

TRACK E

TIMECODE AUDIO RECORDER

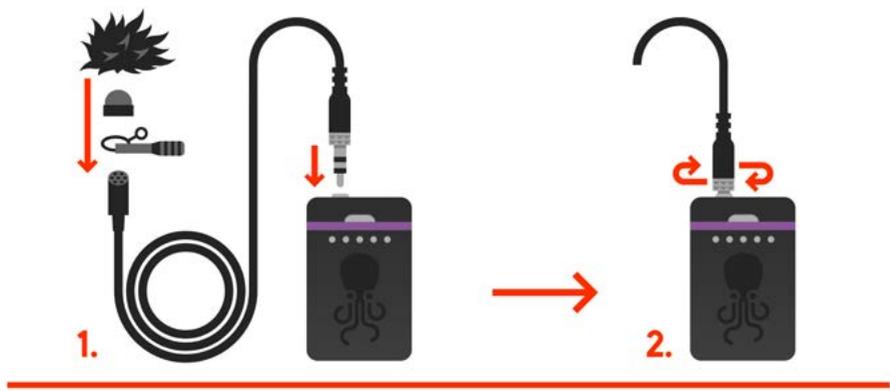
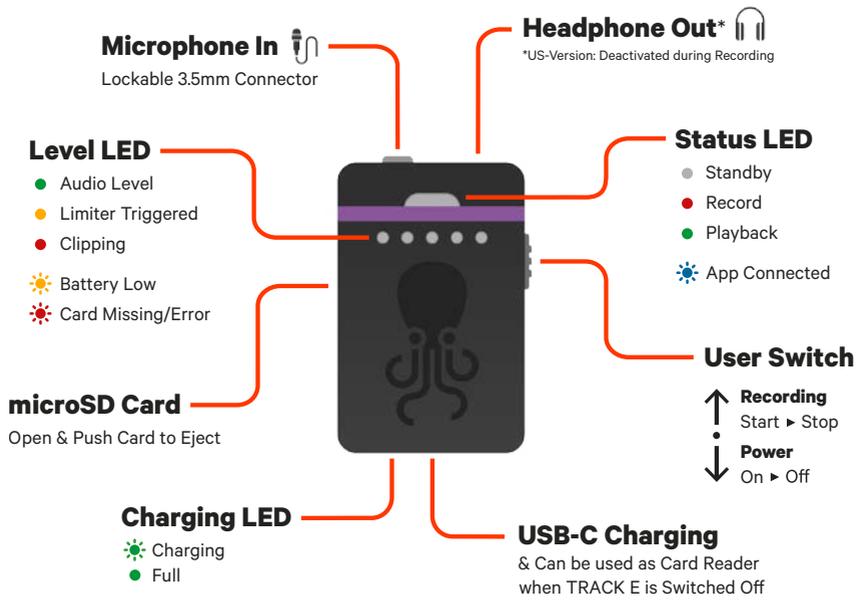


OPERATING MANUAL V 1.2

FIRMWARE VERSION 2.0.3

17 JANUARY 2022

GETTING STARTED	4
SETUP APP FOR iOS & ANDROID	
ENABLE BLUETOOTH ON YOUR MOBILE DEVICE	
SWITCH ON YOUR TRACK E	
ADD A NEW DEVICE	
TIMECODE SYNCHRONIZATION	6
TIMECODE JAM-SYNC	
RECORDING	7
MULTIPLE TRACK RECORDING	
SINGLE TRACK RECORDING	
INDEPENDENT RECORDING VIA USER SWITCH	
DEVICE LIST	
DEVICE WARNINGS	
MENU SETUP APP	10
RECORDING	
PLAYBACK	
SETTINGS	
USER SWITCH ON/OFF	16
TRACK E MICROPHONE	17
MICROPHONE INPUT	
MICROPHONE ADAPTERS	
HEADPHONE OUTPUT	18
MICRO SD CARD	18
RECHARGEABLE BATTERY	19
USB-C PORT AND CARD READER	20
FIRMWARE UPDATE	21
TECHNICAL SPECIFICATIONS	23
WARRANTY AND SAFETY REGULATIONS	



GETTING STARTED

SETUP APP FOR iOS & ANDROID

The Tentacle Setup App allows you to operate, synchronize, monitor and set parameters of all TRACK E devices. This includes settings such as audio recording formats, limiter, device name & icon, headphone volume, battery level and more.

You can download the Setup App here: www.tentaclesync.com/apps

Note: Wireless audio monitoring on Android is only supported on Android 10 (API Level 29) and higher.

ENABLE BLUETOOTH ON YOUR MOBILE DEVICE

The Setup App will need to communicate with your TRACK E devices via Bluetooth. Make sure Bluetooth is activated on your mobile device. You must grant the app the necessary permissions as well. The Android version also asks for a ‚location permission‘. This is only needed to receive Bluetooth data from your TRACK E. The app does not use or store your current location data in any way.

SWITCH ON YOUR TRACK E

Before starting the app it is recommended to switch on your TRACK E devices. Pull down the user switch on the side to turn on your TRACK E. The device will indicate powering ON with a blue animation of the level LED. Once it's powered up, the status LED will be pulsating in white for ‚standby‘.

During operation, the TRACK E constantly transmits status and recording information via Bluetooth.

ADD A NEW DEVICE

If you open the Tentacle Setup App for the first time, the device list will be empty. You can add new TRACK E audio recorders and SYNC E timecode generators by tapping on **+ Add Device**. This will show a list of available Tentacle devices nearby. Select the one, you would like to add to the list and tap on it. Hold your Tentacle device close to your phone to finish the procedure. This ensures that only you have access to your Tentacles and not someone else nearby. Once a Tentacle is added to the list, it will appear automatically in the device list, next time the app is opened.

TIMECODE SYNCHRONIZATION

With your Setup App, you can easily synchronize all of your TRACK E and SYNC E devices with one button click. At the bottom of your screen you'll find the **SYNC** button.

- Tap on **SYNC** and a small window will pop up
- Click on **Frame Rate** and select the desired frame rate from the drop down menu
- Time of Day is predefined as a starting timecode. For custom timecode tap on the timecode and choose your desired value.
- Press **START** and all Tentacles will be synchronized one after another within a few seconds

Once your Tentacle devices are synchronized, the app displays **Sync Done**.

TIMECODE JAM-SYNC

The microphone input can be used to jam-sync your TRACK E with timecode from any external timecode source via cable. Once your TRACK E is turned on, you can jam-sync it as long as there is no other action done (e.g. wireless sync via app or start a recording).

Here are the suitable adapter cables in our online store:

5-pin Lemo to Tentacle:

<https://shop.tentaclesync.com/product/lemo-to-tentacle/>

BNC cable 90°:

<https://shop.tentaclesync.com/product/tentacle-to-90-bnc/>

RECORDING

To start a recording with your TRACK E timecode audio recorder, you can start and stop it via Setup App or directly at each TRACK E device.

With the Setup App all of your TRACK E devices can be started at once or each TRACK E individually in case you are not working with all of your devices at the same time.

MULTIPLE TRACK RECORDING

At the screen you'll find two buttons **RECORD** and **STOP**. These buttons start and stop the recording of all your TRACK E devices in your list.

SINGLE TRACK RECORDING

Next to each TRACK E status information in the monitoring list is a **REC** button as well, which starts and stops the recording just for this single TRACK E.

INDEPENDENT RECORDING VIA USER SWITCH

If you are unable to use the app or don't want to, you are still able to operate your TRACK E devices directly and independently from a mobile device.

START: Pull up user switch, status LED lights up red during recordings

STOP: Pull up user switch again

DEVICE LIST

Once your devices have been added to the list, you can check the most important status information of each unit at a glance. You will be able to monitor the level meter, recording file format, recording time, frame rate, timecode, battery status, Bluetooth range, device icon and name.

If a TRACK E is out of Bluetooth range for more than 10 seconds, the status and timecode of it will be maintained. If the app hasn't received any updates for more than 10 minute, the message will be **Last seen x minutes ago**.

Depending on the physical distance of a Tentacle device to your mobile device, the status information in the list will be highlighted. The closer the TRACK E gets to your mobile device the more saturated the color will be.

Remove a TRACK E from the device list

You can remove a Tentacle. TRACK E from the list by swiping to the left (iOS) or long pressing (more than 2 sec.) on the Tentacle status information (Android).

DEVICE WARNINGS

Devices have to be synchronized: This warning message is displayed, when inaccuracies of more than half a frame occur between all devices in Green Mode. Sometimes this warning can pop up for a few seconds, when starting the app from background. In most cases the app just needs some time to check the information of each Tentacle device. However, if the warning message persists for more than 10 seconds you should consider re-syncing your Tentacles.

APP SETTINGS

Theme	Here you can choose a light or dark theme for the setup app
Audio Monitoring	Here you can select one of two audio monitoring modes: loudspeaker or earpiece monitoring (details see menu setup app > recording > audio monitoring p. 11)
Safe Mode	If this mode is enabled, you need to press the STOP button for 2 seconds before the audio recording stops
Remove all Added Devices	Here you can remove all devices from the monitoring list at once
Ask for Help	Here you can send a support request directly to the Tentacle support team
Acknowledgements	License information with used open-source components
App Version	Here you can view the current app version

MENU SETUP APP

Pressing briefly on a TRACK E status information in the monitoring screen, will start a connection to this device and allows you to do the device's settings.

An active Bluetooth® connection will be indicated by a blue status LED. The TRACK E menu is divided into three categories:

Recording / Playback / Settings

RECORDING

Device icon	Change the colour of each device icon by tapping on the icon and select the colour you need
Status	
Ready	Once you have started a recording, it will display the recorded time of this audio file
Recording	Shows the recording time
Disconnected	If the unit is completely turned off
Timecode Display	The current timecode is displayed here
Battery Level	The current battery status is shown here
Recording format	The current recording format – float or 24 bit – is displayed here

<p>Audio Monitoring</p> <p>Earpiece Monitoring</p> <p>Loudspeaker Monitoring</p>	<p>By long pressing the speaker button, audio monitoring will be activated. A pop-up window with two selectable modes will appear.</p> <p>Monitoring via smartphone earpiece is activated, as soon as the smartphone is held close to the ear.</p> <p>Monitoring via smartphone speaker is activated by clicking on the speaker button. All headphones recommended by the smartphone manufacturer can also be used here.</p> <p>Please note: The use of Bluetooth can lead to a device-dependent, time lag during monitoring. This increases if Bluetooth headphones are also used.</p>
<p>Level meter</p>	<p>Check your recording level in dB</p>
<p>Recording time</p>	<p>The recording time of your current audio clip is displayed here</p>
<p>Remaining Recording time</p>	<p>Shows the remaining recording time of the microSD card</p>
<p>File name</p>	<p>Next to recording time, you can find the file name of your upcoming wave file</p>
<p>Waveform display</p>	<p>Monitor the recording as a waveform visualization. It will be orange coloured during an audio recording</p>

Recording Gain	Adjust your recording gain here. This is important if you choose 48kHz / 24-bit recording format
Record Button	Start and stop the recording here
Low cut filter	If this filter is ON, it will reduce noise for all frequencies lower than 80Hz. This can be useful if working with sounds with too much bass and low frequencies like background noise
Mic Plugin Power	<p>The mic plug-in power is set to ON in the standard settings and has 5V. With this plug-in power, you can use all electret lavalier microphones. You can turn it OFF if you are working with dynamic microphones.</p> <p>Note: Usually the enabled plug-in power doesn't affect most dynamic microphones. However this does not apply to every model. So please check with the microphone's manufacturer. Plug-in power turned OFF extends battery life.</p>

PLAYBACK

In this section of the menu, you can listen to your recorded files. Connect your headphones to the 3.5mm headphone out of the TRACK E or use the audio monitoring feature via smartphone ([see p.11](#)). Make sure to set your headphone volume accordingly.

<p>Playback</p>   	<p>In playback mode, the status LED will be green</p> <p>Here you can skip between the recorded files</p> <p>Each time you tap it will double the speed. It can playback your file with up to 128x the regular speed.</p> <p>Stop / Play</p>
<p>File information</p> <p>Name</p> <p>Channel Count</p> <p>Sample Rate</p> <p>Recording Bit Depth</p> <p>Length</p> <p>Timecode</p>	<p>This gives you all the information about each recorded file</p> <p>Shows the name and number of the file</p> <p>Mono</p> <p>48 kHz</p> <p>Shows the recording format 32-bit or 24-bit</p> <p>Shows the length of each clip</p> <p>Shows the timecode and frame rate</p>

SETTINGS

Device name	<p>Change the predefined device name by simply clicking on the name field, change the name and confirm with ‚return‘</p> <p>Note: Creating a new device name will create a new folder on your microSD card named after this device.</p>
Recording format 48 kHz / 32-bit Float 48 kHz / 24-bit	<p>This format records 32-bit float WAV. files Adjusting the recording gain is not required. As long as maximum input levels are not exceeded, both quiet and loud sounds can be recorded with high quality. This 32-bit float recording will disable the limiter</p> <p>This format records standard 24-bit WAV. files. Adjust the recording gain, so that the clip indicators do not light up red while recording. In the 24-bit format, the limiter is always enabled</p>
Headphone volume	<p>Tap on the little speaker icon and adjust the volume of the headphone output*</p> <p>*Note: US version has the headphone output deactivated during recording</p>
LED Brightness	<p>Adjust the brightness of the LEDs here</p>
LED while Recording	<p>Here you can deactivate the level LED completely during recording</p>

<p>User Switch Assignment</p> <p>Not used</p> <p>Start / Stop Playback</p> <p>Start / Stop Recording</p>	<p>Click on the field and select an action for your user switch on the TRACK E when pulling it up</p> <p>No action will happen, if user switch is pulled up</p> <p>You can now listen to your last recorded file when the user switch is pulled up</p> <p>This action is preset and allows you to manually Start / Stop an audio recording via user switch</p>
<p>Format SD Card</p>	<p>To format your SDcard, just press the button and confirm it in the pop-up window</p>
<p>General information</p> <p>Firmware Version</p> <p>Hardware Revision</p> <p>Hardware Serial No.</p> <p>App Version</p> <p>Real Time Clock (RTC)</p>	<p>Shows the current firmware version running on the device</p> <p>Shows the hardware version of this unit</p> <p>Shows the serial number of your TRACK E</p> <p>Shows the current software version of your setup app</p> <p>Shows the current time and date of the internal real time clock</p>
<p>Limiters</p>	<p>The limiter icon is only visible in your monitoring view. If you select 48 kHz / 24-bit recording format, the limiter is enabled. In 32-bit float it will be disabled.</p> <p>The limiter will compress the dynamic range, so that sudden volume peaks can be prevented.</p>

USER SWITCH ON/OFF

The TRACK E has a multi-purpose user switch on the right side.

Power On	Pull down the user switch until the level LED will start a blue animation
Power Off	Pull down the user switch for more than 5 seconds. The status LED will flash white until the TRACK E is turned off
Start Recording	Pull up the user switch. The status LED will light up red during recording
Stop Recording	Pull up the user switch again. The status LED will go back to white

The Start / Stop Recording action for the user switch is predefined, but can be assigned differently in the settings section of the menu ([see p. 15](#))

TRACK E MICROPHONE

The TRACK E set includes a versatile lavalier microphone (omnidirectional characteristic) with windjammer and clip. Of course, Tentacle TRACK E is compatible with all common lavalier, electret shotgun and dynamic microphones. An adapter to 3.5 mm mini jack with a standard Sennheiser wiring may be necessary.

MICROPHONE INPUT

The TRACK E has a 3.5mm mini jack microphone input with screw lock. 5V plug-in power is activated, for dynamic microphones the plug-in power can be deactivated in the Tentacle Setup App. This input can also be used to jam-sync your TRACK E from any external timecode source via cable ([see p. 6](#))

MICROPHONE ADAPTERS

To connect an even wider range of lavalier microphones to TRACK E, you may need an adapter, you may need an adapter with a standard Sennheiser wiring.

The adapters and a variety of accessories are available at your local dealer at shop.tentaclesync.com

HEADPHONE OUTPUT

To monitor while recording* please connect headphones with a 3.5mm mini jack connector to the headphone out of the TRACK E device. For a playback of your already recorded files, you also need to open the Setup App playback section in the device's menu. You can adjust the headphone level for each device in the app.

***Note:** US version has the headphone output deactivated during recording! The output signal of the headphone out is not a looped signal. It is processed!

MICRO SD CARD

The included 16GB microSD card is located on the left side of the TRACK E. Just pull out the cover and push the card in to remove it. This card can record up to 30 hours in 24-bit recording format and 23 hours in 32-bit Float recording format. Formatting the microSD card is easily done in the Setup App via Bluetooth. You'll find it in the settings section of the menu.

Note: When using different microSD cards, make sure you use one that is qualified. Recommended are SanDisk/Western Digital 8/16/32GB or similar class 10 SDHC up to 32GB. We recommend to leave the microSD card inside the TRACK E and use the device as a hard drive ([see p. 20](#)).

RECHARGEABLE BATTERY

The TRACK E has a built-in, rechargeable and replaceable Lithium-Polymer battery. Charging is possible via USB-C. The charging status will be shown by the charging LED right next to the USB-C port. The internal battery can be charged from any USB power source.

The charging time is max. 2 hours if the battery is completely empty. Fully charged, TRACK Es can run for up to 10 hours. When the battery is at less than 10%, Tentacle indicates this by flashing the level LED yellow several times. The device continues to run in this state, until it switches itself off at 3% of battery status. If the battery is completely empty, the TRACK E can no longer be switched on before it has been recharged.

The battery is easily replaceable, once the performance is decreasing after 2-4 years depending on the use. A battery replacement kit can be obtained from Tentacle Sync.

In this case please contact support@tentaclesync.com

Please note: The charging process of the battery is stopped as soon as temperatures below 0° or above +40° are reached in order to preserve the battery's lifetime. This will be indicated by a red charging LED.

USB-C PORT AND CARD READER

The USB-C port at the bottom of the TRACK E can be used for charging and as a card reader as well.

As a card reader the USB-C port is used for fast data transmission. This way, there is no need to remove the microSD card from the TRACK E. You can transmit your files directly from the Tentacle TRACK E to your computer.

- Connect your switched off TRACK E to your computer via the included USB-C cable. You have to push the cable all the way into the TRACK E until it makes a ‚click‘ sound and the status LED indicates the connection by a short flash.
- A hard drive icon will appear on your desktop. You can drag and drop your files directly from the TRACK E onto your computer.
- To remove the TRACK E, please eject it correctly from your computer.

FIRMWARE UPDATE

This firmware update will allow you to wirelessly monitor TRACK E audio on the Tentacle Setup App (iOS/Android) via Bluetooth. It also improves write performance & battery running time.

[TRACK E firmware update 2.0.3](#)

Before you start:

- Before performing the update, please backup your microSD card in case it contains important files.
- Make sure your TRACK E has sufficient battery. If your updating computer is a laptop, make sure it has sufficient battery too or is connected to mains
- The Tentacle Sync Studio software (macOS) or the Tentacle Setup software (macOS/Windows) should not be running at the same time as the Firmware Update App. The Tentacle can only be detected by one Tentacle software at a time

Update procedure:

- Download the firmware updater app, install it and open it
- Connect your TRACK E via USB cable to the computer and switch it on
- Wait for the updater app to connect to your TRACK E
- If an update is needed, start the update by pressing the „Start Firmware Update“ button
- During the update process (few minutes) your TRACK E status and level LEDs will blink purple
- The Update App will tell you when your TRACK E was successfully updated
- To update more TRACK Es you have to close and start the app again

Note:

Make sure you have the latest iOS/Android Setup App installed.

Wireless audio monitoring on Android is only supported on Android 10 (API Level 29) and higher.

Monitoring latency and connection stability is highly dependent on the smartphone you are using.

In the unusual case that the firmware update fails, your device needs to be restored. In this case please contact: support@tentaclesync.com

TECHNICAL SPECIFICATIONS

Recording

Number of Tracks:	1
Sampling Rate:	48 kHz
Recording Bit-Depth:	WAV (BWF)
Recording File Formats:	32-bit float / 24-bit
Recording Time:	30hrs (24-bit) / 23hrs (32-bit Float) with 16GB card
Storage Media:	microSDHC card up to 32GB (recommended class 10)
Signal Processing:	Low cut filter, limiter (24-bit only)

Connectivity

Microphone Input:	3.5mm jack (screw lock)
Mic Plug-In Power:	5 V (switchable)
Headphone Output*:	3.5mm jack (dual mono unbalanced)
USB Connection:	USB-C (USB 2.0)
USB Modes:	Charging, card reader, firmware update

Performance

Frequency Response:	20 Hz - 20 kHz
Gain Range:	+6 to +46 dB
Dynamic Range:	110dB typ
THD+N:	≤ -85 dB (0,05%)

Control & Sync

Bluetooth®:	4.2 (Low Energy)
Remote Control:	Tentacle Setup App (iOS/Android)
Synchronization:	Via Bluetooth® (Tentacle Setup App) or jam-sync via cable

Timecode Input:	LTC via Mic In
Timecode Output:	N/A
Frame Rates:	SMPTE 12M / 23.98, 24, 25, 29.97, 29.97DF, 30
Power	
Power Source:	Built-in rechargeable Lithium Polymer Battery
Battery Capacity:	900 mAh
Battery Operation Time:	approx. 10 Hours
Battery Charging Time:	max. 2 Hours
Mounting:	Belt Clip (removable)
Weight:	58 g / 2.1 oz
Dimensions:	47 x 68 x 19 mm / 1.85 x 2.67 x 0.74 inches

***US Version: Headphone output is deactivated during recording**



WARRANTY AND SAFETY REGULATIONS

INTENDED USE

The device is designed to record audio signals via a suitable external microphone (lavalier microphone). 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 device is intended for professional use. 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 contains FCC ID: SH6MDBT50Q

This device has been tested and found to comply with part 15B of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Modification to this product will void the user's authority to operate this equipment. This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions. (1) This device may not cause harmful interference. (2) This device must accept any interference received, including interference that may cause undesired operation.

INDUSTRY CANADA DECLARATION

This device contains IC: 8017A-MDBT50Q

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

This digital device complies with the Canadian regulatory standard CAN ICES-003.

CE DECLARATION OF CONFORMITY

Tentacle Sync GmbH, Eifelwall 30, 50674 Cologne, Germany

declares herewith that the following product:

Tentacle TRACK E timecode audio recorder

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 55032:2012/AC:2013

EN 55024:2010

EN 300 328 V2.11 (2016-11)

Draft EN 301 489-1 V2.2.0 (2017-03)

Draft EN 301 489-17 V3.2.0 (2017-03)

EN 62479:2010

EN 62368-1:2014 + AC:2015



Cologne, 05.10.20

Ulrich Esser, CEO

Charging input.....	1x USB-C connector
Input voltage/current.....	5 V/DC, 500mA
Integrated rechargeable battery.....	Lithium polymer battery
Charging time.....	approx. 2 h with completely empty battery
Ambient conditions.....	-20 °C to +60 °C, non-condensing
Dimensions (B x H x T).....	47mm x 68mm x 19mm
Weight.....	57 g

TECHNICAL SUPPORT AND INFORMATION

support@tentaclesync.com

www.tentaclesync.com/download

TENTACLE SYNC GmbH

Eifelwall 30, 50674 Cologne, Germany

Tel.: +49 221 677 832 032



WARRANTY POLICY

The manufacturer Tentacle Sync GmbH grants a warranty of 24 months on the device, provided that the device was purchased from an authorised dealer. The calculation of the warranty period begins on the date of the invoice. The territorial scope of protection under this warranty is worldwide.

The warranty refers to the absence of defects in the device, including functionality, material or production defects. The accessories enclosed with the device are not covered by this warranty policy.

Should a defect occur during the warranty period, Tentacle Sync GmbH will provide one of the following services at its discretion under this warranty:

- free repair of the device or
- free replacement of the device with an equivalent item

In the event of a warranty claim, please contact:

Tentacle Sync GmbH, Eifel Wall 30, 50674 Cologne, Germany

*Claims under this warranty are excluded in the event of damage to the device caused by

- normal wear and tear
- improper handling (please observe the safety data sheet)
- failure to observe safety precautions
- repair attempts undertaken by the owner

the warranty also does not apply to second-hand devices or demonstration devices.

A prerequisite for claiming warranty service is that Tentacle Sync GmbH is allowed to examine the warranty case (e.g. by sending in the device). Care must be taken to avoid damage to the device during transport by packing it securely. To claim for warranty service, a copy of the invoice must be enclosed with the device shipment so that Tentacle Sync GmbH can check whether the warranty is still valid. Without a copy of the invoice, Tentacle Sync GmbH may refuse to provide warranty service.

This manufacturer's warranty does not affect your statutory rights under the purchase agreement entered into with Tentacle Sync GmbH or the dealer. Any existing statutory warranty rights against the respective seller shall remain unaffected by this warranty. The manufacturer's warranty therefore does not violate your legal rights, but extends your legal position.

This warranty only covers the device itself. So-called consequential damages are not covered by this warranty.