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Application Note

VIC-Gimbal Guide

2025

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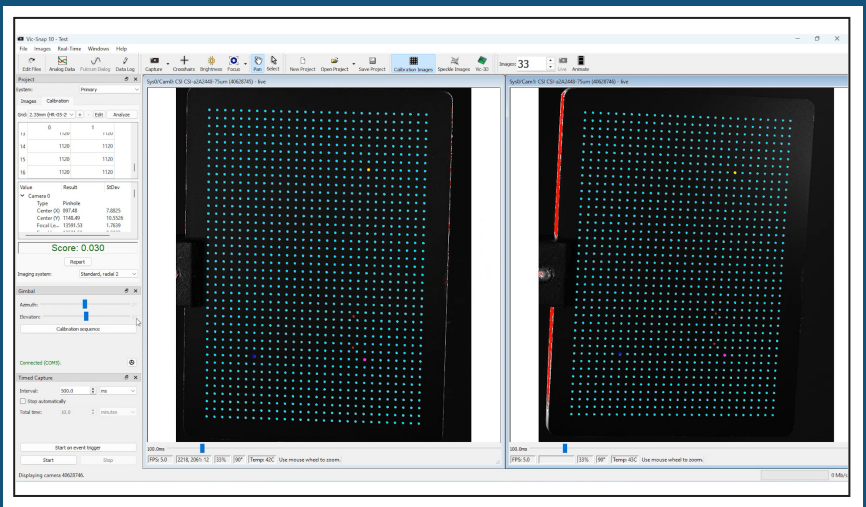
VIC-GIMBAL

Programmable, Automatic Calibration for Digital Image Correlation

In response to multiple customer requests for a new method to calibrate for digital image correlation that is automatic and repeatable, more suitable for high-resolution cameras and small fields-of-view, applicable to confined and hazardous testing areas, and seamlessly controlled with the VIC-Snap image acquisition software, the engineers at Correlated Solutions have developed the VIC-Gimbal.

This guide gives a brief introduction to the components and operation of the VIC-Gimbal.

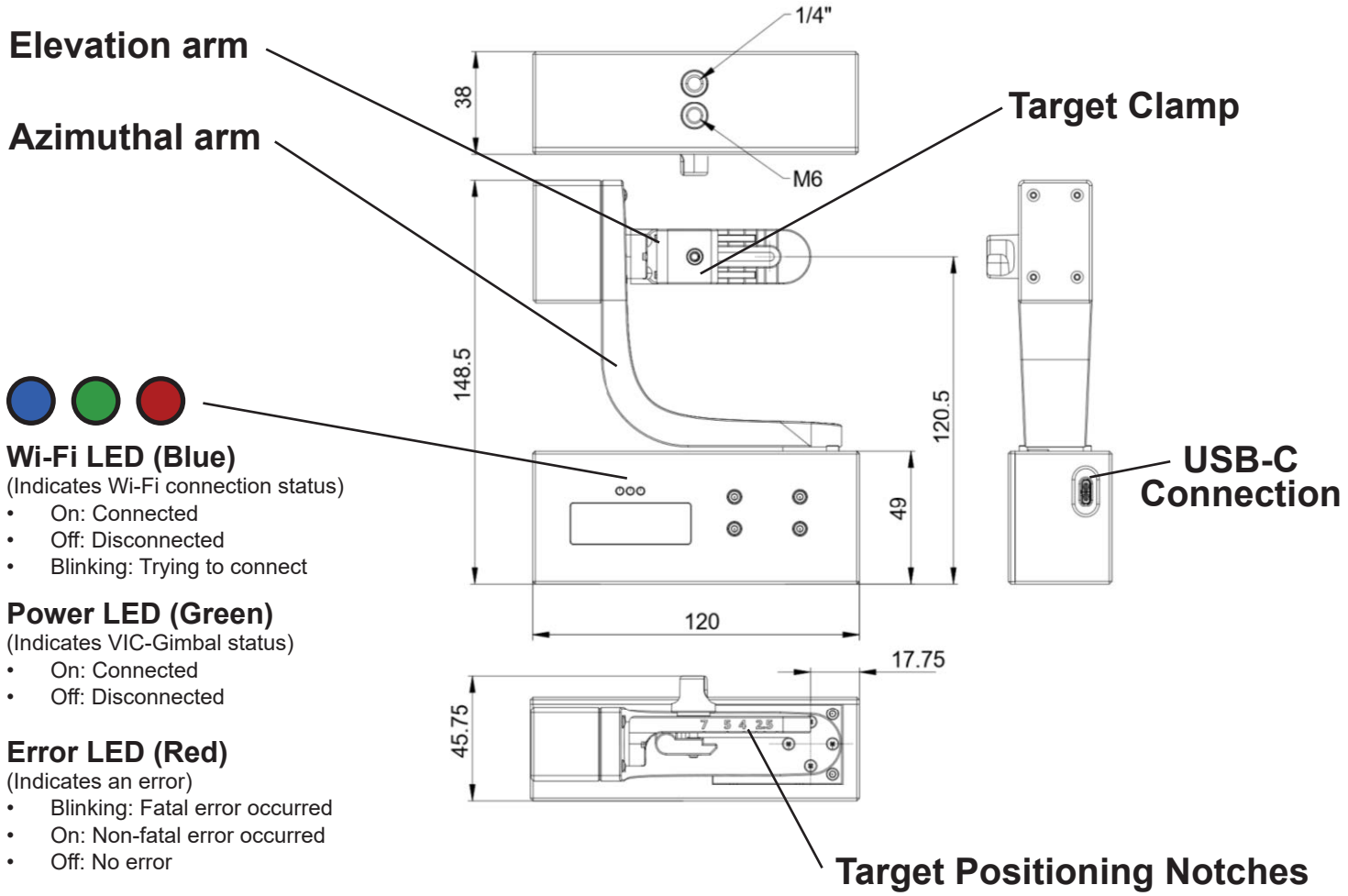


If you have any questions, comments, or concerns about using your DIC system, please contact our Support Team.

support@correlatedsolutions.com
1.803.926.7272

Technical Description

The VIC-Gimbal is connected by USB-C to the system computer for power supply and communication with VIC-Snap. It can be secured directly to a tripod using an M6 or ¼" mounting screw. For use in test frames and other ancillary testing equipment, the VIC-Gimbal features a magnetic base. Calibration targets are fixed on the elevation arm with the target clamp.



Wi-Fi LED (Blue)
(Indicates Wi-Fi connection status)
- On: Connected
- Off: Disconnected
- Blinking: Trying to connect

Power LED (Green)
(Indicates VIC-Gimbal status)
- On: Connected
- Off: Disconnected

Error LED (Red)
(Indicates an error)
- Blinking: Fatal error occurred
- On: Non-fatal error occurred
- Off: No error

Wi-Fi

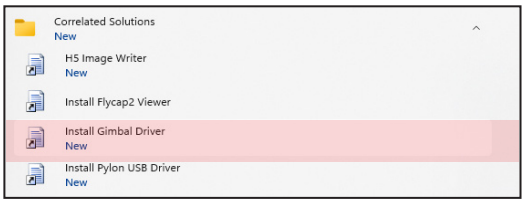
PLEASE NOTE:

Depending on local regulations, the VIC-Gimbal may also be configured to use a Wi-Fi connection. Check with your local distributor for more information about availability.

Wi-Fi

Getting Started

Software Setup & Requirements



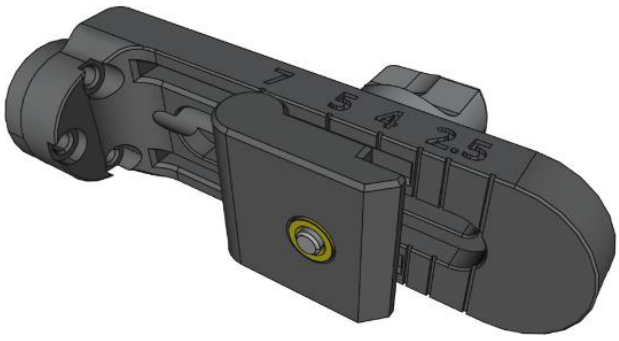
The VIC-Gimbal also requires the installation of an additional USB-Driver. Find that file in the Correlated Solutions folder in the *Start Menu*.

The VIC-Gimbal is intended to be used in combination with VIC-Snap (version 10 and later). To check the version and build number of the local copy, open VIC-Snap and click *Help* → *About* in the upper menu bar. If you need to update VIC-Snap, contact the Support Team.

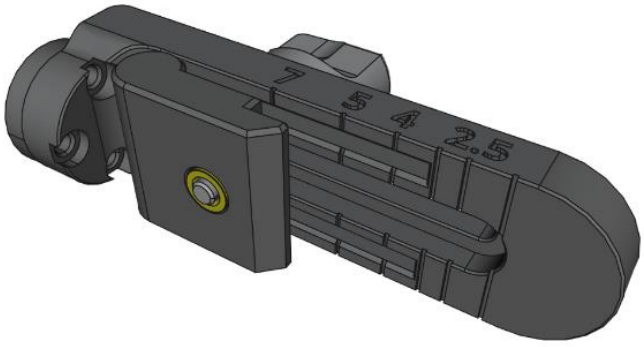
When the necessary software is in place, connect the VIC-Gimbal to the system computer using the supplied USB-C connection. This powers the gimbal and provides communciation with the VIC-Snap image acquisition software. If local regulations allow, Wi-Fi can be used in conjunction with an external power supply. Contact your local distributor for more details.

Fixing the Calibration Target

Shift the target clamp so that the inner corner of the calibration target aligns with the corresponding target size. This allows the center point of the calibration target surface to be placed on the optical axis ensuring the least amount of movement.



Position of target clamp for 4 mm Calibration Target



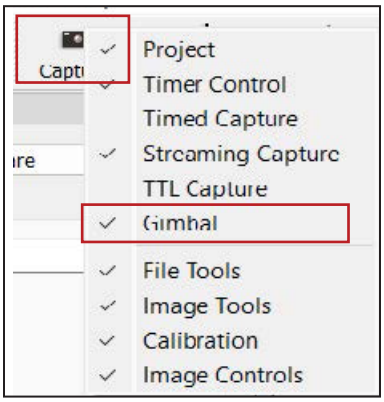
Position of target clamp for 7 mm Calibration Target

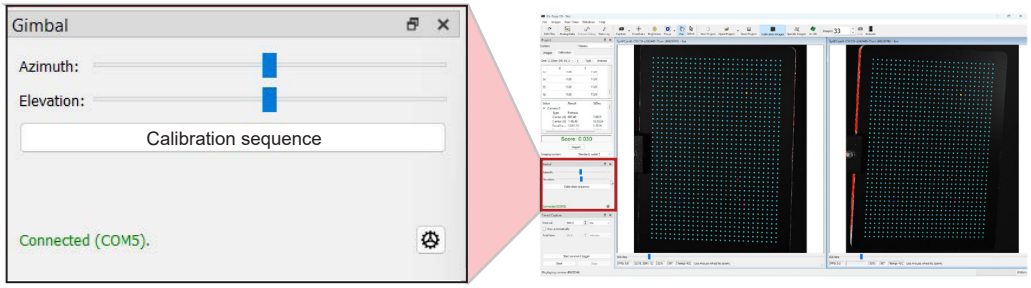
NOTICE!

To avoid damaging the calibration targets, do not overtighten the handle screw.

Connecting VIC-Gimbal

The VIC-Gimbal control panel is in the left side bar of VIC-Snap 10 by default. If it gets turned off, simply right click *Capture* in the top menu bar and select *Gimbal*.

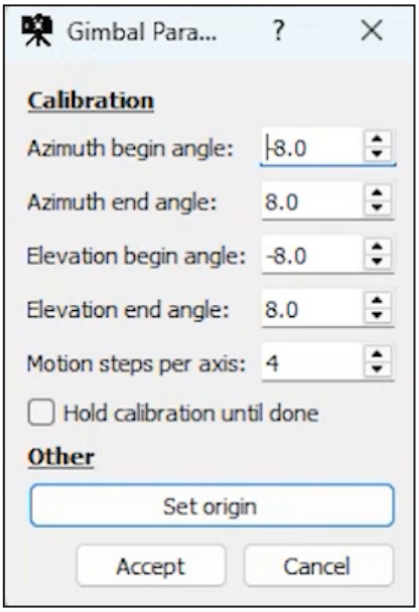


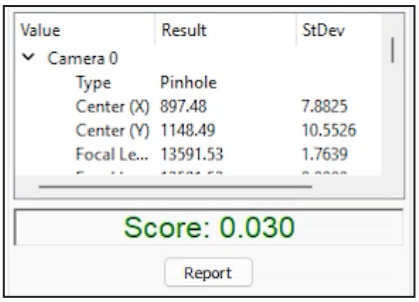


When VIC-Gimbal is successfully connected, the corresponding COM port is displayed at the bottom left of the control panel in green.

Performing a Calibration with VIC-Gimbal

1. Use the sliders for Azimuth and Elevation angles to estimate the depth-of-field (DOF). *Note: The DOF of the setup depends on many factors. We recommend a minimum angle of ± 10° in each tilt direction.*
2. Click the gear button ⚙ for access to additional controls.
3. If *Hold calibration until done* is checked, the program will acquire the full calibration image sequence before starting the analysis of the images.
4. To set the current Azimuth and Elevation values to the new origin: 0, 0, click *Set Origin*.
5. Set appropriate angles and click *Accept*.
6. To calibrate with a standard calibration target, make sure *Calibration Images* is selected in the top tool bar. Then, in the VIC-Gimbal control panel, click *Calibration sequence* to begin the calibration. If using a speckle target for a hybrid calibration, select *Speckle Images* in the top tool bar; the button text in the control panel will change to *Motion sequence.* Click to begin capturing the sequence.
7. As the system collects images, note that the image count is shown in the top tool bar, and the calibration score is updated in green in the side bar.
8. When the sequence is complete, the calibration information and score are clearly displayed in the left panel.





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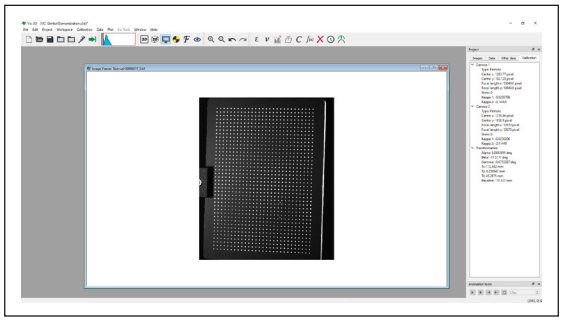
Reporting Calibration with VIC-3D and *iris*

1. Click the VIC-3D button in the top tool bar to import this calibration data directly into a new project.
2. Before continuing with testing, check the images to make sure they were imported correctly and check the calibration information.
3. When the testing is complete, researchers often include a written or visual description of the test setup alongside the stereo camera calibration details prior to displaying the test data. The International Digital Image Correlation Society (iDICs) has provided guidelines for the minimum reporting requirements for DIC calibration. See the image to the right for an example of a Calibration Report using the iDICs guidelines that was produced in the *iris* workspace within VIC-3D.
4. We invite you to view Episode 2 of our tutorial series 'Visualizing DIC" to see how this *iris* project was produced.



Technical Specifications

Model	VIC-Gimbal	
Version	V1-T2-7EU	V1-T3-7US
Weight	250g (350g incl. magnetic base)	
Interfaces	USB (USB-C) and Wifi* (*can be disabled by software on request)	
Target sizes	Standard clamp for EU targets with 2 to 7 mm grid spacing	Standard clamp for US targets with 3 to 7 mm grid spacing
Rotation angle	Max. ±50° with min. step size: 0.09°	
Mounting	M6 or ¼"threads; optional: magnetic base adapter attachable via a M6 thread, rubber coated, base Ø = 88mm	
Material	Polyamid PA12 (Nylon)	
Operation temperature	-5 °C to 40 °C	
Storage temperature	-15 °C to 80 °C	
Stall torque	max. 0.29 Nm (azimuthal) max. 0.1 Nm (elevation)	
Operating voltage	5V	
Max. power consumption	1A/ 5W	
Protection class	IP20	
Dimensions	148,5 x 120 x 38 mm	

Support

If you have any questions about the VIC-Gimbal or any other questions, comments, or concerns about your Correlated Solutions system, please feel free to contact support@correlatedsolutions.com, or use the QR code here to contact our Support Team.

For information on the regulations dictating Wi-Fi availability, please contact your local distributor.