be controlled via MMC transport commands to start, stop and locate the timecode position.

A front mounted Hold button can be used to temporarily freeze the timecode display for manual time acquisition.

The TCD-2 is 1U rack height and can be slotted into equipment racks or mounted on a microphone stand with the integrated 3/8" screw thread on the base of the unit.

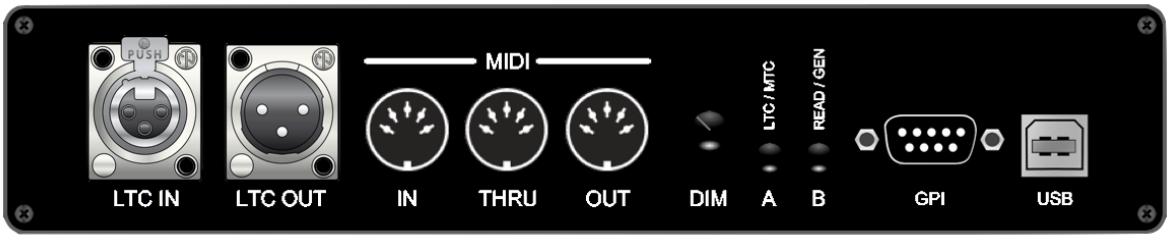
Front Panel

8-Digit large timecode display

HOLD - When running either in display or generator mode, pressing the Hold button will temporarily freeze the display. This is useful to be able to write down position information when building cue stacks, for example.

Status - Indicates the status of incoming SMPTE. Green – A valid LTC or MTC SMPTE timecode signal has been detected. Red – No signal detected. Flashing – The Hold button has been engaged.

Rear Panel and Connections



LTC IN – Balanced XLR input for LTC SMPTE signal when in reader mode.

LTC OUT – Balanced XLR output for generated LTC SMPTE or a reshaped pass-thru signal for the LTC In when in reader mode.

MIDI IN – 5-Pin DIN connector for MIDI signals for MTC input when in reader mode, or MMC control commands when in generator mode. Can also be used to pass MIDI data to the USB MIDI port when connected to a computer.

MIDI THRU – 5-Pin DIN connector for pass-thru of signals from MIDI In.

MIDI OUT – 5-Pin DIN connector for MIDI Out signals. When in reader mode, LTC data is converted to MTC data and appears at this connector. In generator mode MTC data appears at this connector. MIDI data passed to the USB MIDI port will also be passed to this connector.

DIM – Intensity adjustment for the front panel display.

A: LTC/MTC – Input Source selection between LTC and MTC. The TCD-1 must be rebooted after changing this.

B: READ/GEN – TCD-1 operation mode. Select between Reader and Generator mode. The TCD-1 must be rebooted after changing this.

GPI – Provides access to stopwatch features in Reader mode.

USB – USB Power Connector. Connect this to a phone/tablet charger, a computer or portable power pack capable of delivering 5V DC. When connected to a computer, this also allows the TCD-1 to be used as a USB-MIDI converter for generated or incoming timecode, with a “Nemesis USB MIDI” port appearing on the host computer.

TCD-2 as a Reader

The TCD-2 can be used to display SMPTE encoded timecode information, either via an audio LTC source or via a MIDI MTC source. The rear panel selection switch A will need to be pushed in to read from MIDI sources (USB or MIDI In connector), or released to read from LTC sources.

Switch B will also need to be released to ensure the TCD-2 is in Read mode.

When the source is first connected the front panel will briefly display the detected frame rate if running, and the status LED will illuminate green to show running timecode. A press and hold of the Hold button will also prompt a brief display of the currently detected frame rate.

A single press of the Hold button will temporarily freeze the display to allow a manual note of timecode position to be taken. The status LED will flash to indicate the unit is in Hold mode. A second press will exit Hold mode and continue normal operation.

When driven by an LTC timecode source, the TCD-1 will also act as a converter, providing an MTC version of the incoming signal. The incoming LTC is also passed to the built in USB-MIDI converter for providing a time reference to a DAW or show control software on a connected computer.

TCD-2 as a Generator

The TCD-2 can be used as a timecode generator for both LTC and MTC signals. To enable generator mode, switch B should be engaged before boot up ("Gen" mode).

The TCD-2 will free run from 00:00:00.00 after power up. To start, stop, or locate to other timecode positions, the TCD-1 can be sent MMC transport commands via the MIDI In or USB-MIDI connections. Recognised commands are MMC Start, MMC Stop and MMC Locate.

Once running, the front panel Hold button can be used to temporarily freeze the display, although the TCD-2 will continue to generate timecode in the background.

Generated timecode is sent to the LTC output, the MTC 5-Pin Output and the USB-MIDI port on a connected computer.

Setup Mode

The Hold button should be held down whilst the unit is powered up, and repeated presses of the Hold button will cycle through the available options.

The options available will depend on whether the unit is in Reader or Generator mode, based on the position of switch B.

In Generator mode, to set the timecode format, repeated presses of the Hold button will cycle through the available format options. The current firmware supports 24, 25, and 30fps generation. A reboot is required once the desired format is selected.

In Reader mode, there is an option whether to display frames, repeated presses of the Hold button will set this to yes or no. A reboot is required once the desired option is selected.

GPI control in Reader Mode

Connect a Nemesis REM8D. The buttons function as detailed in the table below.

1	Start/Stop stopwatch
2	Hold/Reset stopwatch. Hold when in Reader mode.
3	Switch to Reader mode
4	Switch to Stopwatch mode
5	Display the most recent Hold button value
6	Display the second most recent Hold button value
7	Display the third most recent Hold button value
8	Display the fourth most recent Hold button value

Hold button values are retained when switching between Reader and Stopwatch mode.

The remote buttons do not function (except for Button 2) when in Hold mode, as indicated by a flashing status LED.

The TCD-2 will generate LTC and MTC at 25fps when in Stopwatch mode.

Technical Specifications

Input Voltage: ..... 5V DC, 300mA, USB Type B connector
Input Threshold, SMPTE signal: .....-27dBu
TCXO Generator Crystal Accuracy: 1.5ppm
USB MIDI: ..... Class Compliant USB MIDI Driver
Base Stand Mount: ..... 3/8" BSW Mic Stand Adaptor
MMC Device ID: 127
Equipment Dimensions (HxWxD): 44x228x129mm
Weight: 0.42Kg

GPI Pin Wiring

GPI Inputs: Closed Contact to GND, weak pull-up to 5V

1	Switch 1
2	Switch 2
3	Switch 3
4	Switch 4
5	Switch 5
6	Switch 6
7	Switch 7
8	Switch 8
9	GND

EU Declaration of Conformity (CE symbol)

This declaration applies to
- TCD-1 & TCD-2, 6500xxxxx
manufactured by Nemesis Research

All products of type TCD-1 / TCD-2 starting from variant 6500 are included, provided they correspond to the original technical version and have not been subject to any later design or electromechanical modifications.

We herewith declare that said products are in conformity with the provisions of the respective EC directives including all applicable amendments.

A detailed declaration is available on request and can be ordered from Nemesis Research.

WEEE Declaration (Disposal)

Electrical and electronic equipment must be disposed of separately from normal waste at the end of its operational lifetime.

Please dispose of this product according to the respective national regulations or contractual agreements. If there are any further questions concerning the disposal of this product please contact Nemesis Research.

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Notes:

*This manual is based on TCD-2 Firmware v1.4.

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1.2 30/03/22 DM

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