NEON-2000-JT2 Series

AI Smart Camera

User's Manual



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Leading **EDGE COMPUTING**

Revision History

Revision	Release Date	Description of Change(s)
1.0	2020-04-20	Initial release
1.1	2020-06-01	Update product name to NEON-2000-JT2
1.2	2020-07-28	Update specs; add content for safety approval

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Preface

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Conventions

Take note of the following conventions used throughout this manual to make sure that users perform certain tasks and instructions properly.


NOTE:

Additional information, aids, and tips that help users perform tasks.


CAUTION:

Information to prevent ***minor*** physical injury, component damage, data loss, and/or program corruption when trying to complete a task.
ATTENTION: Informations destinées à prévenir les blessures corporelles mineures, les dommages aux composants, la perte de données et/ou la corruption de programme lors de l'exécution d'une tâche.


WARNING:

Information to prevent ***serious*** physical injury, component damage, data loss, and/or program corruption when trying to complete a specific task.
AVERTISSEMENT: Informations destinées à prévenir les blessures corporelles graves, les dommages aux composants, la perte de données et/ou la corruption de programme lors de l'exécution d'une tâche spécifique.

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Table of Contents

Revision History ii

Preface iii

List of Figures vii

List of Tables ix

1 Introduction 1

1.1 Overview 1
1.2 Features 2
1.3 General Specifications 3
1.4 Mechanical Dimensions 5
1.4.1 Camera Dimensions 5
1.4.2 USB Type-C Screw Lock Location and Dimensions 5
1.4.3 LED Light Mounting Thread 6

2 Connectors and I/O 7

2.1 Bottom Side I/O and Connector Description 8
2.1.1 D-sub I/O Connector 9
2.2 Top Side I/O and Connector Description 11
2.2.1 Wafer Connector 12
2.3 Front Side I/O and Connector Description 13

3 Getting Started 15

3.1 Mounting 15
3.2 Digital I/O Connection Example 16
3.3 Attaching a Lens 17
3.4 Power and Peripheral Connections 18
3.5 Image Capture and Inference 20
3.5.1 Inference Concepts and Sample 22

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3.5.2 Sample Inference Steps 23
3.6 Use Pylon to capture and adjust the sensor 24
3.6.1 Capture an Image via Pylon 24
3.6.2 Image Sensor Adjustment via Pylon 27
3.6.3 Use APIs to adjust the image sensor 36

4 Software Upgrade 39
4.1 System Flash 39
4.1.1 Equipment for flashing the system 40
4.1.2 System flashing procedure 41

Important Safety Instructions 45

Consignes de Sécurité Importante 47

Getting Service 49

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List of Figures

Figure 2-1: NEON-2000-JT2 Orientation 7
Figure 2-2: Bottom Side I/O and Connectors 8
Figure 2-3: D-sub I/O Connector 9
Figure 2-4: Top Side I/O and Connectors 11
Figure 2-5: Wafer Connector 12
Figure 2-6: Front Side I/O and Connectors 13
Figure 3-1: NEON-2000-JT2 Mounting Holes 15
Figure 3-2: Digital Input Schematic Diagram 16
Figure 3-3: Digital Output Schematic Diagram 16
Figure 3-4: Lens Attachment Assembly 17
Figure 3-5: Separate Power and Peripheral Connections 18
Figure 3-6: Combined Power and Peripheral Connections 19

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List of Tables

Table 1-1: NEON-2000-JT2 Model and Sensor Specifications ... 1
Table 2-1: Bottom Side I/O and Connectors ... 8
Table 2-2: D-sub I/O Connector Pin Definitions ... 9
Table 2-3: D-sub I/O Connector Specification ... 10
Table 2-4: Top Side I/O and Connectors ... 11
Table 2-5: Wafer Connector Pin Definitions ... 12
Table 2-6: Front Side I/O and Connectors ... 13
Table 4-1: Wafer Connector Pin Definitions ... 41

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1 Introduction

1.1 Overview

The NEON-2000-JT2 series is an open camera platform equipped with an NVIDIA® Jetson™ TX2 module supporting a series of image sensors providing industrial DI/O capabilities. It is designed for deep learning inference or other vision applications that requires a GPU at the edge. The system has Ubuntu Linux, Jetpack, camera driver and utilities pre-installed to save integration effort and avoid compatibility issues. The following table describes the current NEON-2000-JT2 models with their respective sensor specifications.

Model Name	Image Sensor Specification	Image Sensor Module
NEON-201B-JT2	1/3”, 1.2M, Global Shutter, 1280x960, 54fps, Color	Basler, DAA1280-54UC-CS
NEON-202B-JT2	1/1.8”, 1.9M, Global Shutter, 1600x1200, 60fps, Color	Basler, DAA1600-60UC-CS
NEON-203B-JT2	1/3.7”, 2M, Rolling Shutter, 1920x1080, 30fps, Color	Basler, DAA1920-30UC-CS
NEON-204B-JT2	1/2.5”, 5M, Rolling Shutter, 2592x1944, 14fps, Color	Basler, DAA2500-14UC-CS

Table 1-1: NEON-2000-JT2 Model and Sensor Specifications

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1.2 Features

- Pre-installed Ubuntu, deep learning sample code, plug and play
- NVIDIA Jetson TX2 with dual-core NVIDIA Denver2 + quad-core ARM Cortex-A57, 8GB 128-bit LPDDR4 and integrated 256-core Pascal GPU
- USB3 sensor interface compatible with the most machine vision software
- Type-C connector supports DC power, DisplayPort and USB signal, reducing cabling
- One microSD slot for easy storage expansion
- Highly integrated and compact system that is easy to deploy

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1.3 General Specifications

- Lens mount: C-mount
- Total weight: <700g (without lens)
- Operating temperature (test with YOLOv3)
  - 45°C with 0.6 m/s airflow at Max-N mode
  - 50°C with 0.6 m/s airflow at Max-Q mode
  - 35°C without airflow at Max-N mode
  - 45°C without airflow at Max-Q mode
- Power consumption: <30W
- Computing module: NVIDIA Jetson TX2
  - CPU: ARM Cortex-A57 MPCore (quad-core) and Denver 2 (dual-core)
  - GPU: 256 core NVIDIA Pascal GPU
  - Built-in memory and storage: 8 GB LPDDR4 and 32 GB eMMC memory integrated on the Jetson TX2 module
- Camera I/O and connectors
  - 1x Type-C for power input, DisplayPort and USB signals
  - 1x DC Jack for 12V DC input
  - 1x GbE Ethernet port
  - 1x 15-pin D-sub for DI/O and COM which includes:
    - 4x GPI/O, including 1x Camera Trigger In and 1x Trigger Out
    - 1x COM
  - 1x microSD slot for external storage
  - 1x wafer connector and 1x Micro-USB for system flashing and debugging

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NOTE:

1. When powering from the DC Jack, the Type-C connector can provide 3W of power to an external device such as a Type-C hub. Devices requiring more than 3W cannot be used.
2. DC power can be either from the Type-C connector or DC jack.
3. Use only recommended ADLINK power adapters.

	NEON-201B-JT2	NEON-202B-JT2	NEON-203B-JT2	NEON-204B-JT2
Processor	NVIDIA® Jetson™ TX2			
Display Output	DisplayPort from Type-C, 1920x1080 @ 30fps			
Image Sensor Resolution	1280x960	1600x1200	1920x1080	2592x1944
Image Sensor Size	1/3”	1/1.8”	1/3.7”	1/2.5”
Frame Rate (fps)	54	60	30	14
Shutter	Global		Rolling	
Color/Mono	Color			
Image Sensor Trigger Mode	External trigger (see note below), software trigger, free run			
Digital Input	4x DI, includes 1x sensor trigger			
Digital Output	4x DO, includes 1x strobe out			
UART	TXD, RXD, GND			
Dimensions/Weight	123.3 x 66.81 x 77.5 mm; 700g			
Power Supply	DC power from Type-C connector or DC jack			
USB	1x USB OTG port; 1x USB3 and 1x USB2 from Type-C connector			

NOTE:

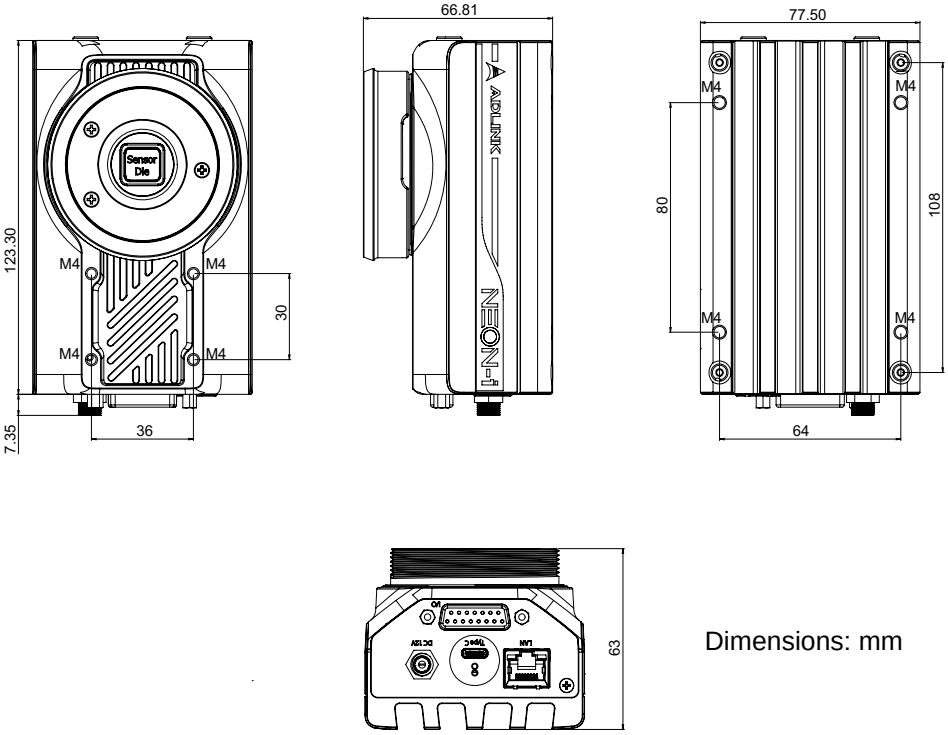
Under External Trigger Mode, the sensor exposure time can be based on the preset time in Pylon.

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1.4 Mechanical Dimensions

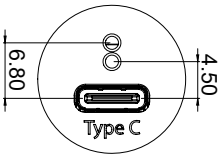
This section provides dimensions and related mechanical information for the NEON-2000-JT2.

1.4.1 Camera Dimensions



Dimensions: mm

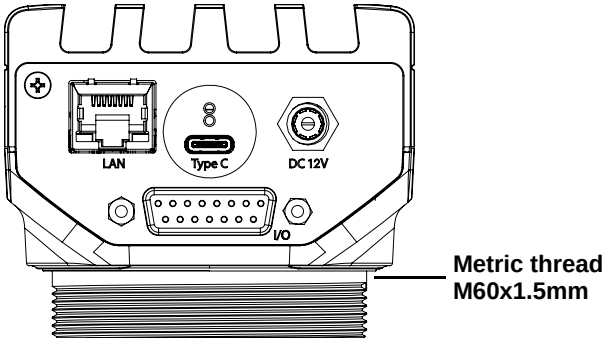
1.4.2 USB Type-C Screw Lock Location and Dimensions



Dimensions: mm

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1.4.3 LED Light Mounting Thread



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2 Connectors and I/O

This chapter includes the locations and descriptions of the connectors and I/O found on the NEON-2000-JT2.

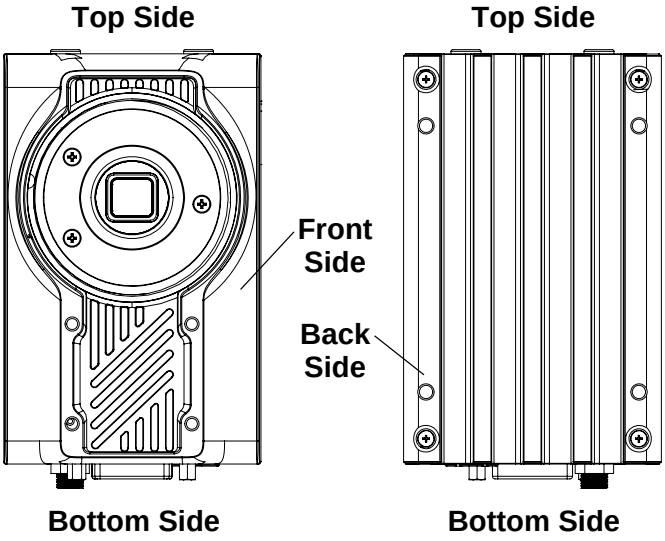


Figure 2-1: NEON-2000-JT2 Orientation

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2.1 Bottom Side I/O and Connector Description

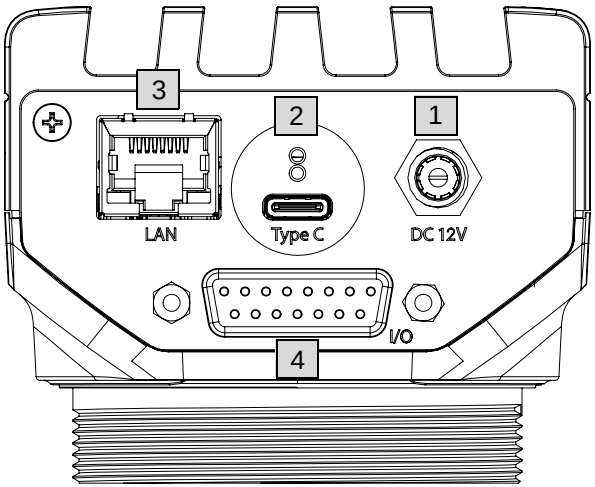


Figure 2-2: Bottom Side I/O and Connectors

Item	Description
1	• DC Jack for DC input with included ADLINK AC/DC adaptor (P/N 31-62156-1000-A0) • Power input: 12V DC at >30 W
2	• USB Type-C connector w/ screw lock • Supports DisplayPort (up to 1080P @ 30 fps) • The NEON-2000-JT2 can be powered via this port or the DC jack
3	1 GbE LAN at 10/100/1000 Mbit/s
4	15-pin D-sub I/O connector for the digital I/O and UART. Use to connect external I/O devices such as sensors, COM and LED/strobe controllers.

Table 2-1: Bottom Side I/O and Connectors

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2.1.1 D-sub I/O Connector

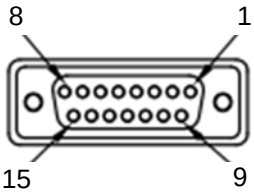


Figure 2-3: D-sub I/O Connector

Pin	Function	Pin	Function
1	UART - TX	2	DI/O GND
3	Digital output 0/Strobe output 0 (see note 2)	4	Digital output 1
5	Digital output 2	6	Digital output 3
7	UART GND	8	Reserved
9	UART – RX	10	DI/O GND
11	Digital input 0/Trigger input 0 (see note 1)	12	Digital Input 1
13	Digital Input 2	14	Digital Input 3
15	Reserved		

Table 2-2: D-sub I/O Connector Pin Definitions

NOTE:

1. Pin 11 (Digital input 0/Trigger input 0) is programmable. When configured for trigger input, it is used for hardware triggering of the image sensor. Connect an external sensor signal to pin 11 and set the camera to hardware trigger mode to enable realtime or hardware triggered image capture.

2. Pin 3 (Digital output 0/Strobe output 0) is programmable. When configured for strobe output, it can be connected to an LED light/strobe controller to adjust the timing latency/delay according to the camera connected to pin 11.

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I/O Category	Maximum Throughput	Specification		
UART	-	Baud rate: 9600bps @ 8N1		
Digital Input	10 KHz	Common sharing:	1 common for sharing ground	
		Input range:	0-5 VDC	
		High level threshold:	2-5 VDC	
		Low level threshold:	0-0.8 VDC	
Digital Output	10KHz	Open-collector	Input voltage range:	3.3-30 VDC
			Maximum sink current	100 mA

Table 2-3: D-sub I/O Connector Specification

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2.2 Top Side I/O and Connector Description

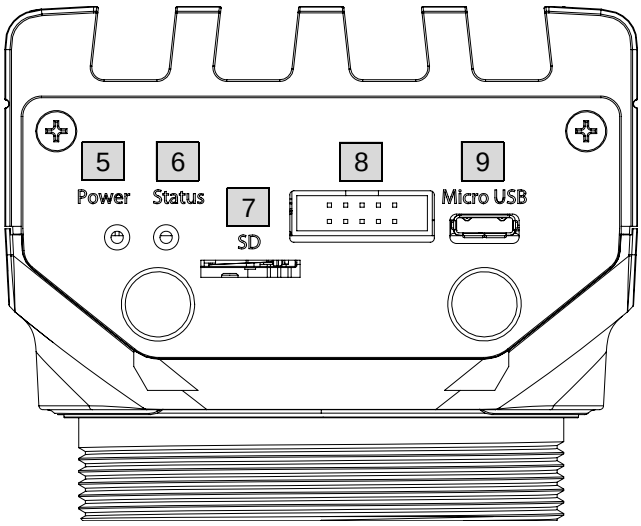


Figure 2-4: Top Side I/O and Connectors

Item	Description
5	Power status LED. Lights green when power is connected.
6	Operating system status LED. Flashes orange when the system is booting, and lights when the system has booted successfully.
7	microSD card slot for additional storage. An optional 32 GB microSD card is available from ADLINK. (P/N 29-F0500-1020)
8	Wafer connector. This connector is used to update the NEON-2000-JT2. See “System Flash” on page 39.
9	Micro-USB port. This connector is used to update the NEON-2000-JT2. See “System Flash” on page 39.

Table 2-4: Top Side I/O and Connectors

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2.2.1 Wafer Connector

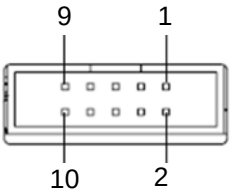


Figure 2-5: Wafer Connector

Pin	Function	Pin	Function
1	Reserved	2	Reserved
3	System Reset	4	GND
5	RECOVERY	6	GND
7	POWER Button	8	GND
9	CHARGER PRSNT	10	GND

Table 2-5: Wafer Connector Pin Definitions

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2.3 Front Side I/O and Connector Description

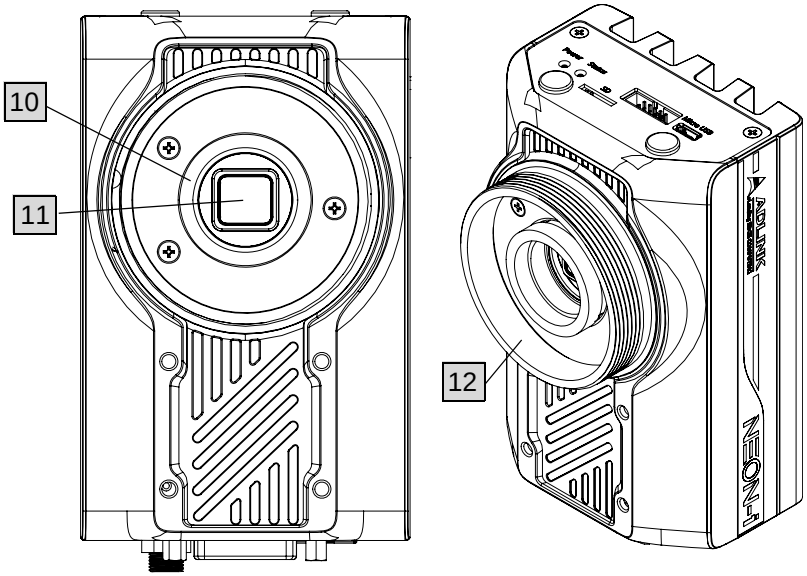


Figure 2-6: Front Side I/O and Connectors

Item	Description
10	C-type lens mount
11	Image sensor
12	Strobe/LED light mounting thread. See “LED Light Mounting Thread” on page 6.

Table 2-6: Front Side I/O and Connectors

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3 Getting Started

3.1 Mounting

The NEON-2000-JT2 can be mounted using the mounting screw holes on either the front (A) or back (B) sides.

Le NEON-2000-JT2 peut être monté à l'aide des trous de vis de montage sur les côtés avant (A) ou arrière (B).

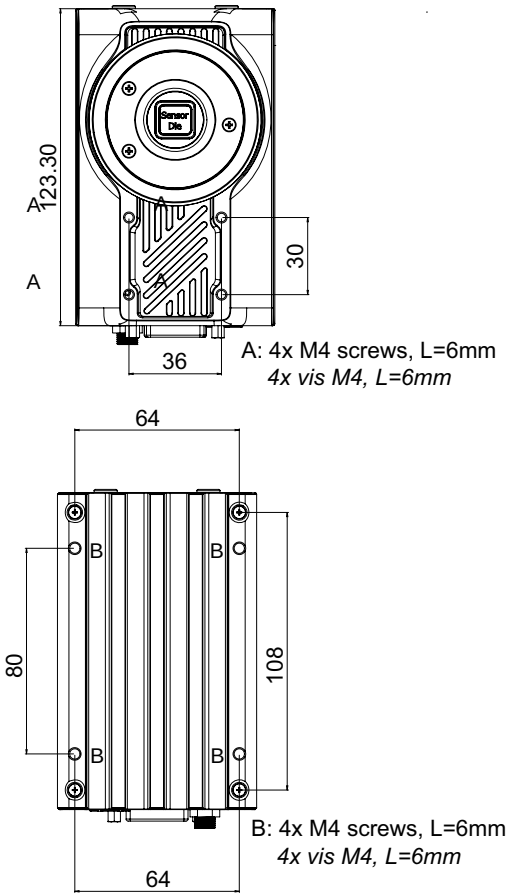


Figure 3-1: NEON-2000-JT2 Mounting Holes

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3.2 Digital I/O Connection Example

External devices such as trigger sensors, LED light controllers or relays can be connected to the NEON-2000-JT2 to implement different applications. This section shows an example of how to connect such devices.

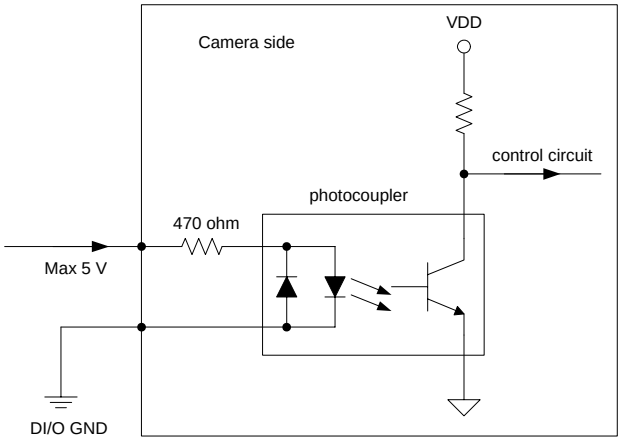


Figure 3-2: Digital Input Schematic Diagram

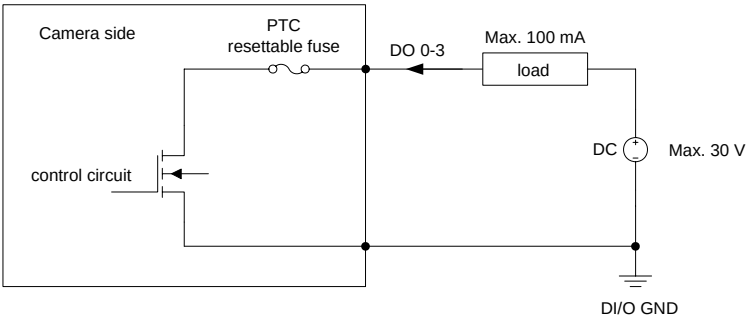


Figure 3-3: Digital Output Schematic Diagram

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3.3 Attaching a Lens

The NEON-2000-JT2 is compatible with C-mount type lenses.

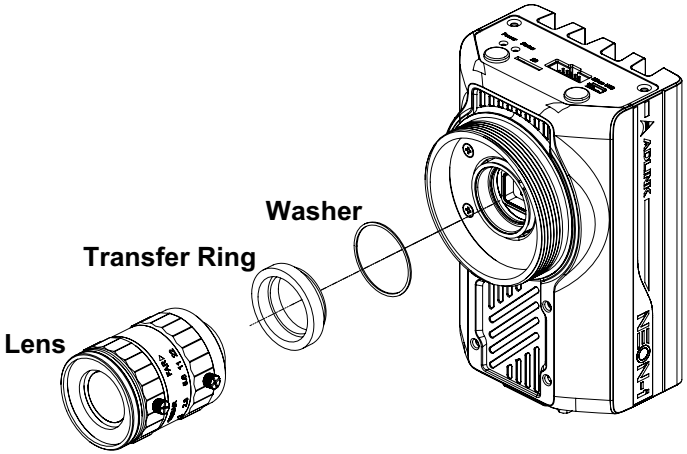
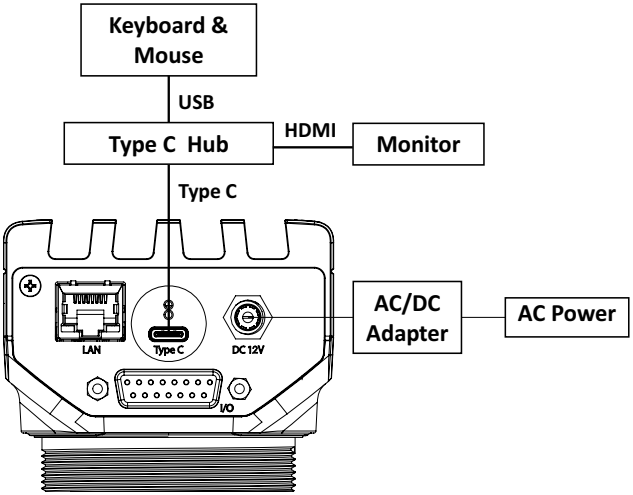


Figure 3-4: Lens Attachment Assembly

NOTE: The transfer ring is installed before shipping. The washer is used only with the NEON-202B-JT2.

3.4 Power and Peripheral Connections

The NEON-2000-JT2 DC power source can be either from a USB Type-C adaptor or DC jack. The USB Type-C connector also supports a DisplayPort video signal and USB3, which can be used to connect a keyboard and mouse. The following figures show examples of possible power and peripheral connection configurations.

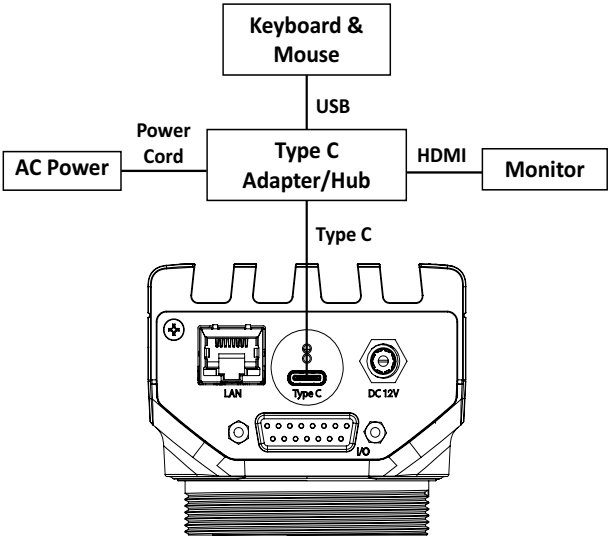


NOTE:

This configuration requires an ADLINK AC/DC power adapter (P/N 31-62156-1000-A0).

Figure 3-5: Separate Power and Peripheral Connections

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NOTE:

This configuration requires an ADLINK USB Type-C hub/adapter (P/N 92-99090-1010).

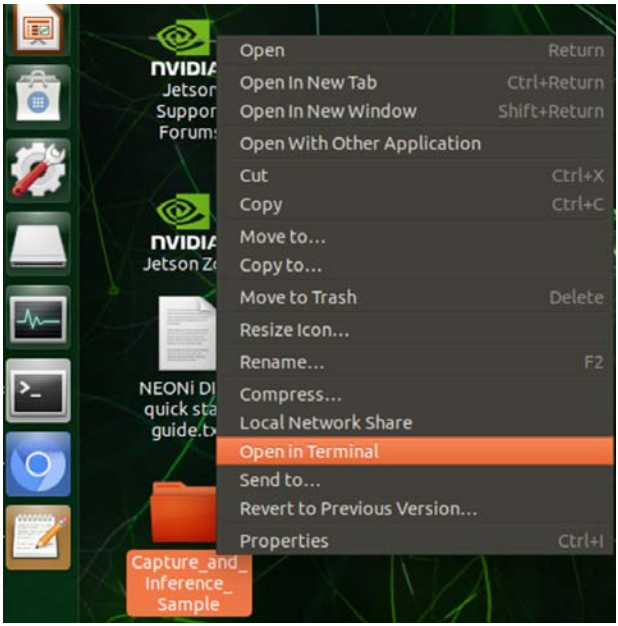
Figure 3-6: Combined Power and Peripheral Connections

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3.5 Image Capture and Inference

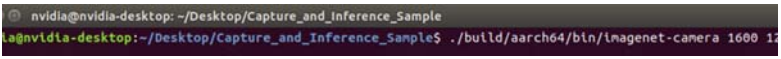
ADLINK provide sample files for testing the NEON-2000-JT2 image capturing and inference functions. The following steps illustrate how to execute the Classification Sample with the NEON-2000-JT2.

Step 1: Right-click the **Capture_and_inference_Sample** folder on the desktop and select **Open in Terminal**.

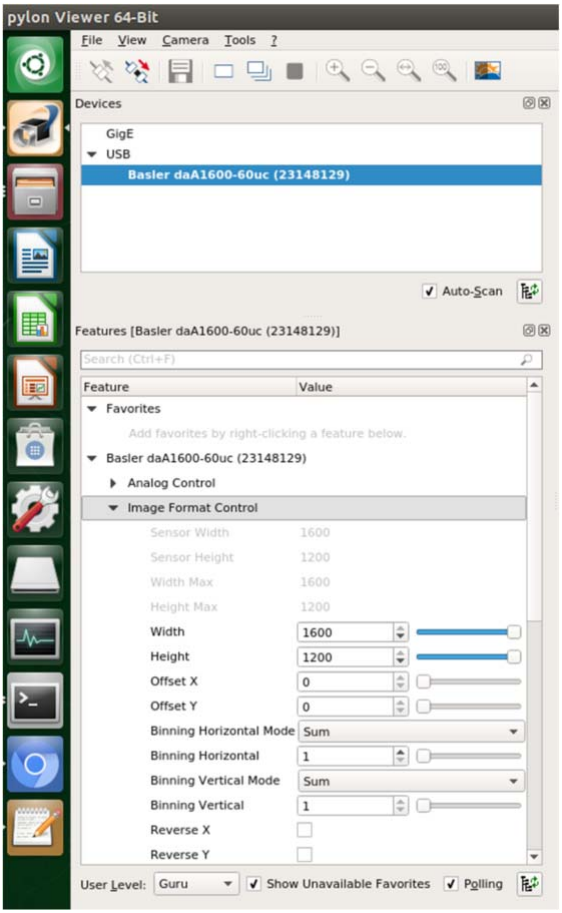


Step 2: Execute the sample by entering the command `./build/aarch64/bin/imagenet-camera [Sensor_width] [Sensor_height]`. Sensor_width and Sensor_height are parameters dependent on the camera model and sensor settings. For example, for the NEON-202B-JT2, the command would be: `./build/aarch64/bin/imagenet-camera 1600 1200`.

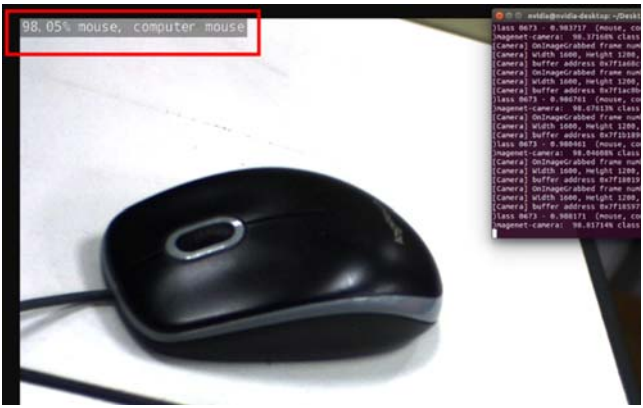
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The Sensor_width and Sensor_height settings can also be set via PylonViewer.



Step 3: Captured image and Inference results are displayed with the inference result shown at the left-top corner of the image.



3.5.1 Inference Concepts and Sample

This section illustrates the main concepts of inference with sample files and also provides a link to examples from NVIDIA. The default path of the sample is **/home/adlink/Desktop/ Capture_and_ Inference_Sample**.

Take special notice of the following important files:

- System requirements and sample build-up procedures ../Capture_and_Inference_Sample /README.md
- Pre-training model for image classification ../Capture_and_Inference_Sample/data/networks
- Sample code ../Capture_and_Inference_Sample/examples/imagenet-camera
- Capturing images with a Basler camera ../Capture_and_Inference_Sample/utils/camera/indCamera
- Execution file ../Capture_and_Inference_Sample/build/aarch64/bin/imagenet-camera

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To learn more about image sensors, samples and documents are included in **/opt/pylon5**. For more samples relating to image inference, NVIDIA provides examples at https://github.com/dusty-nv/jetson-inference.

3.5.2 Sample Inference Steps

Use these steps to set up a streaming camera and to display and classify an image inference.

Step 1: Create a camera

ADLINK provides **indcamera.cpp** and **indcamera.h** which package several PYLON APIs for developers to create custom applications for the NEON-2000-JT2.

Step 2: Create an ImageNet

Create an inference model before using it. This sample takes ImageNet for example.

Step 3: Start streaming

In this sample, the NEON-2000-JT2 is in free run mode and frames are passed one at a time. Make sure the pixel format of the camera output is set to RGB mode, configured by **/opt/pylon5/bin/PylonViewerApp**: **Feature > Basler [Product Name] > Image Format Control > Pixel Format > RGB8**.

Step 4: Classify the image

The image source can be defined as either from the NEON-2000-JT2 or storage media. The following commands will result in errors if the NEON-2000-JT2 sensor is still connected to PylonViewerApp. If an error occurs, disconnect the camera by clicking **Close Camera** in PylonViewerApp:

```
./build/aarch64/bin/imagenet-camera [input_width]
[input_height]
```

```
./build/aarch64/bin/imagenet-console [input_image]
[output_image]
```

Step 5: Update the display

Draw frames and inference result by OpenGL.

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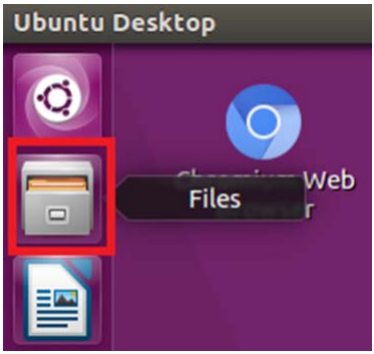
3.6 Use Pylon to capture and adjust the sensor

This section describes how to use the Basler Pylon utility to capture an image, set the sensor, and load/save the sensor settings.

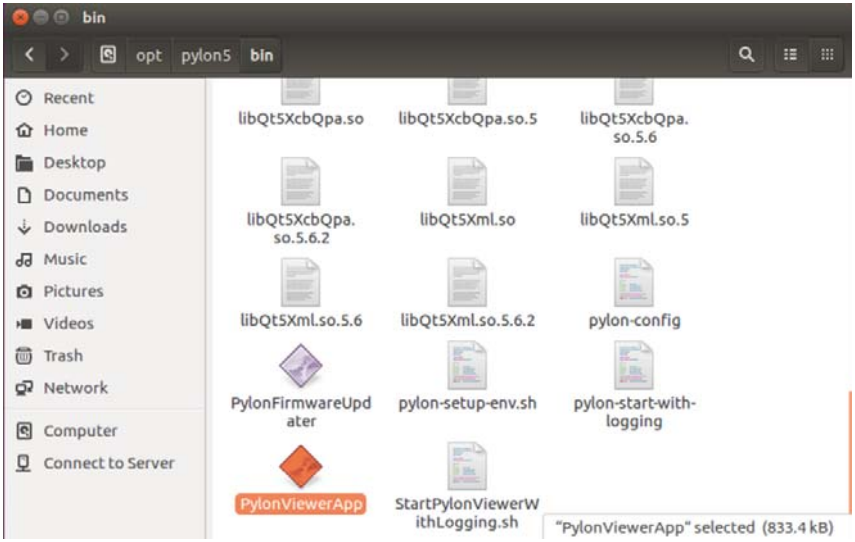
3.6.1 Capture an Image via Pylon

The following steps illustrate how to capture images using the Basler PylonViewerApp.

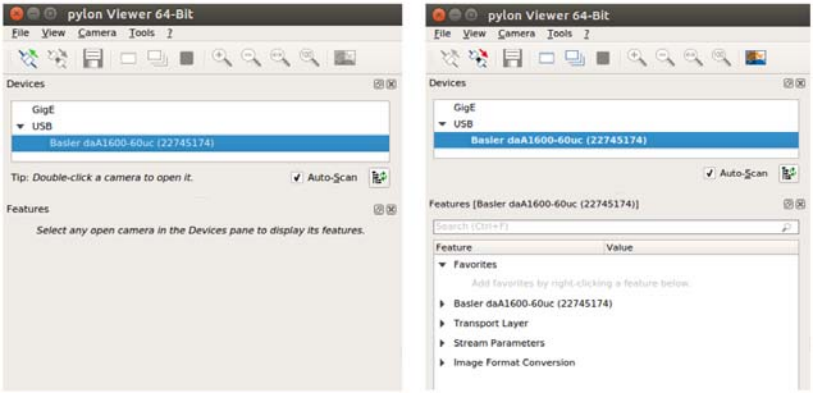
Step 1: Click **Files**.



Step 2: Go to **/opt/pylon5/bin** and double-click **PylonViewerApp,** or, select the PylonViewerApp in the launcher.



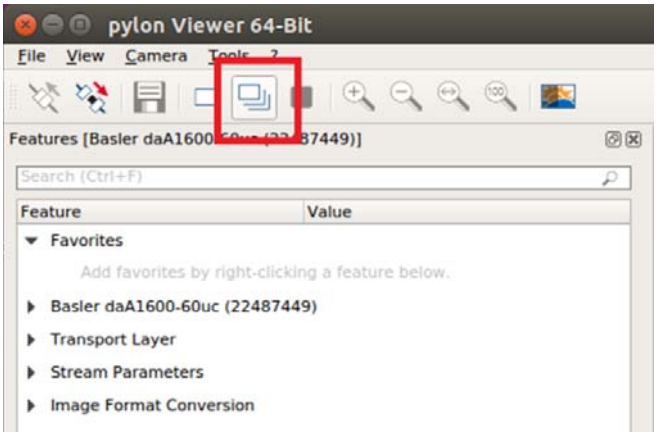
Step 3: Double-click **Basler daA1600-60c** to open the camera.

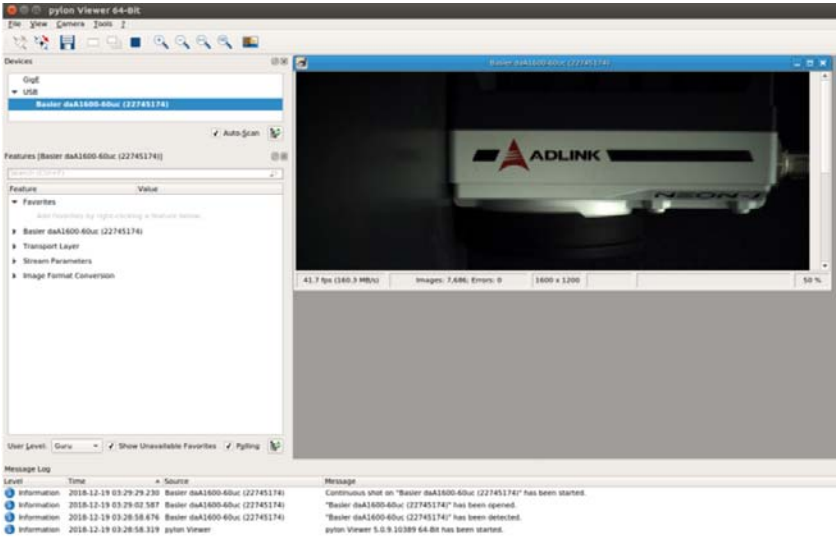


NOTE:

Basler daA1600-60c is the specific sensor for the NEON-202B-JT2 used in this example. As sensor names are model-specific, be sure to select the correct sensor based on the specific NEON-2000-JT2 used.

Step 4: Click **Continuous Shot** to begin capturing images.





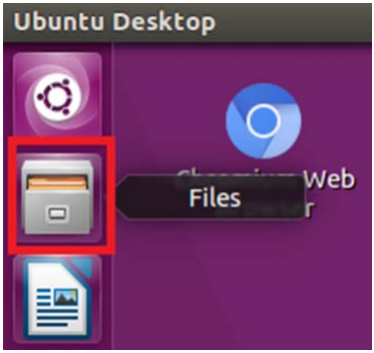
3.6.2 Image Sensor Adjustment via Pylon

The default NEON-2000-JT2 sensor settings may not be suitable for all applications. This section illustrates how to customize the sensor settings.

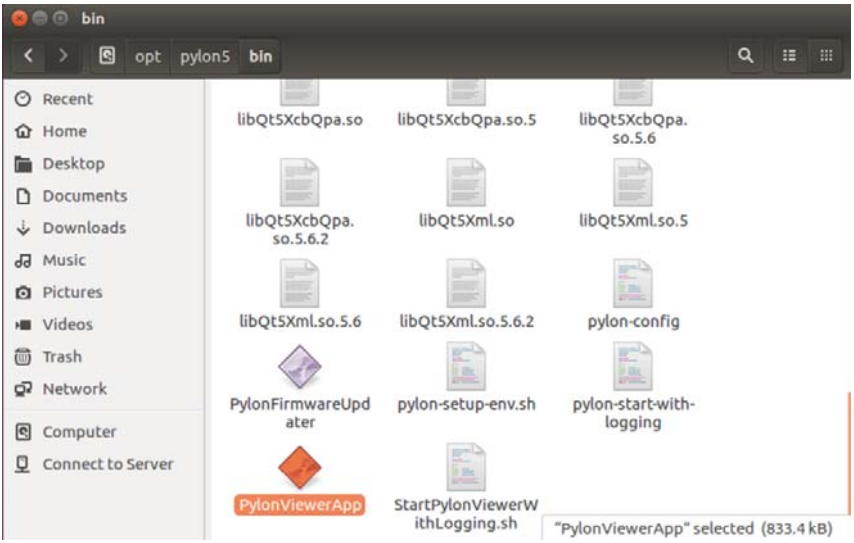
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3.6.2.1 Use Pylon utility to load saved sensor configuration files

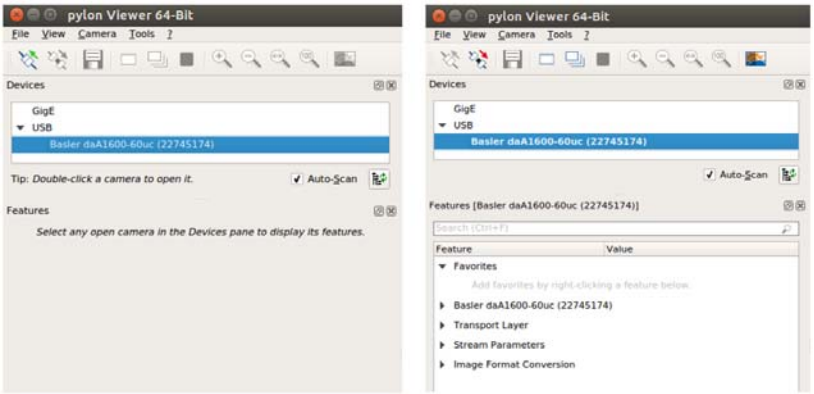
Step 1: Click **Files**.



Step 2: Go to **/opt/pylon5/bin** and double-click **PylonViewerApp,** or, select the PylonViewerApp in the launcher.



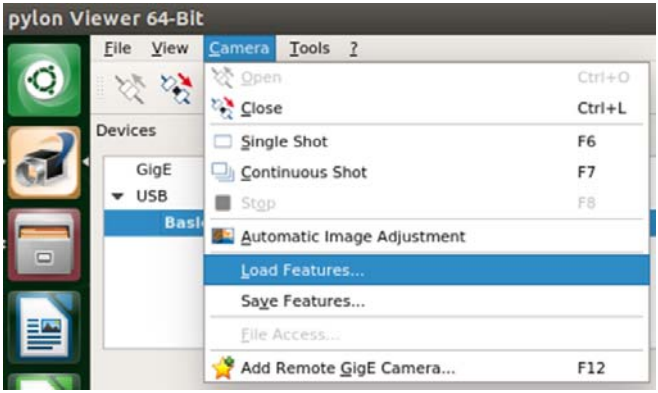
Step 3: Double-click **Basler daA1600-60c** to open the camera.

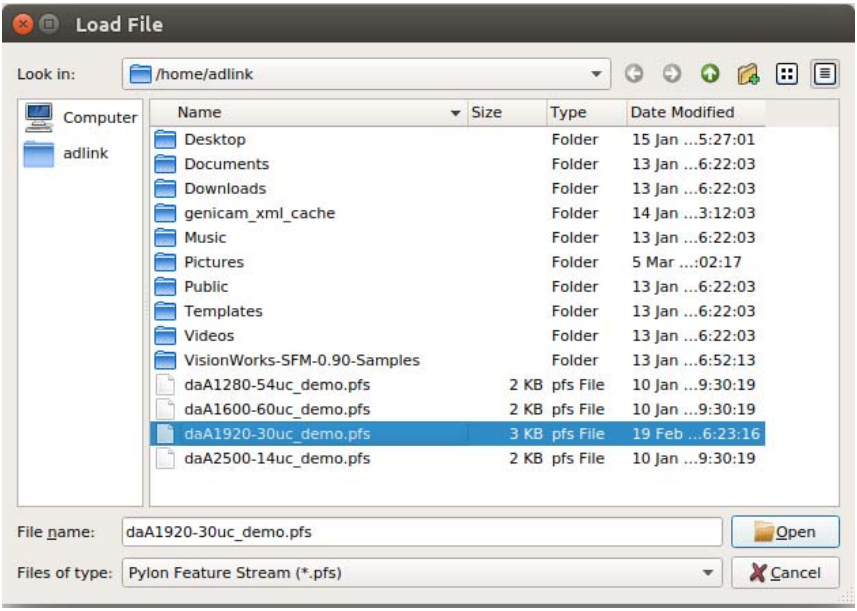


NOTE:

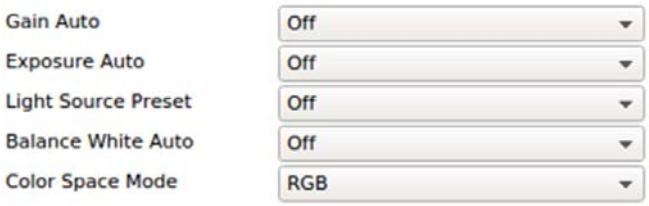
Basler daA1600-60c is the specific sensor for the NEON-202B-JT2 used in this example. As sensor names are model-specific, be sure to select the correct sensor based on the specific NEON-2000-JT2 used.

Step 4: Files with image sensor settings can be loaded by selecting **Load Features…** and choosing the appropriate .pfs file.



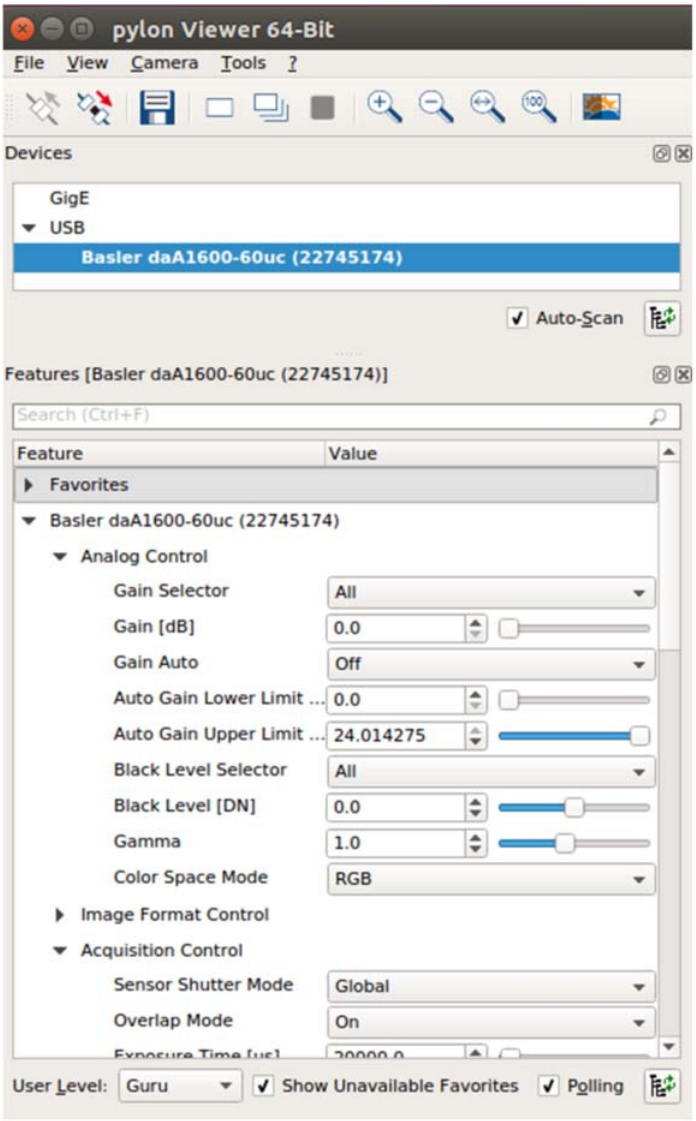


Step 5: If the file loads successfully, the sensor's settings should be modified. For example:

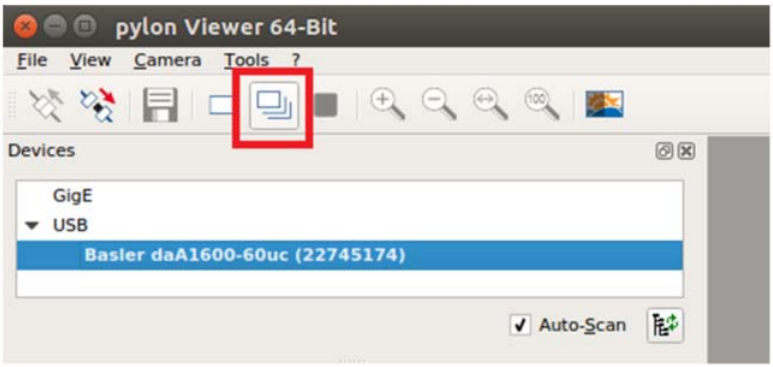


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The modified settings can also be viewed under **Features** in pylon Viewer.



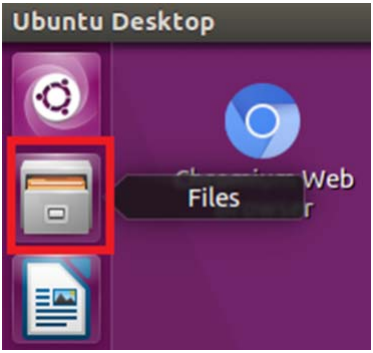
Step 6: Click **Continuous Shot** to have the camera capture images with the loaded sensor settings.



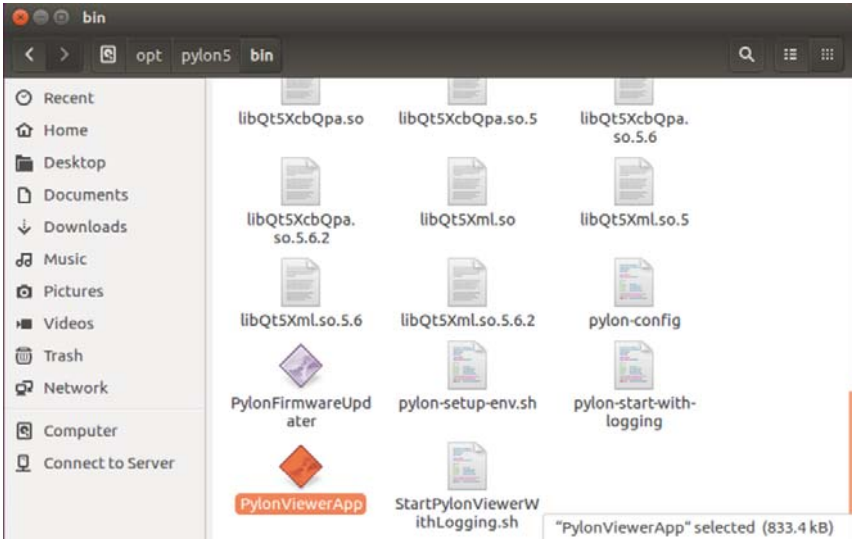


3.6.2.2 Use Pylon to adjust the sensor

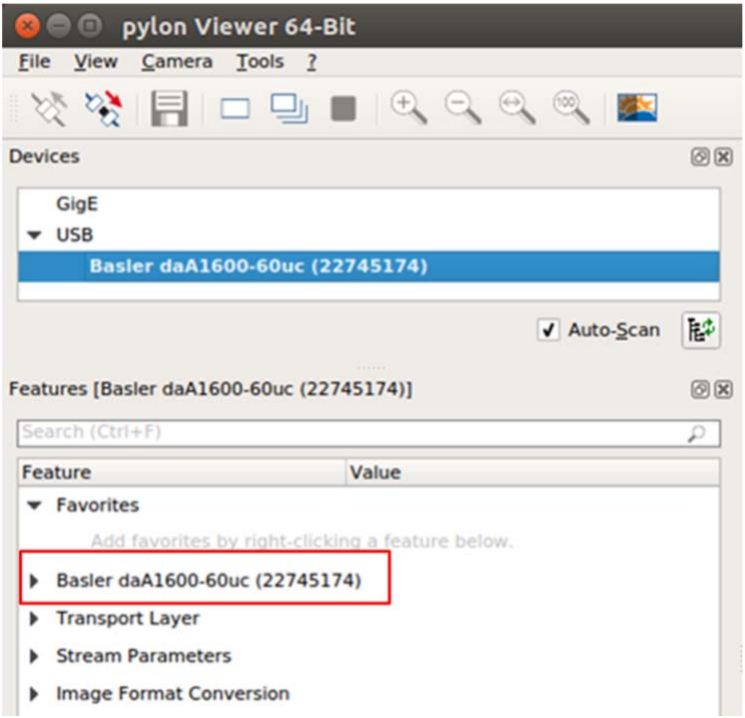
Step 1: Click **Files**.



Step 2: Go to **/opt/pylon5/bin** and double-click **PylonViewerApp,** or, select the PylonViewerApp in the launcher.



Step 3: Double-click **Basler daA1600-60c** to open the camera.

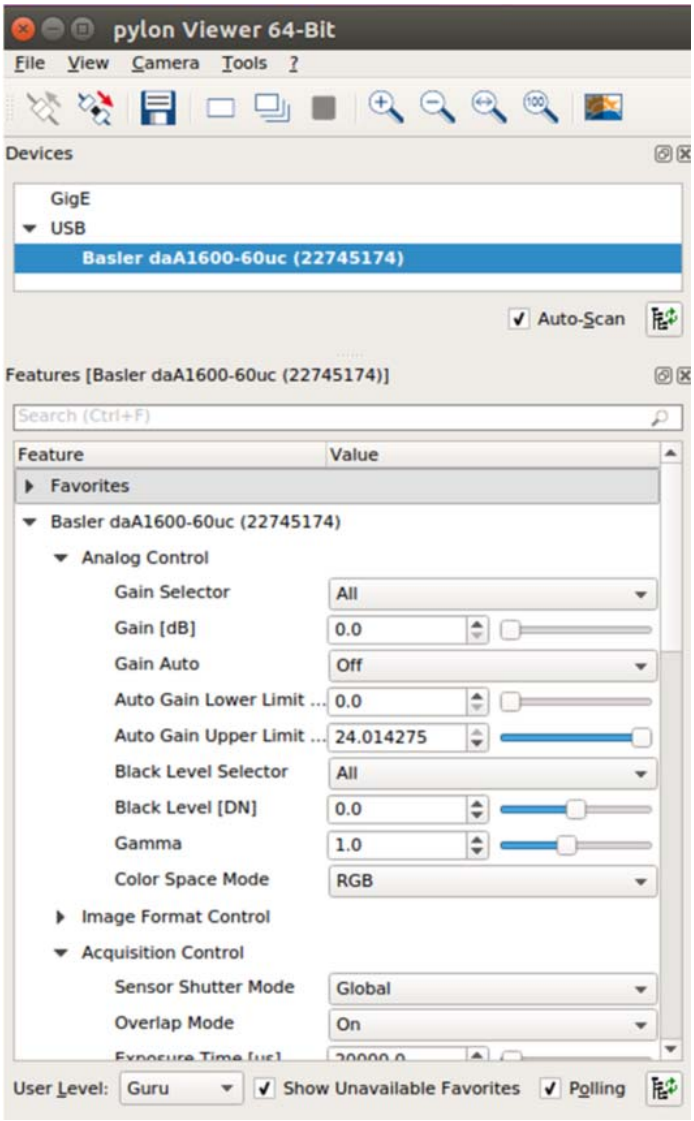


NOTE:

Basler daA1600-60c is the specific sensor for the NEON-202B-JT2 used in this example. As sensor names are model-specific, be sure to select the correct sensor based on the specific NEON-2000-JT2 used.

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Step 4: To save the modified settings to a file, select **Camera > Save Features...** from the main menu.



3.6.3 Use APIs to adjust the image sensor

After opening the device, add the **PylonFeaturePersistenceLoad** function to load features that will adjust the image accordingly.

For example:

```
PylonDeviceOpen( hDev, PYLONC_ACCESS_MODE_CONTROL
     | PYLONC_ACCESS_MODE_STREAM );
PylonDeviceGetNodeMap( hDev, &hMap);
PylonFeaturePersistenceLoad( hMap , “daA1600-
     60uc_adjust image quality.pfs”, 1 );
```

```
GENAPIC_RESULT PylonFeaturePersistenceLoad ( NODEMAP_HANDLE hMap,
                                             const char *   pFileName,
                                             _Bool          verify
                                           )
```

Loads the features from a file and stores it to the node tree.

Parameters

[in]	**hMap**	Node map handle.
[in]	**pFileName**	Name of the file containing the node map values.
[in]	**verify**	If verify==true (default) all node values will be validated.

Returns

If the function succeeds, the return value is GENAPI_E_OK.
If the function fails, the return value will be any of error codes described in the section Error Codes.

Loads the features from a file and stores it to the node tree.

```
GENAPIC_RESULT PylonDeviceOpen ( PYLON_DEVICE_HANDLE  hDev,
                                 int                  accessMode
                               )
```

Open a device.

Parameters

[in] **hDev** Device handle

[in] **accessMode** Intended access mode. You can pass one or more of the flags specified below.

Returns

If the function succeeds, the return value is GENAPI_E_OK.
If the function fails, the return value will be any of error codes described in the section Error Codes.

This function opens a device. A device must be opened before any operations can be performed on it. The *accessMode* argument can be used to restrict the type of access allowed by the device. The following access modes are available:

- `PYLONC_ACCESS_MODE_CONTROL` - Allows to read or write camera parameters to configure the camera.
- `PYLONC_ACCESS_MODE_STREAM` - Allows to read image data from the camera's stream grabber object.
- `PYLONC_ACCESS_MODE_EVENT` - Allows to read event data from the camera's stream grabber object.
- `PYLONC_ACCESS_MODE_EXCLUSIVE` - Allows exclusive access. When this flag is specified no other application may access the camera.
- `PYLONC_ACCESS_MODE_MONITOR` - Allows only read access. This flag cannot be combined with any other flags. It is typically used in Multicast/Broadcast applications with GigE cameras.

You can pass one or more flags. If you pass more than one flag you can combine them using the 'or' operator.

```
GENAPIC_RESULT PylonDeviceGetNodeMap ( PYLON_DEVICE_HANDLE  hDev,
                                       NODEMAP_HANDLE *     phMap
                                     )
```

Return the parameter node map for a device.

Parameters

[in] **hDev** Device handle

[out] **phMap** Result pointer

Returns

If the function succeeds, the return value is GENAPI_E_OK.
If the function fails, the return value will be any of error codes described in the section Error Codes.

This function returns a handle for the node map of a device. If the device does not support a node map an invalid handle is returned.

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4 Software Upgrade

Each NEON-2000-JT2 is shipped with Ubuntu and Jetpck pre-installed. ADLINK builds custom flash files to upgrade the NEON-2000-JT2 based on NVIDIA's release schedule.

Important Notice

NVIDIA official operating system releases for the Jetson TX2 DEV kit **CANNOT** be used on the NEON-2000-JT2. Be sure to upgrade the NEON-2000-JT2 with an operating system or flash file **ONLY** from ADLINK.

DO NOT use the NVIDIA SDK manager to upgrade the NEON-2000-JT2.

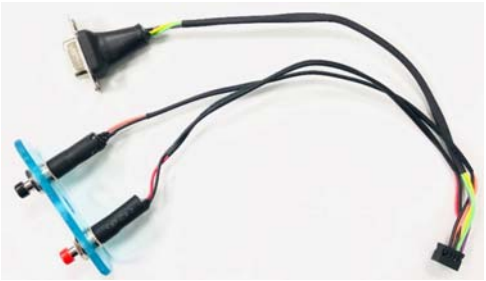
4.1 System Flash

This section describes the equipment and procedures required to upgrade the NEON-2000-JT2.

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4.1.1 Equipment for flashing the system

The following table lists the required tools for upgrading the NEON-2000-JT2.

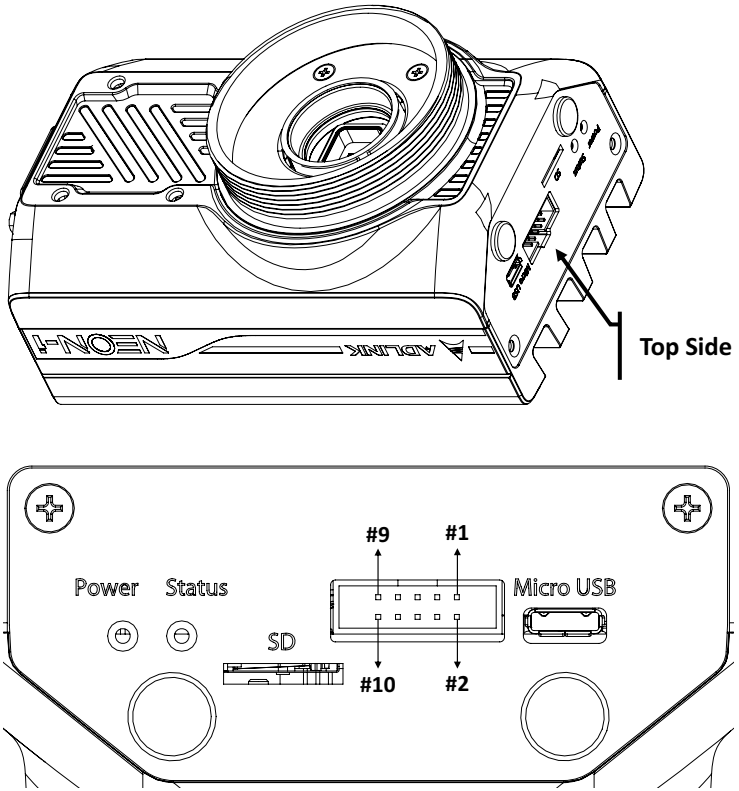
Item	Description	Note
1	1x Host PC	▶ Required minimum specification: Intel® Core™ i3 CPU, 4 GB DDR and 128 GB (or above) SSD/HDD. ▶ Requires Ubuntu Desktop 16.04 or 18.04 installed.
2	1x Micro-USB to Type-A USB cable	▶ Micro-USB connected to NEON-2000-JT2 and Type-A connected to Host PC. ▶ Use USB3 compliant cable for the best performance
3	System Flash Cable	 ADLINK P/N 30-01635-0000-A0
4	2x Jumpers	ADLINK P/N 25-10073-1020

NOTE: Either item 3 or 4 can be used for flashing based on user preference.

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4.1.2 System flashing procedure

When upgrading the system, use the female wafer connector on the NEON-2000-JT2 top side.



Pin	Function	Pin	Function
1	Reserved	2	Reserved
3	System Reset	4	GND
5	RECOVERY	6	GND
7	POWER Button	8	GND
9	CHARGER PRSNT	10	GND

Table 4-1: Wafer Connector Pin Definitions

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Follow these steps flash the NEON-2000-JT2.

Step 1: Request the correct image file from ADLINK and save it to the Host PC.

Step 2: Power on the NEON-2000-JT2 and wait until the Status LED lights orange, but is not flashing.

Step 3: Connect the NEON-2000-JT2 to the Host PC with the Micro-USB to USB Type-A cable.

Step 4: Enter Recovery Mode either by using a jumper or the system flash cable.

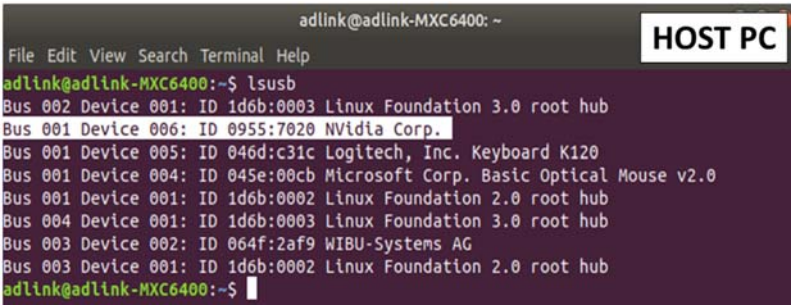
Step 5: Short pins 5 and 6 on the wafer connector and wait until the Status LED is flashing.

Pins 5 and 6 can be shorted either by using the jumper, or connecting the system flash cable, then pressing and holding the black button.

Step 6: Short pins 3 and 4 for two seconds, then release.

Pins 3 and 4 can be shorted either by using the jumper, or connecting the system flash cable, then pressing and holding the red button for two seconds before releasing it. The black button can be released after the red button is released.

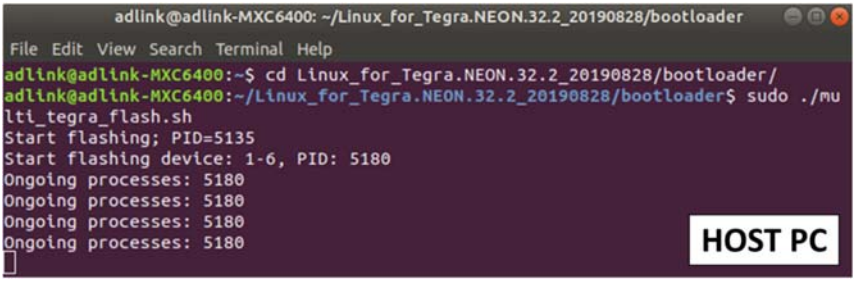
Step 7: Execute the **lsusb** command on the Host PC. If NVIDIA Corp. is in the resulting list, the NEON-2000-JT2 has successfully entered recovery mode.



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Step 8: Navigate to the directory containing the flash file and execute the flash script to begin flashing the NEON-2000-JT2.

```
cd Linux_for_Tegra.NEON.32.2_20190828/bootloader
sudo ./multi_tegra_flash.sh
```



NOTE:

The name of the directory and flash file in the example are for illustration only. Directory and flash file names will vary according to your system configuration and specific flash file used.

Step 9: System flash complete. The flash process takes about twelve minutes if the Micro-USB to Type-A USB cable and Host PC are both USB3 compliant.

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Important Safety Instructions

For user safety, please read and follow all instructions, Warnings, Cautions, and Notes marked in this manual and on the associated device before handling/operating the device, to avoid injury or damage.

- Read these safety instructions carefully
- Keep the User's Manual for future reference
- Read the Specifications section of this manual for detailed information on the recommended operating environment
- Operating temperature: 35ºC with USB Type C Adaptor/Hub or 40ºC with the adapter supply.
- When installing/mounting or uninstalling/removing device; or when removal of a chassis cover is required for user servicing:
  - Turn off power and unplug any power cords/cables
  - Reinstall all chassis covers before restoring power
- To avoid electrical shock and/or damage to device:
  - Keep device away from water or liquid sources
  - Keep device away from high heat or humidity
  - Keep device properly ventilated (do not block or cover-ventilation openings)
  - Always use recommended voltage and power source settings
  - Always install and operate device near an easily accessible electrical outlet
  - Secure the power cord (do not place any object on/over the power cord)
  - Only install/attach and operate device on stable surfaces and/or recommended mountings
- If the device will not be used for long periods of time, turn off and unplug from its power source
- Never attempt to repair the device, which should only be serviced by qualified technical personnel using suitable tools

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- A Lithium-type battery may be provided for uninterrupted backup or emergency power.

CAUTION:

Risk of explosion if battery is replaced with one of an incorrect type; please dispose of used batteries appropriately.

- The device must be serviced by authorized technicians when:
  - The power cord or plug is damaged
  - Liquid has entered the device interior
  - The device has been exposed to high humidity and/or moisture
  - The device is not functioning or does not function according to the User's Manual
  - The device has been dropped and/or damaged and/or shows obvious signs of breakage
- Disconnect the power supply cord before loosening the thumbscrews and always fasten the thumbscrews with a screwdriver before starting the system up
- It is recommended that the device be installed only in a server room or computer room where access is:
  - Restricted to qualified service personnel or users familiar with restrictions applied to the location, reasons therefor, and any precautions required
  - Only afforded by the use of a tool or lock and key, or other means of security, and controlled by the authority responsible for the location



BURN HAZARD

Touching this surface could result in bodily injury. To reduce risk, allow the surface to cool before touching.

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Consignes de Sécurité Importante

S'il vous plaît prêter attention stricte à tous les avertissements et mises en garde figurant sur l'appareil, pour éviter des blessures ou des dommages.

- *Lisez attentivement ces consignes de sécurité.*
- *Conservez le manuel de l'utilisateur pour pouvoir le consulter ultérieurement.*
- *Lisez la section Spécifications de ce manuel pour des informations détaillées sur l'environnement d'exploitation recommandé.*
- *Température de fonctionnement: 35 ° C avec adaptateur / concentrateur USB Type C ou 40 ° C avec l'adaptateur.*
- *Lors de l'installation / du montage ou de la désinstallation / suppression du périphérique; ou lorsque le retrait d'un capot de châssis est requis pour l'entretien par l'utilisateur:*
  - *Coupez l'alimentation et débranchez tous les cordons / câbles d'alimentation*
  - *Réinstallez tous les couvercles de châssis avant de rétablir l'alimentation*
- *Pour éviter les chocs électriques et / ou les dommages à l'appareil:*
  - *Gardez l'appareil éloigné de l'eau ou des sources de liquide*
  - *Gardez l'appareil loin de la chaleur ou de l'humidité élevée*
  - *Gardez l'appareil correctement ventilé (ne bloquez pas et ne couvrez pas les ouvertures de ventilation)*
  - *Utilisez toujours les paramètres de tension et de source d'alimentation recommandés*
  - *Installez et utilisez toujours l'appareil à proximité d'une prise électrique facilement accessible*
  - *Fixez le cordon d'alimentation (ne placez aucun objet sur / par-dessus le cordon d'alimentation)*
  - *Installez / fixez et utilisez l'appareil uniquement sur des surfaces stables et / ou des supports recommandés*
- *Si l'appareil n'est pas utilisé pendant de longues périodes, éteignez-le et débranchez-le de sa source d'alimentation*
- *N'essayez jamais de réparer l'appareil, qui ne doit être entre-*

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tenu que par du personnel technique qualifié à l'aide d'outils appropriés.

- *Une batterie de type lithium peut être fournie pour une alimentation de secours ou une alimentation de secours ininterrompue.*



Risque d'explosion si la pile est remplacée par une autre de type incorrect. Veuillez jeter les piles usagées de façon appropriée.

- *L'appareil doit être réparé par des techniciens autorisés lorsque:*
  - *Le cordon d'alimentation ou la fiche est endommagé*
  - *Du liquide a pénétré à l'intérieur de l'appareil*
  - *L'appareil a été exposé à une humidité élevée et / ou à l'humidité*
  - *L'appareil ne fonctionne pas ou ne fonctionne pas selon le manuel de l'utilisateur*
  - *L'appareil est tombé et / ou endommagé et / ou montre des signes évidents de casse*
- *Débranchez le cordon d'alimentation avant de desserrer les vis moletées et fixez toujours les vis moletées avec un tournevis avant de démarrer le système*
- *Il est recommandé d'installer l'appareil uniquement dans une salle de serveurs ou une salle informatique où l'accès est:*
  - *Réservé au personnel de service qualifié ou aux utilisateurs familiers avec les restrictions appliquées à l'emplacement, les raisons de celles-ci et les précautions nécessaires*
  - *Seulement permis par l'utilisation d'un outil ou d'une serrure et d'une clé, ou d'autres moyens de sécurité, et contrôlé par l'autorité responsable de l'emplacement*

	***RISQUE DE BRÛLURES*** *Ne touchez pas cette surface, cela pourrait entraîner des blessures.* *Pour éviter tout danger, laissez la surface refroidir avant de la toucher.*

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Getting Service

Ask an Expert: http://askanexpert.adlinktech.com

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