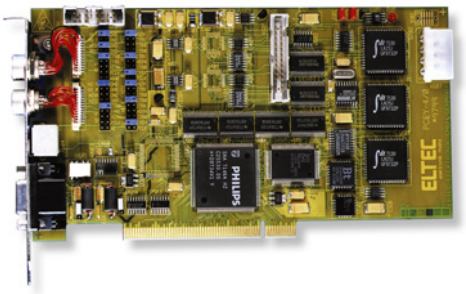
ELTEC systems

p3i4

Frame Grabber



MANUAL

Revision 1E

ELTEC systems

Revision

Revision	Changes	Date / Name
1A	First Edition, valid for Hardware revision 1A, 2A	15.05.98 cw
1B	valid for Hardware revision 2x	07.10.98 cw
1C	valid for Hardware revision 2x	12.12.00 dp
1D	valid for Hardware revision 2x	25.06.01 cw
1E	Disclaimer new	08.11.06 hh

DISCLAIMER

Copyright

Federal communications commission statement

- This device complies with FCC Rules Part 15. Operation is subject to the following two conditions:
- This device may not cause harmful interference, and
- This device must accept any interference received including interference that may cause undesired operation.
- This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with

manufacturer's instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try correct the interference by one or more of the following measures:

- ↪ Reorient or relocate the receiving antenna.
- ↪ Increase the separation between the equipment and receiver.
- ↪ Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- ↪ Consult the dealer or an experienced radio/TV technician for help.
- ↪ The us of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Canadian department of communications statement

- ↪ This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.
- ↪ This class B digital apparatus complies with Canadian ICES-003

SAFETY INFORMATION

Electrical safety

- ↪ To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before reloading the system.

- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add device.
- Before connecting or removing signals cables from motherboard, ensure that all power cables are unplugged.
- Make sure that your power supply is set to the correct voltage in your area. If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

Operation safety

- Before installing the motherboard and adding devices on it, carefully read the manuals that came with the package.
- Before using the product, make sure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots sockets and circuitry.
- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet.
- Place the product on a stable surface.
- If you encounter technical problems with the product, contact a qualified service technician or your retailer.

EMC Rules

This unit has to be installed in a shielded housing. If not installed in a properly shielded enclosure, and used in accordance with the instruction manual, this product may cause radio interference in which case the user may be required to take adequate measures at his or her own expense.

IMPROTANT INFORMATION

This product is not an end user product. It was developed and manufactured for further processing by trained personnel.

RECYCLING

Please recycle packaging environmentally friendly:
Packaging materials are recyclable. Please do not dispose packaging into domestic waste but recycle it.

Please recycle old or redundant devices environmentally friendly:
Old devices contain valuable recyclable materials that should be reutilized. Therefore please dispose old devices at collection points which are suitable.

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1 Installation

For complete instructions see the Help File - see software installation section on how to install the Help System.

1.1 Packing List

Please compare the components with the following packing list:

Caution! Prevent static electrical damage. Static charges can cause severe damage to microcircuits.

1 PC_EYE®4 Framegrabber board

Order numbers: V-PCEY-400x (full version)

V-PCEY-410x (single monochrome channel)

V-PCEY-420x (S-video only)

1 Configuration jumper package

If there are any of these items missing, contact your ELTEC dealer.

1.2 Installation Requirements

PC/Operating system:

PC with Windows 98, ME, NT, 2000 operating system.

Harddisk:

At least 10 MB free space.

PCI bus:

Compliant with PCI specification 2.0 or higher with transfer rate PCI-to-memory >= 30 MB/s.

Graphics:

PCI-based graphics board with 24-bits-per-pixel mode for optimum speed. 16-bit-per-pixel HiColor and 32-bit true-color modes are also supported.

PCI BIOS:

Compliant with PCI specification 2.0 or higher.

Interrupts/DMA:

No interrupts needed by current software. Busmaster DMA transfers used.

Software:

PC_EYE®4 Basic Tools for driver DLL, test and installation.

1.3 Hardware Installation

- Depending on the type of the grabber and the operation system used, the software has to be installed before or after the hardware**. Refer to the driver installation guide** to find which comonent has to be installed first.
- Switch off computer. Prepare workspace to observe electrostatic discharge (ESD) precautions before opening computer or removing the PC_EYE®4 from its case: Touch computer steel case during insertion/removal of the PC_EYE®4 or take other precautions to ensure the absence of high voltages due to electric charges.
- Open computer case, remove blind back panel.
- Insert the PC_EYE®4 into free PCI slot. The board must fit into the slot without use of excessive force, make sure it sits firmly in the slot.
- Fix PC_EYE®4 back panel with screw, connect camera, close computer case.

Caution! The connector X603 has the same mechanical appearance as an VGA video output connector. It should not be confused with the latter!

To avoid damage to the hardware do not connect a VGA monitor to X603!

Caution! On pin 15 of X603 either 5V or 12V are delivered to power the video camera. The current that can be drawn from this pin is limited with a PTC resistor (Imax ca. 500 mA). Be sure not interchange 12V- and 5V-outputs!

1.4 Hardware Documentation

The hardware documentation is provided as PDF file.

To see which cameras are supported please have a look at the camera documentation.

2 Quick Start

To quickly test functionality of the PC_EYE®4 only a few steps have to be done.

2.1 For a (CCIR) Monochrome Camera

Connect your camera to the PC_EYE®4's monochrome channel 1, that is the circular connector at the top of the backpanel (HIROSE 1). You should use a standard 12-pin video cable, available from your local video equipment provider or directly from ELTEC.

Make sure that a floppy-type connector from your PC's power unit is plugged into X607 on the PC_EYE®4's right side. This will ensure that your camera is powered directly from your PC without need for an external power unit. Consult your camera manual how to select a free running mode. Normally this is the factory setting. On the PC_EYE®4 no further jumper setting is necessary. Assumed you have installed the configuration software, start 'PC_EYE®4 Configuration' from the 'PC_EYE®4 Basic Tools' menu. The program will scan the PCI-Bus for installed PC_EYE®4 boards.

All boards found will be shown in the main window (see Figure 1). Select one of them by clicking on it. This will open an acquisition window. Click on the 'pocket-knife-button'. The 'Configuration' menu comes up. Activate the 'Camera' register card to select the global parameters (see Figure 2). Notice that the 'Frame Size (Pixel)' area on the right is related to the image buffer in memory and the acquisition window size on your desktop, not to the actual sensor dimensions of the camera. So there is no need to adapt the slider settings exactly to the sensor dimensions.

Now activate the register card 'Input'. The right choice here is 'BW Input 0' (Figure 3). The last selection which has to be made is '8-bit monochrome' in register card 'Packing mode' (Figure 4). This means that the digitized image data will be placed into the acquisition buffer in the form one byte per pixel. Close the configuration menu by clicking the 'OK'-button. Now the grabber

is ready to acquire the first image. Press the 'pocket-camera button' to snapshot a single image or the 'film-camera button' for continuous acquisition.

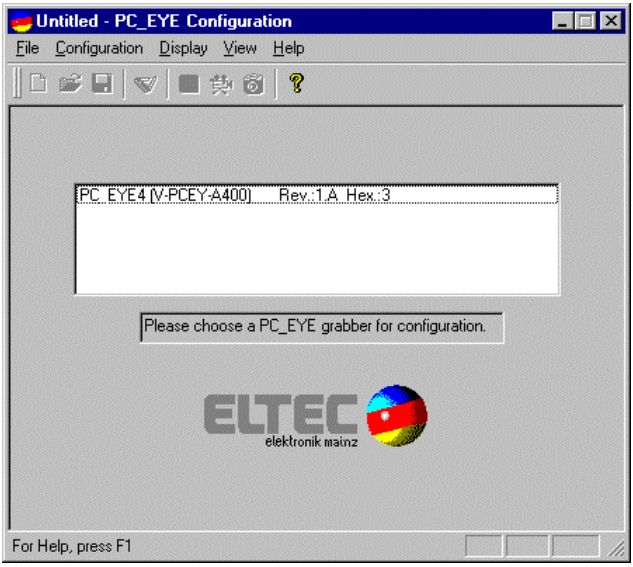

Figure 1: Main Window

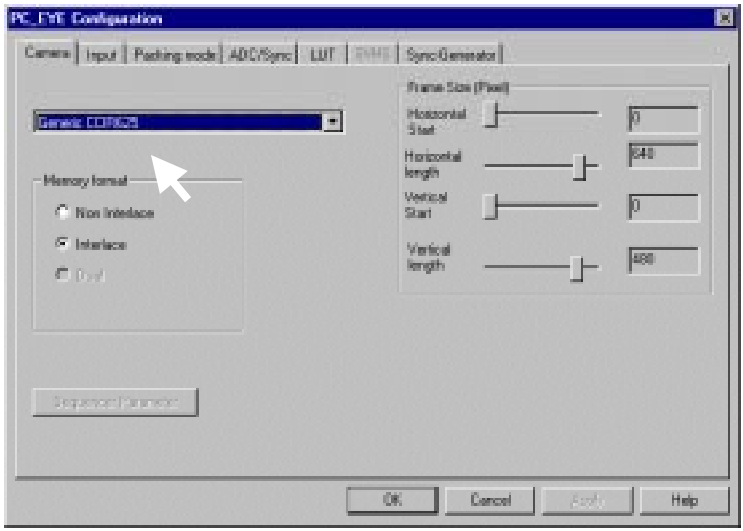

Figure 2: Global Parameters

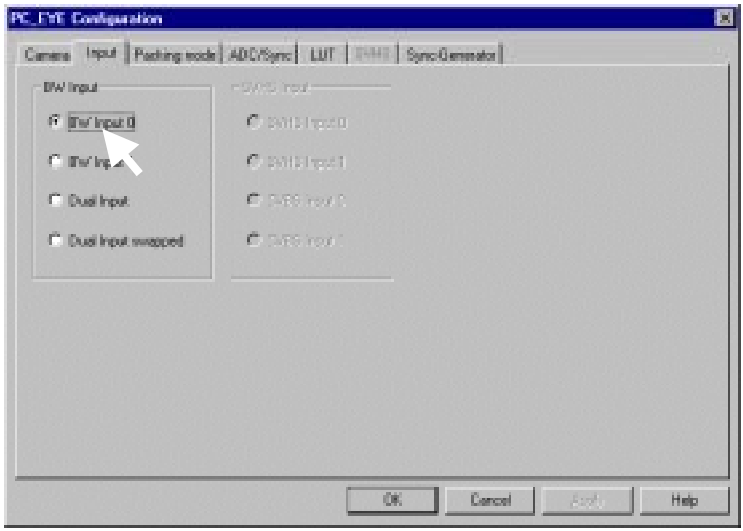

Figure 3: Input Selection

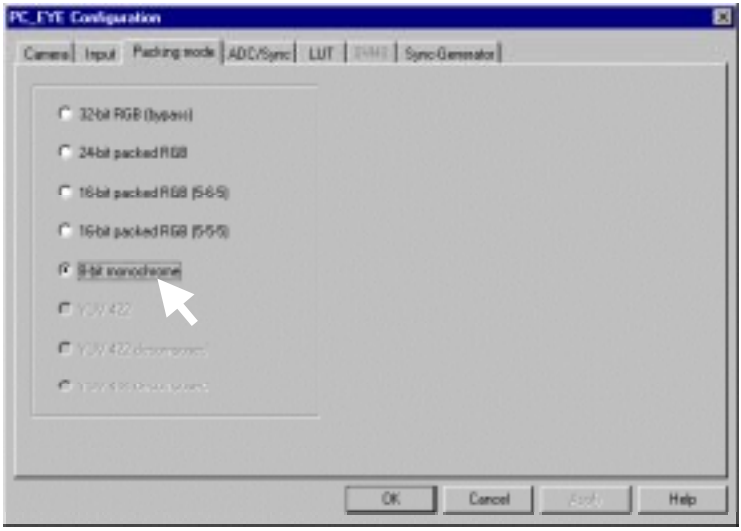

Figure 4: Packing Mode

2.2 For a Color (SVHS) Camera

Connect your camera to the PC_EYE®4's SVHS input connector (X604). It is located above the MIN-D connector in the backpanel's middle. You should use a standard 4-pin s-video cable, which is available from your local video equipment provider or directly from ELTEC. Ensure that your camera is powered by its external power unit. Assumed you have installed the configuration software, start 'PC_EYE®4 Configuration' from the 'PC_EYE®4 Basic Tools' menu. The program will scan the PCI-Bus for installed PC_EYE®4 boards.

All boards found will be indicated in the main window (see Figure 1). Select one of these by clicking on it. This will open an acquisition window. Click on the 'pocket-knife-button'. The 'Configuration' menu comes up. Activate the 'Camera' register card to select the global parameters (see Figure 5). Notice that the 'Frame Size (Pixel)' area on the right is related to the image buffer in memory and the acquisition window size on your desktop, not to the actual sensor dimensions of the camera.

So there is no need to adapt the slider settings exactly to the sensor dimensions. From the camera select box choose 'Generic PAL (YC/CVBS)'.

Activate the register card 'Input'. Choose 'SVHS Input 0' (Figure 6). Now click on register card 'Packing Mode'. For this example select the check box '16-bit packed RGB (5-6-5) (Figure 7). Each pixel will be stored in two bytes containing five bits for the red and the blue component and six bits for the green component of the image data. Close the configuration menu by clicking the 'OK'-button. Now the grabber is ready to acquire the first image. Press the 'pocket-camera button' to snapshot a single image or the 'film-camera button' for continuous acquisition.

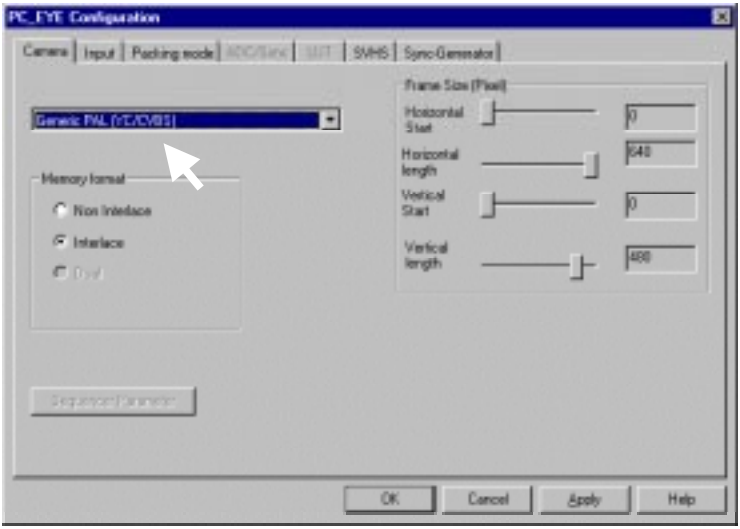

Figure 5: SVHS Camera Selection

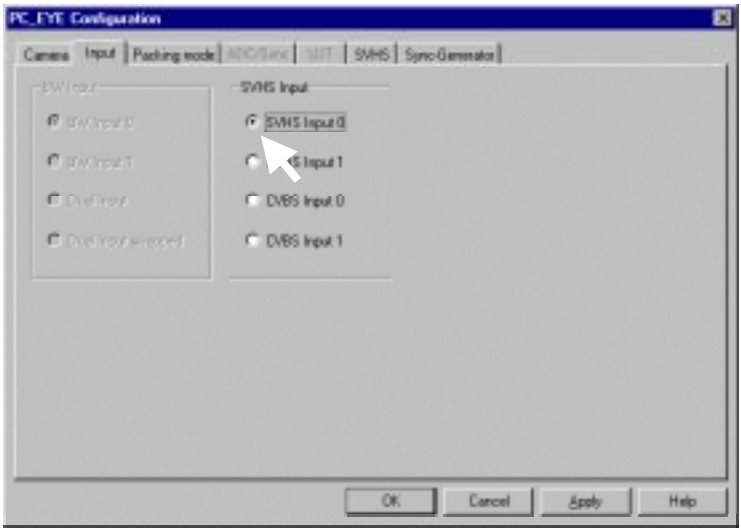

Figure 6: SVHS Input Selection

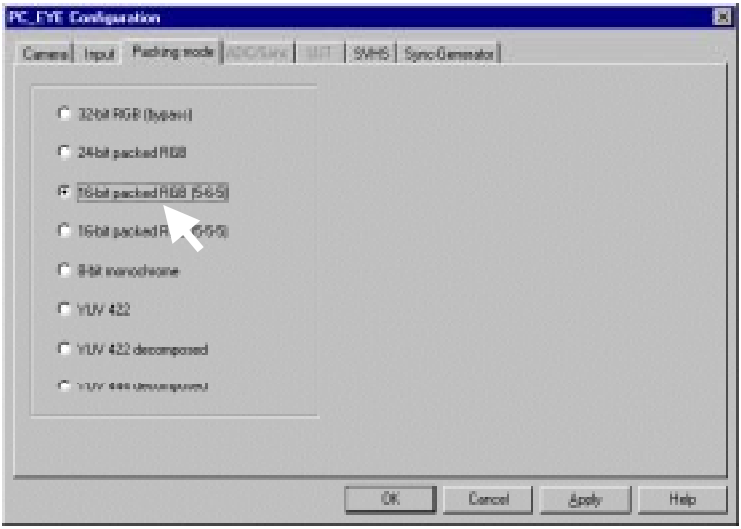

Figure 7: Color Packing Mode

3 Specification

3.1 Understanding the Grabber - How the PC_EYE® 4 Works -

Figure 10 shows the main building blocks of the PC_EYE®4. Basically the board consists of two parts: one for standard color video sources and another for monochrome video. Especially the monochrome part can be adapted in a flexible manner to work with a variety of cameras.

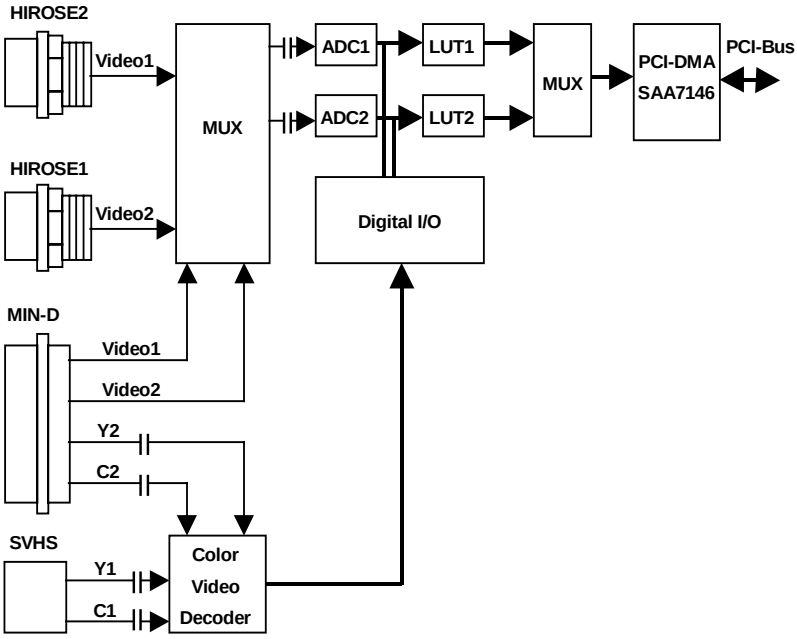

Figure 8: Block Diagram PC_EYE®4

3.1.2 Color Block Data Flow

With its video decoder (SAA7111) the PC_EYE®4 is able to digitize and process standard analog color video sources. On its back panel input X604 one SVHS signal (Y1, C1) or two CVBS signals (CVBS3, CVBS4) may be connected. Also the MIN-D input X603 may serve as source of the same type of signals (Y2/CVBS3, C2/CVBS4) on its pins 3 and 4, (see figure 9 and 10). However, after selecting one of these sources the video decoder allows only one signal at a time to be processed. After digitization the image data is transferred to the PCI DMA controller (SAA 7146). The DMA controller is capable of resizing the image data and transfer it to the main memory or graphics card using different formats such as RGB32, 24, 16, 15-bit, YUV4:2:2, 4:4:4 (24-bit/pixel), or monochrome 8-bit.

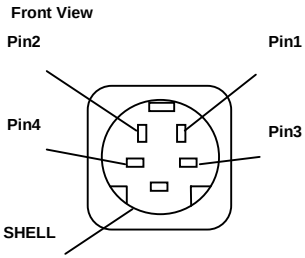

Figure 9: SVHS Connector X604

Table 1: SVHS Connector X604

Pin	Function
1	Y1/CVBS1
2	C1/CVBS2
3	GND
4	GND
Shell	SHIELD

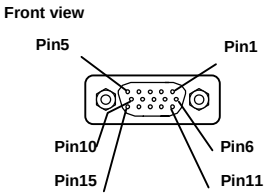

Figure 10: MIN-D Connector X603

Table 2: MIN-D Connector X603

Pin	Signal	Function
1	BW_VIDEO1	analog input for monochrome cameras channel1
2	BW_VIDEO2	analog input for monochrome cameras channel2
3	Y2/CVBS3	channel2 analog input color cameras (Y from SVHS or CVBS3 from FBAS)
4	C2/CVBS4	channel2 analog input color cameras (C from SVHS or CVBS4 from FBAS)
5	GND	
6	GND	
7	GND	
8	GND	
9	TRIG_IN+	user defined input to opto-coupler
10	GND	
11	TRIG_IN-	user defined input to opto-coupler
12	PIXCLK_IN	external pixel clock input
13	HSYNC_OUT	horizontal sync output (TTL)
14	(dual purpose)	composide sync output (TTL) / camera control output (TTL) (dependent on J612 setting)
15	POWER1	power output +12V/+5V (dependent on J611 setting)

3.1.3 Monochrome Block Data Flow

The PC_EYE®4's monochrome block provides for two acquisition channels capable of acquiring images from two synchronized cameras in parallel (stereo mode). If not synchronized, only one camera at a time can be used for acquisition. As in the color block the MIN-D connector X603 as well as the HIROSE™ inputs may be used as source of max. two different video signals.

Caution! Don't use the same video line on the MIN-D connector and on one of the two HIROSEs in order not to mix different signals. (For proper

use of the inputs and configuration jumpers see chapter 'No fear of jumpers!').

The video signals are digitized by two AD converters of type HI1179 with 8-bit/pixel resolution and a maximum pixel clock frequency of 30 MHz. At this point the digital data is routed to connector X605, where it is always available, except the case connector X605 is configured to be digital input. In the latter case the AD converter's outputs are disabled in order not to interfere with the digital input data.

The digital I/O connector X605 is reserved for future use. So don't connect a digital camera or other hardware to it! Contact ELTEC if you intend to utilize this port in the future.

Independent of its source the digital data of each channel passes a programmable 8-bit look-up-table before it is presented to the PC-DMA controller.

Additional features

The feature connector X606 provides for all five camera control signals which must be programmed appropriate to become meaningful. Also the user definable trigger inputs to the opto-coupler as well as the I2C-Bus signals are available (see figure 11).

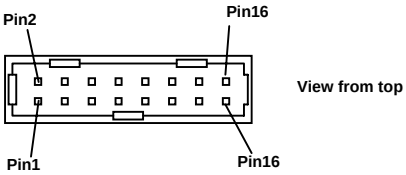

Figure 11: Feature Connector X606

Table 3: Feature Connector X606

Pin	Signal	Function
1	CAM_CTRL0	camera control output 0
2	CAM_CTRL1	camera control output 1
3	CAM_CTRL2	camera control output 2
4	CAM_CTRL3	camera control output 3
5	CAM_CTRL4	camera control output 4
6	NC	
7	NC	
8	GND	
9	GND	
10	GND	
11	TRIG_IN+	user defined input to opto-coupler
12	TRIG_IN-	user defined input to opto-coupler
13	GND	
14	GND	
15	SCL	I2C-Bus clock signal
16	SDA	I2C-Bus data signal

If you intend to supply power to your camera from the PC_EYE®4 the floppy type connector X607 comes into play. This connector routes the PC's 12 Volt power directly (but fused) to both HIROSE connectors pin 2. This connection is fixed and cannot be changed. Use X607 the same way as you do with e.g. a hard disk drive's power connector. If your camera requires 12 Volt applied to another pin this can be achieved by setting the camera configuration jumpers accordingly (see next chapter). The same voltage is applied to the MIN-D connector X603, pin 15 if jumper J611 is set towards the board edge.

3.2 Have no fear of Jumpers! - Configuring the PC_EYE® 4 for your Camera -

With its camera configuration jumpers the PC_EYE®4 provides an effective method of adapting your favorite camera to run on this grabber using the standard HIROSE‰ video cable. In most cases however to capture images from a camera in free running mode requires no jumper setting at all. For a quick start it will be sufficient to apply the analog video signal to HIROSE pin 4 or MIN-D pin 13. If you intend to run your camera in a more specialized manner, e.g. in restart mode or synchronized by the PC_EYE®4, you should have no fear of setting the camera configuration jumpers according to your needs. It must be said, however, that it is absolutely necessary to understand what you are doing in order not to damage your camera. This chapter provides information on how to set these jumpers correctly in conjunction with cameras not yet supported by ELTEC.

In general, the configuration jumpers are labeled as follows. On the left side you will find in short form the HIROSE connector and the pin the jumper is connected to. For example the label

H2_11

means: This jumper is routed to pin 11 of HIROSE connector No. 2. On the right side you will find a short form of an elementary grabber signal line.

Example: **H2_7**  **PCLK**

Setting this jumper will connect pin 7 of HIROSE connector 2 to the external pixel clock line. If more than one choice is available for the same HIROSE pin you will find a group of jumpers with only one label on the left. This means all these jumpers connect to the same HIROSE pin. Therefore in such a group it is not allowed to set more than one jumper.

The two HIROSE connectors on the PCI backpanel correspond to the two AD channels on the PC_EYE®4. In detail the connections are as follows:

PIN 1: GND (not changeable)

PIN 2: POWER2

POWER2 means this pin may be connected to the host PC's power supply i. e. +12 Volts. Nearly all cameras derive its power from this pin. The PC_EYE® 4 provides for a connection from X607 (that is the floppy type connector on the inner side of the board) to the HIROSE's pin 2. Therefore if you connect X607, (as you do e.g. with a floppy or a CD-ROM drive), +12 Volts are applied to the HIROSE's so that your camera is powered directly from your PC. See figure 12:

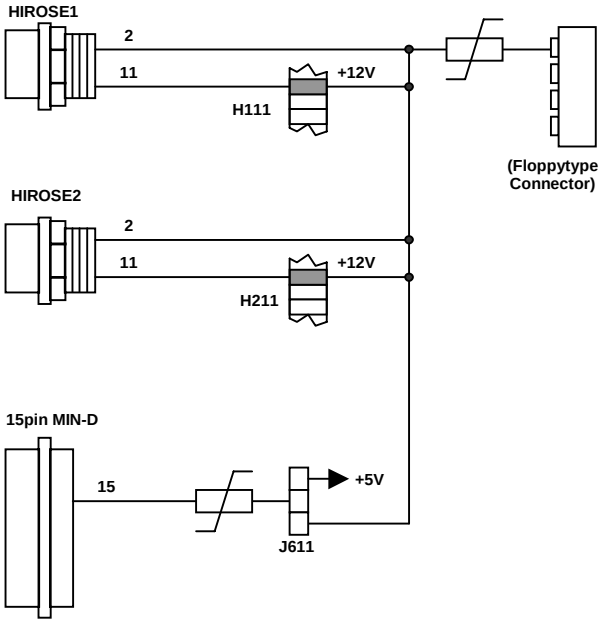

Figure 12: Camera Power Supply Connections

The voltage applied to pin 15 of the MIN-D connector depends on the jumper setting J611. Set jumper J611 towards the board edge to apply

+12 Volts to the MIN-D pin 15. Set J611 towards C601 to apply +5 Volts to MIN-D pin 15.

PIN 3: GND (not changeable)

PIN 4: Analog video input to channel 1 and channel 2.

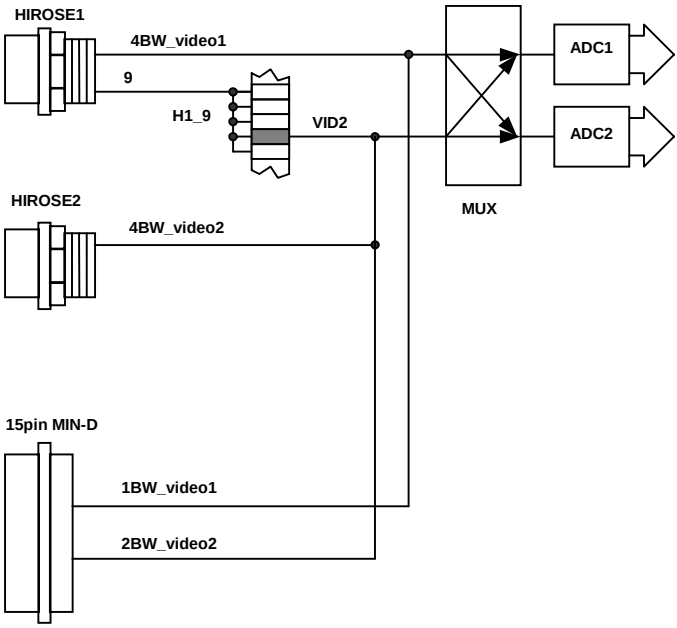

Figure 13: Video Signal Connections

Figure 6 shows how to connect analog video signals to the input multiplexer which links software selectable both inputs to both AD converters. You may use video input on the HIROSE's and alternatively on the MIN-D, pin 1 and 2, but not both in order not to mix different video sources. As you can see in figure 6 pin 7 of HIROSE connector 1 may be connected to video line 2 by setting the configuration jumper labeled HIROSE1_9 (H1_9) on the left and BW_video2 (VID2) on the right. By means of this cameras which provide a dual video on its pins 4 and 9 i. e. separate even and odd fields can be used. The fields are digitized in parallel. In this case only one camera can be used and HIROSE connector 2 must be left unconnected.

PIN 5: multiple purpose pin

Pin 5 of each HIROSE connector may be connected to ground or may be left open. In many cases pin 5 connects to the inner shield of conductor on pin 6.

→ Set jumper labeled H1_5 on the left side and GND on the right side to connect pin 5 of HIROSE1 to ground potential.

→ Set jumper labeled H2_5 on the left side and GND on the right side to connect pin 5 of HIROSE2 to ground potential

PIN 6: multiple purpose pin

For pin 6 of each HIROSE connector you have three choices. See table 4:

Table 4: HIROSE pin 6 Jumpering

left label	right label	does the following
H1_6	CTR0	Connects pin 6 of HIROSE connector 1 to the CAM_CONTROL0 output, which is normally used for restart purposes. The PC_EYE®4 must be programmed appropriately to generate e. g. a restart signal on this line.
H1_6	CTR1	Connects pin 6 of HIROSE connector 1 to the CAM_CONTROL1 output, which can be used for different control purposes. The PC_EYE®4 must be programmed appropriately to generate a meaningful signal on this line.
H1_6	HSYN	Connects pin 6 of HIROSE connector 1 to the HSYNC output of the PC_EYE®4's sync generator. By means of this a camera can be horizontally synchronized by the grabber. When acquiring pictures from two cameras in parallel (stereo mode) synchronizing is generally necessary, because the AD channels cannot be run asynchronously to each other. The PC_EYE®4 must be programmed appropriately to generate the correct HSYNC-timing.
H2_6	CTR0	Connects pin 6 of HIROSE connector 2 to the CAM_CONTROL0 output, see H1_6 - CTR0 above.
H2_6	CTR1	Connects pin 6 of HIROSE connector 2 to the CAM_CONTROL1 output, which can be used for different control purposes, see H1_6 - CTR1 above.
H2_6	HSYN	Connects pin 6 of HIROSE connector 2 to the HSYNC output of the PC_EYE®4's sync generator, see H1_6 - HSYN above.

Caution! Don't set any of the jumpers H1_6 and H2_6 if you are not sure whether your camera drives some sort of output on its HIROSE pin 6. This will probably damage camera and/or grabber.

PIN 7: multiple purpose pin

You may chose one of three alternatives for pin 7 of each HIROSE connector. See table 2:

Table 5: HIROSE pin 7 Jumpering

left label	right label	does the following
H1_7	CTR0	Connects pin 7 of HIROSE connector 1 to the CAM_CONTROL0 output, which is used for restart purposes very often. The PC_EYE®4 must be programmed appropriately to generate e. g. a restart signal on this line.
H1_7	CVSY	Connects pin 7 of HIROSE connector 1 to the CVSYNC output of the PC_EYE®4's sync generator. 'CV' means this output can be programmed to be either a composite sync (vertical and horizontal sync enclosed in one signal) or a pure vertical sync only. By means of this a camera can be vertically synchronized by the grabber. When acquiring pictures from two cameras in parallel (stereo mode) synchronizing is generally necessary, because the AD - channels cannot be run asynchronously to each other. The PC_EYE®4 must be programmed appropriately to generate the correct CSYNC - timing.
H1_7	PCLK	Connects pin 7 of HIROSE connector 1 to the external pixelclock input of the PC_EYE,4. By this the camera determines the sampling point of each pixel in the analog video signal. Make sure not to exceed a maximum frequency of 30 MHz for the external pixelclock. **Caution!** Only one of the two HIROSEs or the MIN-D connector may serve as source for this clock. When setting this jumper don't set jumper H2_7 - PCLK, because this will mix different clock signals! The use of the external clock must be switched on by the configuration software to become effective.
H2_7	CTR0	Connects pin 7 of HIROSE connector 2 to the CAM_CONTROL0 output, see H1_7 - CTR0 above.
H2_7	CVSY	Connects pin 7 of HIROSE connector 2 to the CVSYNC output of the PC_EYE®4's sync generator, see H1_7 - HSYN above.
H2_7	PCLK	Connects pin 7 of HIROSE connector 2 to the external pixelclock input of the PC_EYE®4, see H1-7 - PCLK above. **Caution!** Only one of the two HIROSEs or the MIN-D connector may serve as source for this clock. When setting this jumper don't set jumper H1_7 - PCLK, because this will mix different clock signals!

Caution! Don't set any of the jumpers H1_7 - CTR0, H1_7 - CVSY, H2_7 - CTR0 and H2_7 - CVSY if you are not sure whether your camera drives some sort of output on its HIROSE pin 7. This will probably damage camera and/or grabber.

Figure 7 shows the connections of the external pixel clock. Make sure to use only one source for this signal.

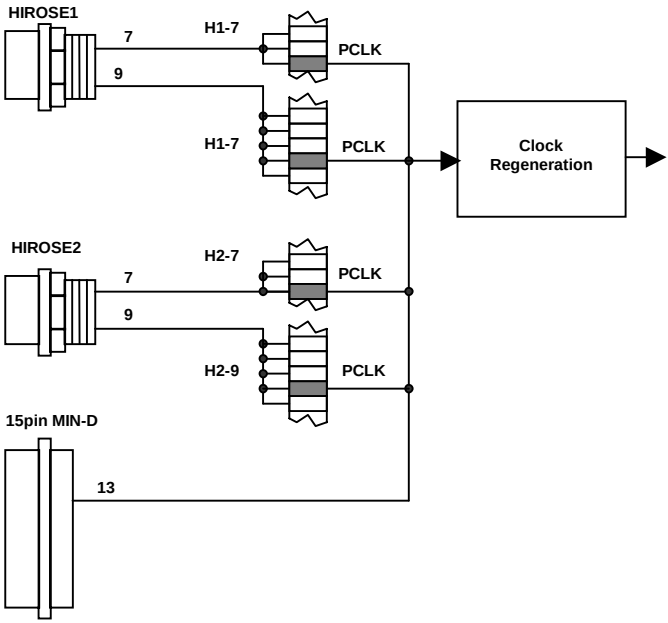

Figure 14: External Pixel Clock Connections

PIN 8: multiple purpose pin

Pin 8 of each HIROSE connector may be connected to ground or may be left open. In many cases pin 8 connects to the inner shield of conductor on pin 7.

→ Set jumper labeled H1_8 on the left side and GND on the right side to connect pin 8 of HIROSE1 to ground potential.

→ Set jumper labeled H2_8 on the left side and GND on the right side to connect pin 8 of HIROSE2 to ground potential

PIN 9: multiple purpose pin

Most options are available for pin 9 of each HIROSE connector. See also figure 13 and figure 14. See table 6:

Table 6: HIROSE pin 9 Jumpering

left label	right label	does the following
H1_9	CTR0	Connects pin 9 of HIROSE connector 1 to the CAM_CONTROL0 output, which is used for restart purposes very often. The PC_EYE®4 must be programmed appropriately to generate e. g. a restart signal on this line.
H1_9	CTR1	Connects pin 9 of HIROSE connector 1 to the CAM_CONTROL1 output, which can be used for different control purposes. The PC_EYE®4 must be programmed appropriately to generate a meaningful signal on this line.
H1_9	HSYN	Connects pin 9 of HIROSE connector 1 to the HSYNC output of the PC_EYE®4's sync generator. By means of this a camera can be horizontally synchronized by the grabber. When acquiring pictures from two cameras in parallel (stereo mode) synchronizing is generally necessary, because the AD - channels cannot be run asynchronously to each other. The PC_EYE®4 must be programmed appropriately to generate the correct HSYNC - timing.
H1_9	PCLK	Connects pin 9 of HIROSE connector 1 to the external pixel clock input of the PC_EYE®4, see H1_7 - PCLK above. **Caution!** Only one of the two HIROSEs or the MIN-D connector may serve as source for this clock. When setting this jumper don't set jumper H2_9 - PCLK, because this will mix different clock signals!
H2_9	CTR0	Connects pin 9 of HIROSE connector 2 to the CAM_CONTROL0 output, see H1_9 - CTR0 above.
H2_9	CTR1	Connects pin 9 of HIROSE connector 2 to the CAM_CONTROL1 output, which can be used for different control purposes, see H1_9 - CTR1 above.
H2_9	HSYN	Connects pin 9 of HIROSE connector 2 to the HSYNC output of the PC_EYE®4's sync generator, see H1_9 - HSYN above.
H2_9	PCLK	Connects pin 9 of HIROSE connector 2 to the external pixelclock input of the PC_EYE®4, see H1_9 - PCLK above. **Caution!** Only one of the serve as source for this clock. When setting this jumper don't set jumper H1_9 - PCLK, because this will mix different clock signals!

Caution! Don't set any of the jumpers H1_9 - CTR0, H1_9 - CTR1, H1_9 - HSYN,

H2_9 - CTR0, H2_9 - CTR1 and H2_9 - HSYN if you are not sure whether your camera drives some sort of output on its HIROSE pin 9. This will probably damage camera and/or grabber.

PIN 10: multiple purpose pin

Pin 10 of each HIROSE connector may be connected to ground or may be left open. In many cases pin 10 connects to the inner shield of conductor on pin 9.

→ Set jumper labeled H110 on the left side and GND on the right side to connect pin 10 of HIROSE1 to ground potential.
→ Set jumper labeled H210 on the left side and GND on the right side to connect pin 10 of HIROSE2 to ground potential

PIN 11: multiple purpose pin

You may chose one of three alternatives for pin 11 of each HIROSE connector. See table 7:

Table 7: HIROSE pin 11 Jumpering

left label	right label	does the following
H111	+12V	Connects pin 11 of HIROSE connector 1 to the +12 Volt Power X607, see figure 14 and PIN 2. Some cameras derive their 12Volt power from HIROSE pin 11. Setting this jumper will allow this.
H111	CTR1	Connects pin 11 of HIROSE connector 1 to the CAM_CONTROL1 output, which can be used for different control purposes. The PC_EYE®4 must be programmed appropriately to generate a meaningful signal on this line.
H111	CTR0	Connects pin 11 of HIROSE connector 1 to the CAM_CONTROL0 output, which is used for restart purposes very often. The PC_EYE®4 must be programmed appropriately to generate e. g. a restart signal on this line.
H211	+12V	Connects pin 11 of HIROSE connector 2 to the +12 Volt Power X607, see figure 14 and PIN 2. Some cameras derive its 12 Volt power from HIROSE pin 11. Setting this jumper can accomplish this.
H211	CTR0	Connects pin 11 of HIROSE connector 2 to the CAM_CONTROL0 output, see H111 - CTR0 above.
H211	CTR1	Connects pin 11 of HIROSE connector 2 to the CAM_CONTROL1 output, see H111 - CTR1 above.

Caution! Don't set any of the jumpers H111 and H211 if you are not sure whether your camera drives some sort of output on its HIROSE pin 11. This will probably damage camera and/or grabber.

PIN 12: multiple purpose pin

Pin 12 of each HIROSE connector may be connected to ground or may be left open. In many cases pin 12 connects to the inner shield of conductor on pin 11.

→ Set jumper labeled H112 on the left side and GND on the right side to connect pin 12 of HIROSE1 to ground potential.
→ Set jumper labeled H212 on the left side and GND on the right side to connect pin 12 of HIROSE2 to ground potential.

Other Settings

Figure 15 illustrates all important jumper and connector locations. There are a few more jumpers with special purposes:

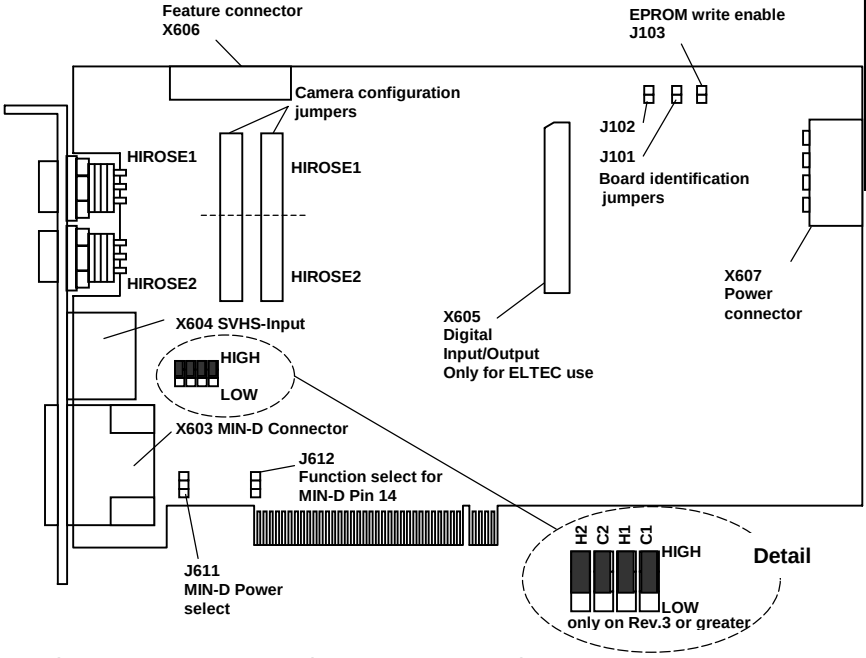

Figure 15: Jumper and Connector Locations

J611 was already mentioned before (see pin 2). It determines the voltage applied to pin 15 of the MIN-D connector. Set jumper J611 towards the board edge to apply +12 Volts to the MIN-D pin 15. Set J611 towards C601 to apply +5Volts to MIN-D pin 15.

J612 selects the output signal which is applied to pin 14 of the MIN-D connector. Set J612 towards the board edge to connect the CAM_CONTROL0 output to MIN-D pin 14. Setting J612 towards U304 connects the CVSYNC output from the PC_EYE®4's sync generator to MIN-D pin 14.

J101, J102 (upper right) are used to identify each board in the case that more than one grabber is used on the same PCI-Bus. With these jumpers set differently on multiple boards the software is able to differ exactly between them. Up to four combinations of these jumpers allow using the same number of boards in parallel on one PCI-Bus.

J103 is used to enable the user portion of the onboard EPROM for writing. This jumper must be set if you intend to change the contents of the EPROM. Reading the memory is always possible.

3.3 Enhancements on Boards with Layout Revisions 3 or Greater

PC_EYE®4 boards with layout versions greater 3 (Rev.D) feature additional jumpers labelled 'H2', 'C2', 'H1', 'C1', which allow for adjusting the output sync signal level. The default setting (delivery) is all set to 'HIGH', which means that the sync signal output level is TTL, i.e. ca. 4.2 V high-level. However some cameras expect video-like external sync levels. In this case each sync signal may be set individually to an output high level of 0.7 V, ('LOW').

For example 'H2' refers to HSYNC output for channel 2, 'C1' refers to composite sync output for channel 1.

3.4 Improved Driver Capabilities

Some cameras use very strong dimensionated termination resistors at their sync-input lines. Since PC_EYE®4 boards up to layout revision 2 have a single driver for both camera sync outputs these signals may collapse in some cases. The work-around was to use only cameras with termination resistors which can be turned off.

Revision 3-boards (or greater) avoid the described problem by driving each sync-output with its own driver.

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TECHNICAL ACTION REQUEST

Customer Name: _____ **Customer Ref. #:** _____

Contact Name: _____ **Department:** _____

Phone Number: _____ **FAX Number:** _____

Severity of Problem: ☐ 1. Critical ☐ 2. Serious ☐ 3. Major ☐ 4. Minor

---

Problem concerns: ☐ Hardware ☐ Software ☐ System ☐ Documentation

Product: _____ **Revision Level:** _____

ELTEC Serial No. (barcode): _____

Operating System: ☐ Windows 98 ☐ Windows NT ☐ Other: _____

System Configuration (Hardware/Software):

Motherboard: _____ **BIOS:** _____

Memory Capacity: _____ **MB**

PCI Slot 1: _____ **Product:** _____
PCI Slot 2: _____ **Product:** _____
PCI Slot 3: _____ **Product:** _____
PCI Slot 4: _____ **Product:** _____

ISA Slot 1: _____ **Product:** _____
ISA Slot 2: _____ **Product:** _____
ISA Slot 3: _____ **Product:** _____
ISA Slot 4: _____ **Product:** _____