

ICCD118 / ICCD125 Camera

Applications

- Bio and chemiluminescence
- Fluorescence imaging
- Analysis of micro titre plates
- Contact imaging of samples
- Astronomy
- Autoradiography
- X-ray imaging

Features

- High sensitivity
- Low noise
- Bright field mode
- 18 and 25 mm photon image intensifier options
- Low noise S20 or Bialkali Photocathodes

Introduction

The ICCD camera can be fitted with either 18 or 25 mm intensifiers. The choice of input window and photocathodes can be selected from Photek’s extensive range of image intensifier options. The camera includes a high performance USB3 camera offering 1280 x 1024 pixels resolution with a maximum frame rate of 60 f/s. The camera controller includes the ability to adjust image intensifier gain and has a fully programmable gating controller that allows minimum pulse widths of 50 ns.

Principle of Operation

The ICCD camera uses a 2nd generation image intensifier as the primary method of photon amplification and a secondary CCD camera for electronic readout. Incident photons pass through the input window and hit the photocathode. Photoelectrons are released from the photocathode and are accelerated by a potential field to the micro-channel plate. The photoelectron is amplified by approximately 10^4 by a single MCPs. The actual gain of the detector can be adjusted by varying the voltage across the MCPs. The cloud of electrons emitted from the MCP is further accelerated into a phosphor screen which converts the electrons back to photons.

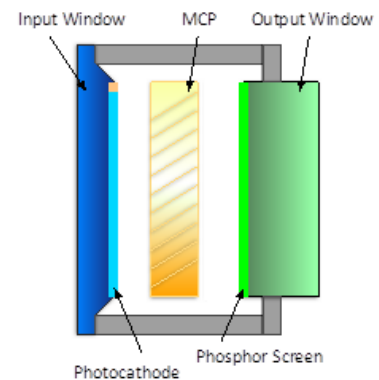
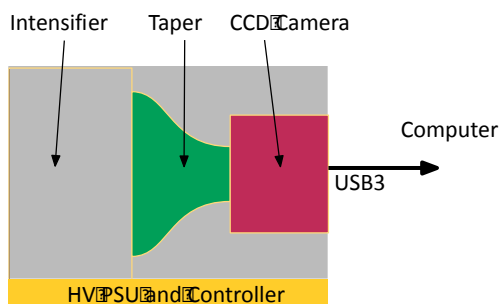


Image Intensifier



HRPCS Block Diagram

A CCD camera is coupled to the output of the image intensifier using a reducing fibre optic taper. A high voltage power supply, gate unit and camera control board complete the ICCD camera. Transfer of data from the camera to PC computer is via a high speed USB3 link.

Modes of Operation

- The ICCD camera has 2 basic modes of operation: Snap a single image or continuous live display.
- The camera can be gated from 50 ns up to DC
- Delay and pulse width are adjustable in 10 ns increments.

Software

- ICCD camera systems are provided with Photek Image32 software. This provides tools for both data acquisition and analysis.
- A live display shows integrated data in real time.
- A trend graph shows intensity changes over time
- A sophisticated scripting language based around GTK-LUA has been incorporated allowing users to customise the data acquisition and analysis processes.
- Drivers compatible with LabView 8.0 and above can also be provided.

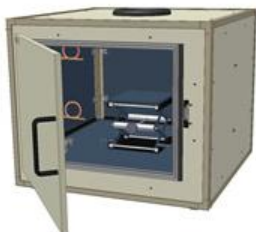
Outline Specification

Image Intensifier	MCP118 or MCP125	
Input Window	Fibre Optic or Fused Silica	
Photocathode	Bialkali, LNS20, S20 (others on request)	
MCP	1 Stage MCP	
Phosphor	P43, P46, P20 (others on request)	
Output Window	Fibre Optic	
Spectral Range	Depends on photocathode and input window	
Peak QE	Depends on photocathode	
Gain	Fully adjustable – up to 10 ⁴	
Power Supply	WP620-G50-X	
Gate Unit	GM10-50 (Integrated Version)	
Camera controller	HRPCS5	
Taper Ratio	2:1 for 18 mm and 3:1 for 25 mm	
CCD Camera	IDS uEye 3240	
Resolution	1280 x 1024	640 x 512 Window
Frame rate	60 fps	100 fps
Lens Mount	C Mount	
FOV	10.6mm x 13.6mm for ICCD118 20.4mm x 15.9mm for ICCD125	
Power requirements	+12V	
Interface	USB3	

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Accessories



DB2 Dark Box – This is a light tight dark box and is fitted with an internal height adjustable lab jack for accurate positioning samples. Location templates for standard micro titre plates and petri dishes are provided. Light tight capillary tube ports allow should accelerants need to be added to a sample during imaging. Large working area of 500mm x 500mm



LB3 Light Box. These light boxes are available with Red, Green, Blue and White LEDs or combinations of colours. Up to 3 light boxes may be fitted in a DB2 Dark box. LED intensity is computer controllable. These can be used for dark bright field imaging or to provide light for plant growth



The PTC-6 peltier controller and cooled stage provide a means of accurately controlling the temperature of sample stage.



The TCS2 Sample can be temperature controller within the range -20C to + 50C

Recommended Computer

- Intel i3 processor
- 8GB Ram
- 24" Monitor
- USB3 Interface
- Windows 7 x 64