THORLABS

Thorlabs
Digital Camera

Quick Start Guide

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Chapter 1   Safety

1.1   Precautions

> **Attention Users**
> This attention symbol indicates that additional information is available in these user guides.
>
> Please carefully read the instruction manual for the appropriate model device before operating your Digital Video Camera. All statements regarding safety and technical specifications are published in that document and will only apply when the unit is operated correctly.
>
> This equipment is intended for laboratory use only and is not certified for medical applications, including but not limited to, life support situations.
>
> Check the supply voltage of the system before plugging in the power supply. Make sure the included power cord is the correct type for the service you are connecting to AND connected to a properly grounded power outlet (100 - 240 VAC; 50 - 60 Hz).
>
> Transportation and delivery may cause the Digital Video Camera to be warm or cool upon receipt. Please wait for the device to reach room temperature before attempting to operate.
>
> There are NO user accessible fuses in this Digital Video Camera or the included External Power Supply.
>
> Do not open the Digital Video Camera or the External Power Supply. Doing so is dangerous and could result in damage to the unit or death to the user.
>
> Please contact Thorlabs Technical Support at **techsupport@thorlabs.com** and a member of our team will be happy to assist you with any questions you may have regarding this product.

Chapter 2   Description

2.1   Introduction

This booklet is a Quick Start Guide to the installation of Thorlabs Compact and Scientific-Grade cameras, and it is meant to be a companion to the camera user guides in the **Program Files\Thorlabs\Scientific Imaging\Documentation** folder that will be installed with your software. This Quick Start Guide is intended to provide basic information regarding the initial setup and installation of your camera.

It is highly recommended that you familiarize yourself with the detailed information contained in the documentation folder associated with your specific camera model and Thorlabs Software once you have completed this installation.

The manuals are also available on the specific camera model web page at **www.thorlabs.com**.

2.2   Receiving and Unpacking

Your camera was thoroughly tested and carefully packed at the factory. Once the camera shipment is accepted for delivery, the carrier assumes full responsibility for its safe arrival. Should you receive your shipment with any damage—concealed or apparent—please contact the carrier at once. The carrier will instruct you on how to initiate a damage claim. If a visual inspection reveals damage upon receipt, it must be noted on the freight bill or express receipt and the notation signed by the carrier's agent. Failure to do so can result in the carrier refusing to honor the claim.

To return your camera to Thorlabs Scientific Imaging (TSI) for service, you must first contact your local Thorlabs office or distributor and request a Return Material Authorization (RMA). Returns will not be accepted without an RMA. See chapter titled "Warranty Information" for details.

Chapter 3   Setup and Installation

3.1   Know Your Camera Family

Zelux, Kiralux / Quantalux (including Low Profile models), and Cooled sCMOS / CMOS cameras have a black and red aluminum case. All Scientific Camera families have their own USB 3.0 drivers and Software Designer Kits (SDK).

Zelux
CMOS Cameras

Kiralux and Quantalux
CMOS CS Cameras

Kiralux
LP CMOS Cameras

Kiralux Cooled CMOS and
Quantalux Cooled sCMOS Cameras

3.2   Scientific USB 3.0 Installation:

If you purchased a Scientific USB 3.0 camera (Zelux, Kiralux, Quantalux, or Cooled sCMOS / CMOS), an optional USB 3.0 PCIe interface card is available, USB3-PCIE, which may provide higher throughput over an integrated USB 3.0 port on your PC (Other USB interface cards may work but are not supported).

1. **Run the Software Installer** – follow the steps outlined in Section **3.3**, including driver installation.

2. **If installing a PCIe USB3.0 card – Power down the computer.** Taking necessary precautions, install the USB 3.0 PCIe interface card. Turn on the computer.

3. Otherwise, simply connect the camera to a Super Speed USB 3.0 port on the PC using the provided USB 3.0 cable*.

4. Accept the driver installation recommendations for the newly installed hardware.

5. Power on the camera and run the ThorCam application software.

*We recommend using only the USB 3.0 cable that was shipped with the camera.

3.3   Installing the Software

The Thorlabs camera software runs on Windows 7, 10, and 11 operating systems ONLY.

**3.3.1   Download the Software installation Package**

Determine whether your computer system is 32-bit or 64-bit. Download the appropriate installation package located at the following link: **https://www.thorlabs.com/software_pages/ViewSoftwarePage.cfm?Code=ThorCam**

Double-click on the TSI_Camera_Setup application file and follow the screen prompts.
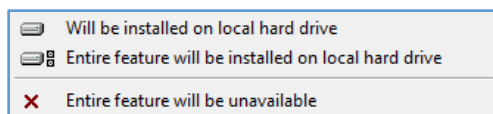
3.3.2   Driver Selection

Your camera requires a driver to be installed on your computer. After the welcome screen, acceptance of the license agreement, and entering your user information, you will be presented with a choice of drivers. Select the driver that matches the interface on your camera; USB (2.0 or 3.0), Gigabit Ethernet, or Camera Link. If you have more than one camera and with different interfaces, select all that apply. If you're unsure, select them all.

Note: GigE and Camera Link models are no longer sold by Thorlabs, however the software still supports legacy products.
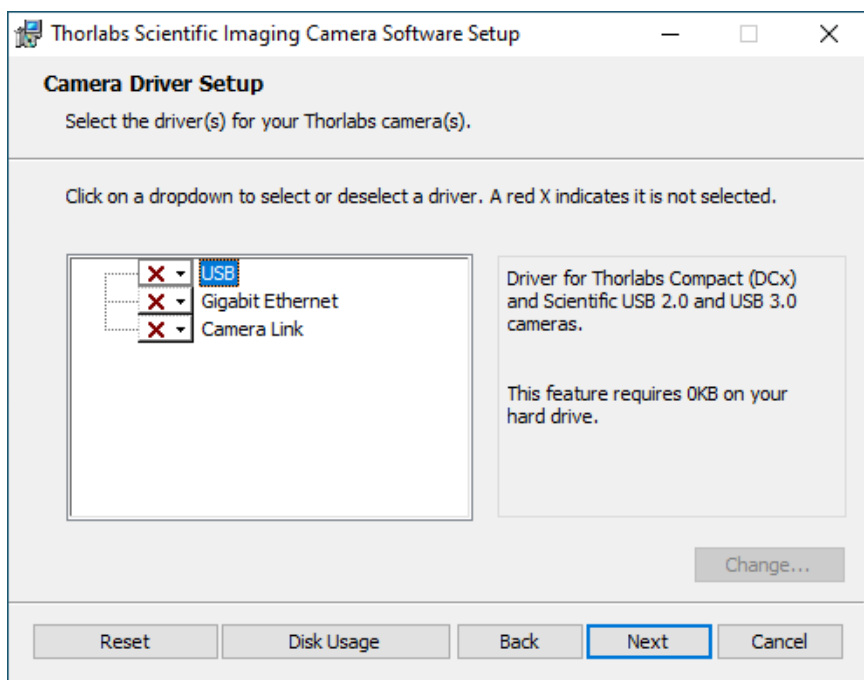

Select a driver for installation by clicking on the dropdown and selecting either of the two choices; "Will be installed on local hard drive," or "Entire feature will be installed on local hard drive." Both choices will install the driver.
If you do not wish to install the driver, select "Entire feature will not be available".

Once a driver is selected, the red X will be replaced with a hard drive icon as shown in the USB selection below.
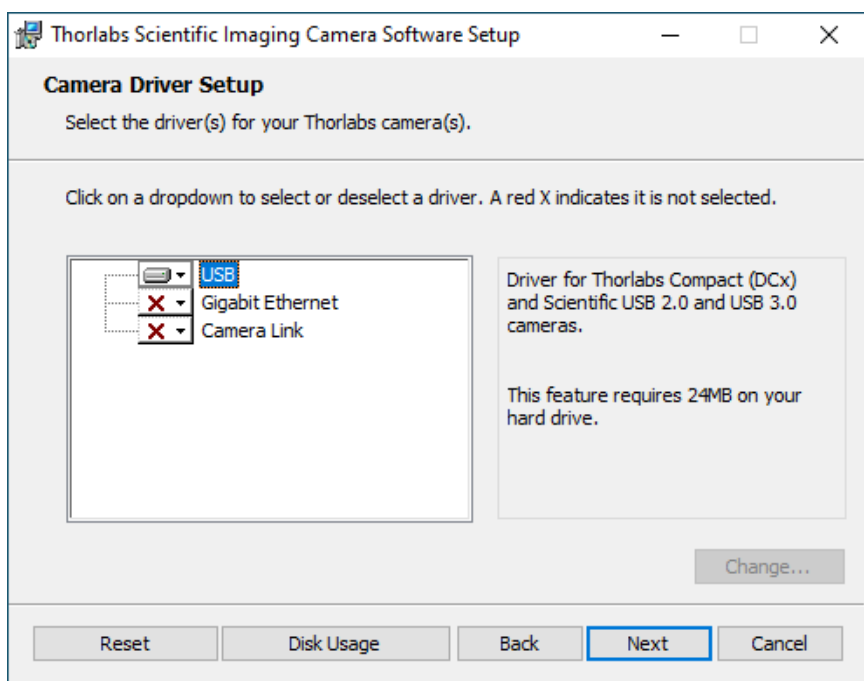
Click Next to proceed with the driver installation. Depending on your PC's configuration and the drivers you selected, you might encounter the additional Windows security dialogs below. Be sure to click install to complete the operation, otherwise the installer will "roll back" and exit.

USB Driver Installation (if selected). Click "Install"
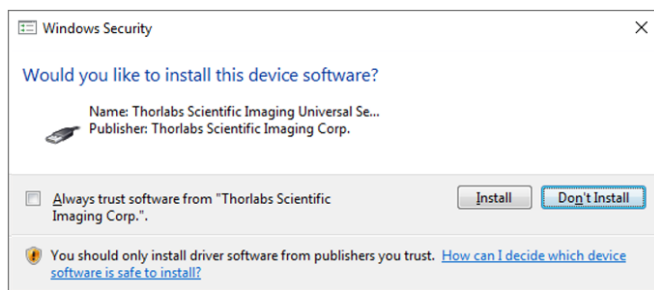
Gigabit Ethernet Driver Installation (if selected). Click "Install"
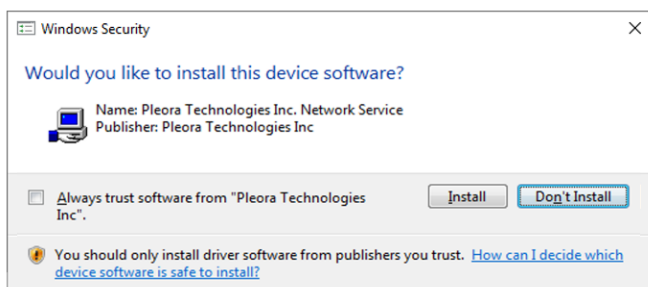
Camera Link Driver Installation (if selected). Click "Install"
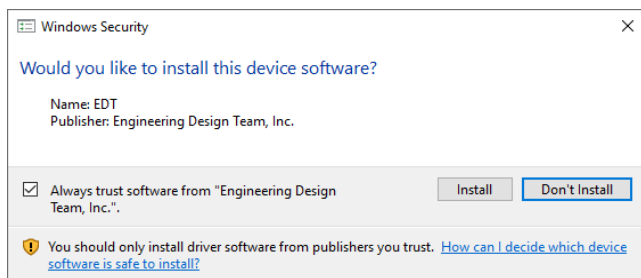
Once setup is complete, you may now proceed to the next section that will describe how to connect and power on your camera. When the camera is connected and powered up, you can navigate to the ThorCam Imaging Software as shown below:

"Start" → "All Programs" → "Thorlabs" → "Scientific Imaging" → "ThorCam"
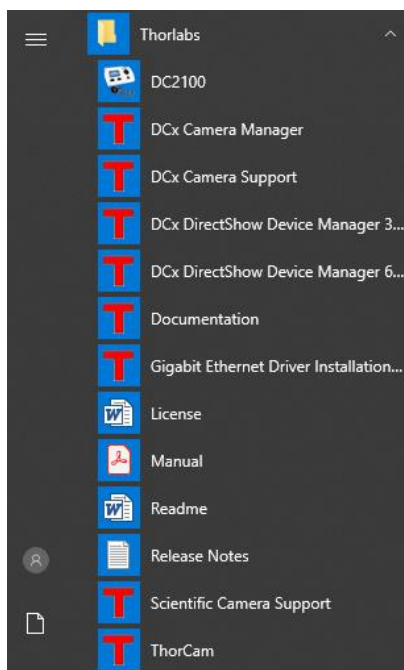

Figure 1   Thorlabs Start Menu Shortcuts

Please refer to the model specific **User Guide** for more information on the additional items installed during this procedure, including configuring the Gigabit Ethernet Driver for best performance.

3.4   Basic Connections

3.4.1   Connections for USB3.0 Cameras

Using the supplied USB3.0 cable, simply connect the camera to the appropriate Super Speed (SS) USB3.0 port on the host computer.

A CABU31 USB 3.0 A to micro-B cable is provided for the CS and CC series cameras and a CABU32 USB 3.0 A to right-angle micro-B cable is provided for the LP series cameras.

Secure the micro-B end of the cable to the camera using one or two thumbscrews, depending on the cable. Hand-tighten only.

3.4.2   I/O Connections

To connect I/O cables to the camera, follow the steps below:

1.   If external I/O signaling is required:

    a.   Kiralux / Quantalux "CS" cameras: Connect an 8050-CAB1 cable (not included) to the **I/O** port. Refer to the User Guide for signal details.

Figure 2   Kiralux / Quantalux "CS" Camera with the I/O port visible in the middle.

    b.   Zelux and Kiralux / Quantalux "LP" cameras: Connect the supplied MMCX coax cables to the appropriate ports for triggering and signal monitoring. Refer to the User Guide for signal details.

Figure 3   Zelux (Left) and Kiralux (Right) "LP" Cameras with the MMCX jacks visible.

3.4.3   Connections for a USB 3.0 Cooled sCMOS or CMOS Camera

Figure 4   Cooled sCMOS and CMOS Camera Rear Panel

To connect the camera, follow the steps below:

1. Connect the provided USB 3.0 cable into the mating **USB 3.0** port on the back of the camera. The camera end of the cable will have

two thumb screws. Make sure the connector is fully inserted, and then tighten the thumbscrews by hand into the camera housing.

2. Connect the provided +5V / 3A power supply to the **TEC Power** port by threading the mating connector onto the camera's connector. This provides power to the Thermal Electric Cooler (Peltier device).

3. Connect the other end of the USB 3.0 cable into a USB 3.0 port (USB SS) on the host computer. Note: The camera will turn on at this point.

4. If external I/O signaling is required connect an 8050-CAB1 cable (not included) to the **I/O port**. Refer to User Guide for signal details.

5. Confirm that the appropriate AC Mains adapter is installed on the +5V / 3A power supply, then plug it into a suitable AC Mains power source of 100 – 240 VAC @ 50 – 60 Hz. Sensor cooling will not work without this power source.

Chapter 4   Product Care

- Do not store or operate in a damp, closed environment.

- Do not use solvents on or near the equipment.

- Keep away from dust, dirt, and airborne pollutants (including cigarette smoke). The system is not designed for outdoor use. Protect the equipment from rain, snow, and humidity.

- Do not expose to mechanical or thermal extremes. Protect the equipment from rapid variation in temperature.

- Handle all connectors with care. Do not use unnecessary force as this may damage the connectors.

- Clean using a soft, lint free cloth. Use of isopropyl alcohol is permitted, however do not immerse in any liquid or solvent.

- Clean any accessible optical surfaces with an appropriate optics grade tissue or cloth.

4.1.1   Service

Only trained and approved Thorlabs' personnel should service the system. Please contact Thorlabs' Technical Support at **techsupport@thorlabs.com** and a member of our team will be happy to assist you.

4.1.2   Warranty

Any modifications or servicing by unqualified personnel renders the warranty null and void, leaving Thorlabs free of liability. Please refer to your camera User Manual for complete warranty information

4.1.3   Troubleshooting

Compact Scientific Cameras including Kiralux, Quantalux, and Zelux

LED	If LED is On	If LED is Flashing	If LED is Off
Status	**Blue**: Connected to USB 3.0 Port **Green**: Connected to USB 2.0 Port **Amber**: Camera has internal problem, or the host computer port has malfunctioned[a]	USB port cannot provide sufficient power to the camera	There is no USB Connection providing power to the camera

Note: In some cases, it may be 5 seconds or longer for the status indicator to transition from amber to blue or green.

Cooled sCMOS / CMOS Cameras

LED	If LED is On	If LED is Flashing	If LED is Off
Status	**Blue**: Connected to USB 3.0 Port **Green**: Connected to USB 2.0 Port **Amber**: Camera has internal problem[a] **Cyan**: TEC Power Supply is not connected or turned on	USB port cannot provide sufficient power to the camera	There is no USB Connection providing power to the camera

a.   *The Status LED will be amber momentarily at power up while the camera initializes.*

Chapter 5   Warranty and RMA Information

Thorlabs verifies our compliance with the WEEE (Waste Electrical and Electronic Equipment) directive of the European Community and the corresponding national laws. Accordingly, all end users in the EC may return "end of life" Annex I category electrical and electronic equipment sold after August 13, 2005 to Thorlabs, without incurring disposal charges. Eligible units are

Annex I

marked with the crossed out "wheelie bin" logo (see right), were sold to and are currently owned by a company or institute within the EC and are not dissembled or contaminated. Contact Thorlabs for more information. Waste treatment is your own responsibility. "End of life" units must be returned to Thorlabs or handed to a company specializing in waste recovery. Do not dispose of the unit in a litter bin or at a public waste disposal site. It is the user's responsibility to delete all private data stored on the device prior to disposal.
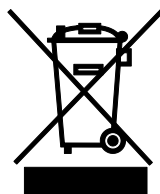
5.1   Return of Devices

This precision device is only serviceable if returned and properly packed into the complete original packaging including the complete shipment plus the cardboard insert that holds the enclosed devices. If necessary, ask for replacement packaging. Refer servicing to qualified personnel.

Chapter 6   Regulatory

Please refer to the model specific User Guide for copies of the CE Declaration of Conformity and other pertinent regulatory information.

Chapter 7   Thorlabs Worldwide Contacts

For technical support or sales inquiries, please visit us at
www.thorlabs.com/contact for our most up-to-date contact information.

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