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SOLUTIONS

Application Note

Triggering Methods

VIC-3D 11

2026

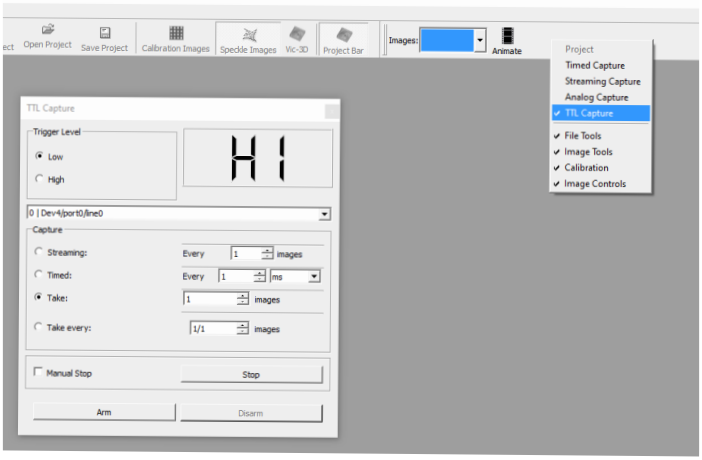
Triggering Methods

Introduction

While using the VIC-Snap low-speed system to gather data for further analysis, it is possible to trigger the cameras to obtain synchronized data using methods other than on-board software capturing options, such as Streaming Capture, Timed Capture, or Flex Capture. Additional triggering methods such as Digital Pulse Capture and Hardware Triggering are available for gathering data using signals from outside sources, all while remaining synchronized with the .csv data files collected during the acquisition process.

Digital Pulse Capture

Digital Pulse Capture, known as **TTL Capture** in older software versions, is a triggering method that uses a pulse signal sent to a compatible data acquisition device with digital inputs, such as the *National Instruments* USB 6212/6251, to software trigger **Timed** or **Streaming Capture** functions in VIC-Snap.

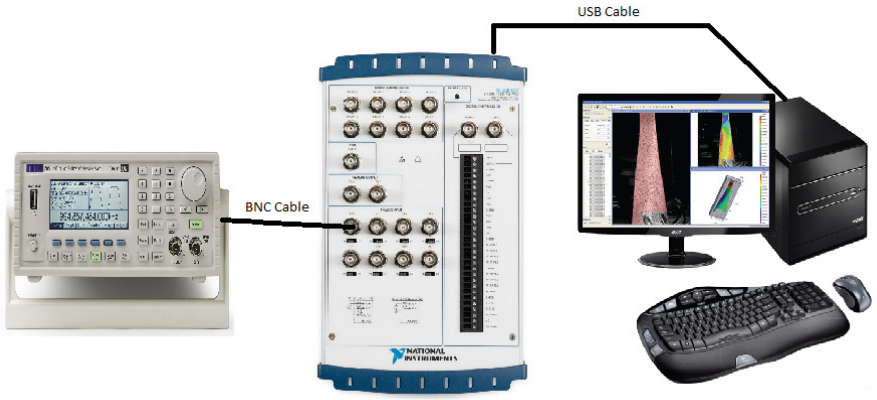


Hardware/System Requirements

- DAQ w/inputs
- BNC Cables for pulse signal
- TTL Pulse capability
  - Square wave signal
  - 2.5V minimum amplitude
  - 100ms minimum semi-period
  - Trigger Level: low voltage (min:0V, max:0.8V) or high voltage (min:2.2V, max:5V)

System Setup

- Plug the BNC cable from the pulse device into a digital input (i.e. PFI 0/P1.0, PFI 1/P1.1, etc.)
- Set the pulse device to generate a square wave signal capable of a 2.5V minimum amplitude and 100ms minimum semi-period.
- Open the TTL Pulse Capture feature and test the signal before running the test to ensure the signal will indeed trigger the software. (This can be done simply by watching the capture window to see if the signal switches from “HI” to “LOW”, or vice-versa depending on the trigger level selected, when the pulse signal is sent).



Either an outside TTL signal/trigger or a pulse that is automatically generated by a VIC-Snap compatible I/O DAQ can be used.

Select the corresponding line in *Advanced options>Data acquisition>TTL input line.*

Note that P1.0 on DAQ=port 1, line 0, P1.1=port 1, line 1, etc.

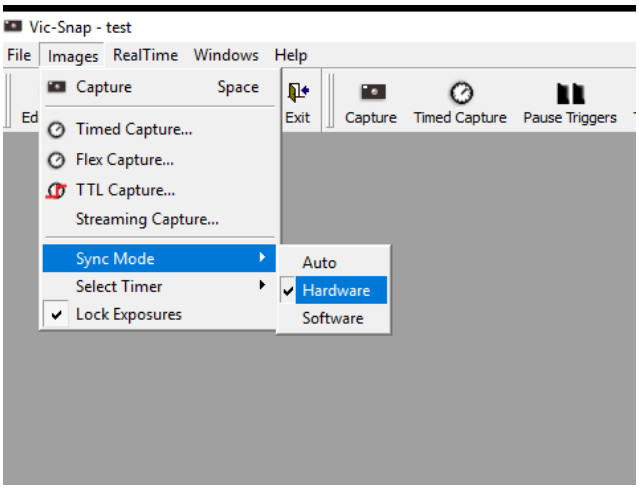
Using TTL/Pulse Option in VIC-Snap

- Right click on the toolbar->TTL Capture
- Choose capture option
  - Streaming: Captures photos at every nth interval (if you select 2, it will capture every other image, select 4 for every 4th image, etc.)
  - Timed: Captures photos at a set timed interval
  - Take: Captures a set number of photos
- Check the manual stop box if you would like to stop capturing manually.
- Select “Arm” and send the signal to begin the test.

It's important to keep in mind that the timing accuracy of the TTL Capture is on a scale of milliseconds, and that if a trigger method with more accurate timing is needed, Hardware Triggering might be more appropriate.

Hardware Triggering

Hardware Triggering is a method that uses a pulse signal, just like the Digital Pulse Capture feature, but instead by-passes the need for the data acquisition device and connects directly from the signal generator to the cameras. The DAQ can still be connect to the computer via USB for acquiring analog data.



Hardware/System Requirements

- Trigger Cables
- BNC T-Connector
- TTL Pulse capability
  - Pulse wave signal (preferably square wave)
  - 2.5V minimum amplitude
  - 100ms minimum semi-period

System Setup

- Connect signal generator to the cameras via BNC T-Connector and the cameras trigger cables.
- Switch the software to *Hardware* mode and select *Streaming Capture* as the capturing method.
- The software will default to *Armed* and the user can pause the triggers by selecting the *Pause* option on the tool bar.

Using Hardware Triggering Option in VIC-SNAP

- Select Images->Sync Mode-> Hardware
- Right click on the toolbar->Streaming Capture
- Cameras are armed and ready, send the signal to begin capturing images.

Using this method, the cameras will capture an image once for every pulse sent from the signal generating device. This triggering method will be more accurate than the Digital Pulse Capture, on a scale of microseconds, but will no longer allow the the capture features available with the Digital Pulse Capture.

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.