



## Quick Start Guide

QG000138

# NanEyeC NanoVision

## Demo Kit

NanoVision Demo Kit 990601079

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# Content Guide

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# 1 Out of the Box

NanEyeC is a miniature image sensor with a resolution of 320 x 320 pixels designed for space-constrained vision applications. This quick start guide focuses on the NanoVision Demo Kit, which runs the NanEyeC sensor via single-ended interface mode (SEIM).



**For further information on the NanEyeC, please refer to the following document:**

- NanEyeC datasheet – DS000503

Figure 1 and Figure 2 show how the demo kit is delivered to its final user. The box comes with the following material:

- NanoVision demo board (please remove the protection foil from the display)
- NanEyeC sensor with flex cable/connector
- USB2.0 type A to micro-B cable
- Metal spacers to increase the platform height
- USB stick with documentation

**Figure 1:**  
Demo Kit Unboxing



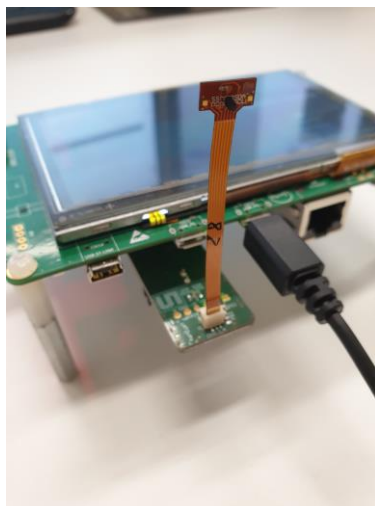
**Figure 2:**  
Demo Kit Unboxing (demo board removed)



## 2 Start the Application

This section helps the user to operate the demo kit, configuring the sensor registers and processing algorithms. In order to get images, the flex connector should be placed correctly, where the sensor module is facing outwards the board system (it only works in one position), as shown in Figure 3. Also the USB cable should be supplied with 5 V and connected as presented in Figure 4 (on top of the board is written CN12 USB\_HS).

**Figure 3:**  
NanEyeC and USB Cable Connection

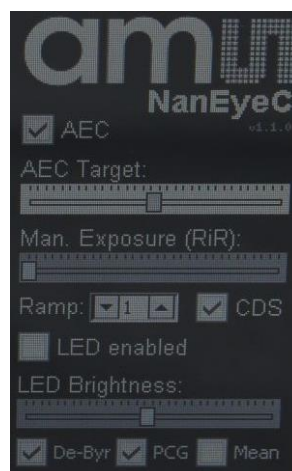


**Figure 4:**  
NanEyeC and USB Cable Connection (top view)



Figure 5 shows the demo kit interface in detail.

**Figure 5 :**  
NanoVision Demo Kit Interface



Its functionalities are very basic, such as:

- **Automatic Exposure Control (AEC)**
  - This algorithm controls the sensor's exposure (Rows in Reset – RiR) automatically, according to the illumination conditions. Rows in Delay are set to the minimum.
- **AEC Target**
  - Defines the desired digital value for which the algorithm will converge
    - Between 0 and 255 DN
  - While AEC is on, exposure is not manually configurable
- **Man. Exposure (RiR)**
  - This allows to manually configure the sensor Rows in Reset (rows\_in\_reset[7:0])
    - Slider minimum value defines the minimum Rows in Reset value, which provides higher exposure and vice-versa
- **Ramp**
  - Defines the ADC ramp gain value (ramp\_gain[1:0])
    - With higher values the image gets brighter
- **CDS**
  - Defines the CDS gain value (cds\_gain[0])
    - When enabled image gets brighter
- **LED Enable**
  - Enables the sensor LED
- **LED Brightness**
  - The slider adjusts the LED intensity
- **De-Byr**
  - Enables the De-Bayering algorithm for color reconstruction from the raw images captured from the sensor
- **PCG**
  - Enables Pre-Color Gain feature
    - Changes pixel values after capture and before color reconstruction (Red\*0.95, Green\*0.85, Blue\*1.25)
    - To be applied when using sensor LED illumination
- **Mean**
  - Performs an average of images to reduce noise

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