	Subject:	Sony XC-HR50 with mvTITAN-G1	Created	Last change
			28.04.03	15.12.03
Application Note	Project:	Camera adaption	Version 1.1	

Overview

Camera Sony XC-HR50

Running modes

Freerunning
 Restart/Reset
 Ext. Synchronized
 Trigger Shutter
 Flash & Reset

Resolution

Horizontal 648 pixel
 Vertical 494 pixel

 Binning
 Partial Scan

Timings

Pixel clock 24.545 MHz
 Horizontal 31.468 kHz
 Vertical 60 fps

MATRIX VISION GmbH Frame Grabber

Typ	mvTITAN-G1				
Line Enable by	camera	<input checked="" type="checkbox"/>	Frame Grabber	<input type="checkbox"/>	external <input type="checkbox"/>
Frame Enable by	camera	<input checked="" type="checkbox"/>	Frame Grabber	<input type="checkbox"/>	external <input type="checkbox"/>
Trigger by	external	<input type="checkbox"/>	Frame Grabber	<input checked="" type="checkbox"/>	
Flash by	camera	<input type="checkbox"/>	Frame Grabber	<input type="checkbox"/>	external <input type="checkbox"/>

Software

mvAcquireControl
 mvIMPACT Go!
 Other

Imprint

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This document requires the general knowledge of the usage and the technical data of the used frame grabber, camera and application.

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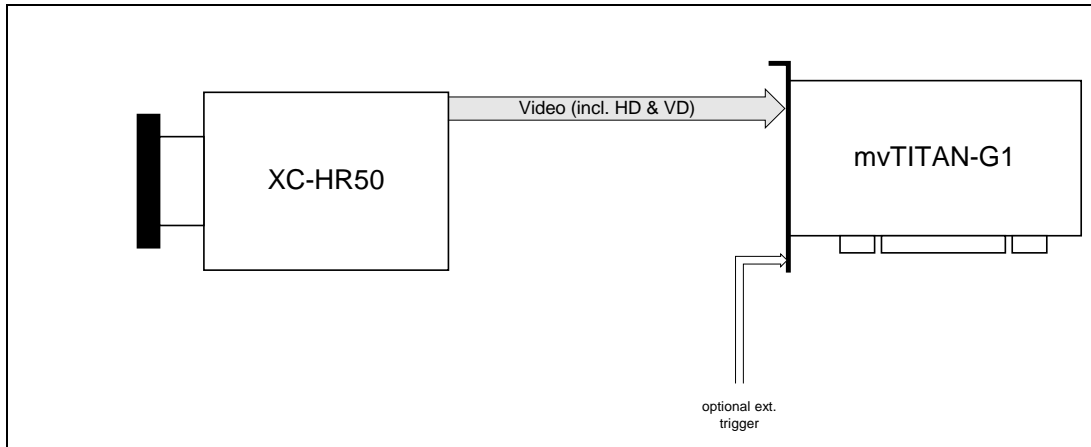
Windows95™, Windows98™, Windows98se™, WindowsNT4.0™, Windows2000™, WindowsXP™ are trademarks of Microsoft, Corp. All other trademarks are the property of their respective holders.

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Freerunning Mode

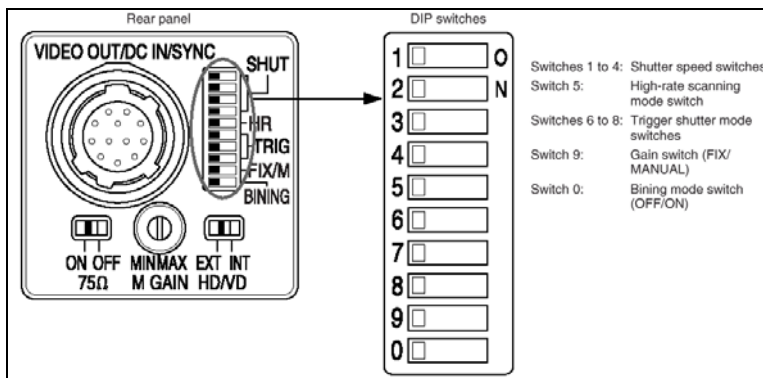
The camera runs with its own timing and sends the VD and HD within the video signal.

Signal map



Camera settings set by hardware

Dip-Switch settings:




SW 1	SW 2	SW 3	SW 4	SW 5	SW 6	SW 7	SW 8	SW 9	SW 0
X	X	X	X	X	OFF	OFF	OFF	X	X

'ON': switched on, 'OFF': switched off, 'X': switch setting not relevant

Pin connection

XC-HR50 12 pin Hirose		Direction	mvTITAN-G1 HD26ST	
1	GND	↔	10	GND
2	+12 VDC	←	1	+12 VDC
3	Video out	→	2	Video 1
4	GND	↔	12	GND

Recommended cable for this mode from MATRIX VISION GmbH: KS41 03.0 or KS41-EIAJ XT 03.0

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Cameradefinition


```

/* ----- Sony XC-HR50 ----- */
DefCamType "XC-HR50" VM_CCIR NONINTERLACED 50 31468 24545 PCLK_INTERN
DefCamAcquireSetup "XC-HR50" STANDARD NOT_INV NEXT_FIELD
DefCamAnalogParam "XC-HR50" AC 1 0 0 1200
DefHorizontalUnit "XC-HR50" PIXEL
DefCamHorizontalAcquire "XC-HR50" 114L 648L 1
DefCamClamp "XC-HR50" 100L 5L
DefCamZero "XC-HR50" 105L 5L
DefCamFieldGate "XC-HR50" 300L 400L
DefVerticalUnit "XC-HR50" LINES
DefCamVerticalAcquire "XC-HR50" 13L 494L 1

```

Remarks

none

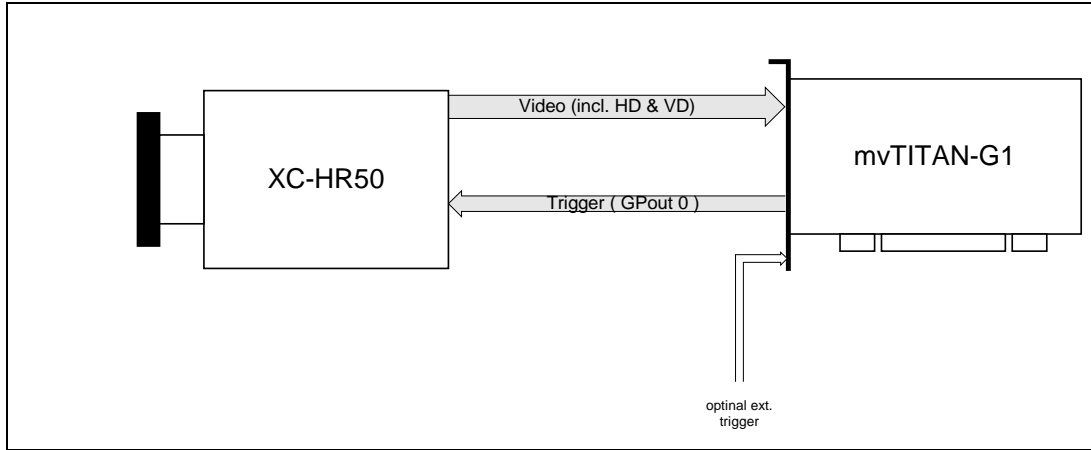
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Trigger Shutter Mode

The camera is reset by the mvTITAN-G1's digital output *GPout 0* and sends the HD and VD within the video signal.

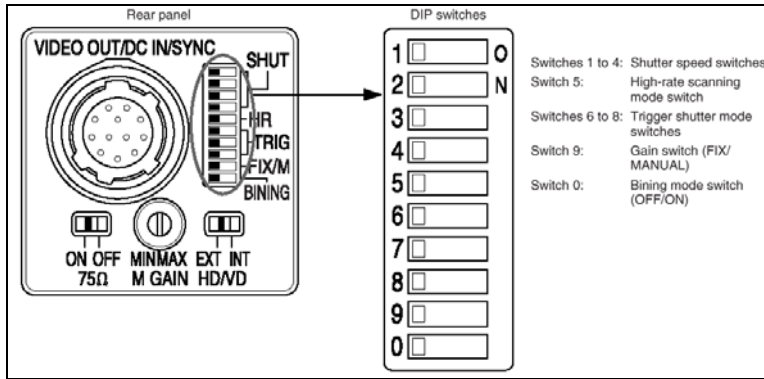
Puls length of the trigger signal (*GPout 0*) defines shutter time of camera.

Signal map



Camera settings set by hardware

Dip-Switch settings:




SW 1	SW 2	SW 3	SW 4	SW 5	SW 6	SW 7	SW 8	SW 9	SW 0
X	X	X	X	X	X	ON	ON	X	X

'ON': switched on, 'OFF': switched off, 'X': switch setting not relevant

Pin connection

12 pin Hirose		Direction	HD26ST	
1	GND	←→	10	GND
2	+12VDC	←→	1	+12VDC
3	Video out	→	2	Video 1
11	Trigger in	←	19	GPout0

Recommended cable for this mode from MATRIX VISION GmbH: KS41-0231 03.0

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Cameradefinition

```

/* ----- Sony XC-HR50 ----- */
DefCamType "XC-HR50" VM_CCIR NONINTERLACED 50 31468 24545 PCLK_INTERN
DefCamAcquireSetup "XC-HR50" STANDARD NOT_INV NEXT_FIELD
DefCamAnalogParam "XC-HR50" AC 1 0 0 1200
DefHorizontalUnit "XC-HR50" PIXEL
DefCamHorizontalAcquire "XC-HR50" 114L 648L 1
DefCamClamp "XC-HR50" 100L 5L
DefCamZero "XC-HR50" 105L 5L
DefCamFieldGate "XC-HR50" 300L 400L
DefVerticalUnit "XC-HR50" LINES
DefCamVerticalAcquire "XC-HR50" 13L 494L 1

```

Setting up camera trigger

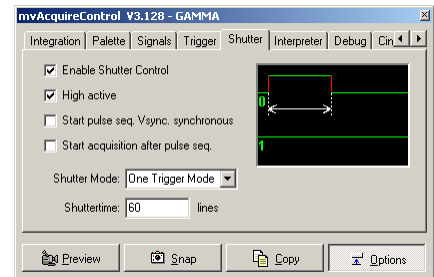
For the camera reset GPout 0 of mvTITAN-G1 is used.

The best way to setup GPout 0 as a trigger signal is to use the shutter control.

In mvAcquireControl switch to register *Shutter* and do the following settings:

- Enable Shutter Control
- Activate *High active*
- Deactivate *Start acquisition after pulse seq.*
- Deactivate *Start pulse seq. Vsync synchronous*
- Set Shutter mode to *One Trigger Mode*

The setting in *Shuttertime* defines the length of the pulse and so the shuttertime of the camera.




Automatically the Autotrigger in register *Trigger* is activated. Define in *Autotrigger periode* the time between two images to acquire.

IMPORTANT: The *Autotrigger periode* can just be defined with 10ms accuracy! So 16ms will result in a period of 10ms. As this is too fast for the camera this will result in faulty images. Therefore with 'real' trigger signals up to 60 images per sec. can be achieved while with the simulated method just 50 images per sec. are possible.

If you are using the optional external trigger signal connected to the *Trigger In* pin of the mvTITAN-G1 switch from *autotrigger* to *ext. trigger* and the camera reset signal will be output right after each external trigger pulse.

If using the shuttercontrol in your own software you have to use the functions *mvDefPulsSeq()* and *mvSetTriggerPeriod()* to define the shutter control method. You will find more about these functions in the mvTITAN-G1's manual.

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Glossary

Expression	Explanation
VD	Vertical drive, signal is sent to signalize next field (noninterlaced) or frame (interlaced). Also called Frame Enable, VSync or frame start signal.
HD	Horizontal drive, signal is sent to signalize next line. Also called Line Enable, HSync or line start signal.