

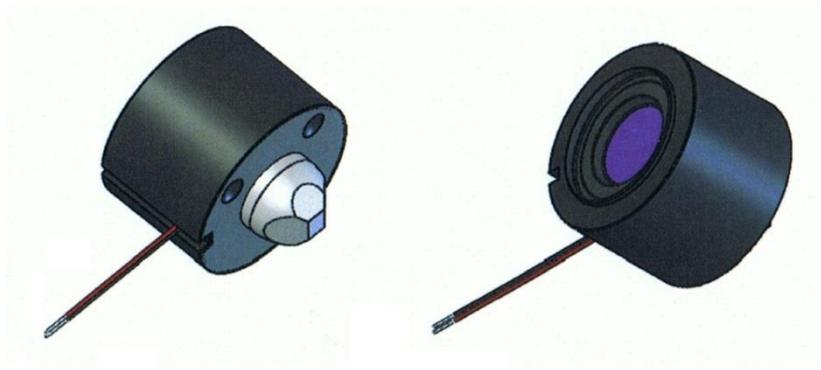


ICCD-Assembly

Structure & Features

An ICCD is a CCD sensor coupled with a fiber optic taper or fiber optic plate to the output of an image intensifier tube. The photocathode of the image intensifier is sensitive to visible and near infrared light in the wavelength range of 400-900nm. Incoming photons are converted into free electrons which are accelerated inside of the image intensifier in the direction of an integrated multichannel plate which acts as a parallel setup of electron multipliers with a channel size of 10 μ m or less. The electrons enter the channels and the number of electrons is multiplied by a factor of aro 10⁴ due to a cascade process in the applied high voltage field. Behind the multichannel plate the electrons are accelerated in the direction of a phosphor screen. The electron energy is converted in the screen in visible photons. The wavelength of the output photons and the decay time of the light intensity depend on the phosphor type used in the image intensifier. The photons are guided in the fiber optic taper direct to the sensitive pixels of the coupled sensor. The fiber optic coupling allows a much better transfer efficiency of the photons to the sensor pixel than a normal lens system.

The GIDS-GmbH offers a special developed 18 mm image intensifiers with integrated fiber optic taper output for the coupling with an 1/2" CCD like Sony ICX429ALL, ICX428ALL, ICX414AL, ICX415AL, ICX205AL or others. The size of the taper output for coupling is 6.6 mm x 4.8 mm.



APPLICATIONS

- Astronomic observation
- Fluorescent microscopy
- Security
- Night vision
- Range Gated Imaging

FEATURES

- high sensitivity
- broad spectral range
- immunity to magnetic fields
- high resolution image output
- integrated High Voltage power supply
- gating possible down to 50 ns





Performance values	units	min.	max.
Luminous Sensitivity @ 2856°K	µA/lm	675	
Radiant Sensitivity @ 830 nm	mA/W	50	
SNR Ratio (signal to noise)		21	
EBI (Equivalent Background Illumination)	10 ⁻¹¹ lm/cm ²		2,5
Luminous Gain @ 2x10 ⁻⁶ fcd with output taper	fl/fc	2.800	5.000
Supply Current	mA		24
Output Uniformity @2856°K			03:01
Limiting Resolution (Intensifier)	lp/mm	64	
MTF @ 2,5 lp/mm (Intensifier)	%	92	
MTF @ 7,5 lp/mm (Intensifier)	%	70	
MTF @ 7,5 lp/mm (Intensifier)	%	55	
MTF @ 7,5 lp/mm (Intensifier)	%	25	
Photocathode diameter	mm	17,5	
MTTF	hours	15.000	

Nomenclature example

The ICCD is specified like **ICCD-18-1/2"**
ICCD = Image Intensifier with coupled taper
18 = active diameter
1/2" = taper output size for 1/2" CCD.

Voltage

The ICCD is equipped with an integrated power supply. The supply voltage needed to run the system is 2,0 to 3,7 Volts.

CCD Sensor

The CCD sensor is in not included in our offer. If you would like to purchase an ICCD with coupled sensor please specify the sensor and inform us if you supply the sensor for coupling or if we should supply the sensor. If you supply the sensor please supply it with removable protection window.

Coupling Risk

The fiber optic coupling bares a risk to damage the sensor in the coupling process. We are liable for damages only in case of gross negligence.

How to get a quote

Send an e-mail with your contact data, the part number and additional specific details to info@gids-gmbh.com or call +49 (0)621-820394-34 or send a fax to +49 (0)621-820394-33.

Precaution

Handle the ICCD like an optic instrument. Dust, particles and mechanical impact may damage the surface and reduce the performance of the system. Avoid touching the glass surface with bare hands. Use powder free latex or vinyl gloves for handling. Use a cotton swap (Q-tip) with some isopropanol or ethanol to clean the glass parts.

Every exposure to light in operation decreases the lifetime of the photocathode. Local very intense light spots may damage a local region of the photocathode and burn in.

Start with lowest input illumination at high MCP voltage to avoid overexposure of the cathode. Adjust the camera so that you have the maximum integration time per image. Reduce the MCP voltage step by step and find the best adjustment for your application.

Custom specific ICCDs available

- For 2/3" CCD coupling
- Gateable types available down to 50 ns
- Autogating Power Supply as option
- 3rd Gen. versions on request

