

## TRiCAM

Intensified CMOS Camera



### The TRiCAM is a compact intensified camera.

It is designed for scientific and industrial applications that require low-light imaging and/or nanosecond exposures. With built-in signal generators, the TRiCAM is capable of ultra-short exposures through fast gating and frequency-domain imaging using lock-in detection.

#### Ultra-short Gating

The camera's effective exposure time can be reduced to  $< 3$  ns (FWHM) for time resolved imaging, or capturing very fast events.

#### Easy Coupling

Packed into a compact aluminium enclosure, it is easy to attach the TRiCAM to any fluorescence microscope.

#### Fiber-optically Coupled

Our experienced engineers couple the sensor to the image intensifier for 10 - 20 times more light efficiency, in a compact and light weight form.

#### Programmable Signal Generator

TRiCAM delivers sub-nanosecond precision for precise synchronization of the event with the exposure.

#### High-sensitivity Intensifiers

You can choose from a wide variety of high-sensitivity image intensifiers to match the spectral needs of your application.

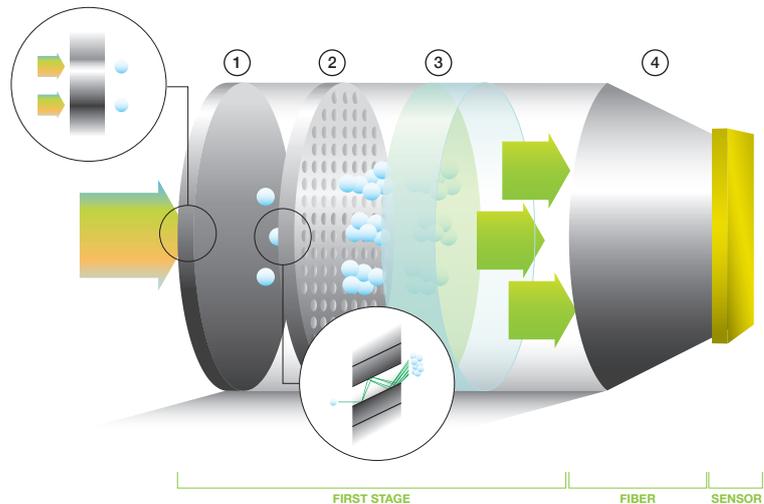
#### Intensify Your Camera

The TRiCAM platform can be highly customised and used to intensify non-intensified cameras.

## Intensifier working principle

Photons are converted into electrons at the photocathode (1). These are accelerated towards the micro-channel plate (2) by an electric field and hit the channel walls. Depending on the voltage across the channel, multiple electrons are generated by secondary emission.

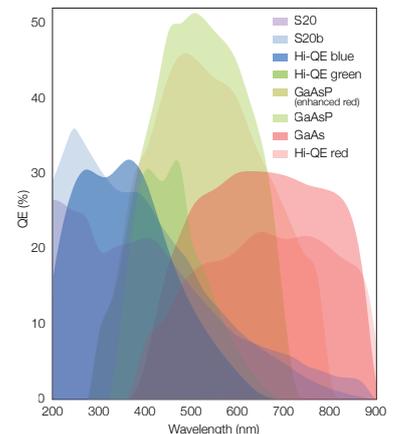
This cloud of electrons is accelerated towards the anode screen (3), where the electrons are converted back into photons by the phosphor layer, and these photons are transferred to the camera by a fiber-optic taper (4).



## Applications

Laser Induced Fluorescence (LIF)  
 Time-gated luminescence  
 Bio- and chemiluminescence imaging  
 Plasma physics  
 Single Photon imaging  
 Particle Image Velocimetry (PIV)  
 Solar PV and LED characterization  
 Combustion research

Single-molecule imaging  
 Fluorescence Lifetime-Imaging  
 Microscopy (FLIM)  
 Förster Resonance Energy Transfer  
 (FRET)  
 Time-gated Raman / Laser Induced  
 Breakdown Spectroscopy (LIBS)  
 Time-resolved imaging & spectroscopy  
 Diffuse Optical Tomography (DOT)



## Gating capability

### Burst Mode

**Set response to a preset number of synchronisation pulses.**

If the number of pulses is reached, further input pulses will be ignored.

Number of input pulses in a burst can range between 1 and 1,000,000.

### Cycled Gating

**Change gate settings between two successive camera frames.**

Rapidly switch gate settings in a couple of nanoseconds.

Up to three different gate timing settings can be preset.

### Multiple Exposures

**A single sync pulse gives rise to a preset number of output pulses.**

Number of output pulses per input can be set between 1 and 1,000,000.

Frequency of output pulse train can be set between 0.05 Hz and 4 MHz.

Lambert Instruments BV  
 Leonard Springerlaan 19  
 9727 KB Groningen  
 The Netherlands

T: +31 50 501 8461

E: sales@lambertinstruments.com

Part of Tibidabo Scientific Industries

LI-TRICAM-SF-Rev02 / Oct2024

Lambert Instruments is dedicated to development, production and worldwide sales of products for **time resolved imaging at low-light levels.**

Our mission is to enable our users to **reveal previously unseen phenomena.** Our products provide a possibility to record fast events at low-light conditions. Together with our software, we **reimagine detection** to offer complete solutions to challenging imaging problems.