

VOLKSWAGEN

AKTIENGESELLSCHAFT



Operating manual

Diagnostic cable VAS 5581/8



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V00	11.03.2021	First edition
V01	28.04.2022	Transfer to Stodia
V02	07.06.2022	General adjustments
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Legal notice

Manufacturer

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Symbols for warnings, prohibitions, mandatory actions and standards are taken from publicly accessible sources, such as the Internet. CAD product images and product photos are provided by the manufacturer. Images showing the product in use are provided with a reference to the source.

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Preliminary information

Read through this operating manual carefully before using the product.

The product is delivered with a USB stick containing the operating manual in various languages. You can find the current version and additional languages on our homepage.

The operating manual is an essential part of the product and must be kept together with the product. If you sell or transfer ownership of the product, the operating manual must be handed over to the new operator.

In addition to this operating manual, you must observe all relevant regulations for diagnostics or troubleshooting of intrinsically safe high-voltage systems in road vehicles. This includes but is not limited to: instructions for the vehicle manufacturer's diagnostics systems, company-specific safety requirements and the state of the art for working with high-voltage systems.

Validity of the declaration of conformity

The declaration of conformity applies to the product described in the operating manual. Any changes, modifications or extensions shall void the declaration of conformity and the risk assessment.

Manufacturer specifications

Since its founding, our company has focused on groundbreaking solutions for electromobility. STODIA GmbH develops and produces custom solutions for the automotive industry, the energy storage sector, repair shops and special vehicle fleets.

Our core products are innovative energy storage systems, both stationary and mobile, which are essential technologies for advancing the energy revolution and energy autonomy. STODIA's portfolio also includes smart charging and battery technology, diagnostic systems, battery and cell management, and vehicle-wide measurement and diagnostic technology.

With experience in both software and hardware development, STODIA GmbH is your dependable partner at every production stage, from prototyping to series production.

This operating manual is only valid for the following product:

Item number 22101903
Designation Diagnostic cable VAS 5581/8

Warning levels

This chapter provides information about the warning levels used in this operating manual.

DANGER

Failure to observe the safety instructions WILL result in death or serious injury!

WARNING

Failure to observe with the safety instructions CAN result in death or serious injury!

CAUTION

Failure to observe the safety instructions can lead to damage to the product!

Important safety instructions

This chapter contains the safety instructions that must be observed when handling the product.



DANGER

Danger of fatal electric shock

The electrical voltage in other systems is lethal and will cause death by electric shock.

- Do not use the product for measurements on utility power circuits!
- Never attempt to power other devices with the product!



WARNING

Danger of fatal electric shock

The electrical voltage in high-voltage systems is lethal and can cause death by electric shock.

Liquids, condensation and high humidity can cause short circuits!

- Do not let the product come into contact with liquids!
- Use the product only in dry and enclosed spaces!

**WARNING****Danger of fatal electric shock**

The electrical voltage in the product is dangerous and can cause serious injury or death from electric shock.

Defective and damaged products cannot guarantee protection against electrical voltage.

- Do not let the product come into contact with chemicals!
- Replace a defective or damaged product immediately!
- Never attempt to repair or tamper with the product!

Intended use

Use the product only in accordance with this operating manual; otherwise the electrical hazard protection provided by the product can no longer be guaranteed.

The product is used to adapt the VAS 5581/VAS 5581A diagnostic box to the vehicle-side plug connection specified by the vehicle manufacturer in the guided fault finding.

The product may only be used on high-voltage systems that have been certifiably de-energized.

The product is suitable for testing the high-voltage battery in the following vehicles:

- Audi e-tron quattro (2019 model)

In this operating manual, vehicle manufacturers are exclusively defined as vehicle manufacturers in the Volkswagen Group.

Any use beyond what is listed here is prohibited.

Requirements for the target group

Only qualified personnel may work with this product!

In this operating manual, qualified personnel is defined as personnel meeting all requirements for working on high-voltage systems applicable in the country of operation, as defined by:

- Regulations applicable in the country of operation
- Qualification according to DGUV 200-005 level 2 or higher, or equivalent
- Specifications from the vehicle manufacturer and/or the operator.

At all times while using the product, staff must wear the personal protective equipment prescribed by the vehicle manufacturer for work on high-voltage systems.

Duties of the operator

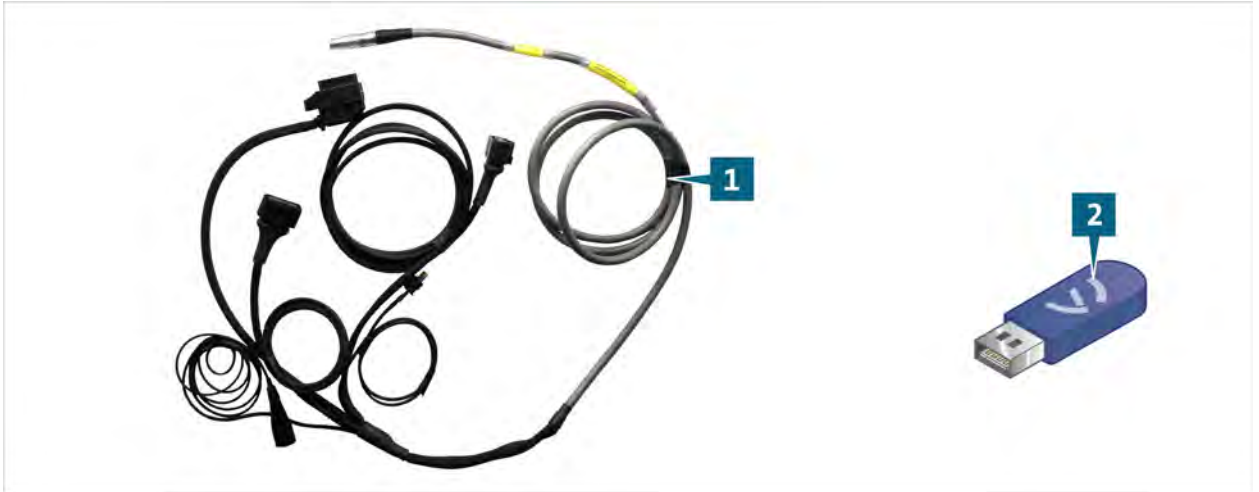
The operator is responsible for ensuring that all staff working with the diagnostic cable fulfills the requirements for the target group.

Furthermore, the operator is responsible for ensuring the following:

- The diagnostic cable is always in perfect working order.
- The regular inspection intervals for the diagnostic cable are observed and recorded.

Scope of delivery

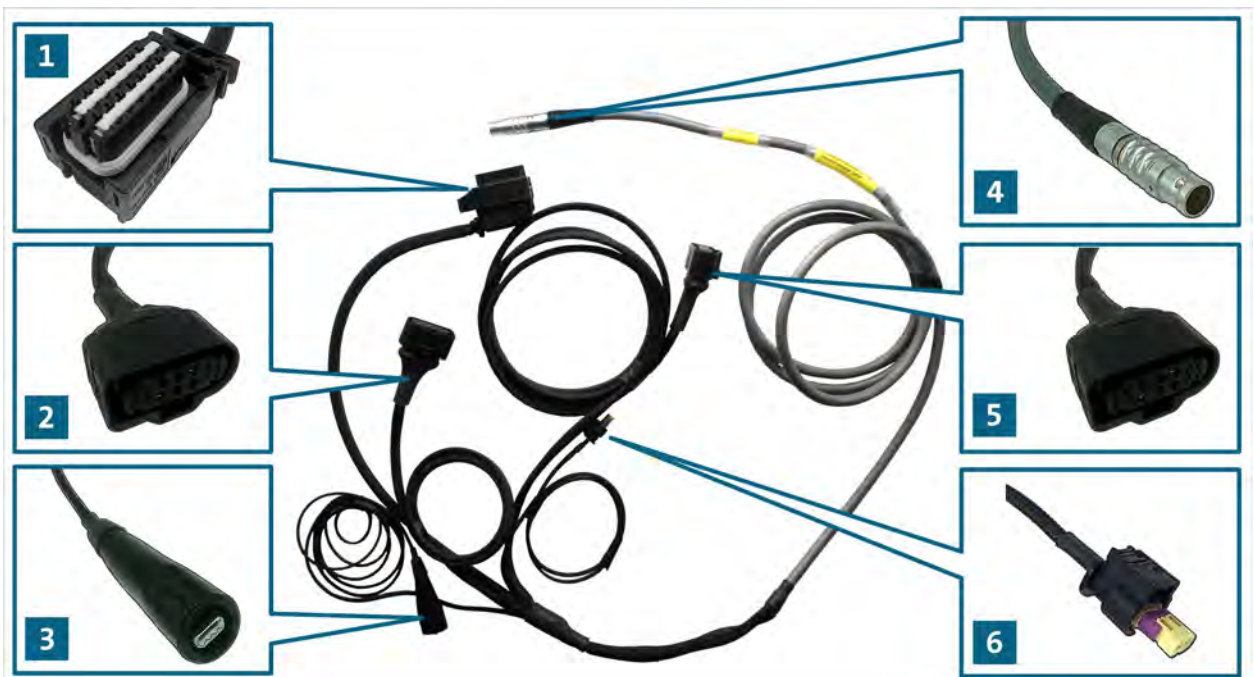
Immediately check the condition of the product and the completeness of the delivery. If anything is missing or defective, please contact the manufacturer immediately.



- (1) Diagnostic cable
- (2) USB stick with operating manual

Design

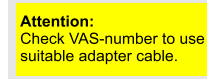







Product design:



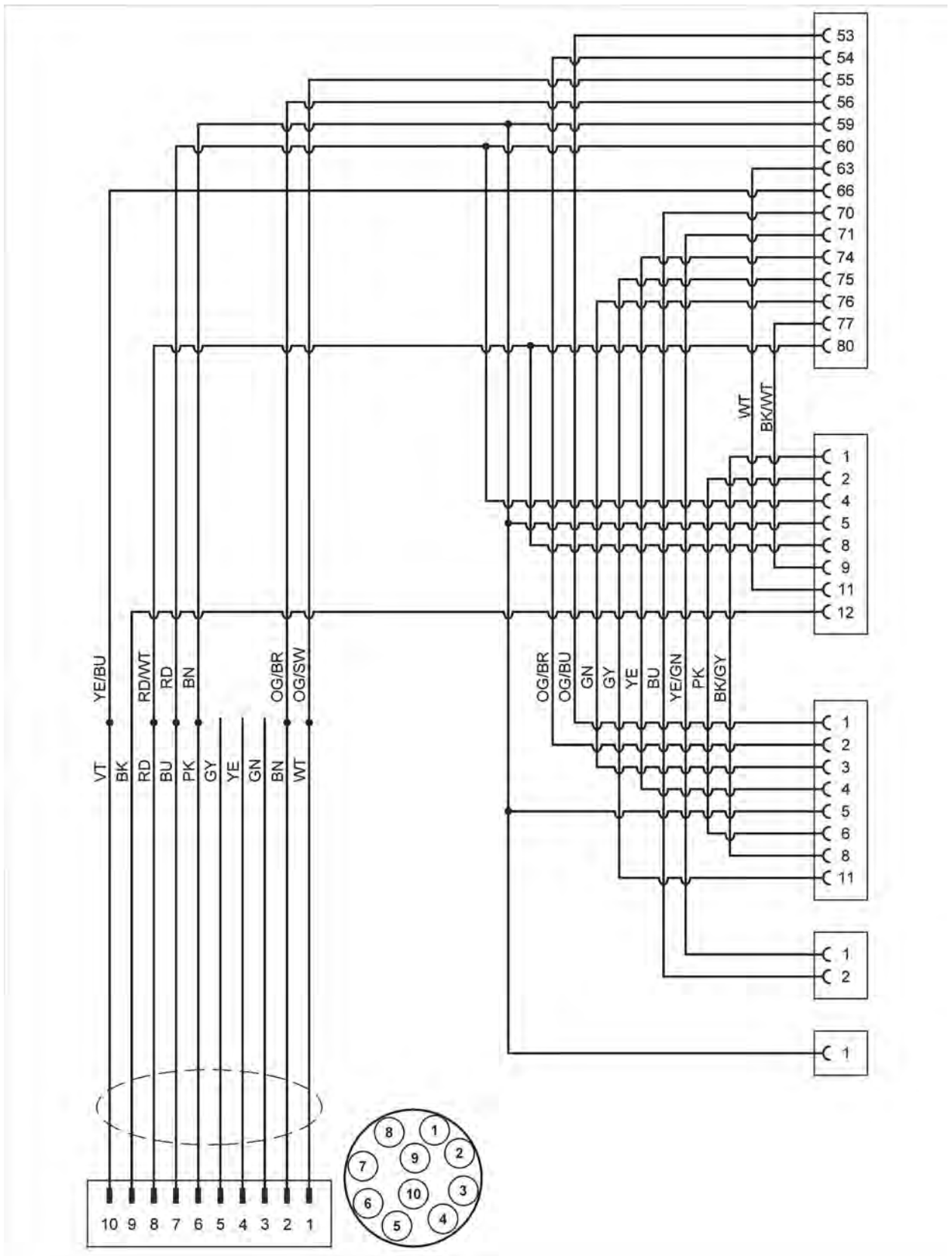
- (1) Plug for battery management controller (BMC)
- (2) Plug for battery junction box (BJB)
- (3) Ground clip
- (4) Plug for diagnostic box
- (5) Plug for battery module (cell box)
- (6) Plug for coolant temperature sensor 1

Symbols and connections

The following symbols are shown on the product:

Symbol	Meaning
	<p>Caution:</p> <p>Check the VAS number to ensure that you are using a suitable adapter cable.</p>
	<p>Observe the operating manual!</p>
	<p>The serial number is used in conjunction with the manufacturer part number to identify the product.</p>
	<p>The manufacturer part number is used in conjunction with the serial number to identify the product.</p>
	<p>The disposal instructions prohibit disposal of the product with household waste. Always dispose of the product in accordance with all local disposal regulations.</p>
	<p>The CE marking certifies that the product complies with all applicable European regulations and has been subjected to the prescribed conformity assessment procedure.</p>
	<p>This label certifies that the product complies with the limits of GB/T 26572-2011 ("China-ROHS").</p>
	<p>The test seal identifies the product as having been approved for use in workshops and production facilities belonging to the vehicle manufacturer.</p>

Wiring diagram



Technical data

Rated data	Values
Manufacturer number	22101903
Maximum rated voltage	DC 14 V
Maximum rated current	5 A
Weight	~ 730 g
Cable length	2600 – 4300 mm

Ambient conditions	Operation	Storage	Transportation
Temperature	5 °C to 40 °C	-20 °C to 60 °C	-20 °C to 60 °C
Elevation above sea level	Max. 2000 m	No limitation.	
Humidity	Max. 80% up to 31 °C, decreasing linearly to 50% at 40 °C	Max. 85%	
Pollution rating	2		
Condensation	Not permitted. Maximum permissible relative humidity: 60% in environments with corrosive gas/air.		

Startup



WARNING

Danger of fatal electric shock

The electrical voltage in high-voltage systems is lethal and can cause death by electric shock.

- Use the product only for the applications intended by the vehicle manufacturer!



CAUTION

Risk of damage!

Plug connections lock into place when attached.

- Unlock the plug connections before detaching them! (see the chapter “Detaching the plug connections”)

1. Follow the safety instructions.



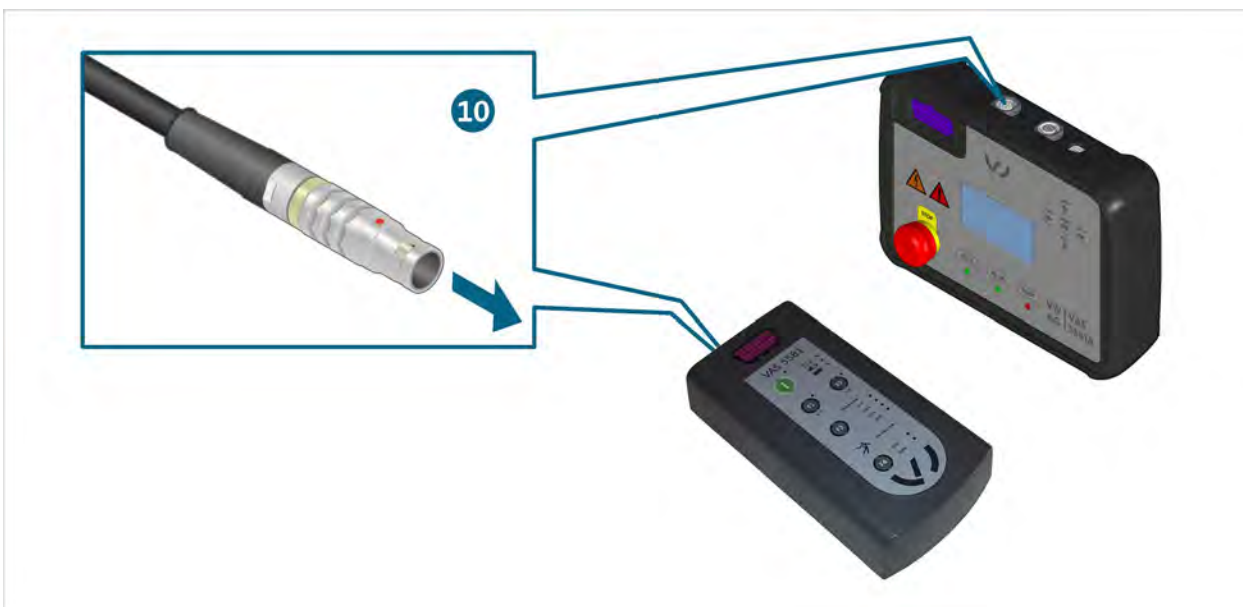
2. Connect the ground clip to a conductive part of the vehicle body.
3. Connect the plug for the battery management controller (BMC) to the correct disconnected socket.
4. Lock the connection.



5. Connect the plug for the battery module (cell box) to the correct disconnected socket.
6. Lock the connection.
7. Connect the plug for the battery junction box (BJB) to the correct disconnected socket.
8. Lock the connection.
9. Connect the plug for coolant temperature sensor 1 to the correct disconnected socket.



10. Connect the plug to the diagnostic box.



- ✓ You can now perform measurements in accordance with the guided fault finding.

Detaching the plug connections



WARNING

Risk of explosion

Product components may produce sparks and electric arcs.

- Do not use the product in potentially explosive atmospheres!

Detaching the plug connection for the diagnostic cable (14-pin)

The plug connections have an automatic locking mechanism. To detach a plug connection:

1. Push in and hold the locking mechanism.
2. Pull the plug connection apart.

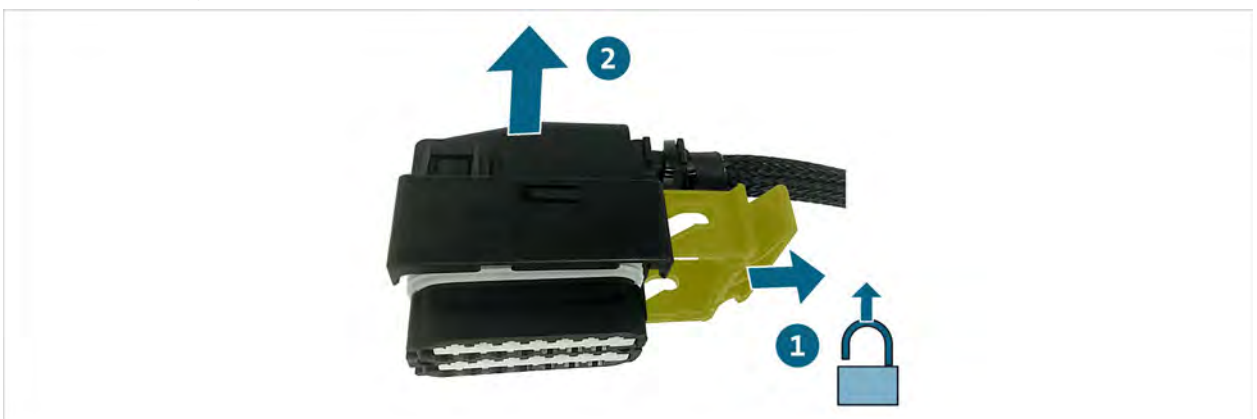


- ✓ The plug connection is now detached.

Detaching the plug connection for the diagnostic cable (28-pin)

The plug connection has a locking mechanism. To release the plug connection:

1. Pull the locking mechanism out of the plug.
- ✓ The plug connection is unlocked.
2. Pull the plug connection apart.

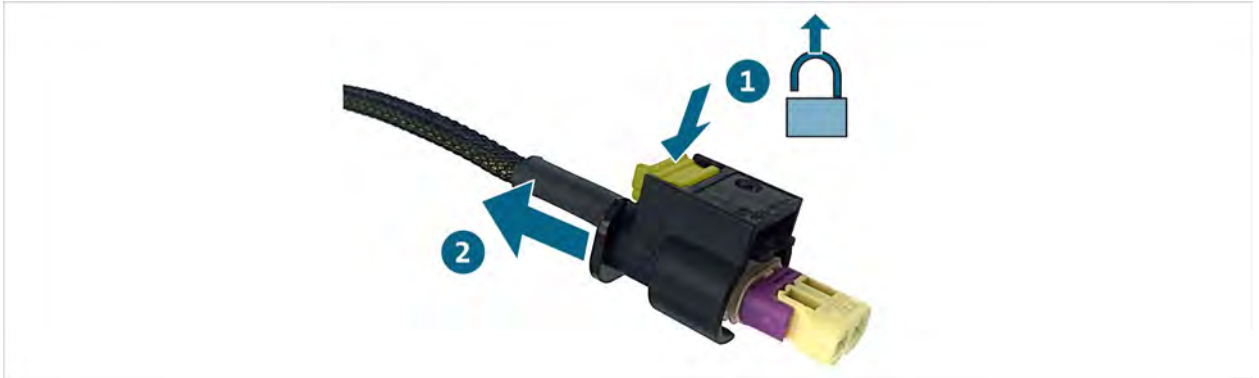


- ✓ The plug connection is now detached.

Detaching the plug connection for the diagnostic cable (2-pin)

The plug connection has an automatic locking mechanism. To release the plug connection:

1. Push in and hold the locking mechanism.
2. Pull the plug connection apart.



✓ The plug connection is now detached.

Cleaning



DANGER

Danger of fatal electric shock

The electrical voltage in high-voltage systems is lethal and will cause death by electric shock.

- Disconnect the product from all power sources before cleaning the product!

Observe the safety instructions!

Use only a dry cloth to clean the product.

Storage

Store the product in a dry and dust-free location when not in use.

Disposal

Observe the safety instructions!

Always dispose of the product in accordance with all local disposal regulations.

Maintenance

Observe the safety instructions!

National and local requirements for regular testing must be observed!

Test the product for proper function at intervals of no more than 24 months.

Contact the manufacturer to have a professional function test performed.

Warranty

STODIA GmbH grants a warranty period of 24 months from the date of purchase. The warranty is valid for demonstrable defects in functional material and workmanship.

Further information on the warranty conditions can be found in the terms and conditions on the manufacturer's website.

Customer service

Always include the item number and, if available, the serial number with any product queries. Both numbers are found on the product.

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