

Teledyne DALSA • 880 Rue McCaffrey • St-Laurent, Québec, H4T 2C7 • Canada http://www.teledynedalsa.com/Genie-Nano

G3-ANCL01-V1: Genie Nano-CL Application Note

Getting Started with the Genie Nano-CL and 3rd Party Frame Grabbers

For Nano-CL models with P/N: G3-Cxxx-xxxxx

Overview

Genie Nano-CL (CameraLink) cameras require a connection to a frame grabber to acquire images. This application note describes how to connect a Genie Nano-CL with a 3rd party frame grabber.

The Genie Nano-CL is GenCP compliant; its features are defined using an XML file and can be accessed using software that supports the GenCP protocol.

The Teledyne DALSA Sapera LT SDK is an application programming interface (API) for Teledyne DALSA cameras and frame grabbers. It is available in 2 versions:

Sapera LT SDK (full version): image acquisition and control SDK for Teledyne DALSA cameras and frame grabbers; refer to application note G3-ANCL02-Vx.pdf.

GenCP Sapera Camera SDK: a subset of the full SDK (without image acquisition support) for Teledyne DALSA cameras connected to 3rd party frame grabber boards. It allows camera configuration and control to be integrated with imaging applications written using 3rd party APIs.



Software Development Kits

Access to certain drivers and SDK updates are restricted to Teledyne DALSA customers that have registered their development package (SDK). If you have not yet done so, please register your software before proceeding.

Description	Version	Release Date
Sapera LT SDK (full version) - Free Download	8.20	10/28/2016
Gen CP Camera SDK (Sapera SDK for Gen CP compliant Camera Link cameras only) for Win 7/8/10	8.20	11/14/2016

1. Install the GenCP Sapera Camera SDK

The GenCP Sapera Camera SDK is available as from the Teledyne DALSA website: <u>Gen CP Camera SDK (Sapera SDK for Gen CP compliant Camera Link cameras only) for Win 7/8/10</u>) (<u>http://teledynedalsa.com/imaging/support/downloads/sdks/</u>)

Follow the instructions provided during installation.

Sapera Car	mera SDK
•	You are about to install Sapera Camera SDK, a software package to configure Teledyne DALSA GenCP-based Camera Link cameras such as Falcon2 & Piranha 4 when used with a third party frame grabber. If you intend to use any Teledyne DALSA frame grabbers or GigE-Vision cameras, you must install the Sapera LT SDK instead. Please choose Yes to continue installation, and No to exit now
	Yes <u>N</u> o

2. Start the Sapera CamExpert Application

The Sapera CamExpert application is included as part of the GenCP Sapera Camera SDK. It is Teledyne DALSA's camera and frame grabber interfacing tool that allows you to quickly validate hardware setup, change parameter settings, and test image acquisition. It is available from the Windows Start Menu or desktop shortcut.



3. Select the Frame Grabber

In the Device Selector panel, use the Device drop-down menu to select the frame grabber the Genie Nano-CL is connected to.

Note, 3rd party frame grabbers may appear mapped to a Windows COM port if the frame grabber has not implemented the CameraLink serial port .dll (CLser*xxx*.dll); refer to the frame grabber documentation for more information.

🐔 CamExpert	(camera mode)		x
File View	Pre-Processing Tools He	lp	
🗅 🖻 🖬	8		
Device Selector			×
Device:	💵 EURESYS 🍃 Euresys	Grablink Full#0	
Detection:	Windows Windows COM1 EURESYS Euresys Grablink	Full#0	
Parameters Category			×
Parameters			
Output Message	s		×
[13:55:50] (Wind [13:55:50] (Wind [13:55:50] (Wind [13:56:01] (EUR	ows) - COM1 ows) - Loading camera files lib ows) - Camera files library load ESYS) - Euresys Grablink Full#	rary led. #0	
Output Messa	ges		

4. Specify the Communication Settings

In the Detection section of the Device Selector panel, click **Settings** to open the Communication Settings dialog.

ſ	🍇 CamExpert	(camera mode)						
	File View	Pre-Processing To	ools Help					
	🗅 🚅 🔒	?						
	Device Selecto	r					×	
	Device:	💵 EURESYS 🍃	° Euresys Gr	ablink Full#0			•	
	Detection:	Detect Came	a		Settings	Configure d	letection setting	s for this port

Specify the Protocol Detection Type as either *Genicam GenCP for CameraLink* or *Automatic Detection*.

Communication	Settings
Selected Seri	al Port: Euresys Grablink Full#0
Туре:	No Detection No Detection Genicam GenCP for CameraLink Teledyne DALSA Text Based Automatic Detection
- Serial Port Se	ttings
Baud Hate:	Auto-Detect Will find the baud rate that the camera is currently set to and it will setup the frame grabber accordingly.
Save	Settings Cancel

The serial port baud rate can be set manually to a specific baud rate supported by the frame grabber or you can use the *Auto-Detect* or *Auto-Detect & Maximize* (recommended) settings. The *Auto-Detect & Maximize* setting automatically sets the baud rate to the highest value supported by both devices.

Serial Port Set	ings
Baud Rate:	Auto Detect & Maximize 🔹
	Auto-Detect
	Auto Detect & Maximize
	9600
	19200
	38400
	57600
	115200
	230400
Save S	jettings Cancel

Click Save Settings.

Communication S	Settings
Selected Seria	l Port: Euresys Grablink Full#0
Protocol Detec	tion
Туре:	Genicam GenCP for CameraLink
	CamExpert tries to detect Teledyne DALSA cameras currently configured to use the GenCP communication protocol such as Piranha 4 and Falcon2.
Serial Port Sett	ings
Baud Rate:	Auto Detect & Maximize 💌
	Will find the baud rate that the camera is currently set to and then will try to find the highest baud rate supported by the camera and the frame grabber.
Save S	Settings Cancel

A message box confirmation is displayed:

Settings saved
Detection settings saved!
ОК

Considerations for Manual Baud Rate Setting

When the baud rate on the frame grabber is set manually, ensure that the Genie Nano-CL's baud rate is set to the same value; otherwise the camera will not be detected. The Genie Nano-CL's factory setting is 9600 baud. Therefore, to use a manual setting, you have to connect to the camera first (for example, using a frame grabber baud rate setting of *Auto-Detect*, *Auto-Detect & Maximize*, or 9600), change the camera baud setting (and save this as the Power-up configuration), disconnect the camera, and then change the frame grabber baud rate to match that of the camera.

Parameters - Visibility: Guru			×
	Parameter	Value	
Camera Information	DeviceSerialPortSelector	Camera Link	
Sensor Control	Baud Rate	230400	-
I/O Controls	Heartbeat Mode	9600	
Country And Times Control	Heartbeat Timeout (in us)	57600	
Counter And Timer Control	CameraLink Configuration	230400	
Advanced Processing	CameraLink TimeSlots	One Time Slot	12
Image Format Controls	Camera Link Taps	3	- 0
CameraLink Transport Layer	CameraLink Pixel Clock Freque	8500000	
File Access Control	Camera Tap Geometry	Geometry 1X3 Y1	
	<< Less		

5. Detect the Genie Nano-CL Camera

With the Genie Nano-CL powered and properly connected to the frame grabber, click **Detect Camera**.

鑬 CamExpert	(camera mode)
File View	Pre-Processing Tools Help
🗅 🖻 🔒	8
Device Selecto	r X
Device:	📑 EURESYS 🔗 Euresys Grablink Full#0 🔹
Detection:	Detect Camera Settings Detection 'GenCP' and baudr Detect a camera connected to this port

The camera parameters are displayed:

🍪 CamExpert - [Untitled]			
File View Pre-Processing To	ols Help		
🗅 🚅 🖬 🤶			
Device Selector		×	
Device: Brack_1	📭 Euresys Grablink Full#0	•	
Detection: Detect Camera	a Settings		
Parameters - Visibility: Gunu			
Category	Parameter	Value	
Category	Manufacturer Name	Teledyne DALSA	
	Device Family	Genie	
Sensor Control	Model Name	G3-CM10-M5105AA	
I/O Controls	Device Version	1.00 Beta	
Counter And Timer Control	Manufacturer Info	Base Design	
Advanced Processing	Firmware Version	1CA21.0002	
Image Format Controls	Serial Number	S1131409	
CameraLink Transport Layer	Device User ID		
File Access Control	Device Built-In Self Test	Press	
	Device Built-In Self Test Status	Passed	
	Device Built-In Self Test Status All	0	
	Device Reset	Press	
	Device Temperature Selector	FPGA board	
	Device Temperature	38.512276	
	Power-up Configuration	Setting	
	<< Less		
Parameters - Visibility: Gun			
Output Messages		×	
[14:51:49] (CameraLink_1) Euresys ([14:51:49] (CameraLink_1) Loading (Grablink Full#0 Samera files library		
[14:51:51] (CameraLink_1) - Camera fi	les library loaded.		
<u> </u>			
Output Messages			
Ready			

When connected to a camera, the communication settings cannot be accessed in CamExpert; the Sapera Configuration utility (available through the Start menu) can be used to verify current serial port communication settings.

Server List		
Index Name	Info Type	Additional Information
0 System 1 CameraLink_1	(n/a) Serial port	Euresys Grablink Full#0
Contiguous Memory		
Requested	MButes	Used for allocating messages Requested 6 MBute
Allocated	- MDytes	Allocated
Serial Port Configuration		
Physical port	Eure	sys Grablink Full#0 (EURESYS)
COM port mapping (optiona) Non	e
Teledyne DALSA camera d	etection Gen	icam GenCP for CameraLink
	CamB came comn Falco	Expert tries to detect Teledyne DALSA aras currently configured to use the GenCP nunication protocol such as Piranha 4 and an2.
Baudrate	2304	400
	Cam the s	Expert will communicate with the camera us pecified baud rate
		Save Settings Now Close

For more information, refer to the Sapera LT 8.30 Camera SDK User's Manual for GenCP CL Cameras.