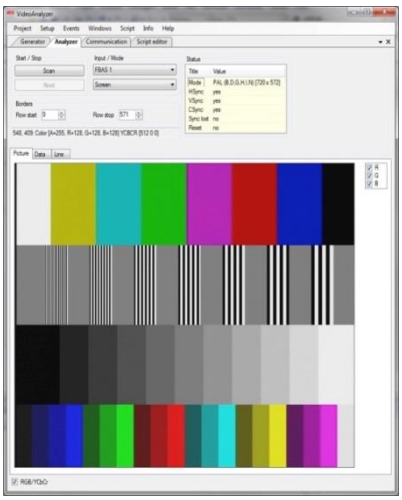
Manual

VideoAnalyzer and Generator SD



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1. General

1.1. VideoAnalyzer and Generator

The VideoAnalyzer and Generator SD (Single Density) can digitalize video signals in FBAS and S - Video formats according to the “NTSC” and “PAL” standard, and even generate these types of signals. Power will be provided by the USB 2.0 Full Speed connection.

The device can be delivered either as a combination device with VideoAnalyzer and Generator or with the generator only. The device can be controlled remotely using the MCD Toolmonitor. Self - defined test pictures can be loaded using the USB interface.

The VideoAnalyzer and Generator can be used as:

- FBAS Video Generator
- VideoAnalyzer for analog video signals
- A transmission hub for analog video signals
- Testing of video amplifiers
- Testing of analog video interfaces
- Fully automated test systems for infotainment devices
- Display testing systems
- And much more

Order number for VideoAnalyzer and Generator FBAS / S - Video: # 119163

Order number for Videogenerator FBAS / S - Video: # 119836

Order number for Toolmonitor VideoAnalyzer FBAS (software license): # 119078

1.2. Product Features

A USB port serves for the supply and control of the MCD VideoAnalyzers and Generator.

There are four input channels at the MCD VideoAnalyzer and Generator:

- FBAS
- Y - C
- RGB
- Y - Pb - Pr

There are three output channels at the MCD VideoAnalyzer and Generator:

- FBAS, Y - C
- RGB
- Y - Pb - Pr

1.3. Toolmonitor VideoAnalyzer

The VideoAnalyzer and Generator can be controlled and configured using a variety of Toolmonitor dialogs.

The program interface can largely be designed with an open hand and customized to the users' requirements. Once created, configuration can be saved in project files and loaded as needed. All telegrams can be sent and received automatically with the help of an integrated *script engine*. Asynchronous processes can be stored in the Toolmonitor. Using third - party software, the Toolmonitor can be entirely remote controlled.

COM / DCOM or a .Net assembly may be used as the interface for this. Thereby, the Toolmonitor can be integrated into a number of applications, including Microsoft Visual Studio® (C#, C++ and Visual Basic), Microsoft Office® (such as Excel®), Open Office®, LabVIEW® and MCD TestManager CE.

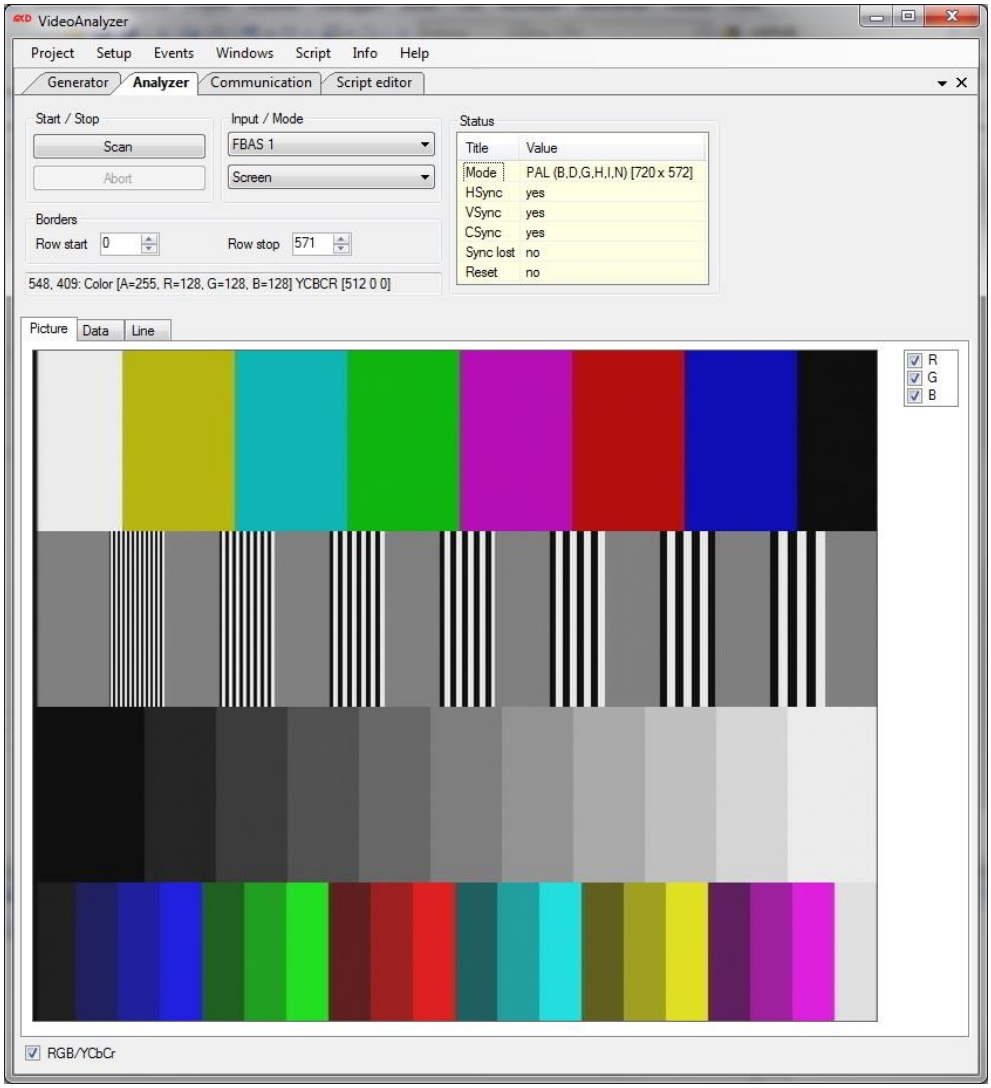

Figure 1: Toolmonitor VideoAnalyzer

2. Installation of Software

2.1. Requirements

- Operating system: Windows XP® - Windows 8.1®
- Architecture: 32 bit or 64 bit
- .Net Framework: Version 3.0
- FTDI driver

To install the MCD Toolmonitor VideoAnalyzer, it is sufficient simply to copy *VideoAnalyzerMonitor.exe* into any directory on the target system.

Alternatively, the installer provided (*VideoAnalyzerInstall.msi*) may be executed.

2.1. Register COM Server

This command registers the Toolmonitor as a COM server. This is required if the Toolmonitor will be remote controlled by other programs, such as the MCD TestManager.

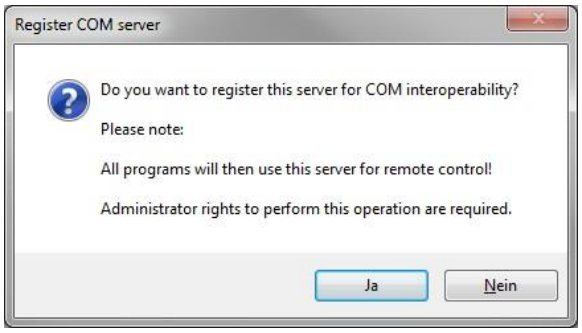

Figure 2: Register COM Server

3. Remote Controlling by MCD TestManager CE

The MCD Toolmonitor can be controlled remotely by the MCD TestManager CE software. Additional information about this can be found in the chapter *Programming* and in the *General Help* about Toolmonitors.

4. Generator

An example image can be configured and displayed with the help of the generator. The generator can create an example image with up to eight different image areas. These areas will be divided into stripes or slots. The image content and size (across the last lines to be used) can be determined for each slot.

The following image contents are available:

- Various color bars
- Pattern made of white and black bars with various widths
- Grey (shaded) pattern
- Freely defined pattern that can be loaded from an image file

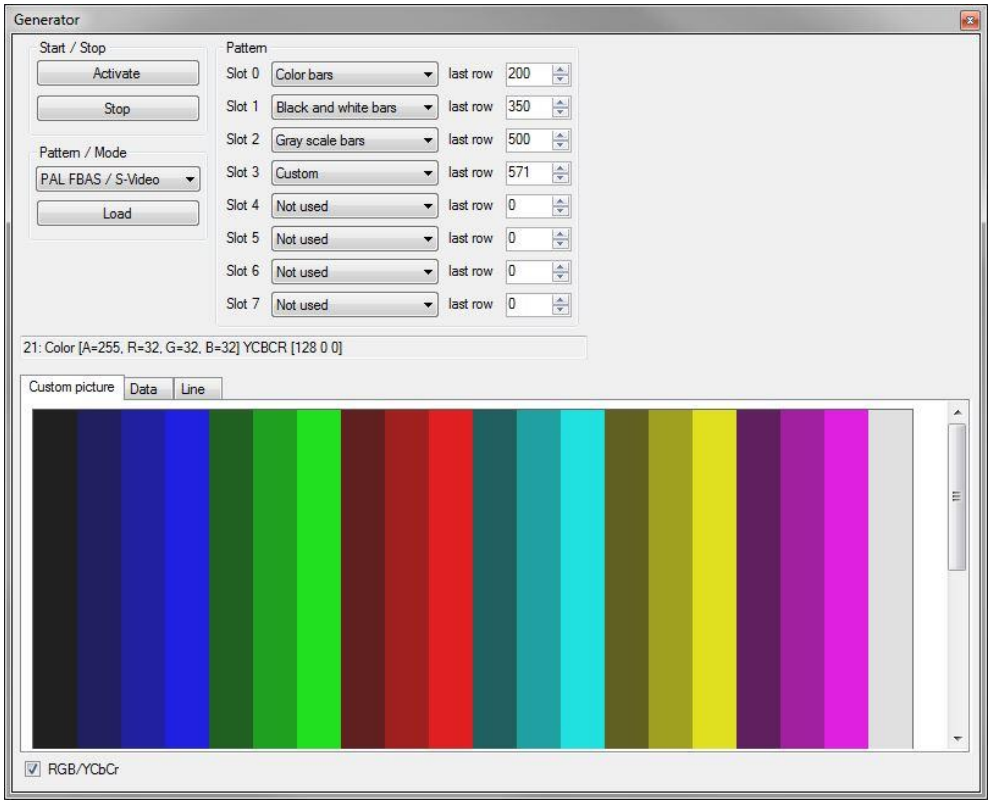

Figure 3: Generator Interface with User - Specific Image Content

Optionally, data can also be displayed in a table next to the user - specific content as an image.

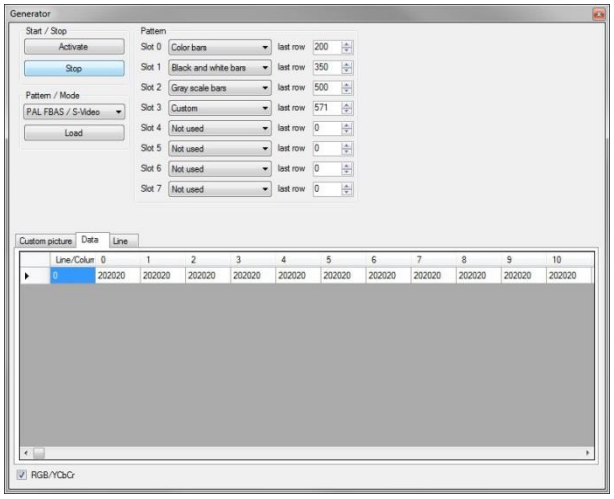

Figure 4: Generator Displaying Data as a Table

Data can also be displayed as a chart.

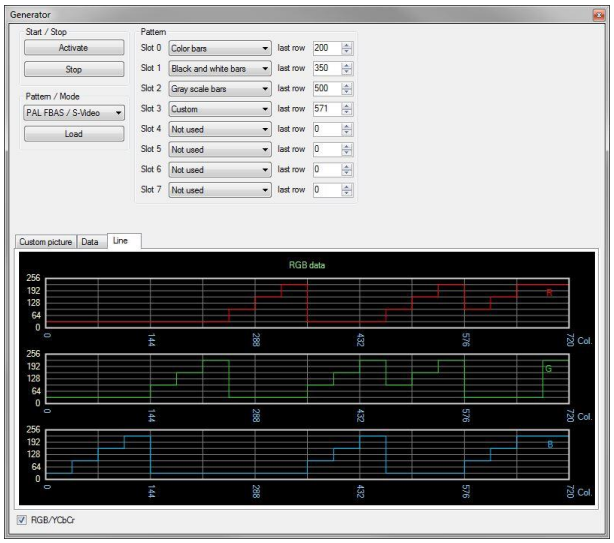

Figure 5: Generator Displaying Data as a Chart

4.1. Start / Stop

Displaying the example image can be started or stopped from here.

4.2. Pattern / Mode

The format of the example image can be set from here.

The following formats are supported:

- PAL FBAS / S - Video
- PAL YPrPb
- PAL RGB
- NTSC FBAS / S - Video
- NTSC YPrPb
- NTSC RGB

Furthermore, the user - specific image format can be loaded from an image file. Only the first line of the selected image will be used for this.

4.3. RGB / YCbCr

This flag determines whether the display should use the RGB or YCbCr format.

5. Analyzer

An example image can be recorded with the help of the VideoAnalyzer. Only a specific line, a selected area or the entire image can be recorded for this purpose.

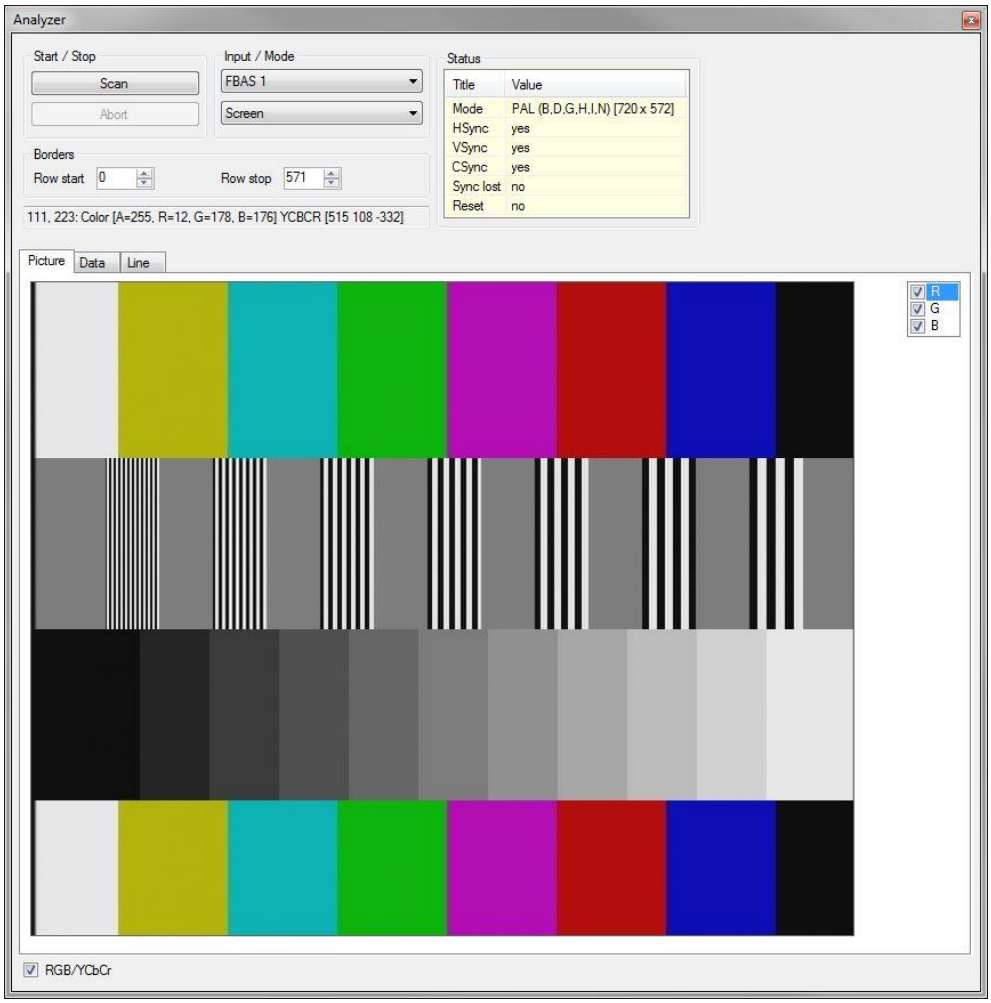

Figure 6: Analyzer Interface Displaying Recorded Image Content as a Bitmap

Optionally, data can also be displayed in a table next to the image content as a bitmap.

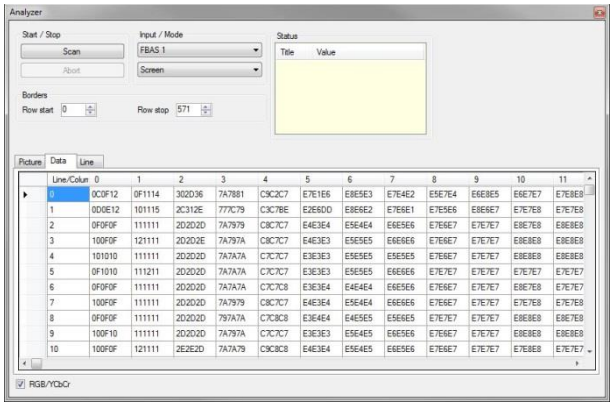

Figure 7: Analyzer Displaying Data as a Table

Data can also be displayed as a chart.

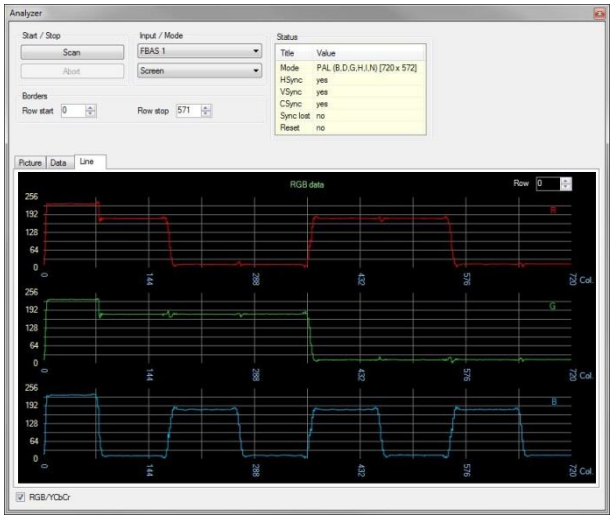

Figure 8: Analyzer Displaying Data as a Chart

5.1. Start / Stop

Recording the example image can be started or stopped from here.

5.2. Input / Mode

The format of the example image and the type of display can be set from here.

The following formats are supported:

- FBAS
- S - Video
- RGB
- RGB+
- YPbPr

Furthermore, whether a line or an image area should be recorded can be set from here.

5.3. Borders

The image area to be recorded can be determined from here.

5.4. Status

A variety of status information about the example image to be created will be displayed here.

5.5. RGB / YCbCr

This flag determines whether the display should use the RGB or YCbCr format.

6. Project Administration

The current settings and the Toolmonitor layout can be saved and loaded from the menu options under the *Project Menu*. All windows can be positioned freely and adjusted according to the user‘s own needs.

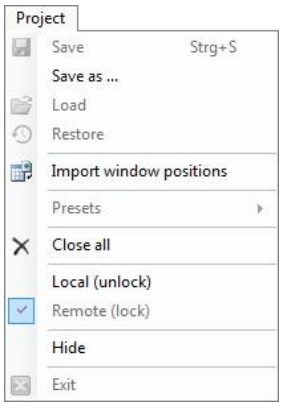

Figure 9: Project Menu

The *Project Menu* consists of the following areas:

- Save / Save as: All current settings can be saved in a project file by clicking the *Save* menu item. Even the current window positions will be stored in the file.
- Load: Previously saved settings can be re - loaded by clicking the *Load* menu item. Even the original window positions will be recreated.
- Import window positions: The *Import Window Positions* menu item allows the window positions to be imported from a saved setup file. All original settings will not be affected by this.
- Presets: Predefined settings can be set using this menu item.
- Close all: This menu item will close all open forms. The Toolmonitor will continue to run.
- Local: If the Toolmonitor is remote controlled or the *Setup* has been protected with a password, most user actions are protected against direct entry. Activating *Local Mode* removes this protection and all operating controls will be accessible again. If the setup process included the entry of a password, it must be entered to release the Toolmonitor.
- Remote: Clicking this menu item will return Toolmonitor to protected mode.
- Hide: Clicking this menu item will hide the Toolmonitor, but keep it running. If it is not controlled remotely, Toolmonitor can be re - activated using an icon on the taskbar.
- Exit: Clicking this menu item will terminate the Toolmonitor (item will be disabled when Toolmonitor is controlled remotely).

7. Events

The logging and trace message dialogs can be accessed from this menu.

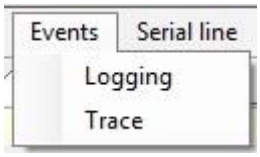

Figure 10: Events Menu

The Events Menu consists of the following areas:

- Logging: The logging messages for general events, warnings, errors and so forth will be displayed using this menu option
- Trace: The trace messages (sent or received messages) will be displayed using this menu option

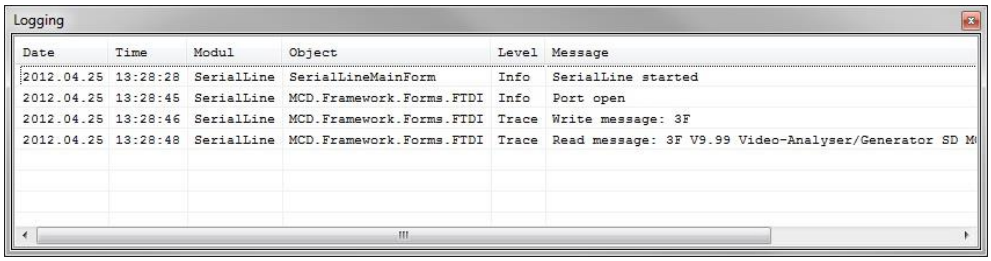

Figure 11: Log Monitor

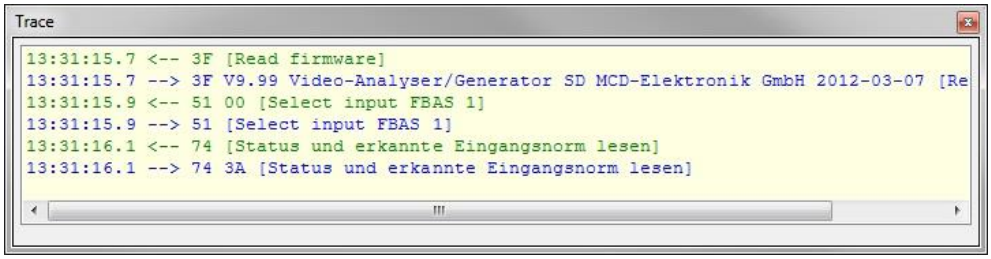

Figure 12: Trace Monitor

8. Setup

The *Setup Menu* provides access to the project - specific options and registration of the Toolmonitor as a COM server.

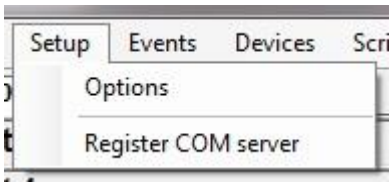

Figure 13: Setup Menu

8.1. Communication

The hardware can be selected and activated from the Toolmonitor VideoAnalyzer option dialog on the *Communication* tab page. In addition, the device address for the VideoAnalyzer can be set. This is only relevant for RS232 communications, but not relevant for USB variants.

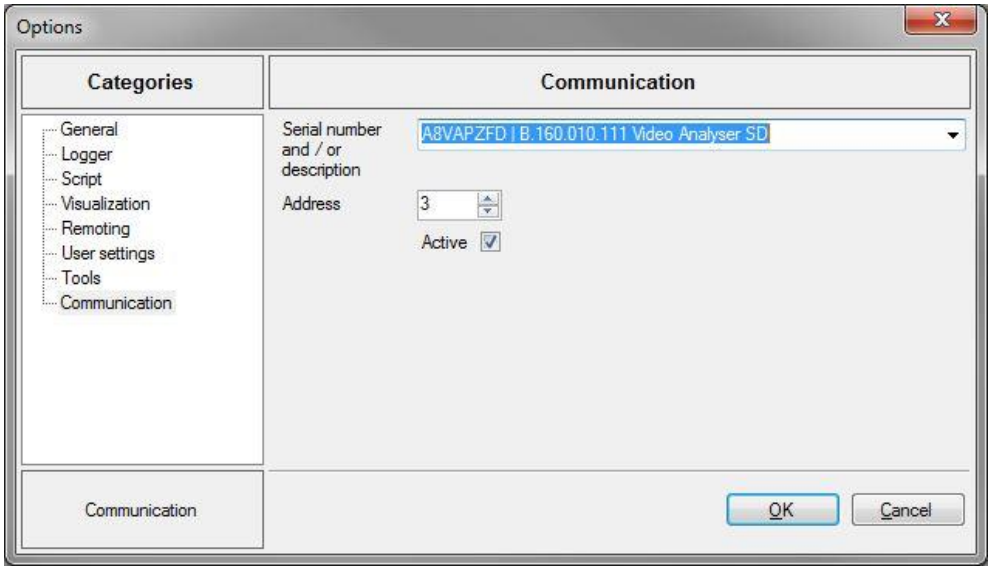

Figure 14: Communication Options for the Toolmonitor VideoAnalyzer

8.2. General

General Toolmonitor settings can be made from this dialog.

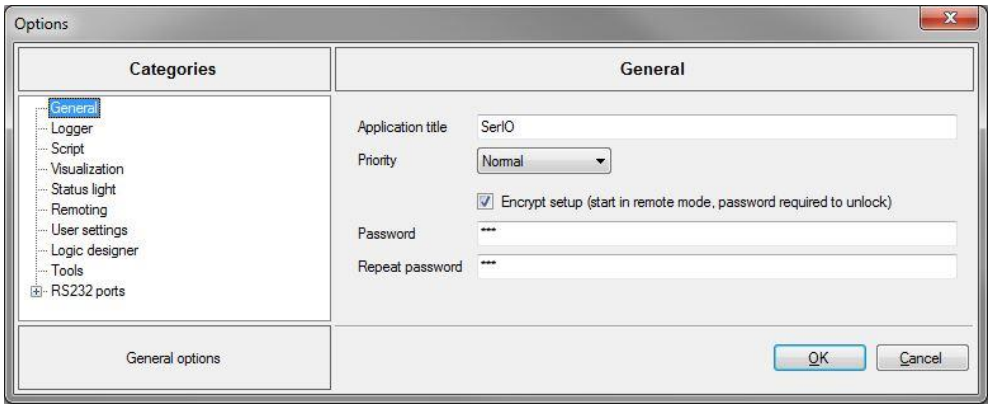

Figure 15: General Settings

The following areas are to be configured:

- Applications title: Toolmonitor‘s window title can be adjusted.
- Priority: Toolmonitor‘s base priority can be set using this entry. This value should only be changed when there is a real need to do.
- Encrypt setup: Whether the setup should be stored in an encrypted format or not can be determined using this setting. In that case, Toolmonitor will be started in remote mode. In addition, a password must be set, which can be used to access the Toolmonitor. As a control measure, this password must be confirmed. If the password is lost, it will no longer be possible to change the associated setup (if Toolmonitor is password - protected, the local and remote modes can no longer be controlled).

8.3. Logger

Toolmonitor‘s settings for the *logging* system can be made from this dialog.

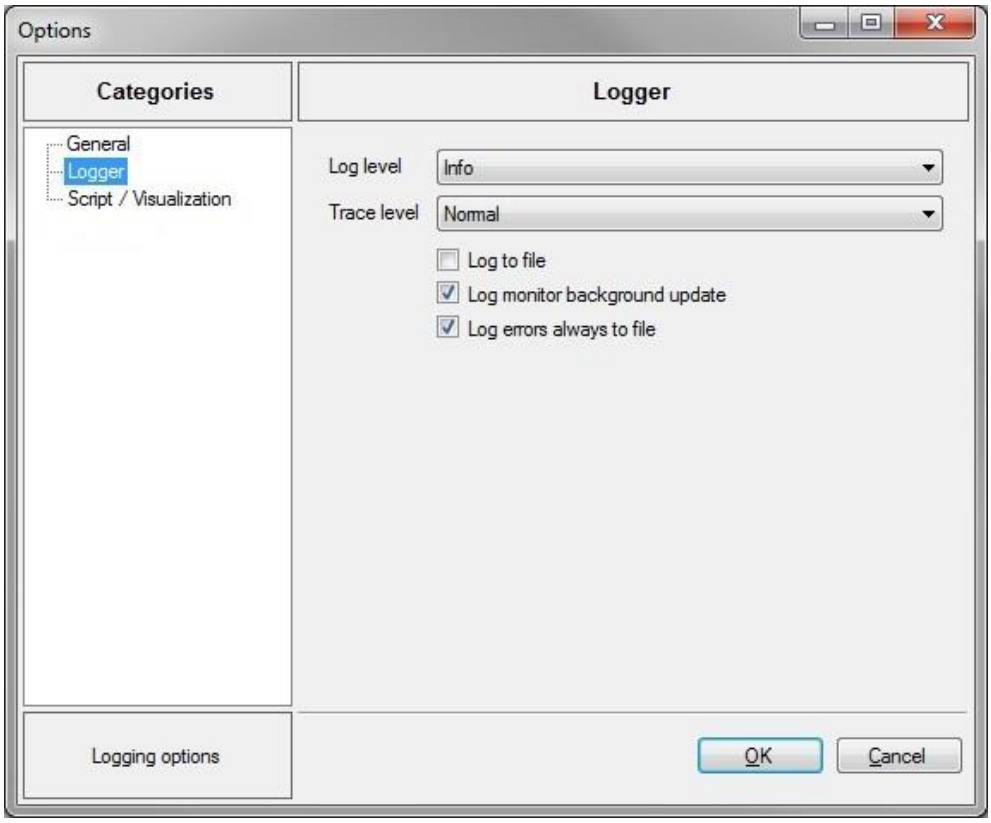

Figure 16: Logger

8.3.1. Log - Level

This setting determines if general event messages, warnings, errors and so forth will be logged.

The options include:

- ExtendedDebug
- Debug
- Trace
- Info
- Warning
- ErrorTrace
- CriticalWarning
- Error

8.3.2. Trace - Level

This setting determines the trace level for logging sent or received messages.

The options include:

- Streaming
- Cyclic
- Normal

8.3.3. Log to File

If this option is activated, all event messages will be saved in a file. The name of the file will consist of Toolmonitor‘s name and a timestamp. The file will be stored in the same folder as the Toolmonitor executable file.

8.3.4. Log Monitor Background Update

Normally, event messages are always generated, even when displaying event messages has not been enabled in the monitor. If that is not desired, this feature can be deactivated using this option.

8.3.5. Log Errors Always to File

Normally, error messages will always be written to an additional log file. If that is not desired, this feature can be deactivated using this option. The name of the file will consist of Toolmonitor‘s name and the literal “Exceptions”. The file will be stored in the same folder as the Toolmonitor executable file.