smartGAS Calibration Tool

- Installation Guide -

Described product

smartGAS Calibration Tool

Manufacturer

smartGAS Mikrosensorik GmbH
Huenderstr. 1
74080 Heilbronn
Germany

Phone   +49 7131 797553-0
Fax   +49 7131 797553-10
mail@smartgas.eu
www.smartgas.eu

Content

1 For your safety

- Read the instructions carefully before using the product.
- Follow the instructions. The user must fully understand and follow the instructions. The product may only be used according to its purpose.
- Regulatory regulations and directives concerning this product must be observed.
- When using gases, the relevant safety data sheets must be observed.

Meaning of the characters used
The following character is used in this document to identify related information or key information.

 NOTE
Information on the use of the product.

smartGAS Mikrosensorik GmbH |Huenderstr. 1 | 74080 Heilbronn | Germany
Phone: +49 7131/797553-0 | Fax: +49 7131/797553-10 | www.smartgas.eu|mail@smartgas.eu

Page 4 / 15

2   About smartGAS Calibration Tool

2.1   What is the smartGAS Calibration Tool meant for?

The smartGAS Calibration Tool   simplifies the commissioning of smartGAS sensors. With the smartGAS Calibration Tool, you are able to read out the state of the sensor and the current measured values. The Modbus address of the sensor can also be changed.
The smartGAS Calibration Tool also allows you to readjust the Zero and the Span of smartGAS sensors in order to adapt them to changed ambient conditions. The function and the high measuring performance of smartGAS sensors can be ensured by a regular adjustment with the smartGAS calibration tool. The adjustment will be documented by an automatically generated service report.

2.2   Which sensors are supported?

The smartGAS Calibration Tool supports the smartGAS sensors of the EVO series from firmware version 5.17. The smartGAS Calibration Tool can also be used in conjunction with the CONNECT INTERFACE.

2.3   System Requirements

The smartGAS Calibration Tool requires a Windows PC with the following specifications:

- Windows 7 or higher (x86 or x64)
- 1GHz dual-core processor, 2GB RAM, 200MB free space
- The application is based on Microsoft .NET Framework 4.6.1[*]

2.4   Connection with sensors / accessories

For an optimal result of the calibration of a smartGAS sensor, smartGAS Mikrosensorik recommends using the corresponding accessories. For the electrical connection of a smartGAS sensor to your computer, please use:

- Z6-000025: USB service adapter for EVO series sensors
- Z6-000026: USB service adapter when using CONNECT INTERFACE

---

[*] In case that Microsoft .NET Framework 4.6.1 isn't on your Computer, it will be installed if necessary. For this reason an internet connection is reqired.

3   Installation & Getting started

3.1   Installation

(1)   Run the installation setup by clicking on "Setup.exe".
(2)   Optional: If there is no Microsoft .NET Framework, you will be informed and prompted to download the appropriate package and agree to the license agreement.
(3)   The installation wizard will guide you through the setup until the installation is completed.

3.2   Start smartGAS Calibration Tool

Start the smartGAS Calibration Tool via the **desktop shortcut** or via
Start > smartGAS (folder) **> smartGAS Calibration Tool.**

3.3   Product activation

The first use of the smartGAS Calibration Tool requires product activation. This requires a license key. Simply type your license key into the provided field and click "OK" to activate the smartGAS Calibration Tool.

   NOTE

If you do not have a license key, you can request it via "request a key" or contact your sales partner directly.
Note that the license key has a limited runtime. After expiration you need a new license key for a new activation.

4   Using smartGAS Calibration Tool

4.1   Welcome / Authentication

When you start the smartGAS Calibration Tool, you have to authenticate yourself with a username and a PIN. The PIN is: 2408. The user name is freely selectable and is used for the service report. The smartGAS Calibration Tool can be used after correct entry.
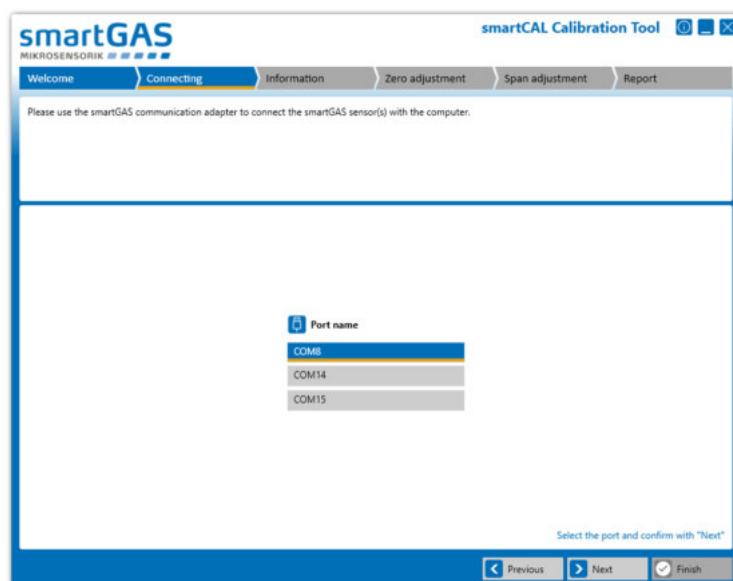

NOTE

The user name have to contain at least two characters.
The authentication PIN is: 2408

4.2   Connecting

4.2.1   Port name

To connect the smartGAS Calibration Tool to a sensor, first select the appropriate port name and click "Next". Now search for the connected sensors.
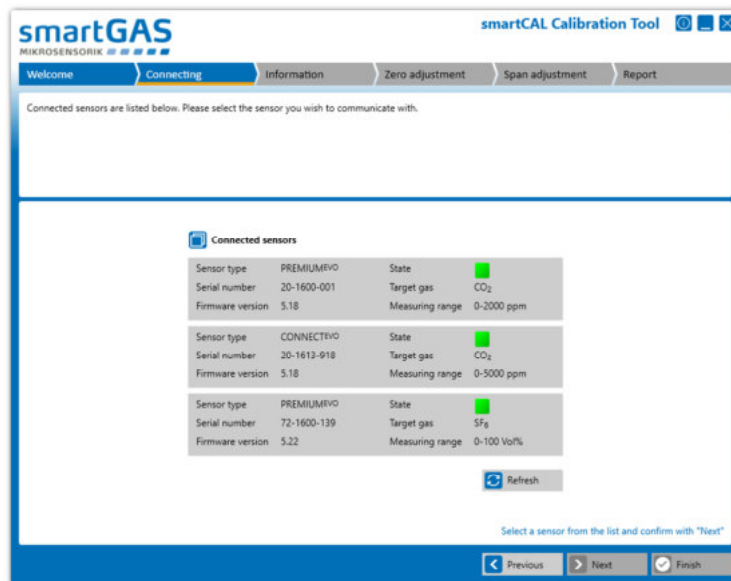
NOTE

If no port name is displayed, check the USB service adapter and computer connection. Also check if the USB service adapter is recognized by Windows and the driver has been installed correctly. You can check this using the Windows Device Manager.

4.2.2   Connected sensors

Select one of the displayed sensors and click on "Next" to get more information about the sensor.
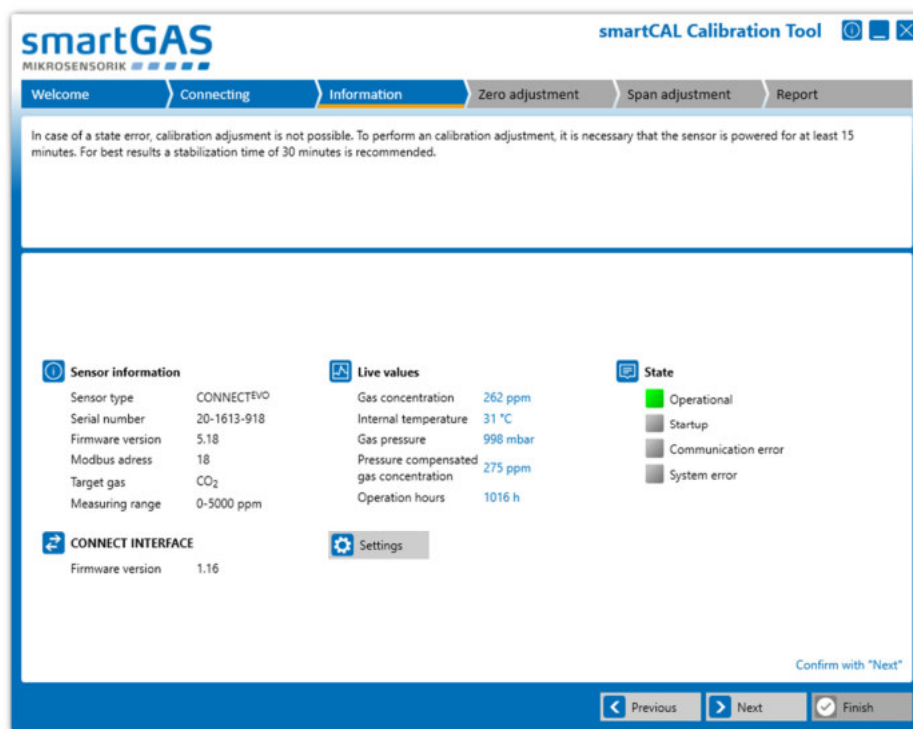

NOTE

If your sensor is not displayed, check the physical connection of the sensor. If necessary, restart the sensor by interrupting the power supply and search again.

4.3   Information

Here you get a detailed overview about the sensor information, the sensor status as well as the corresponding measured values in real time. If a CONNECT INTERFACE is used, the information is extended accordingly.

The "Settings" button allows you to change the Modbus address of the sensor.

i **NOTE**

The Modbus address can be selected from 1 to 247.
Click the "Next" button to go to Zero adjustment.

4.4 Zero adjustment

Before starting the Zero adjustment, you can optionally enter a reference number for the zero gas bottle. Use the "Start" button to start the Zero adjustment.

Use the "Next" button to skip the Zero adjustment and go to the Span adjustment.

NOTE

Always use dry test gas for adjusting smartGAS sensors.
A high purity of the test gas increases the accuracy of the adjustment.

NOTE

Always carry out a Zero adjustment with your smartGAS sensor first.

smartGAS Mikrosensorik GmbH |Huenderstr. 1 | 74080 Heilbronn | Germany
Phone: +49 7131/797553-0 | Fax: +49 7131/797553-10 | www.smartgas.eu|mail@smartgas.eu

Page 10 / 15

During the Zero adjustment, the serial number of the sensor and its measured values are displayed in real time in the left half of the window. The status of the Zero adjustment and the operating conditions are displayed in the right half of the window.

Status of Zero adjustment:

Initialisation:
The measuring signal is checked to meet the conditions for adjustment.

The adjustment is ready for takeover

The adjustment is not ready for takeover. One or more criteria are not met.

The adjustment is accepted and re-validated.

The adjustment is successful and completed.

The adjustment is not successful.

Please confirm the Zero adjustment with the "Accept" button. After that the Zero adjustment is completed with the new Zero point. You will then get the message: "Result 00: Successfully adopted". The Zero adjustment was thus successful.

NOTE
The other results or error codes can be found in the FAQs.

The "Cancel" button can be used to cancel the Zero adjustment. The old zero point is then restored.

4.5   Span adjustment

Before starting the Span adjustment, you must enter the concentration of your test gas so that the adjustment of the Span can be started. In addition you can optionally enter a reference number for the test gas bottle. Use the "Start" button to start Span adjustment. In the following, the adjustment of the Span follows the same procedure of the Zero adjustment. For explanation of the displayed information, see chapter 4.4. Use the "Next" button to skip the Span adjustment and go to the report.

NOTE

The "Reset span" button can be used to reset the Span of the sensor to the factory setting. Nevertheless, a new Span adjustment is recommended then.

5   Report

Here you find all important information about the adjustment and settings of your smartGAS sensor. The window contains general information about the software version and the user, the sensor information as well as information about the applied sensor adjustments. In addition, you have the option to enter individual comments.

By clicking on the "arrow key" on the left side you can extend the display to the results of the Zero and Span adjustment and check again for completeness.

Click the "Finish" button to go to the print options to print the service report.

6 Appendix

6.1 FAQs

(1) Where can I get a license key?

Use the "request a key" link for product activation or contact your sales partner.

(2) The smartGAS Calibration Tool does not find a COM-Port.

Ensure that the service adapter is properly connected to the PC and is recognized by Windows (see Windows Device Manager). Make sure you have correctly installed the driver for the service adapter. If not, reinstall it. A CD with the driver is included with the accessories.

(3) The smartGAS Calibration Tool does not find a sensor.

Make sure the smartGAS sensor is properly connected to the service adapter. Make sure that no other program accesses the COM port you are using. If the sensor cannot be found even after a restart, contact your sales partner to help you.

(4) I used the wrong calibration gas during calibration, can I calibrate the sensor again?

Yes you can perform the calibration again. The smartGAS sensors can be calibrated at any time. smartGAS always recommends the use of dry test gas with high quality. For a good result, the concentration of the test gas should correspond as precisely as possible to the maximum concentration of the smartGAS sensor. If the deviation is too high, the accuracy of the sensor can be reduced.

(5) Error Codes / Results at Zero & Span adjustment

Adjustment can end with the following results:

"Result 01: Not started"

The Zero or Span adjustment was not performed.

"Result 02: Canceled by user"

The zero or Span adjustment has been canceled by the user.

"Result 03: Canceled because of timeout"

Due to a timeout, the Zero or Span adjustment was exited.

"Result 04: Interrupted by communication error"

The Zero or Span adjustment was interrupted because of a communication error with the sensor.

"Result 05: Access denied - wrong serial number"

The Zero or Span adjustment could not be performed. Access to the sensor was denied because of the use of an incorrect serial number.

"Result 06: Gas concentration was outside the tolerance limit when tested"

The Zero or Span adjustment has not been carried out because the concentration of the zero or test gas is outside the permissible limits.

"Result 07: The span adjustment is rejected. The correction value was out of the valid range. The previous correction value is retained."

Span adjustment is out of range.

"Result 08: Adjustment cannot be started during warmup phase"
The Zero or Span adjustment was not carried out since the sensor is still in the warm-up phase.

"Result 09: Adjustment cannot be started because of sensor system error"
The Zero or Span adjustment could not be performed because the sensor is in a error condition.

"Result 0A: Adjustment cannot be started because firmware version must be at least 5.17 or higher"
The Zero or Span adjustment could not be started since the firmware version of the sensor is too low. Only sensors with firmware version 5.17 or higher are supported.

"Result 0B: Adjustment cannot be started because firmware version must be lower than 6.00"
The Zero or Span adjustment could not be started because the firmware version of the sensor is too high.

6.2 Service report

smartGAS Calibration Tool service report

General information

smartGAS Calibration Tool	v1.0.6495.19836	Creation date time	17.10.2017 10:37:54
User name	smartGAS User	Page count	1 of 1

Sensor information

Sensor type	PREMIUMEVO	Target gas	CO_2
Serial number	20-1700-037	Measuring range	0-2000 ppm
Firmware version	5.22	Operation hours	616 h
Modbus adress	37	CONNECT INTERFACE	Firmware version 1.16

Zero adjustment

Result 00: Successfully adopted

Date / time	17.10.2017 10:33:25	
Test gas concentration	0 ppm	
Test gas reference	N2 batch no. 012834	
Internal temperature	26 °C	
	as found	as left
Correction value	16484	16469
Gas concentration	3 ppm	0 ppm

Span adjustment

Result 00: Successfully adopted

Date / time	17.10.2017 10:34:54	
Test gas concentration	1998 ppm	
Test gas reference	CO2 batch no. 352678	
Internal temperature	26 °C	
	as found	as left
Correction value	10433	10491
Gas concentration	1987 ppm	1998 ppm
Span reset	Not done	

Comment

measurement site no. 3
application: demo plant

smartGAS Mikrosensorik GmbH |Huenderstr. 1 | 74080 Heilbronn | Germany
Phone: +49 7131/797553-0 | Fax: +49 7131/797553-10 | www.smartgas.eu|mail@smartgas.eu

Page 15 / 15