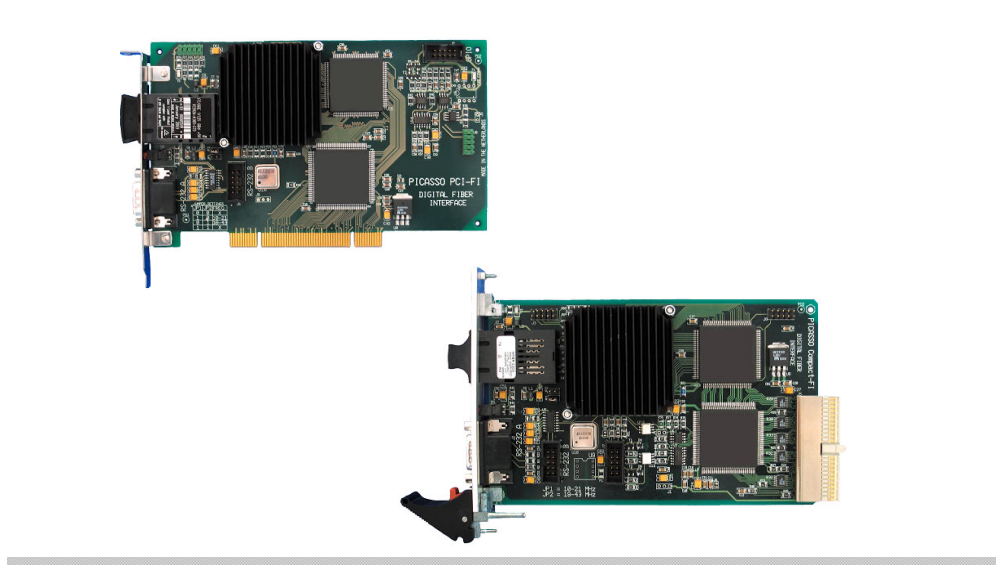


Datasheet picasso™ FI models



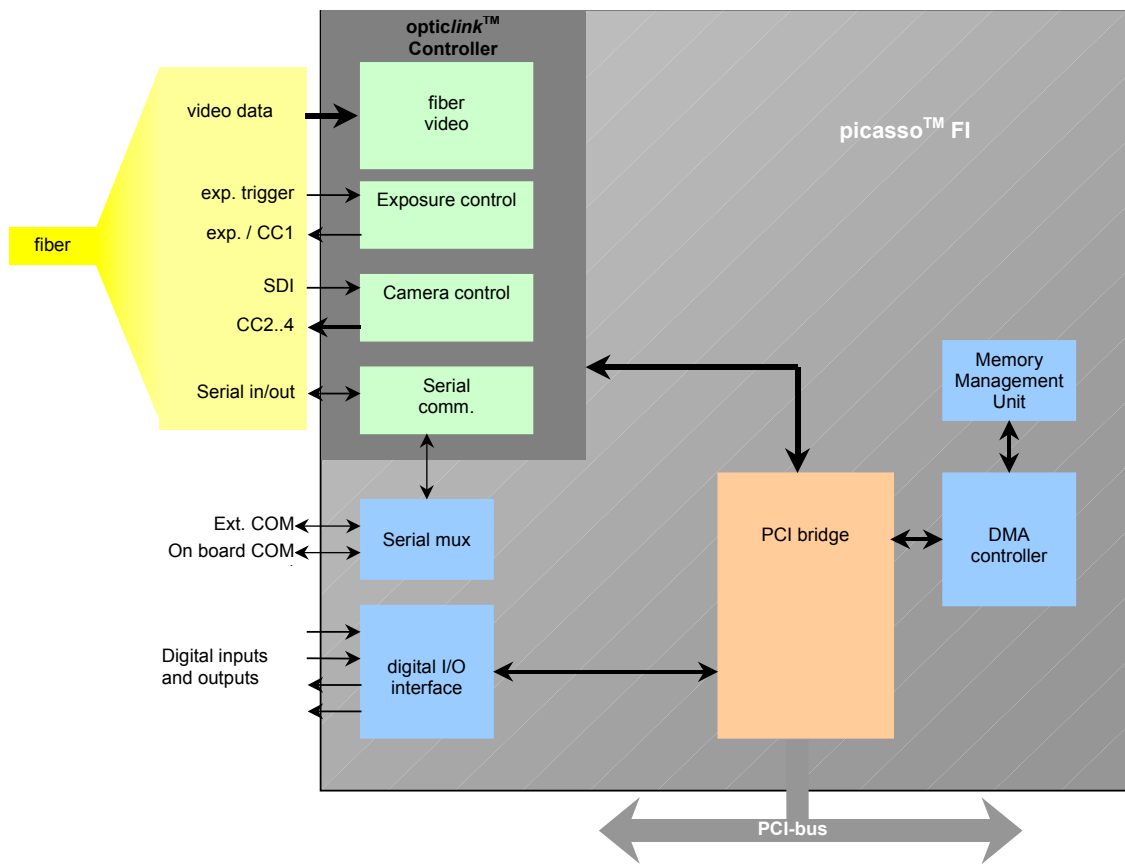
Key features

- *opticalink™* fiber interface
 - two models:
 - mm: multi-mode fiber cable compatible
 - sm: single-mode fiber cable compatible
- for connection to the ARVOO *opticalink™* interface (L2F or C2F)
- available in 2 form factors:
 - standard PCI
 - Compact PCI
- supports 8 to 16 bits data input formats, or two 8 bits taps
- pixel clock up to 40 MHz
- image size:
 - up to 4095 pixels/line (up to 8190 pixels/line if 8 bit/pix)
 - 4095 lines/frame
- programmable exposure time
- supports area and line scan cameras
- two full duplex RS-232 channels
- 2 digital inputs (optical isolated) for e.g.
 - start capture
 - interrupt generation
- 2 digital outputs (optical isolated) for e.g.
 - trigger stroboscoop
 - process control
- software support for several (real time) operating systems

General

With the picasso™ FI long haul digital video acquisition is possible. The picasso™ FI framegrabber models are 'plug and play' PC-cards for the PCI-bus and provide high-resolution image capture for digital video cameras via a fiber optics interface. It enables each standard PCI system to capture and store single images for image processing or full frame display of digital video in a window. The FI models operate as PCI-bus master and transfer images directly to the system memory without impacting the processor.

Architecture



Detailed Information

Video Inputs

The picasso™ FI models accept video sources compliant with *opticalink™* standards from C2F or L2F *opticalink™* interface units. The image resolution is up to 8190 pixels x 4095 lines in 8 bit/pixel mode. In other modes the resolution is 4095 pixels x 4095 lines. The picasso™ accepts 8, 10, 12, 14 or 16 bits single channel cameras or 8 bit dual channel cameras (two tap camera).

Camera Control Signals

The framegrabber has one general input signal and three general output signals. The signal names depend on the type of camera (LVDS or CameraLink) at the other end of the *opticalink™*.

	LVDS	CameraLink
input 0	SDI	SDI
output 0	SDO	CC2
output 1	SCL	CC3
output 2	GP0	CC4

Exposure

The exposure output on the fiber-connector can be used in two ways:

1. Software triggered
2. Hardware triggered

1 Software triggered exposure

Under software control an exposure signal to the camera is generated. The exposure time is programmable between 6.375 μ s and 417ms. The signal can be low or high active (software selectable).

2 Hardware triggered exposure

For the hardware trigger mode, you should use the exposure header. In this mode the TTL compatible trigger signal is connected to the exposure input.

The fiber exposure output depends on software controlled settings:

- Exposure output follows input
- Exposure output is inverted input
- Exposure output is triggered by a falling or rising edge of the input and will be active for the 'exposure time'. The exposure time is software adjustable between 6.375 μ s and 417 ms.

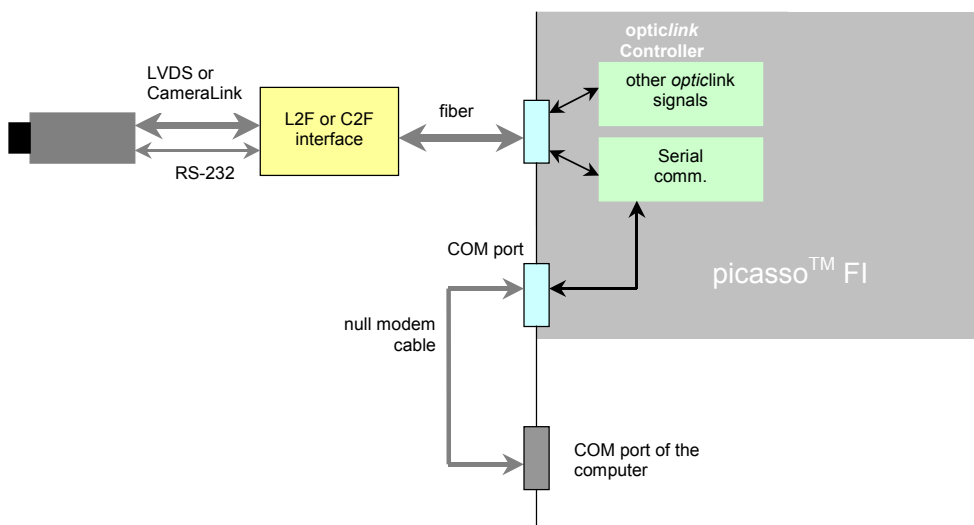
Exposure-time: Refers to the period during which the image sensor of a camera is exposed to the light. As the length of this period increases, the image illumination will raise.

RS-232 - fiber

Most digital cameras are controlled by RS-232. The picasso™ FI interfaces the RS-232 signals via the *opticlink™*.

All RS-232 data transmitted to the COM port of the picasso™ will be converted to fiber signals and will be transmitted to the camera. This data path is bidirectional, so fiber data from the camera are converted to RS-232 signals, which are transmitted to the framegrabbers COM port.

In the figure below, the RS-232 signal comes from the COM-port of the host (computer).



Technical Specifications

<i>picasso™ FI models</i>		
	standard PCI	Compact PCI
	PCI 2.1	Compact PCI 2.0
PCI Bus	32-bit PCI interface PCI bus master up to 132 Mbytes/sec. Supports zero wait state burst transfers Plug and play, no jumpers full duplex fiber interface.	
Video input	two models: mm: multi-mode fiber transceiver sm: single-mode fiber transceiver	
taps	one or two taps	
Pixel formats	one tap: 8, 10, 12, 14, 16 bits two taps: 2 x 8 bits	
Image resolution	4095 pixels per line (8190 pixel per line if 8 bit/pixel) 4095 lines per frame	
Pixel clock	up to 40 MHz	
Capture format	Y8 Y16 RGB24 for color camera's with Bayer filter <i>post processing required</i>	
Exposure timer	adjustable between 6.375 μ s and 417 ms (step is 6.375 μ s)	
Exposure input trigger	TTL signal	
fiber general purpose I/O	input (1 bit) SDI	outputs (3 bits, LVDS/CameraLink) SDO/CC2 SCL/CC3 GP0/CC4
Digital I/O	2 digital inputs 2 digital outputs TTL compatible optical isolated inputs can be programmed as interrupt or as capture start 5V, 100 mA, 10kHz	
Fiber Connector	SC duplex	
RS-232 connectors	channel 1: Sub-D9 on the bracket channel 2: 10-pins header on PCB	
Digital I/O connector	10-pins header on PCB	
Exposure input connector	10-pins header on PCB	
Dimensions (mm)	106 x 175	100 x 160 3U Eurocard
Power consumption	11.8 W typical	
Operating temperature	0° C to 50° C	
Operating Systems	Windows 98/ Me/ NT/ 2000/ XP Linux Solaris 8 (x86 and SPARC)	
RT Operating Systems	RTLinux, QNX4, QNX6	
Software	Windows: Visual C++, Borland C (ANSI C compilers) Visual Basic, Delphi Linux, Solaris and QNX6: (GNU) C compiler QNX4: Watcom C compiler	

Options

Software

Windows Software Development Kit (98/Me/NT/2000/XP)

Linux Software Development Kit

Realtime Linux Software Development Kit

Solaris 8 (SPARC) Software Development Kit

Solaris 8 (i86) Software Development Kit

QNX4 Software Development Kit

QNX6 (x86) Software Development Kit

Fiber optic stock cables

10 meter duplex Fiber Optics cable, multi mode, SC-duplex connectors

50 meter duplex Fiber Optics cable, multi mode, SC-duplex connectors

100 meter duplex Fiber Optics cable, multi mode, SC-duplex connectors

other lengths and single mode cables are available on request

Hardware modification

Active cooling