

Short Throw Camera Setup Guide

This guide will cover the setup and calibration of the optional Smokeless Range® Short Throw camera. This is a supplemental guide so you should still watch the Smokeless Range® Getting Started video or look through the Smokeless Range® user guide for general setup information.

General

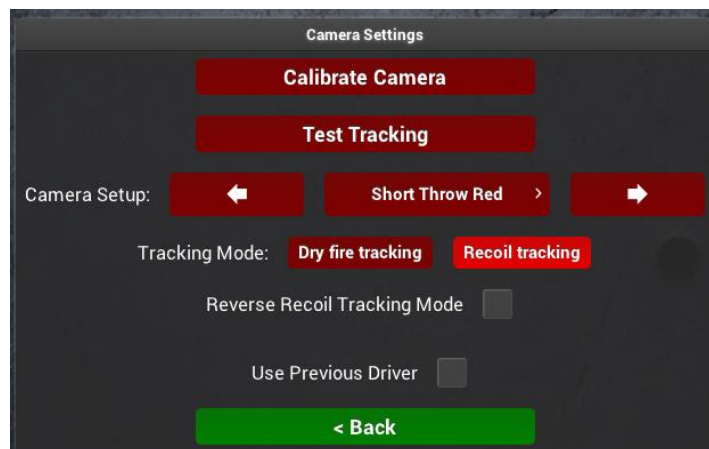
The short throw camera is designed to match and be used with a .5:1 short throw projector. This means the projector and camera will be located half the width of the projected image away from the screen. For example, an 8ft wide image would locate the front of the projector and camera 4ft back from the screen. It can be used with other throw distance projectors, but it will then not be located with the projector.

Use the Red Filter

The Red Filter is the normal filter to use for 99% of setups and should be the first one you try using. Using the Red Filter you can track both Red and IR lasers. We use the Red Filter in all of the trade shows we go to. The IR filter is only provided for the rare instance that it could be needed due to extreme situations.

Camera Setting

To use the short throw camera, you will need to select the proper camera driver mode in the Smokeless Range Camera Settings. Run the Smokeless Range and click on the Camera Lens icon in the upper right area of the menu. In the Settings menu use the arrow buttons or click on the Camera Setup button in the middle and select the Short Throw Red option. (This is referring to the color of the filter and not the Red or IR laser you are using.) (The Red filter works with both Red and IR lasers.)



Camera location

The short throw camera (ST Camera) has a special lens and lens mount that has been modified to remove both the lens distortion and perspective distortion to provide very accurate calibration and tracking from a short throw setup.

To ensure you get the most from these modifications the camera needs to be close to level with the bottom of the screen and centered left and right as pictured below. It should also be pointing directly at the bottom of the screen and not angled looking up at the middle of the screen to ensure a nice uniformly rectangular camera image.



Ceiling Mounting

The ST camera can be ceiling mounted as well as long as it is mounted level with the top of the image and centered left and right in the same fashion as when floor mounted. The filter holder plate must be flipped when ceiling mounting the camera. Remove the 4 screws around the lens holding the filter holder in place, remove and rotate the filter holder 180 degrees, then re-install the 4 screws making sure to not overtighten them.

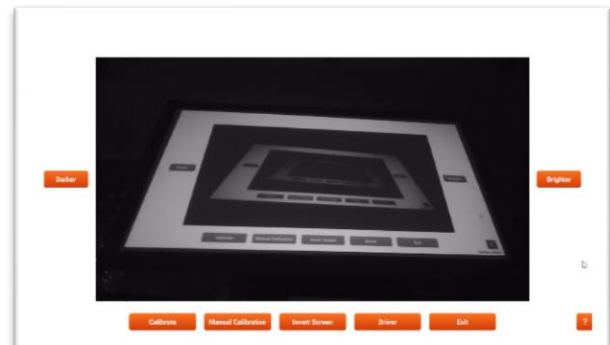
Calibrate the camera

1. Click the Camera icon with the red pulsing ring in the upper right area of the Menu.
2. Adjust the brightness of the camera image using the Darker and Brighter buttons.
3. Align the camera image so that the entire projected image is visible and centered in the camera feed box as pictured below.

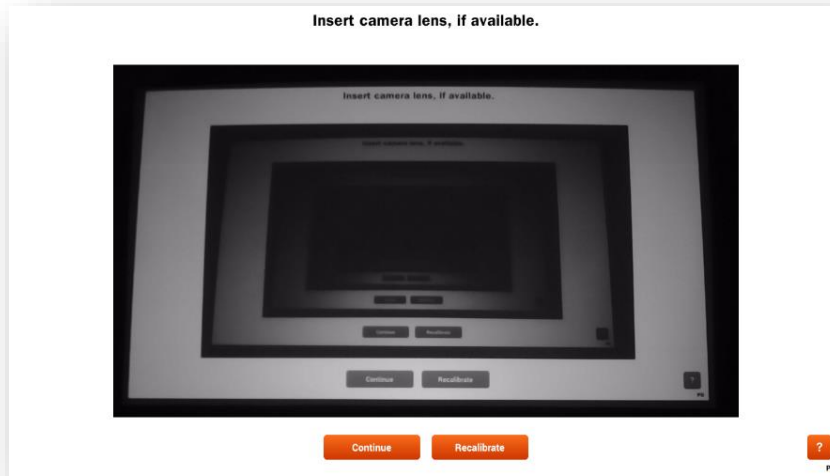
The image should look like this



Not like this



4. Now click the Calibrate button to start the calibration process. This will flash a series of dots and partial dots across the screen. It is important to not shoot a laser on the screen or walk in front of the screen during this portion.
5. Then the Pause to insert filter screen will be displayed. At this time drop the filter into the filter slot without moving the camera. The slot is shaped like a funnel to help guide the filter into place.



6. With the filter in place, click Continue to proceed with the rest of the calibration process. The camera will then flash some additional screens to measure the ambient light in the room and set the tracking threshold.
7. The calibration will stop at the Test Tracking screen with 5 crosshairs on the screen. Use this screen to test the alignment or to align the laser on your training device.
8. Set the tracking mode by clicking the Settings button at the bottom of the Test Tracking screen.
9. When ready, click Save to minimize and launch the tracking.

10. You are now ready to launch and use the Smokeless Range®.

Remove the filter for calibration

To recalibrate or to run future calibrations you will need to remove the filter from the camera filter holder. To do so simply place your finger on the filter and slide it up until there is enough sticking out of the top to pinch between your fingers and pull it the rest of the way out of the holder as pictured below.



Filter Care

If the filter becomes noticeably dirty clean it with a lens cloth or if you don't have one use a soft cotton T-shirt to gently clean the filter. Do not use any cleaning agents. Only use a little water if needed.