



www.awaiba.com

READ-ME
Awaiba NanEye evaluation system
V2.0.0.0

Thank you for evaluating the Awaiba NanEye image sensor. For any support during your evaluation please contact Awaiba.

Please read this text carefully.

This software will install the Awaiba NanEye software and drivers on your computer. You need administrative privileges in order to properly install it.

This software is compatible with Windows XP or Windows 7.

→ **Very important** ←

- **Do not connect the device to the computer before installing this software!**
- **Make sure that you never touch the image sensor and you do not make the evaluation system lie on the sensor side because it can destroy the sensor!**

You can find this document under the documentation folder inside the CD-ROM.

Package content

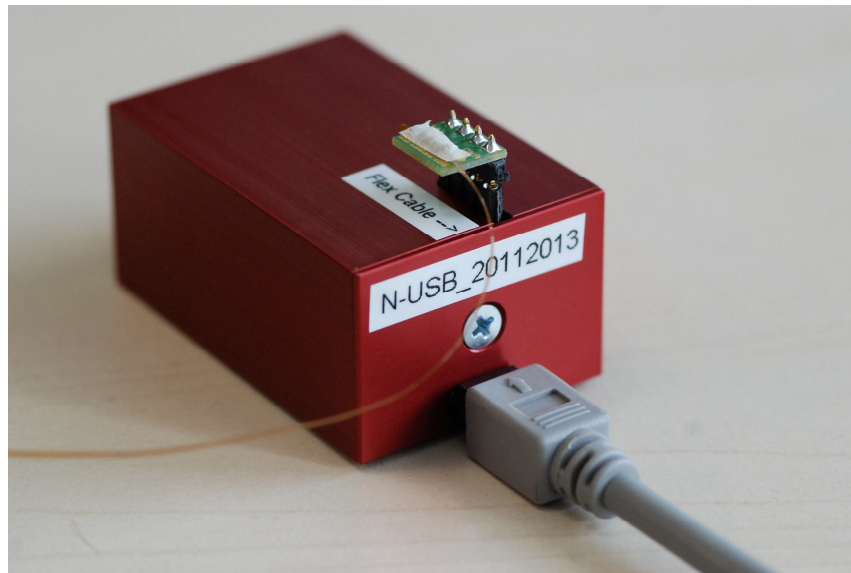
- Evaluation System with USB interface
- USB cable
- NanEye sensor with flex cable
- CD-ROM with Software and Correction Masks



How to Install AWAIBA NanEye Evaluation System

- 1) Run *setup-NanEyeViewer-2.0.0.0.exe* from the CD-ROM root folder;
- 2) Select the installation folder;
- 3) Select the media folder (where correction masks, screenshots and videos will be saved);
- 4) Wait while some minutes for the installation of all Microsoft components: Intel Performance Primitives, .Net update and a Visual Studio redistributable package.
- 5) At last the NanEye driver (*Cesys UDK*) will be installed. Accept all warning questions during the driver installation.

Once the installation is completed you can connect the USB system with the NanEye camera attached like the following image.

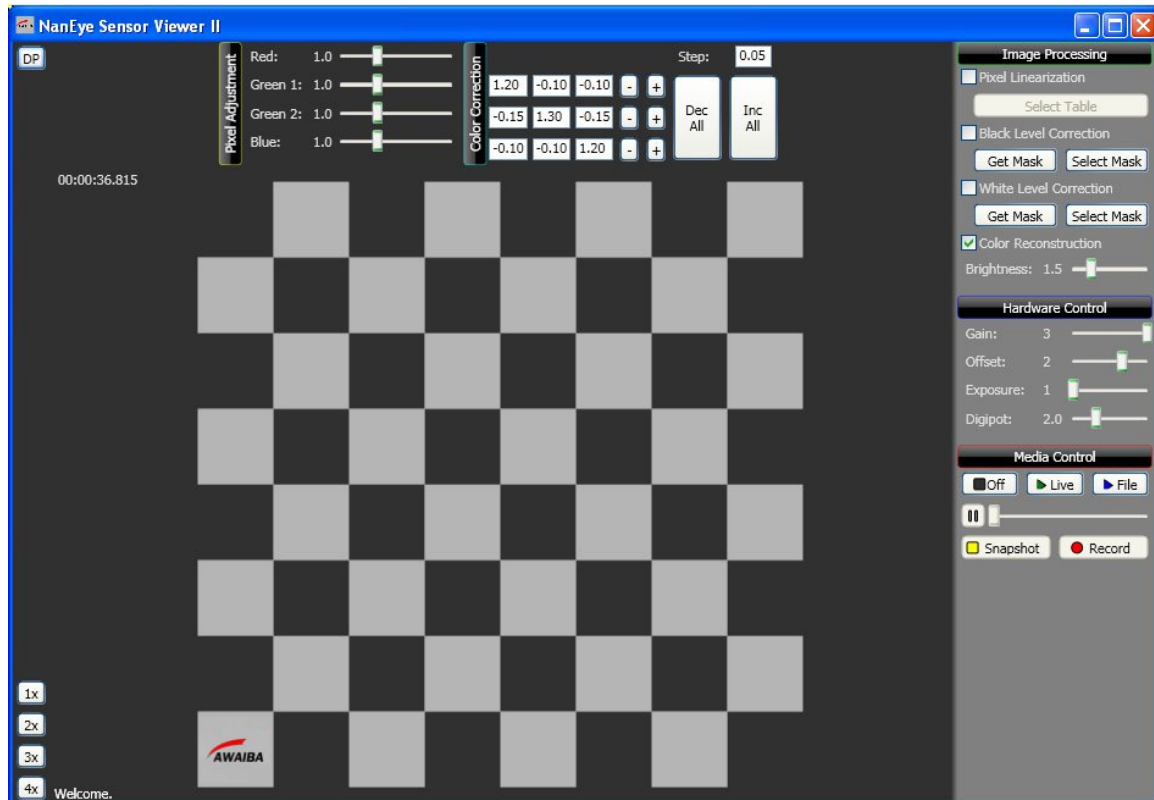


The driver association with the hardware will be handled by Windows in two sequential steps. Accept all Windows warning messages during the installation.

Note : If you need further informations or if you face problems during installation, read the FAQ section at the end of this document.

Running the software

Run *Awaiba NanEye Viewer* by launching its shortcut from the desktop.



The camera image is shown in the center of the window. The four buttons on the left lower corner adjust the image zoom.

On the right side you can find image processing features, hardware settings and media controls. On the top side are the color controls (balance and saturation).

Image processing :

- Pixel Linearization : Activates/deactivates the multi-point pixel response correction
- Select Table : Selects the Look-Up Table for multi-point pixel correction
- Black level correction : Activates/deactivates the black level pixel correction
- Get mask : Starts the procedure to grab image information (.awblc file) to use during black level correction. Instructions are shown during the process. It requires the NanEye camera to be in dark conditions.
- Select Mask : Selects the mask (.awblc file) for the black level correction
- White level correction : Activates/deactivates the white level pixel correction
- Get mask : Starts the procedure to grab image information (.awwlc file) to use during white level correction. Instructions are shown during the process. It requires the NanEye camera to be in controlled illumination conditions.
- Select Mask : Selects the mask (.awwlc file) for the white level correction
- Color Reconstruction : Enables/disables the color image reconstruction algorithm based in Bayer pattern filters.
- Brightness : Adjusts the image brightness in the Viewer software.

Hardware Control :

- Gain : Configures the sensor gain. Four settings are possible : 0, 1, 2 or 3. The higher is the number higher is the gain.
- Offset : Sets the sensor offset between 0 and 3. The higher is the number higher is the black level.
- Digipot : Adjusts the power supply voltage (1.8V – 2.4V) by tuning the digital potentiometer. At 1.8V the sensor works with around 44 frames per second. At higher voltage settings the sensor works at higher frame-rates. For example, at 2.4V the sensor outputs around 58 fps. Intermediate speeds can be calculated by a linear function.
- Exposure : Configures the sensor exposure time through 255 steps. The exposure time can be set from 0 ms up to the frame period, linearly divided by all steps. For that reason, the exposure time range changes accordingly to the power supply voltage set by the Digipot.
Consider the following example :

At 1.8V the camera works at 44 fps and has a frame period of 22.7 ms. As the sensor has 250 lines each line exposure takes 90.8 ns. The lower exposure setting (1) sets an exposure time of 250 lines, which means 22.7 ms. Is not recommended to use exposure setting 0, (max. exposure time), it can lead to additional noise and unstable image. Each additional exposure step decreases the exposure time by 90.8 ns (equivalent of the exposure time of one line). For example exposure setting number 110 sets an exposure time of roughly 12.7 ms ($22700 - (90.8 * 110)$ ns).

Media Control :

- Live/Off : Starts/stops the image streaming from the NanEye camera.
- File : Plays a previously recorded video file.
- Snapshot : Takes a screenshot of the current image streaming and saves it in the Snapshots folder under Media folder.
- Record : Records a video file and saves it in the Videos folder under Media folder.
The slider control the time position while watching a video file.

Note : The correction masks included in the CD were generated for a defined sensor configuration. The included masks are valid only when the sensor is configured with the same settings. The settings that should be set are Gain and Offset and they can be found in the correction mask file name.

Example: *Black_N2B000191_BL=2_Gain=3.awblc*. To apply this black correction mask you should set the sensor *Offset* to 2 and the *Gain* to 3.

FAQ section and problem solving during installation

- 1- Do not get any message about microsoft driver installation and the NanEye viewer doesn't start.

Answer : In case the Microsoft libraries are not installed automatically, or in case any package fails, the user can start the installation manually. Go to the installation folder(usually is under programs/NanEyeViewer) and run the Drivers32bit.exe.

The instalation of all libraries and the driver will be restarted so that everything can be installed again.

2- All drivers are installed but the software doesn't start or gives out an exception.

Answer: Remove all drivers and delete the NanEye folder. After that restart the installation kit. Request Awaiba via e-mail for the latest kit and send a printscreen of your error if it persists.