



TILSBERK

HEAD-UP DISPLAY

USER MANUAL



The following user manual contains all information required for the installation and use of the TILSBERK head-up display (hereinafter TILSBERK HUD). Carefully read the entire user manual before installing and using the TILSBERK HUD.

Compliance with all safety and operating instructions in this user manual is a basic prerequisite for safe use of the TILSBERK HUD.

The user manual is part of the TILSBERK HUD and must be provided if the TILSBERK HUD is transferred to another user.

Explanation of symbols

WARNING

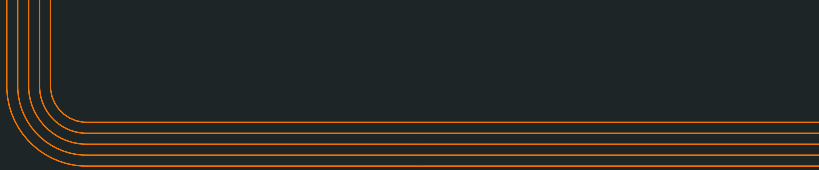
WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

NOTICE

NOTICE indicates a situation which, if not avoided, could result in property and environmental damage.



This symbol indicates useful tips and recommendations as well as information for efficient and trouble-free use.



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1 Product overview

The TILSBERK HUD shows you information directly in front of the eye during the ride. The TILSBERK HUD can be individually configured and display information such as speed, navigation and a compass.

1.1 Scope of delivery

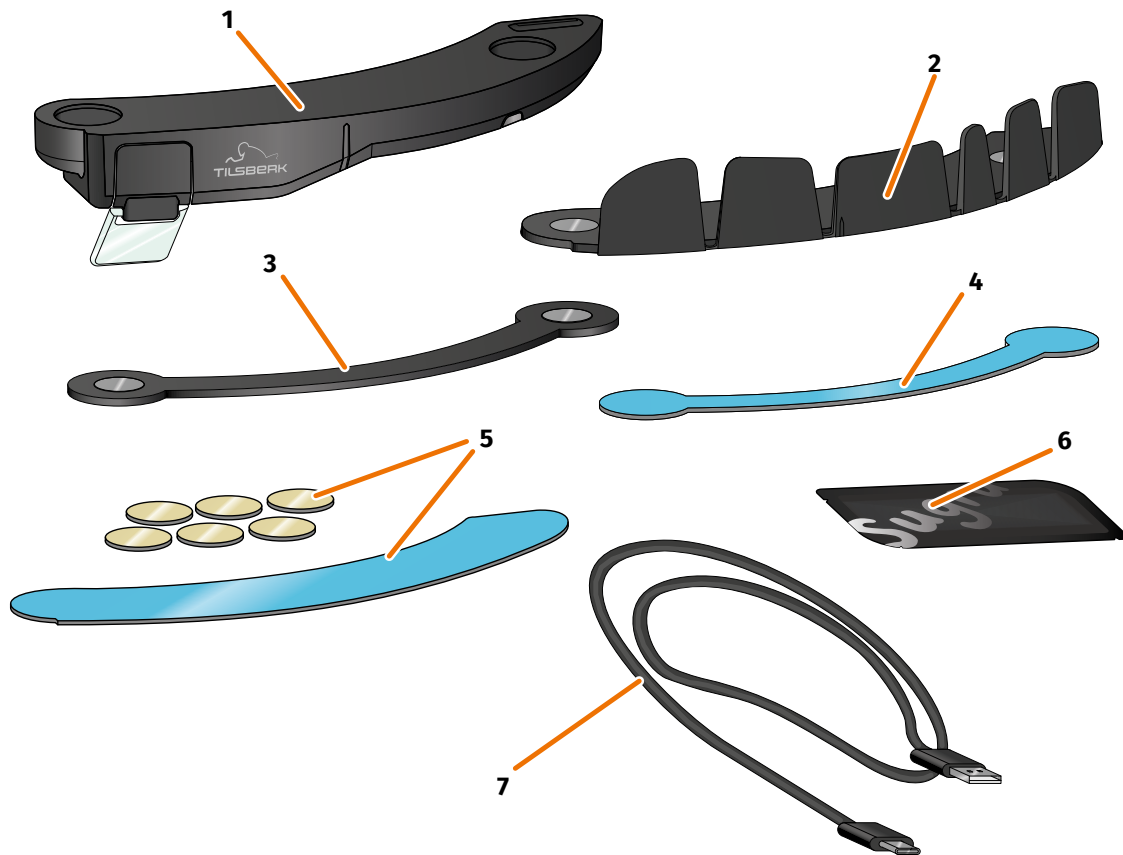


FIGURE 1: Scope of delivery

- | | |
|--|--|
| <p>1 TILSBERK HUD module</p> <p>3 TILSBERK HUD narrow helmet adapter</p> <p>5 Set with adhesive pads for TILSBERK HUD helmet adapter with tabs</p> <p>7 USB-C charging cable</p> | <p>2 TILSBERK HUD helmet adapter with tabs</p> <p>4 Adhesive pad for TILSBERK HUD narrow helmet adapter</p> <p>6 One pack of Sugru (moldable multipurpose glue)</p> |
|--|--|

Also included in the scope of delivery:

- TILSBERK HUD protective cover
- TILSBERK HUD Quick Start Guide

1.2 Components of the TILSBERK HUD module and helmet adapter

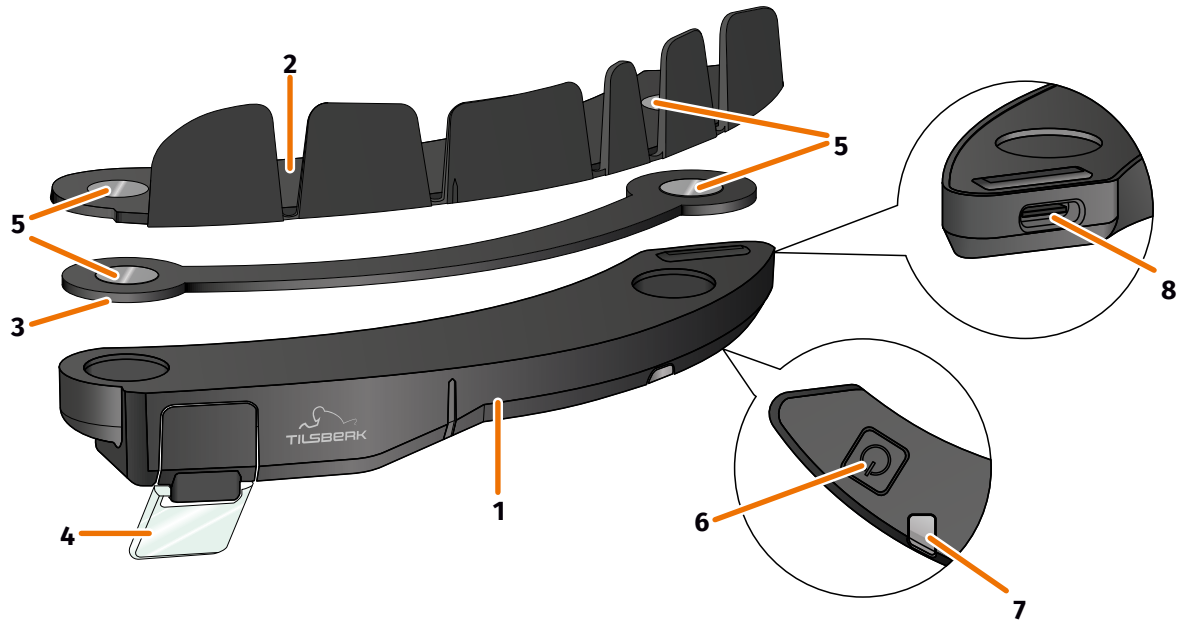


FIGURE 2: Overview of the TILSBERK HUD module and helmet adapter with tabs

- | | |
|---|----------------------------|
| 1 TILSBERK HUD module | 2 Helmet adapter with tabs |
| 3 Narrow helmet adapter | 4 Display |
| 5 Magnetic holder for the TILSBERK HUD module | 6 Operating button |
| 7 Status LED with integrated light sensor | 8 USB-C charging socket |

TILSBERK HUD consists of two main components: the helmet adapter, which is installed in your motorbike helmet, and the TILSBERK HUD module, which is affixed to the helmet adapter via a magnetic connection.

The narrow outer side of the TILSBERK HUD module features a USB-C charging socket that is used to charge the TILSBERK HUD module.

The bottom of the TILSBERK HUD module features a transparent, adjustable display, a status LED with integrated light sensor, and the operating button for the TILSBERK HUD module. The operating button is used to switch the module on and off.

To enable installation in as many types of helmet as possible, TILSBERK HUD comes with two different helmet adapters that can be installed in different types of helmet.



Before using your device, check that no parts are missing and that there is no external damage.

1.3 TILSBERK HUD app

The TILSBERK HUD app is the interface between you and the TILSBERK HUD module. It supplies the TILSBERK HUD module with the data that will guide you to your destination during your ride. To do so, the TILSBERK HUD app uses online maps and the location service of your smartphone.

The data is sent wirelessly to the TILSBERK HUD module via **Bluetooth®** technology and shown on the display. The TILSBERK HUD app also sends phone data to the TILSBERK HUD module so that the battery level of your smartphone and incoming calls can also be displayed.

Once you have set up the TILSBERK HUD app for the first time, you can use the settings to configure the displays, favorite destinations and route setting.

Further information on the TILSBERK HUD app can be found in Chapter “4 Operation” on page 34.

2 Safety

2.1 Hazards and risks

EN

⚠ WARNING

Accident risk in case of alcohol or drug use!

Consuming alcohol and drugs before or during the ride can lead to serious accidents.

- Do not drink alcohol before or during the ride.
- Do not use drugs before or during the ride.

⚠ WARNING

Accident risk if used in left-hand traffic!

This version of TILSBERK HUD is designed for riding in right-hand traffic. The display is located in front of the right eye outside the main field of vision. When used in left-hand traffic, the display is in your main field of vision and impairs your view of the road.

- Only use the TILSBERK HUD in right-hand traffic.

⚠ WARNING

Choking hazard due to swallowable small parts!

TILSBERK HUD includes small parts that can be dangerous to children. Especially if small parts are swallowed, there is an acute risk of choking!

- Keep your TILSBERK HUD and all accessories (including Sugru all-purpose adhesive) out of the reach of children.

⚠ WARNING

Accident risk in case of device malfunction!

Moisture or high temperatures (over 120 °F) can cause TILSBERK HUD to malfunction. Malfunctions can be irritating while riding and may lead to accidents.

- Keep TILSBERK HUD away from liquids and high temperatures.
- Do not operate the TILSBERK HUD if it has been exposed to liquids or high temperatures.

⚠ WARNING

Risk of injury in case of defective battery!

The installed lithium-ion polymer battery cannot be replaced. When being changed, the battery could leak, burst into flames and explode and thus cause serious injuries.

- Never attempt to change the battery.

⚠ WARNING

Risk of epileptic seizure due to bright light signals!

TILSBERK HUD is not suitable for persons suffering from epilepsy. The light signals on the display can trigger epileptic seizures.

- Do not use the TILSBERK HUD if you have epilepsy.

⚠ WARNING

Accident risk in case of uncorrected impaired vision!

The TILSBERK HUD is not suitable for persons with a unilateral, uncorrected visual impairment. The display may further obstruct a limited field of vision and thus prevent you from being able to see traffic sufficiently.

- Do not use the TILSBERK HUD if you have an uncorrected visual impairment.

⚠ WARNING

Accident risk in case of inattentiveness!

Inattentiveness in traffic can lead to accidents and serious injuries. Use of the TILSBERK HUD does not relieve the user of their responsibility to ride in a careful and legal manner.

- Make the route selection and all the settings before you start the ride.
- Pay close attention to the traffic around you. Road rules and signs on the road always take precedence over what appears on the display.

⚠ WARNING

Accident risk in case of damage to device during the ride!

Damage to the TILSBERK HUD during the ride distracts you from the traffic. This can lead to accidents and serious injuries.

- If your TILSBERK HUD gets hot during the ride or if you notice smoke or deformation of the device, keep calm and pull over on the side of the road as soon as you can. Take off your helmet and remove the TILSBERK HUD module from the helmet.
- Do not keep using the device under any circumstances. Have the device checked, repaired or replaced.

⚠ WARNING

Accident risk in unusual riding situations!

TILSBERK HUD is not suitable for use in races, competitions or enduro, motocross and supermoto events. These special riding situations require a high degree of attention. Use of the TILSBERK HUD in the aforementioned riding situations can lead to accidents and serious injuries.

- Only use the TILSBERK HUD in normal road traffic.

NOTICE

Device damage due to sensitive components!

The TILSBERK HUD contains sensitive components. Incorrect storage, contact with liquids, and shocks due to falls or impacts can damage the device and impair its function.

- Store your TILSBERK HUD in the protective cover provided.
- Keep your TILSBERK HUD away from liquids.

NOTICE

Device malfunction!

Moisture or high temperatures (over 120 °F) can cause the TILSBERK HUD to malfunction.

- Keep TILSBERK HUD away from liquids and high temperatures.
- Do not operate the TILSBERK HUD if it has been exposed to liquids or high temperatures.

2.2 Limits of the system

Despite its technical precision, it is not possible to guarantee full functionality in all situations. Think about the following system limits before starting your ride to ensure that the TILSBERK HUD is fully functional.

NOTICE

Unstable or unavailable Internet connection!

If your smartphone is unable to establish a connection to the Internet, not all route data can be recorded.

- Do not rely on the completeness of the route data of the TILSBERK HUD in areas where Internet quality is limited.

NOTICE

Unstable or unavailable location services!

The TILSBERK HUD app detects your position by using your smartphone's location services. If your location services are switched off or your location data is not available, the TILSBERK HUD app cannot detect your position and speed.

- Make sure that the location services of your smartphone are always switched on.
- Do not rely on the navigation of the TILSBERK HUD in areas where location services are restricted (for example, in tunnels, dense forests, between tall buildings or in the mountains).

NOTICE

Riding on unpaved roads!

The TILSBERK HUD app calculates the route using existing map material and guides you along roads and paths. If you are not near a road, the TILSBERK HUD app cannot calculate a route to your destination.

- If you want to use the navigation function of your TILSBERK HUD, ride on paved roads.

NOTICE

Missing or outdated map material!

The TILSBERK HUD app guides you to your destination using existing map material. If a new road has been built or no map material is available for a region, the route may be incorrect.

- Inform yourself regarding the appropriate map material before you start your ride.

3 In-helmet installation

3.1 Preparing the installation

Before your TILSBERK HUD can guide you to your destination, you have to install it in your helmet. The following sections will help you prepare for installation and choose the right mounting type for your helmet.

Mounting surface

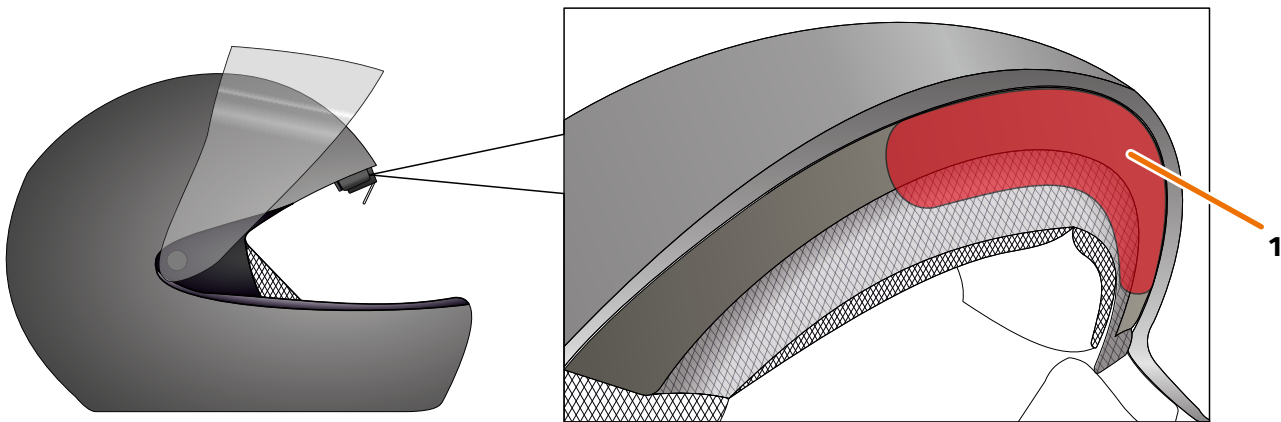


FIGURE 3: Mounting surface (example)

The helmet adapter is mounted on the flat surface in the forehead area of the helmet (FIGURE 3/1). Following that, the magnets are used to affix the TILSBERK HUD module to the helmet adapter.

Preparing the installation

There are several options for attaching the helmet adapter to the helmet. The right option for your helmet depends on the shape of the helmet and the materials used in the helmet. The mounting type for your helmet should ensure the best possible hold strength and should affect the functionality of the helmet as little as possible.

To correctly prepare the installation, proceed as follows:

1. Determine your helmet type and the appropriate mounting variant using the following decision guide (FIGURE 4).

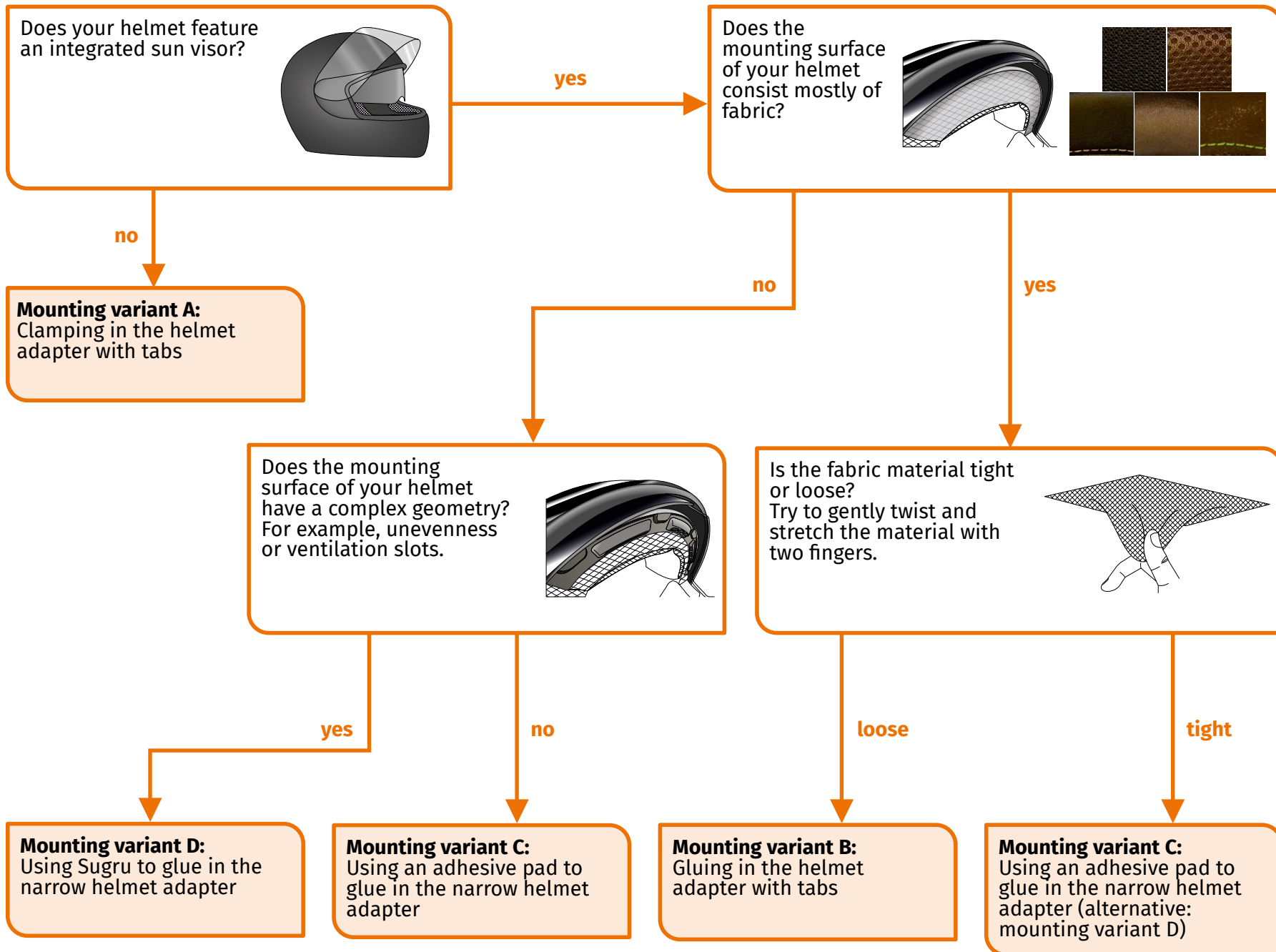


FIGURE 4: Decision guide: Selecting the helmet adapter



If you are unsure how to proceed, see the next chapter for information about the different helmet types (Chapter “3.2 Finding the mounting variant using the helmet type examples” on page 14). If none of the mounting variants work for your helmet, please contact the manufacturer to discuss alternatives. More information about installation can also be found online at us.tilsberk.com/pages/hud-install-start.

2. Place all materials from the delivery scope that are required for your determined mounting variant on a clean, level and well-lit surface.
3. Thoroughly clean the mounting surface of your helmet. Follow the manufacturer’s instructions for doing so.



To ensure a secure bond, all adhesive surfaces must be clean, dry, and free of dust and grease. Therefore, prior to assembly, thoroughly clean all smooth surfaces with an alcohol-containing cleaner such as methylated alcohol or cleaning alcohol. Adhesion is better on fabric surfaces, but these surfaces must also be cleaned.

▶ Installation preparation is complete.

The installation of TILSBERK HUD can begin now. In the chapter for your determined mounting variant, read how the TILSBERK HUD is correctly mounted in the helmet:

- Chapter “3.3 Mounting variant A: clamping in the helmet adapter with tabs” on 17
- Chapter “3.4 Mounting variant B: Gluing in the helmet adapter with tabs” on page 20
- Chapter “3.5 Mounting variant C: Using an adhesive pad to glue in the narrow helmet adapter” on page 24
- Chapter “3.6 Mounting variant D: using Sugru to glue in the narrow helmet adapter” on page 28

3.2 Finding the mounting variant using the helmet type examples

Helmets without sun visor

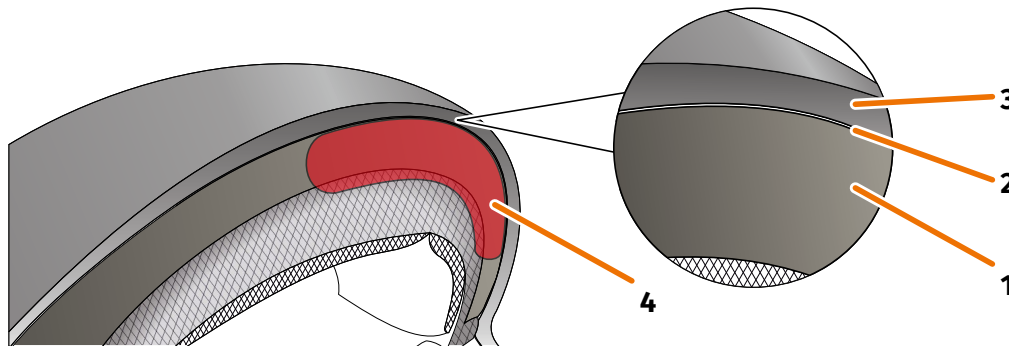


FIGURE 5: Gap in helmets without sun visors

- 1 Inner shell
- 2 Gap between inner shell and outer shell
- 3 Outer shell
- 4 Position of the helmet adapter with tabs (example)

Helmets without sun visors have a gap (FIGURE 5/2) between the outer shell (FIGURE 5/3) and the inner shell (FIGURE 5/1), into which you can clamp the helmet adapter with tabs.

1. Use a flat object such as a plastic card or ice cream stick to check if the gap has sufficient space for the tabs of the helmet adapter.



For some helmets, you first have to open up the gap a little bit. The gap should be easy to open by pulling the outer shell of the helmet with your hands.

2. If there is sufficient space in the gap and the object is wedged in the gap, proceed with mounting variant A (Chapter “3.3 Mounting variant A: clamping in the helmet adapter with tabs” on page 17).
3. If the gap is too small or cannot be opened at all, proceed as though your helmet had a sun visor (“Decision guide: Selecting the helmet adapter” on page 12).

Material types

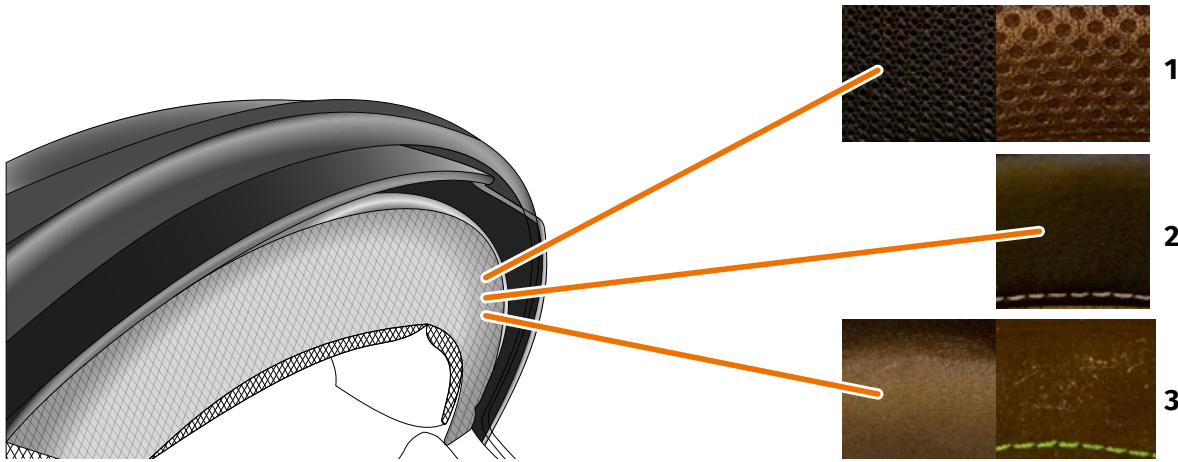


FIGURE 6: Examples of materials for helmets with material on the mounting surface

- 1 Course mesh material
- 2 Leather or artificial leather
- 3 Fine mesh material (for example, viscose or microfiber)

If the material of the helmet padding extends to the mounting surface, check the type and flexibility of the material.

1. Try to gently twist and stretch the material with two fingers.
2. If the material is smooth and hard to grip and stretch, the mounting surface of your helmet is tight. Continue with mounting variant C (Chapter “3.5 Mounting variant C: Using an adhesive pad to glue in the narrow helmet adapter” on page 24).
3. If the material can be stretched, check if the helmet adapter with tabs fits into the gap for the sun visor without colliding with the sun visor.



If the tabs of the helmet adapter collide with the sun visor, this helmet is not suitable for installing TILSBERK HUD. In this case, please contact the manufacturer to discuss alternatives.

4. If the helmet adapter with tabs fits into the gap for the sun visor without colliding with the sun visor, continue with mounting variant B (Chapter “3.4 Mounting variant B: Gluing in the helmet adapter with tabs” on page 20).

Complex helmet geometries

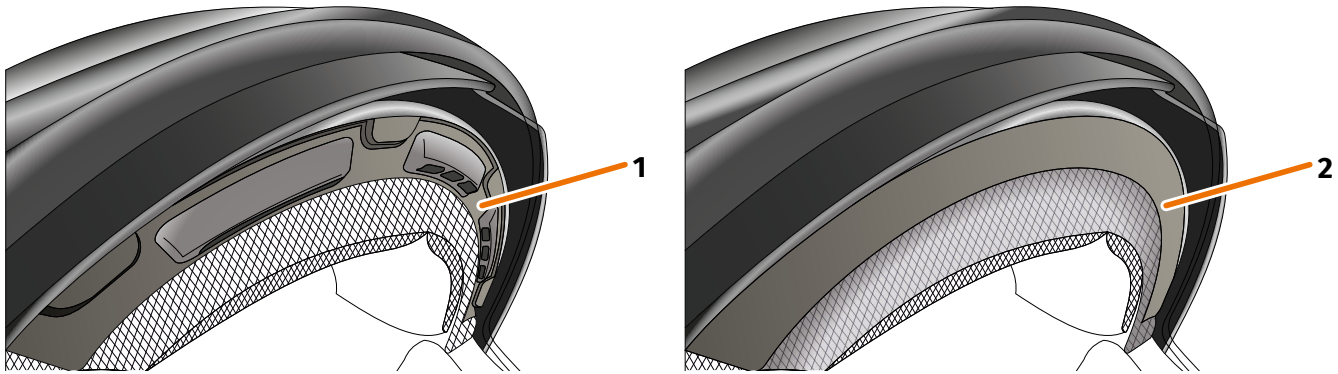


FIGURE 7: Examples of complex helmet geometries

- 1 Example of ventilation slots
- 2 Example of layer between material and plastic frame

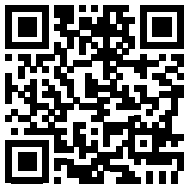
When it comes to complex helmet geometries, distinguish between helmets with ventilation slots and helmets with a layer between the padding material and the plastic frame. In some cases, there is also material with quilted seams that make the mounting surface uneven. Curved mounting surfaces also prevent the helmet adapter from lying flat against the helmet.

- ▶ If the mounting surface of your helmet features a complex geometry, proceed with mounting variant D (Chapter “3.6 Mounting variant D: using Sugru to glue in the narrow helmet adapter” on page 28). If the mounting surface of your helmet does not feature a complex geometry, proceed with mounting variant C (Chapter “3.5 Mounting variant C: Using an adhesive pad to glue in the narrow helmet adapter” on page 24).

3.3 Mounting variant A: clamping in the helmet adapter with tabs

Video instructions

Detailed video instructions for installing TILSBERK HUD in helmets without sun visors are available on the Internet. To access, scan the QR code or call up the video via the browser link.



us.tilsberk.com/pages/hud-install-a



To ensure a secure bond, all adhesive surfaces must be clean, dry, and free of dust and grease. Therefore, prior to assembly, thoroughly clean all smooth surfaces with an alcohol-containing cleaner such as methylated alcohol or cleaning alcohol. Adhesion is better on fabric surfaces, but these surfaces must also be cleaned.

Required components

For this mounting type, you need the following components from the scope of delivery:

- // TILSBERK HUD module
- // TILSBERK HUD helmet adapter with tabs

Installing the helmet adapter

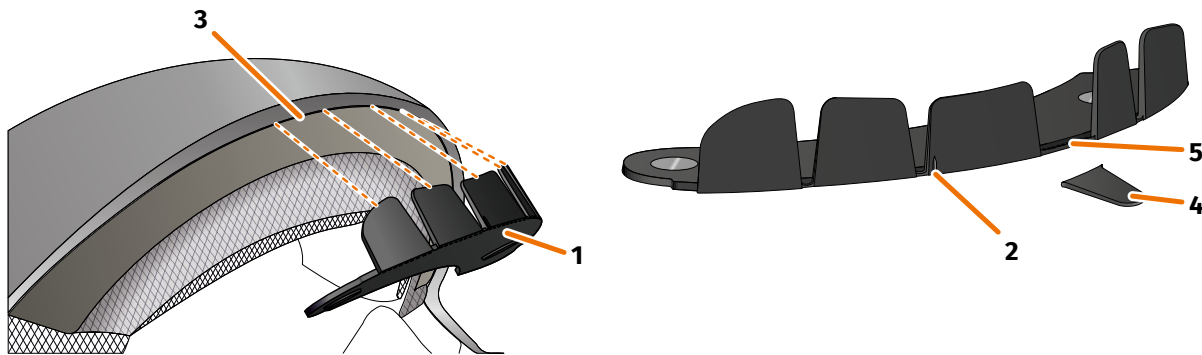


FIGURE 8: Clamping in the helmet adapter with tabs

1. Place the helmet adapter (FIGURE 8/1) in the forehead section of the helmet. At the front of the helmet adapter, there is a mark (FIGURE 8/2) that should be placed on an imaginary line between the middle of your helmet and the middle of your face.
2. Use both hands to evenly push the tabs into the gap (FIGURE 8/3) until the base plate of the helmet adapter is flush on the mounting surface of the helmet. For some helmets, you may have to open up the gap a bit first.



If you notice that individual tabs collide with the helmet material in the gap in the helmet, you can simply break off up to three tabs (FIGURE 8/4, for example). The tabs are perforated at the bottom edge (FIGURE 8/5) to facilitate break-off. You may use a file or scissors to smoothen the breaking points a little.

Checking the position of the helmet adapter

3. Put your helmet on as usual.
4. Attach the TILSBERK HUD module to the helmet adapter using the magnets and fold down the display at a 45° angle.
The display should be well visible in front of your right eye.
5. Push the operating button on the TILSBERK HUD module to switch on the device.
A screen appears on the display.



6. Check if you can clearly see everything on the display in its entirety without changing the position of the helmet on your head. To do so, look ahead as you would if you were riding in traffic:
 - // The display should be well visible in front of your right eye.
 - // The display should be clear and easy to read.
 - // The entire screen should be within your field of vision. Use the frame for orientation when switching on the TILSBERK HUD module.



You can show the frame again for alignment orientation at any time. To do so, activate “Alignment mode” in the “My device” menu.

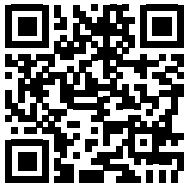
7. If the display is fuzzy or hard to read, you can change the angle of the display slightly.

8. If the frame shown on the display is fully or partially outside your field of vision, remove the TILSBERK HUD module and the helmet adapter from the helmet and slightly move the helmet adapter in the desired direction.
 9. Always recheck the conditions listed in step 6 and keep adjusting the position of the helmet adapter until all conditions are met.
- ▶ You have mounted the helmet adapter with tabs in the helmet. Proceed by setting up the TILSBERK HUD app (Chapter “4.1 Installing and setting up the TILSBERK HUD app” on page 34).

3.4 Mounting variant B: Gluing in the helmet adapter with tabs

Video instructions

Detailed video instructions for installing TILSBERK HUD in helmets using adhesive pads are available on the Internet. To access, scan the QR code or call up the video via the browser link.



us.tilsberk.com/pages/hud-install-b



To ensure a secure bond, all adhesive surfaces must be clean, dry, and free of dust and grease. Therefore, prior to assembly, thoroughly clean all smooth surfaces with an alcohol-containing cleaner such as methylated alcohol or cleaning alcohol. Adhesion is better on fabric surfaces, but these surfaces must also be cleaned.

Required components

For this mounting type, you need the following components from the scope of delivery:

- // TILSBERK HUD module
- // TILSBERK HUD helmet adapter with tabs
- // Set with adhesive pads for TILSBERK HUD helmet adapter with tabs

Installing the helmet adapter

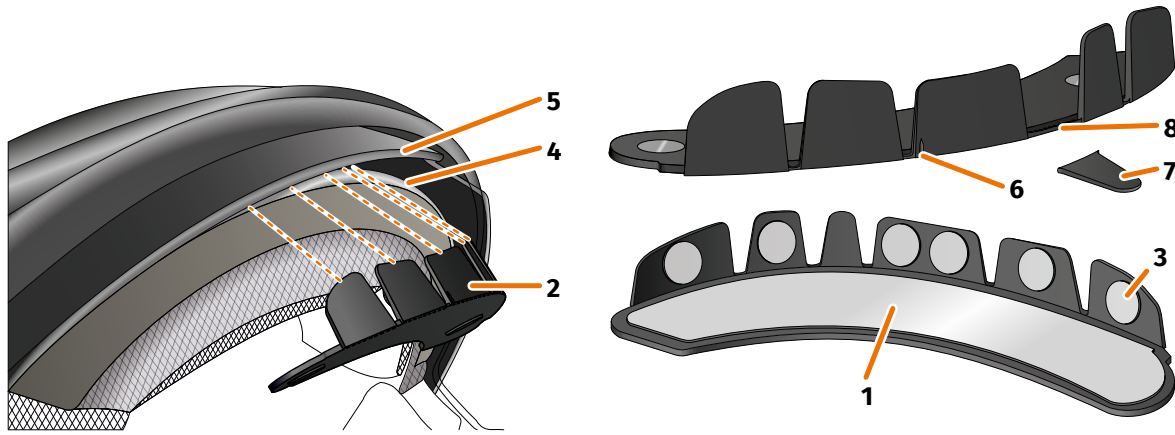


FIGURE 9: Gluing in the helmet adapter with tabs

1. Clean the helmet adapter thoroughly.
2. Stick the large adhesive pad (FIGURE 9/1) to the side of the helmet adapter (FIGURE 9/2) on which you can see the magnets.
3. Stick the small adhesive pads (FIGURE 9/3) to the insides of the tabs.
4. Place the helmet adapter (FIGURE 9/2) in the forehead section of the helmet between the interior shell (FIGURE 9/4) and the sun visor (FIGURE 9/5). At the front of the helmet adapter, there is a mark (FIGURE 9/6) that should be placed on an imaginary line between the middle of your helmet and the middle of your face. Make sure the helmet adapter does not collide with the sun visor.



If you notice that individual tabs collide with the helmet material, you can simply break off up to three tabs (as shown in FIGURE 9/7, for example). The tabs are perforated at the bottom edge (FIGURE 9/8) to facilitate break-off. You may use a file or scissors to smoothen the breaking points a little.

5. Evenly push the helmet adapter with the adhesive pads onto the helmet.
6. Check whether the helmet adapter sits correctly on the helmet. To do so, use the magnets to attach the TILSBERK HUD module to the helmet adapter.
The TILSBERK HUD module must be completely in contact with the helmet adapter. There must be no visible gap between the TILSBERK HUD module and the helmet adapter.

Checking the position of the helmet adapter

7. Fold down the sun visor to check whether the sun visor collides with either the helmet adapter or the TILSBERK HUD module.



Shortly after mounting, the adhesive pads have not yet developed their full adhesive power. If the sun visor collides with the helmet adapter, remove it and correct its position.

8. Put your helmet on as usual.
9. Attach the TILSBERK HUD module to the helmet adapter using the magnets and fold down the display at a 45° angle.
The display should be well visible in front of your right eye.
10. Push the operating button on the TILSBERK HUD module to switch on the device.
A screen appears on the display.



11. Check if you can clearly see everything on the display in its entirety without changing the position of the helmet on your head. To do so, look ahead as you would if you were riding in traffic:

- // The display should be well visible in front of your right eye.
- // The display should be clear and easy to read.
- // The entire screen should be within your field of vision. Use the frame for orientation when switching on the TILSBERK HUD module.



You can show the frame again for alignment orientation at any time. To do so, activate “Alignment mode” in the “My device” menu.

12. If the display is fuzzy or hard to read, you can change the angle of the display slightly.
13. If the frame shown on the display is fully or partially outside your field of vision, remove the TILSBERK HUD module and the helmet adapter from the helmet and slightly move the helmet adapter in the desired direction.



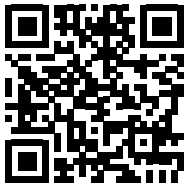
Shortly after mounting, the adhesive pads have not yet developed their full adhesive power. The helmet adapter can be removed easily and then attached again.

14. Always recheck the conditions listed in step 11 and keep adjusting the position of the helmet adapter until all conditions are met.
- ▶ You have used the adhesive pads to attach the helmet adapter with tabs to the helmet. Proceed by setting up the TILSBERK HUD app (Chapter “4.1 Installing and setting up the TILSBERK HUD app” on page 34).

3.5 Mounting variant C: Using an adhesive pad to glue in the narrow helmet adapter

Video instructions

Detailed video instructions for installing TILSBERK HUD in helmets using adhesive pads are available on the Internet. To access, scan the QR code or call up the video via the browser link.



us.tilsberk.com/pages/hud-install-c



To ensure a secure bond, all adhesive surfaces must be clean, dry, and free of dust and grease. Therefore, prior to assembly, thoroughly clean all smooth surfaces with an alcohol-containing cleaner such as methylated alcohol or cleaning alcohol. Adhesion is better on fabric surfaces, but these surfaces must also be cleaned.

Required components

For this mounting type, you need the following components from the scope of delivery:

- // TILSBERK HUD module
- // TILSBERK HUD narrow helmet adapter
- // Adhesive pad for TILSBERK HUD narrow helmet adapter

Installing the helmet adapter

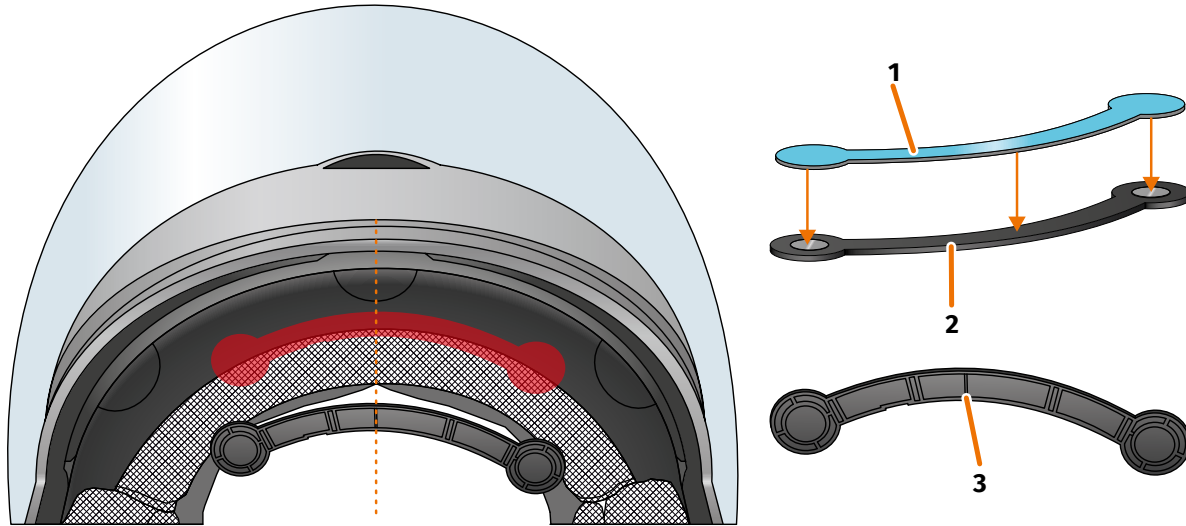


FIGURE 10: Using an adhesive pad to glue in the narrow helmet adapter

1. Clean the helmet adapter thoroughly.
2. Stick the adhesive pad (FIGURE 10/1) to the side of the helmet adapter on which you can see the magnets.
3. Place the helmet adapter (FIGURE 10/2) in the forehead section of the helmet, between the inner shell and the outer shell (FIGURE 10/shown in red). There is a mark at the bottom of the helmet adapter (FIGURE 10/3) that should be placed on an imaginary line between the middle of the helmet and the middle of your face (FIGURE 10/dotted line). Make sure the helmet adapter does not collide with the sun visor.

- Lightly and evenly push the helmet adapter with the adhesive pad onto the helmet.

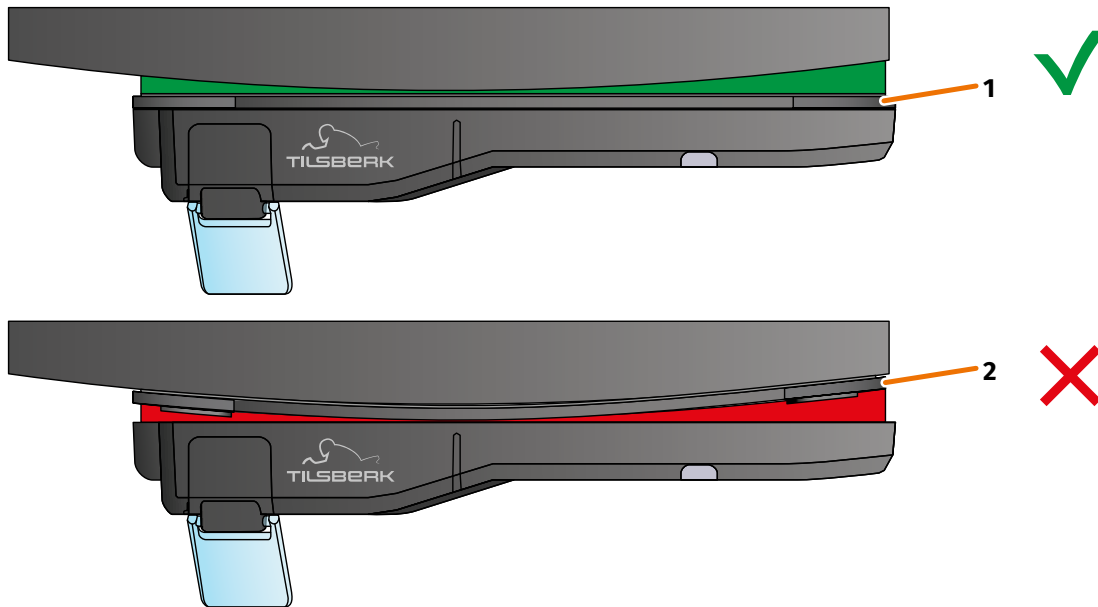


FIGURE 11: Example: straight and curved mounting surface

- Check whether the helmet adapter sits correctly on the helmet. To do so, use the magnets to attach the TILSBERK HUD module to the helmet adapter. The TILSBERK HUD module must be completely in contact with the helmet adapter. There must be no visible gap between the TILSBERK HUD module and the helmet adapter (FIGURE 11/1).



A slight curvature in the mounting surface can be compensated by the adhesive pad. If the mounting surface is highly curved and the helmet adapter does not sit correctly against the mounting surface (FIGURE 11/2), choose the mounting variant using Sugru (Chapter “3.6 Mounting variant D: using Sugru to glue in the narrow helmet adapter” on page 28).

Checking the position of the helmet adapter

- Fold down the sun visor to check whether the sun visor collides with either the helmet adapter or the TILSBERK HUD module.



Shortly after mounting, the adhesive pads have not yet developed their full adhesive power. If the sun visor collides with the helmet adapter, remove it and correct its position.

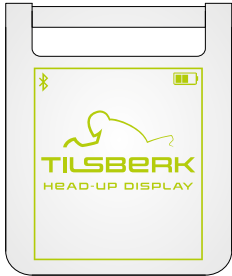
- Put your helmet on as usual.

8. Attach the TILSBERK HUD module to the helmet adapter using the magnets and fold down the display at a 45° angle.

The display should be well visible in front of your right eye.

9. Push the operating button on the TILSBERK HUD module to switch on the device.

A screen appears on the display.



10. Check if you can clearly see everything on the display in its entirety without changing the position of the helmet on your head. To do so, look ahead as you would if you were riding in traffic:

// The display should be well visible in front of your right eye.

// The display should be clear and easy to read.

// The entire screen should be within your field of vision. Use the frame for orientation when switching on the TILSBERK HUD module.



You can show the frame again for alignment orientation at any time. To do so, activate “Alignment mode” in the “My device” menu.

11. If the display is fuzzy or hard to read, you can change the angle of the display slightly.
12. If the frame shown on the display is fully or partially outside your field of vision, remove the TILSBERK HUD module and the helmet adapter from the helmet and slightly move the helmet adapter in the desired direction.



Shortly after mounting, the adhesive pad has not yet developed its full adhesive power. The helmet adapter can be removed easily and then attached again.

13. Always recheck the conditions listed in step 10 and keep adjusting the position of the helmet adapter until all conditions are met.

▶ You have used the adhesive pad to attach the narrow helmet adapter to the helmet. Proceed by setting up the TILSBERK HUD app (Chapter “4.1 Installing and setting up the TILSBERK HUD app” on page 34).

3.6 Mounting variant D: using Sugru to glue in the narrow helmet adapter

NOTICE

Material damage due to adhesive residues!

Sugru can leave residues on fabrics and leather. These residues can be hard to remove and traces are likely to remain.

- Use TILSBERK HUD with Sugru only if residue on the fabric of your helmet does not bother you.

NOTICE

Insufficient helmet ventilation!

Sugru can partially clog up ventilation slots. If that happens, the helmet is no longer ventilated properly.

- Do not use TILSBERK HUD with Sugru if you require completely unimpeded helmet ventilation.



To ensure a secure bond, all adhesive surfaces must be clean, dry, and free of dust and grease. Therefore, prior to assembly, thoroughly clean all smooth surfaces with an alcohol-containing cleaner such as methylated alcohol or cleaning alcohol. Adhesion is better on fabric surfaces, but these surfaces must also be cleaned.

Video instructions

Detailed video instructions for installing TILSBERK HUD in helmets using Sugru are available on the Internet. To access, scan the QR code or call up the video via the browser link.



us.tilsberk.com/pages/hud-install-d

Required components

For this mounting type, you need the following components from the scope of delivery:

- // TILSBERK HUD module
- // TILSBERK HUD narrow helmet adapter
- // Sugru

Preparing Sugru

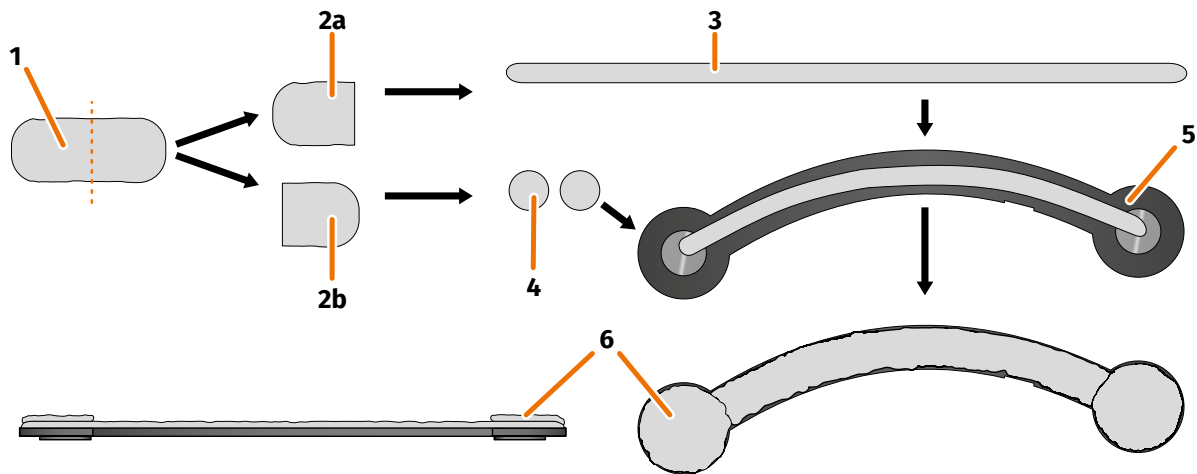


FIGURE 12: Applying Sugru to the narrow helmet adapter

Sugru hardly needs any preparation to develop adhesive properties. The adhesiveness develops through the reaction of the material with the ambient air.

Once the pack is opened, you have 30 minutes to work with Sugru.

Sugru requires 12 to 24 hours to fully set and develop its maximum adhesive force. The exact time required depends on the thickness of the layer as well as the ambient temperature and humidity.



Do not test the strength of the Sugru until 12 hours have elapsed. Any mechanical load applied before setting has finished can permanently compromise the durability of the adhesive bond.



Sugru is non-irritating to skin. If you experience an allergic reaction after skin contact, rinse the skin with warm water. Follow the manufacturer's instructions.

1. Open a pack of Sugru and remove the content (FIGURE 12/1) from the package.
2. Divide the Sugru into two halves (FIGURE 12/2a and 2b).
3. Use one half of the Sugru (FIGURE 12/2a) to form a roll (FIGURE 12/3) that is approximately as long as the helmet adapter.
4. Split the other half of the Sugru (FIGURE 12/2b) into two equal parts and roll both of them into balls (FIGURE 12/4).

5. Place the roll (FIGURE 12/3) on the side of the helmet adapter on which you can see the magnets (FIGURE 12/5).
6. Use your fingers to carefully and evenly distribute the Sugru over the entire surface of the helmet adapter.
7. Place each of the two balls you have formed onto the round ends of the helmet adapter and carefully and evenly flatten them so that they blend with the layer of Sugru that has already been applied (FIGURE 12/6).

Installing the helmet adapter

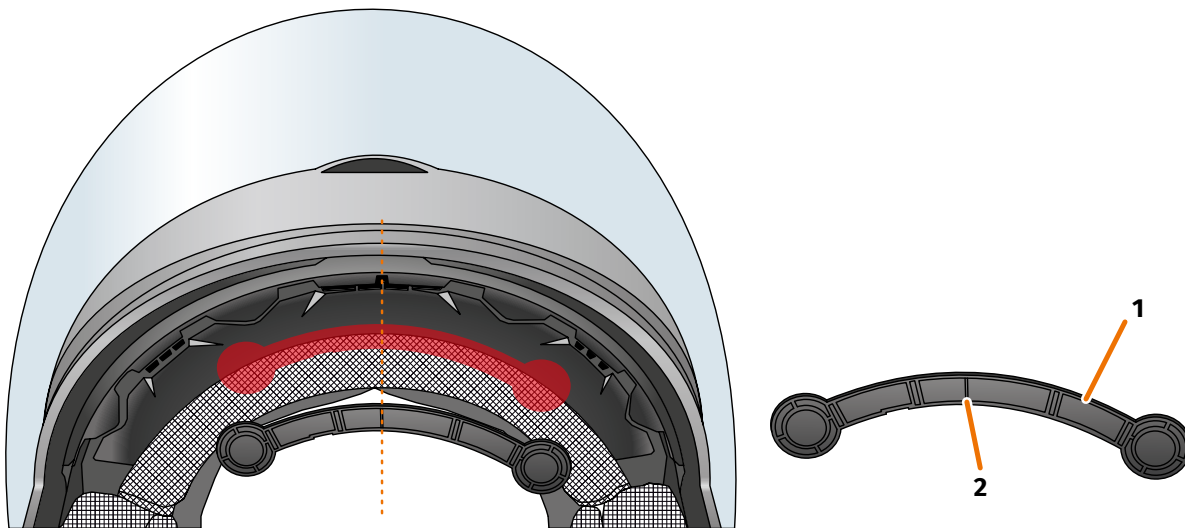


FIGURE 13: Using Sugru to glue in the narrow helmet adapter

8. Place the helmet adapter (FIGURE 13/1) in the forehead section of the helmet, between the inner shell and the outer shell (FIGURE 13/shown in red). There is a mark at the bottom of the helmet adapter (FIGURE 13/2) that should be placed on an imaginary line between the middle of the helmet and the middle of your face (FIGURE 13/dotted line). Make sure the helmet adapter does not collide with the sun visor.

- Carefully and evenly push the helmet adapter onto the mounting surface so that the entire surface of the Sugru adheres to the helmet.

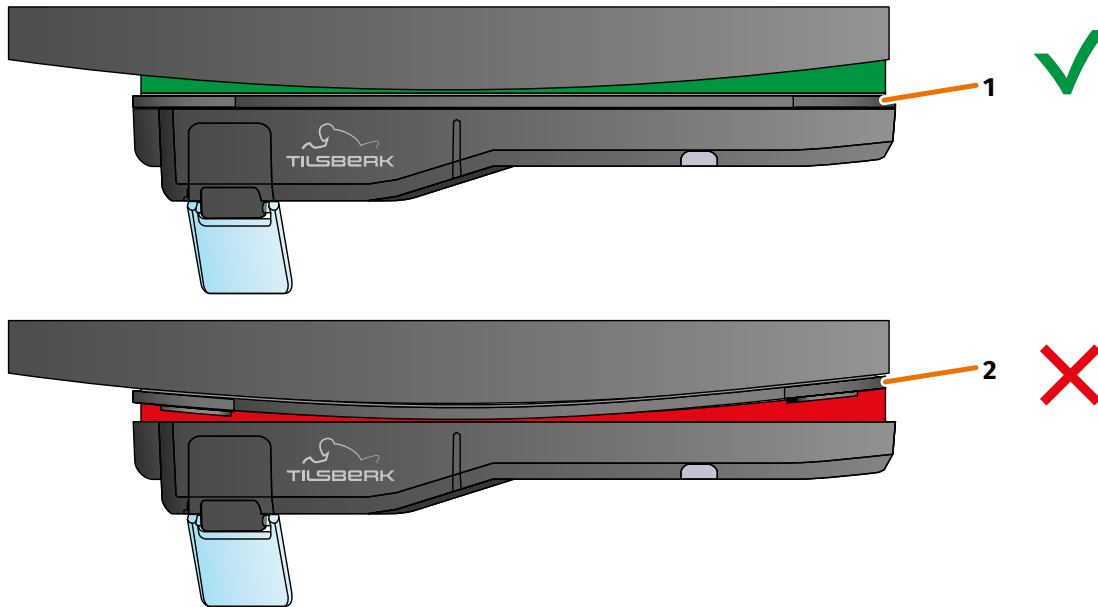


FIGURE 14: Example: straight and curved mounting surface

- Check whether the helmet adapter sits correctly on the helmet. To do so, use the magnets to attach the TILSBERK HUD module to the helmet adapter. The TILSBERK HUD module must be completely in contact with the helmet adapter. There must be no visible gap between the TILSBERK HUD module and the helmet adapter (FIGURE 14/1).



Sugru can compensate for a slight curvature in the mounting surface. If the mounting surface is highly curved and the helmet adapter does not sit correctly against the mounting surface (FIGURE 14/2), apply an additional layer of Sugru to compensate for the unevenness.

Checking the position of the helmet adapter

- Fold down the sun visor to check whether the sun visor collides with either the helmet adapter or the TILSBERK HUD module.



Shortly after mounting, the Sugru has not yet developed its full adhesive power. If the sun visor collides with the helmet adapter, remove it and correct its position.

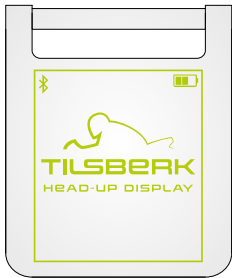
- Put your helmet on as usual.

13. Attach the TILSBERK HUD module to the helmet adapter using the magnets and fold down the display at a 45° angle.

The display should be well visible in front of your right eye.

14. Push the operating button on the TILSBERK HUD module to switch on the device.

A screen appears on the display.



15. Check if you can clearly see everything on the display in its entirety without changing the position of the helmet on your head. To do so, look ahead as you would if you were riding in traffic:

// The display should be well visible in front of your right eye.

// The display should be clear and easy to read.

// The entire screen should be within your field of vision. Use the frame for orientation when switching on the TILSBERK HUD module.



You can show the frame again for alignment orientation at any time. To do so, activate “Alignment mode” in the “My device” menu.

16. If the display is fuzzy or hard to read, you can change the angle of the display slightly.
17. If the frame shown on the display is fully or partially outside your field of vision, remove the TILSBERK HUD module and the helmet adapter from the helmet and slightly move the helmet adapter in the desired direction.



Shortly after mounting, the Sugru has not yet developed its full adhesive power. The helmet adapter can be removed easily and then attached again. If the layer of Sugru changes shape when the helmet adapter is removed from the helmet, flatten it with your fingers prior to re-mounting.

18. Always recheck the conditions listed in step 15 and keep adjusting the position of the helmet adapter until all conditions are met.

Reworking Sugru

19. Remove any Sugru that has emerged on the edges of the helmet adapter. Use a flat object to do this, for example, a plastic card or an ice cream stick. Make sure you do not change the position of the helmet adapter.

WARNING

Accident risk if the helmet adapter comes unstuck!

Until the layer of Sugru has hardened completely, the helmet adapter can come loose during rides due to vibrations and shocks. A detached helmet adapter can be distracting and lead to accidents.


- Let the Sugru harden completely before your first ride.

20. Let the layer of Sugru harden completely before you use the device. Hardening takes 12 to 24 hours, depending on the thickness of the Sugru layer.

A layer of 0.06 in takes about 12 hours; a layer of 0.12 in takes about 24 hours.



Do not test the strength of the Sugru until 12 hours have elapsed. Any mechanical load applied before setting has finished can permanently compromise the durability of the adhesive bond.

-  You have used Sugru to attach the narrow helmet adapter to the helmet. Proceed by setting up the TILSBERK HUD app (Chapter “4.1 Installing and setting up the TILSBERK HUD app” on page 34).

4 Operation

4.1 Installing and setting up the TILSBERK HUD app

Installing the TILSBERK HUD app

Download the TILSBERK HUD app to your smartphone or tablet from the Google Play Store or from the App Store.

Setting up the TILSBERK HUD app

Once you have successfully installed the TILSBERK HUD app, you have to set up the TILSBERK HUD app once.



To set up the TILSBERK HUD app and pair it with the TILSBERK HUD module, charge the TILSBERK HUD module before you start setting up the TILSBERK HUD app.

When you open the TILSBERK HUD app for the first time, the start screen appears.

From there, the TILSBERK HUD app guides you through the setup process up to pairing your TILSBERK HUD module.

1. Open the TILSBERK HUD app.

▶ The start screen is displayed.

2. Tap “NEXT” and follow the instructions in the TILSBERK HUD app.

During the setup, you will be asked to grant the following permissions to the TILSBERK HUD app:

- // **Bluetooth®**: Access to your **Bluetooth®** connection is necessary for the TILSBERK HUD app to connect to the TILSBERK HUD module. In this context, you will also be asked to activate **Bluetooth®** on your smartphone if it is not already active.
- // **Location data**: Access to your current location is necessary to determine your position and current speed.
- // **Phone status**: Access to your phone status, contacts and call lists makes it possible to show phone notifications on the display. This permission is not strictly necessary for the TILSBERK HUD to work. If you do not grant this permission, we cannot show call information on the display.



For the TILSBERK HUD app to work properly, you must grant all required permissions. Note that the TILSBERK HUD app requires location access “Always.”

- ▶ Once you have completed the setup, you are prompted to connect the TILSBERK HUD module to the TILSBERK HUD app.

Pairing the TILSBERK HUD module with the TILSBERK HUD app

Once you have granted all required permissions to the TILSBERK HUD app, the TILSBERK HUD app automatically switches to pairing mode.

3. Ensure that the TILSBERK HUD module is switched off and sufficiently charged, and near your smartphone.

4. Push the operating button on the TILSBERK HUD module to switch on the device.

- ▶ After a short time, your TILSBERK HUD module appears as an available device in the TILSBERK HUD app.

5. Select the TILSBERK HUD module to start pairing.

6. Approve **Bluetooth**® pairing on your smartphone. For iOS, this permission does not have to be granted.



The pairing process can take a few seconds as the device data has to be transferred between the smartphone and the TILSBERK HUD module.

A message in the TILSBERK HUD app lets you know once the devices have been paired successfully.

7. Tap “NEXT” to finalize pairing.

- ▶ You have successfully set up the TILSBERK HUD app and paired your TILSBERK HUD module with your smartphone.

The **Bluetooth**® icon on the display lights up. You can see the connection status in the TILSBERK HUD app as well.

From now on, your TILSBERK HUD module automatically connects to the TILSBERK HUD app whenever you switch on the TILSBERK HUD module.

Error message: Device not found

Sometimes, pairing fails. In this case, proceed as follows:

1. Switch off the TILSBERK HUD module.
2. Check the **Bluetooth**® settings of your smartphone. If the TILSBERK HUD module is listed under paired devices, delete the connection.
3. Repeat the pairing process. Make sure you perform the steps in the right order.
4. If you are unable to pair your TILSBERK HUD module with your smartphone, contact the manufacturer to discuss what to do next.

4.2 Setting up and using the TILSBERK HUD module

Charging

WARNING

Fire hazard!

During charging, the TILSBERK HUD module can heat up and cause fires and serious injuries.

- Do not leave the TILSBERK HUD module unattended while charging.
- Only charge the battery in a dry place and at temperatures ranging from 30 °F to 110 °F.

WARNING

Accident risk!

Charging the TILSBERK HUD module in the helmet while riding can cause accidents and lead to serious injuries. Pulling on the charging cable can disconnect the TILSBERK HUD module from the helmet adapter, resulting in the TILSBERK HUD module falling into the helmet during the ride.

- Never charge the TILSBERK HUD module in the helmet during a ride.

NOTICE

Battery damage!

Short charge cycles and complete discharges damage the battery and shorten its lifespan.

- Avoid short charging cycles.
- Charge the TILSBERK HUD module completely when the battery charge level reaches approx. 25%.
- If you store your TILSBERK HUD for an extended period of time, recharge the battery approx. every 6 months.

Fully charge your TILSBERK HUD module before you use it for the first time. Use the USB-C charging cable from the scope of delivery. As the power source, use a power adapter with USB port or a suitable electronic device, such as a computer or a charged power bank.

1. Connect the USB-C charging cable to a power adapter with a minimum output of 0.5 A.
 2. Connect the USB-C charging cable to the charging socket on the narrow end of the TILSBERK HUD module.
- ▶ The TILSBERK HUD module begins charging. The LED on the TILSBERK HUD module lights up and stays on.

Once charging is complete, the LED goes out. The full charge process takes approx. 4 hours if the battery of the TILSBERK HUD module was completely flat at the start.

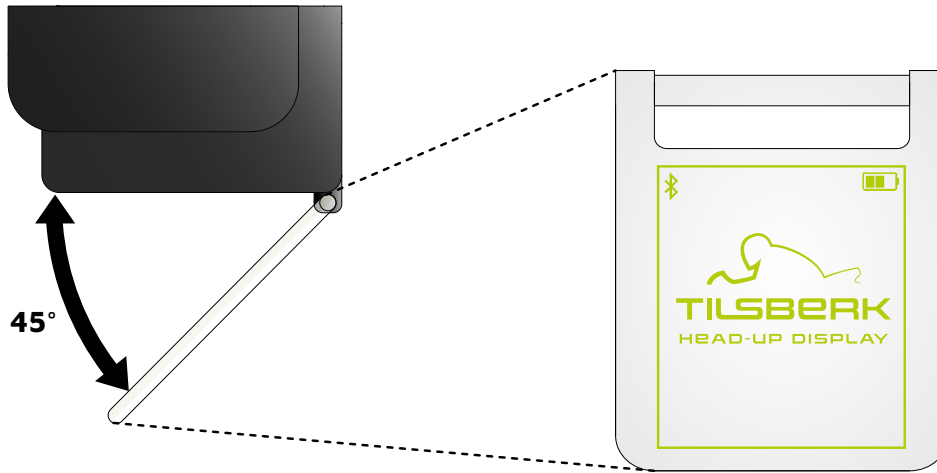
Switching on and off

1. To switch on the TILSBERK HUD module, push the operating button for approx. 1 second.
- ▶ The TILSBERK HUD module switches on. The LED flashes once.
2. To switch off the TILSBERK HUD module, push the operating button for approx. 3 seconds.
- ▶ The TILSBERK HUD module switches off. The LED flashes twice.

Pairing mode

The TILSBERK HUD module is constantly in pairing mode, but can only be connected to one smartphone at a time. After the initial coupling, the TILSBERK HUD module automatically connects to the paired smartphone if it is within reach of the **Bluetooth®** signal and **Bluetooth®** has been activated. If you want to pair your TILSBERK HUD module with another smartphone, ensure that there is no paired smartphone nearby, or switch off **Bluetooth®** on the already paired smartphone.

4.3 Display icons



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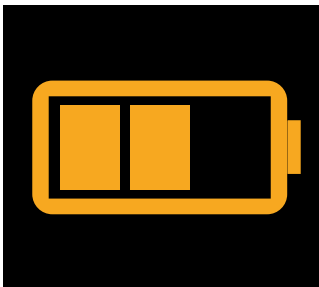
FIGURE 15: Display (example)

Depending on the settings in the TILSBERK HUD app, the display will show the following information and notes:



Bluetooth® status

This icon appears on the display as soon as your TILSBERK HUD is connected to your smartphone via **Bluetooth®** wireless technology.



TILSBERK HUD charge level

The display lets you keep an eye on the battery level of your TILSBERK HUD module. Each of the three bars in the battery symbol represents 25% of the maximum battery charge.

If all three bars have disappeared, 25% of battery charge remain. In addition, a warning appears on the display.



Smartphone battery warning

The display warns you when the battery level of your smartphone is low. The exact battery level at which the warning appears depends on your smartphone.



Current speed

The speed indicator shows you your current speed. The bar above the line signals your speed change if you accelerate or brake.



Speed limit

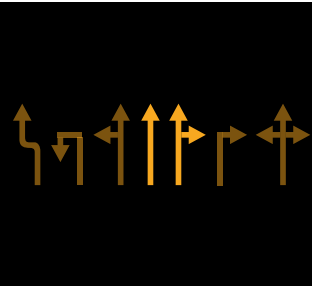
The display shows the permissible maximum speed stored in the map service for your current position and riding direction. If you exceeded the current speed limit, the frame of the display is brighter.



Turning directions

The arrows on the display guide you along the calculated route and show when you have to turn and in which direction.

The thickly bordered arrow shows the planned direction.



Lane information

The lane information provides information on the lanes available and turn-offs from the road.

The bright arrows show you which lanes you should use.



Compass

The compass shows you in which cardinal direction you are currently traveling. The cardinal direction is determined using your moving location signal.



Phone notifications

The display shows your incoming calls. If the number is stored in your contacts, the display will also show the corresponding name.

Navigation time

The display shows your navigation time. You can choose between the estimated time of arrival and the estimated remaining time to the destination.

Distance to destination

The display shows you the remaining distance to your destination.

Location

The display shows your location. You can choose between displaying the current road and the next road on your route.

Time

The display shows the current time.

You can use the settings in the TILSBERK HUD app to select from different display layouts and hide some icons (Chapter “Configuring the display layout” on page 43).

4.4 Meaning of the LED display on the TILSBERK HUD module

The status LED on the TILSBERK HUD module indicates the current status of the device:

The LED flashes once	The TILSBERK HUD module switches on.
The LED flashes twice	The TILSBERK HUD module switches off.
The LED flashes three times and the device switches off	The TILSBERK HUD module is turned off automatically due to the battery level.
The LED lights up continuously	The TILSBERK HUD module is charging.
The LED is switched off, the TILSBERK HUD module is connected to charge	The TILSBERK HUD module is fully charged.
The LED flashes approx. twice per second, the TILSBERK HUD module is connected to charge	Charging error.

4.5 Starting the navigation

Use the TILSBERK HUD app to select your destination and route settings, and let the TILSBERK HUD module guide you to your destination.

⚠ WARNING

Accident risk in case of inattentiveness!

Inattentiveness in traffic can lead to serious accidents.

- Focus on your ride during the entire trip.
- Make all route settings and preparations before you start riding.
- If you want to make settings in the TILSBERK HUD app during your ride, pull over when it's safe to do so and get off your motorbike.

⚠ WARNING

Accident risk in case of soiling!

A dirty TILSBERK HUD compromises your vision and can lead to serious accidents.

- Thoroughly clean the TILSBERK HUD before starting the ride.

Before you start your ride

1. Sufficiently charge your TILSBERK HUD module and smartphone for the estimated duration of your ride.
2. Ensure that you have sufficient mobile data for the ride. An unstable Internet connection can affect navigation.
If you are not sure or you are likely to spend significant time in areas with limited reception, you can download the map material for your route prior to starting your ride.
3. Clean the display. Streaks or dirt on the display can affect your vision during the ride.
4. Clean the LED. Dirt on the LED can prevent the integrated light sensor on the LED from correctly detecting the lighting conditions.
5. Make sure that the **Bluetooth®** connection between the smartphone and the TILSBERK HUD module is stable during the ride. Keep your smartphone in a pocket on your body. If heavy objects or your body come between your smartphone and the TILSBERK HUD module, this can affect the connection.

Preparing the TILSBERK HUD module and app

1. Start the TILSBERK HUD app.
2. Put your helmet on as usual.
3. Attach the TILSBERK HUD module to the helmet adapter using the magnets and fold down the display at a 45° angle.
The display should be well visible in front of your right eye.
4. Push the operating button on the TILSBERK HUD module to switch on the device.
 - ▶ A screen appears on the display. The TILSBERK HUD module automatically connects to the TILSBERK HUD app.
5. If necessary, adjust the angle of the display a little so that you can see the entire screen.
 - ▶ You have prepared the TILSBERK HUD module and the TILSBERK HUD app for the ride.

Entering the destination and planning the route

In the “Navigation” menu, you can enter your navigation data, plan tours, import and export GPX data and make various route settings.

4.6 Settings

In the “My device” menu, you can adapt your TILSBERK HUD to your specific needs. You can determine which information should be displayed on the display, adjust the brightness as necessary and find all the necessary information about your device.

Configuring the display layout

You can adapt the information shown on the display to your personal requirements.

The settings are saved automatically. In the “My device” menu, the edited layout is shown as selected or adapted.

Adjusting the brightness of the display

The automatic brightness adjustment is activated by default. The light sensor detects the ambient light and automatically adjusts the brightness of the display.

You can also deactivate the automatic brightness adjustment and set the brightness of the display yourself.



We recommend using automatic brightness adjustment during the day. This prevents you from being blinded by the display if the lighting conditions change suddenly (for example, if you ride into a tunnel).

Activating voice prompts

If, in addition to the TILSBERK HUD module, you have a headset or headphone connected to your smartphone, you can activate voice prompts for navigation directions.

1. Start route planning.
2. To activate voice prompts, activate the option via the speaker icon.

5 Storage

If you want to store your TILSBERK HUD while you are not using it, pay attention to the ambient conditions at the storage location and the condition of your device:

- // Temperature: between 30 °F and 120 °F
- // Protected from light: Use the protective cover provided and store the device away from direct sunlight.
- // Dry: away from sources of water and other liquids
- // Charged: Charge the battery before you store the device for an extended period of time.



You can also leave your TILSBERK HUD mounted in the helmet. Make sure that the device is also protected from humidity, extreme temperatures and direct sunlight in this case.

6 Maintenance and cleaning

Maintenance

You can change the display of your TILSBERK HUD module yourself if the display is damaged or has become dull (Chapter “7.2 Replacing the display” on page 48).

If you want to have your TILSBERK HUD serviced or checked, contact the manufacturer.

Avoid dirt

Avoid caked-on dirt. In particular oil and fuel, but also sticky liquids damage the device. Observe the following notes:

- // If possible, store and transport your TILSBERK HUD in the protective cover provided or leave it mounted in the helmet.
- // Make sure your hands are free from oil and fuel residues when you touch the display and optical output area.

Cleaning the TILSBERK HUD module

NOTICE

Device damage in case of unsuitable cleaning agents!

Pressurized air and chemicals can damage the surfaces of the display and the optical output area as well as impair their function.

- Do not use pressurized air or chemical detergents to clean the TILSBERK HUD module.

If you want to clean your device, proceed as follows:

1. Remove the TILSBERK HUD module from the helmet.
 2. Use the protective cover provided or a clean microfiber glass cleaning cloth to thoroughly clean the TILSBERK HUD module. In particular, make sure that there is no dirt on the light sensor or the display.
 3. To remove stubborn dirt, lightly moisten the protective cover or glass cleaning cloth with clear water. Do not use chemical detergents.
 4. If you are unable to remove dirt, contact the manufacturer and discuss what to do next.
- ▶ Once the light sensor and display are free from dirt and function correctly, the cleaning of the TILSBERK HUD module is complete.

Cleaning a helmet with an installed helmet adapter

To clean your helmet, remove the TILSBERK HUD module from the helmet adapter. You can clean the outside of your helmet as you normally would when the helmet adapter is installed. Follow the helmet manufacturer's instructions when doing so.

If the helmet adapter is affixed to the fabric of the lining, do not wash the lining in the washing machine.

Cleaning a helmet after removing the helmet adapter

The helmet adapter can be easily removed from the helmet with a bit of force. The adhesive pads and especially Sugru may leave residue in the helmet.

On hard surfaces, the residues can be removed with a damp cloth. If you want to use detergents or solutions containing alcohol, follow the helmet manufacturer's instructions.

Slight glue residues might remain permanently on fabric.



If you remove the helmet adapter from the helmet, you cannot reuse either the adhesive pads or Sugru.

If you want to re-install the helmet adapter in the helmet, remove all glue residues from the helmet adapter first. You can use an alcohol wipe to do so. Then reinstall the helmet adapter in the helmet with new adhesive pads or new Sugru.

7 Troubleshooting

7.1 Reconnecting the TILSBERK HUD module after pairing has failed

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Sometimes, the pairing of your smartphone with the TILSBERK HUD module fails.

1. Switch off the TILSBERK HUD module.
2. Check the **Bluetooth**® settings of your smartphone. If the TILSBERK HUD module is listed under paired devices, delete the connection.
3. Repeat the pairing process (Chapter “Pairing the TILSBERK HUD module with the TILSBERK HUD app” on page 35). Make sure you perform the steps in the right order.
4. If you are unable to pair your TILSBERK HUD module with your smartphone, contact the manufacturer to discuss what to do next.

7.2 Replacing the display

If the display is damaged and, for example, scratched or getting dull, you can replace it easily.

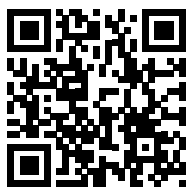
The required repair kit is available in the Tilsberk online shop:



us.tilsberk.com/products/hud-display-kit

Video instructions

Detailed video instructions for replacing the display are available on the Internet. To access, scan the QR code or call up the video via the browser link.



hud.tilsberk.com/en/display-change

Required components

You need the following components and tools to replace displays:

- // TILSBERK HUD kit for replacing displays
- // Narrow flathead screwdriver

Replacing the display

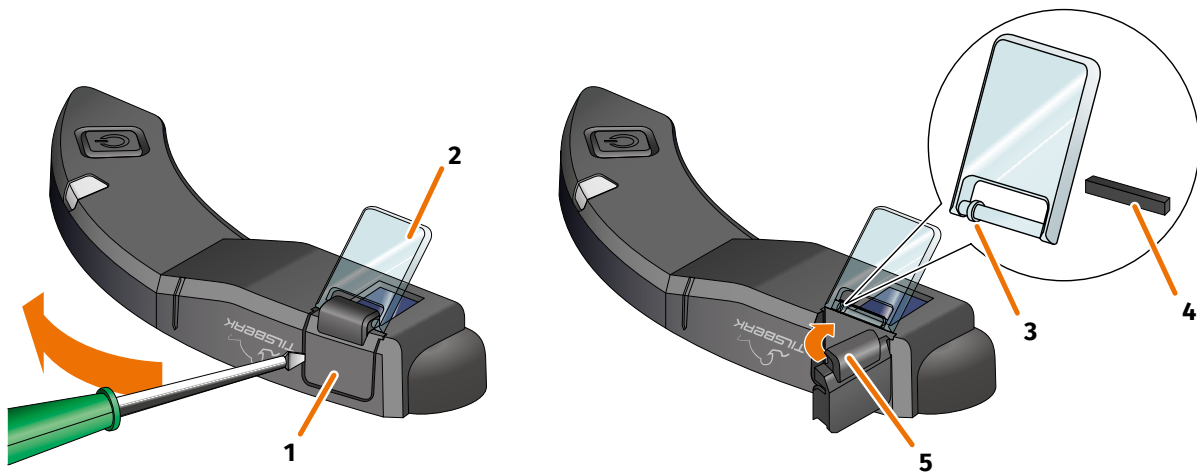


FIGURE 16: Replacing the display

1. Place a screwdriver under the side of the display holder (FIGURE 16/1) and carefully lift up the display holder.
 2. Remove the display holder and the damaged display (FIGURE 16/2) from the TILSBERK HUD module.
 3. Insert the new display into the TILSBERK HUD module. Make sure that the alignment is correct. The small ring on the display (FIGURE 16/3) must point to the flat side of the TILSBERK HUD module.
 4. Insert the clamping wedge (FIGURE 16/4) into the support (FIGURE 16/5) on the display holder.
 5. Place one side of the display holder on the TILSBERK HUD module, then push and swing it back into its position.
- ▶ You have replaced the display.

8 Disposal

NOTICE

Environmental hazard in case of incorrect disposal!

Incorrect disposal can result in environmental hazards.

- Dispose of the product in accordance with local rules and regulations.
- The device with the built-in battery may only be disposed of properly via collection boxes in shops or at municipal collection points.
- Do not dispose of the device and the battery it contains with household waste.

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9 Technical data

Image generator:

Display type	mono-colored OLED display
Color	yellow-green

Wireless interface:

Bluetooth® module	v5.3
Transfer rate	2 MBps
Sending frequency	2400–2483.5 MHz
Maximum transmission power	8 dBm

TILSBERK HUD module:

Dimensions	5.5 x 1.7 x 0.5 in (retracted display) 5.5 x 1.7 x 0.7 in (extended display)
Weight	Approx. 1.5 oz (TILSBERK HUD module) Approx. 1.9–2 oz (TILSBERK HUD module with helmet adapter and Sugru or adhesive pads)
Control	Navigation via the app for Android or iOS with speed recording and compass for offroad navigation
Sensors	Light sensor for automatic adjustment of the display brightness to the ambient lighting
Battery type	Lithium-ion polymer battery
Operating time	approx. 12 h
Battery lifespan	designed for 500 charge/discharge cycles
Interface	USB-C charging socket

Protection class	IP44
Operating and storage conditions:	
Operating temperature (discharging)	30 °F to 120 °F
Operating temperature (charging)	30 °F to 110 °F
Storage temperature	30 °F to 120 °F
Storage humidity	45% to 85%

Sugru:

Consistency	Kneadable adhesive that takes on a flexible, rubbery consistency when exposed to air
Handling time (room conditions, 77 °F, 50 % relative humidity)	30 min
Setting time (room conditions, 77 °F, 50 % relative humidity)	approx. 12 h with a layer thickness of 0.06 in. approx. 24 h with a layer thickness of 0.12 in.
UV resistance	Equivalent to 5 years of real weather exposure (visible UV and infrared radiation) according to Florida test ISO 4892
Temperature resistance	-40 °F to +365 °F
Water resistance	A 0.04 in thick, set layer resists liquids (tap water) up to a pressure of 12 PSI in room conditions.

Serial number



If you want to contact the manufacturer to have your TILSBERK HUD serviced or checked, keep the serial number of your device at hand. You will find the serial number on the label on the top of the TILSBERK HUD module as well as in the “Settings” menu in the TILSBERK HUD app once the device has been paired.

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FCC compliance

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, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 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 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.

Any changes or modifications made to the device not expressly approved by the party responsible for compliance may void the user's authority to operate the equipment.

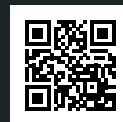
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TILSBERK
HEAD-UP DISPLAY

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