

AIVION CAMARA CONTROL SOFTWARE

USER MANUAL

AIVION, Jahnstraße 12, 85661 Forstinning

Tel: +49(0)8121-2208-0 Fax: +49(0)8121-2208-22

www.aivion.com sales@avion.com

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.

GENERAL DISCLAIMER

This software is supplied without any warranties and support.

eVision Systems reserves the right to make changes to its products or specifications at any time, without notice, in order to improve the design or performance and to supply the best possible product. eVision Systems also make no representation or warranty that such application will be suitable for the specified use without further testing or modification.

VISCA is a protocol developed by the company Sony.



Table of contents

| 1. | Aivion Camera Control Software | . 4 |
|----|---|-----|
| | 1.1 What is AIVION Camera Control Software about? | . 4 |
| | 1.2 Supported platforms | . 4 |
| | 1.3 Release Note | . 4 |
| | 2024-01 | . 4 |
| | 2023-10 | . 4 |
| | 1.4 Known Bugs | . 4 |
| | 1.5 Spezial Features | . 5 |
| | 1.6 Supported Cameras | . 5 |
| 2. | Installation | . 7 |
| | 2.1 Operating System Requirements | . 7 |
| | 2.2 Installing AIVION Control Software | . 7 |
| | 2.3 Configuring the COM Port | 11 |
| 3. | Using AIVION Camera Control Software | 12 |
| | 3.1 Available comports block | 13 |
| | 3.2 Connect button block | 13 |
| | 3.3 Camera information block | 13 |
| | 3.4 LVDS mode block | 15 |
| | 3.5 Video mode block | 15 |
| | 3.6 Zoom block | 15 |
| | 3.7 Focus block | 16 |
| | 3.8 Picture control block | 17 |
| | 3.9 Enter text block | 18 |
| | 3.10 Freeze block | 19 |
| | 3.11 Vibration compensation block | 19 |
| | 3.12 Sended data block | 19 |
| | 3.13 Received data block | 20 |
| | 3.14 Status block | 20 |
| 4. | About Aivion | 21 |
| | | |



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 errer 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

| Select Setup Language | | | | |
|-----------------------|---|--------|--|--|
| 1 | Select the language to use during the installation: | | | |
| | English | \sim | | |
| | OK Cancel | | | |

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.

| 🔀 Setup - AIVION_CCSW version 1.1 | _ | | × |
|---|-----------|-------|------|
| Select Destination Location Where should AIVION_CCSW be installed? | | (| Ð |
| Setup will install AIVION_CCSW into the following folder. | | | |
| To continue, dick Next. If you would like to select a different folder, | click Bro | owse. | |
| C:\Program Files (x86)\AIVION_CCSW | Br | rowse | |
| | | | |
| | | | |
| | | | |
| | | | |
| At least 52 4 MP of free disk space is required | | | |
| At least 52.4 Mb of free disk space is required. | | | |
| Nex | t> | Car | ncel |



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

| 🔀 Setup - AIVION_CCSW version 1.1 — | |
|---|--------|
| Select Additional Tasks Which additional tasks should be performed? | |
| Select the additional tasks you would like Setup to perform while installing AIVION_CCSW, then click Next. | |
| Additional shortcuts: | |
| Create a desktop shortcut | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| < Back Next > | Cancel |

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.

| 🐻 Setup - AIVION_CCSW version 1.1 | _ | | × |
|--|---------------|------|-----|
| Ready to Install Setup is now ready to begin installing AIVION_CCSW on your co | mputer. | (| |
| Click Install to continue with the installation, or click Back if you w change any settings. | want to revie | w or | |
| Destination location: C:\Program Files (x86)\AIVION_CCSW Additional tasks: Additional shortcuts: Create a desktop shortcut | | ~ | |
| < | | > | |
| < Back | Install | Can | cel |





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 Controll Software.



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

| AIVION Camera Control Software | | | – 🗆 X |
|---|---|--|---|
| Serial Port | | Connect | Camera Model |
| Select Serial Port COM4 Description: Prolific USB-to-Serial Comm Port Manufacturer: Prolific Serial number: N/A | Select Parameters BaudRate: 9600 Data bits: 8 Parity: None | Connect | Vendor: Vendor ID: Model ID: ROM Version Get Camera Model Save Settings |
| Location: \\COM4 Vendor Identifier: 67b Product Identifier: 2303 | Stop bits: 1 ~ Flow control: None ~ | LVDS Mode | Video Mode Video Set Get |
| Zoom | | Focus | Picture Control |
| Zoom Mode Digit Optical Zoom Optical Zoom Optical Zoom Digital Zoom Digital Zoom Digital Zoom | tal Zoom Mode Combined Seperate | Focus Mode Auto Manuel Direct Focus Sended Sended | White Balance |
| Enter Text here Freeze Vibration Compensation | Send | | |
| () On |) off | Status: Not Connected | |



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.

| AIVION Camera Control Software | | - 🗆 X |
|--|--|--|
| Serial Port Select Serial Port COM4 Description: Prolific USB-to-Serial C Manufacture: Prolific Serial number: N/A Location: \\\COM4 Vendor Identifier: 67b Product Identifier: 2303 Serial number: N/A Flow control: None | Connect 2 | Camera Model Vendor: Model: Get Camera Model Video Mode Save Settings Video Mode Get Camera Model Get Camera Model |
| Zoom Zoom Mode Optical Zoom Digital Zoom Mode © Combined Optical Zoom Digital Zoom Digital Zoom Digital Zoom | Focus Focus Mode Auto Auto Direct Focus | Picture Control White Balance R Gain B Gain Auto Exposure Mode Shutter Iris Gain |
| Enter Text here 9 Send Freeze 10 Vibration Compensation On 11 O Off | Sended 12 Status: Not Connected 14 | Received 13 |

| 1: Select serial port and port parameters | 2: Connect button to connect to serial port | |
|---|---|--|
| 3: Show the actuall LVDS mode | 4: Select the used camera model | |
| 5: Show the actuall 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: Sended commands are listed here | |
| 13: Received commands are listed here | 14: Show the actuall connection status | |



3.1 Available comports block

| Select Parame | ters |
|---------------|---|
| BaudRate: | 9600 ~ |
| Data bits: | 8 ~ |
| Doritu | Nepe |
| Parity: | None v |
| Stop bits: | 1 ~ |
| | |
| | Select Parame BaudRate: Data bits: Parity: Stop bits: |

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

| Connect | | |
|---------|---------|--|
| | Connect | |
| | | |

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 | \sim | Vendor ID: | 002B |
| Model: | AZM-FS10L | \sim | Model ID: | 1020 |
| | | | ROM Version | 1005 |
| Get Camera Model | | Sav | e 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: | Select Sony Tamron | Model ID: ROM Version | 1020 | | | |
| Get Camera Model | | Save | e Settings | | | |

2. Select the camera model.

| Camera Model | | | |
|------------------|-------------|-------------|------------|
| Vendor: | AIVION ~ | Vendor ID: | 002B |
| Model: | AZM-FS10L V | Model ID: | 1020 |
| | Select | | |
| | AZM-FS10L | ROM Version | 1005 |
| | AZM-FS30L | | |
| Get Camera Model | | Save | e Settings |
| | | | |

3. Click on the *Save Settings* button.

| Camera Model | | | | |
|------------------|-----------|--------|-------------|------|
| Vendor: | AIVION | \sim | Vendor ID: | 002B |
| Model: | AZM-FS10L | \sim | Model ID: | 1020 |
| | | | ROM Version | 1005 |
| Get Camera Model | | Save | e 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*.

| LVDS Mode | | |
|-------------------|-----|-----|
| 0 Single Output 🗸 | Set | Get |
| 0 Single Output | | |
| 1 Dual Output | | |

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*.

| Video Mode | | | |
|---|---|-----|-----|
| 07 1080p/30 | ~ | Set | Get |
| 02 1080i/60 04 1080i/50 | | | |
| 07 1080p/30 | | | |
| 08 1080p/25 0A 720p/60 0C 720p/50 | | | ~ |
| 0F 720p/30 | | | |
| 11 /20p/25 14 1080p/50 | | | |
| 15 1080p/60 | | | |

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.



| Zoom | |
|--------------|-------------------|
| Zoom Mode | Digital Zoom Mode |
| Optical Zoom | Combined |
| Digital Zoom | ○ Seperate |
| Optical Zoom | |
| Digital Zoom | |

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.

| Focus | | | |
|--------------|------|----------|----------|
| Focus Mode | | | |
| | | | |
| | Auto | O Manuel | |
| | | | |
| Direct Focus | | | |
| | | | |
| | | | - |
| | | <u> </u> | <u>.</u> |
| | | | |



3.8 Picture control block

| Picture Control | |
|--------------------|-------------|
| White Balance | Auto ~ |
| R Gain | |
| B Gain | |
| Auto Exposure Mode | Full Auto 🗸 |
| Shutter | |
| Iris | |
| Gain | |

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)

| Picture Control | |
|--------------------|---------------------------|
| White Balance | Auto 🗸 |
| R Gain | Select |
| B Gain | Indoor Outdoor |
| Auto Exposure Mode | One Push Auto Tracking |
| Shutter | Manual |
| Iris | |
| 1.12 | |
| Gain | |
| | |

- 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.

| Picture Control | |
|--------------------|---|
| White Balance | Auto 🗸 |
| R Gain | |
| B Gain | |
| Auto Exposure Mode | Full Auto 🗸 |
| Shutter | Select Full Auto |
| Iris | Manual Shutter Priority Iris Priority |
| Gain | |

| Shutter: | Control camera shutter (Auto Eexposure Mode must be in manual mode). The horizontal slider allows you to set focus to the direct value. |
|----------|--|
| Iris: | Control camera iris (Auto Eexposure Mode must be in manual mode). The horizontal slider allows you to set focus to the direct value. |
| Gain: | Control Camera Gain (Auto Eexposure 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.

| Enter Text here | |
|-----------------|------|
| | Send |
| | |



3.10 Freeze block

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

| Freeze | | |
|--------|---|--|
| | * | |

3.11 Vibration compensation block

Here you can switch the vibration compensation on and off.

| Vibration Compensation | | |
|------------------------|-------|--|
| 🔿 On |) Off | |

3.12 Sended data block

Data which is transmitted to the camera is shown here.





3.13 Received data block

Data which is received to the camera is shown here.

Example data: P050002B1020100502FF 90500007FF 90500000FF 9041FF 9051FF 9050000000507FF 905000000005FF 9051FF (Command executed) 905000000005FF 90500000000FF 90500000000FF

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 videobased 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: <u>http://www.aivion.com</u>.

