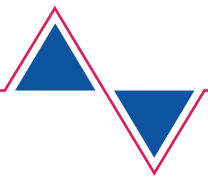


# Operating manual

High-voltage test adapter BOB-HVA280

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Version	Date	Reason
V00	11.09.2023	First edition

## Legal notice

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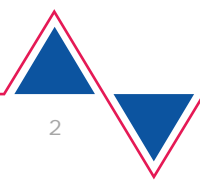
### Legal notice

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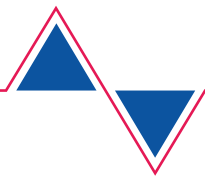
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# Contents

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<b>Contents .....</b>	<b>3</b>
<b>1 Introduction.....</b>	<b>4</b>
1.1 Preliminary information.....	4
1.2 Validity of the declaration of conformity .....	4
1.3 Manufacturer specifications .....	4
<b>2 Safety.....</b>	<b>5</b>
2.1 Warning levels .....	5
2.2 Important safety instructions.....	5
2.3 Intended use .....	6
2.4 Requirements for the target group.....	6
2.5 Duties of the operator .....	6
<b>3 Product description.....</b>	<b>7</b>
3.1 Scope of delivery.....	7
3.2 Design .....	7
3.3 Symbols and connections.....	8
3.4 Wiring diagram .....	9
3.5 Technical data .....	10
<b>4 Operation.....</b>	<b>11</b>
4.1 Startup.....	11
4.1.1 Closing the pilot line.....	11
4.1.2 Performing measurements.....	12
4.2 Detaching the plug connections.....	13
4.3 Cleaning .....	14
4.4 Storage .....	14
4.5 Disposal .....	14
4.6 Maintenance.....	14
<b>5 Help.....</b>	<b>15</b>
5.1 Warranty.....	15
5.2 Customer service .....	15



## 1 Introduction

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### 1.1 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 fault finding 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.

### 1.2 Validity of the declaration of conformity

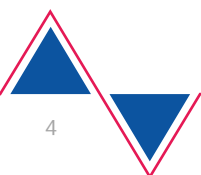
The declaration of conformity applies to the product described in the operating manual. Any changes, modifications or extensions shall void the declaration of conformity and the risk assessment.

### 1.3 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.



## 2 Safety

This operating manual is only valid for the following product:

Item number 22105747

Designation High-voltage test adapter BOB-HVA280

### 2.1 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!

### 2.2 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!



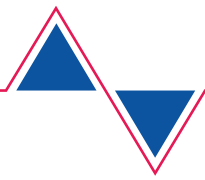
#### **WARNING**

##### **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

Defective and damaged products can no longer 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!

## 2.3 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 a suitable multimeter or insulation resistance tester to the respective plug connection on the vehicle.

The product is suitable for the following measurements:

- Certified test for de-energized circuit according to the manufacturer's specifications
- Insulation resistance measurement (only permitted with measuring device with max. DC 1000 V, 2 mA!)
- Continuity measurement (only permitted with measuring device with max. DC 60 V, 1 A!)

Use only the plug connections on the vehicle that the manufacturer has specified for the diagnostics scenario in question.

Any use beyond what is listed here is prohibited.

## 2.4 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.

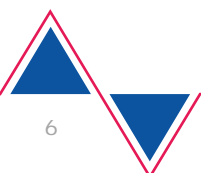
At all times while using the product, staff must wear the personal protective equipment prescribed by the vehicle manufacturer for work on high-voltage systems.

## 2.5 Duties of the operator

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

Furthermore, the operator is responsible for ensuring the following:

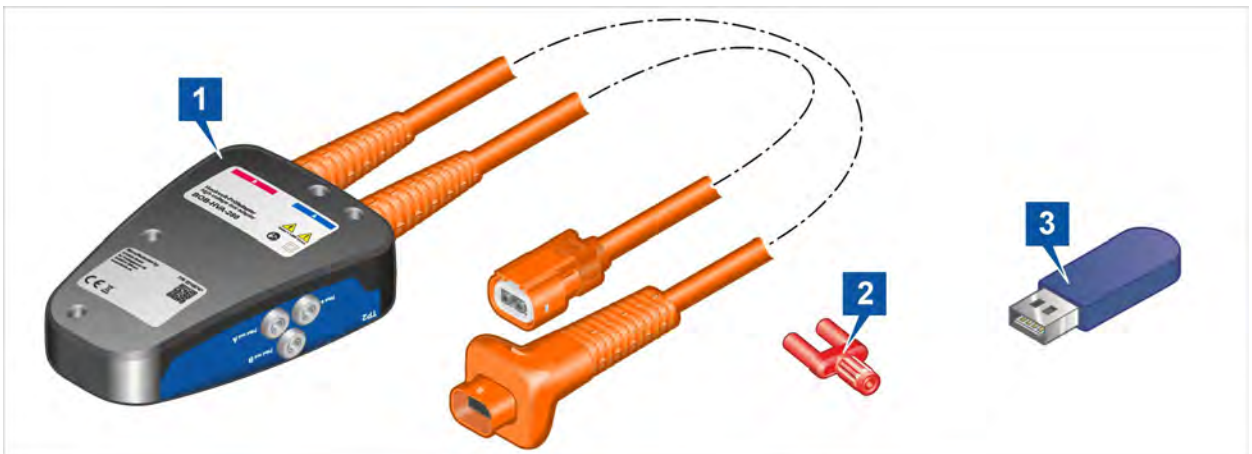
- The test adapter is always in perfect working order.
- The regular inspection intervals for the test adapter are observed and recorded.



## 3 Product description

### 3.1 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.



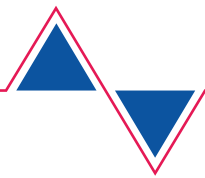
- (1) High-voltage test adapter
- (2) Pilot line bypass plug
- (3) USB stick with operating manual

### 3.2 Design

Product design:











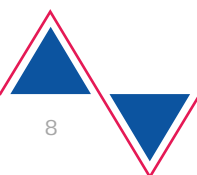
- (1) HVA280 plug
- (2) Test sockets (see wiring diagram)
- (3) HVA280 socket



### 3.3 Symbols and connections

The following symbols and information are shown on the product stickers:

Symbol	Meaning
	Electrical hazard!
	General warning symbols
	Read the operating manual!
SN:	The serial number is used in conjunction with the manufacturer part number to identify the product.
P/N	The manufacturer part number is used in conjunction with the serial number to identify the product.
	The product complies with protection class II, meaning it has increased or double insulation between active and accessible parts in accordance with VDE 0100, Part 410/412.1.
	The disposal instructions prohibit disposal of the product with household waste. Always dispose of the product in accordance with all local disposal regulations.
U <sub>max</sub> = 1000 V ===	This symbol indicates the measurement category for which the product may be used according to IEC 61010-31.
	The CE marking certifies that the product complies with all applicable European regulations and has been subjected to the prescribed conformity assessment procedure.
	The cTÜVus mark indicates that the product has been tested and certified by an NRTL in accordance with applicable standards.
	QR code for accessing the operating manual on mobile devices.








The product has the following connection areas:

- TP1
- TP2

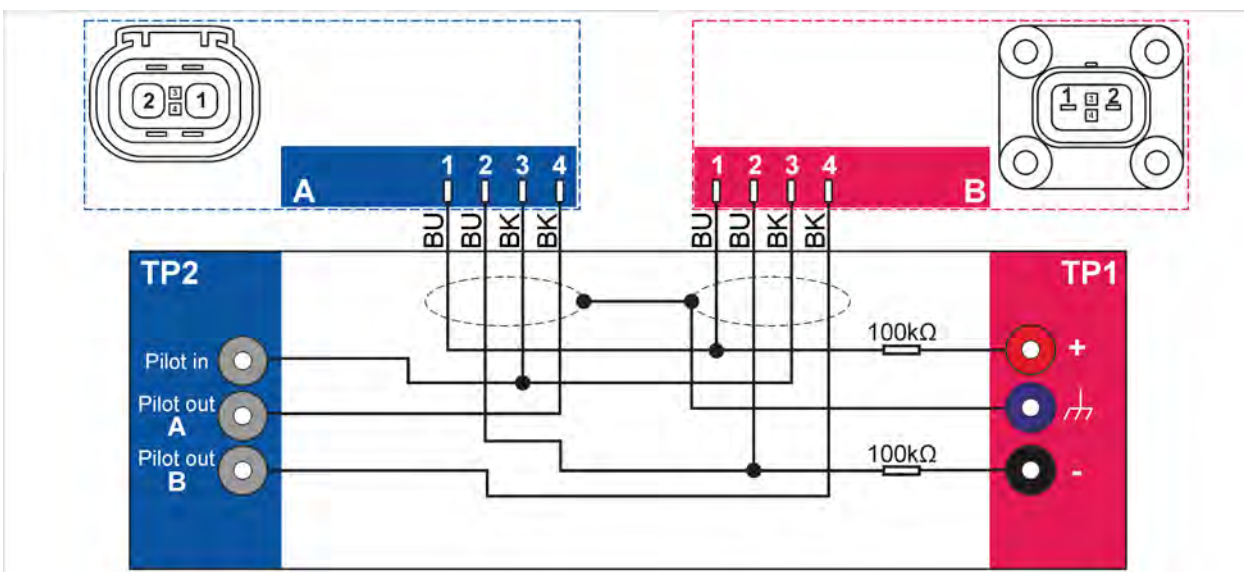
Connection area TP1 has the following sockets:

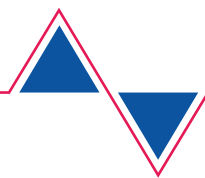
Connector	Function
	Ground socket
	Positive socket
	Negative socket

Connection area TP2 has the following sockets:

Connector	Function
	Pilot socket
	
	

### 3.4 Wiring diagram

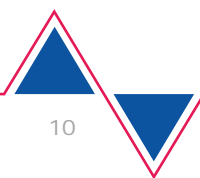




### 3.5 Technical data

Rated data	Values
Manufacturer number	22105747
Maximum rated voltage	DC 1000 V
Maximum rated current	≤ DC 60 V: 1000 mA > DC 60 V: 2 mA
Protection class	II / double insulated
Weight	~ 20 g
Dimensions L/H/W	~ 182mm/121 mm/52 mm
Cable length	864 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.		



## 4 Operation

### 4.1 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!

#### 4.1.1 Closing the pilot line



#### DANGER

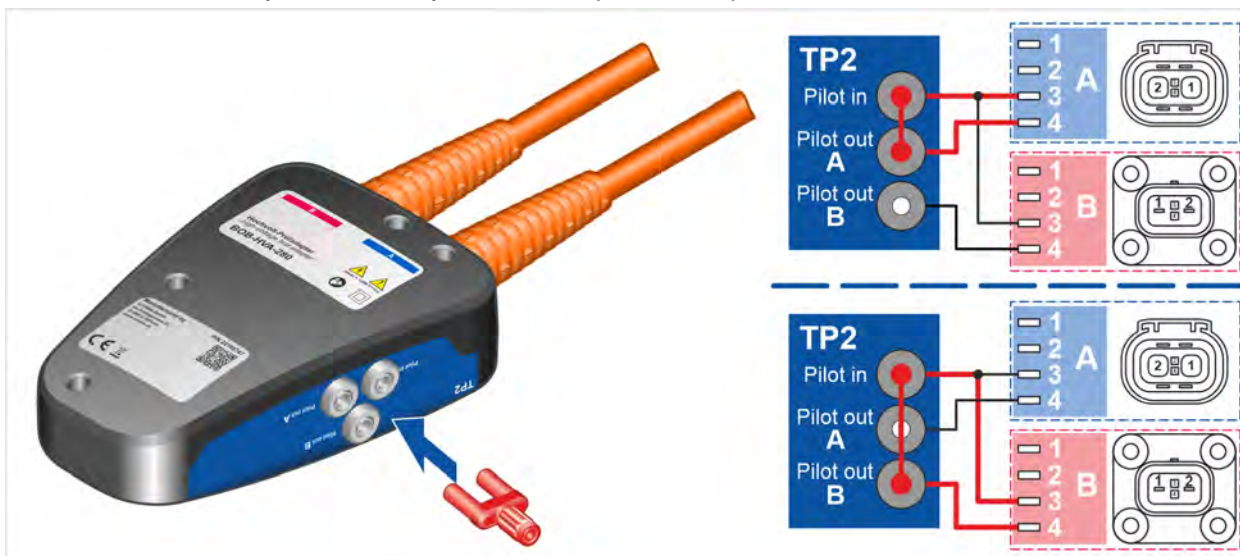
##### Danger of fatal electric shock

##### Risk of explosion due to electric arcs

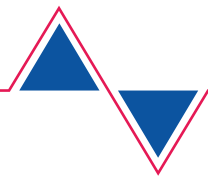
Closing the pilot line means that individual connections in the high-voltage network can be supplied with voltage. Electric arcs may be produced when disconnecting these connections.

- Never disconnect the high-voltage cables when the vehicles have not been properly de-energized!

In certain cases, it may be necessary to close the pilot line to perform a test.



1. Plug the pilot line bypass plug in to the following test sockets:
    - a. Bypass the “Pilot out A” and “Pilot in” test sockets to close the pilot line of a high-voltage adapter cable connected to socket “Port A”.
    - b. Bypass the “Pilot out B” and “Pilot in” test sockets to close the pilot line of a high-voltage adapter cable connected to socket “Port B”.
- ✓ The pilot line is now closed.



### 4.1.2 Performing measurements

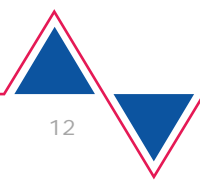
1. Follow the safety instructions.



2. Connect the plug to the disconnected socket of the connection you want to test.
3. Connect the socket to the plug on the high-voltage battery.
4. Connect the high-voltage measurement module to the high-voltage test adapter according to the vehicle manufacturer's specifications.



5. If necessary, bridge the pilot sockets (see the “Closing the pilot line” section).
- ✓ You can now perform the measurements according to the vehicle manufacturer's specifications.



## 4.2 Detaching the plug connections



### WARNING

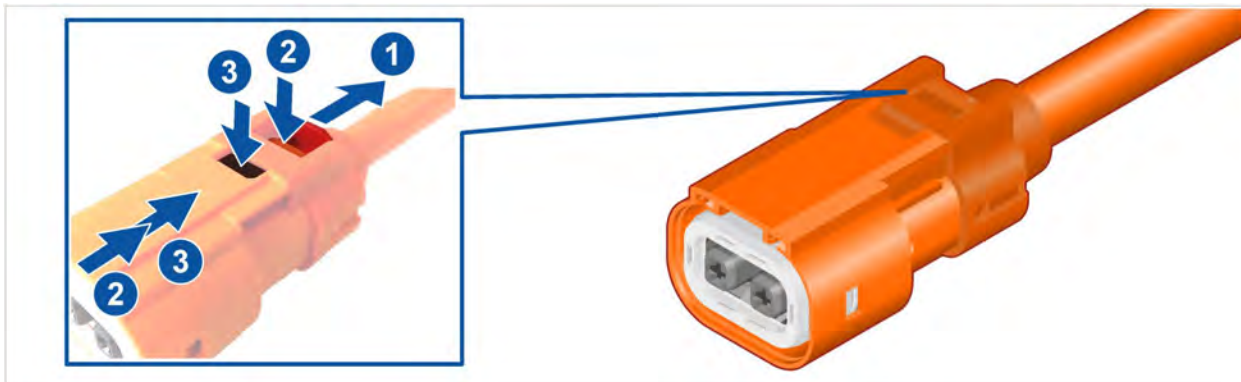
#### Risk of explosion

Product components may produce sparks and electric arcs.

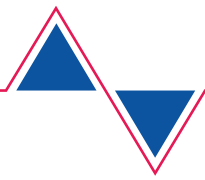
- Never disconnect high-voltage plug connections while under load!
- Do not use the product in potentially explosive atmospheres!
- Ensure that the product is at least 50 cm above the ground during operation!

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

1. Make sure that the lever (red) is pulled out.
2. Push in the tongue (orange) and pull the plug connection apart as far as it will go.
3. Push the latch (black) in and pull the plug connection completely apart.



- ✓ The plug connection is now detached.



## 4.3 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.

## 4.4 Storage

Store the product in a dry and dust-free location when not in use. Observe the permitted ambient conditions (see the “Technical data” section).

## 4.5 Disposal

Observe the safety instructions!

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

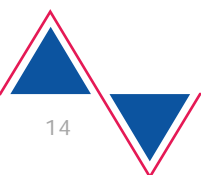
## 4.6 Maintenance

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.



## 5 Help

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### 5.1 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.

### 5.2 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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Translation of the original operating manual.  
Subject to technical changes.

 **STODIA**<sub>GMBH</sub>  
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