TAMI®

YOUR ASSISTIVE MOBILITY EYEWEAR

Training manual

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Important note on safety and device handling

This guide is meant to familiarize you with TAMI and take your first steps to becoming proficient with the device. ***Be sure to read the full user manual before use to ensure you have understood the safety instructions***.

A screen-reader friendly version of the full user guide and this training manual is available at https://www.lighthousetech.ch/tami-user-guide or by contacting us at info@lighthousetech.ch. Scan the QR code on this page to be directed to the online user guide.

1 Learning to navigate with TAMI

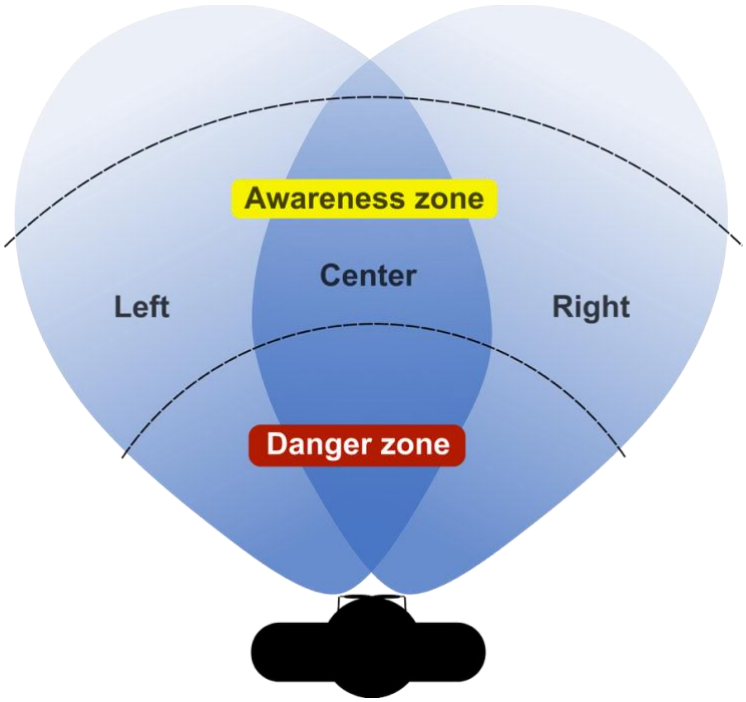
1.1 TAMI®'s Sensors

TAMI® assistive mobility eyewear helps protect your upper body from obstacles that a white cane may miss. It uses advanced 60 GHz radar technology to detect objects around you.

The radar sensors are contained in the front of each eyewear arm. They work by sending out electromagnetic signals. When these signals hit an object, some of the energy bounces back to the sensors. By analyzing the returned signal, TAMI® can detect obstacles and estimate their distance.

These sensors work reliably regardless of weather, humidity, temperature, and lighting. They are positioned to point forward and slightly outward, giving you a coverage area of about 120 degrees horizontally and 60 degrees vertically.

The diagram below shows the coverage area from an overhead view.



1.2 Feeling obstacles with haptics

Haptic vibration motors are housed in the circular nodes above the eyewear temple tips. The vibrating motors in each arm are used to tell the user if the radar sensor has detected a potential obstacle. In the **Left** zone, only the left arm vibrates, in the **Center** zone, both arms vibrate. In the **Right** zone, only the right arm vibrates. In the **Awareness zone**, obstacles will make the arms pulse with a weaker vibration. If an obstacle is near the user, in the **Danger zone**, the arms will vibrate with frequent pulses, warning the user to stop immediately. The

directional, left/right vibration helps the user **turn away from the feeling of vibration** to find a safe route around the obstacle.

2 Button operations

TAMI® is equipped with two **push buttons** located on the front of each temple. Both buttons may be used interchangeably.

Turn the device **on** and **off** with a long press of the button on either temple.

You will hear a chime sound from both arms confirming the glasses are on or off. The eyewear arms will immediately start to vibrate if you are near an obstacle.

2.1 Long-range and short-range mode settings

The device may be set to 2 different **range modes** using the push buttons. The **long-range** mode has longer sensor ranging thresholds to compensate for faster walking speeds and open spaces with fewer obstacles. **Short-range** mode has shorter ranging thresholds for smaller operating spaces and slower walking speeds to enhance spatial understanding during use.

A **short button press** changes the glasses settings between long- and short-range modes.

- When turned on, TAMI will operate with the last setting.
- In **long-range mode** the awareness zone threshold is 1.7 m, and the danger threshold is 1 m.
- In **short-range mode** the awareness zone threshold is 1.2 m, and the danger threshold is 65 cm.
- Press the button to cycle between modes. You will hear a chime sound from both arms confirming the mode has been set. Two quick chimes indicate short mode (closer operating distance thresholds). Two long chimes indicate long mode (farther operating distance of thresholds).

Note: TAMI® does not detect objects that are very close to you—about 25 cm or less from the device—no matter which mode you are using. You can use this to your advantage. Items such as hats, hoods, umbrellas, or handheld devices will not cause any vibration if they are within this range.

3 Training to use TAMI®

When you receive your devices, spend as much time as necessary to familiarize yourself with TAMI®'s sounds, vibration feedback, and button operation. To assist you in this process, we recommend following the familiarization procedures sequentially.

4.1: Locating a large object in short-range mode

4.2: Understanding directional feedback

4.3: Locating a large object in long-range mode

4.4: Locating high obstacles that are not detected by the white cane

Note: If you are walking with an accompanying person during these exercises, have the person walk by your side and slightly behind you so that the person is not detected by the radar sensors.

You may perform exercises **4.1**, **4.2**, and **4.3** with and without a white cane or accompanying person. Exercise **4.4** requires a white cane and an accompanying person.

3.1 Locating a large object in short-range mode

Short-range mode is ideal for feeling the location of objects precisely because of its fine changes in haptic effects over short distances. For instance, it can be used to locate the back of a line, find a doorway opening, or navigate tight indoor spaces. This first exercise uses short-range mode to help you become familiar with the awareness and danger zone effects.

Be aware that while the sensors will detect objects 1.2 m away, the danger zone is only 65 cm! Use the short-range mode when you are moving around slowly in a space that you know well.

1. Turn the glasses on with a long press on either the left or right button.
2. Press either button once. You will hear two chimes. Press the button once more and listen for the two chimes. For short-range mode, the two chimes are close together. For long-range mode the chimes are further apart. Ensure you can hear the difference between the different mode chimes.
3. Set the glasses in short-range mode.
4. While wearing the glasses, stand back approximately 2 m from the wall or large object, or until you cannot feel any vibration on either side.
5. Walk forward slowly. Stop when you feel a pulsing vibration. If walking straight towards a large obstacle, you will feel vibration on both eyewear arms, indicating that there is object in front of you near your head or in your upper-body zone.
6. Move forward slowly until the pulsing vibration increases in intensity. At this point you should be able to reach out with your hand and confirm the presence of the object.
7. Step back again and repeat as necessary to gain familiarity with meaning of the haptic effects.

3.2 Understanding directional feedback

TAMI® has haptic motors on each eyewear arm, so you can feel whether an obstacle is in front of you or to your left or right. For this exercise, keep your device in short-range mode.

1. Turn the glasses on with a long press on either the left or right button. Start by repeating the initial steps from the first exercise: Move slowly toward a large obstacle, such as a

wall or a big pole, until you feel intermittent vibrations on both eyewear arms. This means there is an obstacle in front of you, close to your head or upper body.
2. Turn your head and body to the left until the vibration comes only from the right arm of the eyewear. Vibration on the right side means objects are located on your right.
3. Now turn to the right until the vibration comes only from the left eyewear arm.
4. Step forward slowly and notice how the vibration becomes stronger as you get closer to the obstacle. When you are very close, you may need to turn further left and right to feel vibration on only one side.

Repeat this exercise until you are comfortable telling the difference between vibration on the left, center, and right.

3.3 Locating a large object in long-range mode

Long-range mode is designed for open environments, such as outdoor spaces in cities or rural areas. In this mode, the detection thresholds are set farther away (about 1.7 m for the awareness zone and 1 m for the danger zone), giving you more time and space to react before reaching an obstacle.

If you use long-range mode in closed or crowded spaces, you will notice more frequent vibrations than in short-range mode. This happens because objects within the sensor's field of view are detected at greater distances. As you get more comfortable with TAMI®, you may find it helpful to switch to short-range mode in these situations for better performance in dense environments.

1. Begin by positioning yourself 3 m or more from a large, easy to locate object, such as a section of wall, street pole, or tree trunk.
2. Turn the glasses on with a long press on either the left or right button.
3. Use a short button press to change from short-range to long-range mode.
4. Walk steadily toward the large object.
5. Turn your head and body to left until you feel haptic feedback only from the right eyewear arm. Haptic vibration on the right side means objects are located on the right side.

Repeat this exercise until you are comfortable with the distance thresholds in long-range mode.

3.4 Locating high obstacles that cannot be detected by the white cane

This advanced exercise helps you practice detecting obstacles at head level, which are often missed by a white cane. You will need an accompanying person to assist by creating these obstacles. Ask your accompanying person to hold an object with their arm straight, such as a book or a padded stick, at about head height across your walking path.

Safety note: The accompanying person should always stay close and be ready to stop you to prevent accidental contact with the obstacle.

1. Turn on your glasses and make sure they are in long-range mode.

2. Begin walking slowly toward the object. Pay attention to the vibration on the eyewear arms. When you feel vibrations on both sides, it means the obstacle is directly ahead at head level.
3. Stop walking when you feel quick vibration pulses signaling that you are in the danger zone.
4. Turn your head to the left and right to confirm its location by noting when the vibration shifts to only one side.
5. Now, you may attempt to move forward by using left and right directional feedback to move around the obstacle, or raise your arm and use a self-protection technique to locate the obstacle.

Repeat the exercise several times with the obstacle placed at angles and have the accompanying person change sides to build confidence in detecting and avoiding high obstacles.