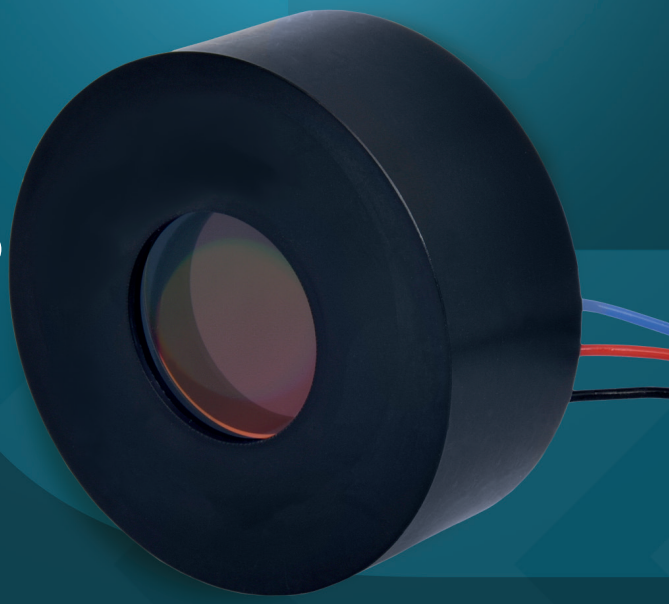
LOW LIGHT LEVEL IMAGING
SINGLE MCP

SINGLE PHOTON IMAGING
DUAL MCP

EXOSENS
REVEAL THE INVISIBLE

SCIENTIFIC GRADE IMAGE INTENSIFIERS

Models: 18, 25 & 40 mm



For Intensified Camera manufactures seeking state-of-the-art image intensifier technology, Exosens offers scientific grade image intensifiers with unparalleled specifications. These include market-leading Signal-to-Noise Ratio (SNR), superb limiting resolution, and sub-nanosecond gating technology. Based on Hi-QE photocathode technology and industry-leading Exosens Microchannel Plate technology, these scientific grade image intensifiers are renowned for their high durability and long lifetime.

All made by Exosens, the global leader in MCP technology.

New! 25 mm

Key features

- Available in 18, 25, and 40 mm Diameter
- Market-Leading Signal-to-Noise Ratio (SNR)
- Superb Limiting Resolution up to 80 lp/mm
- Available with Hi-QE Photocathode Technology
- Sub-Nanosecond Gating Technology Available
- Customizable for Every OEM Application

Applications

- Ultra High-Speed Imaging
- Medical Imaging
- Fluorescence Imaging
- Early Warning
- Combustion Research

Contact us for expert advice on your application

Scientific Grade Image Intensifier Specifications

IIT Specifications - General

Active Detection Area	18, 25 or 40 mm
Available Spectral Range	120 - 900 nm
Quantum Efficiency	Up to 31%
Gating Speed (Optional)	200 ns, 3 ns or <1 ns
Limiting Resolution	Up to 80 lp/mm
Photon Gain	Up to 2.000.000
Number of MCPs	None (PFD), Single or Dual
MCP Option	Hi-CE and High Dynamic Range

Electrical Specifications (In Case of Integrated PSU Option)

Voltage Input	3 Volt DC
Gain Control	0-5 Volt DC

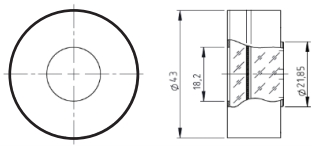
Contact Us to Discuss a Wide Range of PSU Options!

IIT Mechanical Specifications - General

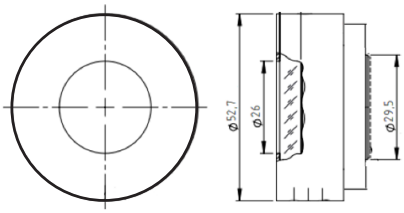
Input Window	Fiber, Glass or MgF2
Output Window	Fiber or Glass
Phosphor	P43, P46 or P47
Housing Material	High Grade Plastic
Potting	Standard or Space Grade

Contact Us for Configuration and Housing Options!

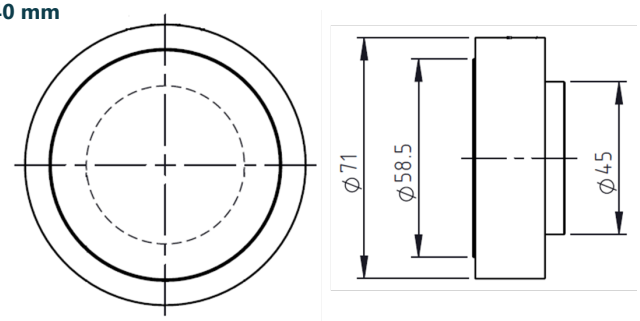
18 mm



25 mm



40 mm



Photocathode Options

Photocathode	Spectral Range	QE Type	Peak Range	QE Min.	Dark Count Rate
Solarblind	200 - 350 nm	-	200 - 260 nm	-	<5 Hz/cm^2
Hi-QE UV	200 - 500 nm	32%	200 - 400 nm	28%	50 Hz/cm^2
Hi-QE Blue	200 - 600 nm	30%	240 - 400 nm	27%	240 Hz/cm^2
Hi-QE Green	350 - 600 nm	30%	410 - 510 nm	27%	240 Hz/cm^2
Hi-QE Red	350 - 920 nm	20%	520 - 800 nm	16%	1*10^4 Hz/cm^5
S25	350 - 920 nm	15%	520 - 800 nm	11%	1*10^4 Hz/cm^5
Broadband	200 - 900 nm	19%	400 - 480 nm	17%	1*10^4 Hz/cm^2

Gating Options

	Normal	Fast	Ultrafast
Gate Unit	Internal or external	External	External
QE Penalty	0%	0%	10%
Gate On/Off	0-5 Volt (TTL)	0-5 Volt (TTL)	0-5 Volt (TTL)
Gate On/Off Time	30-200 ns	3 ns	<1 ns
Gate Repitition Rate	20 kHz	2.5 MHz	2.5 Mhz
Delay Time (to Cathode)	100 ns	100 ns	100 ns

Image Intensifier Tube: Basic Operation

The IIT is the actual image intensification device embedded in the Cricket™^{2} and is capable of enhancing a low light level up to 2.000.000 times in the case of a double MCP based IIT.

The optical image input is converted to photoelectrons at the Photocathode. The photoelectrons are drawn by an electrical field into the MCP where they impinge multiple times on the inner walls and thereby multiplies several thousands of times.

The electrons then hit the phosphor screen where they are converted back to an optical image.

Configuring the Right IIT for Your OEM Application

In order to configure the right IIT (Image Intensifier Tube) matching your OEM application, please consider the following key Image Intensifier parts:

Photocathode

Select a photocathode matching the spectral region of interest of the phenomena you want observe. Choose a Exosens SolarBlind, Broadband or Hi-QE photocathodes, and make your camera sensitive in the UV, VIS or NIR (120-900nm).

Gating

The photocathode can be utilized as an ultra-fast electro-optical shutter. Gating speeds (or shutter speeds) in the order of hundreds of picoseconds can be achieved thereby greatly improving the signal to noise ratio. Specially designed conductive layer technology practically eliminates QE loss

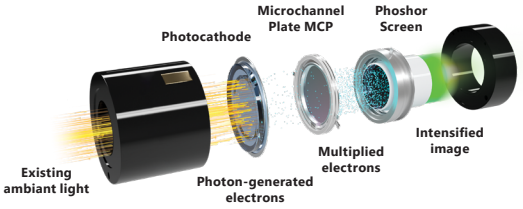
MCP Type

The dual MCP (Chevron) setup enables single photon sensitivity thanks to high resolution, Hi-CE MCP's a gain of up to 2x10^6 can be achieved. Choose the high dynamic range MCP option for high linearity.

Phosphor

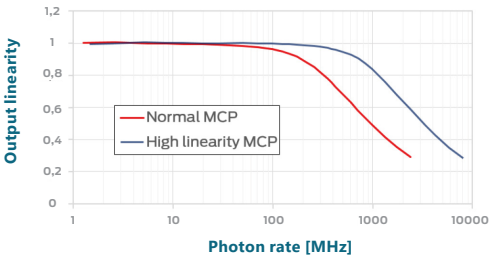
Depending on imaging speed, choose the P43 phosphor for high efficiency and frame rates up to 1000 frames per second or the P46 phosphor for up to 400.000 frames per second.

Working Principle

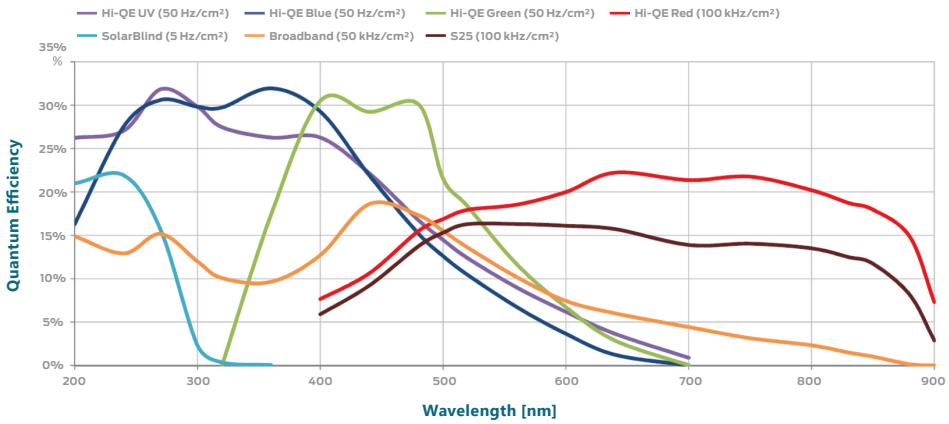


Single MCP illustration

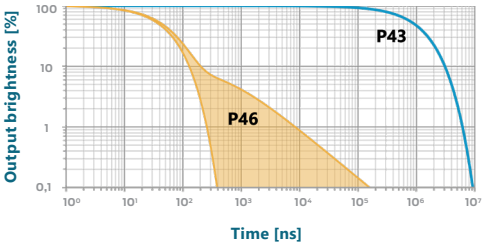
MCP Linearity



Photocathode Overview



Phosphor Decay



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