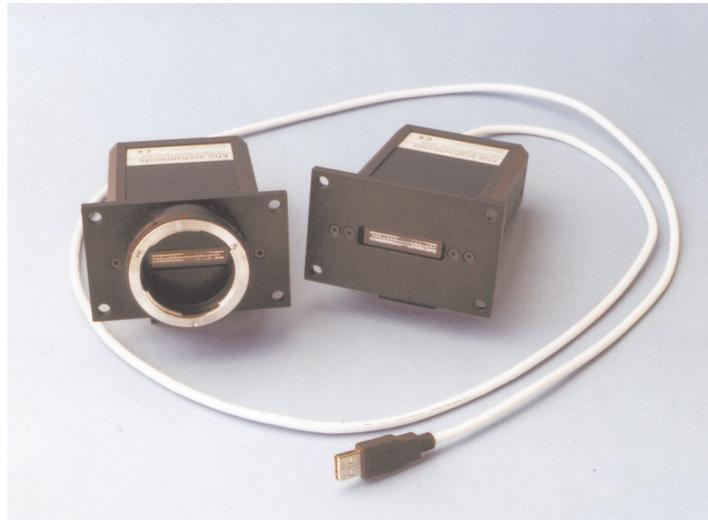


USB2 - CCD 3600 - 200

Complete medium speed, low noise ccd linescan camera system



Key Features:

- CCD-line scan camera system.
- 3648 Pixels low noise.
- External and internal trigger.
- Start of frame output.
- Optional Contax lens mount.
- Drivers for W98 / W2K/ XP/ Labview.

Applications:

- Spectroscopy.
- Portable applications
- Position detector.

Overview:

The USB-CCD 3600 is an easy to use, complete ccd line scan camera system. It includes a low noise ccd line scan camera with USB 2.0 interface. Additional components are not required.

The USB2-CCD was designed for low speed applications with the need of high sensitivity and low noise, like spectroscopy.

Hardware:

The USB2-CCD camera head includes the complete CCD-timing with signal conditioning (CDS), a precision 12 Bit ADC and an USB 2.0 interface.

The camera head is powered by the USB-bus. Additional power-supplies are not required. The USB2-CCD provides optional start of of scan output and an input for external triggering.

The camera head can be equipped with an optional Contax (other manufacturer upon request) compatible lens mount.

khs instruments

Software

The USB2-CCD linescan camera system is shipped with a software for Windows 98, Windows 2000 and XP.

The software includes a DLL to provide an interface to other software and an user software. Drivers for Labview are available upon request.

The user software includes various modes to edit the x/y scales and units, a run mode to observe the sensors's signal, signal processing functions like averaging, binning and x/y zoom and a function to subtract a reference from the actual scan. To get a zero baseline at once, the reference can be loaded from the actual scan. This function works with floating point accuracy.

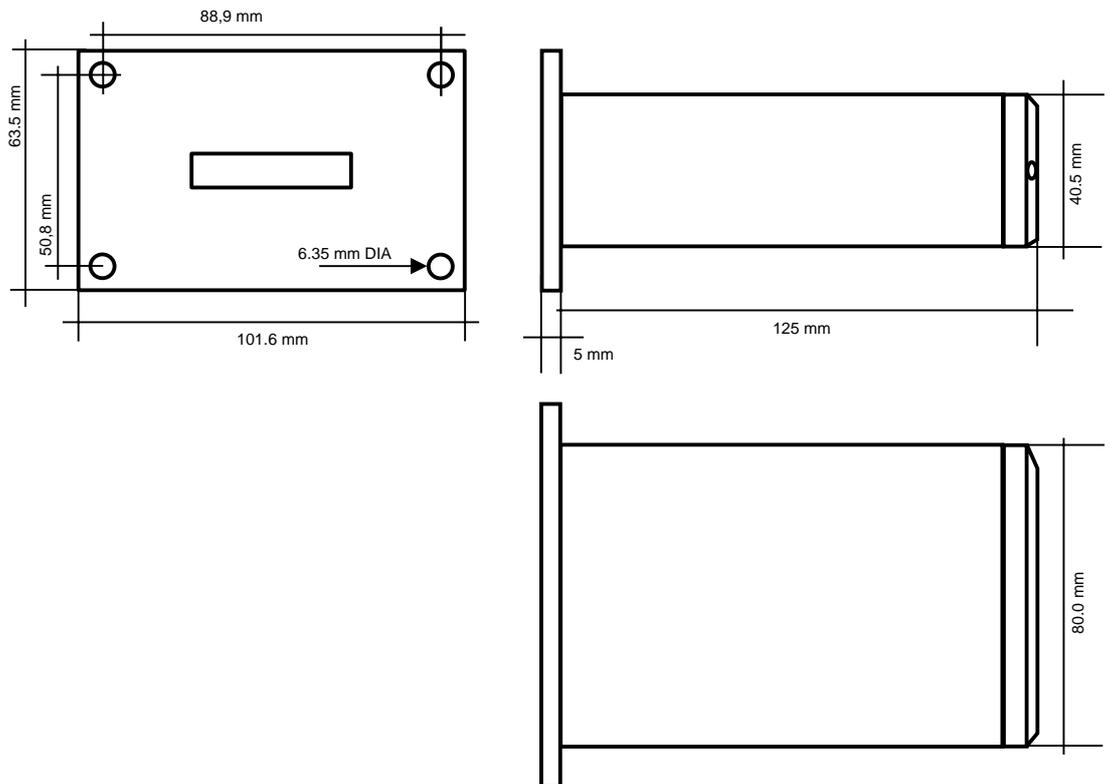
The two averaging modes provide functions for further reducing the signal to noise ratio. The integer accumulation mode performs a fast accumulation of several scans.

The averaging mode calculates the running mean of consecutive displayed scans. This floating point function performs (with the excellent integral linearity of the ADC) a baseline stability of 1/2 LSB. (This is possible for very slow processes only.)

To provide a stable display of non-repetitive signals (like a laser beam crossing the CCD-sensor chip), a software trigger was included. Only these scans are displayed (and averaged) which pixels exceeding a selectable threshold .

The view modus provides functions to read and print stored files from disk. The file format for stored data is ASCII, to facilitate the data transfer to other programs like Excel.

Mechanical Dimension



Specifications

Detector array:

Number of pixels: 3648
 Pixel size: 8 μm x 200 μm
 Spectral range: < 400nm..1000nm
 Sensitivity nonuniformity: < 10% ss

Saturation exposure: 0.004 lx sec

System & detector:

ADC 12 Bits
 Signal / Noise rms (*) about 1600 : 1.

Signal / Noise rms
 8 times averaging (*) about 25 000 : 1.

Baseline stability < 2 counts

Exposure Time: 7.6 ms to 1,0 s.
 Framerate: about 100 lps.

(*) Full scale / dark noise

System requirements:

Operating system: Win 98 / W2K / XP.
 Disk: 300 KB free.

USB interface:

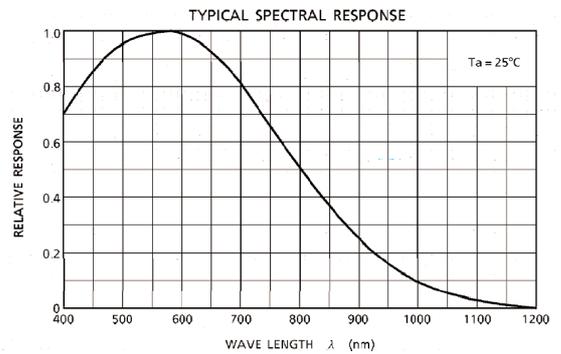
USB: 2.0.
 Required Current: 500 mA.

Optional:
 Trigger: Input TTL.
 Start of scan: Output TTL.

Software:

Software includes: User software,
 DLL interface,

 Driver for Labview
 upon request.



User software:

X scale edit: Enter start and stop.
 Enter the values at two
 cursor positions.

Y scale edit: Enter start and stop.
 Enter the values at two
 cursor positions.

X / Y unit edit: Enter units.

Averaging: Integration of several
 scans (up to 15).
 Running mean of n
 consecutive scans.

Binning: Up to 64 pixels.

Display options: Display actual scan.
 Load reference from
 actual scan and display
 scan minus reference.
 Set reference to zero.

Data operations: Write to disk.
 Write consecutive
 scans to disk.
 Read from disk.
 Print scan.