Sennheiser Profile Wireless

Compact and flexible 2.4 GHz wireless microphone solution

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With the “Profile Wireless”, Sennheiser is introducing a new two-channel digital wireless microphone system at the end of 2024 - and it is not only extremely compact. We had the opportunity to extensively test this system before its market launch.

Technical concept

Profile Wireless works as a broadband system according to ETSI EN 300 328 in the 2.4 GHz ISM band (2400 to 2480 MHz) and can be operated in the EU without registration and free of charge. The transmission power is 20 dBm EIRP (100 mW EIRP), which is the maximum permissible level. 24-bit converters with a sampling rate of 48 kHz are used. The transmission range is 60 Hz to 20 kHz (with the high-pass filter switched off).

Scope of delivery

Let us first take a look at the scope of delivery: The core of the system is the multifunctional enclosure, or, as Sennheiser calls it, the multifunctional bar, which houses most of the components for transport and charging. In addition to this multifunctional bar with the components inserted, there is a quick-start guide and the usual declarations of conformity, a short USB-C to USB-C cable, a spiral cable for connecting the receiver to the camera, two miniature windscreens, and a large windscreen for the multifunctional housing included in the package. A transport bag for the system is also included. Comprehensive operating instructions, which are also in German, are available via a link on the Sennheiser website.

Next, let´s take a look at the components that are or can be accommodated in the charging case. These include the receiver, two miniature transmitters, an adapter for use with a USB-C or Lightning mobile device, and a hot shoe adapter. The backside has two magnetic plates for the transmitters. The receiver and the two transmitters are paired at the factory and ready for immediate use.

Multifunction bar

Now to the multifunctional housing (152 x 41 x 55 mm), or multifunctional bar: First, it is used to transport and charge the active components, i.e., the receiver and the two transmitters. Without the components, it weighs 198 grams, whereas with them, it weighed 290 grams.

The two transmitters are placed in the housing and snap into it with a push. The transmitters can be released again via two pressure areas. Then, they move slightly out of the housing and can be removed (see figure above).

The receiver can be slid in and locked on the opposite side (see figure above).

A quick press on the button in the multifunctional housing displays the battery status of all three devices. The multifunctional bar also has a USB-C socket. If you connect the multifunctional bar to a charger via this interface, all three components will be charged. The interesting thing is that the multifunctional bar also has an internal battery with a capacity of 2 Ah. This means that this device can also be charged without an external charger. The multifunction bar can also be used as a power bank for the components placed in it. The charging status of the bar is visualized using an LED bar graph. The charging time for a full charge of the bar is approximately three hours.

The multifunctional bar can also be used as a handheld microphone if at least one transmitter is used.

As mentioned above, a windscreen is included in the set.

It can also be mounted on a photo tripod, as there is a corresponding thread on the underside of the multifunctional bar.

Transmitter

Now to the transmitter, which measures 42 x 33 x 21 mm. It weighs 27 grams and has a clip on the back for attaching it to clothing. However, there are also two magnetic plates in the multifunctional bar. The clip is also magnetic, transmitter can be easily attached to clothing without a collar, such as a T-shirt. The transmitter has an integrated omnidirectional condenser microphone. The maximum permissible sound pressure is 113 dB SPL (@ 1 kHz, 1 m).

The internal battery has a capacity of 280 mAh, which is sufficient for approximately seven hours of operation with radio transmission and recording or 14 hours of recording without transmission. The total charging time for a full charge is 1.5 hours.

On the side of the transmitter, there is a button for turning it on and off, as well as another button that starts an internal backup recording. The transmitter has a memory. There is 14.5 GB of storage space (formatted) available for recording files, which is sufficient for approximately 30 hours of mono recording time. The recording button, marked in red, also serves as a mute button. Double-clicking the power button quickly starts the gain mode. The gain can be changed sequentially between -6, 0 and +6 dB by pressing the button. After a short period without changes, the transmitter automatically saves the setting and returns to the normal operating mode.

On the opposite side, there are three indicator LEDs to indicate operation/charging, RF connection, and recording status. A USB-C socket is located under the housing

for data exchange with a PC or mobile device, and the transmitter can also be charged via the socket.

Thanks to the 3.5mm TRS jack, an external microphone can also be connected. The picture below shows how small the transmitter is compared to the jack plug.

The supplied windscreen is placed on the microphone and locked by rotating it.

Receiver

The receiver is also extremely compact and lightweight, measuring 45 x 42 x 19 mm and weighing only 30 grams. This device has an OLED display and a 350-mAh battery with an operating time of approx. seven hours and a full charging time of two hours. The profile wireless receiver also has an integrated headphone amplifier. Headphones with an impedance of at least 32 ohms can be connected here. The output power is 25 mW.

The audio levels of the two receivers, battery status, gain, and RF levels are shown on the display. If only a single transmitter is in use, the entire display width is then used for one transmitter, and the bar graph display is thus correspondingly larger. A gyro is also built into the receiver, which detects the position of the receiver and, when set up accordingly in the menu, rotates the display by 180 degrees depending on the position.

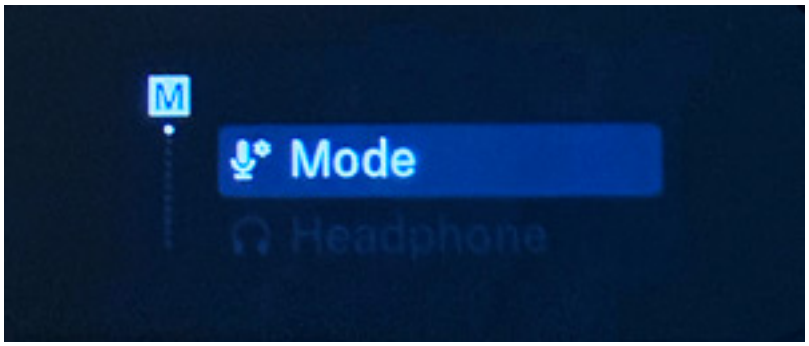
The supplied hot shoe adapter allows the camera to be used (here a Nikon Z30 as an example).

However, the two 90-degree adapters USB-C to USB-C (see figure above) and USB-C to Lightning plug are also interesting. This allows the receiver to be connected

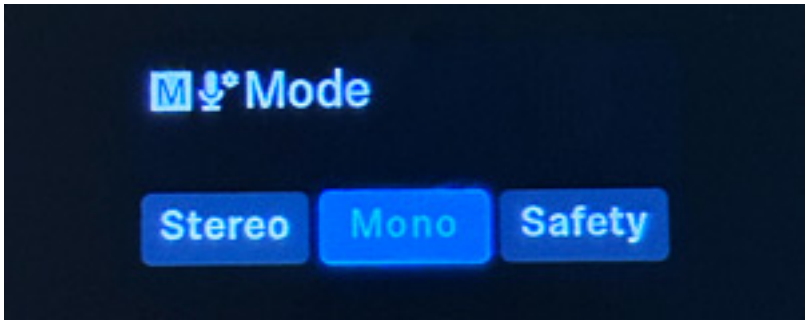
directly to a mobile device, such as an iPhone, without a cable. The receiver´s USB output is USB Class Complient and, of course, you can also connect to the recording device using a USB-C to USB-C cable.

Menu operation

Further functionalities quickly become clear when you take a look at the menu structure of the three components. The OLED display is also touch sensitive. Swiping upward with your finger opens the menu of the receiver, and swiping from left to right opens the menu of transmitter 1 and vice versa for transmitter 2. You can also start a recording from the receiver by double-clicking on one of the transmitters in the main display.



When you enter the receiver menu, the first thing that appears is a recording-mode menu item. The selected menu item is always displayed in a brighter light. You can change the selected menu item by swiping up or down.



When you click on a menu item, the selectable options are displayed from which you can select them by clicking on them. This menu item offers a choice of three recording modes: “Stereo”, in which one of the transmitters is output left and right at the receiver output; “Mono”, in which the sum of the transmitters is output as a mono signal at both outputs; and “Safety”, in which the sum is output at the normal level on the left and at a level of -6dB on the right. It is important to emphasize that the conversion is realized with two parallel A/D converters. This provides additional headroom in the event of unexpectedly high levels. In such a case, you can then use the track as a second track with a larger dynamic range. When recording is activated, a stereo file is recorded in safety mode, with the left channel at normal

level and the right channel containing the audio with a 6dB reduced level.

Other menu items in the receiver menu include headphone level, output level (+/- 12dB), backup recording (autostart when wireless transmission is lost), display brightness, pairing initiation, automatic display orientation (on/off), date/time, reset, and system information output.

The following menus and settings are available for the two transmitters: recording (start/stop), mute, gain, high-pass filter (on/off, cutoff frequency 110 Hz), LED indicator (on/off), and remaining storage time.

Practice

Let´s begin with the range. If there is a visual line of sight in a room, a connection between the transmitter and receiver is established. The range is at 2.4 GHz significantly shorter than in the UHF band due to the system. We placed the receiver half a meter away from a WLAN router with the 2.4-GHz band activated (max. bandwidth) and performed a range test. In the room, there were no restrictions at all. When there are shadows cast by objects or walls, the range is reduced to the extent that is usual for 2.4-GHz systems. The system is very tolerant of other activities in the frequency band. When the 2.4-GHz router was deactivated, no significant change in the range was observed. When the connection is interrupted, the transmission initially changes slightly, with speech still being understandable. The transimmsion then breaks down completely at a slightly greater distance. Thus, there is also an acoustic feedback about poor signal reception. We were absolutely satisfied with the range and transmission quality, as well as stability.

The usual Sennheiser lavalier microphones, such as MKE2, and Sennheiser-compatible microphones from other manufacturers can be connected to the transmitter. For example, we operated a DPA 6066 with the appropriate adapter without any issues. Whether you connect an external lavalier microphone or use the internal one does not depend on the audio quality requirement, because the internal microphone offers sound quality that is absolutely on par with the MKE2. It is more a question of the optics or the microphone placement on the clothing and whether you would rather use a headset because the direction of speech changes dynamically.

The small touch-sensitive display enables a surprisingly easy and precise operation. The menu is not overloaded, and everything that is important is provided. You quickly get used to the required swipe gestures for operation. A real benefit is that you can not only transmit the signal but also record it directly in the transmitter, and even in two level windows (0 and -6 dB). If you want or need, you can use the transmitter as a pure recorder without radio connection.

The transmitters are so light that you can easily mount them on a camera with a gimbal - you only have to slightly change the center of gravity if necessary. In connection with an iPhone Pro Max 16 and a DJI Osmo Mobile 6, the operation worked perfectly (see figure above).

The system will certainly appeal to many, including professionals, because cameras are becoming more and more compact - and even we are looking for more and more compact, and, above all, mobile equipment for our proaudio.tv productions - especially for trade fair reporting - and many people feel the same way. The Sennheiser Profile Wireless complements such mobile systems perfectly. It works reliably and is easy to use.

Conclusion

The system costs just less than 300 euros. The real highlight is the flexibility of the system: Two wireless transmitters, or routes with and without an external microphone, as well as with recording or just recording without radio transmission and a multifunctional case that can be used as a power bank, charging station and hand microphone, as well as a recording with two levels to ensure protection against overdriving.

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