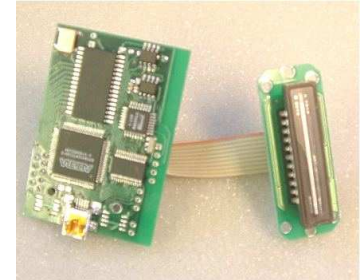


USB line scan camera modules

EURECA supplies camera modules, which can be connected to the USB interface of a PC and are so very suitable for building up spectrometers or to be used as OEM components in optical measurement devices. Available are models for many CCD/CMOS linear sensors as well as for CIS modules (CIS = Contact image sensor)

The modules consist of two units, which are connected via a flat cable. An interface pcb contains the complete driving electronics, as well as all circuits for the USB interface. With models for CCD/CMOS sensors an additional small sensor pcb is used, so that the sensor can be mounted separate from the interface pcb. With CIS modules these are directly connected to the interface pcb.



- programmable integration times
- internal memory for several scans (up to 512 scan with 1024 pixel sensor)
- UV coated versions available for many sensors
- programmable range of interest
- on request also available with a serial interface.

| Designation | Pixel | Pixel size [µm ²] | UV version available | Remarks |
|---------------------------------|-------|----------------------------------|-------------------------|---|
| CCD/CMOS linear sensoren | | | | |
| USB-Board- ELIS-1024 | 1024 | 125,0 x 62,4 | | Rectangle pixels, variable pixel number |
| USB-Board- ILX511 | 2048 | 200,0 x 14,0 | • | Längliche Pixel |
| USB-Board- ILX554 | 2048 | 56,0 x 14,0 | • | Rectangle pixels |
| USB-Board- ILX553 | 5150 | 7,0 x 7,0 | • | Große Zeilenlänge |
| USB-Board- ILX551 | 2048 | 14,0 x 14,0 | • | |
| USB-Board- ILX751 | 2048 | 14,0 x 14,0 | • | |
| USB-Board- TSL1401 | 128 | 63,5 x 55,5 | | Very large pixels |
| USB-Board- TSL1410 | 1280 | 63,5 x 55,5 | | Very large pixels |
| USB-Board- TSL1412 | 1536 | 63,5 x 55,5 | | Sehr große Pixel |
| USB-Board- TCD1205 | 2048 | 200,0 x 14,0 | • | Rectangle pixels |
| USB-Board- TCD1304 | 3648 | 200,0 x 8,0 | • | Rectangle pixels |
| USB-Board- TCD1707 | 7450 | 4,7 x 4,7 | | |
| CIS modules | | | | |
| USB-Board-M106-A8 | 448 | 125,0 x 125,0 | | Sensor module with linear lens and LEDs |
| USB-Board-M106-A6 | 832 | 125,0 x 125,0 | | |
| USB-Board-M106-A4 | 1728 | 125,0 x 125,0 | | |
| USB-Board-M206-A4C | 5184 | 42,3 x 42,3 | | Colour module (with RGB LEDs) |

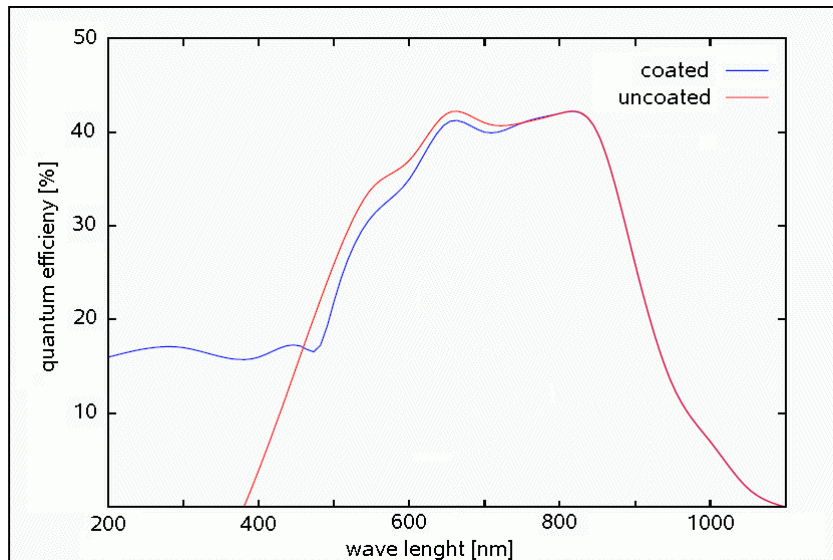
Alternative sensors

Finally also camera boards for many sensors by HAMAMATSU are available. The sensors by HAMAMATSU itself does not belong to our standard range of supply. Due to many requests, we have however chosen to offer also the boards for these sensors. Boards for HAMAMATSU sensors are normally supplied WITHOUT the sensor. Available are boards for the following types: S3901, S3902, S3903, S3904, S8377, S8378, S7010, S7011, S7030, S7031, S7033, S7034, S9840, G9201, G9202, G9203, G9204, G9205, G9206, G9207, G9208, G9211, G9212, G9213 and G9214. Please contact us, if you have interest in such boards in order to verify the current price and delivery date.

Optional UV coating of CCD/CMOS linear sensors

With some board types the used sensors are also available with an UV sensitive Lumigen coating. This coating extends the sensitivity of the sensor into the ultraviolet spectral range (down to 200nm). Such coated sensors can so be used for measurement applications in the UV, which opens the door to many new applications. Since the coating is transparent, the coated sensors can still be used also in the visual spectral range.

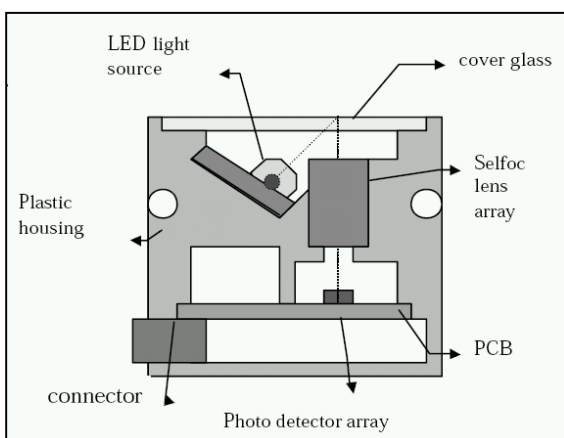
If you would like to order an USB board with an UV coated sensor, please add to the board designation the extension “-UV” (e.g. USB-Board-TCD1205-UV).



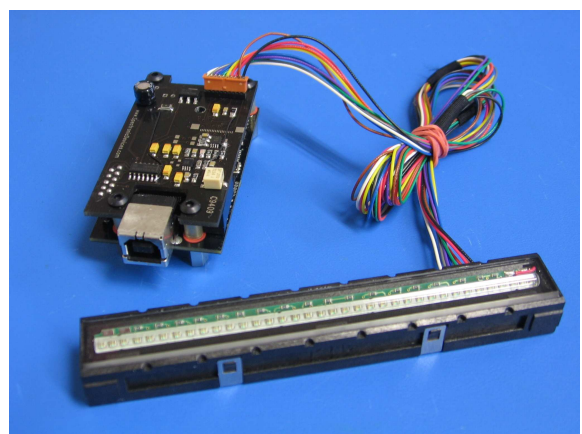
Please note that the coated sensors are supplied without a glass cover. Due to this the sensors must be protected against mechanical damage, humidity and dirt. They are shipped with an attached adhesive foil, which has to be removed before using the boards. If you need a permanent protection for the sensors, we can supply the coated sensors also with an attached quartz window. If you wish to order this additional feature, please add a further extension “-Quartz” to the product designation (e.g. USB-Board-TCD1205-UV-Quartz)

CIS modules

A CIS (**C**ontact **I**mage **S**ensor) module consists of CMOS linear sensors, a linear optic and a LED illumination. These modules are optimised for scanning documents that are in contact to the CIS module. The modules are available in standard resolution of 200 dpi and 600 dpi.



Cross-sectional view of a CIS module



USB-Board-PI625MC-A6

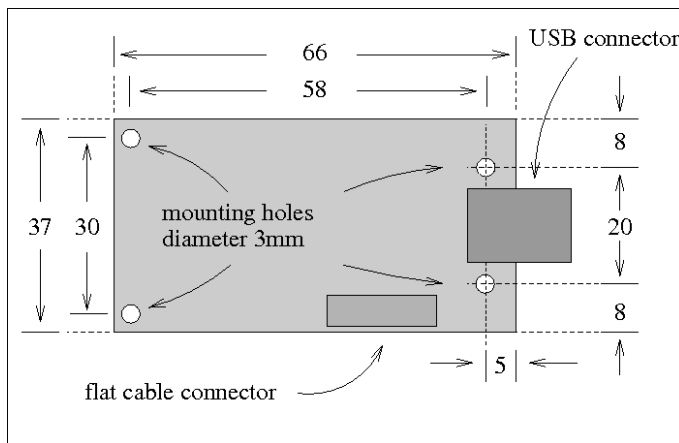
Software and drivers

The software drivers are available as DLL, COM or ActiceX. The communication via the USB or RS232 interface is also possible with a simple ASCII terminal. On request the boards can also be delivered with customized PID or VIS. Such a customized hardware allows an automatic identification of the camera in order to load a certain software.

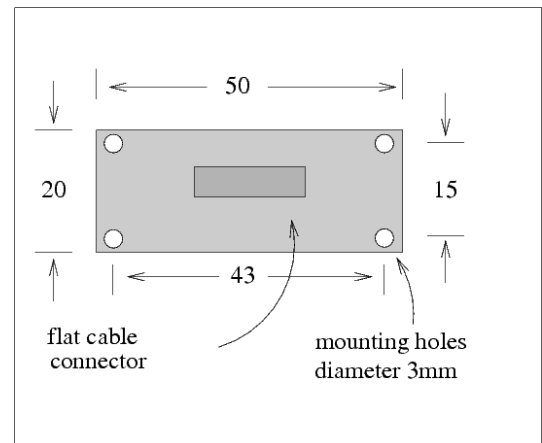
The transmission of the recorded data to the attached PC is limited by the used USB interface. If the used USB port is slower than the pixel frequency of the camera, the internal memory of the camera board can be used to store multiple scans. After the memory of the camera board is exceeded, the recording has to be stopped until the data is transferred to the PC. The boards are supplied with software drivers and a demonstration routine. Included are examples for programming in VisualC++, Visual Basic, Delphi and LabVIEW. Each shipment contains a free evaluation CD of LabVIEW 8.20. With this LabVIEW can be tested for 30 days with all full features.

Mechanical dimensions of the boards

The following figures show the mechanical dimensions of the boards. Versions with CCD/CMOS sensors use a small sensor pcb. The light sensitive area of the sensor is here always centered between the mounting holes of the sensor pcb. Please note that the housings of some sensors are larger than the outline of the sensor pcb.



Interface pcb



Sensor pcb

With USB cameras for CIS modules the interface pcb is connected directly to the CIS module. The used CIS modules are parts of larger OEM batches with higher volumes. They use a rectangle plastic housing with several mounting holes. The positions of these mounting holes are often customized and may change from batch to batch. Due to this fact we indicated here only the outer dimensions of the CIS modules.

| CIS module | Typ. length [mm] | Typ. width [mm] | Typ. height [mm] |
|------------|------------------|-----------------|------------------|
| M106-A8 | 70 | 15 | 12 |
| M106-A6 | 120 | 18 | 18 |
| M106-A4 | 232 | 18 | 15 |
| M206-A4C | 232 | 18 | 15 |

If you should need to know the exact position of the mounting holes of the actual batch, please contact us.

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