



**TENTACLE**  
SYNC

**TENTACLE SYNC HARDWARE**

OPERATING MANUAL V1.2

# OVERVIEW

## TIMECODE INPUT / OUTPUT

If nothing is plugged in here Tentacle automatically switches off after 2 hours.



## SWITCH ON FOR



**Short press:** Tentacle starts in **Red-Mode** where it is waiting to JamSync to external Timecode.



**Long press (more than 3 sec):** Tentacle starts in **Green-Mode** where it generates and outputs Timecode. Time will be the „time of day“ fetched from the internal RTC.

## SWITCH OFF

Long press will switch Tentacle off. Timecode will be lost then.

## STATUS LED

**flashing RED:** Tentacle runs in Red-Mode.

**flashing GREEN:** Tentacle runs in Green-Mode.

**flashing several times red:** Battery is nearly empty!

## CHARGING STATE LED

Charging



Full



## MICRO-USB SOCKET

Charging can be done by any USB power source. Full charge takes 1.5 hrs for up to 40 hrs operation time.

Set up your Tentacle by connecting it to your computer or smartphone.

You can download the quick start guide, setup app and more information about how to connect to different devices on our website:

[www.tentaclesync.com/download](http://www.tentaclesync.com/download)



## INTENDED USE

This device is only intended for use on suitable cameras and audio recorders. It must not be connected to other devices. The device is not waterproof and should be protected against rain. For safety and certification reasons (CE) you are not permitted to convert and/or modify the device. The device can be damaged if you use it for purposes other than those mentioned above. Moreover, improper use can cause hazards, such as short circuits, fire, electric shock, etc. Read through the manual carefully and keep it for later reference. Give the device to other people only together with the manual.

## SAFETY NOTICE

A guarantee that the device will function perfectly and operate safely can only be given if the generally standard safety precautions and device-specific safety notices on this sheet are observed. The rechargeable battery integrated in the device must never be charged in an ambient temperature below 0 °C and above 40 °C! Perfect functionality and safe operation can only be guaranteed for temperatures between -20 °C and +60 °C. The device is not a toy. Keep it away from children and animals. Protect the device from extreme temperatures, heavy jolts, moisture, combustible gases, vapors and solvents. The safety of the user can be compromised by the device if, for example, damage to it is visible, it doesn't work anymore as specified, it was stored for a longer period of time in unsuitable conditions, or it becomes unusually hot during operation. When in doubt, the device must principally be sent in to the manufacturer for repairs or maintenance.

## DISPOSAL / WEEE NOTIFICATION

This product must not be disposed of together with your other household waste. It is your responsibility to dispose of this device at a special disposal station (recycling yard), at a technical retail center or at the manufacturer.



## FCC DECLARATION

This device complies with Part 15 of FCC guidelines. Its operation is subject to both of the following conditions: (1) This device is not permitted to cause any radio interference, and (2) this device must be capable of absorbing all received interference, including interference that can cause undesirable functionality.



## INDUSTRY CANADA DECLARATION

This digital device complies with the Canadian regulatory standard CAN ICES-3 (B)/NMB-3(B).

## CE DECLARATION OF CONFORMITY

Tentacle Sync GmbH, Eifelwall 30, 50674 Cologne, Germany declares herewith that the following product:

Tentacle Sync Box Timecode-Generator

complies with the provisions of the directives named as follows, including changes in them that apply at the time of the declaration.

This is evident from the CE mark on the product.

- EN 55022:2010 + AC:2011

- EN 55024:2010

- EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + AC:2011 + A2:2013



Cologne, 01.01.2016

Ulrich Esser, CEO

# SETTING UP YOUR TENTACLES

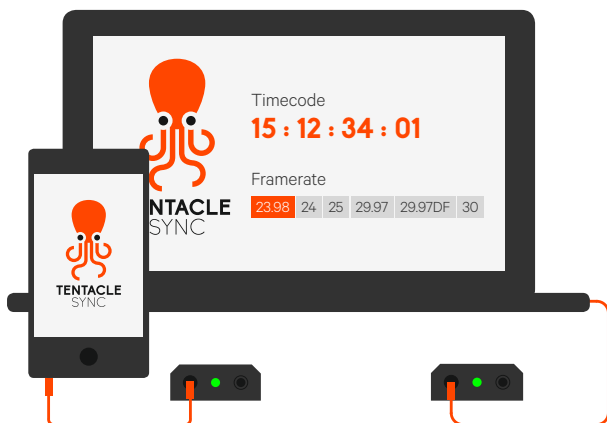
Before using your Tentacles you should set up some basic parameters like frame rate, name and output volume. You can do this through our setup app which is available for OS X, Windows, iOS and Android.

Download the appropriate setup app for your computer or smartphone here:

[www.tentaclesync.com/download](http://www.tentaclesync.com/download)

For more information about using the setup app please read the section TENTACLE SETUP APP down below in this document.

**Please note: The setup-procedure is only needed once for a project, no computer is needed on set for normal use.**



## GETTING STARTED

### SWITCHING ON AND OPERATING MODES:

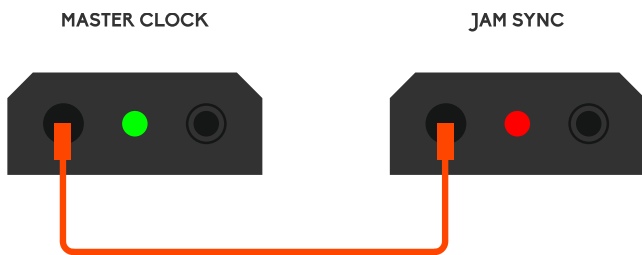
Basically Tentacles can be started in two modes:

**Green-Mode:** During switch-on, keep the power-button pressed until the LED is flashing green (-> 3sec.) In this mode Tentacle fetches the „Time of Day“ from the build in RTC (Real Time Clock), loads it into the timecode generator and starts generating and outputting Timecode over the 3.5mm Jack.

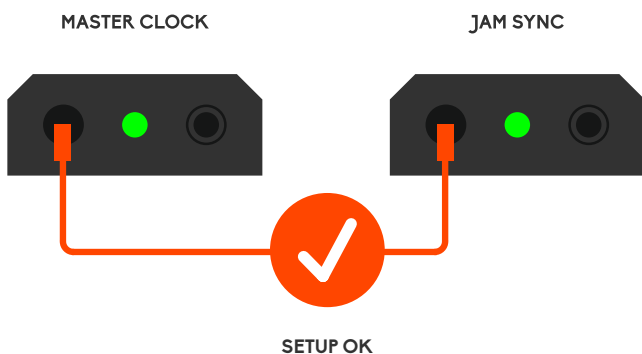
**Red-Mode:** During switch-on, just press the power-button shortly (app. 1sec.), LED is flashing red. In this mode Tentacle waits for external timecode from the 3.5mm Jack. Once it has received a proper timecode-signal from an external device like a sound-recorder, a camera or any other master clock, it JamSyncs to it and switches automatically over to Green-Mode. Here it generates and outputs the jammed timecode over the 3.5mm Jack.

## SYNCHRONIZING TWO OR MORE TENTACLES AMONG EACH OTHER

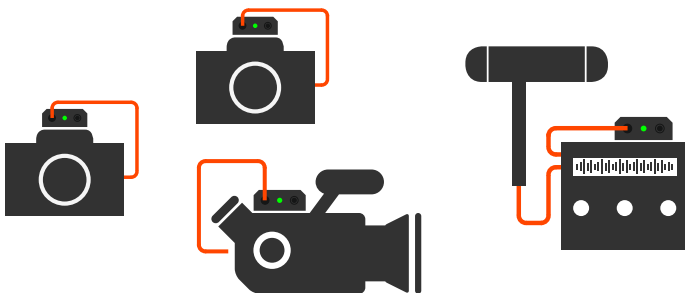
Start the first Tentacle in **Green-Mode** (Master) and all other Tentacles in **Red-Mode** (JamSync).



Shortly connect all Tentacles in Red-Mode to the one Tentacle in Green-Mode via the included mini jack sync cable. All Tentacles should be in sync now and flashing green.



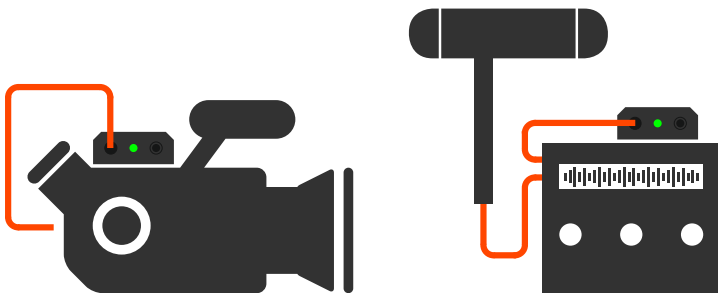
Attach the synced Tentacles to your camera and sound recorder. They will stay in sync at least 24hrs.



## SYNCHRONIZING TO EXTERNAL TIMECODE

- Start Tentacle in **Red-Mode** (JamSync).
- Shortly connect Tentacle to the timecode source you would like to JamSync to. In most cases the timecode source will be a sound recorder acting as a timecode master. For this you will need the right adapter cable e.g. the „LEMO 5pin -> Tentacle“ cable. Once Tentacle has jammed to external timecode it switches automatically over to **Green-Mode**. This is shown by flashing 3 times quickly green. Now it generates and outputs the jammed timecode over the 3.5mm jack.

# CONNECTING TENTACLES TO YOUR CAMERA OR SOUND-RECORDER



**Tentacles are very versatile and can be used in different ways. Basically equipment can be divided into two groups:**

- **Equipment that has a Timecode-Generator built in, with the possibility to feed external timecode into the device over a TC-IN connector.** This equipment includes mostly professional and more expensive cameras like ARRI cameras, RED cameras, Sony F5/F55/PDW-700, Canon C300 (MKII) or audio recorders like SoundDevices 702T/744T/664 or Tascam HDP2. Here the timecode is processed inside the device and written into the media file in form of metadata.
- **Any other equipment that has not the possibility to feed external timecode into the device over a TC-IN connector.** This equipment includes mostly semi professional and less pricy equipment like Canon 5D, Sony A7s, BMCC or GoPros. For audio recorders this could be a Zoom H4N/H6N, Tascam DR60/DR70/DR680 or an Edirol R44 to name only a few of them. To use timecode on this devices you have to record the timecode signal onto one free audio track. To make use of this recorded timecode later in editing you need either an editing system that has support for so called audio timecode or you can use our included software to translate audio timecode to standard metadata timecode. Because timecode is recorded as an audio signal, you have to set the output volume of your tentacle to a proper value (mic-level vs. line level) so that the mic-input of the camera/recorder will not distort the signal.

## USING THE RIGHT ADAPTER CABLE

**To connect Tentacle to nearly any kind of camera you have to use the right adapter cable. Here is a short overview of the cables available:**

- **Tentacle mini jack sync cable (included):** For use with any device that features a 3.5mm microphone jack e.g. Canon 5D, Panasonic GH3/GH4, BMPCC.
- **Tentacle -> RED:** To send Tentacle-Timecode to your RED Camera.
- **Tentacle <-> BNC:** To send Tentacle-Timecode to your BNC-Device, such as Sony F5 or Canon C300. The BNC Cables is bidirectional and enables you also to sync your Tentacle to external Timecode.

- **Tentacle -> LEMO:** To send Tentacle-Timecode to your LEMO-Device, such as Sound Devices or ARRI Alexa.
- **LEMO -> Tentacle:** To send Timecode from your LEMO-Device (e.g. Sound Device) to Tentacle.
- **Tentacle -> XLR:** To send Tentacle-Timecode to your XLR-Device, such as ZOOM, Cameras without TC in but with XLR Audio.
- **XLR -> Tentacle:** To send Timecode from your XLR-Device to the Tentacle.

## RECHARGEABLE BATTERY

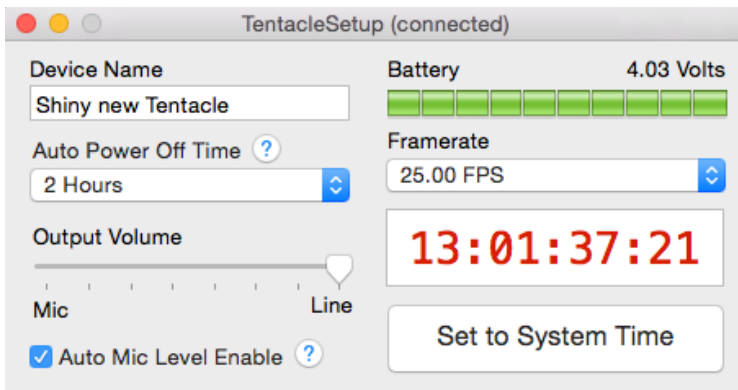
Tentacle has a built-in rechargeable Lithium-Polymer battery. Charging is possible via a micro USB connector at the rear. The charging state will be shown over a LED right beside the USB port. The internal battery can be charged from your computer or any other USB power source. The charging time is 1.5 hrs. Fully charged Tentacles can be used up to 40 hrs. If the battery is nearly empty, Tentacle will show this by flashing several times red on the front LED. Tentacle will keep working under this condition until it switches itself off. Once the battery is empty, Tentacle refuses to switch on again until recharged.

## BUILT-IN MICROPHONE

Tentacle features a small built-in microphone which can be used to record reference sound on DSLR Cameras like Canon 5D and others. It is located right behind the micro USB connector. By using the mini jack sync cable the timecode signal will be recorded on the left channel, reference sound will be recorded on the right channel.

**Using the built in microphone is only possible when working at mic levels with plugin power switched on at camera side.**

# TENTACLE SETUP APP



The Tentacle setup app allows you to monitor, setup and change basic parameters of your Tentacle unit. This includes frame rate, device name, output volume, time, battery state, user bits and much more. The setup app is available for OS X, Windows, iOS and Android platforms.

Download the appropriate setup app for your computer or smartphone here:

[www.tentaclesync.com/download](http://www.tentaclesync.com/download)

## CONNECTING

**How you connect your Tentacle and which cable to use depends on the operating system you are using:**

- **OS X and Windows :** Tentacle connects like a normal USB Device via the included Micro-USB cable to your computer. To use the app you need at least OS X 10.6. (64bit) or Windows 7 (32/64bit). Once started a window like seen above will appear. If no Tentacle is connected via USB the app indicates this with „not connected“. After connecting a Tentacle to your computer this message will change to „connected“ and information like device name, battery state and timecode of the actual Tentacle will be shown.
- **Android :** To connect a Tentacle with your Android phone you have to use the included Android Setup cable (OTG cable) together with the Micro-USB cable. The phone needs to be USB OTG capable and have at least Android 5.0 (Lollipop) running.
- **iPhone/iPad/iPod :** Those devices will connect to your Tentacle by using the headphone jack via the included iPhone Setup cable (4pin TRRS Mini Jack, white). The Tentacle Setup App needs at least iOS 8. Here are some tips to get your iOS Setup app running:
  - Please make sure you are using the included white 4 pin TRRS Cable (it comes in a sealed plastic bag with a “iPhone Setup Cable” sticker on it). The normal 3 pin TRS cables will not work.
  - Sometimes the receptacle of the phone is dirty. Please make sure that it is clean and the jack has a proper contact. An indicator for a proper contact is the appearing of the red volume bar at the top of the connect screen.
  - Make sure you have the latest firmware running, which is 3.70. To install the latest firmware you have to download and run the latest setup app for MAC/PC from our website and follow the instructions.



- Make sure that the headphone volume of your phone is set to a high enough volume level. You can see a hint in the connect screen if the volume level is acceptable.
- Please make sure that you have given the setup app access to the microphone. You can check and change this in the iOS settings under privacy/microphone.
- Sometimes it helps just to restart your phone.

## BASIC SETUP

The steps described here are principally the same for all different versions of the setup app (OS X, Windows, iOS and Android). It will be explained here for the OS X version.

### ■ Timecode display:

The actual timecode running on the connected Tentacle will be shown here. The color of the displayed timecode indicates the state of the Tentacle analog to its status LED:

**RED:** Tentacle has not been synchronized yet and waits for external Timecode to JamSync to.

**GREEN:** Tentacle has been synchronized or is acting as a master clock.

Please note: The timecode display is for informational purposes only. It is not guaranteed to be 100% frame accurate with the timecode running on the device.

### ■ Changing the device name:

For better differentiation of multiple Tentacles you can change the name of each device individually. Just click into the name-field, change it and confirm with return.

### ■ Changing the output volume:

Here you can smoothly set the output level of the timecode signal between MIC and LINE. Professional cameras with a TC-IN connector (like Red Cameras, ARRI Alexa, Canon C300, Sony F5/F55/PMW200) demand Timecode with LINE-Level.

Tentacle can also be used with cameras and recorders without TC-IN (like Canon 5D, Blackmagic Cameras, GoPros, Sony EX1, A7s). Here you need to record the timecode signal as an audio signal on an audio track of that device. Some devices only accept MIC-Level audio, so you have to adjust the output level through the setup app so that the timecode signal does not distort.

### ■ Setting the frame rate:

Choose the right frame rate by selecting it through the pulldown-menu. Tentacle generates the following frame rates: 23,98 FPS, 24 FPS, 25 FPS, 29,97 FPS, 29,97 DropFrame FPS, 30 FPS.

### ■ Setting the Realtime Clock:

By clicking on the „Set to System Time“ or „Set to Phone Time“ button you can set the internal Real-Time-Clock (RTC) of your Tentacle to the system time of your host computer. This is useful if you are going to use Tentacle in different time-zones.

### ■ Auto Power Off Time:

If nothing is plugged into the 3.5mm Mini Jack of your Tentacle, it will automatically switch off after the set time period. So if you forgot to switch off your device at the end of a shooting day the battery will not be empty when using it next time.

### - **Auto Mic Level:**

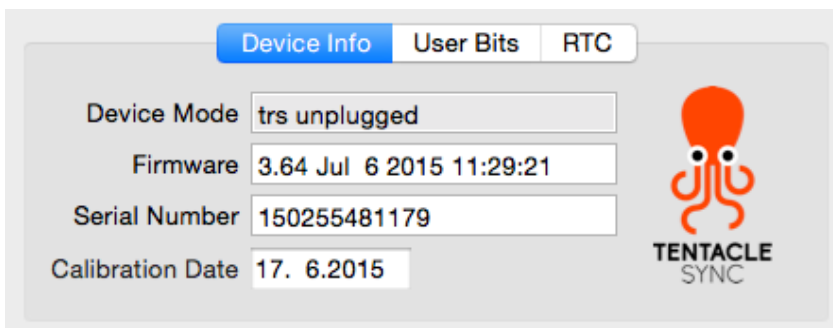
With 'Auto Mic Level' enabled Tentacle switches the output volume to mic-level when plugged into a device with plugin power (for 3.5mm mini jack inputs like 5D or GH4 or BMPCC) or phantom power (for XLR inputs). This helps to prevent distortion on mic inputs if you forgot to set the output level to mic.

## EXTENDED SETTINGS

Tentacle Setup offers an „Extended Settings“ mode to give you more information and more control over your Tentacle unit. To activate this mode just select „Extended Settings“ out of the „Mode“ menu in the menu bar of the Tentacle Setup program.

### DEVICE INFO

Here you can see more specific informations about the connected device.



- **Device Mode:** shows information about the state of the device.

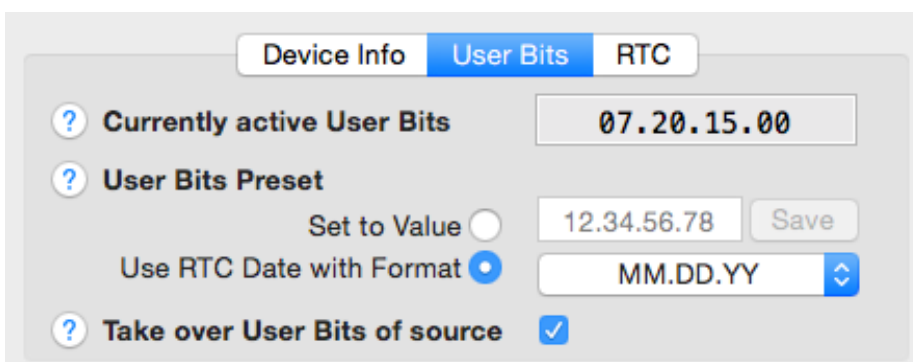
- **Firmware:** shows the current firmware version running on the device.

- **Serial Number:** shows the device serial number.

- **Calibration Date:** shows the date of the last TCXO calibration.

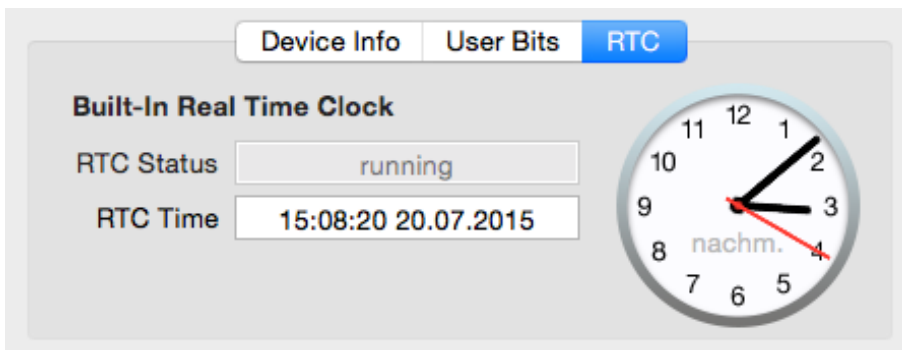
### USER BITS

On this page you are able to get information and change settings regarding User Bits. User Bits enable you to embed additional information into the Timecode Signal like the calendar date or a camera-id. These Bits usually consists out of 8 hexadecimal digits which are able to handle values from 0-9 and a-f.



- **Currently active User Bits:** Here you can see the active SMPTE Timecode User Bits currently running on the device.
- **User Bits Preset:** Here you can select a preset for the User Bits. The selected Preset will be set and saved to the device for recall when powering up next time. Selecting „Set to Value“ sets the User Bits to a static value which you can edit in the input box nearby. When selecting „Use RTC Date“ the User Bits will be generated dynamically from the build-in RTC. You are able to change the format of the date via the pulldown menu nearby.
- **Take over User Bits of source:** When this checkbox is enabled Tentacle takes over incoming User Bits from other devices during JamSync in Red Mode. The User Bits will then be output when the device switches over to Green Mode after syncing was successful.

## REAL TIME CLOCK (RTC)



- **RTC Status:** shows the state of the RTC (running oder stopped).
- **RTC Time:** shows the current time and date of the RTC.

# TECHNICAL SPECIFICATIONS

- Size: 34mm x 50mm x 16mm
- Weight: 30g
- Switchable mic/line output + built-in microphone for reference sound
- LTC timecode according to SMPTE-12M, frame rates: 23.98, 24, 25, 29.97, 29.97DF and 30 FPS
- High precision TCXO:
  - Inaccuracy less than 1 frame per 24 hours
  - Temperature range: -30°C to +85°C
- Can act as master clock (Green Mode) or jam-sync to any external timecode source (Red Mode)
- Automatically detects and takes over incoming frame rate on jam-sync (planned feature)
- Built-in rechargeable lithium polymer battery
  - Operating time up to 40 hrs
  - Fast charging via USB (1.5 hrs)
  - More than 3 years of battery life (depends on usage)
  - Replaceable
- Integrated hook surface on back for easy mounting

## CONTACT

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