

3D HEADPHONES

TAYGETE 4.0 UY-R1040 | USER MANUAL

U))) SOUND



The novel 3D headphone Taygete 4.0, enables authentic 3D sound thanks to the bridge of 16 MEMS micro speakers and an electrodynamic woofer in each cup. It also includes a unique algorithm which allows real-time 3D sound. Its custom headphone housing provides the position of the MEMS speakers to reproduce user-specific spectral cues that enable improved directional hearing. It incorporates a USB soundcard, DSP, DAC and amplifiers.

The Taygete 4.0 headphones offers a USB-C connector that is used for power supply and data transfer. A computer can be used as the source of the audio material.

FEATURES

- 16 high-performance built-in MEMS and a woofer in each cup
- Possibility of stereo enhancement, elevation experiments, sound source positioning, surround mapping for 5.1 and 7.1 and other audio formats
- Algorithm that enable real time 3D sound
- USB-C interface

DEMO PACKAGE CONTENT

- Taygete 4.0 headphones
- USB-C type cable
- USB stick including demo files

CONTENT

BLOCK DIAGRAM	3
SETTING UP THE SYSTEM	2
PERFORMANCE DATA	5

REVISION HISTORY

Released on June 2020

BLOCK DIAGRAM

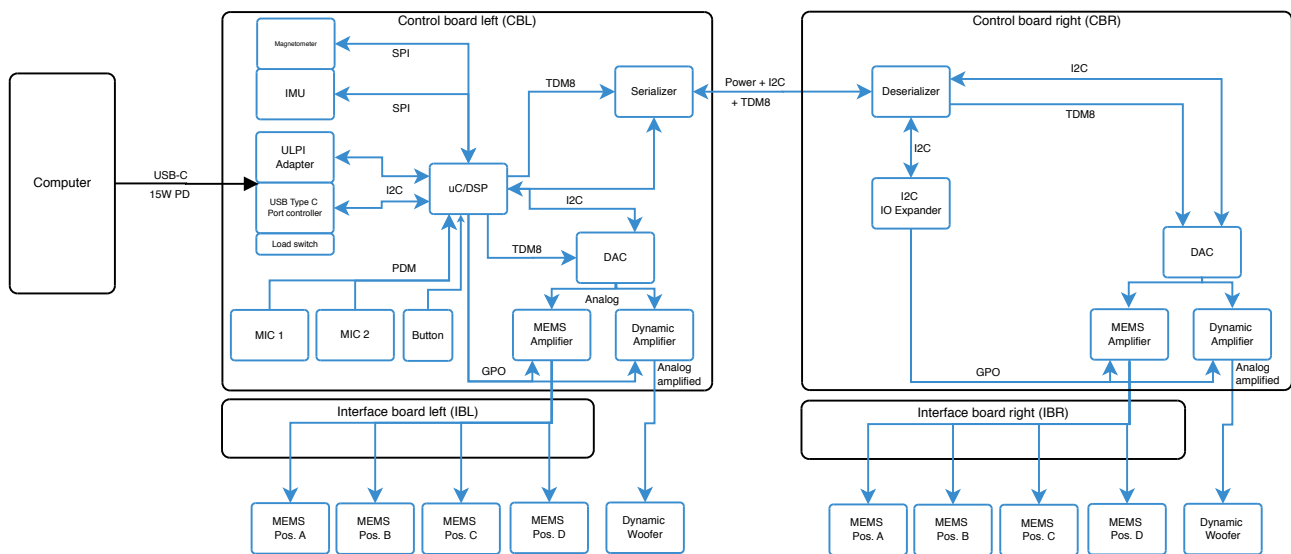


Figure 1: Taygete 4.0 block diagram

SETTING UP THE SYSTEM

The Taygete 4.0 headphone consists of a headband, two custom-built earcups and the built-in electronics. Each earcup includes a 40 mm dynamic driver, used for reproducing signals in the lower frequency range — below 2 kHz, and 16 MEMS speakers that reproduce the high-frequency content which is most relevant for directional hearing.

COMPUTER SYSTEM REQUIREMENT

- Computer with Windows 10 release number 1703 or higher — which supports USB audio devices class 2.0
- VLC player

GETTING STARTED

- Connect the computer to power and boot-up
- Connect the Taygete 4.0 headphones to the computer using the USB-C cable
- Check the USB connection by pressing the windows key and typing “sound” and press enter. A window pops up, the Taygete 4.0 headphone is listed as sound card with the name “STM32 Audio class” as shown in Figure 2.
- Make sure VLC media player is installed on the computer
- Insert the USB stick in the computer which contains the video and audio files that can be used to demonstrate the system. Any other 5.1 audio or video file may be used if desired.
- Double click on the desired file. VLC media player will open and reproduce it.
- Use the windows volume adjuster to set the desired volume.

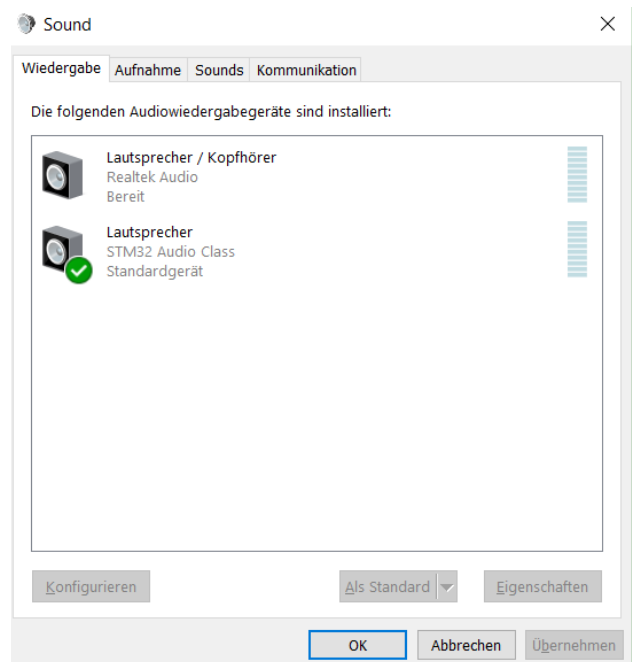


Figure 2: Checking audio device recognition

DISMOUNTING THE SYSTEM

- Close VLC Player
- Unplug the USB-C cable

TROUBLE SHOOTING

Should the headphone not operate as intended follow these steps to reinitiate the USB enumeration and component configuration process.

- Close the reaper software on the computer
- Unplug the headphone
- Wait for 10 seconds
- Plug the headphone once again

FIRMWARE UPDATES

The firmware can be updated via the USB-C port that is present on the left earcup. For assistance on how to update the firmware please contact sales@usound.com.

PERFORMANCE DATA

ABSOLUTE MAXIMUM RATINGS

Parameter	Description	Min.	Typ.	Max.	Unit
VDD5-MAX	5 V Supply voltage	0	---	5.5	V
TSTL	Storage Temperature	-20	---	+70	°C

OPERATING CONDITIONS

Parameter	Description	Min.	Typ.	Max.	Unit
VSUPPLY5	Main supply provided via USB-C cable from the host computer	4.8	5	5.2	V
Temperature	Temperature range (ambient)	0	25	50	°C

SYSTEM

Parameter	Description	Min.	Typ.	Max.	Unit
Current draw average 5 V	Average current consumption on 5 V supply		350	450	mA
Current draw maximum 5 V	Maximum current consumption (peak) from USB-C port			3000	mA

IMPORTANT NOTICE AND DISCLAIMER

USound GmbH (“USound”) makes no warranties for the use of USound products, other than those expressly contained in USound’s applicable General Terms of Sale, located at www.usound.com. USound assumes no responsibility for any errors which may have crept into this document, reserves the right to change devices or specifications detailed herein at any time without notice, and does not make any commitment to update the information contained herein. No license to patents or other intellectual property rights of USound are granted in connection with the sale of USound products, neither expressly nor implicitly.

In respect of the intended use of USound products by the customer, the customer is solely responsible for observing existing patents and other intellectual property rights of third parties and for obtaining, as the case may be, the necessary licenses. For more information about USound patents visit <https://www.usound.com/patents/>.

Important note: The use of USound products as components in medical devices and/or medical applications, including but not limited to, safety and life supporting systems, where malfunctions of such USound products might result in damage to and/or injury or death of persons is expressly prohibited, as USound products are neither destined nor qualified for use as components in such medical devices and/or medical applications. The prohibited use of USound products in such medical devices and/or medical applications is exclusively at the risk of the customer.