

Manual

Software

SPECTRO3-MSM-ANA-MONITORING V1.1

for color sensors of the SPECTRO-3-MSM-ANA series

This manual describes the installation and operation of the SPECTRO3-MSM-ANA-MONITORING PC software version V1.1.

The software was developed for configuring up to 8 color sensors of the SPECTRO-3-MSM-ANA series in a multi-sensor system that can be used for the continuous inline measurement and control of surfaces at several measuring points at the same time. Measurement values are recorded and are also displayed at the PC monitor, and they can be printed out after the end of recording.

The software concept provides two user levels: A password-protected administrator function for configuring the inline measurement system and for setting all the parameters for operation, and an easy-to-use user function that only allows the setting of the start and end of recording with input of production parameters (that have been determined by the administrator). The print function also is available for the normal user.

As a support for commissioning and operation of the SPECTRO3-MSM-ANA-MONITORING software this manual explains the individual functional elements of the graphic Windows® user interface.

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Shortcuts:

SEND	F9
GET	F10
GO	F11
STOP	F12

1 Installation of the SPECTRO3-MSM-ANA-MONITORING software

Hardware requirements for successful installation of the SPECTRO3-MSM-ANA-MONITORING software:

- Microsoft® Windows® XP, VISTA, 7
- IBM PC AT or compatible
- VGA graphics
- Microsoft-compatible mouse
- CD-ROM drive
- Serial RS232 interface at the PC or USB slot
- Cable **cab-las4/PC** for the RS232 interface **or cab-las4/USB** for USB slot

The SPECTRO3-MSM-ANA-MONITORING software can only be installed under Windows. Windows must therefore be started first, if it is not yet running.

Please install the software as described below:

1. The software can be installed directly from the installation CD-ROM. The CD-ROM contains a folder named INSTALL, where you can find a SETUP program. Start this SETUP program to install the software.
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.
3. During the installation process a new program group for the software is created in the Windows Program Manager. In the this program group an icon for starting the software is created automatically. When installation is successfully completed the installation program displays a "Setup OK" message.
4. After successful installation the software can be started with a left mouse button double-click on the icon.

Windows® is a registered trademark of Microsoft Corp.

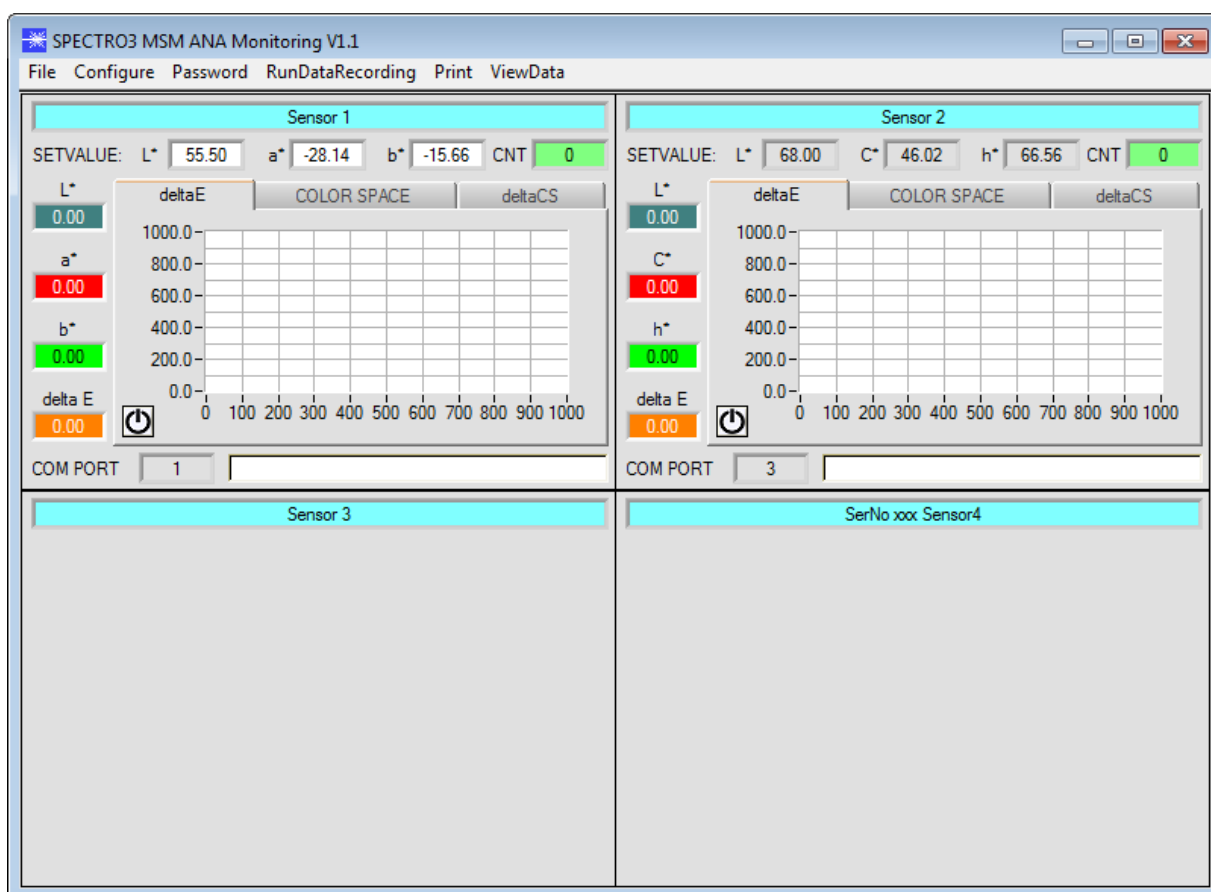
VGA™ is a trademark of International Business Machines Corp.

2 Operation of the SPECTRO3-MSM-ANA-MONITORING software

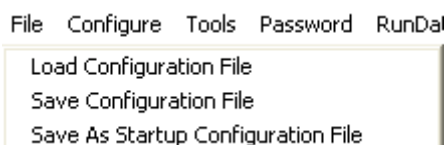
2.1 Software description

Please read this chapter before you start the process of initialising the software.

When the **SPECTRO3-MSM-ANA-MONITORING** software is started, the following window appears on the Windows user interface. Depending on the settings in the "**Startup Configuration File**", various elements are displayed.

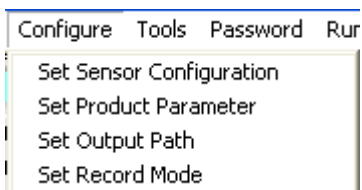


2.1.1 "File" menu



In the "**File**" menu, configuration files that are set under "**Configure**" can be saved to a file or loaded from a file. The "**Save As Startup Configuration File**" item defines the currently set parameters as startup parameters, i.e. these parameters will be loaded automatically when the software is started.

2.1.2 "Configure" menu



The **"Configure"** menu can be used for performing certain parameter presets.

A click on **"Set Sensor Configuration"** opens the following **SENSOR CONFIGURATION PANEL**:

If data should be recorded from a sensor, the sensor must be activated with **"ENABLE"**.

In the **"INSERT SENSOR NAME"** field a name can be assigned to the sensor. This name will then be displayed in the main window, saved in the output file, and will also be printed.

In the main window **delta E** is shown in a display and visualised in a graph.

The **MONITORING** software calculates **delta E**, in the following using the example of $L^*a^*b^*$:

$$\text{delta}E = \sqrt{(\text{Setvalue_}L^* - L^*)^2 + (\text{Setvalue_}a^* - a^*)^2 + (\text{Setvalue_}b^* - b^*)^2}$$

L^* , a^* , b^* are the current data coming from the sensor.

The reference values **Setvalue L^*** , **Setvalue a^*** , **Setvalue b^*** are preset in the **SENSOR CONFIGURATION PANEL**. **FIXED SETVALUES** allows the user to change the values in the main window while data recording is running.

In the **delta E TOLERANCE** field a threshold can be set for the **delta E graph** in the main window. If the current **delta E** value exceeds this threshold, or if **delta E=-1**, the background of the graph and of the **delta E** display will turn red.

The interface between a sensor and the PC is specified under **"SELECT CONNECTION"**.

A click on **"Set Product Parameter"** opens the **PRODUCT PARAMETER CONFIGURATION PANEL**:

PRODUCT PARAMETER CONFIGURATION PANEL

ENABLE AND SELECT PRODUCT PARAMETERS, WHICH ARE FIX AND MUST BE STORED IN THE OUTPUT FILE AND PRINTED AT THE REPORT

☒ ENABLE PRODUCT PARAMETER 1

☒ ENABLE PRODUCT PARAMETER 2

☐ ENABLE PRODUCT PARAMETER 3

☐ ENABLE PRODUCT PARAMETER 4

☐ ENABLE PRODUCT PARAMETER 5

ENABLE AND SELECT PRODUCT PARAMETERS, WHICH MUST BE ENTERED BY THE MACHINE OPERATOR WHEN THE MEASUREMENT STARTS

☒ ENABLE PRODUCT PARAMETER 6

☒ ENABLE PRODUCT PARAMETER 7

☒ ENABLE PRODUCT PARAMETER 8

☒ ENABLE PRODUCT PARAMETER 9

☐ ENABLE PRODUCT PARAMETER 10

ATTENTION! Don't use the signs / \ : . * ? " < > |

There are 5 parameters that can be individually entered. All these data are fixed and are, if they are enabled, saved in the file and printed in the report. Parameters 6 to 10, if they are enabled, must be entered by the operator after pressing **"Start"**. These data also are saved in the file and printed.

Attention!
The characters / \ : . * ? " < > | must not be used.

Insert Product Parameter

Example Product Number

OK

Example:
"ENABLE PRODUCT PARAMETER 6" is activated and is assigned the input of "Example Product Number".
When "RunDataRecording" and "Start" is pressed, a window will appear prompting the operator to enter a Product Number.

A click on **"Set Output Path"** opens the **OUTPUT FILE CONFIGURATION PANEL**:

OUTPUT FILE CONFIGURATION PANEL

SELECT HOW TO CREATE THE OUTPUT FILENAME

☒ **SAVE DATA TO FILE**

Output Directory: d:\Mist

SELECT A FILE EXTENSION xxx. **dat**

☐ OPERATOR CREATES FILENAME MANUALLY

☒ **CREATE FILENAME AUTOMATICALLY**

- ☒ PRODUCT PARAMETER 1
- ☐ PRODUCT PARAMETER 2
- ☐ PRODUCT PARAMETER 3
- ☐ PRODUCT PARAMETER 4
- ☐ PRODUCT PARAMETER 5
- ☐ PRODUCT PARAMETER 6
- ☐ PRODUCT PARAMETER 7
- ☐ PRODUCT PARAMETER 8
- ☐ PRODUCT PARAMETER 9
- ☐ PRODUCT PARAMETER 10

SELECT DATA WHICH SHOULD BE SAVED TO FILE

<input checked="" type="checkbox"/> Red	<input checked="" type="checkbox"/> Y i	<input checked="" type="checkbox"/> GRP	<input checked="" type="checkbox"/> RAW G
<input checked="" type="checkbox"/> Green	<input checked="" type="checkbox"/> Int M	<input checked="" type="checkbox"/> Trigger	<input checked="" type="checkbox"/> RAW B
<input checked="" type="checkbox"/> Blue	<input checked="" type="checkbox"/> delta C	<input checked="" type="checkbox"/> TEMP	
<input checked="" type="checkbox"/> X s	<input checked="" type="checkbox"/> C-No:	<input checked="" type="checkbox"/> RAW R	

This window is used for defining the output file.

„**SAVE DATA TO FILE**“ determines whether the data should be stored to a file, or whether they should be visualized only. If „**SAVE DATA TO FILE**“ is not enabled, all setting possibilities will be faded out.

If **"OPERATOR CREATES FILENAME MANUALLY"** is activated, the software, after the operator presses **"Start"**, prompts the operator to define an output file.

If **"CREATE FILENAME AUTOMATICALLY"** is activated, the software automatically creates the output file.

The output path is determined with **"Output Directory"**.

The file name comprises the activated **"PRODUCT PARAMETER"**, the sensor name and the extension defined under **"SELECT A FILE EXTENSION"**.

Under **„SELECT DATA WHICH SHOULD BE SAVED TO FILE“** that data are selected, which should be stored.

INFO!

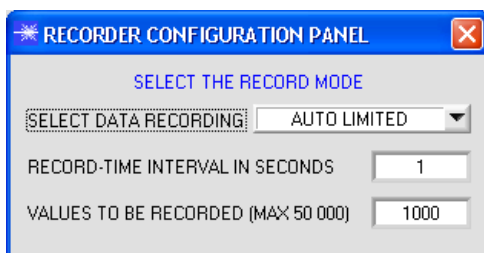
If the output file should be opened with Microsoft EXCEL, the regional settings in Windows should first be set to an Anglo-American country (Great Britain, USA, ...). The reason for this is that EXCEL interprets a number with comma as a date information. If the file is saved in Anglo-American mode and the regional settings are then set back to your respective country, EXCEL will recognise a number with comma correctly. If the file is saved in the Anglo-American mode, and if the regional settings are then set back to the respective country, EXCEL recognises the gloss factor as a floating point number.

The following steps must be performed to change to an Anglo-American language:

Start → Settings → Control Panel → Regional and Language Settings

An Anglo-American language can then be selected in the "Regional Settings" tab.

A click on **"Select Record Mode"** opens the **RECORDER CONFIGURATION PANEL**:

The window is titled "RECORDER CONFIGURATION PANEL" with a blue header bar. Below the header, it says "SELECT THE RECORD MODE". There is a dropdown menu labeled "SELECT DATA RECORDING" with "AUTO LIMITED" selected. Below this, there are two input fields: "RECORD-TIME INTERVAL IN SECONDS" with the value "1" and "VALUES TO BE RECORDED (MAX 50 000)" with the value "1000".

This window is used for determining the data recording mode.

With **"AUTO LIMITED"**, an adjustable number of data is recorded after an adjustable time interval.

With **"AUTO UNLIMITED"** data are recorded after an adjustable time interval until recording is stopped by pressing "Stop".

With **"AUTO TRIGGERED"** the sensor automatically sends data which are then recorded and saved.

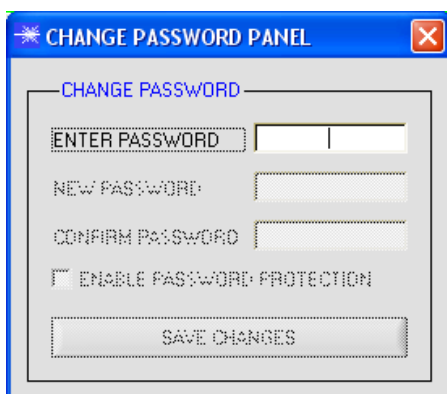
Attention!

For using the **"AUTO TRIGGERED"** function the sensor must operate in one of the trigger modes, because data only are sent when the trigger condition drops (cf. instruction manual SPECTRO3-Scope).

2.1.3 "Password" menu

A menu with a blue header bar. The header contains "Password", "RunDataRecording", "Print", and "Vik". The menu items are "Activate Password Protection", "Deactivate Password Protection", and "Change Password".

The **"File"** and **"Configure"** items can be protected by a password. Password protection can be enabled and disabled. The default password is: 0000000000 (in words: 10 zeroes). The password can be individually changed.

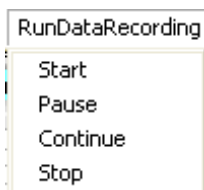
The window is titled "CHANGE PASSWORD PANEL" with a blue header bar. Below the header, it says "CHANGE PASSWORD". There are three input fields: "ENTER PASSWORD", "NEW PASSWORD", and "CONFIRM PASSWORD". Below these is a checkbox labeled "ENABLE PASSWORD PROTECTION". At the bottom is a button labeled "SAVE CHANGES".

When password protection is enabled, the menu items **"File"** and **"Configuration"** only can be accessed after pressing **"Deactivate Password Protection"** and entering the correct password.

Attention!

Password protection must be activated again with **"Activate Password Protection"**.

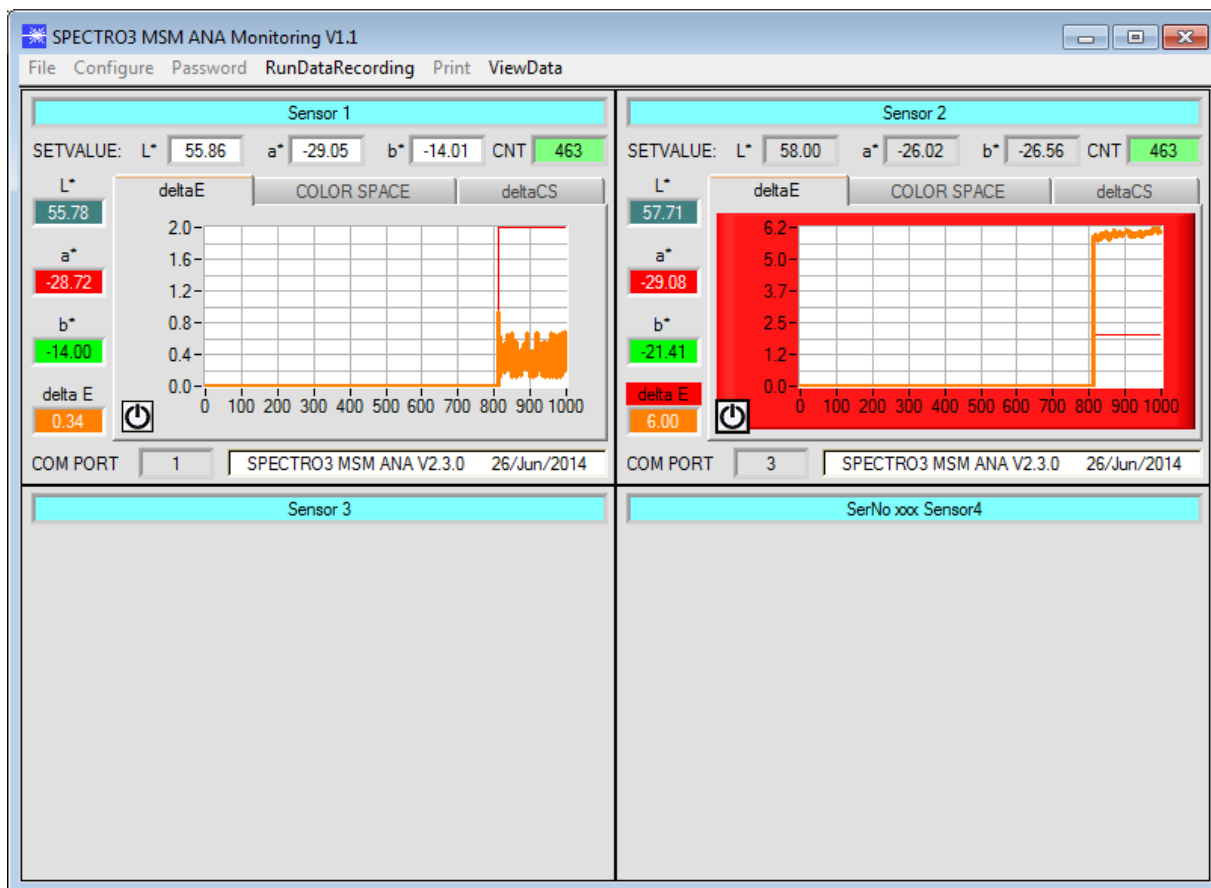
2.1.4 "RunDataRecording" menu



In this menu item data recording can be started with "**Start**" and stopped with "**Stop**". Data recording furthermore can be paused with "**Pause**" and then continue again with "**Continue**".

When "**Start**" is pressed, the product parameters 6 to 10 that are enabled in "**Set Product Parameter**" must be entered.

If **OPERATOR CREATES FILENAME MANUALLY** is activated under "**Set Output Path**", the operator will be prompted to specify a file.



The data that are selected in the **OUTPUT FILE CONFIGURATION PANEL** are immediately saved in the correspondingly created file, if this is activated, and are visualised on the screen. The **CNT** display shows the total number of recorded values.

The current values of and **delta E** are displayed in the respective fields left of the graph.

The **SETVALUES** that are set in the **SENSOR CONFIGURATION PANEL** are displayed above the graph. If **FIXED SETVALUES** is deactivated in the **SENSOR CONFIGURATION PANEL**, the **SETVALUE** function elements have a white background, and the current values that are shown in the display fields can be directly adopted as **SETVALUES** with a right-click on one of the function elements.

The **delta E** tab provides a display that in a graph visualises **delta E** and the **delta E TOLERANCE** that is set in the **SENSOR CONFIGURATION PANEL**. If the current value of **delta E** exceeds the tolerance threshold, the background of the graph and of the **delta E** display will turn red.

The current color space values are displayed under the **COLOR SPACE** tabs.

The **deltaCF** tab provides a graphic representation of the deviations of the individual color coordinates and of the brightness value of the current surface from the specified **SETVALUES**.

The values are calculated on the PC user interface and not in the sensor, and are only displayed in this graph.

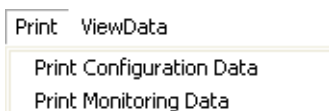
For memory capacity reasons the graphs only show the last 1000 values.

The output file, however, contains all the values.



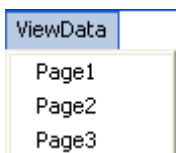
A click on the **RESET** button sets the graphs in all three tabs to zero.

2.1.5 "Print" menu



A stored configuration file can be selected and printed by pressing **"Print Configuration Data"**. **"Print Monitoring Data"** prints the activated product parameters and a screenshot of the current user interface.

2.1.6 "ViewData" menu



For reasons of space only 4 sensors can be displayed on a screen. **"Page1"** and **"Page2"** can be used to toggle between the first 4 and the last 4 sensors. **"Page3"**, however, displays the delta C and the C-No. of all 8 connected sensors.

Attention! The display only shows the sensors that are set to enabled.

