

# SPECTRO3-MSM-ANA-Scope

## Changes due to software update from V3.2 to V3.3

This manual summarises the changes that were made with the software update from **SPECTRO3-MSM-ANA V3.2 to V3.3**.

**!!! A software update from V2.x to V3.3 and vice versa is not possible.**

A software update from V3.x to V3.3 can be performed quite easily.  
All you need is the FirmwareLoader V1.1 and the firmware files for V3.3.  
The FirmwareLoader V1.1 can be found on the software DVD 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:

#### **SET DP:**

If an application has very bright and simultaneously very dark surfaces and the sensor is set so that it is not saturated with the two bright surfaces, then the dark surfaces usually return a very low signal.

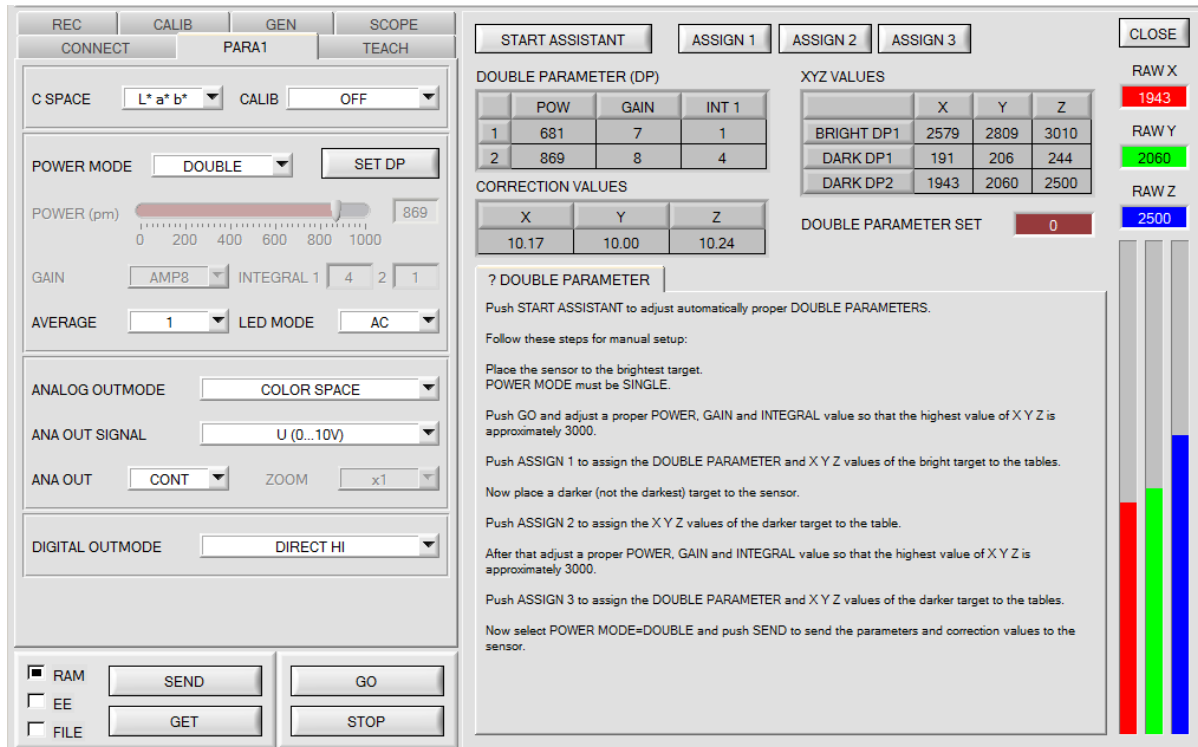
Minor fluctuations with a very low signal produce a large change with the calculation of the colour space (**C-SPACE**). To minimize this, with **POWER MODE = DOUBLE** the sensor automatically switches between 2 **DOUBLE PARAMETER sets**. Set 2 must be set so that it reinforces the most signal strongly.

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

The signal must be loaded with a correction factor so that the colour space coordinates with set 2 are correct.

The two **DOUBLE PARAMETER sets** must be set on the sensor in advance.

After pressing **SET DP** (Set Double Parameter) a window will open on the right-hand side, which permits the setting of two sets. A double parameter set is designed through **POWER, GAIN and INTEGRAL**.



#### Automatic setting of the DOUBLE parameter sets:

Pressing **START ASSISTANT** starts menu navigation for the automatic setting of the double parameter sets. Simply follow the instructions.

#### Manual setting of the DOUBLE parameter sets:

Set **CALIB=OFF** and **POWER MODE=SINGLE** on.

Place the brightest surface in front of the sensor and select a fitting **POWER**, **GAIN** and **INTEGRAL** value in such a way that the brightest channel is at c. 3000 digits.

Now press **ASSIGN 1** to accept the double parameter in the **DP** table in line 1.

The X Y Z values are also entered in the **XYZ VALUES** table.

Now place the dark surface in front of the sensor.

The dark surface should be constituted so that the weakest channel has a signal greater than 100 digits.

After pressing **ASSIGN 2**, the X Y Z values are accepted in line DARK DP1 of the **XYZ VALUES** table.

Now **POWER**, **GAIN** and **INTEGRAL** must be set in such a fashion that the strongest value lies at c. 3000.

Press **ASSIGN 3** to accept the Double Parameter in the **DP** table in line 2 and to accept the X Y Z values in the **XYZ VALUES** table.

The correction value is calculated automatically and entered in the **CORRECTION VALUES** table.

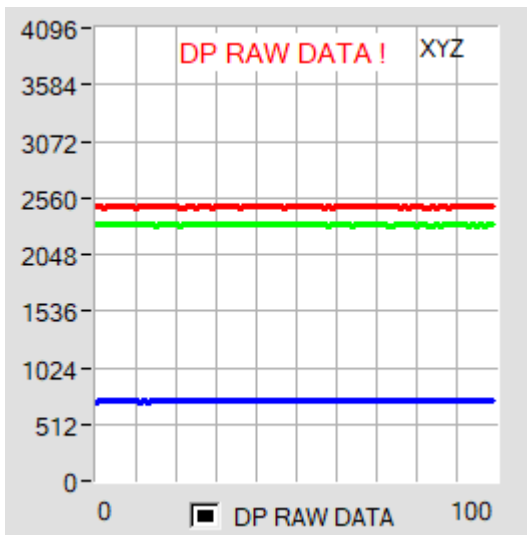
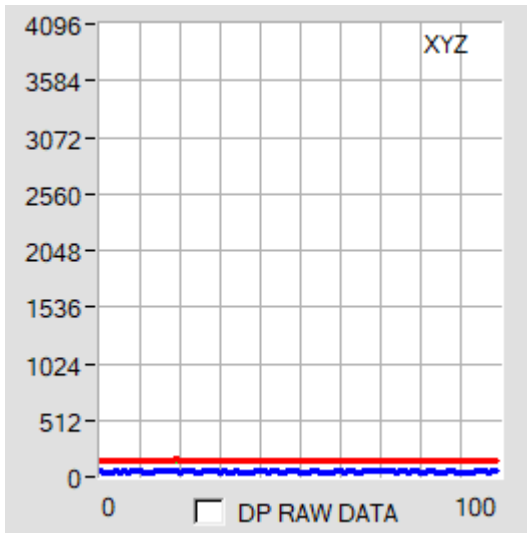
**INFO!**

The double parameter sets are first activated after pressing **SEND!**

The tables are for display purposes only. They cannot be edited.

The **DOUBLE PARAMETER SET** and **DP SET** displays show which DOUBLE PARAMETER set the sensor currently uses.

When the display shows 0, the sensor in **POWER MODE = SINGLE** operates with the settings in the **PARA1** tab.



To understand with which **X**, **Y** and **Z** values the sensor works in parameter set 2, you can display this raw data in the display **XYZ** using the **DP RAW DATA** check box.

As mentioned above, the color space coordinates are calculated using the raw data **X**, **Y** and **Z** received with parameter set 2.

At the end of the calculation, they are divided using the correction factor.

This method avoids rounding errors in the calculation and thus maintains accuracy.

## Change 2:

With **START CALIBRATION ASSISTANT** you can start an assistant that guides you through the calibration.

The following three conditions must be met:

1. You need **one** reference card. This is either the card RAL 9003-P, RAL 9010-P, or RAL 9016-P.
2. You need different RAL colors RAL from the *RAL CLASSIC* or *RAL DESIGN SYSTEM plus* series. These are available from the sensor supplier.
3. You need a file in which the L\*a\*b\* values for the different RAL cards are stored. This file is also available from the supplier.

CONNECT | PARA1 | TEACH  
REC | CALIB | GEN | SCOPE

PARAMETER  
Make sure that you have adjusted the sensor with proper parameter values.

REFERENCE  
COLOR SPACE OF REF SETVALUE: L\* a\* b\*  
ASSIGN ACTUAL XYZ VALUE OF REF

SETVALUE TABLE  
C SPACE: L\* a\* b\* | ROWS: 1

ACTUAL XYZ VALUE TABLE  
ASSIGN TO ROW: No.: 1 | Inc

CALC CF | SEND CF | GET CF

START CALIBRATION ASSISTANT

RAM [x] SEND | GO  
EE [ ] GET | STOP  
FILE [ ]

CALIB REF | CALIB DATA | SENSOR DATA | Scroll all | CLOSE

REFERENCE SETVALUE

L*	a*	b*
0.0000	0.0000	0.0000

ACTUAL XYZ VALUE OF REF

X SI	Y SI	Z SI
0	0	0

CALCULATED XYZ OF REF

X	Y	Z
0.0000	0.0000	0.0000

Xn Yn Zn

Xn 95.05	Yn 100	Zn 108.9
4096	4096	4096

? PARA | ? REFERENCE | ? SETVALUE | ? ACTUAL VALUE | ? FINISH

Make sure that you have adjusted the sensor with proper parameter values.

Recommended settings:  
PMODE=DOUBLE (be aware that you have set proper double parameter sets)  
LED MODE = AC

RAW X: 0  
RAW Y: 0  
RAW Z: 0