

WOLFVISION[®] *Visualizer*

Camera Control Software

Version 1.5

for EYE-10, PSM-10 and SCB-1



ENGLISH

Check out our Internet Homepage for additional information
www.wolfvision.com/support

Introduction

The RS-232 port of the camera can be used for controlling the camera and to capture images onto the computer.

Minimum System Requirements

- Microsoft Windows 98/ME, 2000 or XP
- Pentium 100MHz with 24Mbyte RAM (better recommended)
- Display resolution of 800x600 or more
- 65535 colors, true color (24 bit) are recommended
- One free RS-232 port (COM) High speed RS-232 are recommended

High Speed RS-232

Standard RS-232 ports provide a baud rate at 115200 bauds/second, high speed RS-232 supports up to 921600 bauds/second.

To achieve the maximum data transfer speeds, the camera should be connected to a high speed RS-232 port.

Legal Information

Before you install the software, please be aware that with the installation of the WolfVision Camera Control software, the user accepts the following:

- It is not allowed to use the software with other devices than WolfVision Visualizers.
- It is not allowed to make copies of the software for other purposes than backup or archival storage.
- Any reverse engineering, e.g. de-compile or de-assemble the software is not allowed.
- Ownership and copyright of the software are reserved for WolfVision GmbH.
- WolfVision GmbH does not give any warranty for faultlessness of the software.
- WolfVision GmbH is not liable for any damages that may be caused by the usage of the software.

Note

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1. WolfVision Camera Control Software

The WolfVision Camera Control Software can be used to operate the SCB-1, PSM-10 and EYE-10 XGA-color camera via RS-232. It is also possible to transmit images in preview- and full resolution to the PC.

Software Installation

Install Camera Control software (available on CD-ROM or downloadable from Internet www.wolfvision.com/wolf/camera_control.exe).

Connect the camera to the computer via RS-232 cable and start the Camera_Control.exe. First, connect the camera to the power supply and then start the camera control software on your PC. The camera control software (for Microsoft Windows 95, 98, ME, 2000 and XP) operates with the camera via SCOTI-protocol (RS-232).

1.2 Software Initializing

At the start, the program automatically scans COM1 to COM4 at all possible baud rates. If a WolfVision camera is found the connection is established, otherwise you can either retry or operate the software in the demo-mode without a camera.



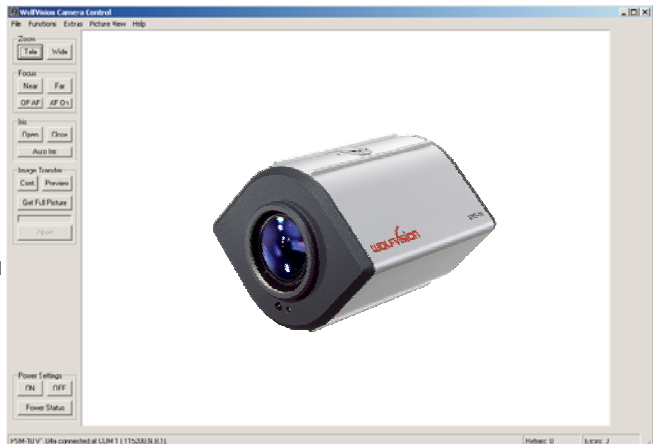
1.3 Usage of the Camera Control Software

When the software is started, following functions can be performed:

- control all camera functions
- check current state of the camera, like Power Status
- transfer images to the computer
- edit a power-on logo with the logo editor
- edit and display a definable on-screen text with the User-OSD panel
- store images to a definable path
- upgrade firmware

Basic functions like Zoom and Focus are accessible on the left side of the main screen.

Further functions are accessible in the menu bar (Functions/Control Panel) and virtually all commands can be performed with Extras/Custom Command.



1.4 Image Transfer

To start an image-transfer, press either the PREVIEW-button for a quick preview at low resolution, the CONT.-button (continuous preview) for a continuous live preview or the GET FULL PICTURE-button for a full resolution snapshot. In the PICTURE VIEW Menu you can select if the transmission of the full picture is done in an interleaved or a progressive way. The interleaved (default) way has the advantage that you get a quick overview (at low resolution) of the picture, which is refined during the transfer. The progressive way, on the other hand, has optimum sharpness on all transmitted data, which is useful if you are not sure if the captured picture is perfectly sharp or not. All image transfers can be aborted by pressing the ABORT-button below the progress bar, which indicates how far the image transmission is completed. Additionally, you can select in the PICTURE VIEW Menu, how often, during the transfer, the screen is updated. Short update intervals increase the total transfer time. How much the difference is, depends on the speed of your PC. After the transfer, you can either store the image as .bmp-file or print it on a printer.

Hints:

For the image-transfer, the serial port is the bottleneck, because a lot of data has to be transmitted. To reduce this bottleneck, the camera support baud rates up to 921600 baud/s. However, most PCs support only up to 115200 baud/s and require special extension cards for higher baud rates. For this high baud rates, short RS-232 cables are necessary (below 2m is recommended).

If operating commands work fine, but image transfer does not, you may try to reduce the transmit block size in the Picture View Menu (at the cost of transfer speed). At very high baud rates, you can also set the transmit size to 4K (default is 1K) to further optimize the speed.

To change the camera's baud rate temporarily, use the commands in the Extra Menu. If the selected baud rate works, you can store this setting permanently in the camera-EEPROM by selecting MEMORIZE CURRENT BAUDRATE.

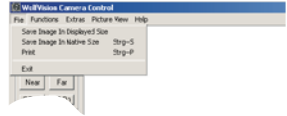
Another option in the PICTURE VIEW Menu is to select how the image is displayed on the screen. The NATIVE setting provides the best quality, but may be too large to fit onto the screen. The other two settings resize the picture to fit onto the screen. They differ in quality and in the speed of resizing (e.g. when the window size is changed). The resized image can also be stored in a file, which is useful if you do not need the full resolution.

It is recommended to use the true-color (24bit) mode of your PC (selectable in Properties -> Display in the Windows Start-menu) for best picture reproduction.

1.5 Menu bar

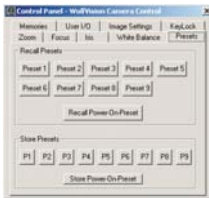
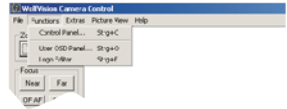
File

In this menu folder, images can be stored or printed.



Functions

In this menu folder, the control panel can be started and on-screen menu and on-screen messages can be edited and enabled or disabled.



Hints:

If the image is very noisy, set the gain to a lower value.

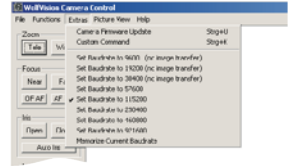
If the image is displayed with wrong colors, perform a white balance or set to Auto Tracking White balance.

If the camera doesn't react to a keystroke (keys on the camera itself and on the IR-remote control), then check if the keylock is activated.

The User I/O can be controlled and queried via RS-232 (SCOTI) and with a cable remote control. The User keys and LEDs can be used to build an application specific user interface which can be controlled via SCOTI.

Extras

In the Extras-menu folder, new firmware can be uploaded, new baud rates can be set temporarily or permanently and custom commands can be sent.



Download new firmware from the Internet (www.wolfvision.com/wolf/fware.html#c).



Virtually all functions of the camera can be performed by entering the respective code directly.

For codes and detailed information, see RS-232 command list (SCOTI).



The communication is packet-oriented: The host sends a packet and the camera replies to it with "OK" or an error (e.g. if the checksum was incorrect). A new packet from the host can be sent after the reply from the previous packet was received (or a timeout occurred).

Please note: the WolfVision Camera Control software generates the header and checksum automatically, just input the data-code of the command.

Short-Packet-Format: For short packets (up to 15 Byte Data):
00hex Len+F0hex Data[1] Data[2]...Data[Len] Checksum

Long-Packet-Format: For long packets (up to 61439 Byte Data):
00hex Len H Len L Len-Checksum Data[1]...Data[Len] Data-Checksum

The long-packet-format-data can also be used for short packets (below 15 bytes of data). The long packet-format is mainly used for the "OSD Write Line"-command and for image transfers.

Len H and Len L are the High- and Low-Byte of the 16 bit Length. The High-Byte is not allowed to get F0hex or higher, as this would indicate the short-packet-format. In the short-packet-format, F0hex is added to the length, so F1hex is for 1 byte length, F2hex for 2 byte, etc.

The checksum is the ones-complement (bit-wise NOT) of the sum of all length- and data-bytes (truncated to 8 bit).

The length-checksum is the ones-complement (bit-wise NOT) of the sum of both length-bytes (truncated to 8 bit).

The data-checksum is the ones-complement (bit-wise NOT) of the sum of all data-bytes (truncated to 8 bit).

The shortest possible packet has a length of 4 Bytes (using the short-packet-format): 1 Byte Header, 1 Byte Length, 1 Byte Data and 1 Byte Checksum.

If the camera receives the start of a packet, but not enough data, it will timeout after 1 second and send a time-out-error-packet.

Replies from the camera

	H	L	D	C	Remarks
Command OK:	00	F1	01	0D	reply within max. 0.5s
Illegal Command:	00	F1	10	FE	
Command failed:	00	F1	11	FD	Command not possible in the moment
Parameter wrong:	00	F1	12	FC	(or wrong command length)
Checksum Error:	00	F1	20	EE	
Timeout Error:	00	F1	21	ED	after the 00-header, the rest of the command must be sent within 1 sec.
Command to long:	00	F1	22	EC	(Receive Buffer Overflow)

Short Inquiry Reply (no Command Ok will be sent):

00 Fx 60 R[1] R[2]...R[x-1] C

Long Inquiry Reply (no Command Ok will be sent):

00 LenH LenL C 60 R[1] R[2]...R[Len-1] C

(all numbers are hex, **C**=Checksum, **H**=Header, **L**=Length, **D**=Data)

Commands

C=Checksum, P=Position (1 Byte), PH/PL: Position (2Byte) High/Low-Byte, Sp=Speed, H=Header, L=Length; VL=Value

Checksum and Ones-complement

To calculate the checksum, add the hex values of all commands together and subtract the last two digits of the amount from FF.

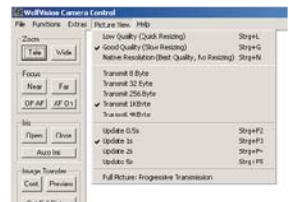
example: 00hex F2hex 01hex 20hex EChex
 Header Length Data Data Checksum

00hex + F2hex + 01hex + 20hex = 113hex

FFhex - 13hex = EChex

Picture View

In this menu folder, the quality and speed of transferred images can be set.



Help

In the help-folder, some information regarding the camera control software can be displayed.





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