



## Star Diagnosis Info

# SDconnect Manual

Star Diagnosis variant	Operating system	Network
Star Diagnosis compact <sup>3</sup> w Star Diagnosis compact <sup>4</sup>	Windows XP	LAN WLAN



## Objective

This document provides instructions for your Star Diagnosis SDconnect multiplexer.

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## Change history

Date	Section	Version	Change description
26.06.07	-	1.0	Completion
29.06.07	-	1.1	Certificates and WLAN card
02.07.07	7.5	1.2	Tasks for SDconnect return added
12.03.08	2.1	1.3	Added the types of wireless connection (road wireless network, workshop wireless network)
14.03.08	-	1.4	Remodeling to Mercedes-Benz design
03.04.08	-	1.5	Insertion of Star Diagnosis compact <sup>+</sup> - content Deletion of section 3.6 Configuration with SDconnect Toolkit 1.0.42 Insertion of section 5 SDconnect Toolkit 2.0.2 Updating of certification of WLAN cards
22.06.10		2.0	Updating to account for SDconnect Facelift
16.03.11		2.1	Updating of screenshots of the applications and CI



## 1 General information

The advantages of the product are described in the following section.

### **Wireless data transfer**

A new technology for wireless vehicle diagnosis – that's SDconnect. This multiplexer sends fault detection data over the WLAN to the Star Diagnosis compact<sup>3</sup> w or Star Diagnosis compact<sup>4</sup>. In workshop mode, the data is transmitted via an access point over the workshop network. Alternatively, in road mode SDconnect transmits data directly to the Star Diagnosis system – inside or outside the workshop. This means that the user can move freely and unhindered when diagnosing. A wired connection via cable, including a strain relief, also continues to be available.

### **Advanced diagnosis options**

SDconnect with its new integrated Star Diagnosis CAN tool offers new possibilities for troubleshooting. The tool aids the monitoring and recording of data flows in the vehicle. This enables the diagnostic technician to examine vehicle functions with even more accuracy and to determine faults more precisely. Bus wake-up and bus keepawake events can be detected with SDconnect. This function is called up in DAS. SDscan, the separate expert software, offers even more complex CAN diagnostic functions. The prerequisite for using this software is the relevant technical know-how. Your national representative or training center will be pleased to advise you.

### **Improved speed**

The speed of data-intensive diagnostic processes, for example when flashing and coding control units, can be increased by SDconnect (depending on the vehicle model series and number of control units).

### **Reliable combination**

The user controls SDconnect via the Star Diagnosis system. The central software on the diagnostic system (SDnetControl) combines all the important functions for operating the SDconnect wireless multiplexer, such as information, configuration, self-diagnosis, and software updates. In addition, SDconnect offers a display, four control buttons and two LED displays for information on the current operating condition. An acoustic signal warns the user if he is leaving the wireless range of the workshop with the mobile unit. The unit's self-diagnosis capabilities have also been improved. This enables the user to better detect possible malfunctions of the multiplexer.

### **Simple application**

The Star Diagnosis SDconnect multiplexer is easy to operate thanks to its compact dimensions of 22 x 16 x 5 cm. The wireless connection to the diagnostic device affords maximum mobility. SDconnect is easy to use and does not require time-consuming familiarization. The new configuration wizard, SDnetAssist, guides the user through setting up the Star Diagnosis system and SDconnect for wireless operation. Operation without a wireless connection is also possible. The units are preconfigured for non-wireless operation and can be operated at any time using the connection cable included in the scope of delivery.

### **Complete model series coverage**

The Star Diagnosis SDconnect Facelift multiplexer, recognizable by its matt silver sticker with the "SDconnect Facelift" inscription on the rear also supports TCP/IP protocols and thus ensures communication with the new control units via Ethernet. All older model series can also be diagnosed with it in the usual way. In addition, all European Mitsubishi Canter vehicles (Euro 3/4/5 and LIFT) can be diagnosed with the old and the new SDconnect. The cable required for this can be ordered as an accessory in the usual way.

## 2 Hardware

SDconnect's product characteristics are presented in the following section.

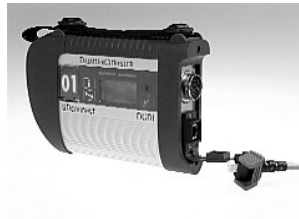
### 2.1 Connection options

#### 2.1.1 Connection options on SDconnect



##### Connection to a Star Diagnosis system/ a charging adapter

The connecting cable/charging adapter is connected to SDconnect using a folding mechanism.



##### Connection to a vehicle/test adapter

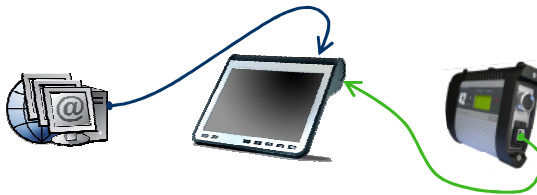
The vehicle cable is connected to SDconnect using a "push-pull" mechanism.



The red ring on the connector shows whether or not the connector is engaged.  
Engaged: Red ring is not visible.  
Detached: Red ring is visible.

#### 2.1.2 Options for connecting to Star Diagnosis compact<sup>3</sup> w

##### 2.1.2.1 Wired connection to Star Diagnosis compact<sup>3</sup> w



The **rear LAN interface** on the Star Diagnosis compact<sup>3</sup> w is used only for **connecting to the workshop network/Internet**.



The **LAN interface on the side** of the Star Diagnosis compact<sup>3</sup> w is used only for the **SDconnect connection**.





### 2.1.2.2 Wireless connection to Star Diagnosis compact<sup>3</sup> w

#### Road WLAN

In this connection mode, Star Diagnosis compact<sup>3</sup> w and SDconnect communicate with each other directly by wireless. This is known as an ad hoc connection, and no access point is required. A connection can be established from Star Diagnosis to the Internet/intranet via a LAN connection in this mode.

#### Note:

This type of connection must be configured. The procedure is described in sections 3 and 5.



#### Workshop WLAN

In this connection mode, Star Diagnosis compact<sup>3</sup> w and SDconnect communicate with each other by wireless by way of an access point infrastructure. In addition, Star Diagnosis compact<sup>3</sup> w is able to set up a wireless connection to the Internet/intranet through the access point.

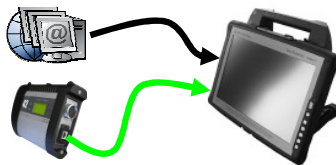
#### Note:

This connection mode requires that the Star Diagnosis compact<sup>3</sup> w and SDconnect are linked into the workshop's IT infrastructure. The procedure is described in sections 3 and 5.



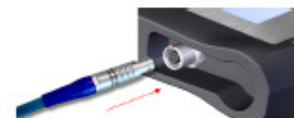
### 2.1.3 Options for connecting to Star Diagnosis compact<sup>4</sup>

#### 2.1.3.1 Wired connection to Star Diagnosis compact<sup>4</sup>



The **LAN interface** for connecting the Star Diagnosis compact<sup>4</sup> with the **workshop network/Internet** is found in the middle of the left-hand side.

The **SDconnect connector socket** on the Star Diagnosis compact<sup>4</sup> is on the left-hand side at the bottom.





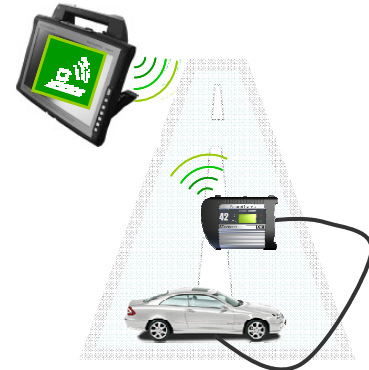
### 2.1.3.2 Wireless connection to Star Diagnosis compact<sup>4</sup>

#### Road WLAN

In this connection mode, Star Diagnosis compact<sup>4</sup> and SDconnect communicate with each other directly by wireless. This is known as an ad hoc connection, and no access point is required. A connection can be established from Star Diagnosis to the Internet/intranet via a LAN connection in this mode.

**Note:**

This type of connection must be configured. The procedure is described in sections 3 and 5.



#### Workshop WLAN

In this connection mode, Star Diagnosis compact<sup>4</sup> and SDconnect communicate with each other by wireless by way of an access point infrastructure. In addition, Star Diagnosis compact<sup>4</sup> is able to set up a wireless connection to the Internet/intranet through the access point.

**Note:**

This connection mode requires that the Star Diagnosis compact<sup>4</sup> and SDconnect are linked into the workshop's IT infrastructure. The procedure is described in sections 3 and 5.



## 2.2 Opening the SDconnect (access to the battery compartment, WLAN card, SD memory card)

The SDconnect can be opened to access the battery compartment, WLAN card and the memory card. Please note the relevant operating instructions and warning notices.

### 2.2.1 Removing the cover

To remove the cover flap you require a size TX 20 Torx screwdriver.

The cover flap can be opened once the two screws (A) and (B) fastening it have been removed.

Please be aware of the two rubber cushions on the inner side of the cover flap: these fix the WLAN card and SD memory card (if present) in place when the lid is closed and are inserted ex works. Do not change their position.



**Note:** The tightening torque for the screws is 50 cNm (0.5 Nm). A torque wrench must be used to ensure that the screws are tightened to this torque.

### 2.2.2 Screw dimensions

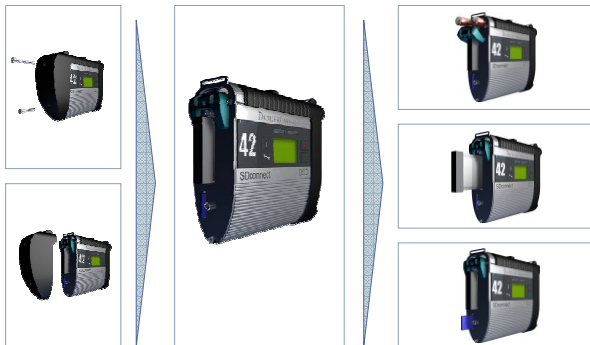
The screws have the following dimensions:

Location	Model	Size	L	d1	d2	t	k	A	Figure
Cover top (A)	Torx, round head, SN6404 (steel 8.8; galvanized)	TX 20	35	4.0	7.6	1.4	2.2	3.9	
Cover bottom (B)	Torx, round head, SN6404 (steel 8.8; galvanized)	TX 20	20	4.0	7.6	1.4	2.2	3.9	
Battery compartment (C)	Torx, round head, SN6404 (steel 8.8; galvanized)	TX 20	10	4.0	7.6	1.4	2.2	3.9	

**Important:** If you lose any of the screws, use only replacement screws from specialist stores that meet these specifications exactly.



## 2.3 WLAN card, batteries and SD memory card in SDconnect



### Rechargeable Batteries

AA (mignon) 1.2 V NiMH  
Minimum capacity 1700 mAh

### WLAN card

D-Link AirPlus XtremeG DWL-G650

### SD memory card (optional)

Maximum capacity 2 GB

### 2.3.1 WLAN card

#### 2.3.1.1 Removing and installing the WLAN card

Once the housing cover has been dismantled, the WLAN card can be removed from the slot by pulling on it gently.

The card is inserted by pressing it in gently. Please note the installation direction: the LEDs have to be facing in the direction of the display.

Please make sure that the WLAN card is in working order and has no external damage or dirty contacts. A damaged or defective WLAN card can lead to damage or malfunctions within the unit.



#### 2.3.1.2 WLAN card specifications (Last updated 07/2007)

D-Link AirPlus XtremeG DWL-G650 (Rev. C)

Only use the unit with approved WLAN cards. The use of other card types can lead to damage or malfunctions within the unit. Current information about recommended WLAN cards and approvals can be found in the **After-Sales portal** <http://aftersales.mercedes-benz.com>

#### 2.3.1.3 Safety information for WLAN cards

Use of wireless communication networks and the operation of systems within these networks is subject to the guidelines and regulations in your country. More information about this is available from the responsible authorities. Find out about country-specific regulations for the operation of wireless communication networks in your market.

If necessary, remove a non-approved wireless card from the SDconnect.

Information about the system can be found in the documentation enclosed with the Star Diagnosis delivery package and the documents provided in the INFO information system.

An additional wireless card is required for the wireless network in some markets and for certain systems. Ask your market representative if your Star Diagnosis system is suitable for wireless operation in your market or consult the **After-Sales portal** <http://aftersales.mercedes-benz.com>.

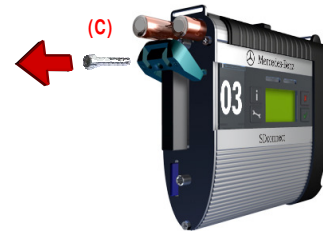
## 2.3.2 Rechargeable batteries

### 2.3.2.1 Removing the transport protection

The batteries have an easily removable transport protection that projects from under the cover and stops the electrical circuit from being completed accidentally during transportation. Simply pull out the yellow strip before you use the device for the first time.

### 2.3.2.2 Installing and removing rechargeable batteries

Once the housing cover has been removed, the battery compartment can be opened. To do this, remove the central Torx screw (C) and move the bracket down as illustrated in the picture.

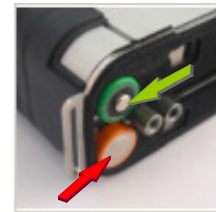


Please make sure that the batteries are in working order and have no external damage or dirty contacts. Damaged or defective batteries can lead to damage or malfunctions within the unit.

When inserting the batteries, check the polarity and insert them according to the specifications (also see the adjacent illustration).

**Warning:** Incorrectly inserted batteries may lead to damage or faults in the unit.

**Note:** the tightening torque for screw (C) is 50 cNm (0.5 Nm). A torque wrench must be used to ensure that the screws are tightened to this torque.



### 2.3.2.3 Rechargeable battery specifications

**Note:** The batteries are commercially available components. If you need to replace them, please obtain your new batteries from a specialist store. The following table lists recommended models

#### Minimum requirements for rechargeable batteries...

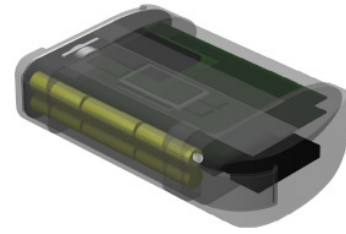
- 6 rechargeable NiMH batteries
- Size "AA" (also "mignon" or "R6")
- Capacity: from 1700 mAh to 2300 mAh
- Recognized by UL
- Can be quickly recharged with 1A
- Possible continuous discharge current at least 2A
- Impedance @1 kHz: under 30 mR

#### ... and recommended models:

- Sanyo HR-3U-1700
- Sanyo HR-3U-2100
- GoldPeak GP170AAHC
- GoldPeak GP180AAHC
- GoldPeak GP200AAHC
- GoldPeak GP210AAHC
- GoldPeak GP230AAHC

#### 2.3.2.4 Safety information for batteries

- Always use **six batteries identical** with respect to
  - capacity
  - brand
  - life
  - charge level
- Only use the models recommended above or check that the batteries you use meet the criteria above
- Use rechargeable batteries, not disposable batteries or dry batteries
- Please take care that the batteries are inserted with the correct polarity. Incorrectly inserted batteries may lead to damage or faults in the unit.
- Ensure that the batteries are disposed of properly
  
- Please also note the instructions in section 2.3.2.5 regarding the Forming and charging process for rechargeable batteries!
  - Charge the batteries fully before use
  - Run through the 14-hour forming cycle completely when the unit is used for the first time.



#### 2.3.2.5 Forming and charging process for rechargeable batteries

Depending on the condition of the batteries, a forming cycle or the regular (shorter) charge cycle is started for charging. The forming cycle begins if the batteries are new, have been exchanged or completely discharged. The SDconnect batteries must then be charged for **14 hours continuously**. Connect the SDconnect to an external power source to charge the batteries.

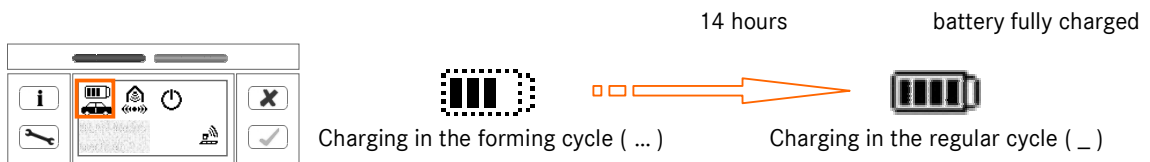
(a) using the vehicle connection cable

or

(b) the charging adapter/test adapter and the power supply unit of your Star Diagnosis system



A fully completed forming cycle is a prerequisite for a failure-free operation and faster, regular charging cycle. The current charging cycle is shown in the SDconnect display:



**Note:** Ensure that the rechargeable batteries in both units (Star Diagnosis system and SDconnect) are fully charged before using the system.  
Never interrupt the 14 hour forming cycle. Every interruption restarts this cycle.

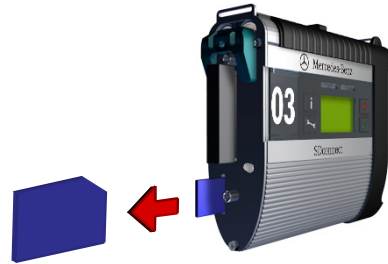


### 2.3.3 SD memory card (optional)

#### 2.3.3.1 Installing and removing memory cards

Once the cover has been removed, the SD memory card can be removed from the slot by pulling on it gently. There is no click mechanism.

The card is inserted by pressing it in gently. Please note the installation direction: the slanted corner must be pointing upwards (or towards the WLAN card).



#### 2.3.3.2 Safety information for memory cards

Only use this extension slot for SD memory cards. Installation of other card types can lead to damage or malfunctions within the unit. The maximum capacity of the SD memory card is 2 GB.

**There are currently no applications available for the SD memory card.**

## 2.4 SDconnect control panel

The control panel permits direct interaction with the SDconnect, such as calling up information or setting parameters for the device.

In general, the SDconnect is controlled using the Star Diagnosis system.



### 2.4.1 Number clip

The numbers allow a unique identification and selection of the SDconnect. This is necessary for wireless operation and is determined during configuration.

Each number may be assigned **only once** in the workshop as otherwise fault-free operation cannot be ensured.

1-10

21-30


11-20

31-40





### 2.4.2 Display, buttons and icons




The display is divided into two. Icons are displayed permanently in the **upper area** (see illustration below, no. ①-③). In the **lower area** details appear when calling up information, when setting parameters for the device and during the diagnosis.



LED

Information 


Settings 






1




2

3





 Abort / Return

 Confirm




**① Power supply**

-  0:09 Rechargeable battery (forming completed) \*
-  0:09 Rechargeable battery, (forming incomplete)
-  External power supply

**② Connection**

-  Cable
-  Road WLAN
-  Workshop WLAN
-  Searching for wireless network

**③ Working status**

-  Ready
-  Working
-  Defective













\*Forming: 14-hour charging time when charging the battery for the first time.

### 2.4.3 LED and acoustic signal


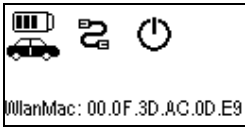








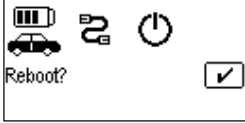






Working status	Green LED	Red LED	Acoustic signal	Display illumination
Switched off	off	off	off	off
Switched on	flashes slowly	off	once briefly	on
Operational	lights up	off	off	on
Working	flashes slowly	off	off	on
Loss of WLAN reception in infrastructure	lights up	flashes slowly	once long	on
Loss of external power supply	lights up	flashes slowly	once briefly	on
Battery discharged	on	flashes fast	three times briefly	on
"Key finder" activated	flashes fast	flashes fast	three times long	on
Flight recorder	off	on	off	off

### 2.4.4 Information in the display

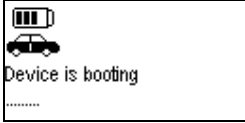


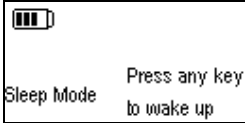
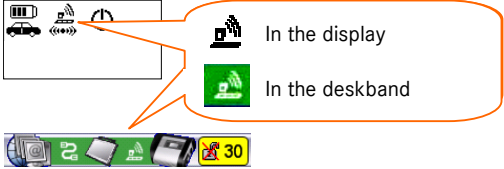
#### 2.4.4.1 Information button

<p>1 x </p> <p>Displays the vehicle battery voltage.</p>	<div style="border: 1px solid black; padding: 5px; display: flex; justify-content: space-around; align-items: center;">    </div> <p style="font-size: small;">Car battery: 14.0V</p>
<p>2 x </p> <p>Displays the internal workshop name (matches number clip) saved in the device and the SDconnect serial number.</p>	<div style="border: 1px solid black; padding: 5px; display: flex; justify-content: space-around; align-items: center;">    </div> <p style="font-size: small;">Name: 30 Serial number: 100082</p>
<p>3 x </p> <p>Displays the SDconnect software version number.</p>	<div style="border: 1px solid black; padding: 5px; display: flex; justify-content: space-around; align-items: center;">    </div> <p style="font-size: small;">OS: 1.7.20060330 CSD: 1.17.20070130</p>



<p>4 x </p> <p>Displays the WLAN card MAC address, where fitted.</p>	
<p>2.4.4.2 Function keys</p>	
<p>1 x  and confirm with </p> <p>Manual WLAN mode change from road wireless network to workshop wireless network and vice versa.</p> <p><b>Requirements:</b></p> <ul style="list-style-type: none"> <li>- WLAN card installed</li> <li>- WLAN mode active</li> <li>- No wired connection used</li> </ul>	
<p>2 x  and confirm with </p> <p>Powering the SDconnect down (standby).</p> <p><b>Requirements:</b></p> <ul style="list-style-type: none"> <li>- SDconnect is not connected with the Star Diagnosis system</li> <li>- No external power supply connected</li> </ul>	
<p>3 x  and confirm with </p> <p>Reboot SDconnect.</p>	
<p>4 x  and confirm with </p> <p>Reset to factory settings/delete the configuration (details in section 3.5).</p> <p><b>Requirement:</b></p> <ul style="list-style-type: none"> <li>- SDconnect is not connected with a Star Diagnosis system</li> </ul>	
<p>5 x  and confirm with </p> <p>Abort an application.</p> <p><b>Requirements:</b></p> <ul style="list-style-type: none"> <li>- SDconnect is not connected with the Star Diagnosis system</li> <li>- An application is active</li> </ul>	



2.4.4.3 SDconnect operation status	
<p><b>Boot process</b></p> <p>The "Device is booting..." message appears during the boot process.</p>	
<p><b>Standby</b></p> <p>The "Device not in use" message appears after booting.</p>	
<p><b>Working status</b></p> <p>The name of the Star Diagnosis system connected followed by "&gt;&gt;" and a free text for the application is displayed when a connection is active.</p>	
<p><b>Sleep mode</b></p> <p>The current working status (here sleep mode) can be shown in the display.</p>	
<p><b>Connection status</b></p> <p>The SDconnect display and the deskband are connected with each other.</p> <p>The operating mode selection (here: "Road Wireless Network") must match in both displays.</p>	



### 3 Initial startup and configuration

The following section describes the functions that can be called up directly via the SDconnect keypad.

#### 3.1 Cable operation - Setting up without configuration process

It is possible to use your Star Diagnosis system directly, without a connection to an IT network, ("out of the box"). To do this, you must use the Star Diagnosis connection cable to the SDconnect multiplexer (green cable).

**Warning:** Observe the notice about handling rechargeable batteries in chap. 2.3.2 and remove the rechargeable batteries' transport protection.

**Step 1: Start Star Diagnosis system**  
Start your Star Diagnosis system by pressing the ON key on the front panel.



**Step 2: Connect SDconnect**  
Connect the SDconnect to the Star Diagnosis system with the (green) connection cable and connect the SDconnect to the vehicle (e.g. with the OBD cable)  
  
The system is now ready to use.

The instructions for connecting the **Star Diagnosis system** to SDconnect by cable may be found in **section 2.1**.

#### 3.2 Wireless operation - Setting up with the SDnetAssist configuration wizard

A fully functioning operation is possible only within a network. For this, some settings must be applied on the Star Diagnosis system and on the SDconnect. In addition, if required, the Star Diagnosis system and SDconnect must be activated for operation in the network. The MAC addresses must be enabled if MAC authentication is being used. Please note the instructions in section 3.4.

**Attention:** Please note that you might require additional information from your IT contact person for the configuration of the system. Please note the information about handling batteries in chapter 2.3.2 and remove the battery's transport protection!



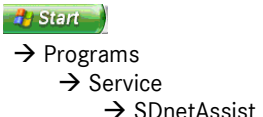
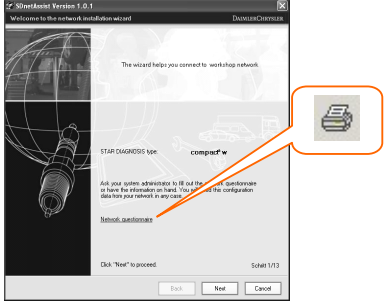
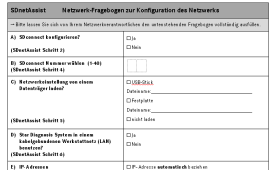
**Step 1: Start Star Diagnosis system**  
Start your Star Diagnosis system by pressing the ON key on the front panel.



**Step 2: Connect SDconnect**  
Connect SDconnect to the Star Diagnosis system using the connecting cable (green cable).

The instructions for connecting the **Star Diagnosis system** to SDconnect by cable may be found in **section 2.1**.




<p><b>Step 3: Ensure power supply</b></p> <p>Ensure that you have a power supply for your SDconnect</p> <p>a. via the charging adapter/test adapter and the Star Diagnosis System's PSU <u>or</u>  b. via connection to a vehicle.</p>	<p>a. </p> <p>b. </p>
<p><b>Step 4: Call up installation wizard</b></p> <p>Call up the SDnetAssist installation wizard.</p>	<p></p>
<p><b>Step 5: Print and fill out network questionnaire</b></p> <p>Print out the network questionnaire on a printer connected to your Star Diagnosis system or access the network questionnaire in the INFO information system on your Star Diagnosis system, or in the <b>aftersales portal</b>:  <a href="http://aftersales.mercedes-benz.com">http://aftersales.mercedes-benz.com</a></p> <p>Then have the questionnaire filled out by your IT administrator.</p>	<p></p>
<p><b>Step 6: Enter configuration data</b></p> <p>Now enter the network questionnaire data into SDnetAssist. Follow the instructions for entering the data in SDnetAssist and fully complete the wizards.</p>	<p></p>
<p><b>Step 7: Disconnect cable connection</b></p> <p>Disconnect SDconnect from the Star Diagnosis system (remove the connecting cable).</p> <p>Once you have disconnected the wired connection, the SDconnect configured is automatically selected and is shown in the SDnetControl deskband.  If this is not the case, you will have to select the SDconnect in SDnetControl once again.</p> <p>Connect SDconnect to the vehicle. The system is now ready to use.</p>	<p>The software automatically chooses an operating mode and the SDconnect configured.</p> <p>A description of changing the operating mode and the selection of SDconnect can be found in the SDnetControl manual.</p>
<p><b>3.3 Wireless operation - Setting up using the SDconnect Toolkit expert tool</b></p>	
<p>Wireless configuration can also be carried out using the SDconnect Toolkit expert tool. Details for this can be found in section 5.</p> <p style="border: 2px solid red; padding: 5px; background-color: yellow;">Please only use this alternative if you have sufficient specialist knowledge of setting up IT networks and you do not want to use the SDnetAssist configuration wizard and its recommended settings and check routines.</p>	

### 3.4 Reading out MAC addresses

If your IT network uses MAC authentication, the SDconnect's MAC address must be enabled by your IT network administrator.

#### Step 1: Read out SDconnect MAC address

The WLAN card MAC address is shown in the SDconnect display when the  button is pressed four times, if a WLAN card is fitted in the unit.



#### Step 2: Read out Star Diagnosis system MAC address

Three MAC addresses (2x LAN, 1x WLAN) are printed on the back of the Star Diagnosis system.



Star Diagnosis compact<sup>3</sup> w





Star Diagnosis compact<sup>4</sup>

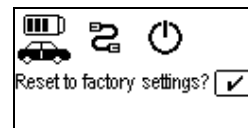
### 3.5 Resetting to factory settings/deleting the configuration

**Warning:** Restoring the SDconnect factory settings deletes all configurations and should only be done if the unit is to be exchanged or reconfigured.


#### Step 1: Call up menu entry

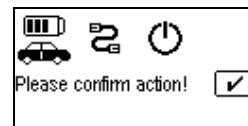
4 x  and confirm with 

Calling up the "Reset to factory settings?" prompt





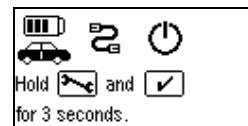
#### Step 2: Confirmation

Confirm query again by pressing 




#### Step 3: Reconfirmation

Press  and  simultaneously for 3 seconds.



SDconnect emits an acoustic signal and restarts.

The process can be canceled at any time by pressing .



## 4 Operation

Once the initial setup has been completed successfully, you can operate SDconnect together with your Star Diagnosis system. Further information on the selection and setup of SDconnect connection types can be found in the SDnetControl manual.

Furthermore, there are also various manuals and guidelines for working with Star Diagnosis systems, as there are for the other workshop operations. Therefore, before you use your Star Diagnosis system, please read the instructions in the supplied documentation and the corresponding documents in the INFO information system.

Take note of all warning and operating instructions before you start using SDconnect.

## 5 - SDconnect Toolkit

You can configure the SDconnect without the installation wizard using the SDconnect Toolkit application.

The software also offers the option to display detailed information on SDconnect and to complete a self-diagnosis or a manual software update.

### 5.1 Calling up the SDconnect Toolkit

#### Step 1: Call up program

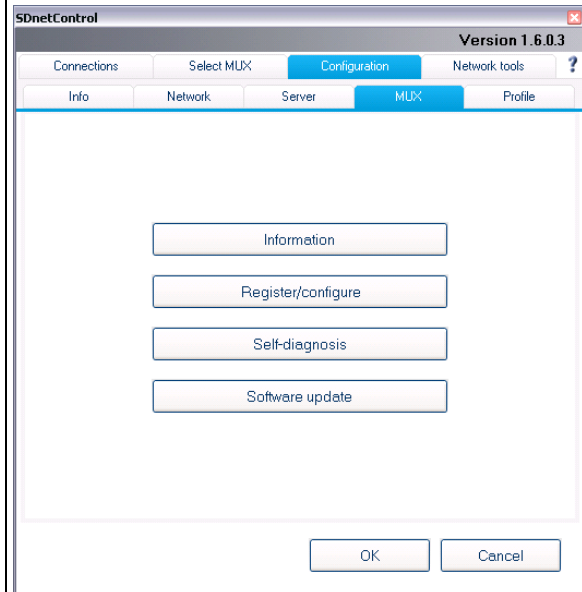
Launch the SDconnect Toolkit via SDnetControl.

- ↳ SDnetControl
- ↳ Configuration
- ↳ MUX



#### Step 2: Select menu entry

The following program overview appears. This menu serves as a starting point for the descriptions in the following sections.

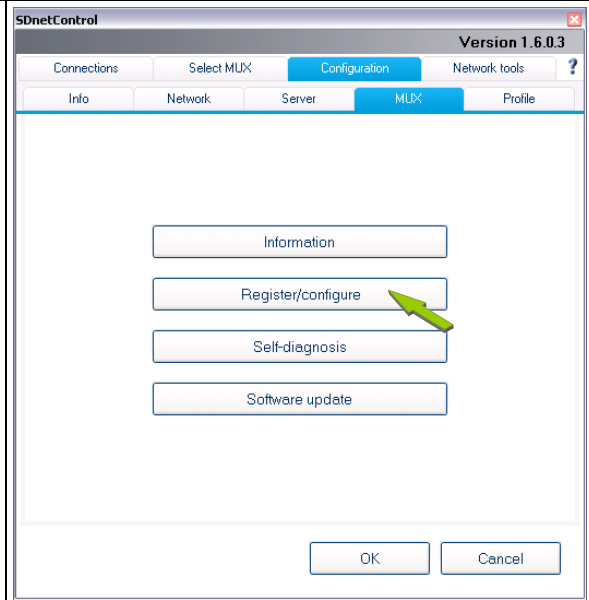


### 5.2 Configuration of SDconnect with SDconnect Toolkit

Please note that, for configuration using the SDconnect Toolkit, the SDconnect multiplexer must be connected to the Star Diagnosis system with the **connection cable** (green cable). In addition, an external power supply (e.g. charging adapter/test adapter) must be used.

### Step 1: Select menu entry

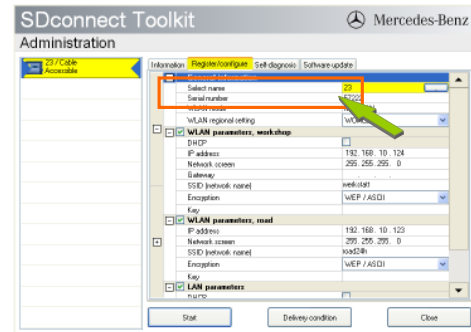
Click on the Configuration → MUX tab in SDnetControl to configure the SDconnect. Then click on Register/configure.



### Step 2: Set SDconnect name

The following user interface appears after you click on Register/configure.

Click on **Select Name** and a new window will open.

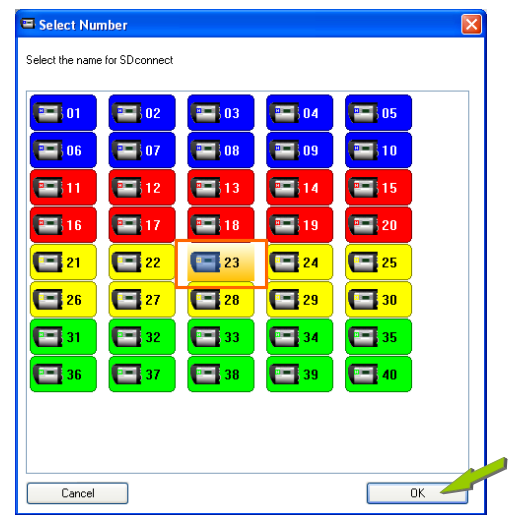


In the new window, select a free name that has not yet been assigned to any other SDconnect by clicking on the corresponding number (e.g. 21, yellow).

#### Note:

Previously assigned names are grayed out. The SDconnect selected is highlighted in color against the other numbers (here: 23, yellow).

Next, click on "OK".



### Step 3: Enter workshop WLAN parameters

**Note:** If there is **no IT infrastructure** (access points) available in your workshop, skip this step.

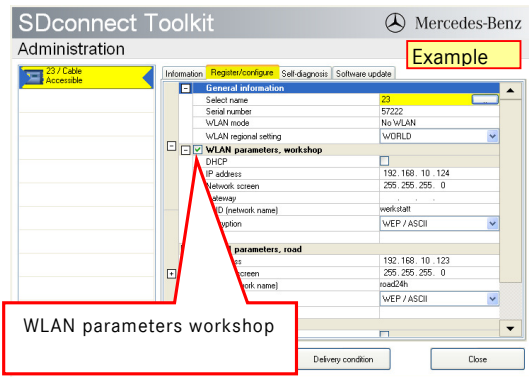
Your SDconnect is linked to the workshop's wireless network with WLAN parameters, workshop.

Check the white check box next to WLAN parameters, workshop to open the dropdown menu and to enable the input boxes.

You can obtain the data you need to enter from your IT administrator.

#### Input fields

IP address for SDconnect
Subnet mask
SSID (network name)
Encryption
Key entry format
Key
Repeat key



Make sure that you do not assign the same IP address to more than one Star Diagnosis system or SDconnect unit.

### Step 4: Enter road WLAN parameters

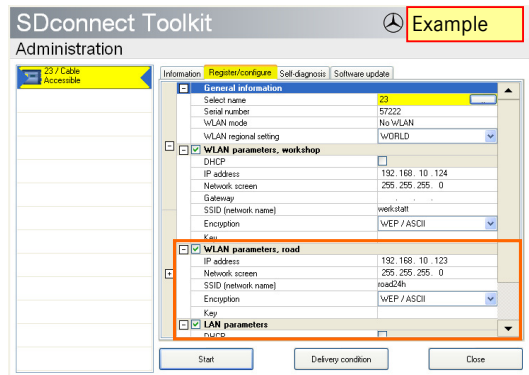
Your SDconnect sets up direct wireless communication with your Star Diagnosis system using the WLAN parameters, road. For this purpose, an ad hoc network (road wireless network) is set up without a corresponding IT infrastructure (access point).

Please enter the following data in the input mask to configure your SDconnect for the road wireless network.

#### Input fields:

IP address	xxx.xxx.x.x
Network screen	
SSID (network name)	
Encryption	
Key	
Repeat key	
Key entry format	

The IP address for the SDconnect should end the same as its name to make identification easier. For example: "192.168.2.130."



#### IMPORTANT:

The subnet masks of your Star Diagnosis system and SDconnect must be the same but the IP addresses of both devices must be different in road mode.

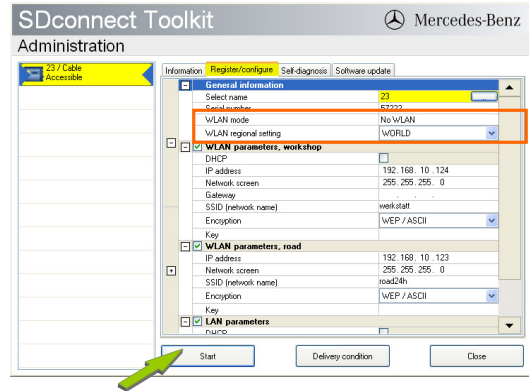
You configure your **Star Diagnosis system** for the road wireless network in SDnetControl under menu item

- SDnetControl
  - ↳ Configuration
  - ↳ Network
  - ↳ Road wireless network

### Step 5: Set WLAN country setting

Select your country in the dropdown menu.

Click **Start** to save and apply your settings.

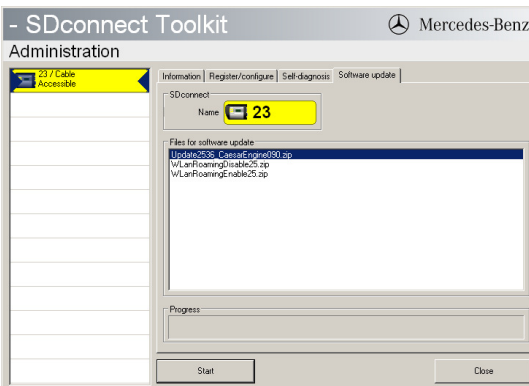


### Step 6: adjustment of the roaming characteristics within your workshop environment (applies only for field organization with multiple access points)

Select Software update in the Toolkit.

Select the WlanRoamingEnableAtHighQuality package if you have an average signal strength (< 40 RSSI) in the workshop.

Select the WlanRoamingEnableAtLowQuality package if you have a good signal strength (>= 40 RSSI) in the workshop.



Use of wireless communication networks and the operation of systems within these networks is subject to the guidelines and regulations in your country. More information about this is available from the responsible authorities. Find out about the country-specific conditions for the operation of wireless communication networks from your national representative. If necessary, remove a non-approved wireless card from your SDconnect.

System information can be found in the documentation included with the Star Diagnosis shipment, as well as in the documents provided in the INFO information system.

An additional wireless card is required for the wireless network in some markets and for certain systems. Ask your national representative if your Star Diagnosis system is suitable for wireless operation in your market or consult the After-Sales portal <http://aftersales.mercedes-benz.com>.

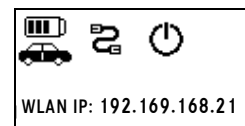
### Testing the operability of SDconnect in the workshop WLAN network

#### Note the output in the SDconnect display

Press  4x

The SDconnect is ready for work if you can see the WLAN IP address in the display.

The SDconnect is not ready for work if you can see a WLAN status or WLAN error message in the display. Please contact the Star Diagnosis User Help Desk (UHD) in this case.

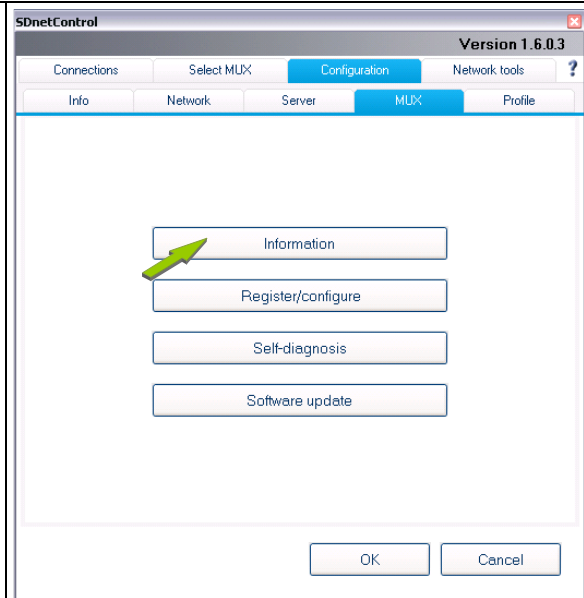


### 5.3 Display of detailed information with SDconnect Toolkit

Please note that the external power supply (e.g. charging adapter/test adapter) must be used in order to display the SDconnect information. A wired connection is not required.

#### Step 1: Select menu entry

Click on Information in the Configuration → MUX tab in SDnetControl.

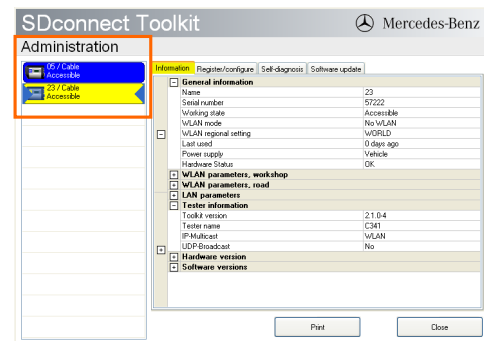


#### Step 2: Select SDconnect

On the left of the window, you will see a list of all known SDconnect units (devices that have logged into the system at some point).

Click the desired SDconnect to have its configuration displayed. The SDconnect selected is highlighted in blue.

The SDconnect must be reachable for this to be possible, i.e. a wired or wireless connection to the Star Diagnosis system must have been established.

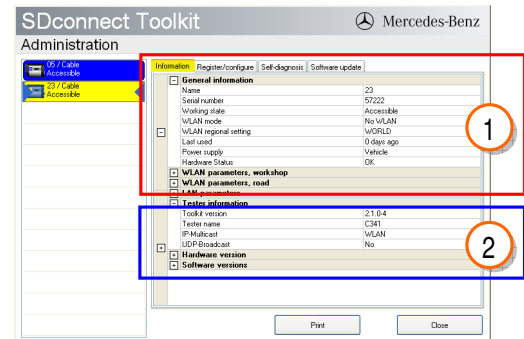


#### Step 3: Read out information

There are two different areas:

- ① This area contains all **configuration parameters** for the SDconnect selected such as its name, its serial number, wireless mode configured, etc.
- ② This is where you find the **version number** of the SDconnect Toolkit, the serial number of the Star Diagnosis system and the versions of the hardware and software.

You can print out the configuration settings of the SDconnect selected by clicking on Print.





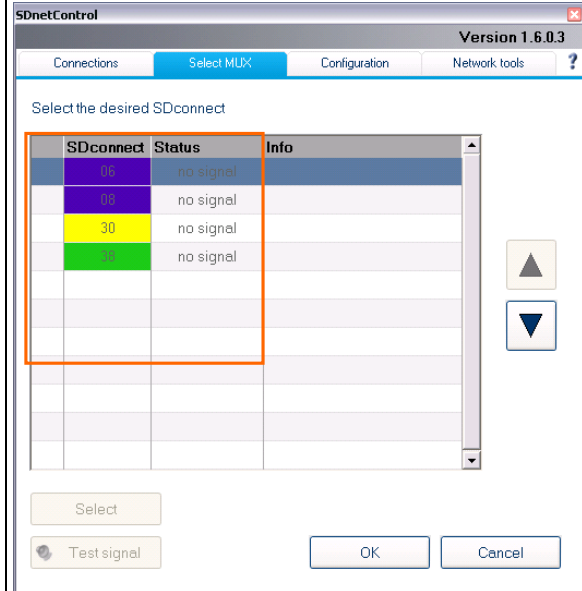
## 5.4 Performing a guided self-diagnosis

Please note that the external power supply (e.g. charging adapter/test adapter) must be used in order to run SDconnect self-diagnosis. A wired connection is not required.

### Step 1: Select SDconnect

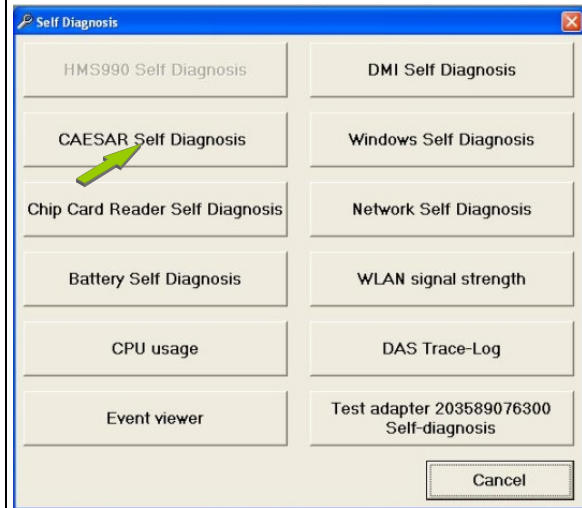
Select the SDconnect to be diagnosed through SDnetControl.

If no SDconnect is first selected, Toolkit uses the SDconnect currently selected in SDnetControl.  
A plugged-in Part D will be diagnosed.



### Step 2: Select menu entry

Click on "CAESAR Self Diagnosis" in the "Self Diagnosis" window in StarUtilities.  
SDconnect Toolkit is started.



### Step 3: Note the prompt to run self diagnosis

You will now be asked whether you wish to run the self diagnosis with or without the SDconnect test adapter. You will now be asked whether you also wish to test the SDconnect keys, display and buzzer. Answer these questions yes or no, according to your wishes. The self-diagnosis is run in accordance with your answer.

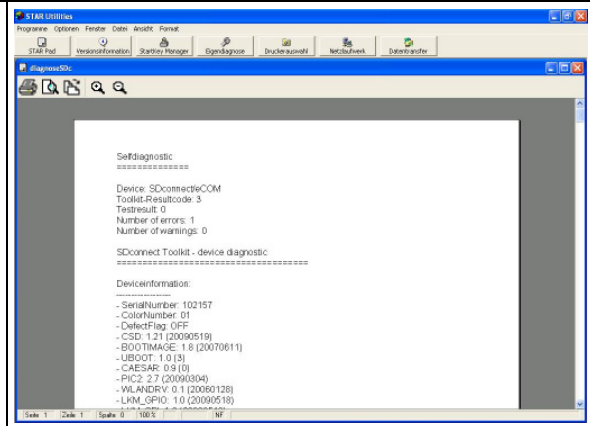
Please note: If you do not have a self-test adapter available in the workshop, you can always order one as an accessory via the usual ordering channels.



### Step 4: Printing the self-diagnosis

The result is displayed in StarUtilities once the self-diagnosis is completed.

You can print out the result with the Print function, to send it to the Star Diagnosis User Help Desk (UHD), for instance.

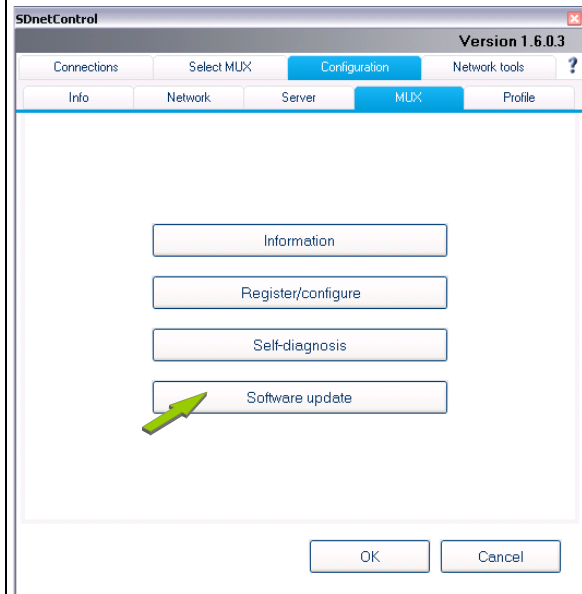


## 5.5 Updating the software with SDconnect Toolkit

Please note that the SDconnect external power supply (e.g. charging adapter/test adapter) must be used in order to update the software. A wired connection is not required.

### Step 1: Select menu entry

Click on Software update in the Configuration → MUX window in SDnetControl.

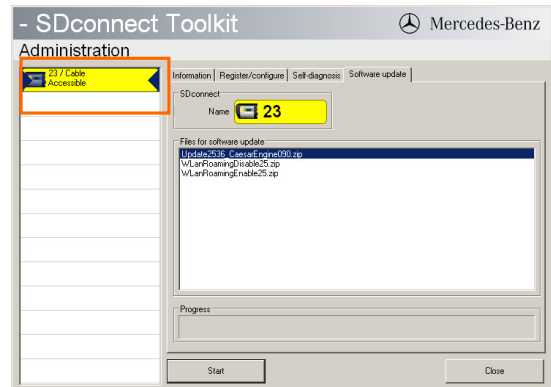


### Step 2: Select SDconnect

On the left of the window, you will see a list of all known SDconnect units (devices that have logged into the system at some point).

Simply click on the SDconnect you wish to update.

The SDconnect must be reachable for this to be possible, i.e. a wired or wireless connection to the Star Diagnosis system must have been established.

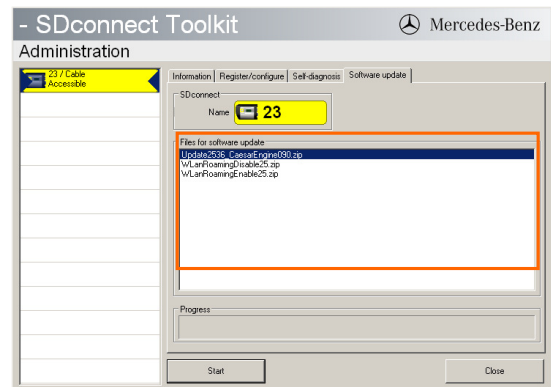


### Step 3: Select software update package

All available software update packages are shown here. Select the package supplied and then click on „Start“. The new software will now be transferred to the SDconnect.

#### Note:

Manual updates are usually not necessary. If newer software packages are available for the SDconnect selected, the unit is updated automatically when a connection with the Star Diagnosis system is set up.





## 6 Help in the event of an error

For errors that prevent you from continuing your work, please call the Star Diagnosis User Help Desk (UHD) on the usual number (see chapter 6.2).

Before calling the User Help Desk, read the Frequently Asked Questions (FAQ) to keep the processing of queries to a minimum. Please consult your local IT support for matters relating to your workshop network.

### 6.1 FAQ List

Hardware fault	Description/solution
Display blank/is no longer lit	Connect the external power supply then check the LEDs (light up/do not light up). If OK with power supply, battery is faulty: the batteries must be replaced (purchase from specialist retailer) If not OK with power supply: the display is faulty, have SDconnect exchanged through the Star Diagnosis User Help Desk (UHD).
Buttons are pressed, but no input	SDconnect is faulty. Exchange required (contact Star Diagnosis User Help Desk (UHD)).
Battery e.g. runtime restricted or "Check batteries" shows in the SDconnect display	Check battery management: if necessary, perform formation cycle. If this does not work, replace the batteries (purchase from specialist store). If Check Batteries is displayed, contact Star Diagnosis User Help Desk (UHD).
SDconnect cannot be switched off	This is not an error. It is not possible to switch SDconnect off completely (display blank). SDconnect can only be switched to the standby-mode.
Software fault	Description/solution
Example symptom: diagnosis no longer possible following upload of the Star Diagnosis Update DVD.	
Test steps: Check whether the current add-ons are present Check configuration in SDnetAssist Check configuration in SDnetControl Check configuration in SDconnect Toolkit	<ol style="list-style-type: none"> <li>a. Install current add-ons</li> <li>b. Check the cable fit</li> <li>c. Check system status in Star Utilities or Star Check in SDnetControl</li> <li>d. Check configuration in SDnetControl for the Star Diagnosis system (in the Configuration-&gt;Network tab) -&gt; Compare with the SDnetAssist questionnaire</li> <li>e. Check configuration in SDconnect Toolkit for the SDconnect -&gt; (in SDnetControl, Configuration -&gt; MUX -&gt; Information tab) Compare with the SDnetAssist questionnaire</li> <li>f. If not effective, contact Star Diagnosis User Help Desk (UHD).</li> </ol>
Communication error	Description/solution
No communication with the vehicle.	Check all the cable connections in use. Check whether the SDconnect is ready for operation. Check the settings for the wireless connections (Configuration) and whether the WLAN card is enabled in your Star Diagnosis system (SDnetControl) Run a self-diagnosis through the SDconnect Toolkit. Contact the Star Diagnosis User Help Desk (UHD).



No connection between Star Diagnosis system and SDconnect despite the cable being connected.	Check cable (e.g. swap with another unit, cable firmly connected, ...). If the connection works with another cable: cable is faulty. Order new cable on accessories form. If the connection does not work with another cable: Run SDconnect self-diagnosis. Then contact the Star Diagnosis User Help Desk (UHD) and send the self-diagnosis to the Star Diagnosis User Help Desk (UHD).
No connection to the control units in the vehicle. Error message 503.9755/11005 appears	Start the SDconnect Toolkit via SDnetControl. Select Software Update. Highlight the ClearCeFlashDisk.zip update package and then start the update. The SDconnect data contents are reset (similar to recovery on the Star Diagnosis System).
No wireless connection between Star Diagnosis system and SDconnect	<b>This may have many causes, e.g.:</b> <b>WLAN card faulty:</b> to check this, open SDconnect, remove and reinsert WLAN card, swap with another approved WLAN card, if necessary. If the LEDs on the card do not light up, the card is probably faulty and you should purchase a new one from a specialist store. If the cause is not a fault in the WLAN card, e.g. as shown when swapped over, please connect the two systems by cable. If a wired communication does work, the error is either in the <b>IT network</b> (please contact your network administrator) or in the <b>Configuration</b> (please contact the Star Diagnosis User Help Desk (UHD)) Check whether the WLAN card in your Star Diagnosis system is active (in SDnetControl) If it is not possible to establish a connection either via the WLAN or by cable: SDconnect is faulty, have the Star Diagnosis User Help Desk (UHD) arrange an exchange.
MUX connection error (Error code (1.2) 503.9901)	<ol style="list-style-type: none"> <li>Check the operating mode of the Star Diagnosis system and the SDconnect (Road wireless network, Workshop wireless network, cable) → must be identical. Correct, if necessary.</li> <li>Open SDnetControl, Open MUX tab, select SDconnect and send a test signal. If error code 750 is shown, check configuration data, consult IT administrator if necessary.</li> <li>Check configuration in SDconnect Toolkit → Information. Also: Check the configuration in SDnetControl in the Configuration tab. For both compare the available data with the data from the SDnetAssist questionnaire.</li> <li>If not effective, contact Star Diagnosis User Help Desk (UHD).</li> </ol>
Permanent display of the cable icon in the SDconnect display	<ol style="list-style-type: none"> <li>Check WLAN parameters, correct as necessary (SDconnect Toolkit → Register/configure).</li> <li>Switch off the device, then open. Check whether the WLAN card is properly inserted.</li> <li>If not effective, contact Star Diagnosis User Help Desk (UHD).</li> </ol>
Workshop wireless network/road wireless network cannot be selected in SDnetControl	<ol style="list-style-type: none"> <li>Check whether the LAN cable is connected. Disconnect if necessary.</li> <li>Check parameters in SDnetControl, adjust if required: "Configuration" tab → Network adapter in SDnetControl: "wireless network connection" must be enabled (see section on network adapters in the SDnetControl manual)</li> <li>If not effective, contact Star Diagnosis User Help Desk (UHD).</li> </ol>
WLAN signal strength insufficient	Make sure that no metallic covers are interfering with the connections. Workshop wireless network: Move closer to the access point Road wireless network: Reduce the distance between the SDconnect and your Star Diagnosis system.



## 6.2 Star Diagnosis User Help Desk (UHD)

The Star Diagnosis Hotline (Star Diagnosis User Help Desk (UHD)), as the central contact point for your Star Diagnosis systems, is always available to answer your queries.

The Star Diagnosis User Help Desk (UHD) will assist you with:

- All IT-related questions on your Star Diagnosis system
- Problems with the Star Diagnosis hardware (Star Diagnosis system, SDconnect)
- Problems with the operating system (Windows XP) in your Star Diagnosis system
- Problems with the application software in the Star Diagnosis system and SDconnect
- Questions from users 'How can the function...', 'What is to be done, if...' etc.

The support for vehicle-specific questions will be provided as usual by the familiar support functions.

### Information required by the Star Diagnosis User Help Desk (UHD) when taking on a problem

The Star Diagnosis User Help Desk (UHD) requires the following information from you every time you call:

- Your dealer number
- Your name
- Your current telephone and fax number
- The system number of your Star Diagnosis system (including SDconnect)
- An exact a description of the problem as possible

The Star Diagnosis User Help Desk (UHD) will clarify together with you further information on the software installed (version no. and release no.) as well as software and hardware error message(s).

### Access to the Star Diagnosis User Help Desk (UHD)

The Star Diagnosis User Help Desk (UHD) is available to you in the languages and times listed below:

	Mon. - Fr.	Sat.	Time zone	Star Diagnosis Hotline (UHD)
<b>English</b>	06:00 - 22:00	06:00 - 14:00	CET	(+49) (0) 1805-2233-33
<b>English</b>	00:00 - 24:00		CET	(+49) 1805-2233-32
<b>French</b>	07:00 - 22:00	07:00 - 14:00	CET	(+49) 1805-2233-30
<b>Italian</b>	07:00 - 22:00	07:00 - 14:00	CET	(+49) 1805-2233-29
<b>Spanish</b>	08:00 - 23:00	09:00 - 16:00	CET	(+49) 1805-2233-31
<b>Japanese</b>	23:00 - 14:00	23:00 - 10:00	CET	(49) 1805-2233-42
	07:00 - 22:00	07:00 - 18:00	Local time	
<b>Fax</b>	00:00 - 24:00		CET	(+49) (0) 1805-2233-63



## 7 Warning instructions and operating instructions

This section contains important warnings as well as operation instructions for the SDconnect multiplexer; it is essential that you adhere to these.

### 7.1 General

- Please follow the installation instructions in this manual.
- The unit is intended for commercial use and should only be operated by trained personnel according to the instructions.

### 7.2 Storing the SDconnect

- Keep the unit in a cool and dry location.
- The unit should be kept at temperatures between -20°C to +65°C.
- Do not keep the unit in areas where there are corrosive gases or liquids.

### 7.3 Operation of the SDconnect

When you are working with the SDconnect, various safety instructions apply, as is the case for other work carried out in the workshop. Special safety information is not provided for each component, as the provided information is to be applied analogously to components that are not mentioned.

In addition to this document, please also observe the information on using SDconnect in the "Manual for Star Diagnosis Users" and in your system's general terms and conditions.

### General Safety Information

- Read all instructions in the literature supplied with the unit before you use the SDconnect.
- The unit must not be set up near an open flame. Never use the system components close to an open flame or chemical liquids.
- Only use the system components that were supplied together with the SDconnect or that correspond to the specifications for exchangeable elements. Please observe the descriptions in the user guidelines that are supplied with the unit and via the INFO information button on your Star Diagnosis system.
- The unit may only be handled according to the manufacturer instructions, as otherwise the safety may be impaired.
- You must not carry out any repairs required. Please consult the Star Diagnosis User Help Desk (UHD).
- Let all parts cool down before you transport them.
- The system must not be cooled using additional means.
- In order to prevent electrical damage, the system may not be used on a damp surface or in the rain.
- Never open your SDconnect. The exception is the cover which may be removed to allow replacement of the battery and the WLAN card. Please observe the instructions described in section 2.
- Perform all work in the engine compartment when the engine is not running and the ignition is switched off. Danger of injury due to rotating or hot parts. When performing necessary checks on running engines, route the test lines outside the engine area.
- To prevent poisoning, ensure sufficient ventilation when working on a vehicle while the engine is running.
- The Star Diagnosis system must be kept at least 13 cm (5.12 inches) away from electrical equipment that has a strong magnetic field (e.g. motors, magnets, television sets, refrigerators and large loudspeakers).
- Only authorized persons are permitted to carry out maintenance and repairs.
- Avoid liquid splashes (water, acids, solvents).
- Only use the SDconnect at temperatures of between 0°C and +45°C. Operating the system outside of this temperature range can cause damage or malfunctions within the unit.
- SDconnect contains sparking components (e.g. relays) and therefore may only be operated at a height of at least 46 cm (18 inches) above the ground.



- Do not expose the SDconnect to direct sunlight.
- Do not drop the SDconnect.
- Only supply SDconnect with power from the vehicle (via one of the vehicle connection cables provided for this use) or via the charging adapter/test adapter and the power supply unit of the Star Diagnosis system concerned. The use of other power supply sources that are not intended for this use can cause damage or malfunctions within the unit.
- Only operate the SDconnect keyboard with your fingers and never use sharp or pointed objects.
- Be careful not to damage the plastic cover of the liquid crystal display with sharp or pointed objects.
- Carry the unit by the strap intended for this use and not by the connection cables.
- The Ethernet cable and vehicle connection cables must never be routed over tables, benches, or cabinets. They must be kept clear of all hot objects and rotating parts.
- To prevent explosion or fire, never operate the device near open fuel containers.
- Fluctuations and deviations of the AC voltage outside of the permissible tolerance could lead to function failures and to irreparable damage of electronic components.
- The unit should be switched off in the evening or for longer breaks (> 4 hours) to minimize the power consumption.
- Standard spirit (alcohol)-based glass cleaner can be used to clean the screen and other components. Rough, sharp-edged and damp/wet cleaning tools are not permitted. Only clean the screen with a soft, dry cloth. Do NOT use solvents for cleaning.
- The unit must be stored and transported in the transport case provided for this purpose.
- Do not disassemble the SDconnect into its parts.
- The SDconnect may only be switched on once it has adjusted to room temperature. Condensate in the unit can cause damage.

#### **Information on wired connections**

- Only use the SDconnect with the cables and adapters provided. Check the condition of the cables before connection. Use of modified cables or cables that are not intended for the unit can lead to damage or malfunctions within the unit.
- Damaged, broken or bent pins in the plugs can lead to damage to the vehicle/unit and can negatively affect the user's health.
- Only authorized network and power cables may be used.
- Defective cables, and broken or damaged system components may not be used.
- Do not use SDconnect with defective cables or after damage (e.g. dropping) until they have been inspected/serviced by the personnel authorized to do this.
- Never pass cable connections over sharp edges or corners and never let them come in contact with hot or moving vehicle components.
- If extension cables are needed, only use suitable cables that are authorized for the power input, as unsuitable connections can overheat and cause fires.
- Take care that all cables are routed properly so that there is no danger of tripping and that no possible damage can be caused during general working in the workshops.
- Remove electrical connections from the power supply when they are not in use.
- Never pull on the cable to pull out a plug; pull on the plug itself.
- Check that the unit is grounded. Connect the power cable to a properly grounded socket.
  
- Do not lay adapter or connection cables in close proximity to hot parts. Danger of damage.
- Do not route adapter or connection cables close to parts carrying a high voltage. May cause interference.
- In order to prevent electric shocks, no cable can be connected or disconnected during a storm; and installation, maintenance or reconfiguration work may also not be carried out.





#### 7.4 Cleaning SDconnect

Clean your SDconnect at regular intervals. Observe the following instructions when doing so:

- Use a cloth slightly dampened with a mild cleaning agent to clean the outside of the unit. Do not use solvents.
- Use a standard spirit (alcohol-)based glass cleaner.  
⇒ Spray the liquid onto the cloth and not directly onto the unit.
- Paint thinners (such as cellulose thinners, acetone or similar) or scouring pastes, detergents and paint cleaners are unsuitable for cleaning the unit. These substances will damage your SDconnect housing and the control panel.

#### 7.5 Tasks for SDconnect return

If you intend to return your SDconnect, it must be prepared for return shipment as follows. Ensure that:

- The rechargeable batteries are removed from the system and the closing mechanism for the battery compartment has been properly closed again (see section 2.2).
- The wireless card (WLAN card) and memory card (SD card) are removed from the system (see section 2).
- The cover flap is properly closed (see section 2).
- The number clips stay in your workshop.
- The charging adapter/test adapter and all cables supplied stay in the workshop.
  
- The configuration settings in SDconnect are deleted (see section 3.5).
- The return label is filled out completely (see User manual)



## 8 Certificates

### 8.1 SDconnect Certificates

The currently valid versions of the necessary documents according to the respective certification systems are available for the following certificates of conformity.

- Electromagnetic compatibility (CE conformity)
- USA Federal Communications Commission (FCC) Statement
- cUL Certification
- GOST Certification
- MIC EMC Certification
- e-Mark Certification
- VCCI Certification
- Drop test according to ISO 16730-3 chap. 4.3

In urgent situations, copies of the current documents can be requested.

### 8.2 WLAN Certificates

Existing certificates are listed, plus those countries in which the card is certified for wireless operation.

Please check the area of validity of the certificates listed below at the relevant authorities in your country.

#### D-Link AirPlus XtremeG DWL-G650 (Rev. C)

D-Link AirPlus XtremeG DWL-G650 (Rev. C)	
Country	Comment
Algeria	
Austr. Oceania	
Australia	
Azores	
Belgium	
Bulgaria	
Denmark	
Germany	
Estonia	
Finland	
France	
Gaza	
Greece	
Great Britain	
Ireland	
Iceland	
Italy	
Japan	
Yemen	
Canada	
Canary Islands	
Latvia	
Libya	
Lithuania	
Luxembourg	
Madeira	
Malta	
New Zealand Oceania	
New Zealand	



Nicaragua	
The Netherlands	
Northern Cyprus	
Norway	
Austria	
Poland	
Portugal	
Romania	
Sweden	
Switzerland	
Slovak Republic	
Slovenia	
Spain	
South Africa	
Czech Republic	
Turkey	
Hungary	
USA	
West Bank	
Cyprus	

The following certificates are available for the WLAN card (D-Link AirPlus XtremeG DWL-G650):

- EN 300382 v. 1.4.1: 2003-4
- EN 300382-2 v. 1.2.1: 2001-12
- EN 301489-1 v. 1.4.1: 2002-8
- EN 300382-17 v. 1.2.1: 2002-8
- EN 5502 : 1998+A1: 2000+A2: 2003 class B
- EN 61000-3-2: 2000
- EN 61000-3-3: 1995 +A1:2001
- EN 60950 3<sup>rd</sup> edition: 2000
  
- IC RSS-210 Issue 5 with amendment November 30, 2002
- IC RSS-210 Issue 5 clause 6.2.2(o)
  
- FCC 47 CFR Part 15 subpart C