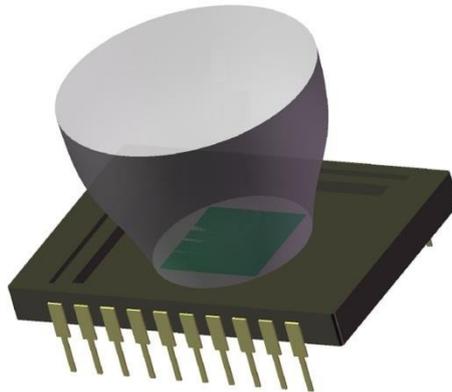


# Fiber Optic Coupling

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## Structure & Features

In the most cases of CCD applications the incoming light is transferred to the CCD through a lens. In some situations the use of fiber optic elements is better because the light collecting efficiency is much higher. Fiber optics are used in low light applications to couple the light from scintillator screens, image intensifiers or streak tubes to a CCD or CMOS sensor. The photons are guided in the fiber optic 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. For example a 1:1 fiber optic plate instead of a f/1,2 lens reach a 10 times higher efficiency. It is possible to couple to the most front illuminated CCDs and it is possible to couple to some back-thinned CCDs. A list with possible sensors for fiber optic coupling is shown on the next page. It is possible to couple with fiber optic plates and with fiber optic tapers. The maximum reduction ratio is 6:1 and the maximum available outer diameter of the large taper side is 165 mm.



## APPLICATIONS

- Vacuum cameras
- TEM cameras
- MCP detector cameras
- Low light level cameras
- Night Vision cameras
- High speed cameras
- X-ray cameras
- CCD detectors
- UV cameras

## FEATURES

- high efficiency up to 70%
- Coupling of fiber optic plates
- Coupling of fiber optic tapers
- Coupling with line sensors (CCD, CMOS, APS and others)
- Coupling with area sensors (CCD, CMOS, APS and others)
- Low temperature cooling solutions available
- Protection of Bond wires

Fiberoptic type	Sony	E2V/ Atmel/ Thomson	Kodak
FOP, FOT, FOW	ICX083AL	TH7888	KAF-1602LE
FOP, FOT, FOW	ICX259AL	TH7899	KAF 1603ME
FOP, FOT, FOW	ICX285AL	TH7883	KAF-1001E
FOP, FOT, FOW	ICX414AL	TH7895	KAI 11000M
FOP, FOT, FOW	ICX419AL	TH7896	KAI 11002
FOP, FOT, FOW	ICX418AL		
FOP, FOT, FOW	ICX423AL		
Remarks:	FOP means fiber optic plate FOT means fiber optic taper FOW means fiber optic window		

### Custom specific requirements

If you would like to order a coupling of a fiber optic element to a sensor please specify this in your request. We propose that you supply a sensor with removable protection window this sometimes an option when you purchase a CCD camera.

### We need to know

Sensor Type (if possible supply the datasheet)  
 Requested fiber optic type (FOP, FOT, FOW)  
 Reduction ratio 1:1 down to 6:1  
 (Large end diameter up to 165 mm possible)  
 Coupling field requested  
 (max. FOW, active diameter to sensor etc..)  
 Is the sensor cooled down?  
 Cooling system?  
 Operation temperature?

### Coupling Risk

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

### Precaution

Use an ESD protected working place with grounded table to handle the sensor and the coupled Systems. Wear ESD protection shoes.

Dust, particles and mechanical impact may damage the surface and reduce the performance of the fiber optic. Avoid to touch the glass 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.

### Options

- Full system delivery including the basic camera
- Scintillator coating on input side possible according to your requirements
- Intensified camera setup on request
- Mechanical engineering on request

### How to get a quote

Send an e-mail with your contact data and additional specific details (**we need to know**) to [info@gids-gmbh.com](mailto:info@gids-gmbh.com) or call +49 (0)621-4455222.