SPECTRO-3-ANA Series
Changes from SPECTRO3-ANA-Scope V1.0
to SPECTRO3-ANA-Scope V1.1

The text below summarises the changes that were made with the software update from **SPECTRO3 ANA V1.0** to **V1.1**.

Change 1:

For **ANA OUT** a new **RGB MM** option was added.

As long as input IN0 is HI, a maximum and minimum value is determined in the sensor for the red, green, and blue channel.
Within the respective **MIN-MAX** ranges the analog signal for **R G B** is fully output (0-10V).

In the graph window the determined **MIN-MAX** values for the **R G B** channels are displayed under the **RGB** tab.

Change 2:

For **ANA OUT** an additional input field also was added.

If **ANA OUT** is set to **R G B, X Y INT** or **s i M,** the new input field can be used to select whether the analog signal should be output continuously (**CONT**) or upon a rising edge at input IN0 (**IN0 L→H**).

Since the sensor only features one hardware input (IN0) this input possibility is not always available.
For example, if the setting is **ANA OUT = RGB MM,** the input is needed for **MIN-MAX** searching and can therefore not be used for a controlled output of the analog signal.

Change 3:

The **EVALUATION MODE** input field now offers the additional options **THD Red Green, THD Red Blue** and **THD Green Blue**.
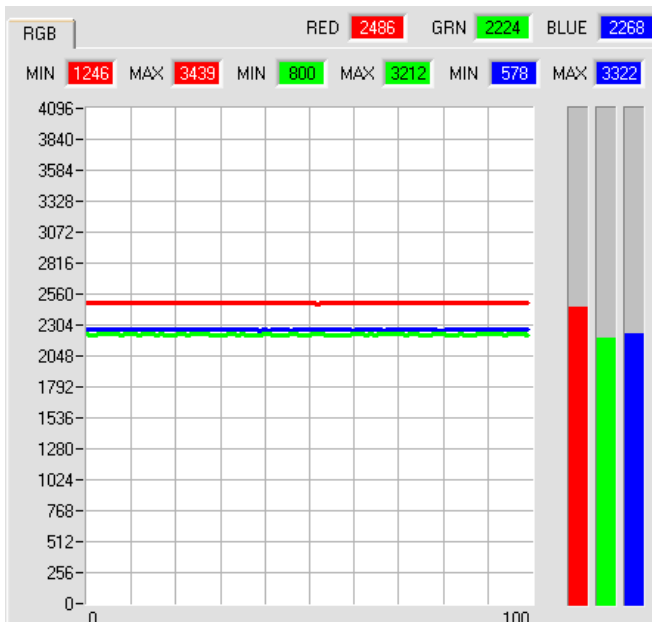
The sensor has two digital outputs.
These two outputs are directly activated when the respective channel drops below or rises above a certain threshold (**THD=Threshold)**.

Example:
EVALUATION MODE = THD Red Green
In the Teach Table a switching threshold of 2000 was set for **Red**, and a threshold of 3000 for **Green**.

When the red channel becomes higher than 2000, output OUT0 switches to HI.
When it is lower than 2000, the output switches to LO.

In the example the green channel is lower than its switching threshold (3000).
The output therefore is LO.

On the user interface this is visualised by the two LEDs **0** and **1**.

If **EXTEACH=ON** is selected in one of the three **THD** modes, the respective switching thresholds can be learned externally through input IN0.
As long as input IN0 is HI, a maximum and minimum value is determined in the sensor for the red, green, and blue channel.
When IN0 drops the switching threshold for the respective channels is calculated as follows:
THD=(MAX+MIN)/2

The determined **MIN-MAX** values for the **R G B** channels are displayed under the **RGB** tab.

Since the three **THD** modes are no color evaluation in the proper sense, certain input elements and display elements are hidden (**C-No:**, **delta C**, …) or greyed out (**TRIGGER**, **CALCULATION MODE**, **MAXCOL-No**., …).

Change 4:

The **SCOPE** tab was extended with additional trigger options.

TRIG MODE now optionally displays the signals **R G B**, **X Y INT** or **s i M**, the output analog signal (depending on the setting in **ANA OUT**), or the status of the digital outputs.

A click on **GET CYCLE TIME** displays the current sensor scan frequency in **[Hz]** and **[ms]**. The current scan frequency must be determined for the correct calculation of **deltaX[ms]**. For determining the correct scan frequency please give the sensor a time of 8 seconds before you click on **GET CYCLE TIME**.

In **TRIG MODE = SINGLE SHOT** a data frame is recorded and displayed in the graph when you click on **SCAN**.

In **TRIG MODE = FALLING EDGE** and **RISING EDGE** triggered recording can be started by clicking on **SCAN**. A trigger start can be defined with **TRIGGER LEVEL**.

Triggering is performed either to **BLUE**, **INT** or **M**, depending on the signal that should be recorded. In the graph this is the blue line.

In **TRIG MODE = INTERN C-No.0** recording starts automatically when C-No. 0 is detected. **TRIG MODE= EXTERN IN0** can be used to start recording externally through input IN0.

SCAN-RATE can be used to delay or accelerate recording. This corresponds with the TIMEBASE function known in oscilloscopes. **PRE TRIGGER VALUES** can be used to define how many values should still be displayed before the actual trigger start.
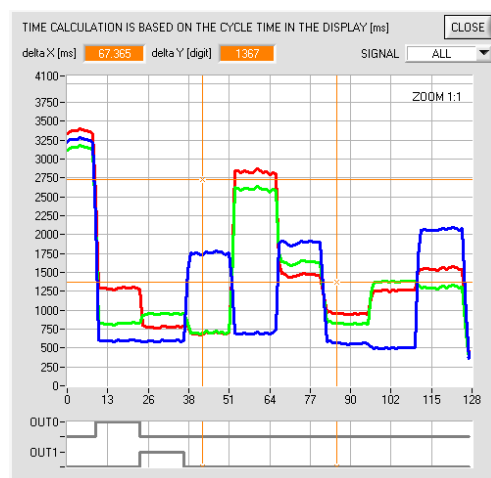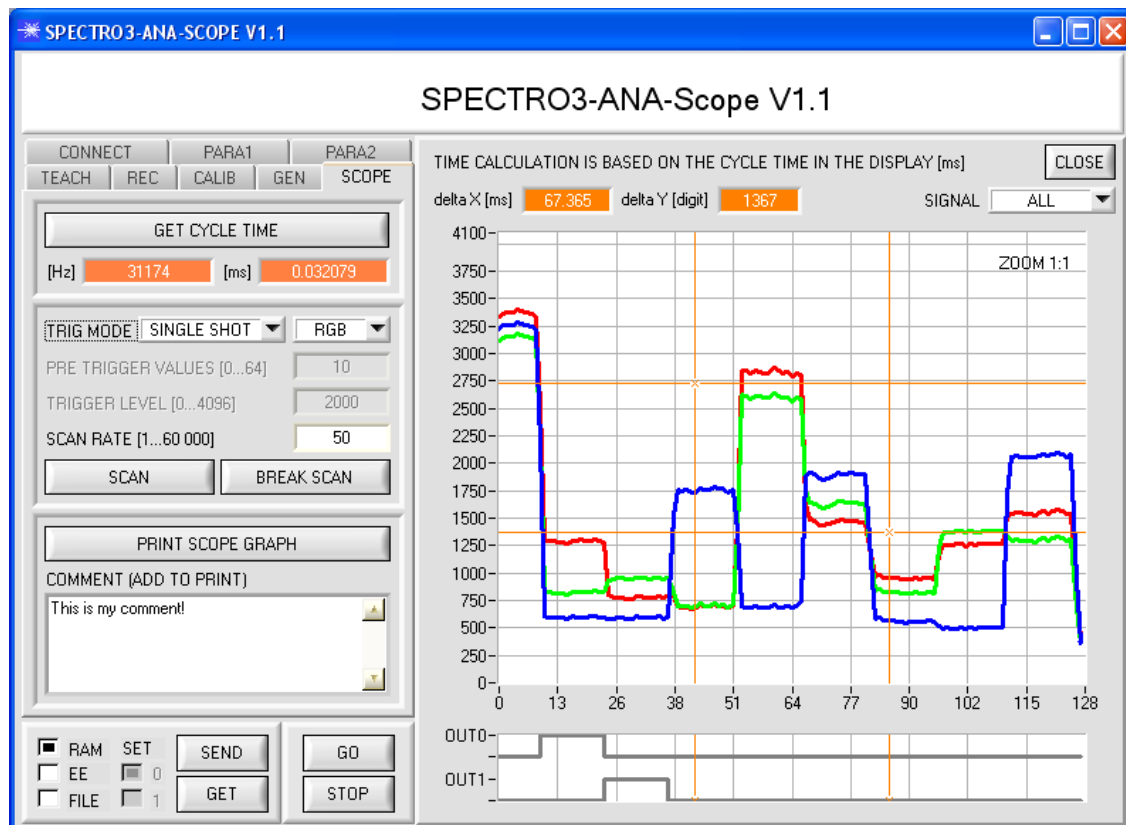
The zoom function in the graph can be activated by holding the control key (CTRL) and drawing a window with the mouse.
A click on **ZOOM 1:1** cancels the zoom function again.

The two orange cursors can be moved with the mouse. The **deltaX[ms]** and **deltaY[digit]** displays will be updated.
deltaX[ms] shows the time between the cursors in X direction.
deltaY[digit] show the difference between the two cursors in Y direction in digits.

SIGNAL can be used to display individual curves.

PRINT SCOPE GRAPH prints the current screen together with the text in the **COMMENT** text field.