



AIVION CAMARA CONTROL SOFTWARE USER MANUAL

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AIVION is a cooperation by Visual Communication Systems GmbH
and eVision Systems GmbH

This application note is a technical support document and not an official part of the product documentation. In case of deviations from the datasheet please use the datasheet as reference information. Make sure that your board revision fits to the referred revision in the datasheet.

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VISCA is a protocol developed by the company Sony.

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1. Aivion Camera Control Software

1.1 What is AIVION Camera Control Software about?

VISCA is a control protocol designed by Sony for use in professional camera systems. The protocol is based on RS232 serial communication at 9600 baud (bit/sec). Up to seven cameras can be connected to a single host computer.

The Aivion Camera Control Software is a software runs on the Microsoft Windows operating system.

With the software, you create programs that give you the flexibility to control cameras with the camera settings you specify.

The Aivion Camera Control Software allows VISCA port configuration, camera configuration and building programs.

1.2 Supported platforms

Aivion Camera Control supports the Windows operating system 7, 8, and 10.

1.3 Release Note

2024-01

- Sony FCB-EV9520L is supported

2023-10

- Command buffer full error was fixed
- Stable camera control with USB

1.4 Known Bugs

Known bugs that will be fixed in the next version:

- The Get Video Mode and Get LVDS Mode button does not always display the correct video mode and LVDS mode.
- The video mode CVBS and PAL will be added to the Tamron MP3010M-EV.

1.5 Spezial Features

- Easy configuration
Easy one-click VISCA COM port configuration and setup
- Easy to use
Separate Configuration utilities for easier use of operation
- Documented
Detailed, easy to follow user manual

1.6 Supported Cameras

Sony Block Cameras

- FCB-EV7520
- FCB-EV7520A
- FCB-EV9500L
- FCB-EV9520L
- FCB-EW9500H
- FCB-ER8300
- FCB-ER8530
- FCB-ER8550
- FCB-ES8230

Tamron Block Cameras

- MP1010M-VC
- MP1110M-VC
- MP3010M-EV

Aivion Block Cameras

- AZM-FS10L
- AZM-FS30L

Please contact our support team if your camera is not listed.

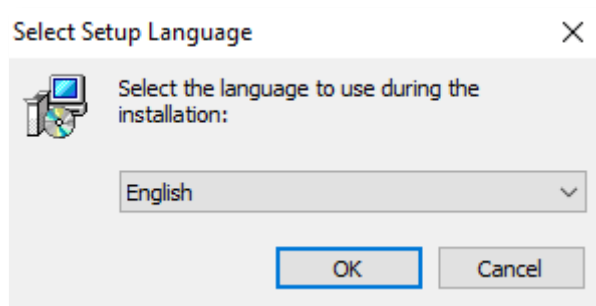
2. Installation

2.1 Operating System Requirements

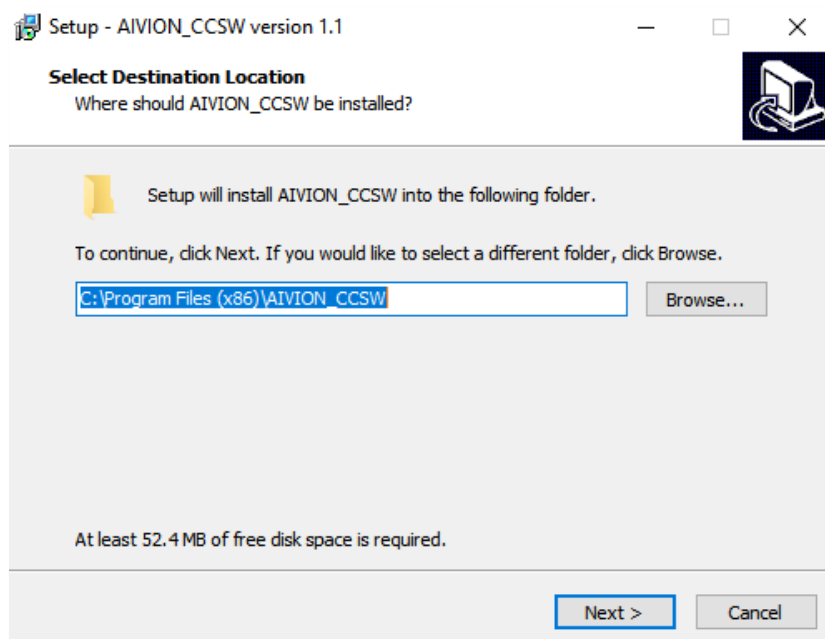
- Windows 7
- Windows 8
- Windows 10

2.2 Installing AIVION Control Software

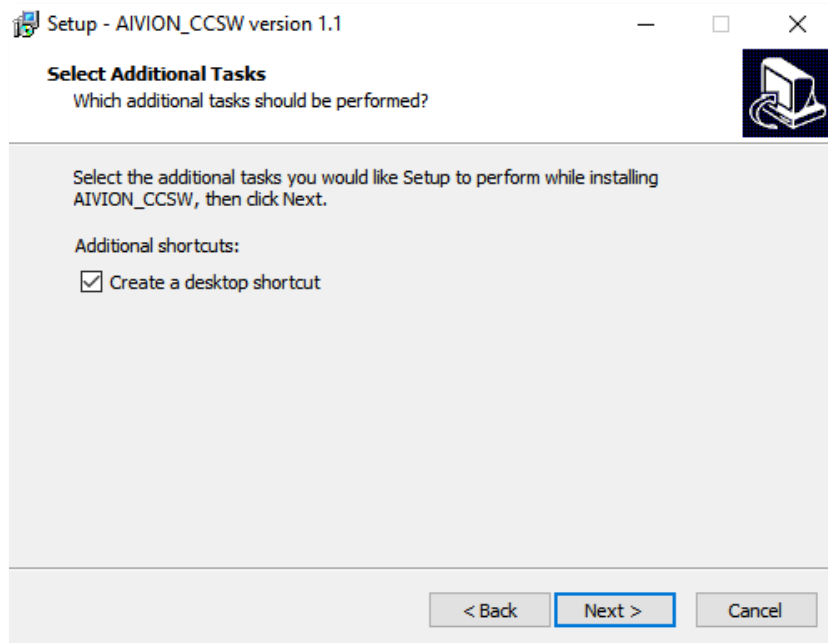
1. Select the setup language



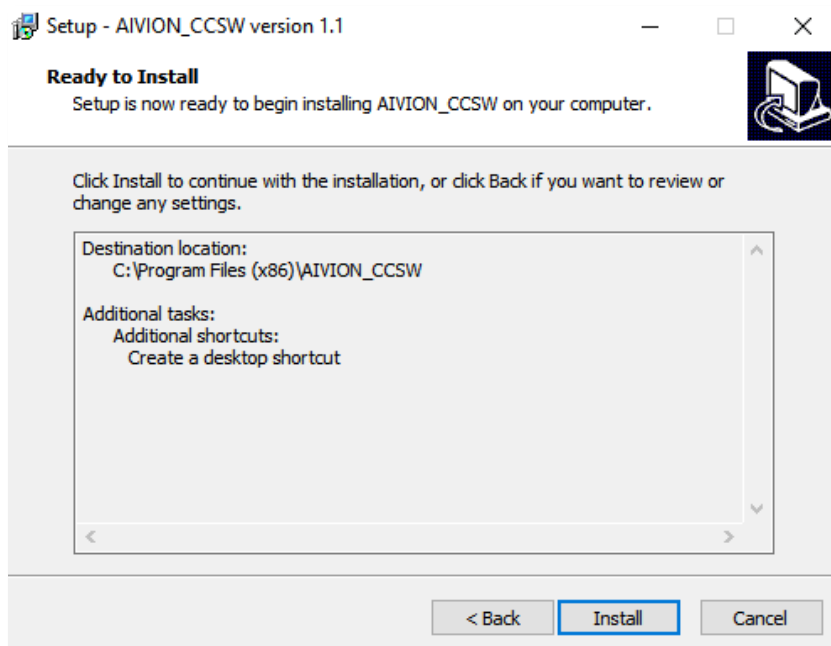
2. Optional: Select a folder to install the AIVION Camera Control Software (it is recommended to use the default folder) and click the Next button to continue.



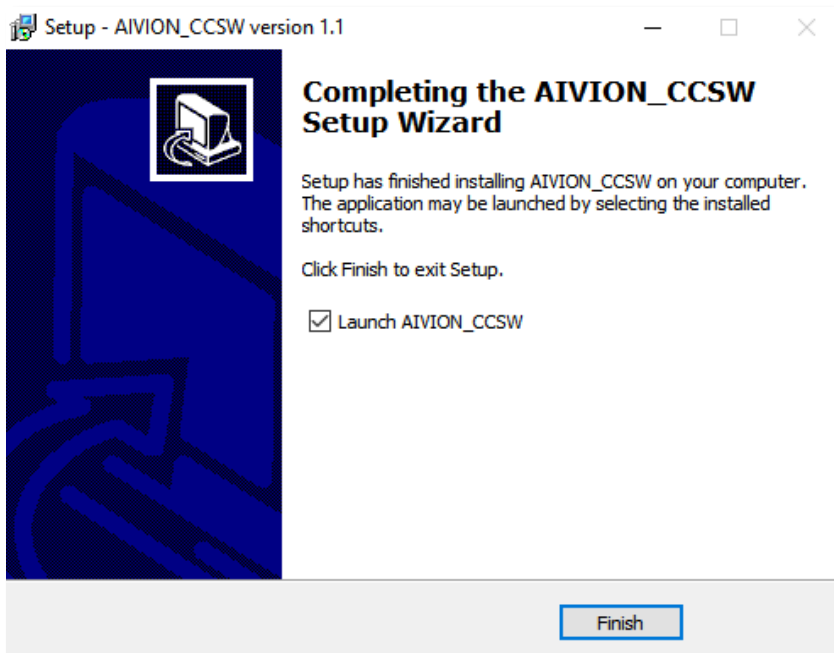
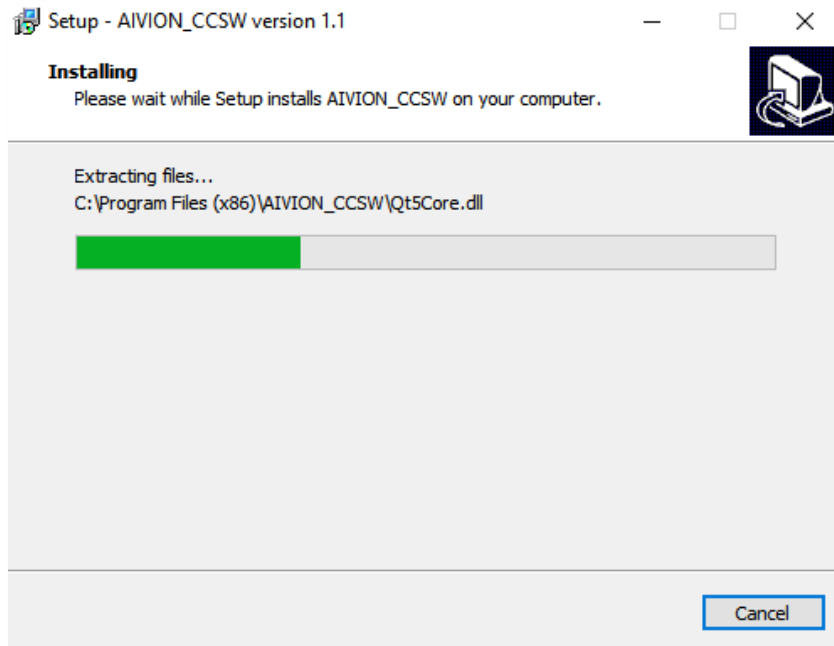
3. Check the box to create a desktop shortcut for Aivion Camera Control Software (Recommended) and click the Next button to continue.



4. Ready to install? At this point, the installer has gathered all required information. Press the Install button to install the Aivion Camera Control Software or press Back button to modify the settings.

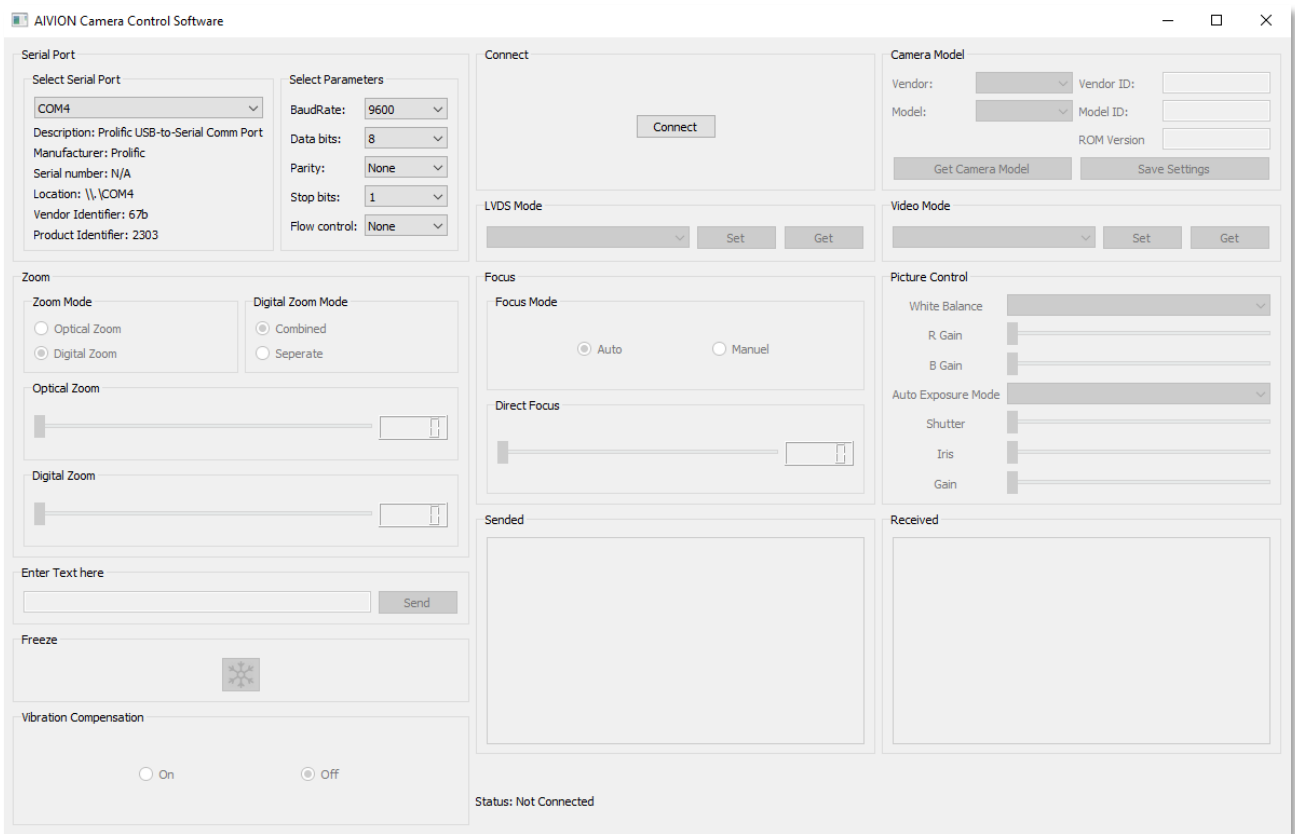


5. Wait for the Installation in progress then select finish.



Installation of AIVION Camera Control software is now complete. Press the Finish button to close the install wizard and automatically launch the AIVION Camera Control Software.

6. Aivion Camera Control software will be run automatically and shows the window below



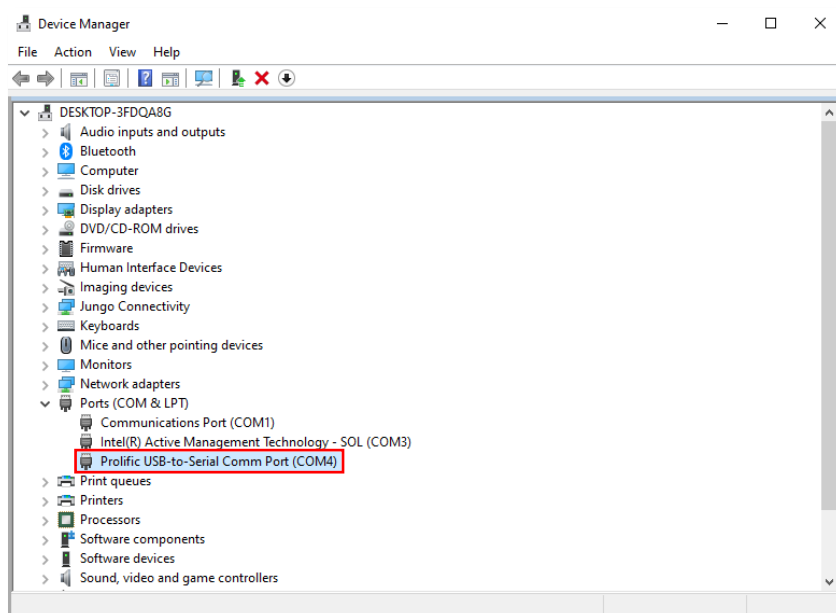
2.3 Configuring the COM Port

Installation camera Comport

The VISCA protocol runs on a serial bus and many VISCA cameras are including a RS-232 DB9 nine pin connector. If your computer does not include a native RS-232 DB9 connector you can also use a USB-to-RS232 converter.

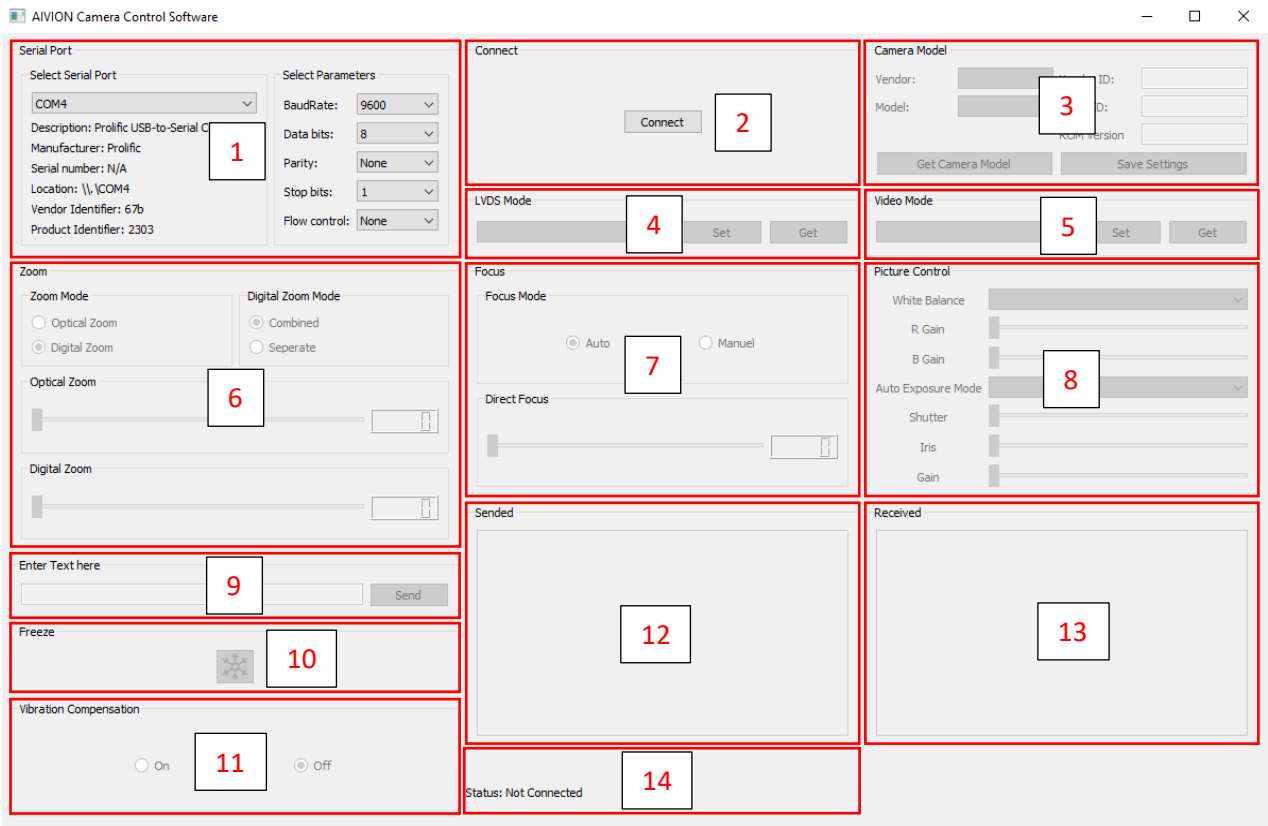
These steps are showing how to setup this converter on your system and detect the COM port used by the converter:

- Plug the USB end of the converter into your computer
- If necessary, install the USB-to-RS232 converter’s device driver from the manufacturer’s installation disk
- Plug the RS232 cable of the camera into the DB9 connector of the converter
- The converter should now be configured to detect a COM port
- To verify which COM port is being used for the VISCA bus, follow these steps:
 - Open the Windows Device Manager (select Start | type “Device Manager” and select “Device Manager”)
 - Locate “Ports (COM & LPT)” and click on the triangle to the left
 - You will find the COM port name listed. For example, “Prolific USB-to-Serial Comm Port (COM5)”. For this example (see screenshot below), you configure the VISCA Camera control software to use COM Port 4



3. Using AIVION Camera Control Software

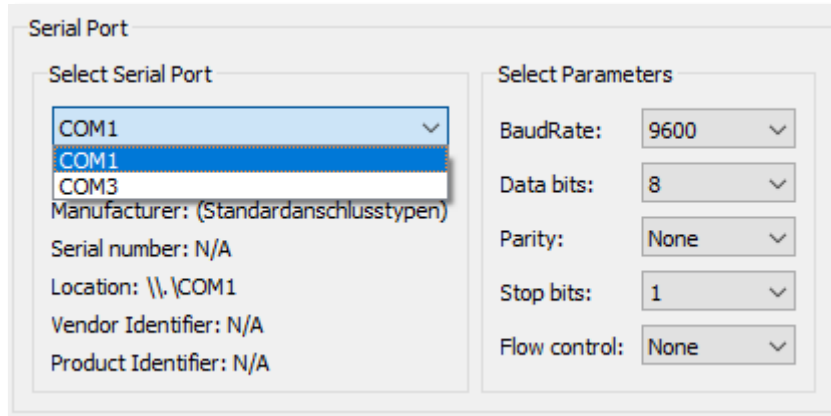
Open the Control Software. The Client consists of the Aivion Camera Control Window, which is used to configure the COM port used by the VISCA bus and the connected camera. Also, you can view diagnostic information and support information. With it you can also set focus, zoom, picture effects and more.



1: Select serial port and port parameters	2: Connect button to connect to serial port
3: Show the actual LVDS mode	4: Select the used camera model
5: Show the actual video mode	6: Slider for optical and digital zoom
7: Manual- or autofocus	8: Picture control settings
9: Textbox for manual VISCA commands	10: Freeze button
11: Vibration compensation on/off	12: Sent commands are listed here
13: Received commands are listed here	14: Show the actual connection status

3.1 Available comports block

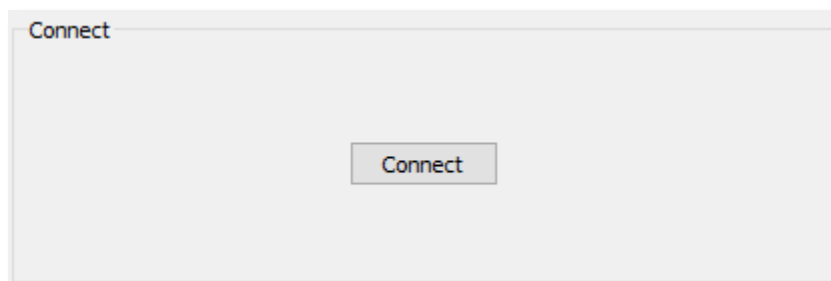
The available Comports block contains the general features of the connected comports.



Select the COM port that your VISCA bus is using.

3.2 Connect button block

Press the *Connect* button to get connected to the selected port.



3.3 Camera information block

With the Aivion Control Software, you can open different Cameras which are connected on the COMport. You can press the *Get Camera Model* button to detect the camera automatically. Once the camera is assigned, you can find the information about the camera (Vendor, Vendor ID, Model, Model ID, ROM Version).

Camera Model

Vendor: AIVION Vendor ID: 002B

Model: AZM-FS 10L Model ID: 1020

ROM Version: 1005

Get Camera Model Save Settings

If your camera is not detected automatically you can make the selection yourself. After this click on the *Save Settings* button:

1. Select the camera vendor.

Camera Model

Vendor: AIVION Vendor ID: 002B

Model: AZM-FS 10L Model ID: 1020

ROM Version: 1005

Get Camera Model Save Settings

2. Select the camera model.

Camera Model

Vendor: AIVION Vendor ID: 002B

Model: AZM-FS 10L Model ID: 1020

ROM Version: 1005

Get Camera Model Save Settings

3. Click on the *Save Settings* button.

Camera Model

Vendor: AIVION Vendor ID: 002B

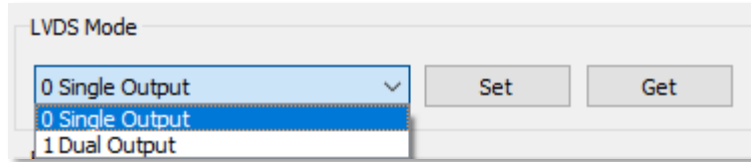
Model: AZM-FS 10L Model ID: 1020

ROM Version: 1005

Get Camera Model Save Settings

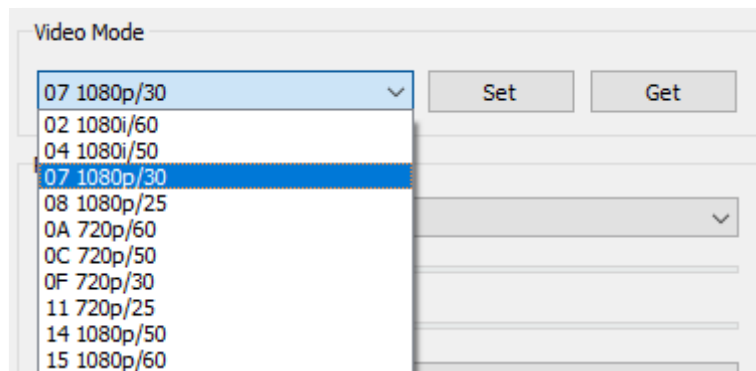
3.4 LVDS mode block

You can choose between two LVDS modes. When you want chose one, click on it and then click on *Set*. If you want to see the video mode the camera is currently in, click on *Get*.



3.5 Video mode block

You can choose between different video modes and getting access to the Video register 72. When you want chose one, click on it and then click on *Set*. If you want to see the video mode the camera is currently in, click on *Get*.



3.6 Zoom block

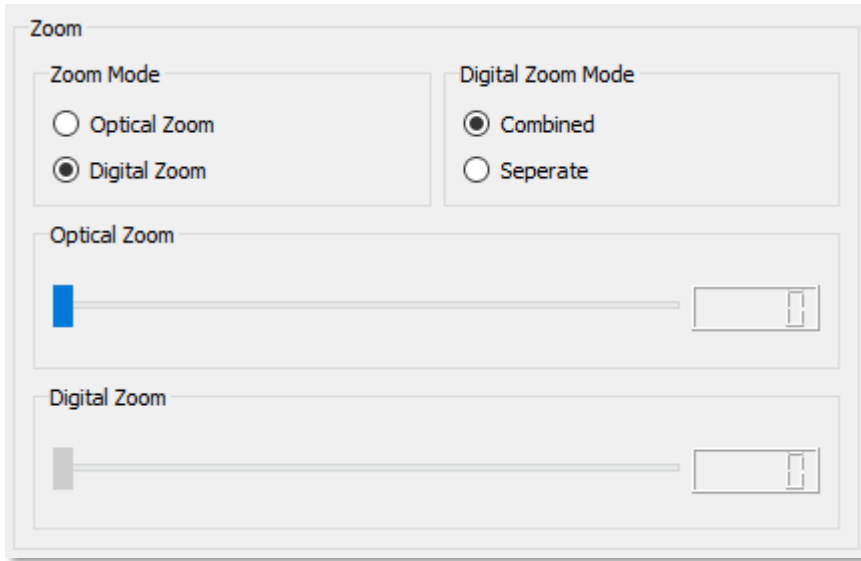
Zoom Mode:

You can choose whether you want to use the *Optical Zoom* or *Digital Zoom*.

Digital Zoom Mode:

Combined: This is the default zoom mode. Optical and digital zoom are working together. After the optical zoom has reached its maximum level, the camera switches to Digital Zoom Mode. You can use the optical zoom slider to set directly the zoom value.

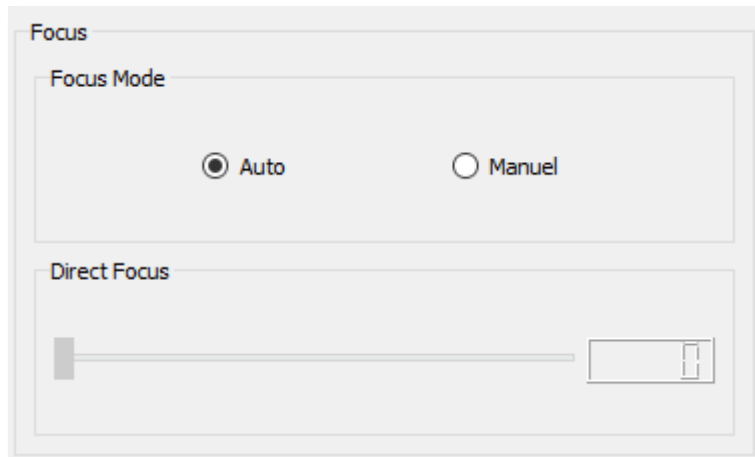
Separate: In this mode, Optical Zoom and Digital Zoom can be operated separately. You can use digital zoom magnification at any time from within any level of optical magnification. You can use the optical zoom slider and the digital zoom slider to set directly the zoom value.



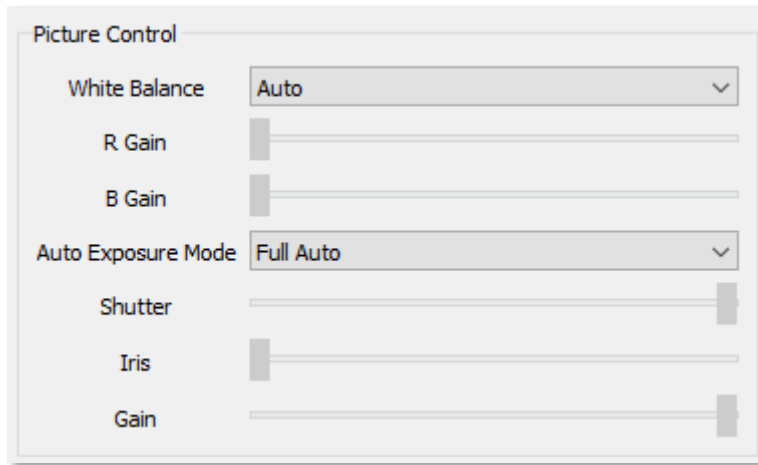
3.7 Focus block

If you want the focus to adjust automatically select autofocus if you want to adjust it manually select manual and use the slider to adjust.

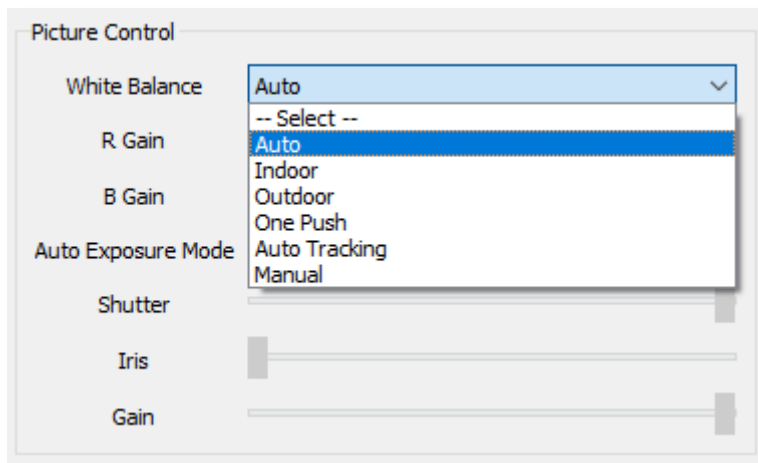
Once the manual focus mode is selected, the horizontal slider allows you to set focus to the direct value. This function disables automatically the Autofocus mode.



3.8 Picture control block



- White Balance:**
- Auto:* White balance sets automatically
 - Indoor:* Default setting for indoor lighting
 - Outdoor:* Default setting for outdoor lighting
 - One Push White Balance:* Activate the One Push mode
 - Manual:* Manual mode (active RGain and BGain)



RGain: Control Camera Red Gain (White balance must be in manual mode). The horizontal slider allows you to set focus to the direct value.

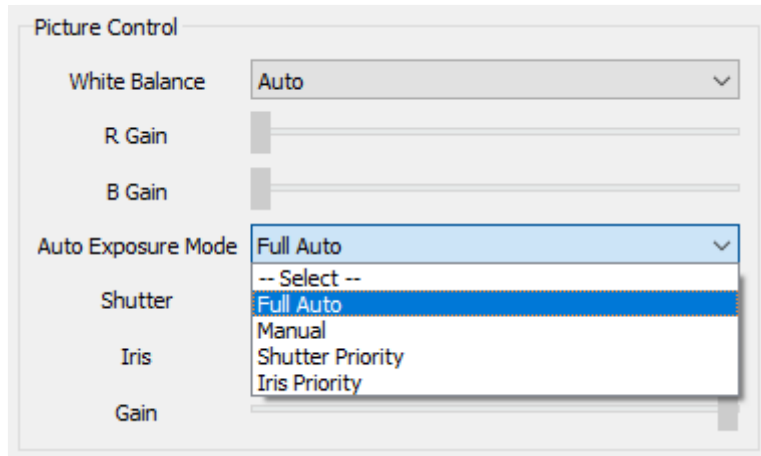
BGain: Control Camera Blue Gain (White balance must be in manual mode). The horizontal slider allows you to set focus to the direct value.

Auto Exposure Mode: Full Auto: The exposure is adjusted automatically.

Manual: Adjust the gain, electronic shutter and iris manually.

Shutter Priority: The exposure is adjusted automatically using the sensitivity and iris.

Iris Priority: The exposure is adjusted automatically using the sensitivity and electronic shutter speed.



Shutter: Control camera shutter (Auto Exposure Mode must be in manual mode). The horizontal slider allows you to set focus to the direct value.

Iris: Control camera iris (Auto Exposure Mode must be in manual mode). The horizontal slider allows you to set focus to the direct value.

Gain: Control Camera Gain (Auto Exposure Mode must be in manual mode). The horizontal slider allows you to set focus to the direct value.

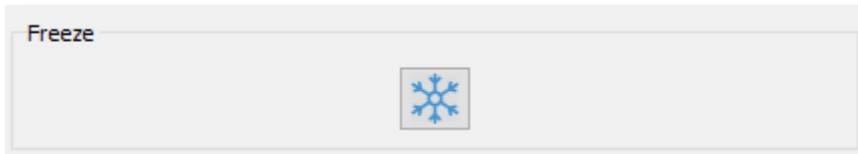
3.9 Enter text block

If you want to send your own command from the VISCA protocol you can type it here and send it with the send button.



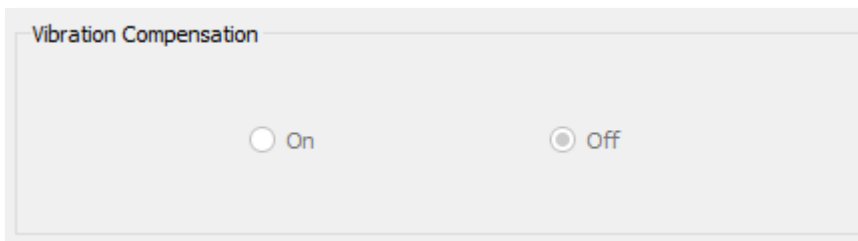
3.10 Freeze block

To freeze the image the camera is transmitting press the freeze button to defreeze it press the button again.



3.11 Vibration compensation block

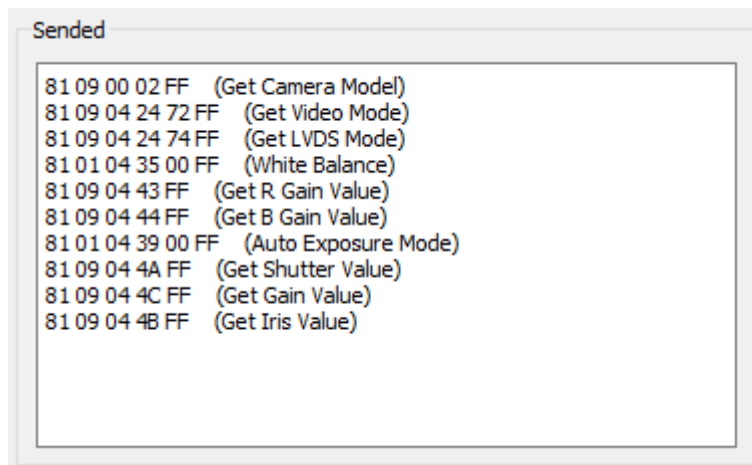
Here you can switch the vibration compensation on and off.



3.12 Sended data block

Data which is transmitted to the camera is shown here.

Example data:



3.13 Received data block

Data which is received to the camera is shown here.

Example data:

```
Received
9050002B1020100502FF
90500007FF
90500000FF
9041FF
9051FF
905000000507FF
905000000C05FF
9041FF
9051FF (Command executed)
905000000005FF
905000000004FF
90500000000DFF
```

3.14 Status block

Here you can see if you are connected to a comport and if you are connected the connection parameters are displayed.

```
Status: Connected to COM4: 9600, 8, None, 1, None
```

4. About Aivion

AIVION is a cooperation and a registered trademark of **Visual Communication Systems GmbH** and **eVision Systems GmbH**.

Visual Communication has an outstanding knowledge in the field of video & broadcast and an extensive engineering know how in System, PCB, FPGA and DSP design, while eVision Systems brings a strong FPGA and methodology background and decades of sales and marketing expertise into the cooperation.

The mission of the cooperation is to develop and market advanced interfaces, cameras and video-based components mainly for OEM clients.

Today, Aivion offers the broadest range of interfaces for block cameras and has developed advanced products like the optical fiber, USB 3.0 interfaces and the USB3.0 “Plug and Play” camera. Dozens of customizations for different applications and markets round off the customer driven approach.

To assure best quality all products are manufactured in Germany.

Further information is available on the Internet at: <http://www.aivion.com>.