Syncing music with video – a tutorial for musicians

In times of self-publishing many musicians are seeking ways to produce their own music video. Bringing pictures and music together can be a tough challenge – external timecode can help. Here is how it works.

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Social media and YouTube have become the preferred tools to promote and publish your own music globally without a producer or professional distribution. To stand out from the crowd a creative and well-produced music video is essential – but easier said than done: up to 200 cuts can easily stack up within a four-minute song. Lining all these little snippets lip-synced with the preproduced music without getting lost can be a challenge. We will show you how your video recordings play nicely to the beat.

Putting the cart before the horse

The magic key is external timecode. Timecode is a timestamp that marks each frame and each beat in audio and video recordings, so they become identifiable and detectable. Unlike in usual film editing, when doing a music video timecode isn't generated on set via video or sound files – since the music comes first, the video file must be fitted to the audio. You basically put the cart before the horse.

For this the playback track must contain timecode that can be transferred to the cameras. This usually already happens during production. Conventional DAWs (Digital Audio Workstations) generate and process timecode as MIDI timecode (MTC).

Don't forget the Pre-roll

Two things you need to consider: it is important that the timecode has a pre-roll. This way you make sure the timecode is already there right from the first beat before counting in the song. Second, the timecode must run with the same exact beat with which the video will be recorded. In video, this "beat" is called framerate where FPS (frames per second) correspond to BPM. In Europe, the most common frame rate for videos is 25 FPS, while the US use 23.98 and 29.97 FPS. If your playback device doesn't support regular or MIDI timecode, you simply create an additional audio track and record timecode signal as a regular audio onto it. You can use apps like LTC Timecode Generator (Android) or iTimecode (iOS) but also a timecode synchronizer like the NanoLockit for this. The absolute time doesn't matter, just don't forget to give the track a pre-roll.

NanoLockits to the Rescue

NanoLockits are the only mobile devices that don't just create timecode "live" during video recording but can also process either interruptive timecode or timecode that was generated in advance and relay it via radio. On top of that they accept classic LTC (Longitudinal Timecode) as well as MIDI-Timecode. This way the timecode can be transmitted via USB from a laptop (Mac or PC), the TC output of an audio recorder, or the headphone jack of the playback device. The TC signal can then be transferred to another NanoLockit to the camera. This makes the NanoLockit perfect for music videos.
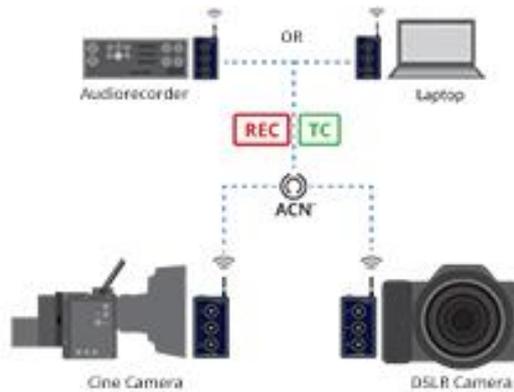
Setup

- Computer with video editing and recording software OR an audio recorder, which serves as playback device for the piece of music and timecode.
- Two NanoLockits: one for the playback (audio recorder OR laptop), one for camera (with multi-camera shots each camera needs a NanoLockit).
- Connector cable for camera, playback device or laptop/DAW to connect the NanoLockit

Instructions

- Start NanoLockits in TRX mode: push the red button and tap the power button.
- Connect a NanoLockit with the player. You can use the TC-Out or MIDI-USB. If you use timecode on audio track use the audio or headphone output. The device is now a TC transmitter, when the piece is playing and the timecode is running, the NanoLockit will recognize the device and start flashing green.
- Connect a NanoLockit with the camera. With DSLR cameras, TC is recorded on the audio track, so you need to adjust the audio level. First, the sensitivity regulator must be set to 50%, then you reduce the TC level of the NanoLockit by holding the green button and repeatedly tapping on the red button until the signal reaches -20dB or half of the modulation.
- Via ACN technology the timecode is now transmitted to the other NanoLockit to the camera, as soon as it blinks green the record can be started.

Important hint: The playback device must always start ahead of every take so that the timecode is in place when the camera starts rolling.

Work faster during post-production

Once the shooting is under wraps clips and song must be imported into the video editing program. The software must be compatible with timecode; Adobe Premiere Pro or Final Cut Pro may be given as example. If your camera has native timecode support, you can simply import and process your clips.

If the timecode was recorded on audio track, you need special software to convert the clips. Da Vinci Resolve is a free of charge software that can read audio timecode and include it as timestamp in the file. You can then process the converted file in any editing software, but you can also work directly in Da Vinci Resolve.

For more information on the NanoLockit visit www.nanolockit.com and www.ambient.de/university.