# TC4000 AND BEYOND

## TC4000 Setup and Functionality Document Written 6/17/2019 Version 1.0



PANGOLIN LASER SYSTEMS PANGOLIN.COM – LASERSHOWPROJECTOR.COM

### **Table of Contents**

Introduction	2
TC4000 Overview	3
Setup of TC4000	4
Setup Of Timecode In BEYOND	5
Setting up a timeline show to use Timecode in Beyond	6
Checklist for using Timecode in BEYOND with TC4000	7
Timecode out with TC4000	8

### Introduction

## Welcome to TC4000

The TC4000 is a SMPTE Timecode converter, It converts analog timecode SMPTE to Midi Timecode (MTC) via USB. This allows for connection as a midi device, allowing for simultaneous input and output of LTC. Because Its over midi, there is no need for an extra driver for this unit, and will work with windows drivers out of the box.

Beyond can receive incoming timecode in the following ways:

- 1. MIDI -MMC (Output only)
- 2. MIDI MTC (Input and Output)
- 3. SMPTE reader such as TC2000 or Aquilla (Input only)
- 4. ArtNET timecode (Input and Output)
- 5. Synchronorm timecode, used for rendering in Realizzer.

When using TC4000 you are going to be using MIDI - MTC (Input and Output)

IMPORTANT NOTE: There was a small production run of the TC4000 that was labeled LTC2MTC, this device Is exactly the same as the TC4000 and has the same exact setup and running procedures as the TC4000.

### TC4000 Overview



On one side we have a USB port, and an RGB status LED, On the other side we have RCA input and output for our Audio LTC, this is slightly different then the TC2000 as the TC2000 had 3 leds on the USB Port side.

#### TC4000 And Beyond

### Setup of TC4000

1. Click on the Main "Settings" menu and select MIDI Settings.

2. Select the MIDI Device "LTC4000", or "LTC2MTC" depending on manufacture date into a device number.

3. Click Ok.

The Timecode for MIDI does not require any special configuration. the type of incoming timecode will be detected automatically

#### MTC (quad):00 02 04 06 @25 (8658 messages)

Confirmation of incoming timecode will be shown in the preview window and look like the figure above.

The RGB LED on the TC4000 will turn RED.

If you have never used timecode before, next section is the setup for timecode overall.

MIDI Devices	C)
MIDI Devices	
Device 1 (Input and Output) LTC2MTC	
LTC2MTC	<b></b>
Device 2 (Input and Output)	Configure
(none)	-
(none)	-
	Configure
Device 3 (Input and Output)	
(none)	<b>•</b>
(none)	-
	Configure
Device 4 (Input and Output)	
(none)	-
(none)	-
	Configure
Information about startup of MIDI devices	
no problems detected	
<b>4</b>	
👝 🛛 If you do not see MIDI messages - check MIDI 🖉	OK Cancel
Device Settings dialog	

### Setup Of Timecode In BEYOND

Before you can use timecode In beyond at all, you will need to go into your configuration and setup all timecode settings the way you would like to use It.

To Setup: 1. Click on settings> Configuration 2. Click Timecode In This will give you the window to the right.

Here you can choose settings for your timecode.

Under Incomming Timecode, you must Click "Enable MIDI Timecode - MTC and MMC" for TC4000 to work.

You can also enable other types of incomming timecode in this window.

Configuration				6
Video	Security	Show im	port	Network
Controllers	Blackout	Zone hotk	.ey La	aser Preview
Log system Live C	ontrol Misc Tu	uning Grid	Timecode In	Timecode Out
Timecode routing Automatic de Always to Gri Always to Tin Always to Pla	neline	Grid, Timeline,	Playlist	
Enable Art No Enable SNT( Keep running Enable time s Timecode time	timecode - MTC an et timecode C Syncronorm Timeo even though timeo mooth filter	code code stops		1.0 <i>속</i> 300 스
Media Event "soon				• ÷
			ОК	Cancel

Some Other Timecode options within this window are described below:

**"Keep running even though timecode stops"** - when this option enabled, BEYOND will continue the show playback even if the incoming timecode signal is lost, or stopped. This option allows the show to continue playback even if there are some drops in timecode signal. When this option is disabled, BEYOND will stop the show playback after 1 second of timecode signal timeout.

**"Enable time smooth filter"**. BEYOND can use the time (from timecode) directly. The time value coming from the Timecode Controller will be used over and over again until a new value has been received. An alternative solution is based on BEYOND detecting the timecode speed and following the time code as close as possible. In this situation, BEYOND will not just wait for next time code value, it will continue to play the show based on the Timecode speed it detected. As a result the time is always going forward and moves smoothly. The time smooth filter should be enabled in most cases, except when you need the show to within an exact time.

### Setting up a timeline show to use Timecode in Beyond

To enable time code within a timeline show, you must right click on the show tab, and click show properties. Then you can select timecode input.

Once "Enable incoming timecode" is clicked, the show will begin to follow incoming timecode.

This must be enabled for every timeline you want to follow timecode, be sure to save your showfile once you have enabled timecode on a show. This is also required if you save the show into a cue of the workspace. And in that case, the cue must be depressed to listen for timecode.

Once you click Okay, a new button on the top bar will be visible:



The TC-IN button has been added, this button when clicked, will have the show following timecode, when unclicked, the show will not react to timecode. This Is for both programming, and safety purposes.

Show properties			
General Time code input	Time code output	Information	
🗙 Enable incoming time	ecode		
Timecode offset:			
Hour Minute	e Second	Millisecond	
023 0	<b>*</b> 59 059	0999	
Add to incoming	timecode		
Subtract from inc	oming timecode		
	ОК	Cance	

### Checklist for using Timecode in BEYOND with TC4000

1. Ensure your timecode device is connected and configured, in TC4000's case, you connect it over midi device settings.

- 2. Ensure that you see incoming timecode values (green text) In the preview panel.
- 3. Ensure that the timeline show properties have "enable Incoming timecode" clicked
- 4. Click on the TC-IN button before the start of sending Timecode data.

#### Important: Timeline shows ignore timecode If the time value is out of bounds

BEYOND only allows for one source of Incoming timecode, this includes the timecode from Media in the timeline. If you have media in your timeline, like video or audio, and your Incoming timecode Is not perfect, you can have issues with synchronization. Due to this, it Is recommended that beyond output timecode and be the source if the main media file is coming from BEYOND and not another show master within the system.

#### TC4000 And Beyond

### Timecode out with TC4000

To setup Timecode out with TC4000, go to Settings> Configuration> Timecode out

Here you can select a midi device number (set to whatever device you set your TC4000 to in Midi settings window) and decide on a timecode format.

To output Timecode from a Timeline, you must: Click on a timeline show tab> Right click> show Properties> Time code output and click "Enable outgoing timecode"

Then when you play the show, you should output timecode on the same timeframe that your show Is.

Video Security Show import Network
Controllers Blackout Zone hotkey Laser Preview
Log system Live Control Misc Tuning Grid Timecode In Timecode Out
Outgoing timecode
MIDI Time Code (MTC, Quarter Frames) MIDI Device 1
Ensure in correct settings in MIDI Settings dialog
Art-Net Time Code
Ensure in correct settings in DMX/ArtNet Settings dialog
Timecode format
0 25
○ 30
OK Cancel
Show properties
General Time code input Time code output Information
🛪 Enable outgoing timecode
Timecode offset:
Hour Minute Second Millisecond
023 059 059 0999
Add to timeline time
Subtruct from timeline time
OK Cancel