Photoneo driver for Cognex VisionPro

User guide on using Photoneo 3D Sensors with Cognex VisionPro

What is Cognex VisionPro?

Cognex VisionPro is PC-based vision software. It is designed to set up and deploy vision applications. With VisionPro, users can perform a wide range of functions, from geometric object location and inspection to identification, measurement, and alignment, as well as specialized functions specific to semiconductor and electronics applications. Find out more at the Cognex VisionPro website.

Supported Photoneo 3D Sensors

Support for VisionPro is introduced as a built-in driver in PhoXi Control 1.10 and later (download the latest version).

Support for VisionPro is not firmware dependent, but we do recommend using the latest version of the firmware. Check out the Versioning Guide and use the Firmware updater to update the device.

Connecting to a Photoneo 3D Sensor in VisionPro

Ensure that the Photoneo 3D Sensor is connected to your PC following the Photoneo 3D Sensor Quick Start Guide. Your device must be visible in PhoXi Control as seen below.
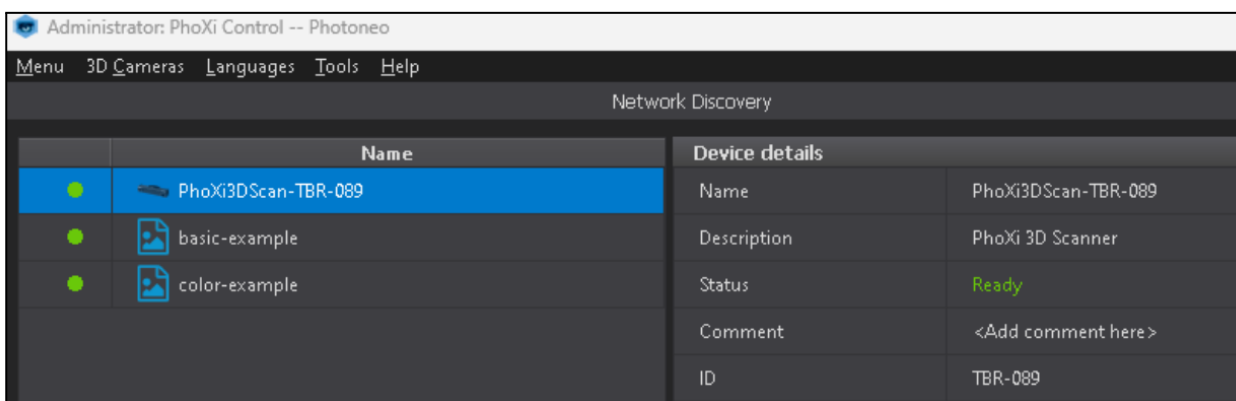
Open preferred VisionPro application - this guide was written using Cognex VisionPro QuickBuild version 9.8 (some steps might differ based on application or version)
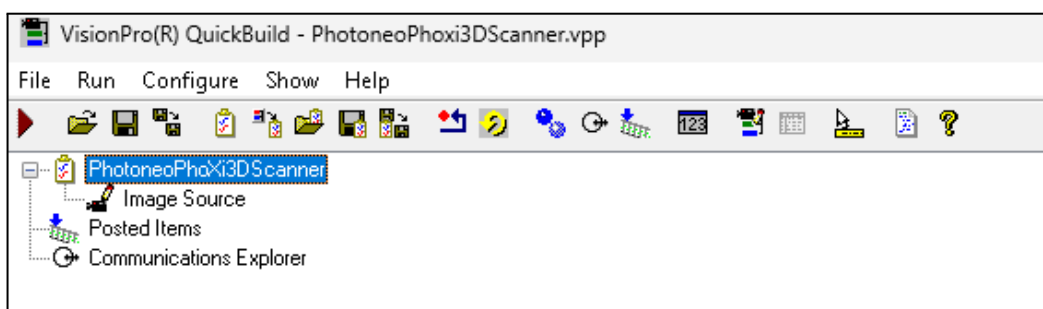
Open Image Source assigned to the CogJob to configure Sensor settings. In the Image source window change to the camera tab and select your device from the list of Image Acquisition Devices (`Device: Photoneo PhoXi: device_ID`). Then click *`Initialize Acquisition`*.
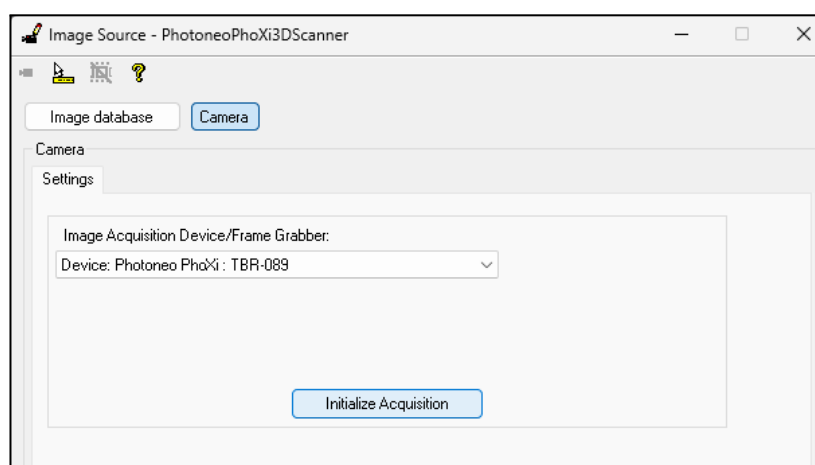

Note: *Currently, devices with FW 1.10. and newer will also appear as a GigE Vision Device. This connection type is currently not supported.*

Scanning Settings

All scanning settings are to be set in advance in PhoXi Control and stored in a user profile as shown in the [PhoXi Control User Manual](). A user profile contains the complete set of settings. In VisionPro, choose your user profile.

Output Image Settings

After connecting to Photoneo 3D Sensor, it is necessary to set up the settings for how the 3D data are presented in VisionPro. Open the `Custom Properties` Tab and select `Add new` to add new features.
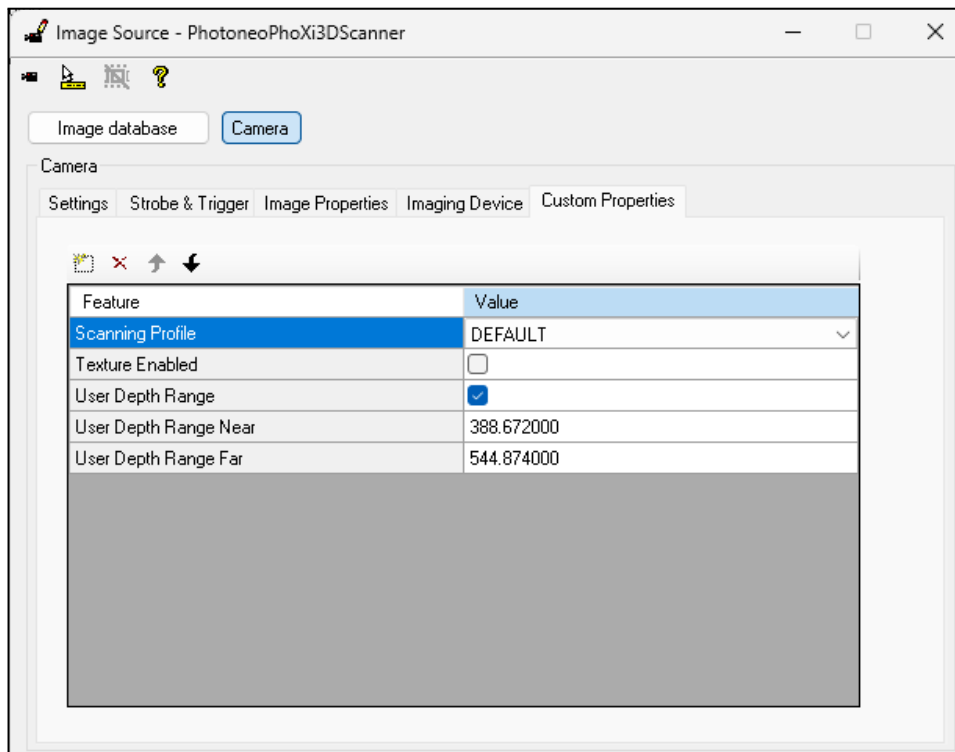
Implemented Custom Properties:

Name	Type	Access	Default	Comment
Scanning Profile	enumerable	R/W	Device defined	Read: gets the active scanning profile. Write: changes the active scanning profile. Enumerate: gets all available scanning profiles.
Texture Enabled	boolean	R/W	False	If True, the Texture image is attached to the right of the Range image.
Texture Range Min	integer	R/W	0	Texture normalization Min limit.
Texture Range Max	integer	R/W	PhoXi 3D Scanner - 4095 MotionCam-3D - 1023	Texture normalization Max limit.
User Depth Range	boolean	R/W	False	If True, Depth is normalized according to the User Depth Near/Far distances. Otherwise, it is normalized according to the Device Depth Range Near/Far distances.
User Depth Range Near	float	R/W	Device defined	User-defined near plane in [mm].
User Depth Range Far	float	R/W	Device defined	User-defined far plane in [mm].

Device Depth Range Near	float	R	Device defined	Device calibration volume near plane in [mm].
Device Depth Range Far	float	R	Device defined	Device calibration volume far plane in [mm].
Sampling Distance	float	R/W	0.25	Distance between neighboring orthographic samples in [mm].

<u>Note</u>: *Selected features are applied after closing the image source window.*

Using Photoneo 3D Sensor data

Use the *Run job* button to trigger the scan and transform data into the output image. Link `OutputImage` into `InputVisionData` of any compatible tool (e.g. Cog3DPatMax) for further evaluation and processing of captured data (see the screenshot below).