

Congratulations on your purchase of a DART simulator. You're on your way to more frequent and intensive firearms training. Before you begin, make sure that you have all the proper components so that you can follow these guidelines to set up and calibrate the system. Full documentation for DART can be found at **dartrange.com/help**.

Your DART system should be packaged with these components:

- DART Computer and Power Adapter
- Wireless Mouse (be sure to turn on)
- Wireless Keyboard (be sure to turn on)
- DART Filter Pack
- Projector
- HDMI Video Cable
- USB Flash Drive (containing a backup of your DART software)
- Speaker
- Audio Cable
- Tripod

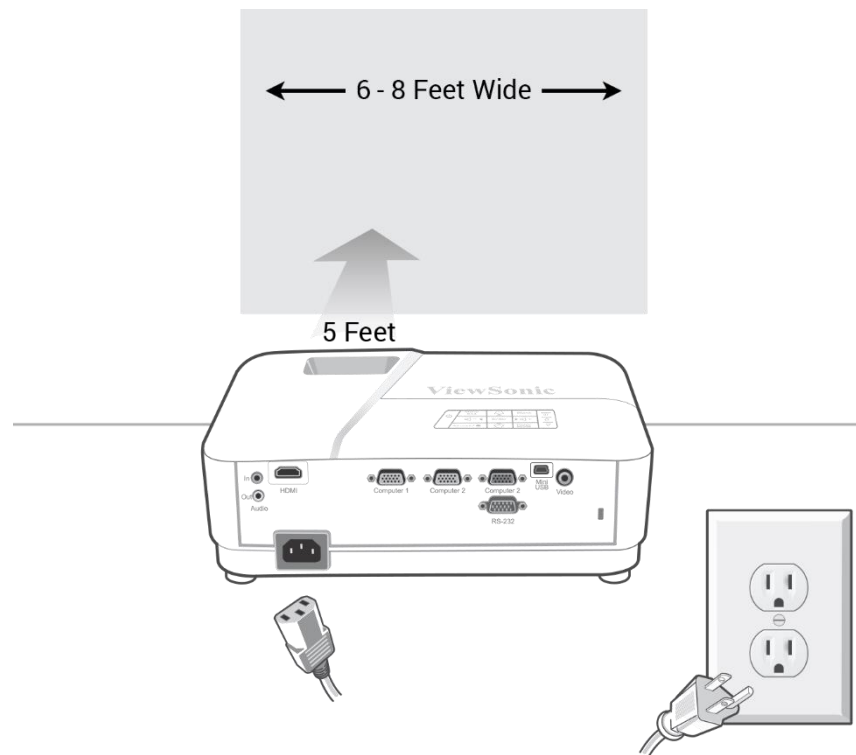
Your DART system has been designed for easy setup and take down. This guide will help you become familiar with the process. After setting up the system a few times, you should find the whole process takes only a few minutes. This document is also available as a PDF on your DART system.

Step 1: Set up the Projector

Position the projector on a table or floor approximately 5 feet away from a light-colored wall or screen. This should create a projected image approximately 6-8 feet wide.

Do not project on a whiteboard or other highly reflective surface.

Connect the projector's power cord to the rear of the projector and to a power outlet or wall socket.



Step 2: Set up the Speaker

Attach the speaker's power cord into the rear power jack of the speaker (Figure 1).

Insert the other end to a power outlet or wall socket (Figure 2).



Figure 1

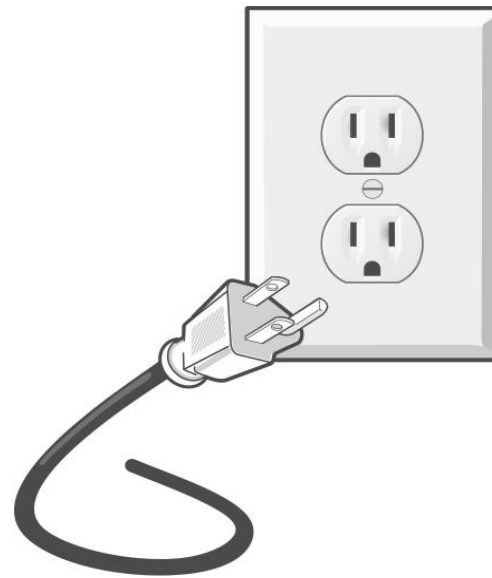


Figure 2

Step 3: Connect the Audio Cable

Insert one end of the audio cable to the LINE IN jack of the speaker (Figure 1).

Insert the other end of the audio cable to the AUDIO OUT jack of the projector (Figure 2).



Figure 1

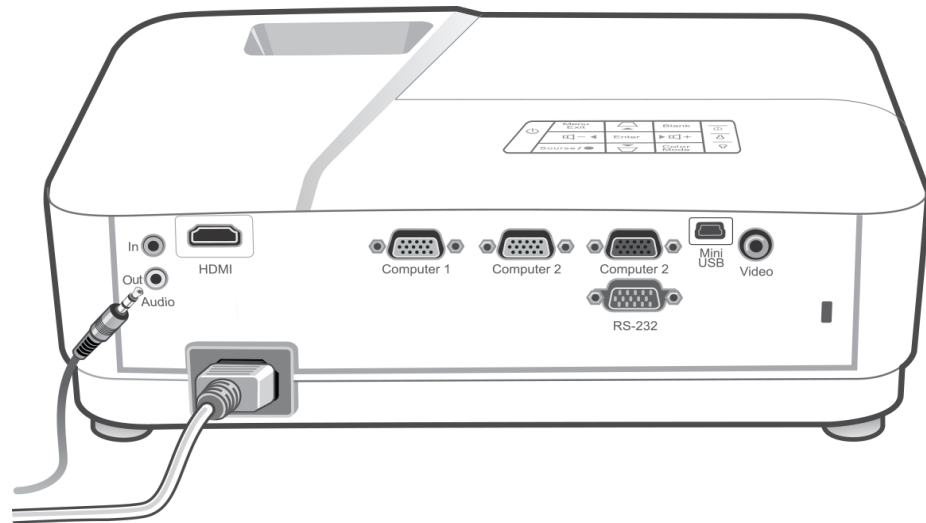


Figure 2

Step 4: Set up the DART Computer

Attach the DART computer to the tabletop tripod and lock it into place (Figure 1).

Connect the DART power supply to the rear of the DART computer and to a power outlet or wall socket (Figure 2).

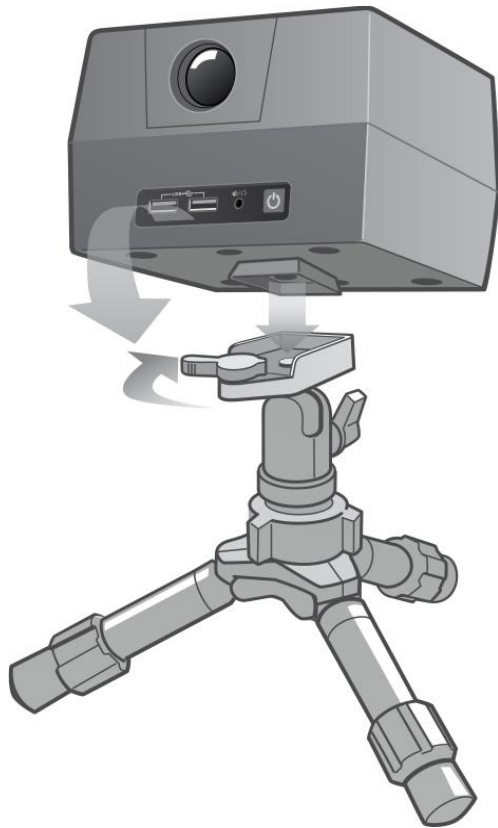


Figure 1

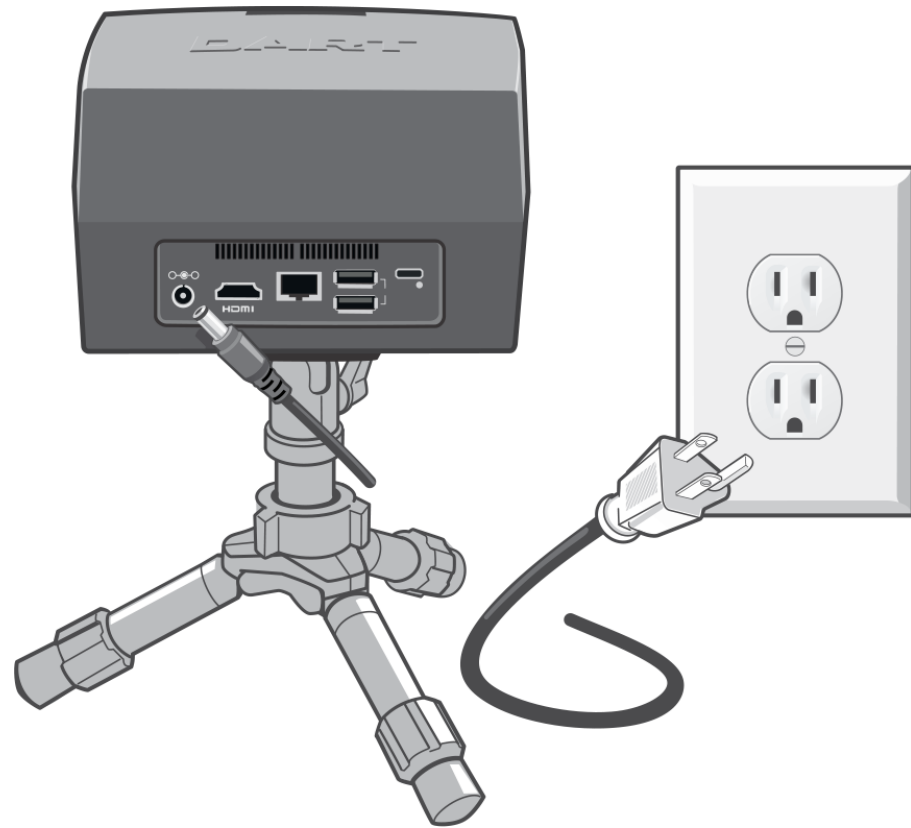
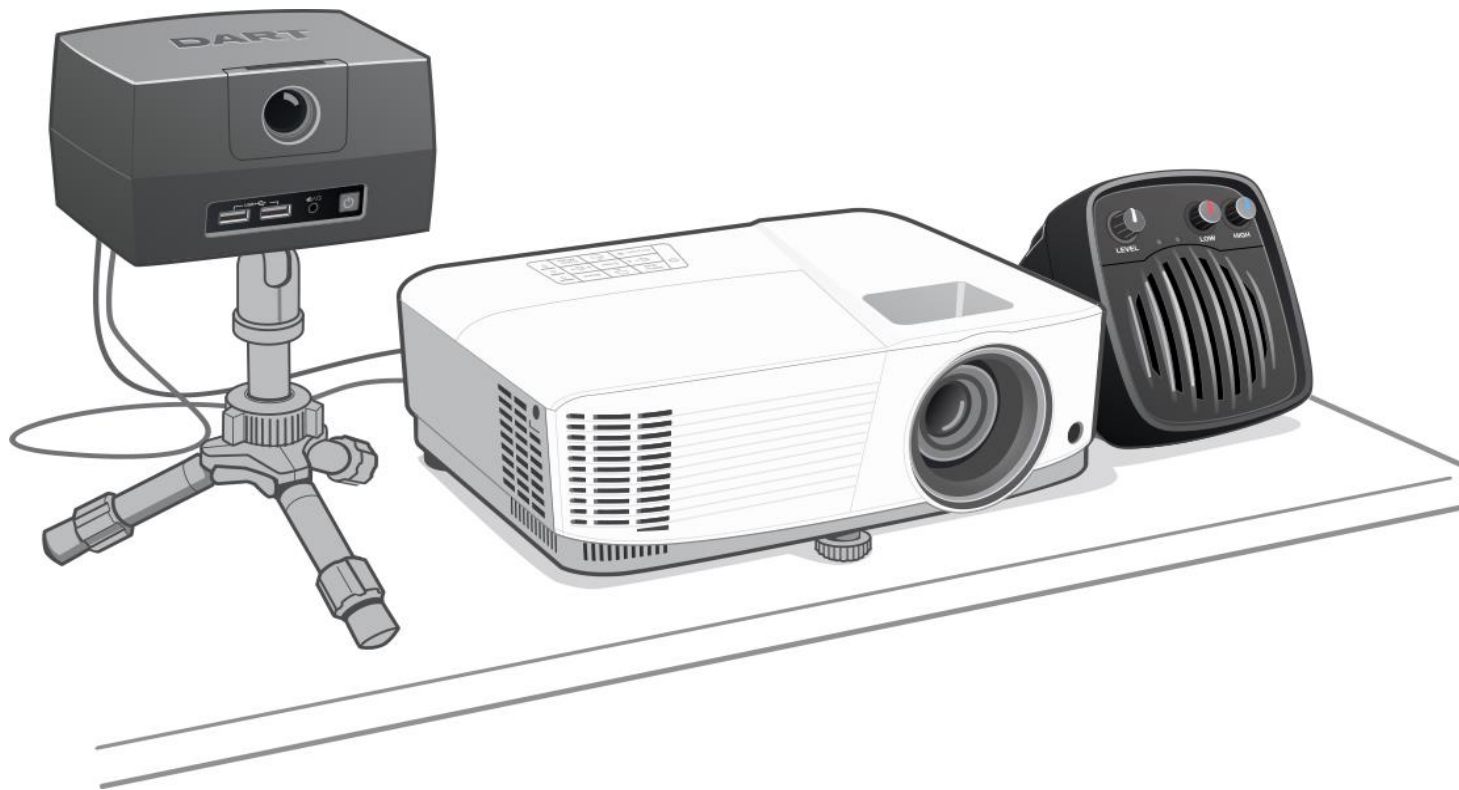


Figure 2

Step 4 (continued): Set up the DART Computer

For now, position the DART computer near the projector. We will adjust the exact position of the DART computer during the calibration stage.



Step 5: Connect the HDMI Video Cable

Connect one end of the HDMI video cable to the HDMI port of the DART computer (Figure 1).

Connect the other end to the HDMI port of the projector (Figure 2).



Figure 1

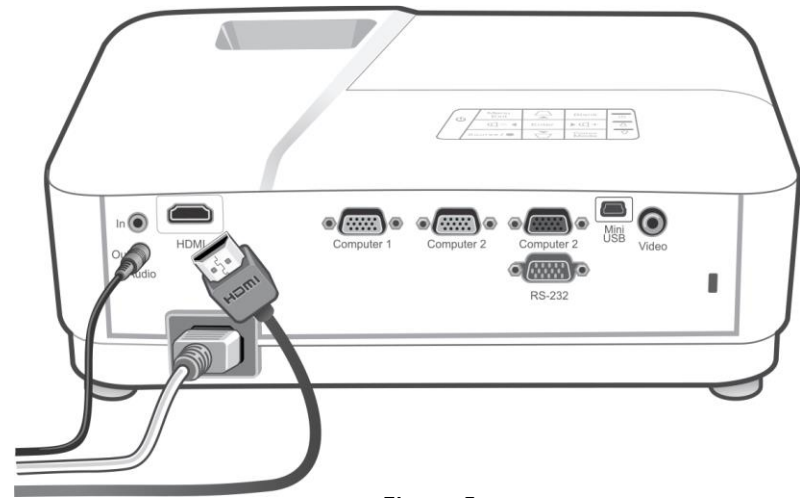


Figure 2

Step 6: Power on the Equipment

Turn on the power to the DART computer by pressing the square power button in the front of the unit (Figure 1).

Turn on the power to the projector by pressing the power button on the top control panel (Figure 2).

Turn on the power to the speaker by pressing the POWER toggle switch on the back of the speaker (Figure 3).

Make sure that the power buttons are ON for the mouse and keyboard.



Figure 1

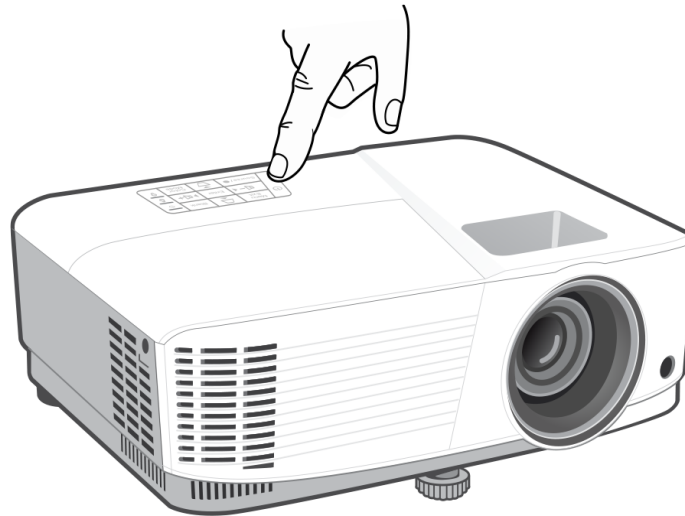


Figure 2



Figure 3

Step 8: The Calibration Process

Before using DART Range, it must be calibrated. This is a quick process that aligns DART's camera with the projector so that shots can be accurately tracked.

Before proceeding, it will be helpful to dim the room lights. DART does not require a dark room, but you should make sure that no direct sunlight is on or near the projected image.

Run DART Range by clicking the red DR icon located on the bottom taskbar.



Once DART Range has started, click the hamburger menu icon at the bottom left of the screen and select Setup.



Note: You can also go to the Setup menu by pressing the F4 key.

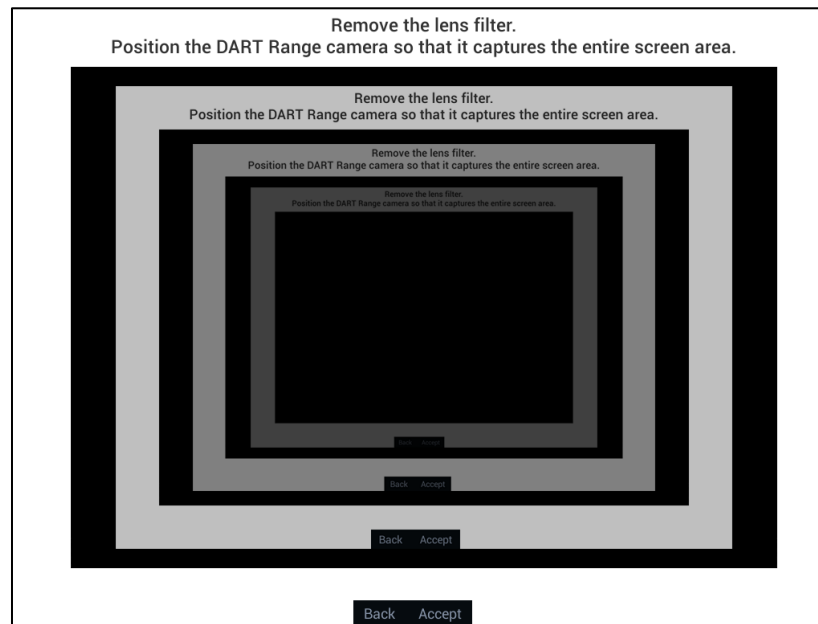


Click the Calibration button.

Step 9: Camera Alignment

The projected image will display a picture-in-a-picture view. You will need to position the DART computer so that its camera captures the entire projected image as shown below. This may be a foot or two behind the projector. You can rotate the DART computer by loosening the butterfly bolt on tripod head and rotating the DART unit. Once the position is correct, tighten the tripod head.

Note: This will be a little tricky the first couple of times you do it because you will be adjusting the DART position while looking at a mirrored image. However, after a couple of times you will get the hang of it.

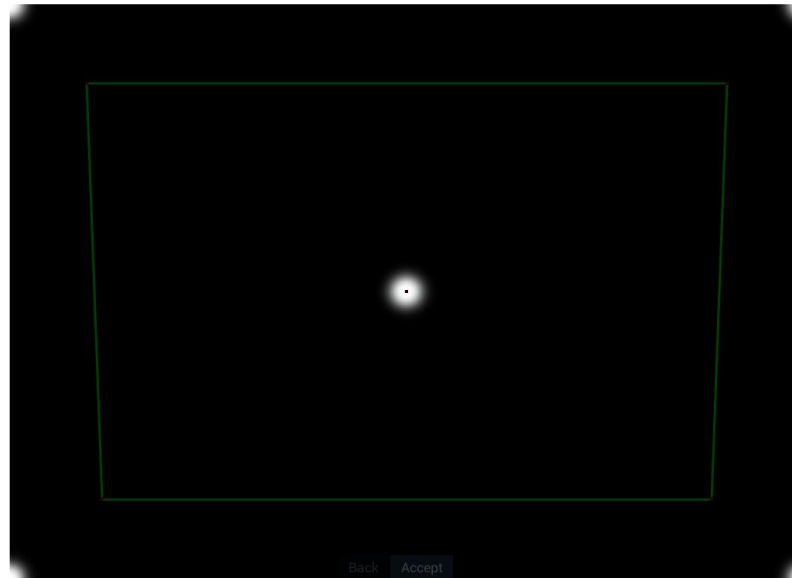


Important Note! Make sure that the lens filter is not in the DART computer for this stage. If the projected image is black, it is likely that the lens filter is inserted. It must be removed for this stage of calibration.

Once DART is correctly positioned, click the Accept button at the bottom of the screen to move to the next step.

Step 10: Calibration

The projected image should show four partial white circles in each corner of the screen and one full circle in the center. You should also see a green rectangle.



Once you see the green rectangle, the system is calibrated. Click the Accept button to move on to the next step.

If the program has difficulty drawing a rectangle, it probably means that it is detecting areas of the screen that are brighter than the calibrations circles. This can happen if the camera sees areas of bright light such as an open window or light bulb. It can also happen if something is blocking the camera's view or if the camera is too close to the screen and unable to see the corners of the projected image. If you are unable to resolve the problem, refer to DART's online help center at dartrange.com/help for a detailed description of the calibration process.

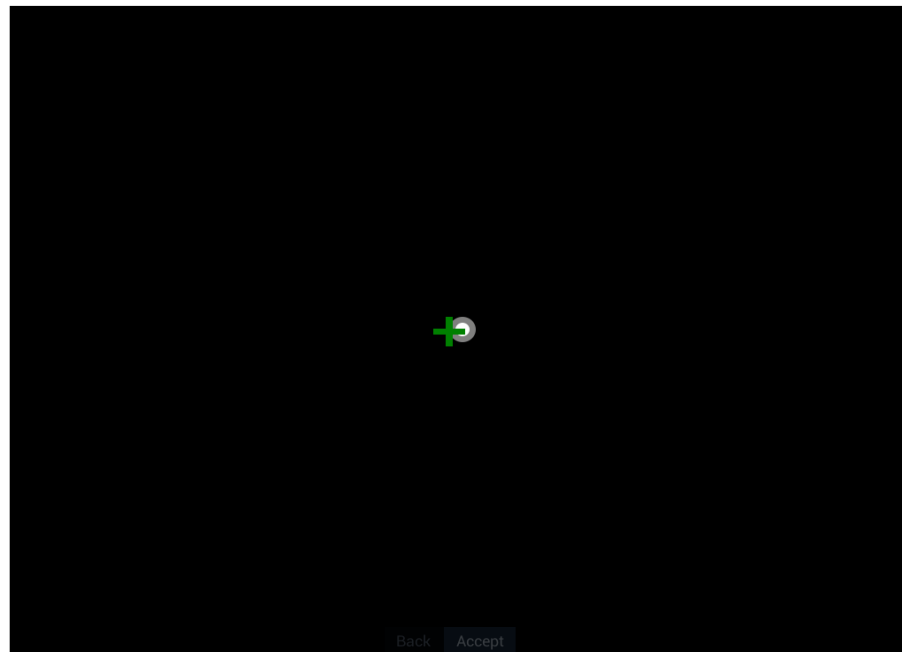
Note: Depending on the brightness of your projector, the Accept button at the bottom of the screen may be too bright. In this case you can press the + and – keys of the keyboard to adjust the brightness of the screen buttons.

Step 11: Distortion Correction

If it were possible to line up the camera lens precisely with the projected image, you would get a perfectly uniform rectangle. Since the projected image itself will not be a perfect rectangle, and because the camera will be positioned to the side or behind the projector, the green rectangle you see will likely have slanted lines.

This final step will make small adjustments to the calibration to compensate for any offset in the projected image.

The program will display a series of five small white dots (one at a time). Once the program recognizes a dot, it will draw a green calibration cross on or near the white dot. This will happen almost instantaneously. Once you see the green cross, click the Accept button to move on to the next one.



Once all five dots have been detected, the calibration process is complete.

Step 12: Installing the Lens Filter

Once calibration is complete, it is time to install one of the lens filters that came with your DART system.

If your training weapon uses an invisible infrared laser (the most common), use the black lens filter. If you are using a training weapon with a red visible laser, use the red filter.

Simply drop the filter into the slot on the front of your DART computer.

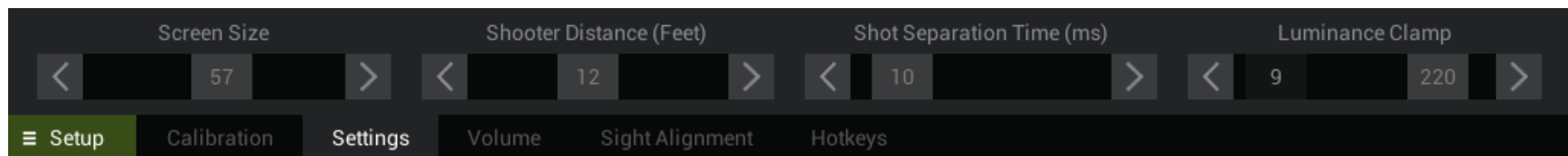


Step 13: Final Software Adjustments

Ideally, we want the projected targets to be the same size as actual targets taking into account their distance from the shooter. Two things have a bearing on target size: the overall size of the projected image and the distance of the shooter from the screen. The Settings options under the Setup menu allow you to set these values so that the system can draw targets at the correct size for your particular installation. Click the Settings button to begin.

Screen Size

The Screen Size slider will adjust an orange graphic projected on the wall or screen. Move the slider until the projected orange graphic measures one foot across. It should be close to one foot but does not need to be exact.



Shooter Distance

The Shooter Distance slider should reflect the general distance of the shooter from the screen in feet. Many DART courses encourage or require shooter movement, so select an average distance. This does not need to be precise.

Once calibration is complete, you should not need to calibrate again unless the DART computer or projector are moved.

Calibration Tips

Calibrating the DART system should be easy if you follow a few basic rules. The two most common problems during calibration are excessive room light and the position of the projector and DART unit.

Placement of the Projector and DART System

Ideally the screen size should be between 6 and 8 feet wide. This generally requires the projector to be 3-4 feet from the wall or screen. Make sure that the projected image does not spill onto the floor or ceiling. If you are projecting on a wall, try to avoid light switches and electrical sockets as the shiny plastic cover can reflect light back into the camera and interfere with calibration. For this same reason, do not project onto a whiteboard. If the projector is too close to the wall or screen it can cause the image to be too bright for calibration. This is especially true with bright projectors that have more than 3,000 lumens like the one included with your DART system.

Generally, the DART system should be placed about 1 foot behind the projector. It is critical that the DART camera sees every inch of the projected image.

Sunlight

There should be no sunlight in the training room. This is because sunlight contains a lot of infrared light, which is what DART uses to find and track shots fired from your training weapons. If you turn off all the lights in your training room (including the projector), and you can still see, then there may be enough sunlight to affect calibration and shot tracking. If your room has excessive sunlight, you will need to cover any windows to block sunlight from coming in the room.

Direct Light in Camera View

Another lighting issue is any direct light source within the view of the camera. This may be a lamp or window - even an LED clock or power light on a computer. Try to remove any light source, other than the projector, that can be seen in the camera's view. Also watch for security cameras which emit invisible infrared light.

Light Falling on the Screen

The last thing to watch for is any bright light shining directly on the screen. This may come from overhead ceiling lights, track lights, or light from a window. Eliminate any harsh light from shining on the screen or wall.