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SOLUTIONS

Application Note

Photron™ Camera Notes

VIC-3D 9

2021

Photron Camera Notes

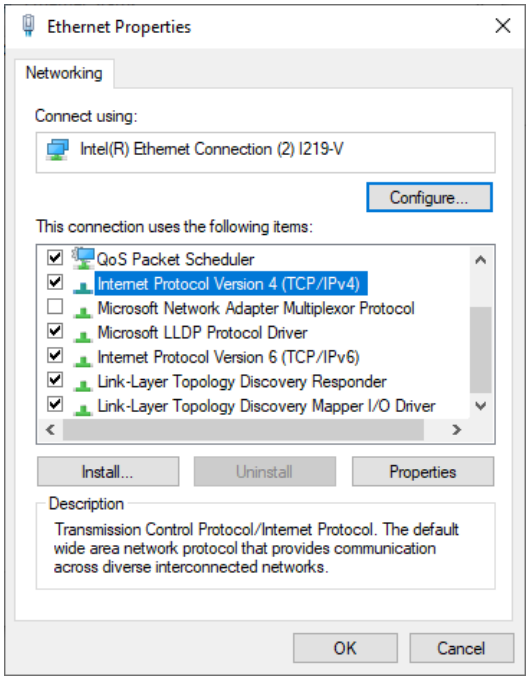
Introduction

The newest generation of Photron high-speed cameras are supported via the VIC-Snap 9 acquisition software. This software allows easy synchronization, acquisition, and storage of images for analysis in VIC-2D and VIC-3D analysis software. A few simple tips will help to ensure successful acquisition and saving.

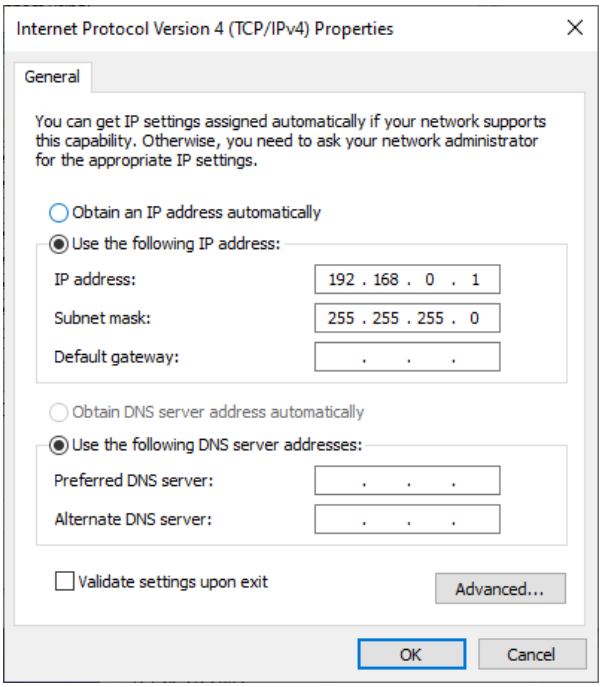
PC Setup

To use these cameras, a gigabit (1000mbps) Ethernet adapter will provide the fastest image transfer and control. This may be either onboard the PC or installed as a PCI Express desktop expansion or ExpressCard laptop expansion.

The IP address of the host connection should be set to 192.168.0.x where x is a number that doesn't conflict with any camera IP's (192.168.0.1 usually works well). This can be accessed by using *Control Panel… Network Connections*, right-clicking on the relevant connection, and clicking *Properties*.



Select *Internet Protocol (TCP/IP)* (IP V4, in Windows 10), and click *Properties*.



Set the IP address as above, and click *OK* to complete.

Camera Setup

When using multiple cameras, each camera must be set with a different identifier or IP. This will normally be preconfigured; otherwise, use the touchpad control or PFV software to set each camera with a unique identifier or IP. Typically, the first camera will remain at the factory default of 192.168.0.10, and the second will be set to 192.168.0.11.

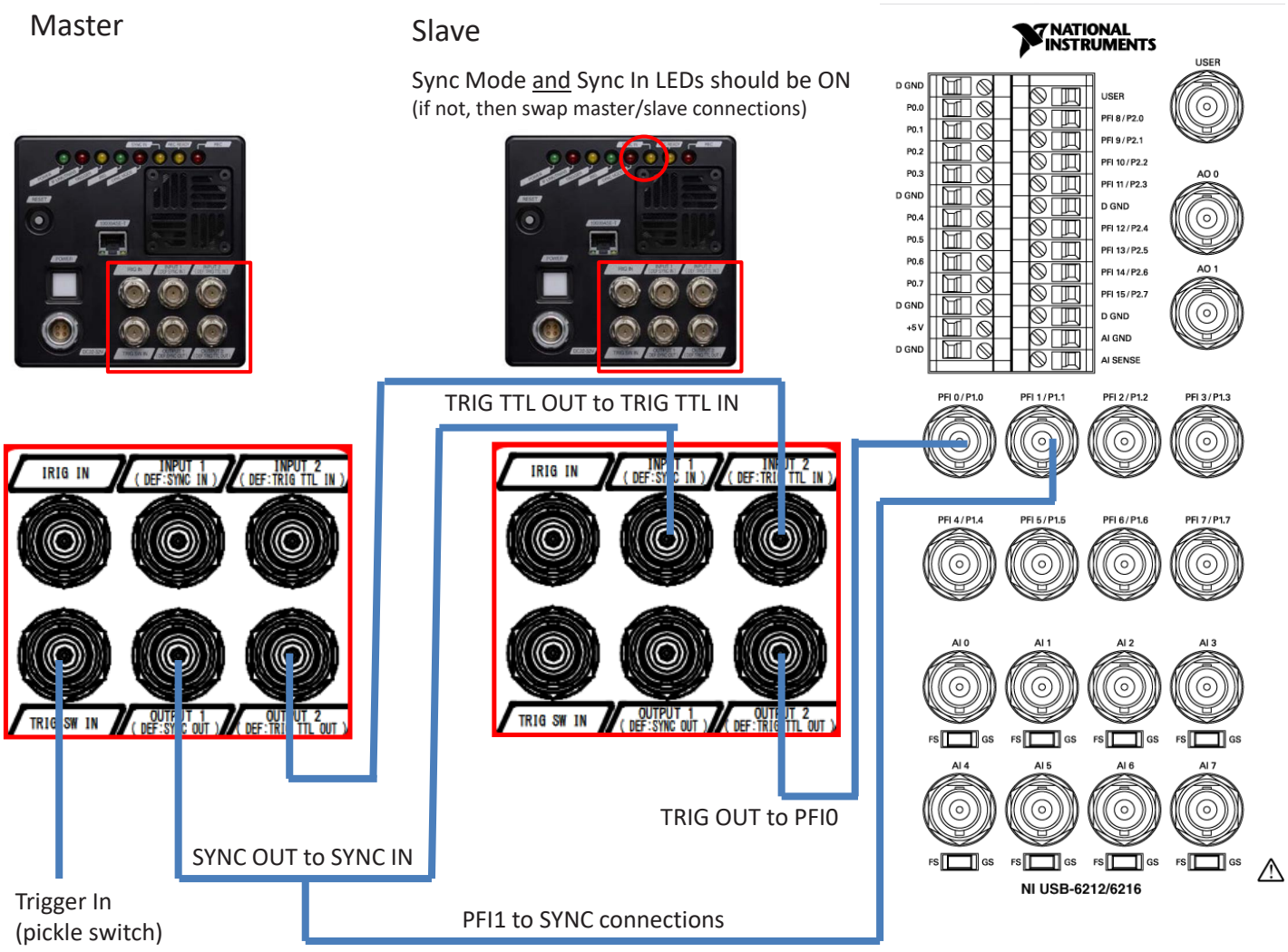
For multiple cameras, use an Ethernet hub to connect the cameras to the PC.

Synchronizing Cameras

Two hardware connections must be made.

- Connect the “General Out 1” from the selected *master* camera to the “Sync In” of the *slave* camera(s). Any camera may become the master.
- Connect the selected trigger source to the “Trigger SW In” (for make/break triggers such as pickle switches) or “Trigger TTL In” (for TTL triggers) of *all* cameras.

A wiring guide can be found on the following page. For the slave camera, the **Sync Mode** and **Sync In** LEDs should be lit if the correct configuration is made. If this is not the case, swap the master/slave connections.



Acquiring Calibration Images

To acquire calibration images, select the “Random” trigger mode from the Trigger Mode options; Set the number of frames to 1 in the spin box next to Random trigger mode. Then, click the trigger switch once for each calibration image. When complete, proceed according to **Saving Images** below.

Acquiring Test Images

To acquire test images, confirm that the cameras are synchronized. Once the cameras are synchronized, select “Record” from the System Mode options. Once the camera status reads as armed, use the relevant trigger mode (Start, Center, End, or Manual) to capture the images during the event.

For some tests, you will need to reduce resolution to achieve the frame rate necessary. DIC can be performed (with reduced spatial resolution and strain accuracy) at resolutions as low as 128x128.

Saving Images

To save images, select **Playback/Save** from the System Mode controls. Using the Playback feature located at the bottom of the Camera Controls, select the images to be saved from the image bar.

Selecting **Write to disk** will assign the image files the correct file naming and save them to the folder designated in the project options dialogue.

Other Considerations

- By default, the shutter speed will be set to the inverse of the frame rate – i.e., for a frame rate of 1000fps, the shutter speed will be set to 1/1000=1ms. Where significant motion happens from one frame to the next, this shutter speed setting will result in motion blur. For a typical test, the shutter speed will be a small fraction of the frame rate.
- For critical tests that use strobe lighting, it may be helpful to perform a 'dry run' to check lighting levels through the duration of the test. The selected lighting should result in neither overdrive at the peaks nor overly dim images away from the peak.
- Sometimes, a test must be run at reduced resolution (i.e., 256x64) to achieve the necessary frame rate. In this case, it is not necessary to calibrate at the reduced resolution. Acquire images at the full resolution, and calibrate in VIC-3D. Then, add the reduced-resolution speckle images. Click *Calibration… Adjust for cropping* in VIC-3D, and (for Photron cameras) accept the default values. This adjustment must be performed only once.

Troubleshooting

- **No cameras appear in the software:** check that the cameras are connected, that the cameras and hub are powered, and that the firewall is disabled. Confirm that the IP of the computer is set correctly.
- **Only one camera (of two) appears:** check that the two cameras are set with unique IP addresses.
- **DIC results are erratic or do not appear:** confirm that the camera 0/1 numbering remained consistent between the calibration and the actual test.

Support

If you have any questions about this document or any other questions, comments, or concerns about our software, please contact us at support@correlatedsolutions.com, or visit our website at support.correlatedsolutions.com.