

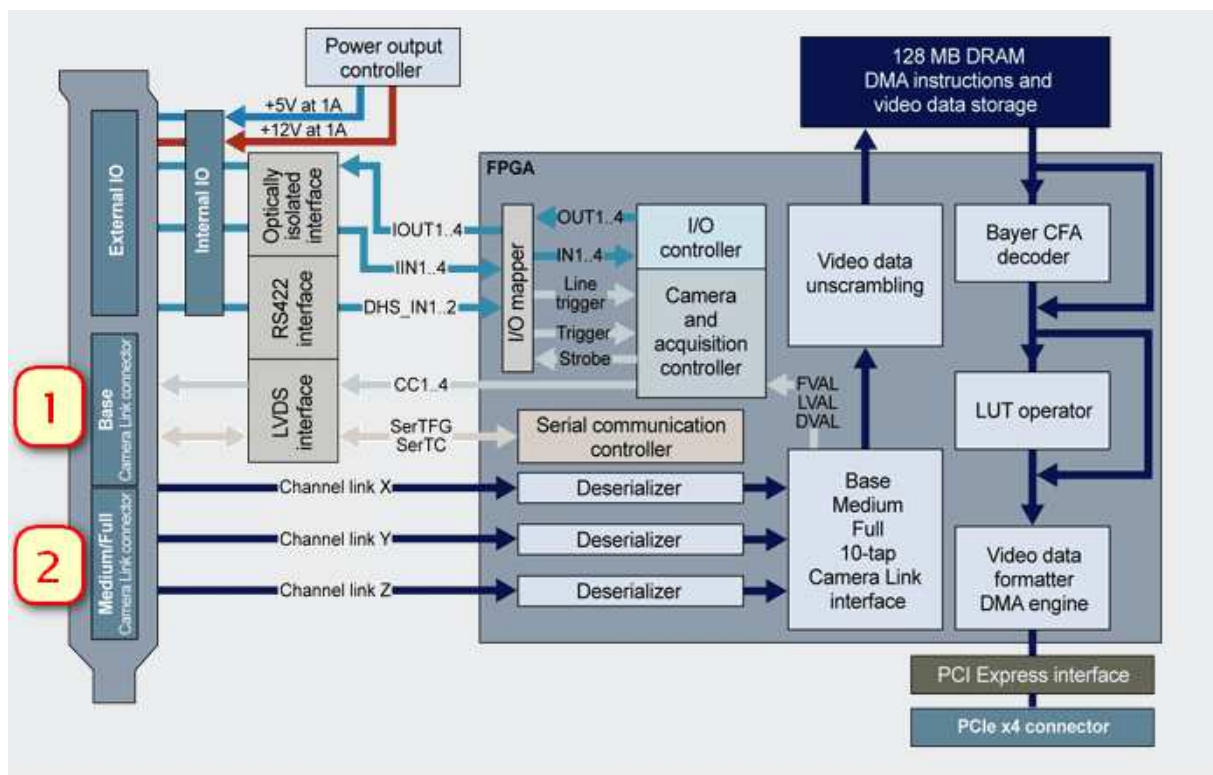
TypeD R29 CameraLink Triggering Guide

Software setup

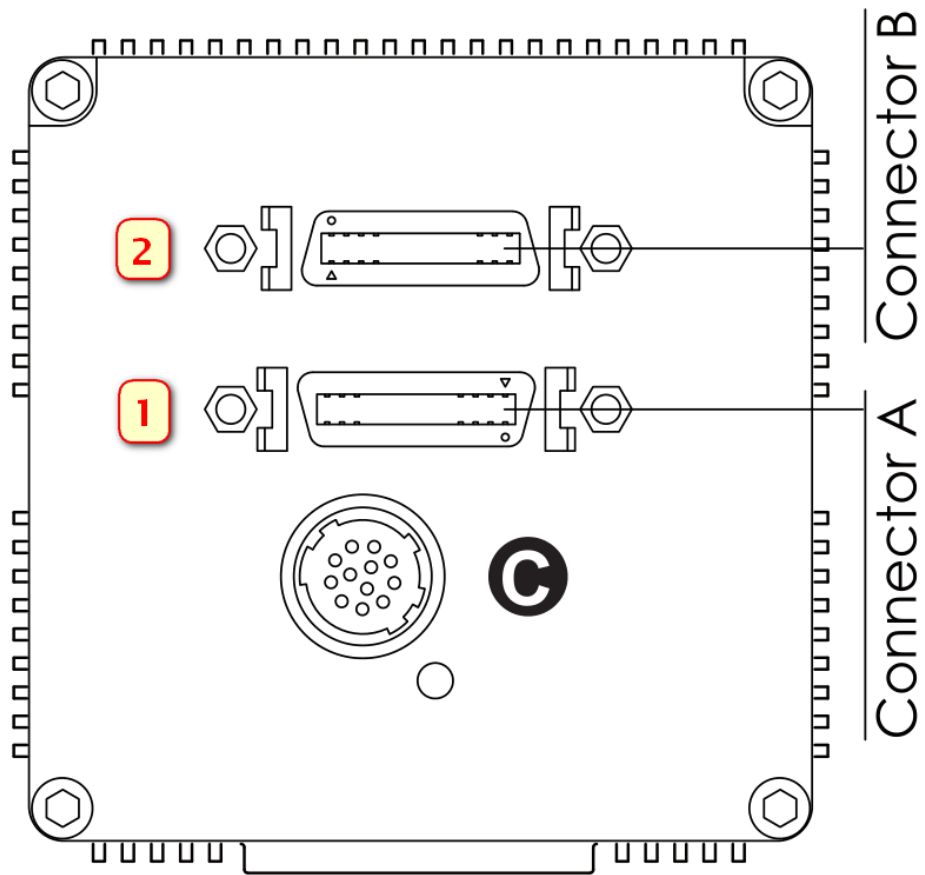
- Make sure any old software for interfacing with the Camera is uninstalled (RxLive 2.8, TypeD 2.8 camera drivers, TypeCL 2.8 FrameGrabber drives, ConvCam 3, ConvCam 4)
- Make sure that the newest version of the Euresys MultiCam software for your Euresys Grablink Full FrameGrabber is installed
- Install the newest version of RxLive, CL Euresys FrameGrabber drivers and TypeD camera drivers
- Install the RxCalibData for your camera

Connecting the camera

- Connect the camera using the two supplied CameraLink cables
- Make sure the cables are connecting the camera and the FrameGrabber in the right way:



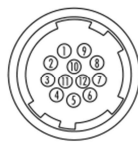
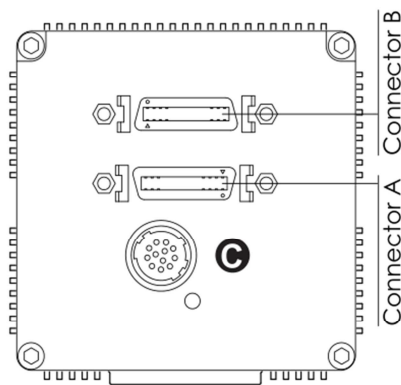
Grablink Full block diagram



- The cables should connect the ports with the same numbers
- If the camera is not detected at all in RxLive, the first step is to check the cables
- Connect the power supply cable to the camera

Setup for external triggering

- Use the triggering cable supplied by Raytrix and connect it to the Hirose connector of the camera (marked „C“ in picture below)
- The cable is wired to the connector as follows:



Power and I/O Connector

Requirement

Voltage	+ 10 VDC to + 25 VDC
Current Consumption	450 mA,
Mating Connector	Switchcraft TA 3F

Specification

Type	HR10A-10R-12PB
Mating Connector	HR10A-10R-12S

Pinout

1: Vin- (GND)
2: VIN+ (10 V to 25 V DC)
3: RXD (RS232)
4: TXD (RS232)
5: In 1 (0 - 24 V)
6: In 2 (0 - 24 V)
7: Out 1 (open drain max. 24 V, 0.3 A)
8: Out 2 (open drain max. 24 V, 0.3 A)
9: In 3+ (RS422)
10: In 3- (RS422)
11: Out 3+ (RS422)
12: Out 3- (RS422)

Ground

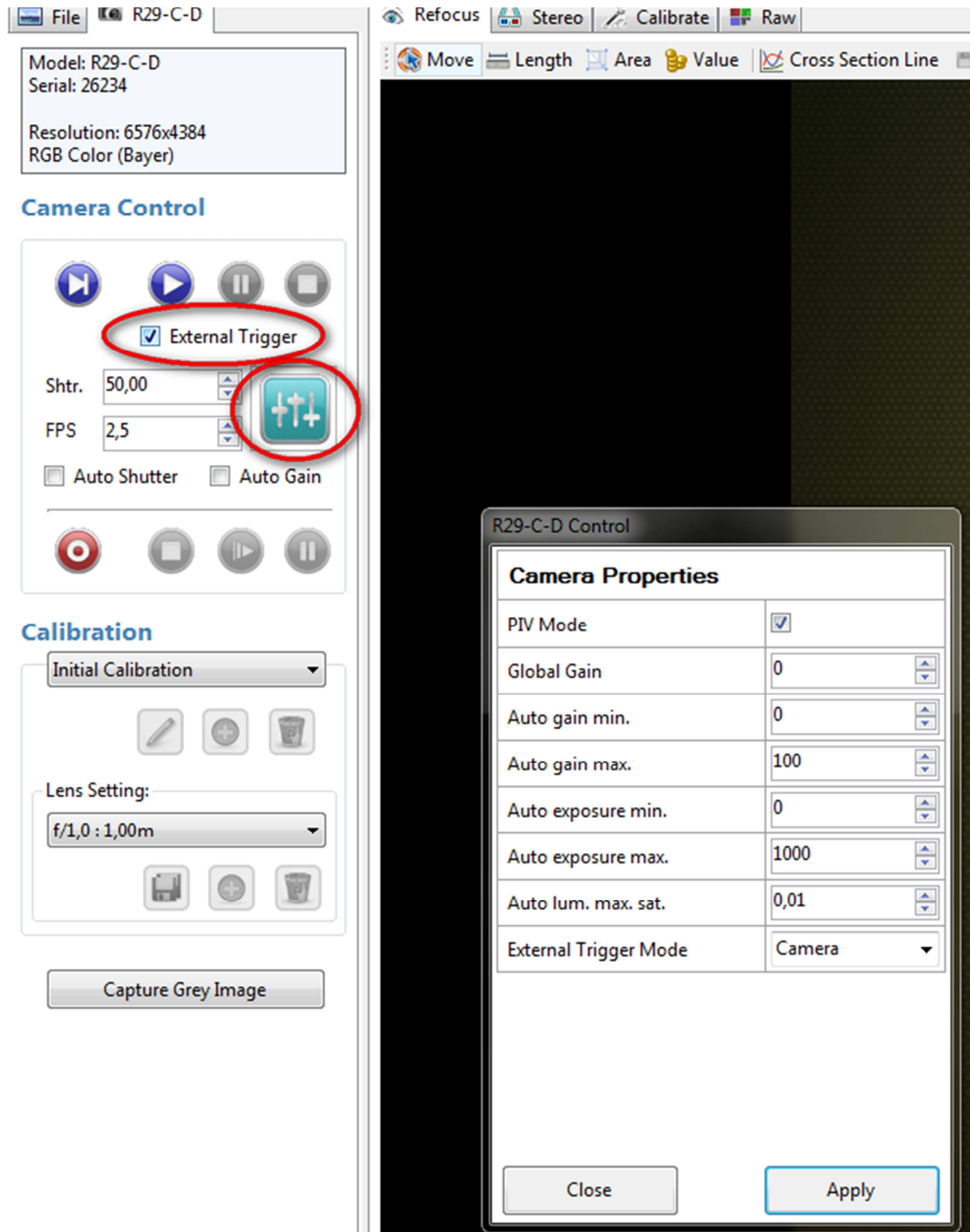
Trigger Cable Color

1: Black
2: Brown
3: Red
4: Orange
5: Yellow
6: Green
7: Blue
8: Purple
9: Grey
10: White
11: White/Black
12: White/Brown
Yellow/Green

- Connect a power supply with 10V...25V DC to pins 1 and 2
- Connect the source of your trigger impulse to pin 5
- The trigger source must have the same ground potential as pin 1, a connection from the negative or ground pin of the trigger source to pin 1 of the camera might be necessary
- A trigger impulse voltage of 10V is sufficient to trigger the camera

Configuration of RxLive

- Start RxLive
- Activate the „External Trigger“ Checkbox in the camera control tab of RxLive:



The screenshot displays the RxLive software interface. On the left, the 'Camera Control' tab is active, showing camera details for 'R29-C-D' (Serial: 26234, Resolution: 6576x4384, RGB Color (Bayer)). The 'External Trigger' checkbox is checked and circled in red. Below it, the 'Shtr.' is set to 50,00 and 'FPS' to 2,5. A red circle also highlights the 'Auto Shutter' and 'Auto Gain' checkboxes. The 'Calibration' section shows 'Initial Calibration' selected and a 'Lens Setting' of 'f/1,0 : 1,00m'. A 'Capture Grey Image' button is at the bottom.

On the right, the 'R29-C-D Control' dialog box is open, showing the 'Camera Properties' tab. The 'External Trigger Mode' is set to 'Camera'.

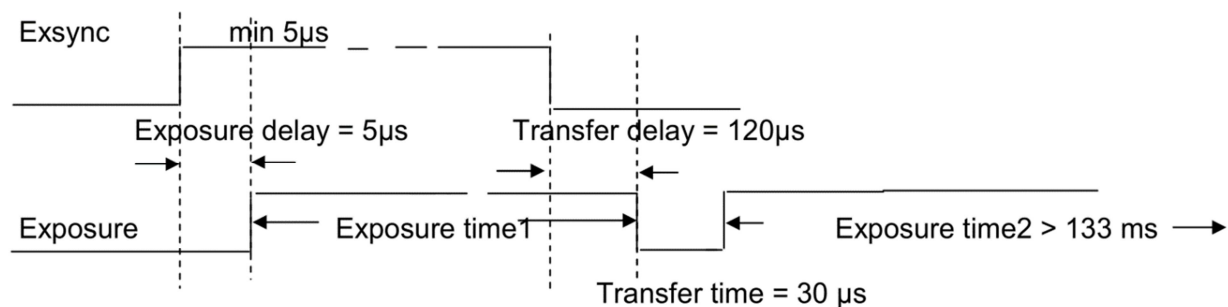
Camera Properties	
PIV Mode	<input checked="" type="checkbox"/>
Global Gain	0
Auto gain min.	0
Auto gain max.	100
Auto exposure min.	0
Auto exposure max.	1000
Auto lum. max. sat.	0,01
External Trigger Mode	Camera

Buttons: Close, Apply

- Click on the teal slider icon to open the additional camera property window
- Set the external trigger mode to „Camera“
- If you wish to use the PIV mode, activate the checkbox for PIV mode
- The R29 can be triggered in external trigger mode at up to 5.9 frames per second
- Using a faster trigger impulse frequency will result in lost frames

PIV mode

- In PIV mode, each trigger impulse will capture two images in a very short period of time
- The delay between the end of the first frame and the start of the second frame is approximately 30 microseconds
- The exposure time of the first frame can be controlled by using the „Shtr.“ value in RxLive to adjust the shutter time
- The exposure time of the second frame is fixed and can not be controlled in any way
- A timing diagram is shown in the next picture:



- The exposure (amount of light contributing to the image) should be controlled by using a very short pulse of light
- This can be generated with either a flash or a pulsed laser
- The camera system should be set up in a dark environment, so that the exposure is only defined by the light impulse
- The maximum triggering frequency is reduced to below 3 Hz, because no more than 5.9 frames can be transmitted by the sensor