



colorCONTROL LT TeachTool

## User Guide

Program for teaching of colors for  
color sensors of the colorSENSOR  
LT-1-ST and LT-2-xx series

<b>1</b>	<b>INTRODUCTION .....</b>	<b>3</b>
<b>2</b>	<b>PROGRAM DESCRIPTION .....</b>	<b>3</b>
2.1	SYSTEM REQUIREMENTS .....	3
2.2	SELECT INTERFACE .....	3
2.3	USAGE OF THE TEACH TOOL.....	4

# 1 Introduction

In the following a tool for an advanced “teaching in” of colors into the color table of the colorCONTROL LT sensors is described.

## 2 Program description

### 2.1 System requirements

The software requires the following minimum system parameters:

- PC with 300 MHz CPU
- 40 MB free hard disc space
- Mouse
- RS232 or USB interface
- CD-ROM drive
- VGA graphic with minimum resolution 800x600
- MS Windows® OS (Windows 98 and higher)
- GretagMacbeth ColorChecker® target
- colorCONTROL LT sensor

### 2.2 Select interface

After starting the program a window for selecting the communication interface appears (Fig. 1).

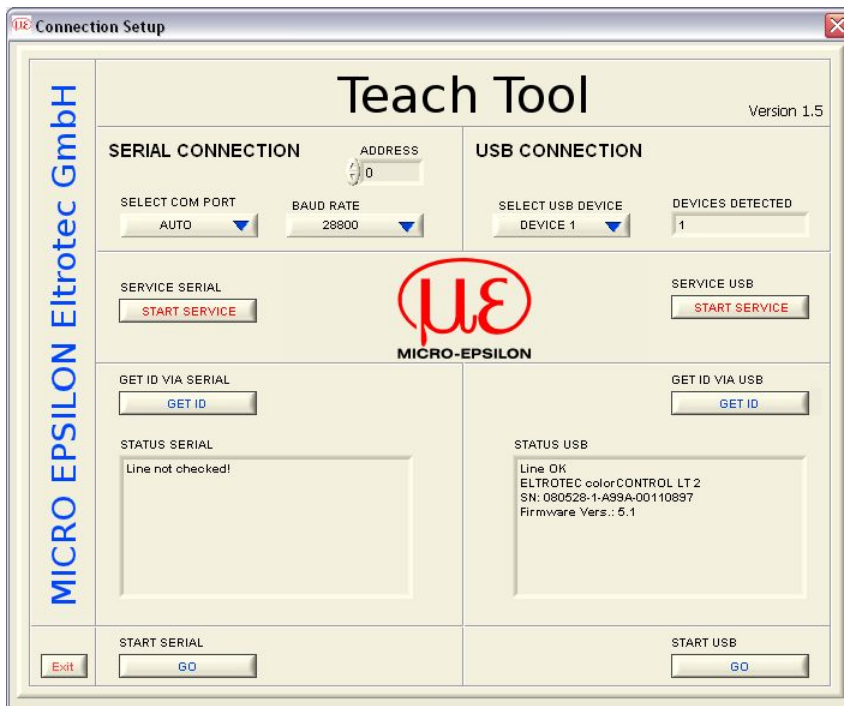
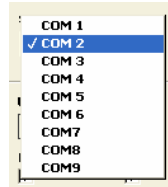


Fig. 1: Select communication interface

The sensor system can be connected via RS232 or USB<sup>1</sup> to the computer.

### *SERIAL CONNECTION*

The configuration of the serial interface is placed on the left hand side. The communication port can be chosen in the field “SELECT COM PORT“ (Fig. 2).



**Fig. 2: Selecting the RS232 interface port**

By default the communication port is configured as follows:

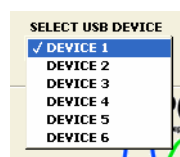
- Baud rate: 28800
- Data bits: 8
- Parity: no
- Stop bits: 1
- Flow control: no

The Baud rate can be changed with the “colorCONTROL LT” Tool.

Status and error information are displayed in the text box “STATUS SERIAL“ below the button “GET ID“.

### *USB CONNECTION<sup>1</sup>*

The program can be started via USB on the right hand side when the USB interface is used. The number of detected devices is shown in the field “DEVICES DETECTED”. The desired USB device can be chosen with the switch in the field “SELECT USB DEVICES” (Fig. 3).



**Fig. 3: Selecting the desired USB device**

Press the GO button of the corresponding interface to start the program.

## **2.3 Usage of the Teach Tool**

Before the Teach Tool can be used reasonably the sensor must be adjusted (use the colorCONTROL LT to make the basic settings).

After pressing the GO button on the SELECT CONNECTION window the “TEACH IN COLORS” window appears (Fig. 4). In the left region of the window general information about the used color space, the adjusted processing mode and the current color signals are shown.

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<sup>1</sup> Only available for sensors with USB interface

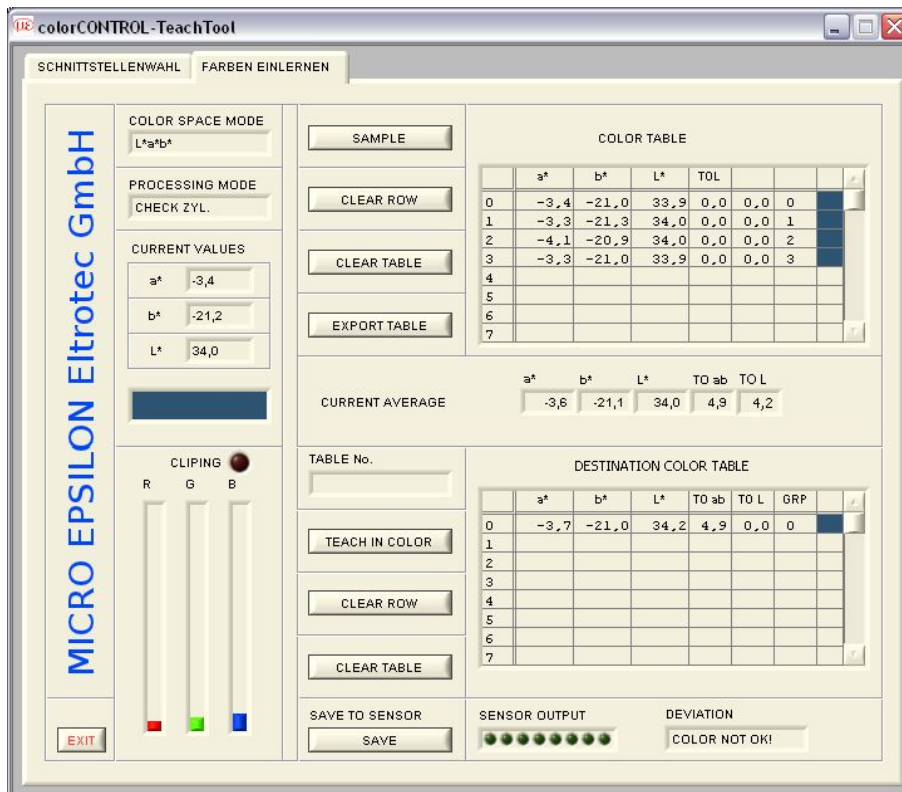


Fig. 4: “TEACH IN COLORS” window

In the right region two color tables are located. The above table is used for sampling in up to 255 color values. In the middle region the current average derived from the values of the color table is shown. The value of the shown tolerance “TOL” is calculated out of the distribution of the color values and a constant of 4 is added to that value.

The button “SAMPLE“ stores the current color values into the next free row of the color table.

The button ”CLEAR ROW“ clears all color values of one row that has been selected by a mouse click. The remaining data rows move up.

The button “CLEAR TABLE“ clears all entries in the color table.

The button “EXPORT TABLE” stores the current contents of the color table into a comma separated spreadsheet file (.csv) onto the disk of the PC. The file can easily be processed with common spreadsheet software.

The destination color table is located in the lower right region of the window. Before a color can be “taught in” a destination row of the table must be selected. For selecting a row use a mouse and click into a cell of the desired row. After that the selected row number appears in the field “TABLE No.” (see Fig. 5)

Press the “TEACH IN COLOR” button to store the values shown in the average display.

After pressing the “TEACH IN COLOR” button the upper color table is cleared and prepared for a new color.

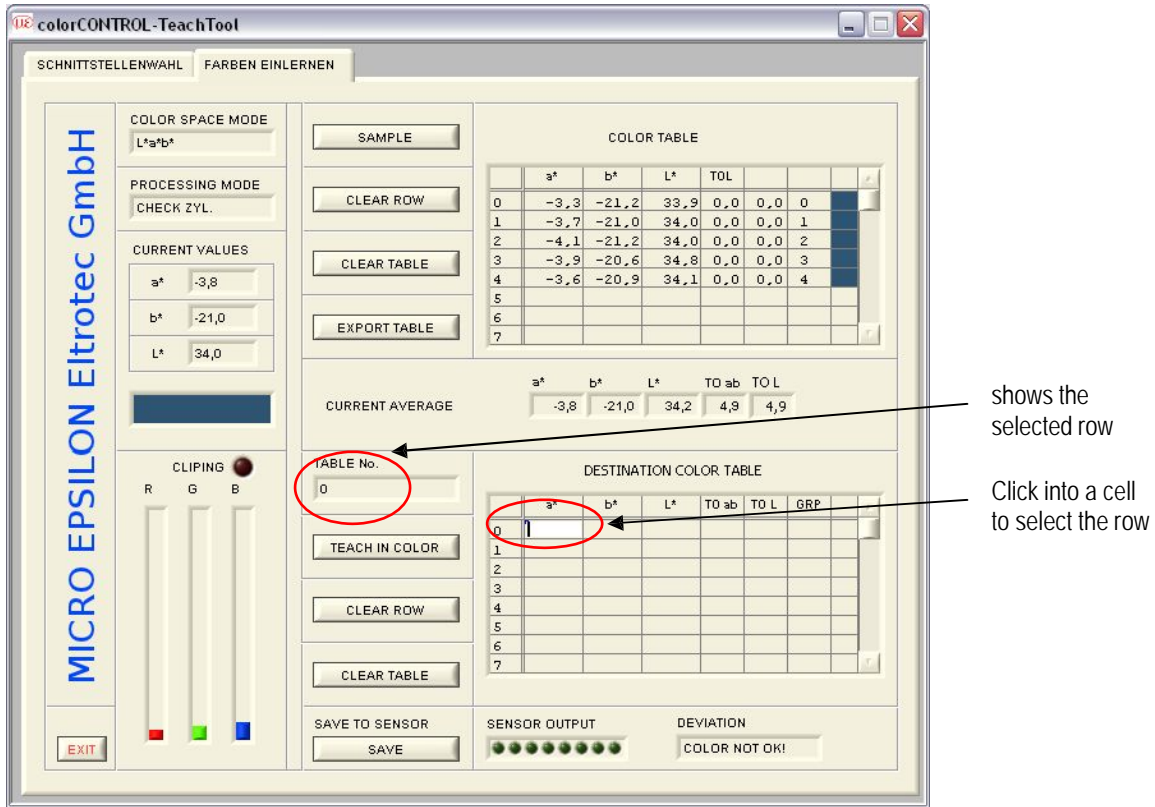


Fig. 5: Selecting a row in the destination color table by mouse click

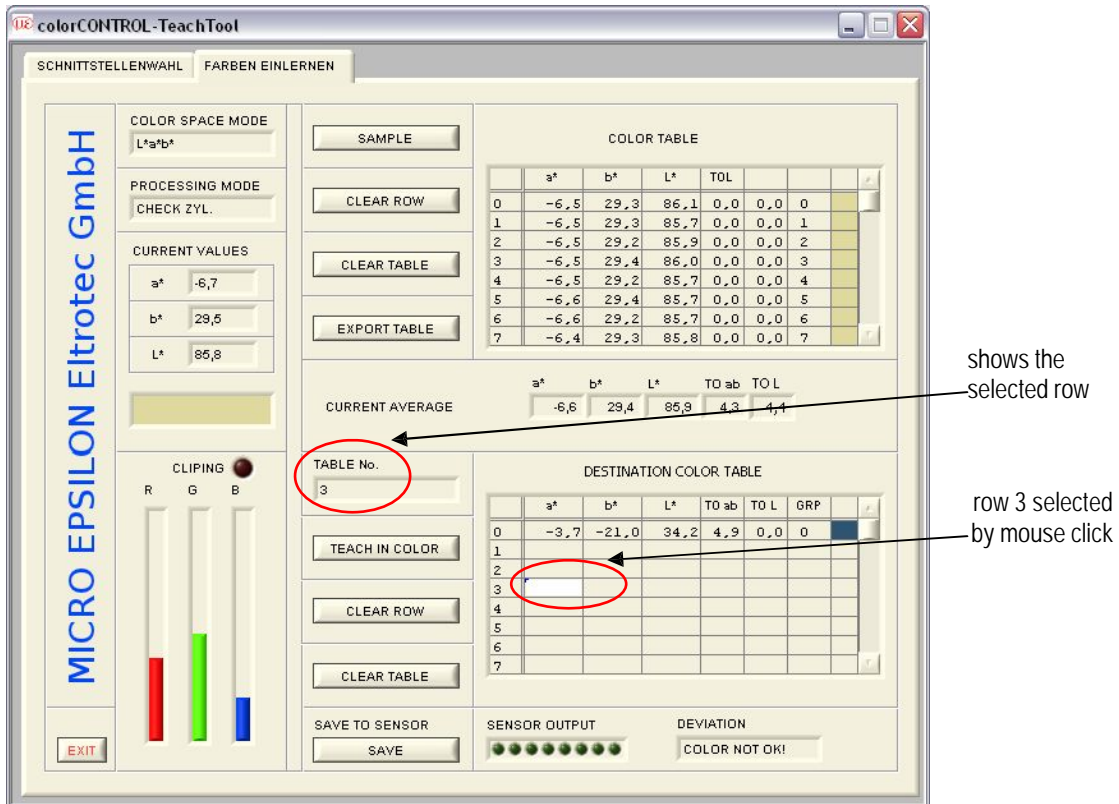


Fig. 6: Selecting an arbitrary row of the destination color table for teaching in a color

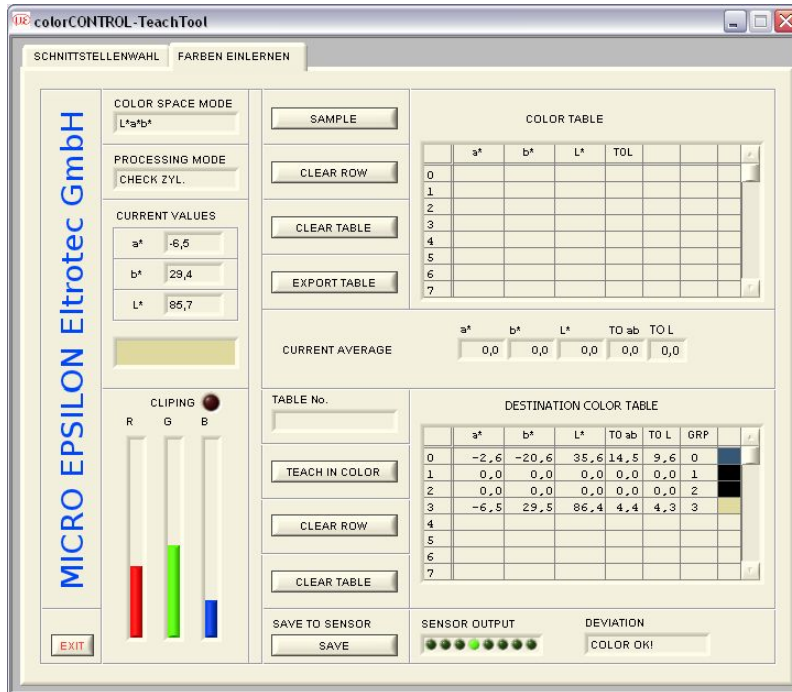


Fig. 7: Gaps in the color table are filled up with zeros

It is possible to teach a color to an arbitrary row of the destination color table to assign it to a certain output (Fig. 6). In this case the “Gaps” in the color table will be filled up with zeros (Fig. 7). **These entries have no impact on the recognition!**

In the bottom of the window the current recognition result is shown in the field “SENSOR OUTPUT” and “DEVIATION” respectively. (The representation of the result in this fields depends on the adjusted result format!)



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