

Introduction of readout software

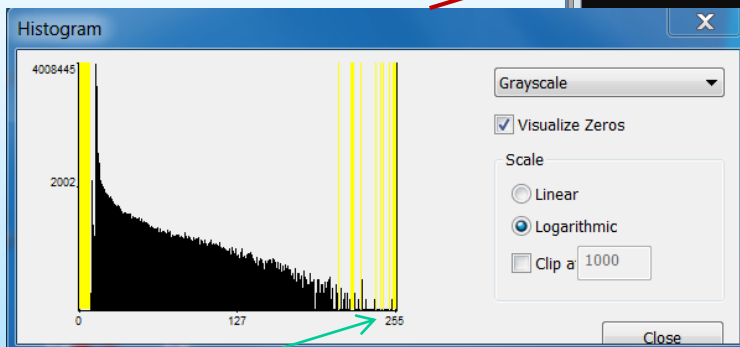
- PHYTEC Vision Demo 2.2 for camera readout
- ImageJ for Data treatment

CCD Readout: Introduction

● readout program

PHYTEC Vision Demo 2.2

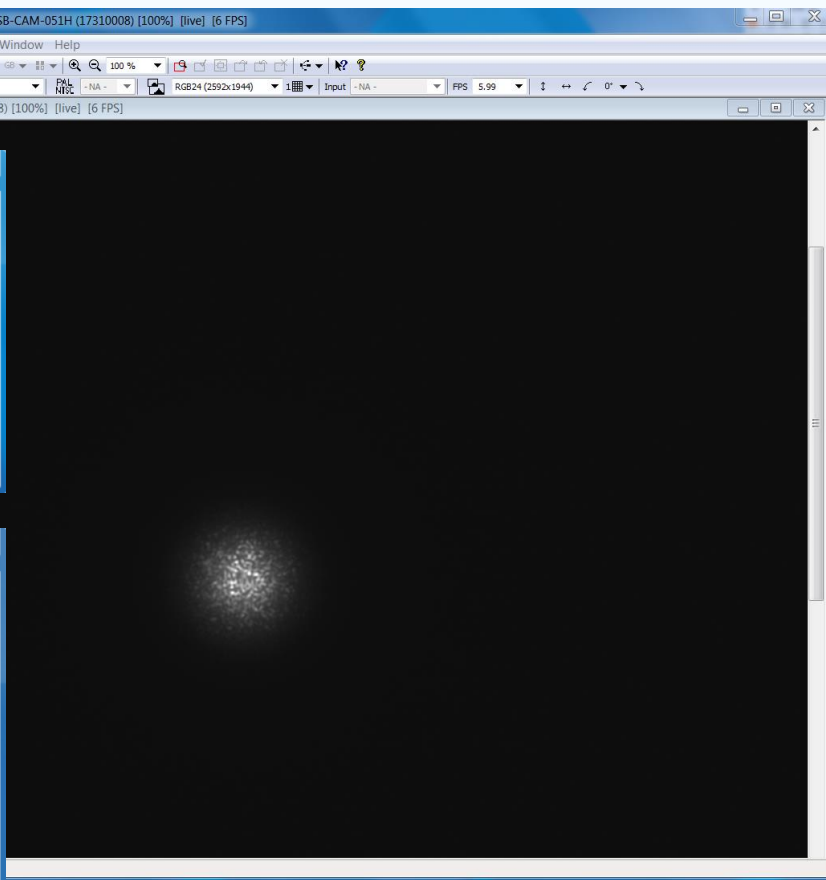
▶ histogram of grey values



The Device Properties window for USB-CAM-051H shows the following settings:

Parameter	Value	Mode
Gain	4	Auto
Exposure	1/139 sec	Auto
Auto Reference	43	
Auto Max Value	30.000 sec	Auto

**Check
always:
Do not
saturate
(255)**



▶ CCD control parameters

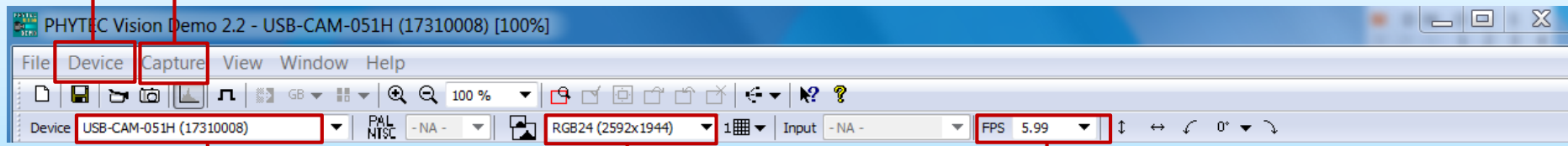
→ Device → Properties

CCD Readout: Introduction

Start/Stop acquisition → Device → Live (Shortcut: Ctrl + L)

CCD control parameters → Device → Properties

Save image → Capture → Save Image (Shortcut: Ctrl + U): save as Jpeg images



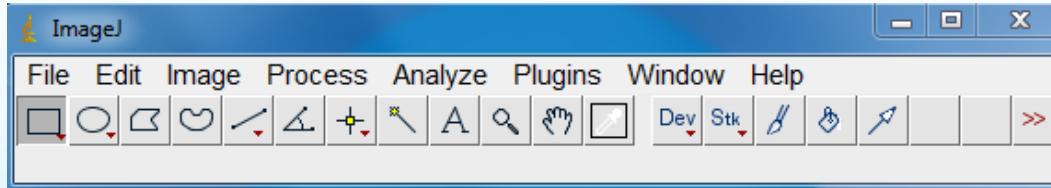
CCD type

readout format
(RGB, 2592 x 1944 pixel)
Use 1600 x 1200

readout rate
(5.99 frames per
second)

ImageJ: Introduction

- press icon → access to start panel

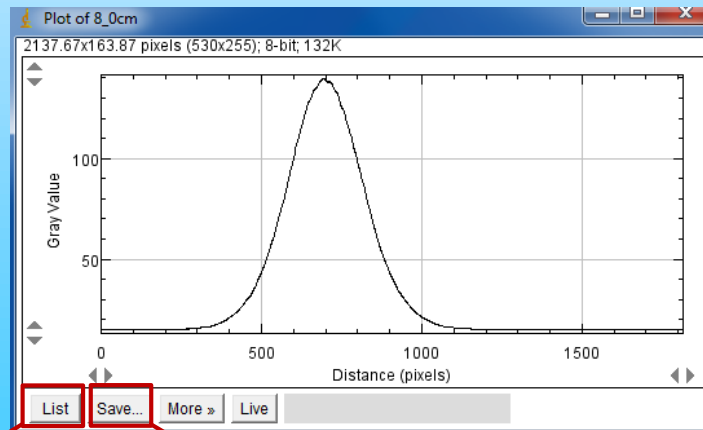


- load image file → File → Open (Shortcut: Ctrl + O)

- select ROI: in start panel: select left button (below "File"), usually already pre-selected
then with left mouse button: draw rectangular ROI



- plot horizontal projection → Analyze → Plot Profile (Shortcut: Ctrl + k)

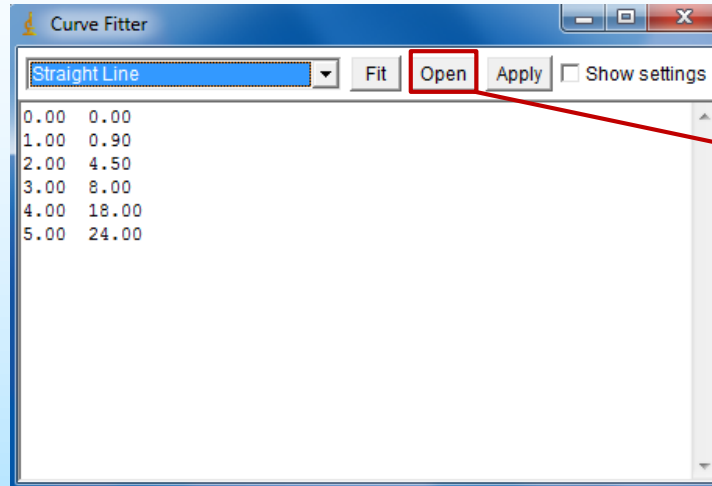


- save data → list data points → save data as .csv file (required for profile fitting)

ImageJ: Introduction

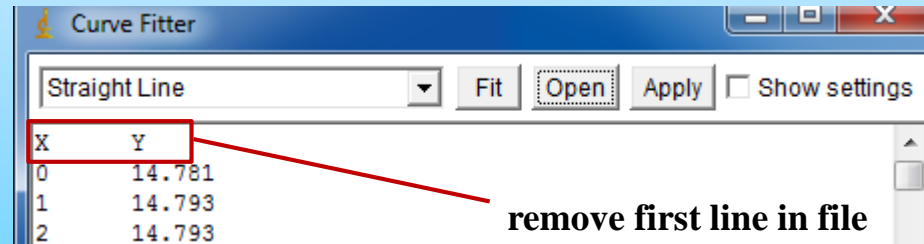
● profile fitting → Analyze → Tools → Curve Fitting...

▶ load profile data:



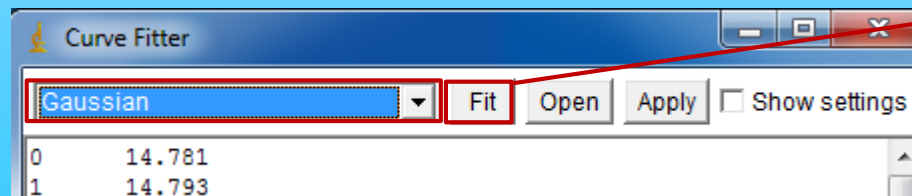
load .csv data file

▶ delete bad data:



remove first line in file

▶ select fit function:

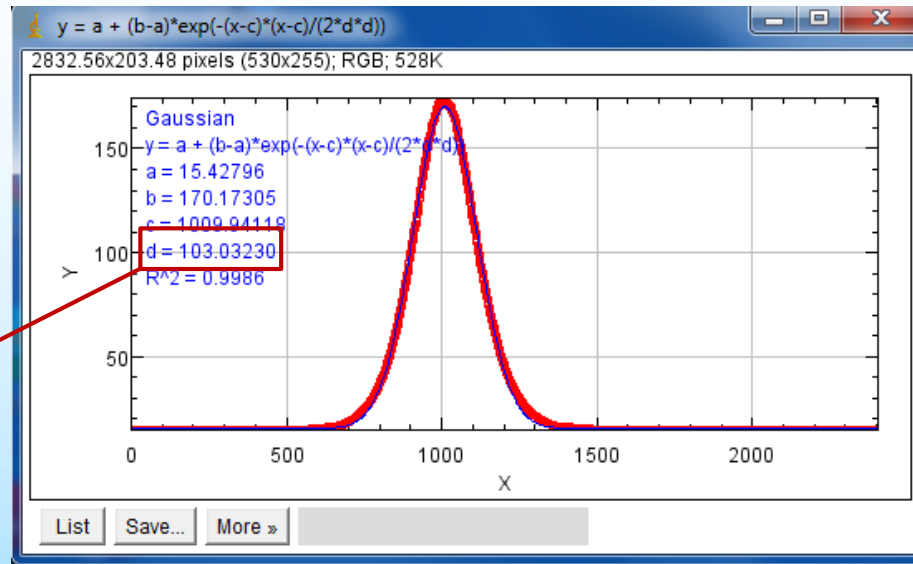


fit profile data

$$y = a + (b - a) \cdot e^{-\frac{(x-c)^2}{2d^2}}$$

ImageJ: Introduction

➤ fit results:



1 σ -width (in pixel)

● additional data fitting

- create data file → e.g. Excel or simple ASCII text file with Notepad
- repeat fitting as described before

Parameters

● CCD

› Phytec USB-CAM 051H

Resolution	2592 x 1944 (5 MPix), 2048 x 1536 (3,1MPix), 1600 x 1200 (2MPix), 1280 x 960 (1,2MPix) 1024 x 768 (0,8MPix), 640 x 480 (VGA)			
Model	USB-CAM-051H	USB-CAM-151H	USB-CAM-052H	USB-CAM-152H
color / monochrom	monochrom		color	
Sensor Format	1/2,5"			
Image Sensor	Aptina MT9P031, CMOS			
Pixel Size	2,2 µm x 2,2 µm			
Color format	Y8	RGB32, RGGB (Raw)		
Lens Holder	C / CS – Mount			
fps	6 fps to 52 fps			
Dynamic Range	8 bit			
Shutter	Rolling			
Light sensitivity	1,4 V/lux-sec			
Interface	USB 2.0 High Speed			
Exposure time	1/10.000 s to 30 s			
Gain	0 dB to 18 dB			
White Balance	-	-6 dB bis +6 dB		
Power supply	4,5 V bis 5,5V DC			
Power Consumption	Circa 250 mA bei 5V			
Feature (optional)	-	ext. Trigger, Digital-Output	-	ext. Trigger, Digital-Output
Temperature range	-5°C bis +45°C			
Dimensions (B x L x H)	36 mm x 36 mm x 25 mm			
Fixing	1/4" and M6x8 on all sides			
Weight	70 g			
Connection	USB Mini-B			
Feature- Connection	-	Hirose HR10A-7R-4P	-	Hirose HR10A-7R-4P

● screen

› material: white paper

● grid target

› spacing: 1 mm

● Laser: LaserBoyII

BMI Bayerische Laserboy II Wasserwaage 649 015

Allgemeine Informationen

Artikelnummer	ET1117000
EAN	4007368050049
Hersteller	BMI Bayerische
Hersteller-ArtNr	649 015
Hersteller-Typ	649 015
Verpackungseinheit	1 Stück
Artikelklasse	Messlaser



Technische Informationen

Länge der Signalstrecke	30m
Laserklasse	
Sichtbare Signalstrecke	
Rotierende Signalstrecke	

BMI Bayerische Laserboy II Wasserwaage 649 015 Länge der Signalstrecke 30m, Laserklasse 2, Sichtbare Signalstrecke,