

Manual

Software GLOSS CALIB Scope V1.0

(PC software for Microsoft® Windows® 7, 8, 10)

for sensors of GLOSS Series

These operating instructions are intended for the installation and commissioning of the GLOSS CALIB Scope PC software.

The sensor must be calibrated for gloss level detection. This requires a reference surface, which by definition has a gloss values of approx. 100 GU (Gloss Units). The calibration is then performed using the PC software.

The software was developed exclusively to calibrate sensors of the GLOSS series to a reference surface.

In order to use the full functionality of the sensor, the higher-level PC software with all functional elements is required. This is available from the respective supplier.

Calibration can be performed either via RS232 or Ethernet (using an Ethernet converter). In addition, measured values from the sensor can be displayed on the PC surface.

After calibration, the sensor continues to operate in STAND-ALONE mode without a PC.

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Shortcuts:

GO	F11
STOP	F12

1 Installation of the GLOSS CALIB Scope software

The following requirements must be fulfilled for successful installation of the software:

- Microsoft® Windows® 7, 8, 10
- IBM PC AT or compatible
- VGA graphics
- Microsoft-compatible mouse
- Serial RS232 interface at the PC or USB slot or RJ45 connector
- Cable **cab-las4/PC** for the RS232 interface or **cab-4/USB** USB converter or **cab-4/ETH** Ethernet converter

Please install the software as described below:

1. You can download the software via a provided download link or, if applicable, install it via the provided software DVD. To install the software, start the 'SETUP' program in the 'SOFTWARE' folder.
2. The installation program displays a dialog and suggests to install the software in the C:\"FILENAME" directory on the hard disk. You may accept this suggestion with OK or [ENTER], or you may change the path as desired. Installation is then performed automatically.
3. During the installation process a new program group for the software is created in the Windows Program Manager. In the program group an icon for starting the software is created automatically. When installation is successfully completed the installation program displays "Setup OK".
4. After successful installation the software can be started with a left mouse button double-click on the icon.

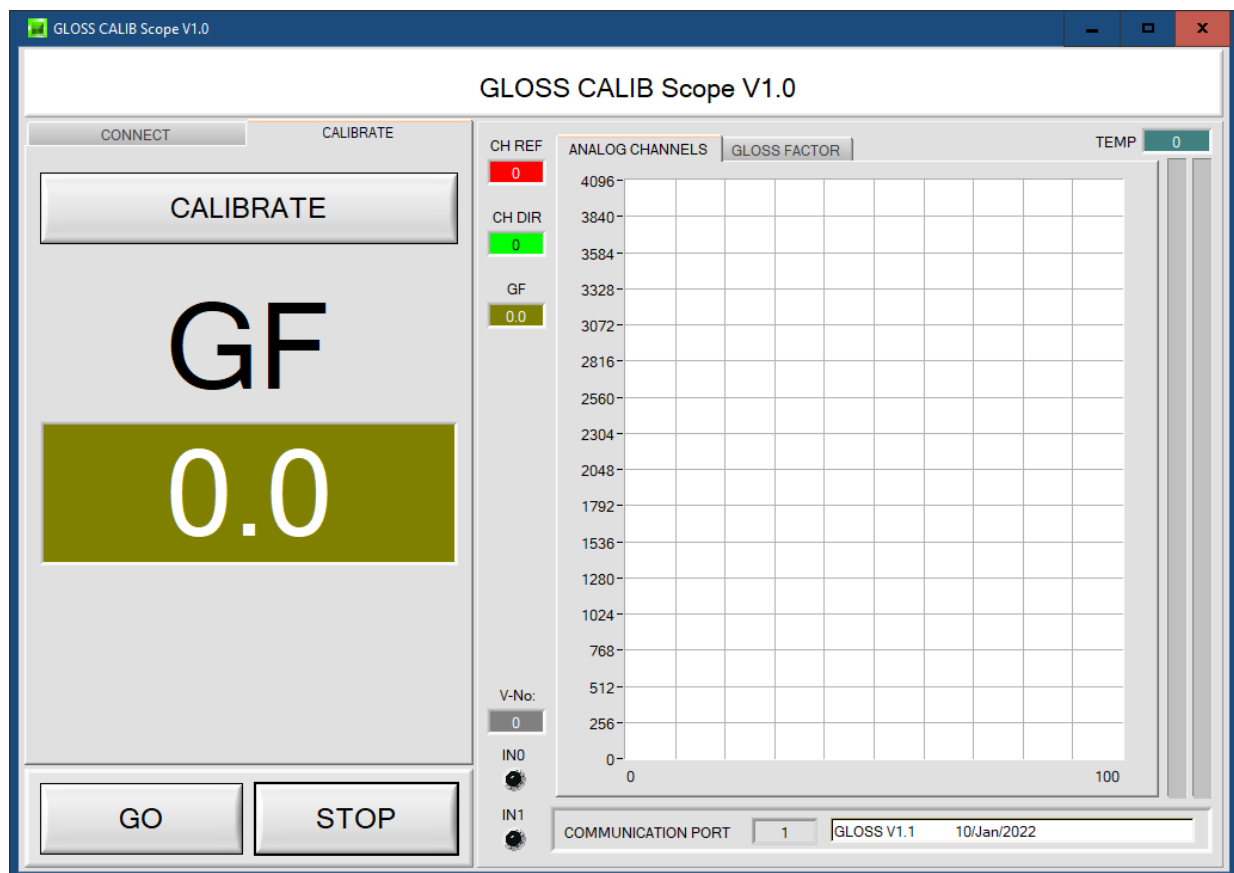
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2 Operation of the GLOSS CALIB Scope software

Please read this chapter first before you start to adjust and calibrate the sensor system.

When the GLOSS CALIB Scope software is started, the following window appears on the Windows interface:

TIP! To avoid problems with the handling of the file path, it is advisable to run the software as administrator. You can either set this in the **Properties** under **Compatibility** or you start the software with a right click and choose "Run as administrator".



The window size and position will be the same as when the software was last closed. A double-click with the right mouse button e.g. under the minimise symbol places the window centrally in its original size.

If a connection is not established automatically, e.g. if no sensor is connected, the software can be run in OFFLINE mode. In offline mode it only is possible to exchange parameters with a file on a storage medium, which often is helpful for the purpose of analysing parameter files.

If a sensor is connected and a connection still cannot be established, either the SCOPE version (program at the PC) and the firmware version (program in the sensor) do not match, or the interface to the sensor must be correctly configured.

If different Scope and firmware versions should be the problem, please get the Scope version that matches the firmware from your supplier.

The interface configuration is described in the CONNECT tab chapter.

Pressing the right mouse button on an individual element will call up a short help text.

Due to a better overview, parameters that are not required, displays, graphs, etc., are greyed out or invisible depending on the parameterization.

2.1 Tab CONNECT

CONNECT:

Pressing the **CONNECT** tab opens a window for selecting and configuring the interface.

The **COMMUNICATION PROTOCOL** function field is used for selecting either an **RS232** or a **TCP/IP** protocol.

If **RS232** is selected, a port from 1 to 256 can be selected with **SELECT COM PORT**, depending on which port the sensor is connected to. The sensor operates with a set baudrate that can be modified with **CHANGE BAUDRATE** (see below). The sensor and the user interface both must operate with the same baudrate.

At the user interface the baudrate is set with **SELECT BAUDRATE**. If after starting the software should not automatically establish a connection, the correct baudrate can be found with **SELECT BAUDRATE**.

If an converter is used, the **COM PORT** number can be determined by way of the hardware manager in the system control panel.

Click on the magnifier icon to show a list of all possible COM ports in the display.

An RS232 to Ethernet converter (**cab-4/ETH**) is needed if the sensor should communicate through a local network. With this converter a connection to the sensor can be established using the **TCP/IP** protocol.

Parameterisation of the **cab-4/ETH** converter (assigning of IP address, baudrate setting, ...) can be done with the **SensorFinder software** that is available free of charge on the internet.

In order to establish a connection to the converter, its IP address or HOST name must be entered in the field **IP ADDRESS (xxx.xxx.xxx.xxx) OR HOST NAME**. The DROP DOWN menu (down arrow) shows the last 10 IP addresses that were used. An address from this list can be directly selected by clicking on the respective item. The DROP DOWN list is saved and is thus always available when the software is closed.

The **PORT NUMBER** for the network converter is 5000. This port number must not be changed.


When you press the **TRY TO CONNECT** button, the software tries to establish a connection with the set parameters. The communication status is shown in the display field. If the sensor answers with its FIRMWARE ID, the set connection type can be accepted by pressing **ACCEPT SETTINGS**. You will then be returned to the **PARA** tab. If you get a **TIMEOUT** message, the software could not establish a connection to the sensor. In this case please check if the interface cable is correctly connected, if the sensor is supplied with power, and if the set parameters are correct. If a connection has been accepted by pressing **ACCEPT SETTINGS**, the software starts automatically with these settings when called the next time.

DISCONNECT disconnects the connection between sensor and PC. The software then switches to OFFLINE mode, where it is only possible to exchange parameters with a file on a storage medium.

Under **PANEL ID** a name can be entered that will be displayed at different points in the program window, and that will be recorded in different files (e.g. Record File) as well.

With the input field **LANGUAGE** a language can be set with which the individual controls are displayed on the surface. This also applies to the help function that is actuated with the right mouse button.

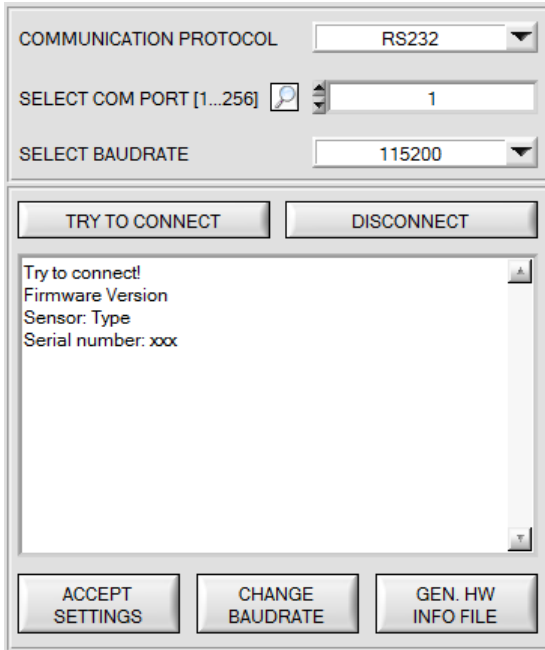
Please note: **The stable function of the interface is a basic prerequisite for measured value transfer from the PC to the sensor.**



Due to the limited data transfer rate through the serial RS232 interface only slow changes of the raw signals at the sensor front end can be observed in the graphic output window of the PC.

For maintaining maximum switching frequency at the sensor data communication with the PC must be stopped (press the STOP button).

ATTENTION !

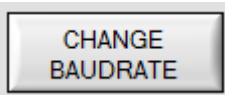


The baudrate for data transfer through the RS232 interface can be set by means of the **SELECT BAUDRATE** drop down menu and **CHANGE BAUDRATE** function field.

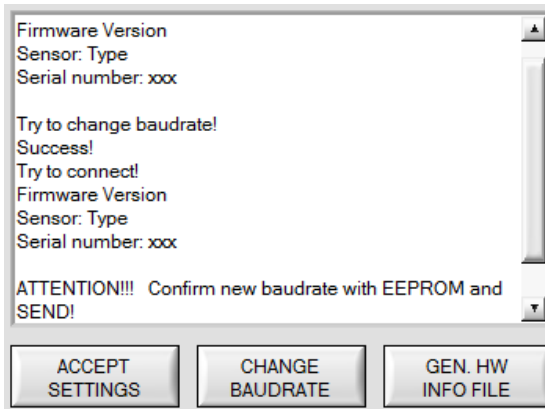
If the baudrate should be changed, a connection must first be established by clicking on **TRY TO CONNECT**. The **CHANGE BAUDRATE** button will then be active.



Now a new baudrate can be selected under **SELECT BAUDRATE**.

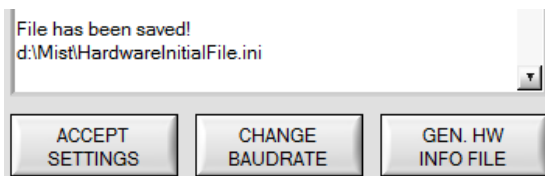


A click on **CHANGE BAUDRATE** sends the new baudrate information to the sensor.



When the new baudrate information has been successfully sent, the sensor operates with the new baudrate. A window will pop up, prompting you to select **EEPROM** and then to press **SEND**. After a hardware reset the new baudrate only will be used when **EEPROM** and **SEND** have been pressed.

A click on **ACCEPT SETTINGS** saves the current interface settings, which will then be automatically set when the software is restarted.



A click on the **GEN. HW INFO FILE** generates a file in which all the important sensor data are stored in encrypted form. This file can be sent to the manufacturer for diagnostic purposes.

2.2 Tab CALIBRATE



CALIBRATE:

Pressing **CALIBRATE** opens a view where you can perform the calibration to the reference surface.

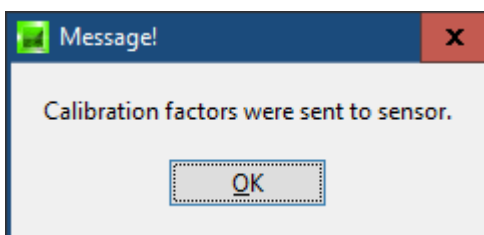
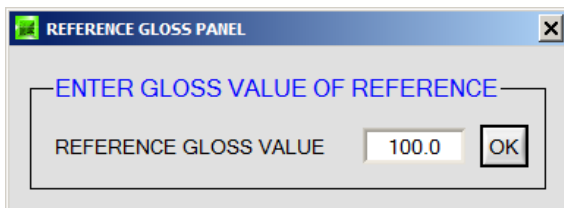
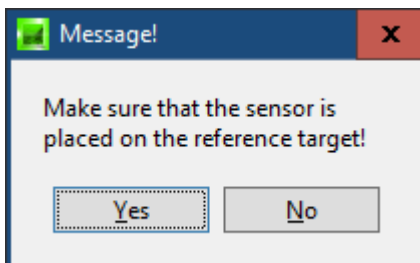
The sensors of the GLOSS series must be calibrated from time to time like any measuring instrument. Calibration can be performed using a reference surface available from the supplier.

After pressing **CALIBRATE**, you will be prompted to present the calibration dish with the reference surface to the sensor.

Confirm with **YES** as soon as the reference surface is available.

Then enter the gloss value of the reference surface and confirm with **OK**.

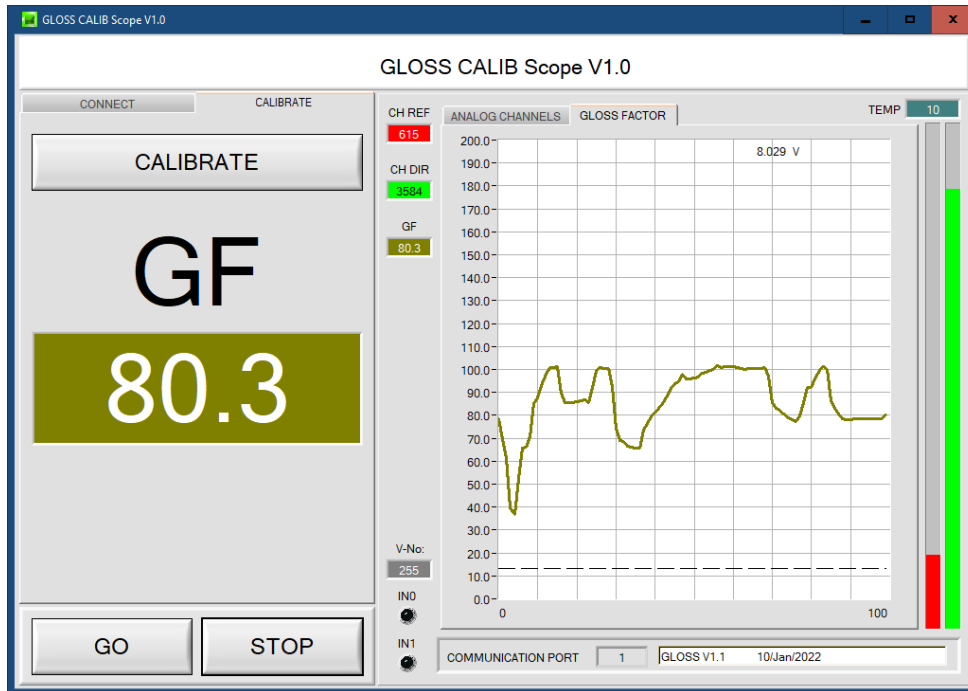
On the calibration dishes, the **Gloss Value** of the calibration dish can be found on a sticker inside the dish.



Now the channels **CH DIR** or **CH REF** are stored as references for the reference surface in the EEPROM of the sensor, i.e. you do NOT have to perform the calibration every time the sensor is restarted.

2.3 Tab GO, STOP, and graphic display elements

After clicking GO, the data transfer from the sensor to the PC is started. The data is shown in the display elements and on the PC surface. Press STOP to end the data exchange.



These displays indicate the data that are currently measured at the sensor.

CH REF = Reference channel

CH DIR = Direct reflection

On the right side of the graph the data are additionally visualised in the form of bars. In the graph under the **ANALOG CHANNELS** tab the data also are displayed as continuous lines.

GF:

This display shows the calculated gloss factor.

The value is displayed in Gloss Units (GU).

A double-click on this display calls up a large display.

In the graph under the **GLOSS FACTOR** tab the gloss factor **GF** also is displayed as a continuous line. The tolerance window that is set under **No.:** also is displayed here.

PP:

Is the peak-to-peak value of the profile buffer.



V-No:

This numerical value output field displays the currently detected vector number in accordance with the entry in the **TEACH TABLE**. The currently detected vector number is sent to the digital outputs as a corresponding bit pattern. If value 255 is displayed, no value has been detected that corresponds to the values taught to the **TEACH TABLE**.

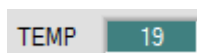
A double-click on this display calls up a large display.

IN0 and IN1:

The LEDs visualise the physical state of inputs IN0 and IN1.

When the LED is black, the input is at 0V.

When the LED is green, the input is at +24V


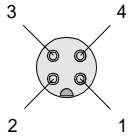


TEMP:

This display shows the current temperature that is measured in the sensor housing. (!!! not in °C)

3 Connector assignment of the GLOSS sensors


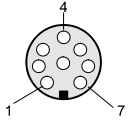
Connection of GLOSS to PC:

4-pole M5 fem. connector (type Binder 707) GLOSS/PC-RS232		 
Pin No.:		Assignment:
1		+24VDC (+Ub)
2		0V (GND)
3		Rx0
4		Tx0

Available connecting cables:

- cab-las4/PC-...
- cab-4/USB-...
- cab-4/ETH-...

Connection of GLOSS to PLC:

8-pole fem. connector (type Binder 712) GLOSS/PLC		 
Pin No.:	Color of wire: (cab-las8/SPS)	Assignment:
1	white	0V (GND)
2	brown	+24V ($\pm 10\%$)
3	green	IN0 (Digital 0: 0 ... 1V, Digital 1: +Ub – 10%)
4	yellow	IN1 (Digital 0: 0 ... 1V, Digital 1: +Ub – 10%)
5	grey	OUT0 (Digital 0: 0 ... 1V, Digital 1: +Ub – 10%)
6	pink	OUT1 (Digital 0: 0 ... 1V, Digital 1: +Ub – 10%)
7	blue	OUT2 (Digital 0: 0 ... 1V, Digital 1: +Ub – 10%)
8	red	ANALOG 0...10V or 4...20mA

Connecting cable:

- cab-las8/SPS-...