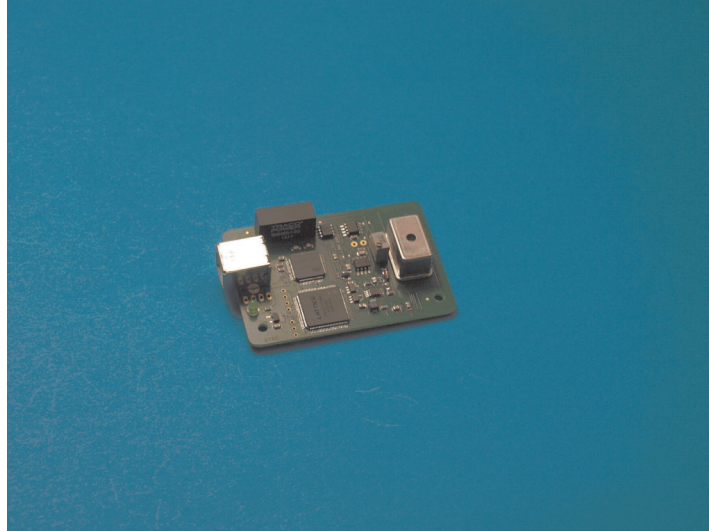


USB - VIS - 288 - SP

Complete low speed, low noise spectrometer



Key Features:

- CMOS spectrometer, 288 Pixels.
- 32 bit internal signal processor.
- Spectral range 340 nm to 850 nm.
- Spectral resolution 15 nm max.
- Drivers for W7/10 / Python.

Overview:

The USB-VIS-288 is an easy to use, complete CMOS spectrometer with 16 bit ADC. It includes an internal 32 bit signal processor for averaging to reduce the noise of the sensor and the load for the main PC. Additionally, it reduces the data to transfer via the USB 2.0 full speed interface. Additional components are not required.

The USB-VIS-288 was designed for portable spectroscopy with the need of high sensitivity and low noise.

Applications:

- Spectroscopy.
- Portable applications

Hardware:

The USB-VIS-288 spectrometer system includes the complete CMOS sensor timing and a low noise 16 bit ADC.

A powerful FPGA provides signal averaging with 288 32 bit registers.

Interface is USB 2.0 full speed.

The system is powered by the USB-bus. Additional power-supplies are not required.

Software

The USB-VIS-288 spectrometer system is shipped with a software for Windows 7 / 10 (32 & 64 bit) with signed drivers.

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

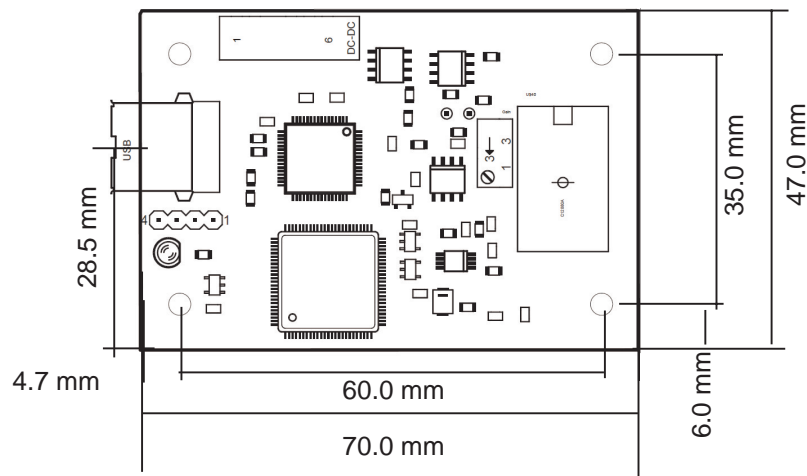
The user software includes various modes to edit the x/y scales and units, a run mode to observe the sensors's signal, signal processing functions like averaging, binning and x/y zoom and a function to subtract a reference from the actual scan. To get a zero baseline at once, the reference can be loaded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

The internal signal processor provides 32 bit registers to accumulate the signal to improve the signal to noise ratio on board.

The calibration factors for the sensor are stored in the internal EEPROM and can be read out by DLL.

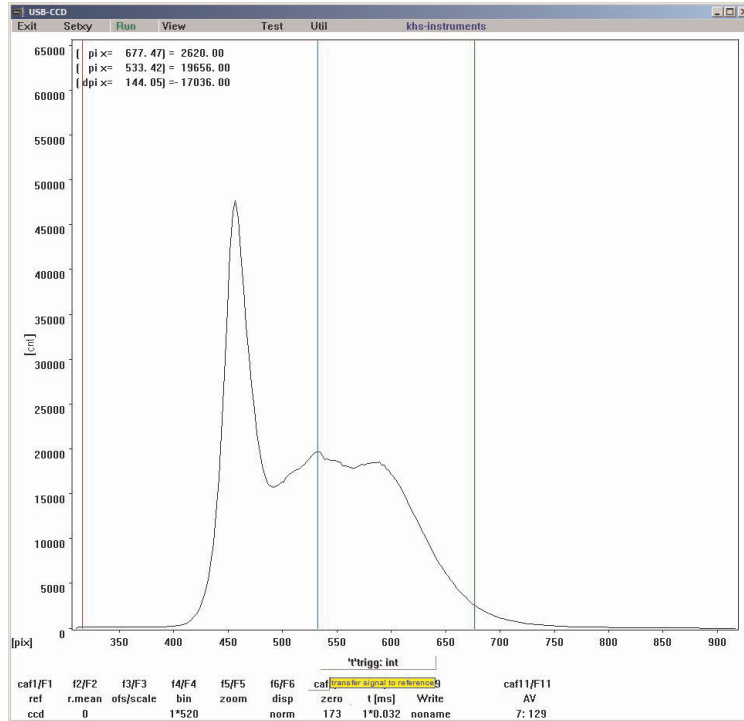
The view modus provides functions to read and print stored files from disk. The file format for stored data is ASCII, to facilitate the data transfer to other programs like Excel.

Mechanical Dimension

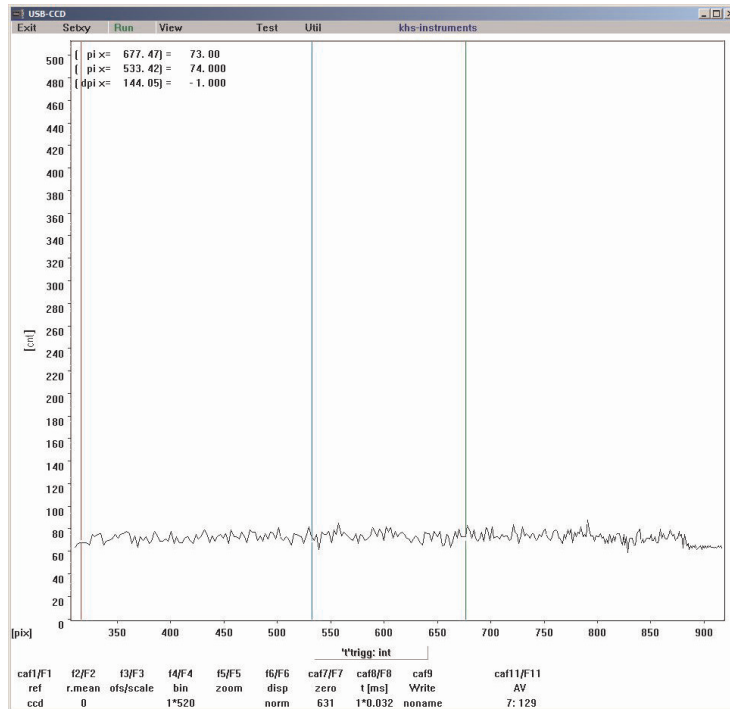


USB - VIS - 288 - SP

Typ. Performance



Typ. Spectrum of a white LED after Offset compensation



Typ. Noise of averaged Signal

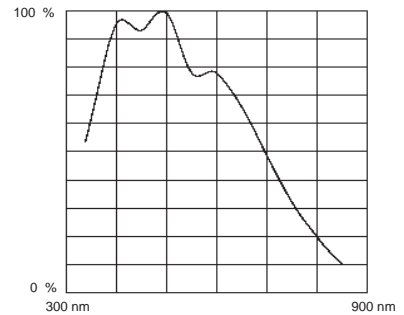
Specifications

Detector:

Sensor: Hamamatsu C12880MA.
 Number of pixels: 288.
 Spectral range: 340 nm to 850 nm.

System & Detector:

ADC: 16 bits, 250 KHz.
 Internal av register: 288 x 32 bit.
 Dark noise (no averaging): typ. 33 counts rms.
 Dark noise (128 x averaging) typ. 5 counts.
 Exposure time: 2.4 ms to > 5 s.
 USB Linerate : Up to 35 lps.
 Internal Linerate: Up to 390 lps



Typ. Spectral Response

USB Interface:

USB: 2.0, full speed.
 Required Current: 220 mA.

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.
 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.

System Requirements:

Operating system: Win 7/10 (32+64).

Software:

Software includes: User software, DLL interface, Driver for Labview upon request.