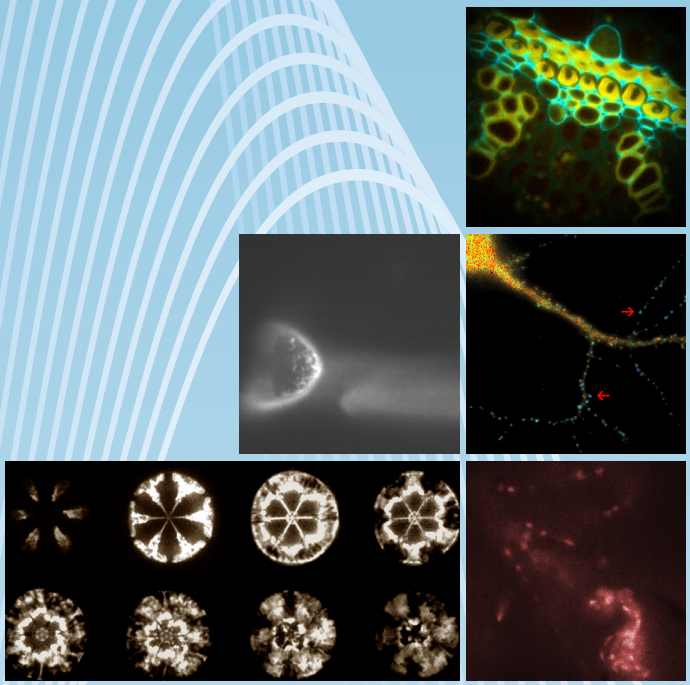


Lambert Instruments

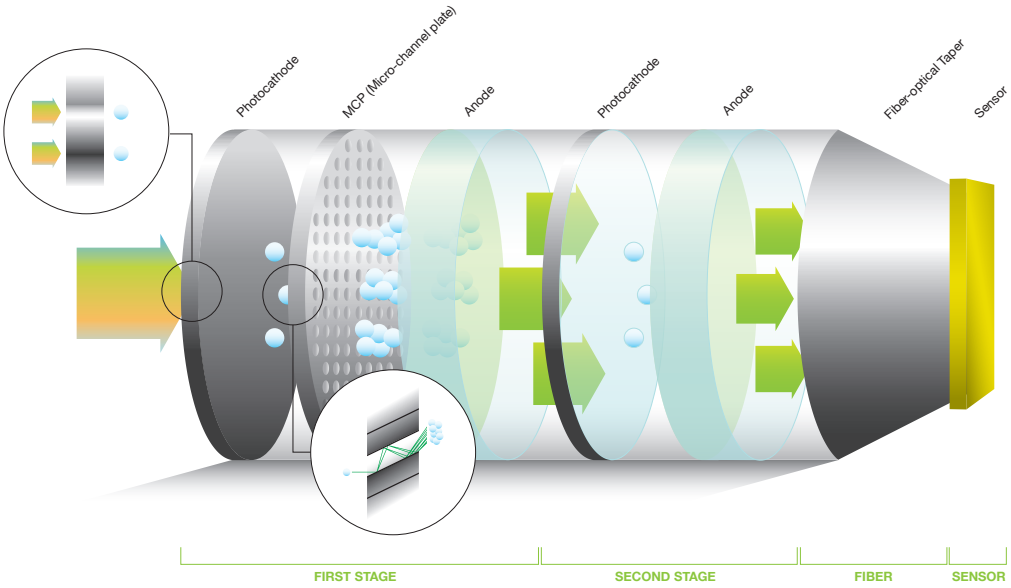
Advanced Imaging Solutions

Lambert

Advanced Imaging Solutions

Lambert Instruments specializes in advanced imaging solutions for scientific and industrial applications. These applications often involve challenging lighting conditions. We develop and assemble all of our products in-house. Our software and our hardware automation interface make it easy to integrate our products into your set-up.

Our products combine advanced technologies to capture clear images in low light. One of the main components is an image intensifier that boosts the intensity of the incoming light.

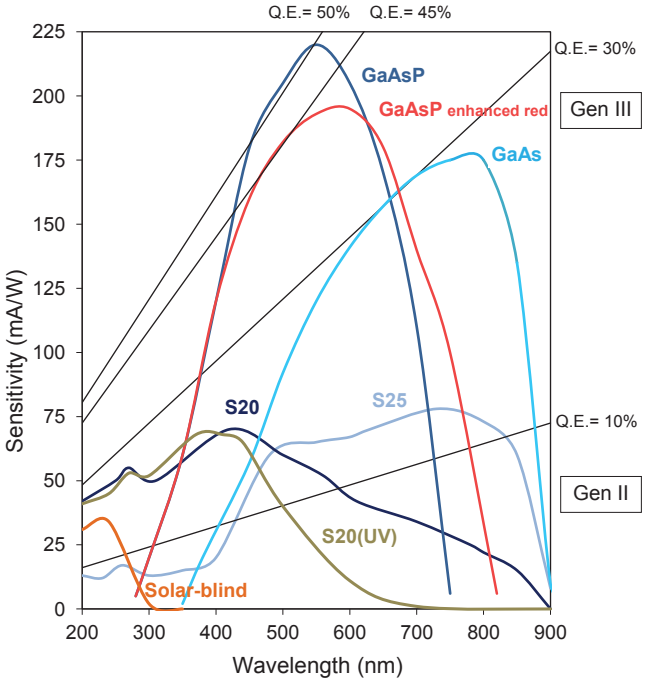


Photons arrive at the photocathode and are transferred to the image sensor. On their way to the sensor, the intensity of the incoming light is boosted in a series of conversions and multiplications.

Intensify Your Camera

Our intensified cameras and intensified camera attachments all use an image intensifier to boost the intensity of the incoming light. If you would like to keep using your current camera, then we can upgrade it with an image intensifier to increase the light sensitivity.

The light sensitivity of the image intensifier is determined by the photocathode material. Each type of photocathode has its own absorption spectrum and quantum efficiency (QE).



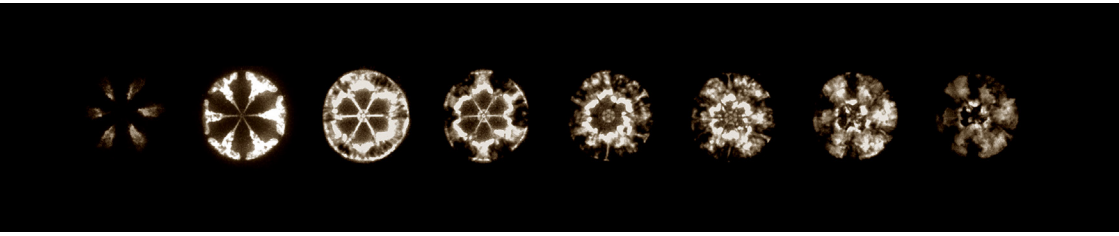
Intensified High-Speed Imaging

HiCATT

Boosts the light sensitivity of your high-speed camera

The High-speed Intensified Camera Attachment (HiCATT) is designed for use with a high-speed camera. The HiCATT increases the sensitivity of a high-speed camera and allows low-light-level imaging applications at framerates up to 200000 fps. The HiCATT F-mount and C-mount connections offer optimal flexibility.

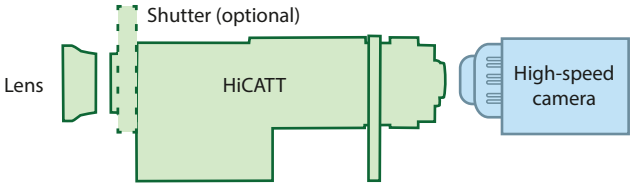
The technology in the HiCATT expands the dynamic range of a high-speed camera. At low-light input, even single photons can be detected. In brighter lighting conditions, overexposure is prevented by using short gate widths (down to less than 3 ns). These ultra-short exposures yield sharp images of fast moving objects.



Recording sequence made with the HiCATT in combination with a high-speed camera. The recording shows a combustion cycle of a fuel injection engine at 22.000 fps.

Applications

Combustion imaging
OH* chemiluminescence imaging
Laser-Induced Fluorescence (LIF)
Time-resolved imaging of fluids
Time-resolved plasma imaging



HiCAM

High frame rates in low-light conditions

The High-speed intensified Camera (HiCAM) is an intensified high-speed camera. It has an integrated fiber-optically coupled image intensifier, which offers a unique combination of high speed imaging and extreme light sensitivity down to single-photon level.

- Internal image storage or direct data streaming to a computer
- Minimum exposure time down to 3 ns
- Dual-stage image intensifier
- Software for camera control, image viewing and storage

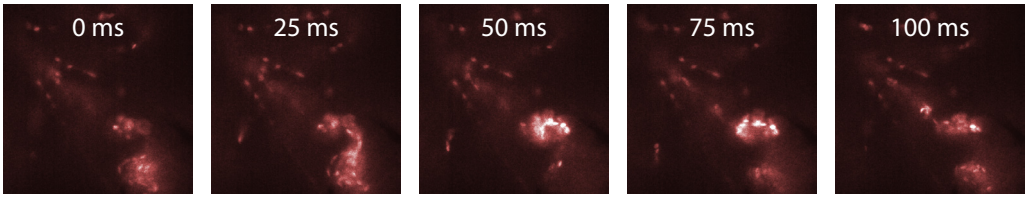
HiCAM Fluo

High-speed fluorescence camera

The HiCAM Fluo is a high-speed camera for fluorescence applications. It records high resolution images in the most challenging lighting conditions thanks to its cooled image intensifier.

- Minimum exposure time down to less than 3 ns
- Single-stage image intensifier
- Direct data streaming to a computer

Frames from a 2000 fps recording of the heart of a zebrafish. By labelling the blood cells with a DS_red fluorescent dye, detailed images of the various stages of one heartbeat can be recorded.

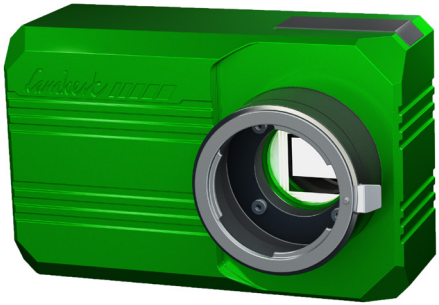


High-Speed Imaging

Lambert HS540M

High-speed camera with built-in memory

The Lambert HS540M is a high-speed camera for research applications. It has up to 16 GB of internal storage and is ideal for scientific research and industrial R&D. After recording your data, you can review the results in our software and trim the high-speed video before exporting it to your computer.



540 fps

The Lambert HS540 cameras record full-resolution images at 540 fps. To increase the framerate, the cameras can use a smaller part of the sensor to reduce the image resolution. By doing so, they can operate at up to 170000 frames per second.

1696 x 1710 pixels

The sensor in the Lambert HS540 cameras has a full resolution of 1696 x 1710 pixels. You can change the resolution settings in the software to increase the maximum framerate or to increase the maximum recording duration.

Global Shutter

The sensor in the Lambert HS540 Series cameras uses an electronic global shutter. This ensures that all pixels are read at the same time to prevent rolling shutter effects. Its minimum exposure time of 2 us ensures sharp images of fast-moving objects.

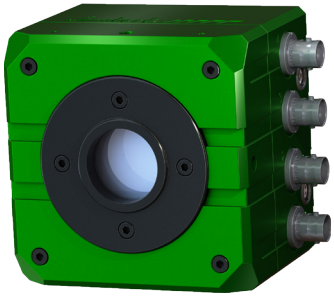
Optional

1280 x 1024 pixel sensor that records at 1000 fps with a bit depth of 12 bit.

Lambert HS540S

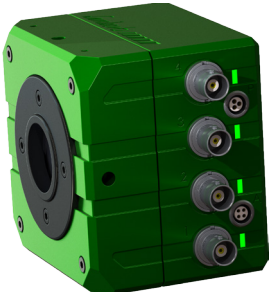
Streaming high-speed camera

The Lambert HS540S is a streaming high-speed camera for industrial applications. It is designed for high-performance tasks like machine vision, quality control and wafer inspection. Instead of saving the images to internal storage, the camera streams high-speed video directly to your computer over a CoaXPress (CXP) interface.



CoaXPress

To transfer all the high-resolution image data, the Lambert HS540S streams live over a CoaXPress (CXP) interface. The camera has four CXP connectors, each of which has a channel speed of 5 Gbit/s. With Power over CXP (PoCXP) the camera can be powered over the CoaXPress channels, removing the need for a dedicated power cable.



Applications

Research and Development
Semiconductor Inspection
Machine Vision
Chip Manufacturing
3D Laser Triangulation

Scientific Imaging

TRiCAM

Compact intensified camera

The TRiCAM is an intensified camera for scientific and industrial applications that require low-light imaging, ultra-short exposures or frequency-domain imaging using lock-in detection.

With its advanced gating features, the exposure time of the TRiCAM can be reduced down to 3 ns. This ensures sharp images of highly dynamic processes, and enables precisely-timed exposures for multi-exposure recordings.

2.3 Megapixels

The TRiCAM features a high-resolution CMOS sensor. It captures detailed images at 1920 x 1200 pixels.

160 fps

At up to 160 fps, the TRiCAM can record slow-motion footage, even in low-light conditions.

TRiCATT

Boosts the light sensitivity of your camera

The TRiCATT is an image intensifier for scientific and industrial cameras. It is ideal for experiments that require low-light imaging or ultra-short exposures through fast gating.

TRiCATT M

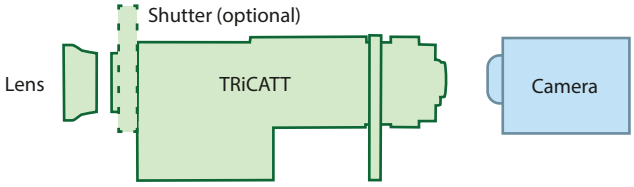
Modulated Image Intensifier Attachment

The TRiCATT M is a key component in camera based/frequency-domain systems for low-light-level applications.

TRiCATT G

Gated Image Intensifier Attachment

The TRiCATT G increases the sensitivity of the camera and enables the detection of light levels as low as 0.01 mlux.



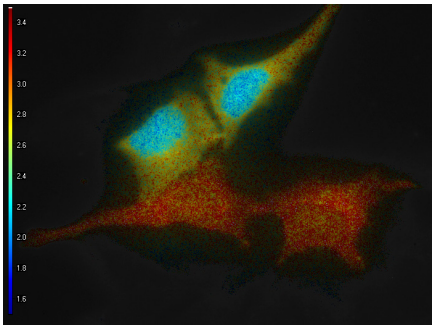
Fluorescence Lifetime Imaging

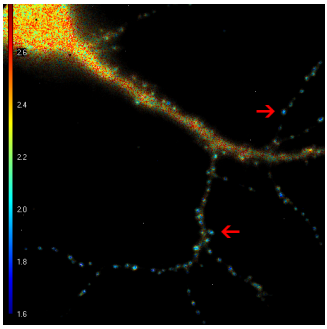
LIFA

Fluorescence lifetime imaging has never been easier

With the Lambert Instruments FLIM Attachment (LIFA), you record quantitative lifetime data in a matter of seconds. Our specialized software does all the heavy lifting and analyzes your data instantly. The results are presented visually for easy interpretation.

- Fast fluorescence lifetime imaging (up to two lifetime images per second)
- Fluorescence lifetimes are automatically calculated after each recording
- Compatible with every fluorescence microscope
- Data can be exported to ImageJ, FIJI, MATLAB and MetaMorph





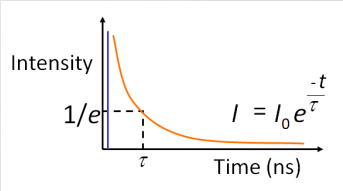
Each color represents a different lifetime value.

LIFA-TD

Time-domain FLIM solution for widefield microscopes

The LIFA-TD offers a turn-key solution for fluorescence lifetime imaging microscopy and is compatible with every widefield fluorescence microscope. From recording the data to calculating the fluorescence lifetime, the entire measurement procedure is automated by our advanced software.

Data can be exported to ImageJ, FIJI, MATLAB and FLIMfit.



Measuring the fluorescence light decay for each pixel.

Find the right solution for your application

	Camera	Attachment
Intensified Time-Resolved Imaging	 TRiCAM	 TRiCATT
Intensified High-Speed Imaging	 HiCAM	 HiCATT

FLIM Systems

LIFA
Frequency-domain fluorescence lifetime imaging system for fast lifetime imaging of living samples.

LIFA-TD
Time-domain fluorescence lifetime imaging system for basic lifetime imaging.