

# SPECTRO3-ANA-Scope: Changes due to software update from SPECTRO3-ANA-Scope V1.3 to V1.4

The text below summarises the changes that were made with the software update from **SPECTRO3 ANA V1.3** to **V1.4**.

A software update from V1.x to V1.4 can be performed quite easily.

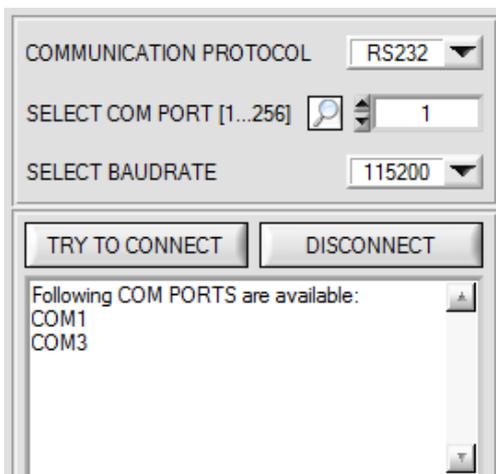
All you need is the FirmwareLoader V1.1 and the firmware files for version 1.4.

The FirmwareLoader V1.1 can be found on the CD that is provided with the sensor or can be downloaded from our homepage.

The firmware files are available from your sensor supplier.

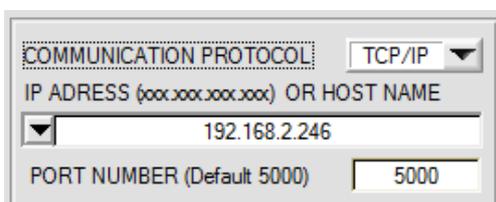
The respective procedure is exactly described in the "[Manual FirmwareLoader V1\\_1](#)" file.

## Change 1:



A click on the magnifier symbol in the **CONNECT** tab opens a list with all the possible **COM PORTS** in the display.

## Change 2:



The **PORT NUMBER** for a TCP/IP connection as standard is pre-initialised as **5000**.

The **cab-4/ETH** RS232 to Ethernet adaptor now is available for communication of the sensor through a local network. With this adaptor a connection to the sensor can be established using the **TCP/IP** protocol.

Parameterisation of the **cab-4/ETH** adaptor (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 through the adaptor, its IP address or HOST name must be entered in the input 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.

The **PORT NUMBER** for the network adaptor is set as **5000** and must not be changed.

## Change 3:

### Introduction of POWER MODE = DOUBLE:

If an application involves both very bright and very dark surfaces, and the sensor is set such that it is not in saturation at the bright surfaces, the dark surfaces frequently provide only a very low signal.

Little variations with a very low signal lead to a large change in color space calculation. To minimise this effect, the sensor in **PMODE = DOUBLE** automatically switches back and forth between 2 **POWER PARAMETER sets**. It starts with set 2, which must be parameterised such that the signal is maximally amplified.

When the signal is too high (saturation), it automatically switches to set 1.

To get correct color space coordinates with parameter set 2, a correction factor must be used for the signal.

The two parameter sets must be set at the sensor in advance.

When you click on **SET PP** (Set Power Parameter) a window will open at the right side, where you can set two parameter sets. A parameter set is defined by **POWER, GAIN** and **INTEGRAL**.

The screenshot displays the sensor control interface. On the left, there are two panels for setting parameters. The top panel shows 'POWER MODE' set to 'STATIC' and 'POWER (pm)' at 800. The bottom panel shows 'POWER MODE' set to 'DOUBLE'. To the right, there are three assignment buttons (ASSIGN 1, 2, 3) and a 'CLOSE' button. Below these are tables for 'POWER PARAMETER (PP)', 'RGB VALUES', and 'CORRECTION VALUES'. The 'POWER PARAMETER (PP)' table has two rows: Row 1 (POW: 725, GAIN: 5, INT: 1) and Row 2 (POW: 800, GAIN: 6, INT: 1). The 'RGB VALUES' table has three rows: BRIGHT PP1 (R: 3218, G: 2920, B: 2510), DARK PP1 (R: 382, G: 346, B: 295), and DARK PP2 (R: 1068, G: 963, B: 832). The 'CORRECTION VALUES' table has three columns: R (2.80), G (2.78), B (2.82). A 'POWER PARAMETER SET' display shows '0'. A help window titled '? POWER PARAMETER' is open, providing instructions on how to use the assignment buttons and the 'SEND' button to set parameters and correction values.

	POW	GAIN	INT
1	725	5	1
2	800	6	1

	R	G	B
BRIGHT PP1	3218	2920	2510
DARK PP1	382	346	295
DARK PP2	1068	963	832

	R	G	B
	2.80	2.78	2.82

POWER PARAMETER SET: 0

**? POWER PARAMETER**

Place the sensor to the bright target.

POWER MODE must be STATIC.  
LED MODE must be AC.  
Push GO and adjust a proper POWER, GAIN and INTEGRAL value so that the highest value of RED, GREEN, BLUE (RGB) is approximately 3000.  
Push ASSIGN 1 to assign the POWER PARAMETER and RGB values of the bright target to the tables.

Now place the darker target to the sensor.

Push ASSIGN 2 to assign the RGB values of the dark target to the table.

After that adjust a proper POWER, GAIN and INTEGRAL value so that the highest value of RGB is approximately 1000.  
Push ASSIGN 3 to assign the POWER PARAMETER and RGB values of the darker target to the tables.

Now push SEND to send the parameters and correction values to the sensor.

### Setting the parameter sets:

Set **LED MODE = AC** and **POWER MODE = STATIC**.

Place the brightest surface before the sensor, and select suitable **POWER, GAIN** and **INTEGRAL** values so that the brightest channel is at approx. 3000 digits.

Then click on **ASSIGN 1** to write the power parameters to row 1 in the **PP** table.

The RGB values are written to the **RGB VALUES** table.

Now place the darkest surface before the sensor.

Click on **ASSIGN 2**, and the RGB values are written to the DARK PP1 row of the **RGB VALUES** table.

Now set **POWER, GAIN** and **INTEGRAL** such that the highest value is at approx. 1000.

Click on **ASSIGN 3** to write the power parameters to row 2 in the **PP** table, and the RGB values to the **RGB VALUES** table.

The correction values are calculated automatically and are written to the **CORRECTION VALUES** table.

### INFO!

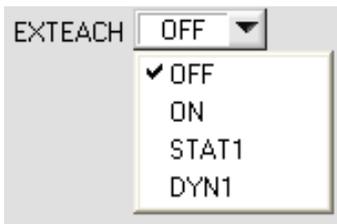
The power parameter sets only become active when you click on **SEND!**

The tables only are used to display the values. They cannot be edited.

The **POWER PARAMETER SET** display shows which parameter set the sensor currently uses.

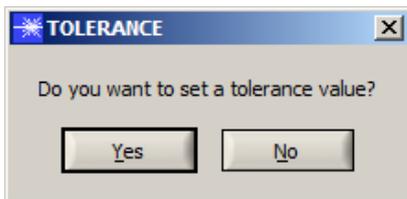
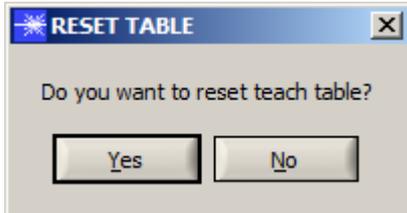
When the display shows 0, the sensor operates with the settings in the **PARA1** tab.

## Change 4:



When **EXTEACH** is activated you will be asked whether the **TEACH TABLE** should be reset.

Depending on **EVALMODE** you also will be asked to set a color tolerance and an intensity tolerance.



## Change 5:

A screenshot of a grid representing the TEACH TABLE. The grid has 64 rows (numbered 48 to 63) and 6 columns (X, Y, CTO, INT, ITO). Each cell contains the value '1'. The rightmost column (ITO) has a color bar on its right side, with each row having a different color. The rows are numbered 48 to 63 in red text.

	X	Y	CTO	INT	ITO
48	1	1	1	1	1
49	1	1	1	1	1
50	1	1	1	1	1
51	1	1	1	1	1
52	1	1	1	1	1
53	1	1	1	1	1
54	1	1	1	1	1
55	1	1	1	1	1
56	1	1	1	1	1
57	1	1	1	1	1
58	1	1	1	1	1
59	1	1	1	1	1
60	1	1	1	1	1
61	1	1	1	1	1
62	1	1	1	1	1
63	1	1	1	1	1

The **TEACH TABLE** was extended to 64 entries.

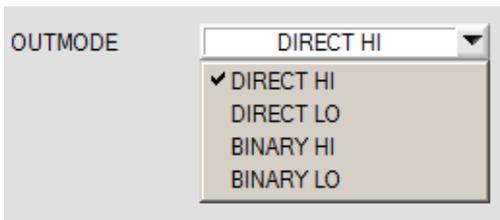
Rows that cannot be directly provided at the outputs have a gray background.

The rows, however, can be used for forming groups.

Through the serial interface the detected **C-No:** can be read directly.

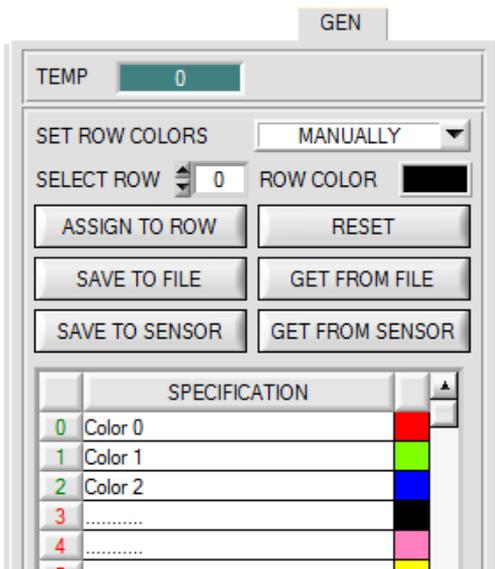


### Change 6:



Introduction of **BINARY HI** and **BINARY LO**.  
**BINARY HI** is the same as the familiar **BINARY** mode.  
**BINARY LO** is the inverse bit pattern.

### Change 7:



With **SAVE TO SENSOR** and **GET FROM SENSOR** the **TABLE ATTRIBUTES** can now be saved to the sensor and loaded from the sensor.

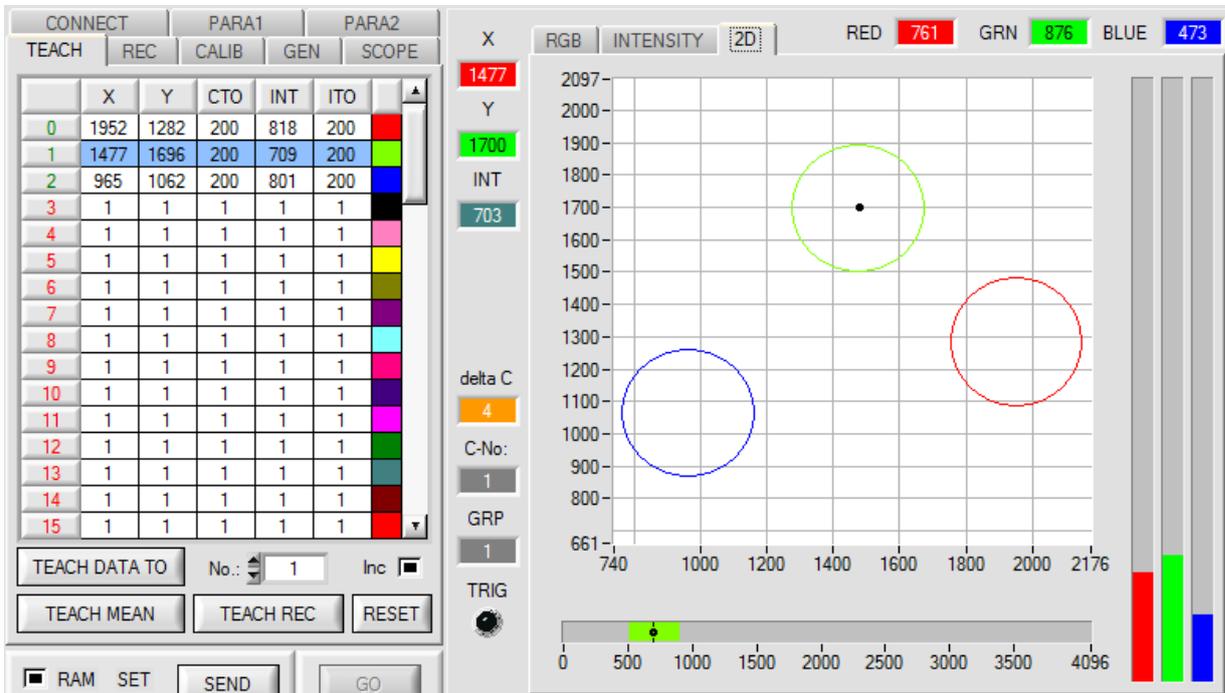
### Change 8:

	X	Y	CTO	INT	ITO	
0	1952	1282	200	818	200	Red
1	1477	1696	200	709	200	Green
2	965	1062	200	801	200	Blue
3	1	1	1	1	1	Black
4	1	1	1	1	1	Pink
5	1	1	1	1	1	Yellow
6	1	1	1	1	1	Olive

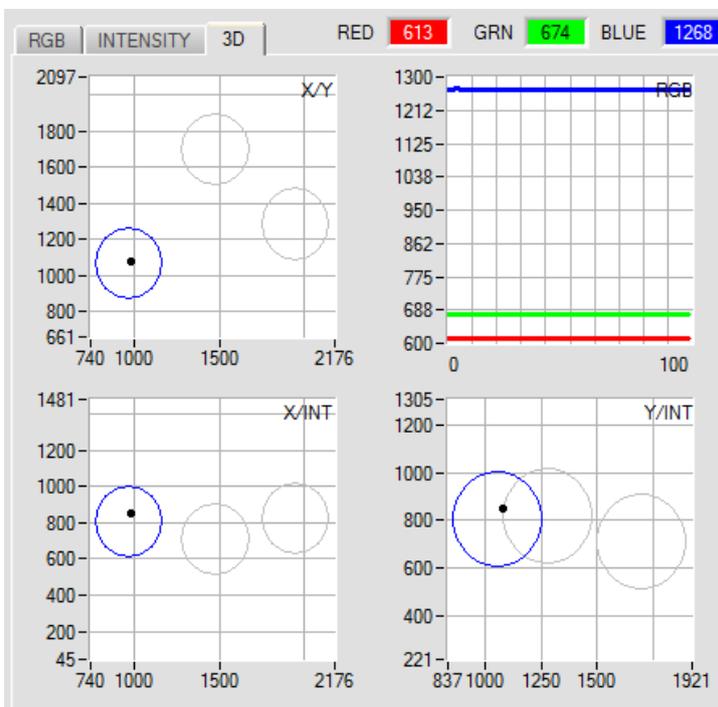
A color hit now also is shown in the table.  
The corresponding row has a blue background.

## Change 9:

In 2D evaluation mode the tolerance window for the intensity set under No.: is displayed in the corresponding row color.



## Change 10:



If you double-click with the left mouse button, all the circles will be shown in gray, and only the circle of the detected color will be shown in color.

With a single mouse click you can return to the normal view.