



Using an Olympus i-SPEED 3 Camera with MiDAS DA

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Abstract

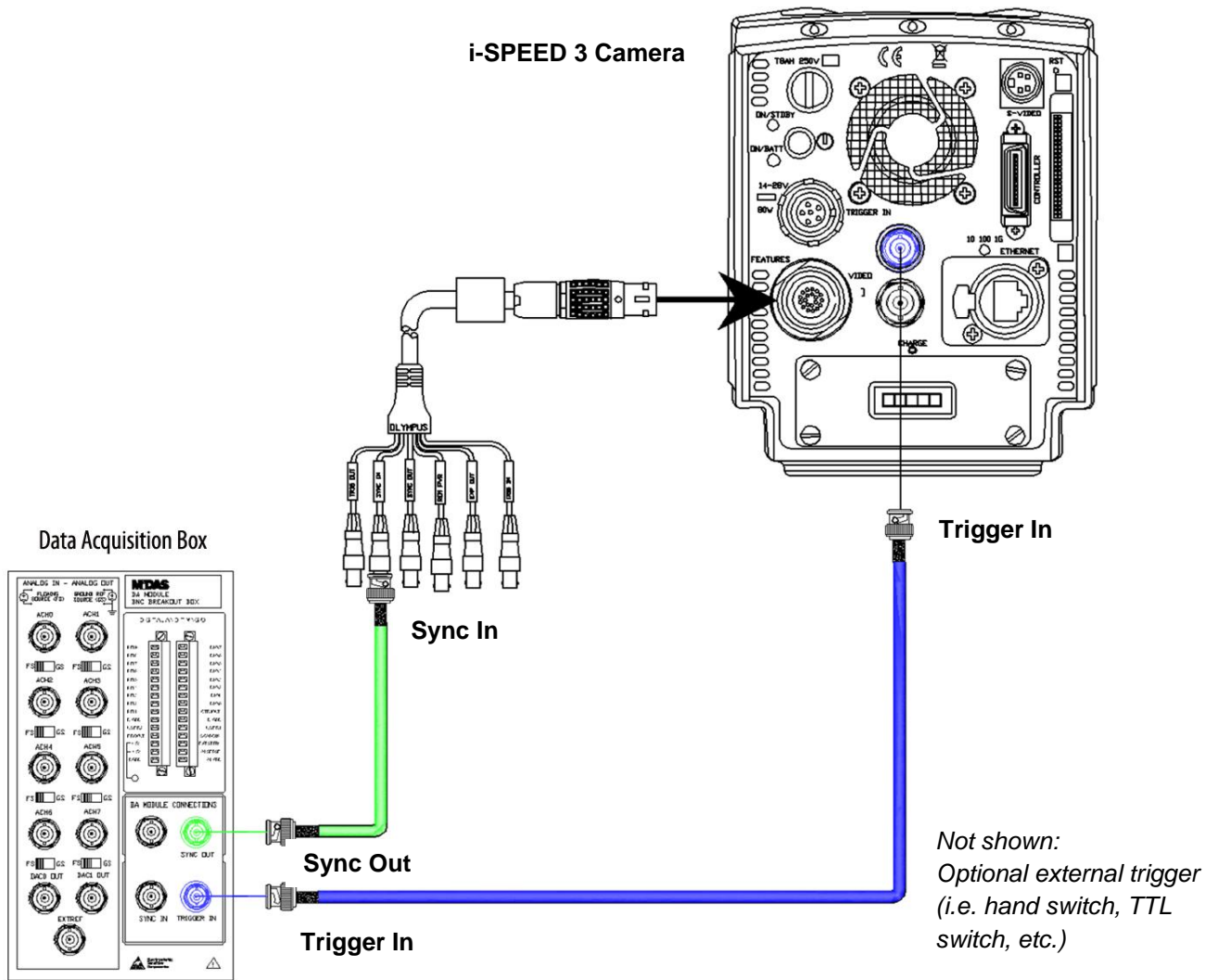
This camera connection guide describes the hardware connections and software settings for using MiDAS DA software with an Olympus i-SPEED 3 high-speed video camera running either the Control or Control Pro versions of the i-SPEED Software Suite.

Interconnect your i-SPEED 3 Camera and your MiDAS DA Breakout Box

1. Install your i-SPEED 3 camera per the instructions supplied by Olympus.
2. Install your DAQ collection hardware per the instructions supplied by National Instruments.
3. **Confirm that the jumpers on your MiDAS DA breakout box are properly installed and secure.**

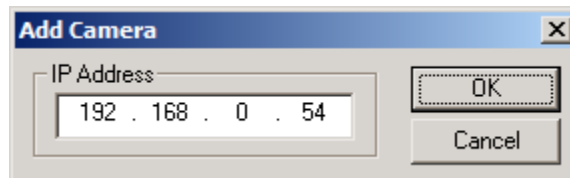
Note: Consult your MiDAS DA User Guide or the Xcitex website resource page for proper jumper locations.

4. Connect a BNC coaxial cable from the MiDAS DA breakout box connector labeled **Sync Out** to the connector labeled **Sync In** on the i-SPEED 3 feature connector cable.
5. Connect a BNC coaxial cable from the MiDAS DA breakout box connector labeled **Trigger In** to the connector labeled **Trigger In** on the i-SPEED 3 feature connector cable. If you are using an external trigger (hand switch or TTL switch), connect the external trigger to this cable.



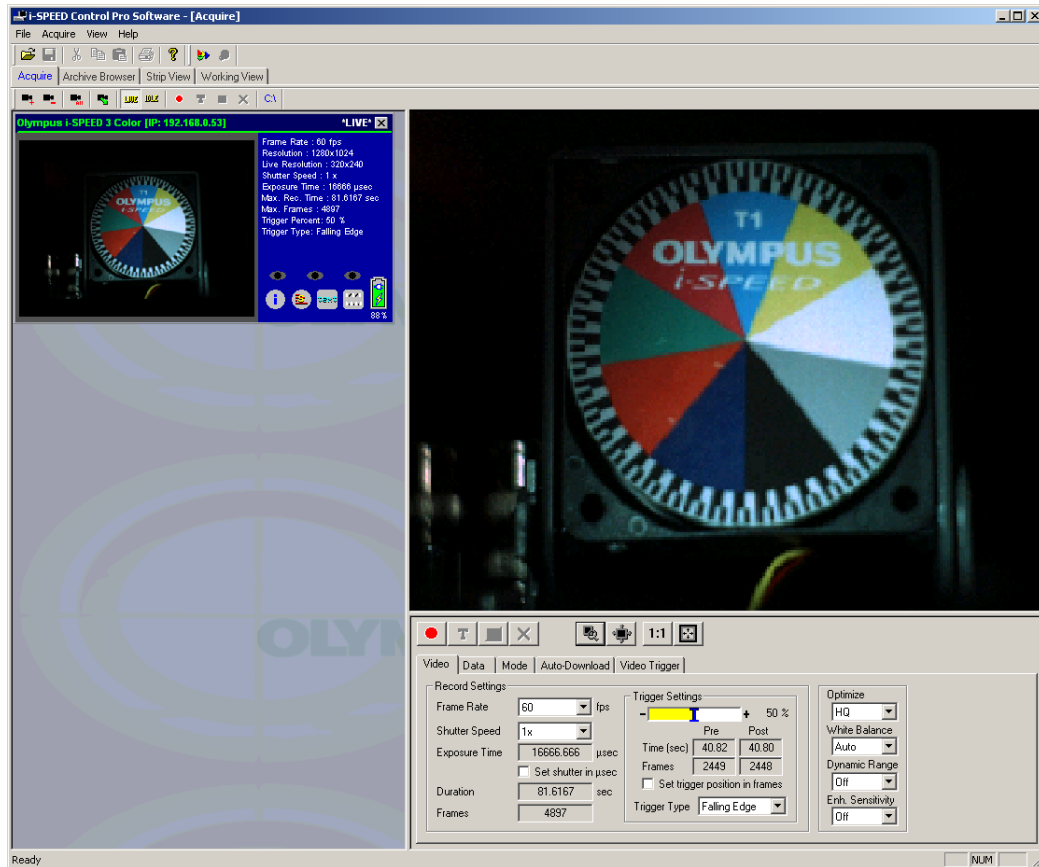
Connect your i-SPEED 3 Camera

6. Click the **Acquire** tab.
7. Click either the **Add a Camera** button or the **Add All Cameras** button. If you click the Add a Camera button, the following window will appear:



8. Enter the **IP address** of the camera you wish to add to the network. The IP address can be found in the Home/Config/Ethernet menu screen on the CDU. The typical default address is **192.168.0.54**. The IP address for the camera can be also be changed via the CDU. If you select


Add All Cameras, the i-SPEED Software Suite browses the network and automatically adds every i-SPEED 3 camera on the network with a valid IP address. This process may take some time. Once a camera has been added to the network, a thumbnail view of that camera appears in the left pane of the Acquire Window, as shown below:



Note: In the next two sections, you will be instructed how to configure both MiDAS DA and your camera software. The following settings are common to both systems; decide your measurement settings in advance:

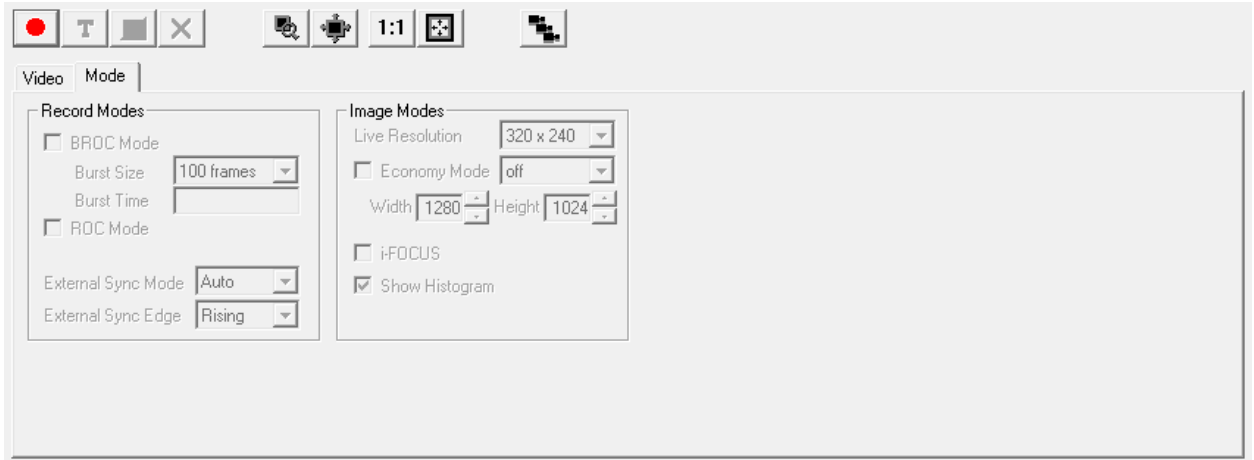
- *video frame rate*
- *data samples/frame (or total data sample rate)*
- *record duration*
- *trigger percentage*
- *rising or falling edge trigger.*


Configure and Start your MiDAS DA Software for Data Collection

9. Launch your MiDAS DA software.
10. Configure the number and type of sensor input channels.
Note: For more information on configuring your data channels please refer to the MiDAS DA User Guide.
11. Type in the video rate into the **Sync Out Rate (Hz)** field.
12. Type in the samples per frame in the **samples/frame** field (or set the total data collection rate).
13. Type in the **Record Duration** in seconds.
14. Set your trigger percentage using the slider bar or the **Trigger Percentage** field.
15. Select whether your trigger is rising or falling edge in the **Trigger Type** field.
16. Click the green **Record**  button at the bottom left-hand corner of the window. MiDAS DA will start the data acquisition and also begin sending sync pulses to the i-SPEED 3 camera.

Configure and Start your i-SPEED 3 Camera

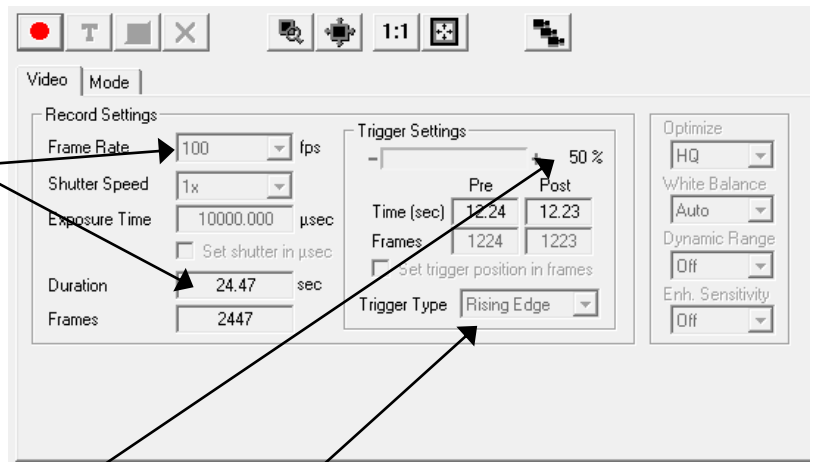
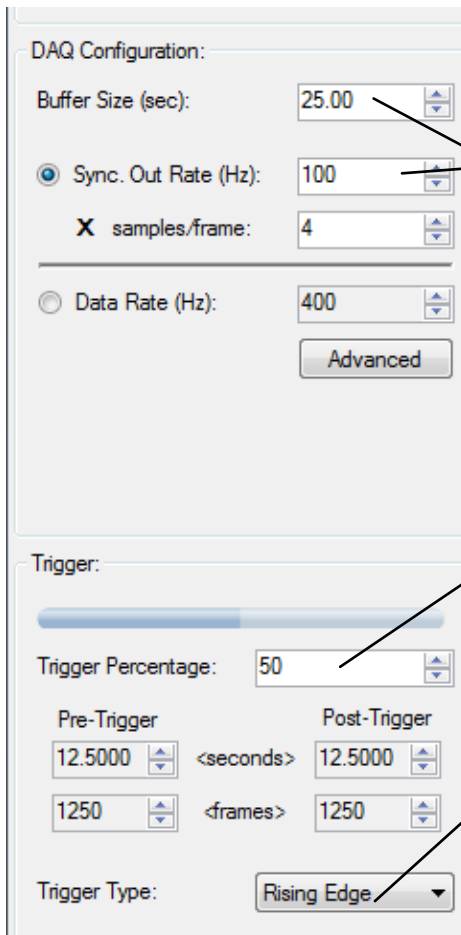
17. Launch your i-SPEED Control or Control Pro software.
18. Click the **Acquire** tab.
19. Click the **Video** tab.
20. Set the **Video Frame Rate**. Note that the video frame rate **MUST** match the sync out rate that you set in MiDAS DA in step 11. See the comparison of settings on the next page.
21. Set the **Shutter Speed**.
22. Set your **Trigger Settings**. Note that the number of pre-trigger and post-trigger frames must be less than the values you selected in step 13.
23. Select whether your **Trigger Type** is rising or falling edge.
24. Confirm that the **Duration** is less than or equal to the Record Duration set in step 13.
25. Click the **Mode** tab.
26. Confirm that the **External Sync Mode** is set to **Auto**. This will allow the i-SPEED 3 camera to receive external pulses for recording.




- Click the red **Record**  button at the top-left corner of the window. This will start your i-SPEED 3 camera recording video using the external pulses.

MiDAS DA Settings

Olympus i-SPEED 3 Software Settings



Record and Combine Video/Data

28. Trigger your video and data recording either by clicking the **Trigger**  button in MiDAS DA or by using an external trigger.


Note: For more information regarding triggering in MiDAS DA, consult the MiDAS DA User Guide supplied with your software or your Demo Kit instructions.

29. After recording, trim the video length to the specific frames of interest.

30. Save the video to a hard drive in AVI format.

*Note: You **MUST** save your video in AVI format, not hsv format. MiDAS DA does not recognize hsv formatted videos.*

31. Import your video into MiDAS DA by either using the drag/drop feature of MiDAS DA or by selecting the **Project** tab and selecting **Add Video...**

32. Once your video is properly imported, the Playback window will appear. Click the **Play**  button to simultaneously play your synchronized video and data.

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Xcitex Inc.
25 First Street, Suite 105
Cambridge, MA 02141 USA

