

USER MANUAL

FOR SENTAZ TACTILE CAR SEAT

User manual for Tactile Car Seat

For type “Inlay”

This manual is the original manual written in English.
This manual is available in other languages at www.sentaz.com/manuals

This manual, together with the Installation Manual forms an integral part of the user instructions for the Tactile Car Seat.

Manual version	SEN-TCS-INL-UMN-EN-1711
Firmware version:	SEN-TCS-INL-FW-0917
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For product support and information about the Tactile Car Seat, go to:
www.sentaz.nl

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INSTRUCTIONS FOR USE

This manual describes the use of the Tactile Car Seat.

A separate manual is supplied that describes the installation of the Tactile Car Seat

MANUAL

All users should read this manual completely. More experienced users can go directly to the sections of the information they need.

Improvements and changes to this manual necessitated by typographical errors, inaccuracies of current information, or improvements to programs/equipment may be made by Sentaz B.V. at any time and without notice.

The most recent version of this manual can be found on: www.sentaz.com/manuals

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Attention

- Read this manual before using the Tactile Car Seat.
- The Tactile Car Seat should be installed as described in the Installation manual. Failure to do so may result in damage of the product and possible danger to the user.
- The Tactile Car Seat consists of original parts and accessories, which may only be used in the combinations as described in this manual.

Symbols



! Warning read instructions for use



Batch number



Manufacturer



Read instructions for use



CE marking



WEEE

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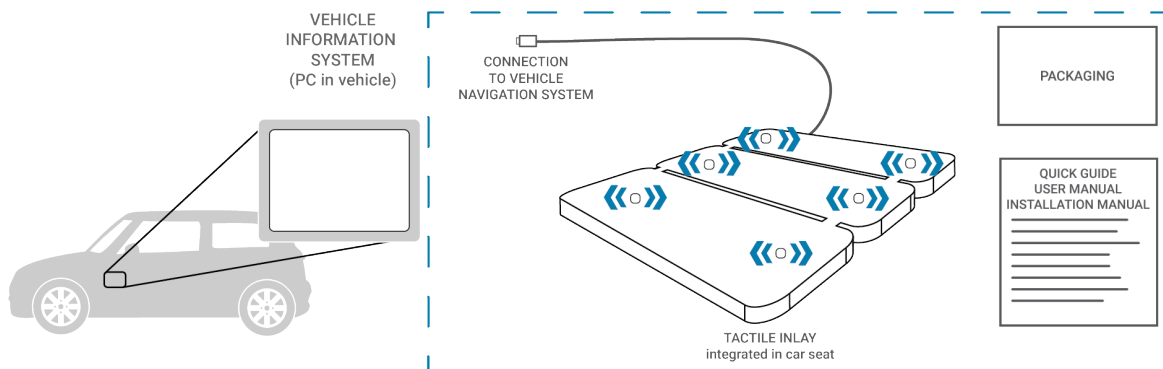
1 THE TACTILE CAR SEAT

The Tactile Car Seat uses vibrations to transmit information to the driver. The Tactile Car Seat translates instructions from the navigation system and translates these into different vibration patterns. The seat provides intuitive navigation instructions when approaching exits, junctions and even roundabouts.

The Tactile Car Seat will be installed permanently into the vehicle. The Tactile Inlay will be placed under the car seat upholstery in the seating area. The Tactile Inlay has 6 vibration motors. Using an USB connection, the Tactile Inlay is connected to the Vehicle Information System. The Tactile Inlay translates navigation information into pre-set vibrational patterns. The Tactile Car Seat is powered by the Vehicle Information System.

Most (vehicle) navigation systems use screen and voice assistance to inform the user whether to turn left or right. The Tactile Car Seat provides the user with navigation instructions using gentle vibrations. Intuitive patterns are pre-set to distinct between instructions.

The system reduces cognitive load for the driver, by re-distributing the cues from visual and audio channels. This allows drivers to focus on the road, experience less stress, better reaction times¹ and thus less navigation mistakes.



THE TACTILE CAR SEAT IS ONLY INTENDED FOR USE AS IS STATED IN THE MANUAL. ANY OTHER USE, OR USE BEYOND THAT SPECIFIED IN THIS MANUAL IS DEEMED AS INCORRECT USE. THE MANUFACTURER ACCEPTS NO LIABILITY FOR DAMAGE RESULTING FROM INCORRECT USAGE. ALL RISKS ASSOCIATED WITH THE USE OF THE DEVICE ARE BORNE SOLELY BY THE USER;

¹ Vibrotactile in-vehicle navigation system” J.B.F. Van Erp, H.A.H.C. Van Veen / Transportation Research Part F 7 (2004) 247–256

IMPORTANT INFORMATION

2 SAFETY INSTRUCTIONS

GENERAL NOTES

- READ THIS MANUAL BEFORE USING THE TACTILE CAR SEAT;
- THE TACTILE CAR SEAT IS INTENDED TO SERVE AS A DRIVING AID AND IS NOT A SUBSTITUTE FOR DRIVING WITH DUE CARE AND ATTENTION. ALWAYS OBEY POSTED ROAD SIGNS AND APPLICABLE LAWS. DISTRACTED DRIVING CAN BE EXTREMELY DANGEROUS. PLEASE DO NOT OPERATE THIS DEVICE IN ANY MANNER THAT DIVERTS A DRIVER'S ATTENTION FROM THE ROAD IN AN UNSAFE MANNER. SENTAZ RECOMMENDS TO PULL OVER TO A COMPLETE STOP AT A SAFE LOCATION IN ORDER TO INTERACT WITH THE DEVICE IF NECESSARY;
- FAMILIARIZE YOURSELF WITH THE TACTILE NAVIGATION INSTRUCTIONS IN THE USER MANUAL CHAPTER 4, BEFORE DRIVING ON THE PUBLIC ROAD WITH THE TACTILE CAR SEAT;
- THIS MANUAL FORMS AN INTEGRAL PART OF THE TACTILE CAR SEAT. KEEP THE USER MANUAL AND QUICK MANUAL IN THE VEHICLE AND IN READINESS WHENEVER REQUIRED. PRECISE OBSERVANCE OF THESE INSTRUCTIONS IS TO ENSURE THE SAFE AND EFFICIENT USE OF THE DEVICE AND ITS COMPONENTS;
- USE ONLY ORIGINAL ACCESSORIES (USB-CABLE) WHICH HAVE BEEN PROVIDED BY THE MANUFACTURER. FAILURE TO DO SO MAY CAUSE DAMAGE, INJURIES OR LOSS OF PERFORMANCE AND WILL VOID THE WARRANTY;
- DO NOT PLACE ANY OTHER OBJECTS OR LAYERS (SUCH AS SEAT COVERS ON TOP OF/OVER THE CAR SEAT UPHOLSTERY FOR OPTIMAL VIBRATION TRANSMISSION.

WARNINGS:

WARNINGS INDICATE INFORMATION WHICH, IF NOT OBSERVED, COULD RESULT IN INJURY OF THE USER, AND POSSIBLY DAMAGE THE DEVICE OR ITS ACCESSORIES.

- ! THE TACTILE CAR SEAT IS ONLY INTENDED FOR USE AS IS STATED IN THE MANUAL. ANY OTHER USE, OR USE BEYOND THAT SPECIFIED IN THIS MANUAL IS DEEMED AS INCORRECT USE. THE MANUFACTURER ACCEPTS NO LIABILITY FOR DAMAGE RESULTING FROM INCORRECT USAGE. ALL RISKS ASSOCIATED WITH THE USE OF THE DEVICE ARE BORNE SOLELY BY THE USER;
- ! THE TACTILE CAR SEAT IS INTENDED TO BE PERMANENTLY INSTALLED IN A VEHICLE BY A PROFESSIONAL FOLLOWING THE INSTRUCTIONS IN THE INSTALLATION MANUAL. DO NOT MODIFY THE SYSTEM IN OTHER WAYS THAN DESCRIBED IN THE INSTALLATION MANUAL. THE MANUFACTURER ACCEPTS NO LIABILITY FOR DAMAGE OR IMPROPER FUNCTIONING RESULTING FROM INCORRECT INSTALLATION. ALL RISKS ASSOCIATED WITH THE USE OF THE DEVICE ARE BORNE SOLELY BY THE USER;
- ! DO NOT INSTALL THE TACTILE CAR SEAT OTHER THAN IN THE SEATING AREA, FOLLOWING THE INSTRUCTIONS IN THE INSTALLATION MANUAL;
- ! ENSURE THAT ALL COMPONENTS (TACTILE INLAY AND CABLES) ARE SECURELY ATTACHED TO THE VEHICLE FRAME AS INDICATED IN THE INSTALLATION MANUAL;
- ! TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT ATTEMPT TO OPEN THE TACTILE INLAY OR USB-CABLE;
- ! DO NOT USE THE TACTILE CAR SEAT IF THE TACTILE INLAY OR CABLING IS DAMAGED OR IF IT SHOWS LARGE OPENINGS;
- ! DO NOT EXPOSE THE TACTILE CAR SEAT AND ACCESSORIES TO TEMPERATURES OUTSIDE THE INTENDED RANGE OF -40°C TO 125°C (-40°F TO 257°F). THIS COULD LEAD TO DANGEROUS SITUATIONS OR TO EARLY WORN-OUT OF THE TACTILE INLAY OR ITS ACCESSORIES;
- ! DO NOT REMOVE ANY STICKERS OR LABELS FROM THE TACTILE CAR SEAT AND ITS SUBCOMPONENTS. THE WARRANTY IS VOID WHEN LABELS OR STICKERS HAVE BEEN REMOVED BY THE USER;
- ! DO NOT EAT, SWALLOW, DROP, HIT, ABUSE, OPEN, INCINERATE, BURN OR SHORT CIRCUIT THE TACTILE CAR SEAT OR ITS COMPONENTS;
- ! IMMEDIATELY STOP USING THE TACTILE CAR SEAT AND/OR SUPPLIED ACCESSORIES IF THE HOUSING IS DAMAGED AND/OR WHEN ACCUMULATION OF MOIST CAN BE EXPECTED IN THE DEVICE OR ITS ACCESSORIES;

- ! PROTECT THE TACTILE INLAY AND SUPPLIED ACCESSORIES FROM MOISTURE, DIRT AND DUST;
- ! BEFORE CLEANING: SWITCH THE DEVICE OFF, AND DISCONNECT THE TACTILE INLAY FROM THE POWER SOURCE (CONNECTED ADAPTER OR COMPUTER) AND TURN THE DEVICE OFF WHILE CLEANING;
- ! DO NOT CLEAN THE DEVICE USING CHEMICALS OR OTHER SUBSTANCES THAT MAY CAUSE DAMAGE TO THE PRODUCT SUCH AS ACETONE, PHENOL OR DISINFECTANTS;
- ! DO NOT IMMERSE THE TACTILE INLAY IN WATER, OR THE HARDWARE WILL BE DAMAGED.

CAUTIONS:

CAUTIONS INDICATE INFORMATION WHICH, IF NOT OBSERVED, COULD RESULT IN DAMAGE TO THE EQUIPMENT;

- DO NOT EXPOSE THE TACTILE CAR SEAT (NOR TACTILE INLAY OR CABLE) TO EXTREME TEMPERATURES OR OPEN FIRE. USE THE DEVICE IN AMBIENT TEMPERATURES BETWEEN -40° CELSIUS AND +125° CELSIUS (-40 ° FAHRENHEIT TO 257 ° FAHRENHEIT);
- DO NOT EXPOSE THE TACTILE CAR SEAT TO EXCESSIVE FORCES, FOR EXAMPLE CAUSED BY FALL, SHOCK OR IMPACT;
- DO NOT OVER STRETCH THE CABLES OF THE TACTILE CAR SEAT, AS IT MAY CAUSE DAMAGE TO THE CABLE OR TACTILE INLAY;
- WHEN MODIFYING THE POSITION OF THE CAR SEAT; BE CAREFULL NOT TO STRETCH OR DAMAGE THE CABLES;
- DO NOT SUBMERGE THE TACTILE INLAY OR CABLE IN LIQUID OF ANY KIND. CHAPTER 5 GIVES INSTRUCTIONS ON HOW TO CLEAN THE DEVICE AND ACCESSORIES SAFELY;
- DO NOT SOAK OR SPRAY CLEANING FLUIDS DIRECTLY ONTO THE TACTILE CAR SEAT;
- BEFORE INSTALLATION: ALWAYS TRANSPORT AND STORE THE TACTILE CAR SEAT AND ITS SUBCOMPONENTS IN THE ORIGINAL PACKAGING TO ENSURE THAT NO DAMAGE TO THE COMPONENTS MAY ARISE DURING TRANSPORTATION AND STORAGE.

2.1.1 Certificates

This product is classified as Automotive Aftermarket Device and bears the CE marking. The product complies with the EN 50498-2010 standard.

The product has been designed and tested to the EN 50498-2010 standard (EMC).

Statements of compliance and declaration of conformity are available upon written request at Sentaz B.V.

ELECTROMAGNETIC COMPATIBILITY (EMC)

THIS DEVICE COMPLIES TO THE EN 50498-2010 STANDARD (ELECTROMAGNETIC COMPATIBILITY (EMC) - PRODUCT FAMILY STANDARD FOR AFTERMARKET ELECTRONIC EQUIPMENT IN VEHICLES).

GENERAL AND ELECTRIC SAFETY INFORMATION;

RETAIN ALL PACKAGING MATERIAL FOR POSSIBLE RETURN OF THE PRODUCT TO THE MANUFACTURER. ONLY ORIGINAL PACKING PROVIDES OPTIMAL WARRANTY AND SAFETY OF THE DEVICE DURING TRANSPORT. SHOULD IT BE NECESSARY TO RETURN THE SENTAZ TACTILE CAR SEAT TO THE MANUFACTURER DURING THE WARRANTY PERIOD, SENTAZ B.V. WILL NOT ACCEPT CLAIMS FOR DAMAGE ARISING FROM INCORRECT PACKING MATERIALS.

TO REDUCE THE RISK OF INJURY AND TO REDUCE DAMAGE TO THE TACTILE CAR SEAT, ALWAYS OBSERVE THE SAFETY INFORMATION LISTED BELOW AS WELL AS OTHER WARNINGS AND CAUTIONS THROUGHOUT THIS MANUAL. READ AND FAMILIARIZE YOURSELF WITH THESE PRECAUTIONS AND THE REST OF THE MANUAL BEFORE USING THE DEVICE.

WARRANTY

Sentaz offers a warranty under the following conditions:

Product defects due to material or workmanship which are asserted within the legal warranty period will be corrected according to the legal warranty regulations either by repair or by replacement, provided that the defect developed under normal and proper use, and especially under the following conditions:

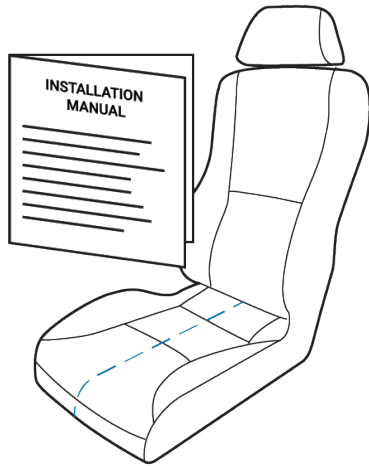
1. The device or accessories have been operated only for the intended purpose of use as described in the manual.
2. The device or accessories have not been subject to excessive forces caused by for example falls, impact or hits.
3. The device or accessories have not been subject to excessive forces caused by for example pushing, pulling or bending.
4. The device or accessories have not been opened and the label is still intact.
5. The device or accessories are only used with the manufacturer supplied parts and/or accessories.
6. The device or accessories have not been subject to temperatures outside the specified range listed in the technical specifications.
7. The device or accessories are not exposed to extreme temperatures caused by for example fire or steam.
8. The device or accessories have not been subject to voltages or currents outside the specified range listed in the technical specifications.
9. The device or accessories have not been subject to a short-circuited electronic circuit, which is not caused by the electronic circuit of the device and/or accessories supplied by the manufacturer.
10. The device or accessories are not exposed to dust, dirt and moisture outside the norms of the specified IP class as defined in the technical specifications.

Warranty Disclaimer

IT IS EXPRESSLY AGREED THAT THE ABOVE WARRANTY SHALL BE IN LIEU, AS FAR AS PERMITTED UNDER APPLICABLE LAW, OF ALL WARRANTIES OF FITNESS AND OF THE WARRANTY OF MERCHANTABILITY AND THAT SENTAZ SHALL HAVE NO LIABILITY FOR SPECIAL OR CONSEQUENTIAL DAMAGES OF ANY KIND WHATSOEVER ARISING OUT OF THE MANUFACTURE, USE, SALE, HANDLING, REPAIR, MAINTENANCE, OR REPLACEMENT OF THE PRODUCT.

3 INSTALLATION

The Tactile Car Seat should be installed by a professional, following the guidelines in the separate installation manual.



4 USING THE TACTILE CAR SEAT

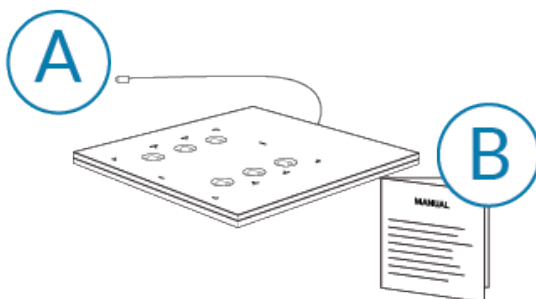
The following sections give a full explanation of all elements of the use of the Tactile Car Seat. A quick manual of the Tactile Car Seat is included in the packaging and is also available at www.sentaz.com/manuals.

Before using:

Ensure that the Tactile Car Seat has been installed by a professional following the guidelines as described in the chapter "Installation".

4.1 SYSTEM OVERVIEW

The Tactile Car Seat consists of:



- A. Tactile Inlay built into the car seat by a professional installer
- B. Manuals (User Manual, Quick Manual, Installation Manual)

Check if all components as listed above are present in the packaging. If a component is missing or damaged, contact Sentaz for assistance.

4.2 FIRST TIME USE

Important:

- Familiarize yourself with the tactile navigation instructions provided separately before driving with the Tactile Car Seat.

4.2.1 Switch the Tactile Car Seat on

Automatic switch on

The Tactile Car Seat automatically switches on when the car's Vehicle Information System is switched on. When the Tactile Car Seat is switched on, all vibration motors will vibrate once in alternating order.

Manual switch on/off

You can switch the Tactile Car Seat On and Off in the Vehicle Information System. View provided additional instructions for your specific Vehicle Information System on how to control the Tactile Car Seat.

4.3 WHAT DO THE TACTILE SIGNALS MEAN?

4.3.1 Timing of signals

Notes

- The timing of the signals from the Tactile Car Seat are dependent on the timing of the signals of the Vehicle Information System.

4.3.2 Specific Signals

Depending on the configuration of your Tactile Car Seat and the Vehicle Information System, different tactile signals can be given by the Tactile Car Seat. View provided additional instructions on how to interpret and react to tactile signals.

4.4 FIRMWARE UPDATES

Firmware updates may become available in the future that will improve the systems' performance.

Go to www.sentaz.com/downloads for firmware updates and installation instructions.

5 MAINTENANCE

Warning

- ! Ensure the device is switched off before and during cleaning
- ! Before cleaning: Unplug the Tactile Inlay from the Vehicle Information System
- ! Do not submerge the Tactile Inlay or cabling in liquids of any kind.
- ! The Tactile Inlay or cabling may not be cleaned using chemicals or other substances that may cause damage to the system such as acetone, phenols or disinfectants.
- ! Do not soak or spray cleaning fluids directly onto the device or cables.
- ! Protect the system from dust and soil.

Inspection

Regularly inspect if the cables are intact. Immediately quit the use of the system when damage is visible and go to chapter 7 for troubleshooting.

Cleaning instructions:

Use a damp cloth (without detergents) to gently wipe the device and cabling. Do not soak or spray cleaning fluids directly onto the cabling and connections.

6 STORAGE AND TRANSPORT

Before installation

- Transport the Tactile Car Seat and all its accompanying accessories such as Tactile Inlay, cabling and manuals in the original packaging.
- Always store the Tactile Car Seat and its accessories between temperatures of -40°C to 125°C (-40°F to 257°F).

Installed system

- Store the User Manual and Quick Manual in the vehicle for easy reference.
- The Tactile Car Seat shall be permanently installed in the car and is not intended to be taken out after installation.
- The Tactile Car Seat operating temperature is between temperatures of -40°C to 125°C (-40°F to 257°F).

7 TROUBLESHOOT

If any problems occur during use, use the following troubleshooting list to find a solution for the problem.

If your problem cannot be solved using this list go to www.sentaz.com/support to contact Sentaz for Technical support.

7.1 TACTILE SIGNALS

The Tactile Car Seat does not give any tactile signals when the system is powered.	<ol style="list-style-type: none">1. Disconnect and reconnect the Tactile Inlay from the VIS.2. Ensure that all cables (including extension cord) are connected and not damaged.3. Ensure that the VIS gives enough power (according to technical specifications).4. Consult technical support.
The Tactile Car Seat does not give tactile signals when expected.	<ol style="list-style-type: none">1. Ensure that all cables (including extension cord) are connected and not damaged.2. Check if the TCS is switched on from the VIS.3. Disconnect and reconnect the Tactile Inlay from the VIS.4. Consult technical support.
One of the vibration motors is not working when expected.	<ol style="list-style-type: none">1. Disconnect and reconnect the Tactile Car Seat from the VIS.2. Consult technical support.

8 TECHNICAL SUPPORT

If any problems occur during use, use the troubleshooting list to find a solution for the problem.

Technical support is available at cost price. SLA and/or custom work can be agreed separately, upon request.

For technical support go to www.sentaz.com/support

9 CUSTOMER SERVICE AND REPAIRS

For customer service and repairs go to www.sentaz.com/support

10 DISPOSAL

Tactile Inlay, Control Module and Wiring.

When you decide to dispose the Tactile Car Seat, you are advised to return all components to the manufacturer. Here, the device and accessories will be disassembled and hazardous materials will be removed according to the regional legislation for disposal.



Manuals

All manuals may be disposed in the waste system for paper and cardboard, according to the regional legislation for disposal.

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12 GLOSSARY

Cautions

Cautions indicate information which, if not observed, could result in damage to the equipment

Control module

The main control unit of the Tactile Car Seat within the Tactile Inlay. This module contains the processor that translates navigation information into vibration patterns.

Firmware

Software installed on the Tactile Inlay

Vibration Intensity

Strength of the vibration patterns

Manual

Extensive explanation on the (first time) use of the tactile Inlay as well as more advanced functionalities.

Tactile Inlay

Insert, 6 vibration motors, used to transmit navigation information

Tactile Car Seat

A system that uses touch to display navigation information using vibrations comprising of a control module and Tactile Inlay

Tactile Pattern

A vibrational pattern using multiple vibration motors in order to transmit navigation information

Vehicle Information System

System, build into the vehicle that provides information to the driver, such as navigation information.

Warnings

Warnings indicate information which, if not observed, could result in injury of the user, and possibly damage to the device or its accessories.

13 TECHNICAL PRODUCT SPECIFICATIONS

13.1 THE TACTILE CAR SEAT AND CODES:

Tactile Car Seat	SEN-INL-TCS
Installation Manual	SEN-INL-TCS-IMN
User Manual	SEN-INL-TCS-UMN
Quick Guide	SEN-INL-TCS-QMN
Packaging	SEN-INL-TCS-PCK
Firmware	SEN-INL-TCS-FW

13.2 TACTILE CAR SEAT SPECIFICATIONS

Product Name	Tactile Car Seat (TCS)
Model	“Inlay”
Product Code	SEN-INL-TCS
Classification	Automotive Aftermarket Device
Electromagnetic compatibility	<p>ECE R-10</p> <ul style="list-style-type: none"> • Broadband Electromagnetic Interference • Narrowband Electromagnetic Interference • Electromagnetic Radiation, Radiated Immunity • Electromagnetic Radiation, Bulk Current Injection
Input voltage	5V
Current	Nom: 60 mA Max: 360 mA
Dimensions	510 x 500 x 2cm (l x w x h)
Weight	500 grams
Wired data connection	USB 2.0, USB A type
Length USB cable	90 cm
Amount of vibration motors	6
Composition Tactile Inlay	<ul style="list-style-type: none"> • Electronic overmould enclosure • Foam • Textile <p><i>All compliant with automotive requirements</i></p>
Supported operating systems	Windows 7/10 (32-bit and 64-bit), Mac OS X, Linux, Android 4.4 (KitKat) and newer.