Brief guide

Schaeffler SmartCheck



General

This brief guide gives you an overview over the essential functions of the SmartCheck device. It describes the initial setup of a single device using cables from the supply program of the Schaeffler Monitoring Services GmbH.

Please read the detailed user documentation for SmartCheck device before beginning assembly of the device, where you can find further information and a detailed guide to setting up and commissioning of the measurement system.

Subject to technical changes!

Safety information

- The SmartCheck device is not subject to EC Machine Directive 2006/42/EG.
- The device must not be used for safety-relevant tasks or for critical switching operations!
- The device may only be operated within the limitations of use specified in the Technical data.
- The device may only be installed, operated and maintained by authorised qualified electricians who have received training in accordance with the applicable, relevant regulations.

Before using this product for the first time, please download and install the latest version of the SmartWeb firmware and SmartUtility (Light) software from the hompage (see Contact). Further information can be found in the manual.

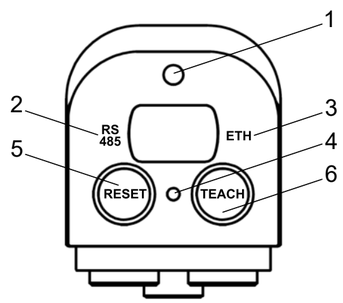
Schaeffler SmartCheck

The scope of delivery of the vibration monitoring system includes:

- Schaeffler SmartCheck device with integrated Schaeffler SmartWeb software
- Mounting material
- Brief guide Schaeffler SmartCheck
- Schaeffler SmartUtility Light software with user documentation and other customer information on CD-ROM.

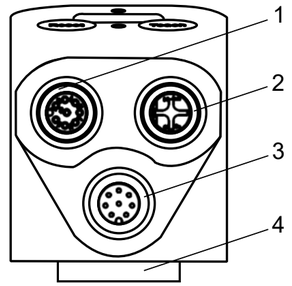
The SmartCheck device is delivered with a default configuration that allows a general and component-independent vibration monitoring. After setting up the device and connecting the power supply, the device is in measuring mode and already collects data on the internal vibration and temperature sensor. With the integrated Web application Schaeffler SmartWeb, you can view the measurement data for the first analysis. To do this, connect the SmartCheck device via Ethernet cable to your computer and retrieve the device IP into a web browser.

Display and control elements



1. LED: Status and alarm display
2. LED RS485: RS485 communication
3. LED ETH: Ethernet communication
4. LED: Lights up when a button is pressed
5. “Reset” key: Reset alarm
6. “Teach” key: Start learning mode

Connections and sensor area



1. M12 plug: Inputs/Outputs
2. M12 socket: Ethernet/PoE
3. M12 socket: Power supply and RS485 communication interface
4. Sensor area

Overview

The Schaeffler SmartCheck device is installed directly onto a machine or component. The following prerequisites for the installation must be satisfied:

- Wall thickness of the component: ≥ 9 mm
- Surface roughness index: Ra = 3,2 µm

Alternatively, you can bond an M6 sensor mounting plate to the component surface. Details of this can be obtained from your customer care representative (see contact).

The following materials are also required to install the SmartCheck device:

- Tool for creating the tapped M6 hole, or from the optional accessory: M6 sensor mounting plate including an adhesive suitable for vibration measurement (e.g. Loctite 330)
- Some lubricant (oil, grease)
- Offset screwdriver for M6 hex socket head screw
- A torque wrench with socket for a 6-mm hex socket head screw

Ensure that the device is free from damage prior to installation. In case of doubt, consult a qualified electrician or contact your customer support representative (see contact).

Set-up SmartCheck

For an optimal vibration monitoring the SmartCheck device must be installed on a machine or component at a site with optimum vibration transfer.

You will find detailed information in the user documentation of the Schaeffler SmartCheck device!

Installing the device

1. Prepare the installation surface to install the SmartCheck device (≥ Ø 25 mm, Ra=3,2 µm).

2. Drill an M6 tapped hole at least 9 mm deep square to and in the centre of the installation surface.
   Alternatively, you can bond a sensor mounting plate by using an adhesive suitable for vibration measurement (e.g. Loctite 330).

3. Clean the installation surface and apply a thin film of lubricant to the surface.

To avoid damage, select the fixing screw and the torque setting in line with the material properties of both the installation point and the screw.

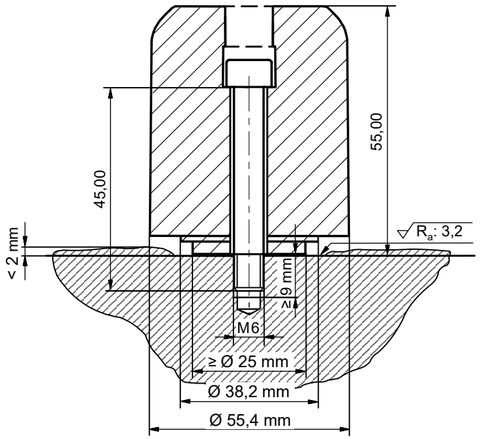
4. Insert the M6x45 hex socket head fixing screw into the mounting aperture of the SmartCheck device.

5. To prevent the screw from falling out, secure it where necessary using an O-ring. Ensure that it does not slip between the installation surface and the sensor area.

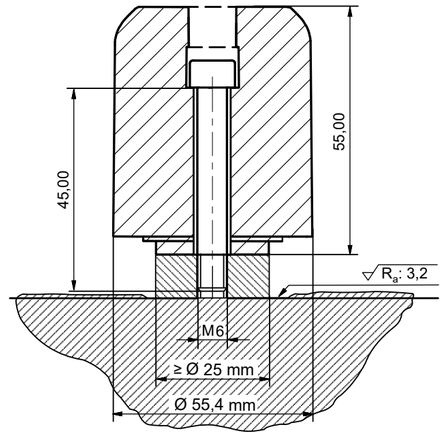
You can also use an optional screw locking compound (e.g. Loctite 243) to ensure the installation of the SmartCheck device is permanent.

6. Align the sensor area of the SmartCheck device on the installation surface and hand-tighten the fixing screw using an offset screwdriver. Secure the connection to a tightening torque from 5 to 10 Nm. Ensure that the sensor area of the device is sitting flat on the installation surface.

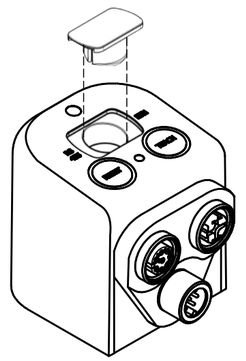
7. Close the mounting aperture of the device by inserting the plug.



SmartCheck device screwed in a tapped whole



SmartCheck device installed with sensor mounting plate



Mounting aperture with plug

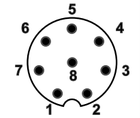
Connecting Ethernet and power supply

In the following the connection of the Ethernet cable and power supply cable from the product range of Schaeffler Monitoring Services GmbH are described. Both cables must be purchased separately. Inputs and outputs are not described in this brief guide. You can find a detailed connection overview in the user documentation of the SmartCheck device.

Ensure that the SmartCheck device is de-energised while set-up operations are being carried out.

1. Pick up the Ethernet cable (SMART-CHECK.CABLE-ETH-P-M12-RJ45-10M) and connect the M12 plug with the Ethernet connection on the SmartCheck device (at the top right).

2. Now pick up the power supply cable (SMART-CHECK.CABLE-POW-P-M12-OE-10M) and connect it to a power supply unit according to the following connection overview:

Pin assignment	No.	Signal	Colour
 Front view of SmartCheck device	1	Power In	white
	2	Power In+	brown
	3	RS 485+	green
	4	RS 485-	yellow
	5	VnC RTC	grey
	6	GND RTC	pink
	7	not connected	blue
	8	not connected	red

(SMART-CHECK.CABLE-POW-P-M12-OE-10M)

3. Connect the M12 plug with the connection for the power supply at the SmartCheck device (below).

Cover any M12 connections that are not in use with the plugs supplied.

4. When securing cables, ensure that they are not subjected to any mechanical strain (a minimum bending radius of 60 mm is recommended).

5. Connect the Ethernet cable to your computer.

We recommend not to supply the device with power until the machine to be monitored is in a normal operating state.

Warning: Damage to the SmartCheck device from unsuitable power supply!
Only a power supply that meets the specifications set out in the Technical data of the device and that satisfies the relevant statutory requirements governing such components may be used.

6. Connect the device to the power supply (12-32 VDC).

Once the device is switched on, the status of the LED changes in the following sequence:
1. LED flashes red: The operating system is starting up.
2. LED flashes yellow: The system and network settings are being loaded.
3. LED flashes green: The device firmware is being loaded.

Once the device has started up, the status LED changes from flashing red to yellow to green. The LED then lights up as follows depending on the status of SmartCheck:
- green: The device is ready to measure.
- yellow/red: The device is ready to measure and has a pre-alarm/main alarm.

It flashes if the device is still in learning mode.

Connecting SmartCheck device with your computer

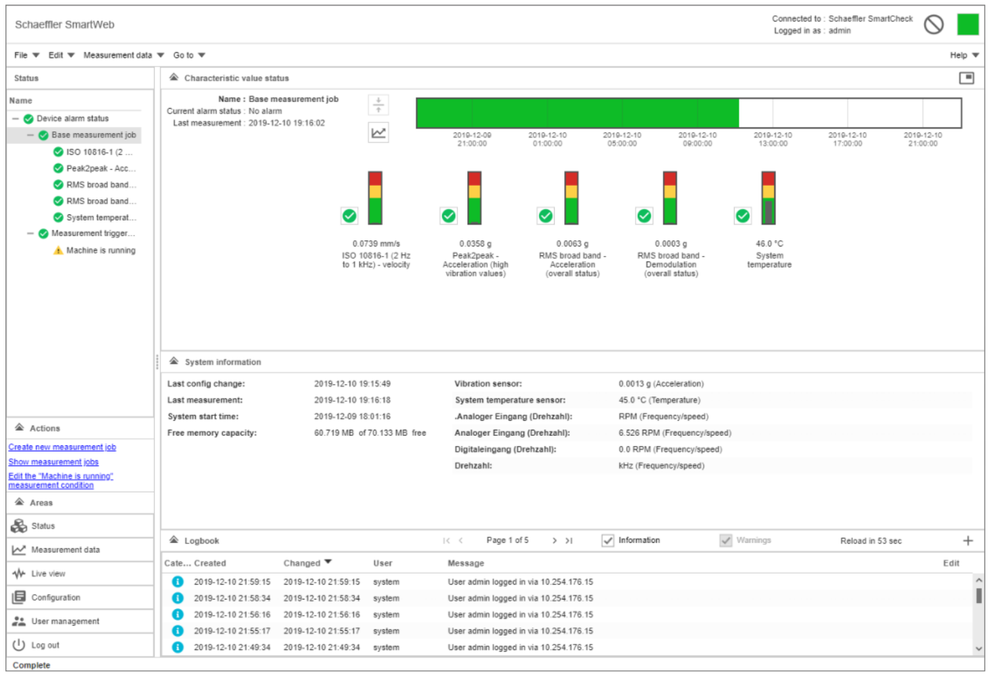
Once the SmartCheck device has started up and is in measuring mode, you can view the measurement data using the SmartWeb software on your PC. This allows you to check whether a valid vibration or temperature signal is being received, whether you have connected and configured the inputs correctly and whether the SmartCheck device is operating properly.



1. Open an Internet browser

2. enter the IP address 192.168.1.100 (default SmartCheck device).

The web application SmartWeb is starting.



Web application Schaeffler SmartWeb

If the SmartCheck device has not been assigned an address via DHCP, it will have the IP address 192.168.1.100 by default. Otherwise please ask your system administrator.

3. In the left-hand pane, click the **Live view** button.

4. Select the **Vibration** or **temperature sensor input** from the menu on the left.

If you have connected the SmartCheck device correctly, you will see the sensor signals in the **Live view** section.

The settings of the predefined default measuring job can be changed in the **Configuration** section under **Measurement job**.

Detailed instructions and more information on creating configurations and measurement jobs, see the user manual for the software SmartWeb. This is also included on the CD-ROM.

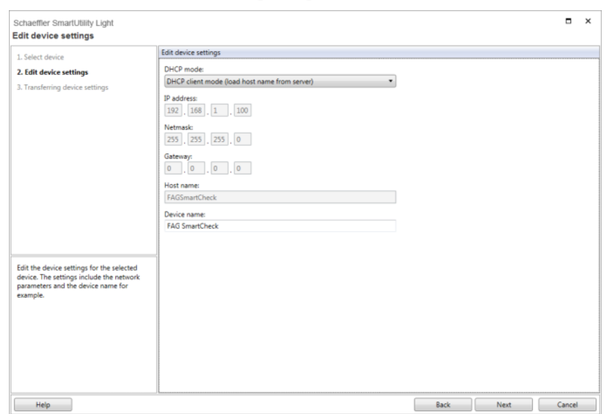
Configure SmartCheck device

Using the free SmartUtility Light software you can change the network settings of the SmartCheck device and adjust further settings. Additionally, you can download measurement data and update the firmware of the SmartCheck device.

The installation version (setup) of the software SmartUtility Light is in the respective directory on the CD-ROM.

If you select **Edit device settings**, you can configure the DHCP mode and further settings in a wizard. You can also customize the IP address of the SmartCheck device with this wizard, if you don't desire DHCP operation. A detailed description of the software SmartUtility Light is on the CD-ROM.

With the full commercial software SmartUtility you can also analyze the data in the Viewer as well as configuring devices.



Configuration of a device in the Schaeffler SmartUtility Light software

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