

# KAYA's Frame Grabbers PoCXP Application Notes

September 2021 - Rev 6.0



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## 2 Introduction

### 2.1 Safety precautions

Please take the time to read through the precautions listed below to prevent preventable and unnecessary injuries and damage to you, other personnel, or property. Read these safety instructions carefully before your first use of the product, as these precautions contain safety instructions that must be observed. Be sure to follow this manual to prevent misuse of the product.



**Caution! Read Carefully and do not disregard these instructions.**

**In the event of a failure, disconnect the power supply**

Disconnect the power supply immediately and contact our sales personnel for repair. Continuing to use the product in this state may result in a fire or electric shock.

**If an unpleasant smell or smoking occurs, disconnect the power supply.**

Disconnect the power supply immediately! Continuing to use the product in this state may result in a fire or electric shock. After verifying that no smoking is observed, contact our sales personnel for repair.

**Do not disassemble, repair or modify the product.**

This may result in a fire or electric shock due to a circuit shortage or heat generation. Contact our sales personnel before inspection, modification, or repair.

**Do not place the product on unstable surfaces.**

Otherwise, it may drop or fall, resulting in injury to persons or the camera.

**Do not use the product if dropped or damaged.**

Otherwise, a fire or electric shock may occur.

**Do not touch the product with metallic objects.**

Otherwise, a fire or electric shock may occur.

**Do not place the product in dusty or humid environments, nor where water may splash.**

Otherwise, a fire or electric shock may occur.

**Do not wet the product or touch it with wet hands.**

Otherwise, the product may fail or cause a fire, smoking, or electric shock.

**Do not touch the gold-plated sections of the connectors on the product.**

Otherwise, the surface of the connector may be contaminated by sweat or skin oil, resulting in contact failure of a connector, malfunction, fire, or electric shock due to static electricity discharge.

**Do not use or place the product in the following locations.**

- Unventilated areas such as closets or bookshelves.
- Near oils, smoke, or steam.
- Next to heat sources.
- A closed (and not running) car where the temperature becomes high.
- Static electricity replete locations
- Near water or chemicals.

Otherwise, a fire, electric shock, accident, or deformation may occur due to a short circuit or heat generation.

**Do not place heavy objects on the product.**

Otherwise, the product may be damaged.

**Be sure to discharge static electricity from the body before touching any sensitive electronic components.**

The electronic circuits in your computer and the circuits on the *Iron* camera and the *Predator II* board are sensitive to static electricity and surges. Improper handling may seriously damage the circuits. In addition, do not let your clothing come in contact with the circuit boards or components. Otherwise, the product may be damaged.

## 2.2 Disclaimer

**KAYA Instruments** assumes no responsibility for any damage that may ensue by using this product for any purpose other than intended, as previously stated. Without detracting what was previously written, the company takes no responsibility for any damages caused by:

- Earthquake, thunder strike, natural disasters, a fire caused by use beyond our control, willful and/or accidental misuse and/or use under other abnormal and/or unreasonable conditions.
- Secondary damages caused by the use of this product or its unusable state (business interruption or others).
- Use of this product in any manner that contradicts this manual or malfunctions due to connection to other devices. Damage to this product that is out of our control or failure due to modification
- Accidents and/or third parties that may be involved.

Additionally, **KAYA Instruments** assumes no responsibility or liability for:

- Erasure or corruption of data caused by the use of this product.
- Any consequences or other abnormalities following the use of this product

## 3 PoCXP control

### 3.1 Document purpose

The purpose of this document is to describe and demonstrate the control over PoCXP of KAYA's CoaXPress Frame Grabbers, using Vision Point image acquisition software.

### 3.2 PoCXP automatic management

Starting from Vision Point 2019.1 (API 5.0), the PoCXP management has been changed and improved automatic power management. KAYA Software stack is now constantly monitoring an available connection state and turning PoCXP on/off automatically. The camera's power will be turned on in the background by the Frame Grabber, even when no Vision Point or other KAYA API-based application is running.

This improved feature allows an effortless and quick connection to CoaXPress cameras, which support automatic PoCXP management.

This feature is subject to compatible hardware, firmware, and software support. The actual availability of this feature in a particular setup (Grabber card, firmware, and software) can be checked by reading the Grabber parameter "PoCXPAutoAvailable." If the result is positive, the feature is supported; otherwise, this feature is not supported by the given combination. "PoCXPAutoActive" can be used to activate/deactivate this feature on a particular Grabber during application run-time. Those parameters and similar can be found at Frame Grabber tab -> DeviceControl menu.

In addition, the full functionality of automatic PoCXP monitoring can be activated/deactivated using the following option found in Vision Point-> Tools-> Options. Please note that this global setting only took effect after system reboot and applied to all connected Grabbers. If you choose to deactivate this functionality globally, you can still activate it on a particular Grabber using above mentioned "PoCXPAutoActive" command at run-time. This command applied to Grabber immediately.

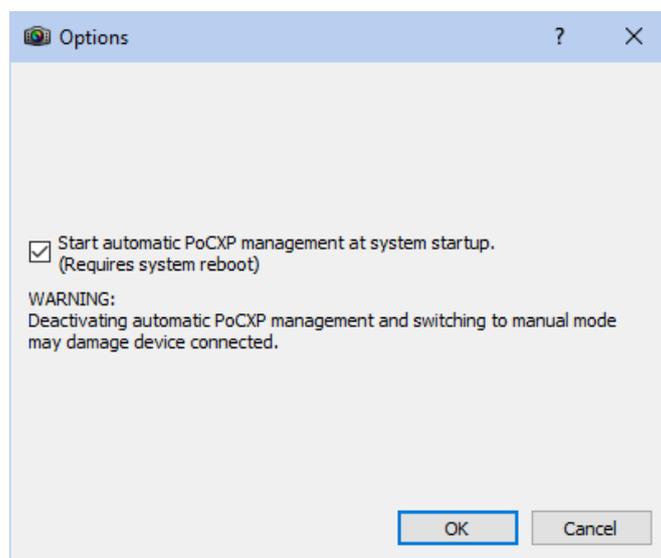


Figure 1 – Automatic PoCXP monitoring activate/deactivate

If the feature is not supported or deactivated, legacy manual PoCXP management should be used as described in section 3.3.

If the feature is supported and activated, the following commands can be used to start/stop camera connection monitoring and changing the PoCXP state according to the presence of a camera on a given CoaXPress channel.

1. To forcibly set PoCXP state to OFF execute command "CxpPoCxpTurnOff". In Vision Point GUI it is found at Frame Grabber tab -> DeviceControl -> CxpPoCxpHostConnectionSelector -> CxpPoCxpTurnOff
2. To activate automatic power management execute command "CxpPoCxpAuto". In Vision Point GUI it is found at Frame Grabber tab -> DeviceControl -> CxpPoCxpHostConnectionSelector -> CxpPoCxpAuto
3. To read current state of the PoCXP monitoring read the "CxpPoCxpStatus" parameter, found at Frame Grabber tab -> DeviceControl -> CxpPoCxpHostConnectionSelector -> CxpPoCxpAuto

These three parameters are implemented according to GenICam\_SFNC standard document with the following addition: CoaXPress channels affected by these commands depend on the current state of the "CxpPoCxpHostConnectionSelector" parameter value. The command is applied to all available CoaXPress channels or a single channel specified by "CxpPoCxpHostConnectionSelector."

Please note that legacy Grabber parameters "PoCXP0" ... "PoCXP7" are still available when automatic PoCXP is active, but they become read-only in this case. You can read the values of those parameters to get the current state of PoCXP on each channel.

Device Control		
Bandwidth Test		
Camera Discovery Delay	4000	<input type="checkbox"/>
Camera Command Timeout	400,000.000	<input type="checkbox"/>
PoCXP 0 control	On	<input type="checkbox"/>
PoCXP 1 control	Off	<input type="checkbox"/>
PoCXP 2 control	Off	<input type="checkbox"/>
PoCXP 3 control	Off	<input type="checkbox"/>
PoCXP 4 control	Off	<input type="checkbox"/>
PoCXP 5 control	Off	<input type="checkbox"/>
PoCXP 6 control	Off	<input type="checkbox"/>
PoCXP 7 control	Off	<input type="checkbox"/>
PoCXPAuto available	Yes	<input type="checkbox"/>
PoCXPAuto Active	<input checked="" type="checkbox"/> True	<input type="checkbox"/>
<input checked="" type="checkbox"/> CxpPoCxpHostConnectionSelector	All CoaXPress physical host connections	<input type="checkbox"/>
CxpPoCxpAuto	Execute	<input type="checkbox"/>
CxpPoCxpTurnOff	Execute	<input type="checkbox"/>
CxpPoCxpStatus	Automatically managed	<input type="checkbox"/>

Figure 2 – PoCXP automatic management parameters

Please refer to the following table for additional information regarding the devices, which support the described feature.

Hardware device	Firmware version	Details
Komodo CoaXPress 4ch and 8ch	4.11 and higher	Automatic power monitoring support Note: Starting from hardware revision no. 3
Komodo II CoaXPress	All firmware versions	Automatic power monitoring support
Predator CoaXPress	Not supported	<b>No</b> power monitoring support Please refer to the Manual PoXCP control
Predator II CoaXPress	All firmware versions	Automatic power monitoring support

Table 1 – Automatic PoCXP supported devices

### 3.3 Manual PoCXP during camera discovery

The Frame Grabber card boots up with PoCXP disabled. PoCXP would be re-enabled during the camera discovery process. Once the camera is detected, the PoCXP would remain active only on the relevant links and turn off when the camera is unplugged from the Frame Grabber.

NOTE: It is recommended to close the VisionPoint/User application or turn off PoCXP manually before unplugging the camera from the Frame Grabber.

When several different cameras are connected to a single Frame Grabber, the cameras might have different boot times, and therefore the discovery might fail. In such a scenario, one of the following methods that are described in the following sections can be applied:

1. Adjusting CameraDiscoveryDelay frame grabber parameter to match the camera with the most extended bootup time.
2. Manually turn on the PoCXP before initiating camera discovery

#### 3.3.1 PoCXP control from API

##### 3.3.1.1 Setting camera discovery delay

To initiate the discovery process, the cameras should be powered up and ready, a discovery delay should be set to match the cameras' bootup time.

The "CameraDiscoveryDelay" parameter should be changed to the desired value to set the discovery delay time.

#### Example:

"CameraDiscoveryDelay" can be set to 20,000(ms), which delays the camera discovery time by 20 seconds. It would allow all connected cameras to boot up successfully.

```
KYFG_SetGrabberValueInt(GrabberHandle, "CameraDiscoveryDelay", 20000);
```

### 3.3.1.2 PoCXP value settings

"PoCXP0" – "PoCXP7" grabber parameters should be used to turn On/Off the Frame Grabber PoCXP, using one of the API dedicated functions:

**Example:**

The following function can be used to turn on power over CXP for channel 2:

```
KYFG_SetGrabberValueEnum_ByValueName(GrabberHandle, "PoCXP2", "PoCXPOn");
```

NOTE: "Off" is the display name of the enumeration, the machine name is "PoCXPOff," and "PoCXPOn" is the name of the value that switches the power over CXP to "ON."

### 3.3.2 Vision Point App PoCXP control

#### 3.3.2.1 Setting camera discovery delay

The camera discovery delay option is located in the Vision Point Application, as described in the following path: "Frame Grabber" -> "Device Control" -> "Camera Discovery Delay"

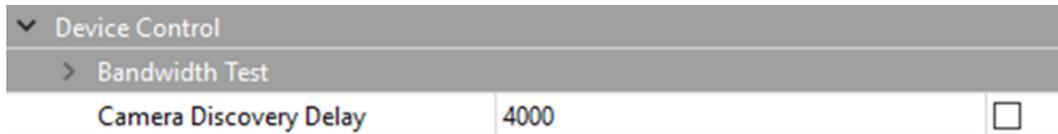


Figure 3 – Setting up Camera Discovery Delay in Vision Point App

#### 3.3.2.2 PoCXP control

PoCXP manual control is provided by using the dedicated functions via GUI. The control buttons can be found in the main Toolbar Menu, as shown in the figure below.

Use the following Toolbar Menu button To control the power over CoaXPress manually:

- To enable PoCXP, press the  button – it enables PoCXP to all links.
- To disable PoCXP, press the  button – it disables PoCXP to all links.

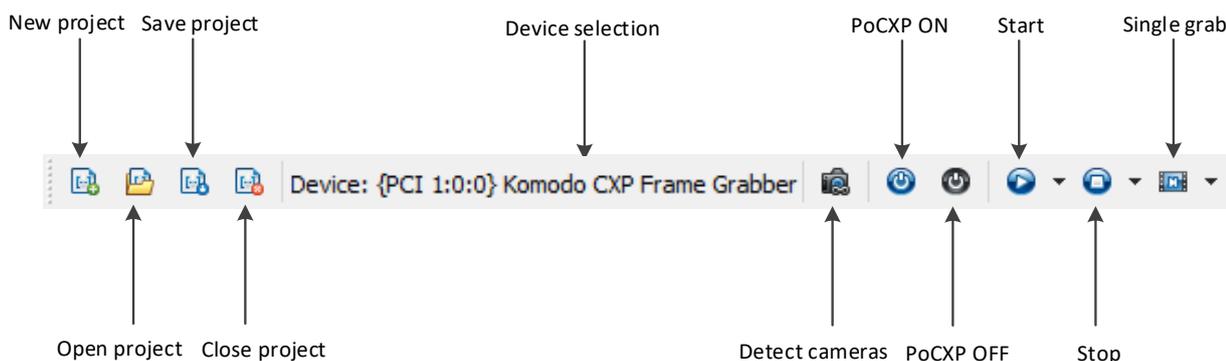


Figure 4 – Manual PoCXP control Toolbar Menu

To control individual PoCXP channels, follow the PoCXP controls located under the "Frame Grabber Control" category as described in the following image.

PoCXP 0 control	On	<input checked="" type="checkbox"/>
PoCXP 1 control	Off	<input type="checkbox"/>
PoCXP 2 control	Off	<input type="checkbox"/>
PoCXP 3 control	Off	<input type="checkbox"/>
PoCXP 4 control	Off	<input type="checkbox"/>
PoCXP 5 control	Off	<input type="checkbox"/>
PoCXP 6 control	Off	<input type="checkbox"/>
PoCXP 7 control	Off	<input type="checkbox"/>

Figure 5 – PoCXP manual control



**Caution!** Manually enabling PoCXP drives 24V to all the Frame Grabber ports. Avoid hot-plugging the camera while the PoCXP was manually enabled to reduce the risk of camera damage