

MvTec HALCON for Photoneo 3D Sensors using GigE Vision

User guide on using the GigE Vision standard in MvTec HALCON

What is GigE Vision?

GigE Vision is a high-speed communication protocol and interface standard that is designed for transmitting data over Ethernet networks.



GigE Vision with Photoneo devices

<u>GigE support</u> was introduced to Photoneo devices with Firmware 1.10.0. Third-party software with GigE support can be used to operate Photoneo 3D Sensors without a running instance of PhoXi Control.

What is MvTec HALCON?

MvTec HALCON provides an Integrated Development Environment (IDE) for machine vision that enables users to build image-processing solutions. More information, guides, and a list of supported operating systems can be found at <u>mvtec.com</u>.

Supported Photoneo 3D Sensors

• A device with firmware version 1.10.0 or later (can be found in PhoXi Control)

🖲 PhoXi Control Photoneo								
Menu 3D Cameras Languages Tools Help								
	Name	Device details						
•	🖚 MotionCam-3D-DVJ-067	Name	MotionCam-3D-DVJ-067					
•	🛃 basic-example	Description	MotionCam-3D Color					
•	🔁 color-example	Status	Ready					
		Comment	N/A					
		ID	DVJ-067					
		Adapter	N/A					
		IPv4						
		IPv6	-					
		Port	-					
		Version	1.10.0					
		Variant	S					

<u>Note</u>: If your device has a lower firmware version, consult the <u>Versioning Guide</u> to see if it can be updated and the <u>Firmware updater</u> to update the device.

Connecting to a Photoneo 3D Sensor

- Install <u>MVTec HALCON 21.11.0.0 or higher</u>
 - Refer to <u>HALCON documentation</u>
- Use the examples available in the <u>GitHub</u> repository or
- Open a new program in HALCON
- Click Assistants → Open New Image Acquisition



• In the *Source* tab, have the *Image Acquisition Interface* option checked and choose GigEVision2 interface as seen below

Image Acquisition : Image Acquisition 01 @						
File Acquisition Code Generation Help						
The vertices Severation Tab						
Source Connection Parameters Inspect Code Generation						
Image Acquisition Interface						
Auto-detect Interfaces	GigEVision2					
Image <u>File(s)</u>	Recursive					
<u>S</u> elect File(s)	Select Directory					

• Choose a device from the list and hit *Connect*

Image Acquisition : Image Acquisition 01							
File Acquisition Code Generation Help							
Source Connection Parameters Inspect Code Generation							
Interface Library hAcqGigEVision2.dll (Rev. 18.11.13)							
Device	48b02d8899e8_Photoneo_MotionCam3DColor	-	<u>P</u> ort	0		-	
Camera File	48b02d55ef1d_Photoneo_MotionCam3DColor	^				-	
	48b02d68141f_Photoneo_PhoXi3DScanner 48b02d681477_Photoneo_PhoXi3DScanner				Select		
Resolution	48b02d681c61_Photoneo_MotionCam3DColor 48b02d681d67_Photoneo_MotionCam3DColor		Color Space	edefault		•	
Field	eld 48b02d681e5a_Photoneo_MotionCam3DColor		Bit Depth	-1		-	
	48b02d8899e8_Photoneo_MotionCam3DColor						
Generic	48b02d88a378_Photoneo_MotionCam3DColor					•	
48b02d88a768_Photoneo_PhoXi3DAlpha 48b02d88ac73_Photoneo_MotionCam3DColor		•		Detect	Reset <u>A</u> ll		

• After connecting to the desired Photoneo 3D Sensor, click *Snap* to perform a scan or *Live* to begin freerun acquisition. The output from the device is displayed in the *Graphics Window*.



• Adjust the parameters or change the output structure of the device in the *Parameters* tab

Image Acquisition : Image Acquisition 01						
File Acquisition Code Generation Help						
Source Connection Parameters Inspect	Code Generation					
Interface Library hAcqGigEVision2.dll (Rev. 18.11.13)						
Category All Parameters	Visibility Beginner	- Sort by Name				
DeviceUserID	•					
ComponentSelector	Intensity					
ComponentEnable	1	- b				
AcquisitionMode	Continuous 🔹					
AcquisitionFrameRate	0.00					
TriggerSelector	FrameStart •					
TriggerMode	Off 🔹					
TriggerSource	Software •					
TriggerActivation	FallingEdge •					
ExposureMode	Timed					
ExposureTime	10.24					
ShutterMultiplier	1					
ScanMultinlion	1					
		408 85.1 ms				

• Afterward, the user can export the code in the *Code Generation* tab. Click *Insert Code* and the code will be inserted into the *Program Window*

05/2023

Image Acquisition : Image Acquisition 01							
File Acquisition Code Generation Help							
Source Connection Parameters Inspect Code Generation							
Acquisition							
Control <u>F</u> low	Control <u>F</u> low Acquire Images in Loop		s in Loop 🔹		Insert <u>C</u> ode		
Acquisition Mode	uisition Mode Asynchronous Acquisition		Acquisition -		✓ Auto Disconnect		
Variable Names							
Connection Handle	tion <u>H</u> andle AcqHandle			Loop Counter	Index		
Image <u>O</u> bject	Image Object Image			Image Files	ImageFiles		
Code Proview							
Insert Operator	Procedure	line			Replace Operator		
grab image s		-					
(AcqHandle, -1)	nain	3	grab_image_start (AcqHandle, -1)				
while (true) r	main	ain 4 while (true)					
(Image, r AcgHandle, -1)	main	ain 5 grab_image_async (Image, AcqHandle, -1)					
* Image Acquisition 01: r Do something	main	n 6 * Image Acquisition 01: Do something					
endwhile r	main	7	endwhile				
close_framegr (AcqHandle)	main	8	close_framegrabber (AcqHandle)			-	
						•	
						825 105.4 ms	



• Additional advanced examples can be found in Photoneo's <u>GitHub</u> repository.