

## Aicon DPA



This quick-start guide can be used for initial configuration, connection and basic operation of the AICON Move Inspect DPA Photogrammetry system within SA. For more details on instrument operation and configuration, please contact AICON directly.

### Hardware Setup

Set up the AICON MoveInspect system following the Manufacturer's directions.



### Software Setup

SA uses a built in SDK to work with the DPA system but the AICON DPA Pilot needs to also be installed on your machine. It would be best to contract the manufacturer directly for the recommend version for your system, but a version of the Pilot software can be access on our webpage here:

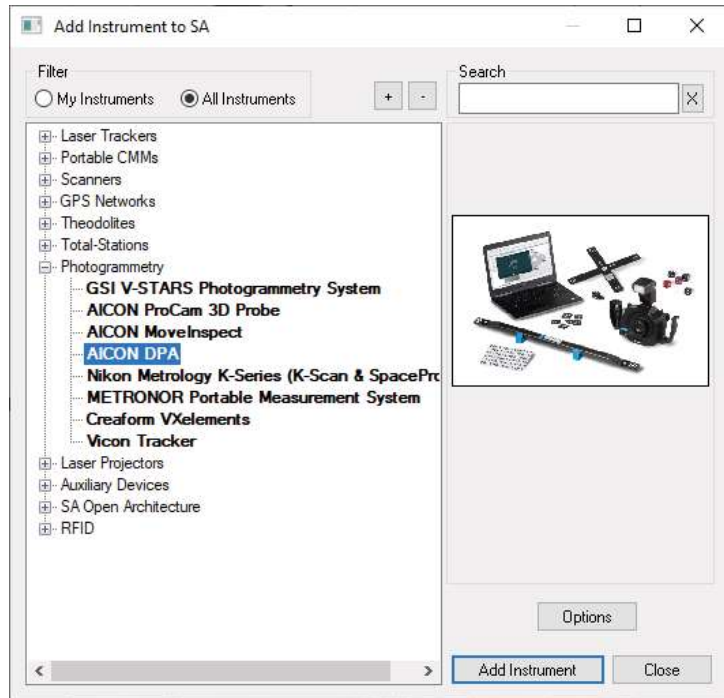
<https://www.kinematics.com/ftp/SA/Install/Driver%20Downloads/Photogrammetry/AICON/>

The DPA system requires a separate AICON license dongle for operation.

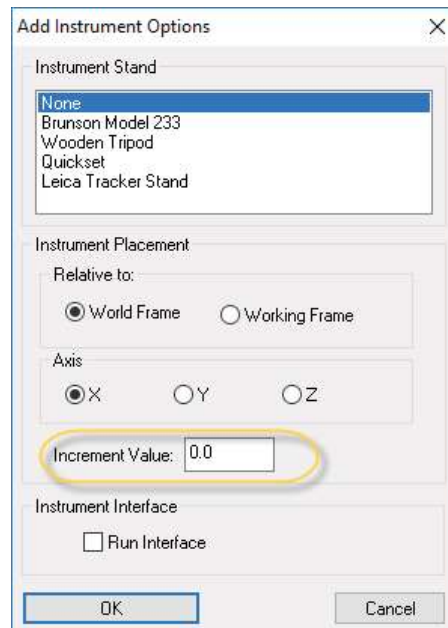
### Starting the SA Interface


1. Within SA select **Instrument > Add** and choose the AICON DPA System from the Instrument List (Figure 17-1). Press the **Options** button and ensure that the Increment Value is set to 0 (Figure 17-2). You may also want to include a tripod in the model because a graphical instrument currently is not available. This only needs to be done the first time you connect. Press the **Add Instrument** button to add the instrument to SA.

**Figure 17-1.** Adding the Aicon DPA system to a new SA Job file

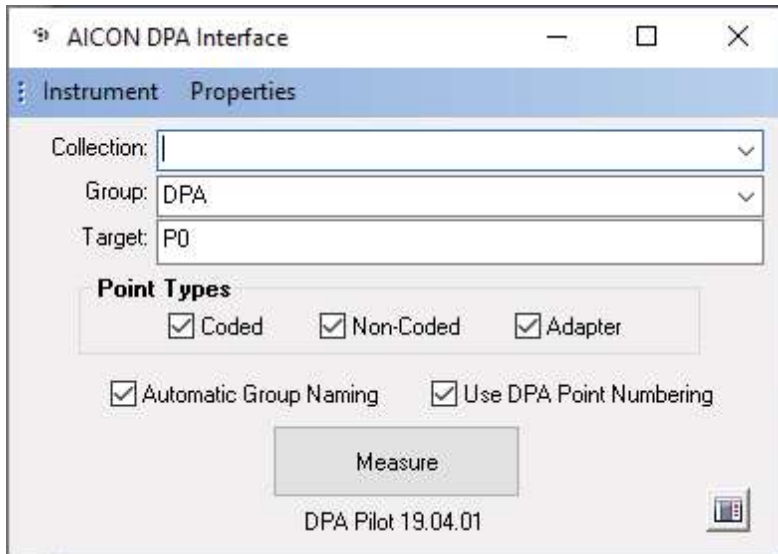


**Figure 17-2.** Instrument Placement Control



2. Start the instrument interface using **Instrument > Run Interface Module and Connect** or . The Aicon DPA system will open (Figure 17-3). If you see a “Wrong or missing license!” error check that the Aicon DPA dongle is plugged into the computer.

### Instrument Interface Specifics



**Figure 17-3.** The Aicon DPA Interface

The **Instrument** menu provides project management controls including the following:

- **Load Project.** Which will open a selection utility to select an available project. Once loaded the Measure button will become a Continue button that can be used to directly access the project.
- **Import Project.** This option imports the points from the selected project so that the data can be used within SA, but does not load the project.
- **Close Project.** This option exits the currently open project.

The **Properties** menu provides configuration tools for DPA including the following:

- **GUI.** Within the GUI selection is a set of display configurations including (Advanced, Shop Floor, Reduced, and Minimal). These settings change the display configuration of a project when it is opened providing successively reduced complexity an user options.
- **Component Gallery.** The component gallery can be accessed directly through this option. This provides easy of access for editing templates and components used within projects.

### Point Naming and Import Controls

An SA standard Collect, Group, and Target point name control is avail-

able as part of the DPA interface but is not needed most of the time with the default two options enabled:

- **Use DPA Point Naming.** Ensures the imported points will have the target index numbers as their names.
- **Automatic Group Naming.** This option with build separate groups for Coded, Uncoded, and/or Adapter points.

The Group and Target names entered will only be used if these options are disabled.

The Point Types control allow you to import only those point types of interest from the selected project. Only the checked options will be imported.

- **Coded.** These targets will be named in the range of 1-516.
- **Non-Coded.** These targets will be named in the range of 1,000 to 5,000
- **Adapter.** These targets are returned with numbers >10,000.

Press the **Measure** button in the SA interface to begin the DPA configuration and measurement process. If you have loaded a project the text will change to **Continue**.

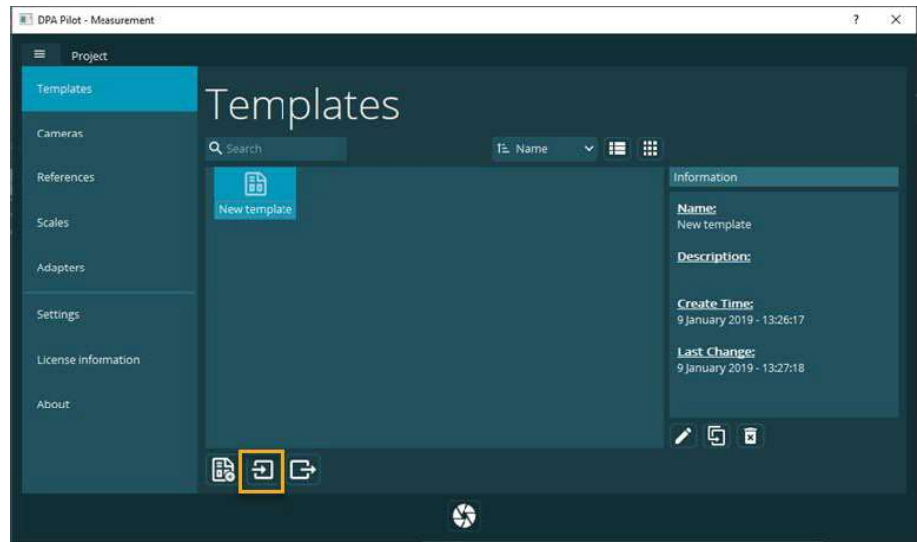
## Project Management Basics

### *Template Configuration:*

The first step is to either select an existing template, import one or build a new one. **Templates** are used to manage settings and components used in a project. Components include:

- **Cameras.** Camera type, settings and calibration information
- **References.** Points and know geometry used as a reference in a measurement (typically a reference cross).
- **Scales.** Like a scale bar scales are composed of 2 well known targets with a calibrated distance.
- **Adapters.** Adapters are defined constellations of points that are used to compute the position and orientation of reference points or frames.

**Figure 17-4.** Templates



Templates can be imported using the **import** button  highlighted in (Figure 17-4).

Each project has a defined template which includes the camera and accessories used. This template configuration can also be accessed from the **Properties>Component Gallery** menu.

*Image Import or Capture:*

The Camera referenced in a project defines the way in which images are imported. Image **Transfer Mode** can be set to the following options:

- Memory Card. Which allows for a system wide file browse and selection. Make sure the resolution of the camera that took the photos match that of the images or they will not import.
- WiFi Transfer directly. Which allows direct transfer and processing of images captured with a DPA Professional system + WiFi module.
- WiFi: C1. Which allows direct transfer and processing of images captured with a C1 camera.

**Camera configuration and connection**

The camera wireless connection should be setup as follows:

- The drivers for the camera are included in the DPA Pilot software which should have been installed initially.
- Turn on the camera and its WiFi connection and you should see the network available in your compute network control.



Note that the default password to connect to a C1 camera is “HMI-Aicon”.

- Once connected a new Camera device should appear in your list of Devices and Drives.

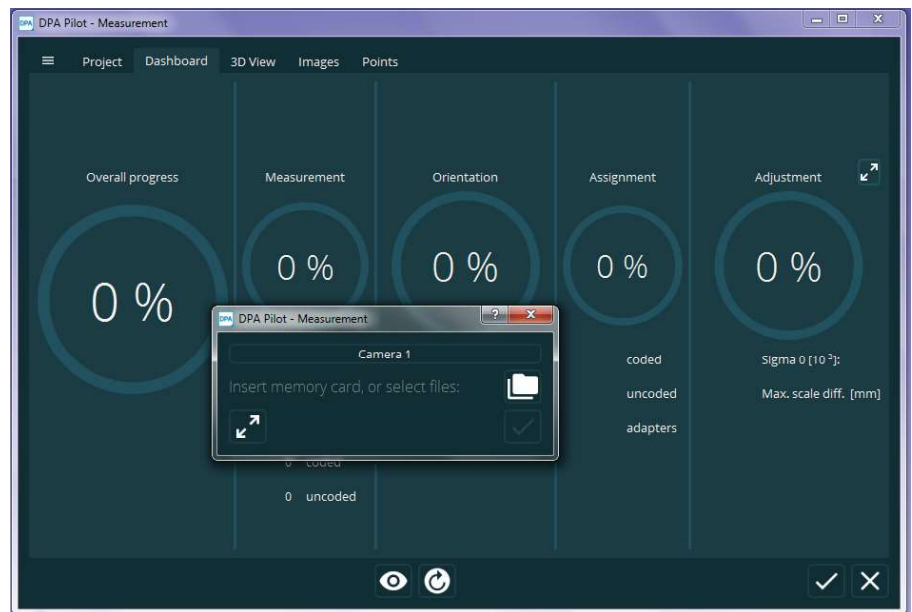
▼ Devices and drives (2) —



Canon EOS 5DS

### Basic example of importing data to SA

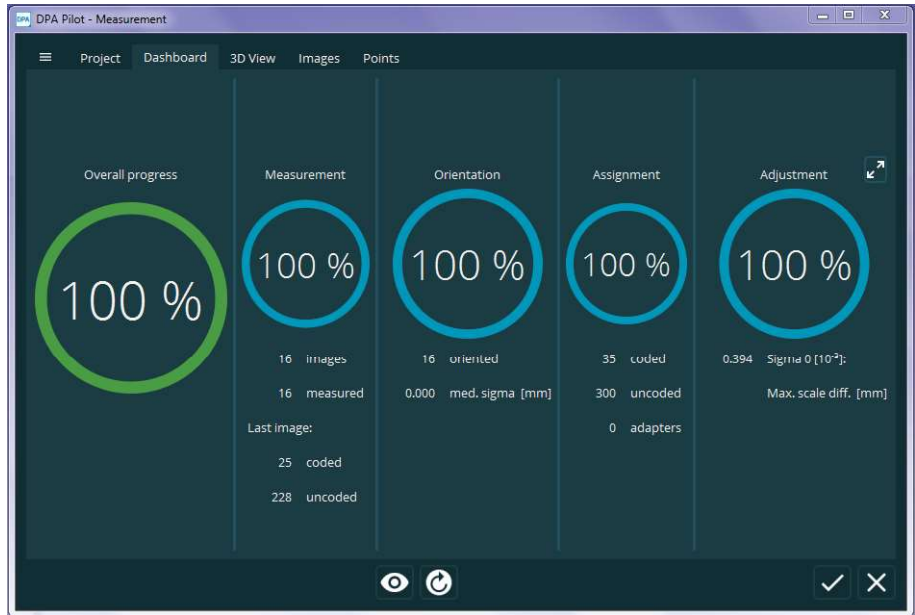
To work with an existing set of images, set your camera to Memory Card Transfer Mode, and begin a new *Measurement Project*. You will see the option to import images (Figure 17-5).




**Figure 17-5.** DPA Image Import

As soon as images are loaded the computation process should begin and the progress of this process is displayed on the dashboard (Figure 17-6).

**Figure 17-6.** Dashboard progress display.



Once the computation process is complete the images and points can be viewed within the PDA Measurement window on their respective tabs.

Pressing the accept check mark  at the bottom right side of the screen will pass the computed points to SA.

Below is an example set of points imported from the Car Door Tutorial file available from Aicon (Figure 17-7).

**Figure 17-7.** Automatic Group Naming as a result of importing points from an example DPA project.

