

# Angle of View

## User Guide



**PHYSICAL SOFTWARE**  
SOFTWARE YOU CAN TOUCH

**version 1.1**  
(See version history on p.4)

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The angle of view number displays show the current angles-of-view (diagonal, horizontal, and vertical). Meanwhile the pie-wedge depicts the field of view, as seen from above. The red vertical line indicates the distance across the arc, and the blue horizontal line indicates the distance-to-subject.

The absolute zoom display shows the amount of total magnification, computed by dividing the distance to the subject by the width of the image frame. (See "About Absolute Zoom" on p.3).

Tap the (i) button to switch to the configuration screen, where you can add new focal lengths, sensor formats, and customize the distance slider.

The dashed yellow line indicates an imaginary measuring tape that lets you see how much of the frame will be occupied by a given distance, to get a sense of scale. Pinch to change its size.

The current focal length picker lets you select which focal length you want to see the angle of view for. Enter the focal length of your lens and the app will show you what the equivalents are.

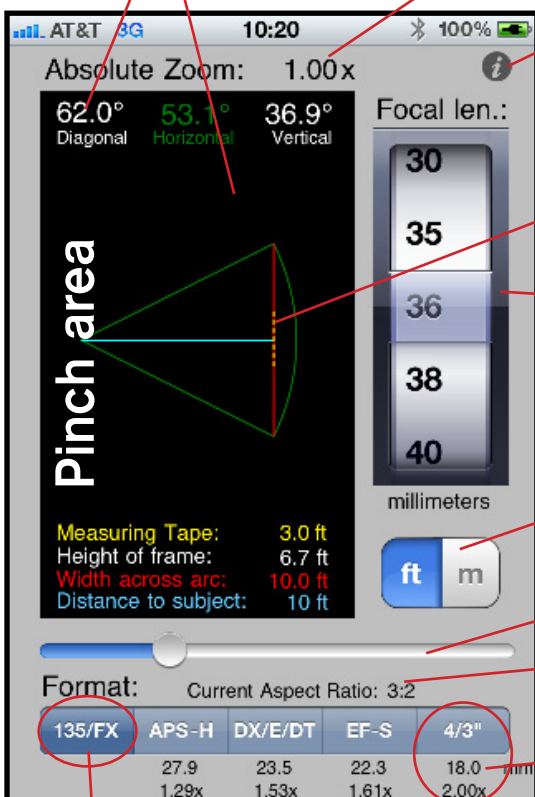
The units control sets the displays to use feet or meters (height, width, dist.).

The distance slider allows you to change the "distance to subject."

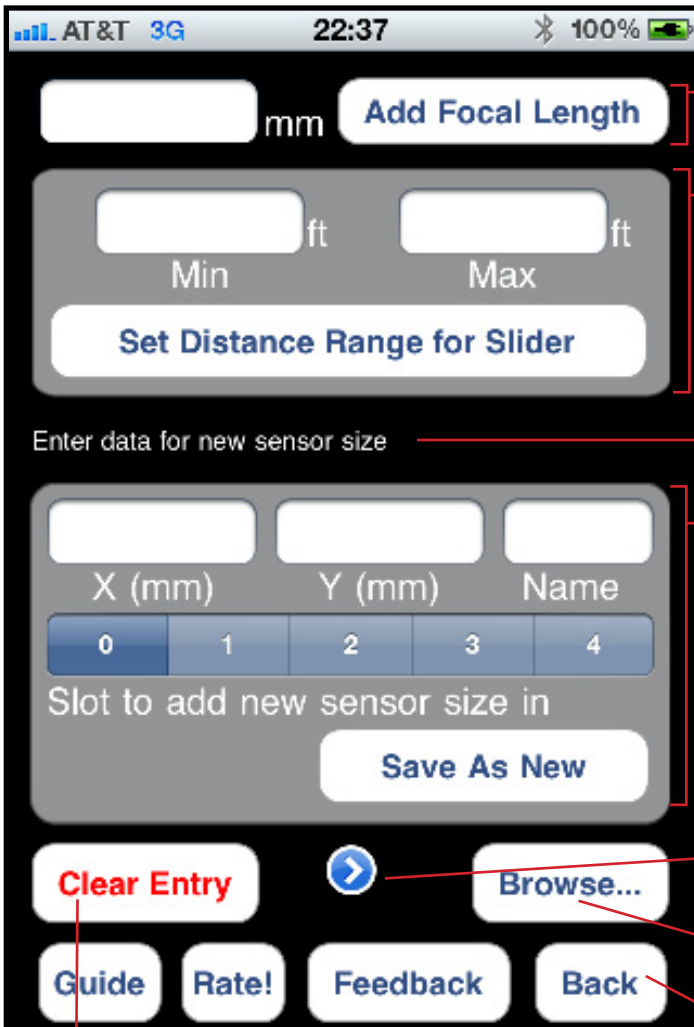
NEW: Aspect ratio display. Shows current aspect ratio information.

This shows the equivalent focal length (in mm) to achieve the same angle of view on the format shown above it. Here, a typical 4/3" format sensor would need an 18mm lens to get 62.01° AoV.

This shows the multiplication factor (often called the "crop factor") necessary to convert from the format shown above it (4/3") to the currently selected format (135/FX). This multiplication factor is only relevant in terms of the angle-of-view, not depth of field.



The currently selected format becomes the "base format" from which all the equivalent focal lengths are computed and from which the multiplication factors are derived, based on the current focal length.



Enter a whole number and tap the “Add Focal Length” button to add a new focal length to the focal length picker. (Decimal focal lengths not supported at this time.)

Enter a minimum and maximum amount to fine-tune the distance slider. The units are feet or meters depending on whether feet or meters is selected in the main screen.

Status display area - this area displays messages related to your current sensor format editing.

The X by Y sensor entry mode allows you to add or modify a sensor format by setting the horizontal and vertical dimensions of the format in millimeters, setting a short name, and setting the slot. (See p.3)

**PRO TIP: SHAKE TO UNDO/ REDO YOUR CHANGES!**

The sensor format entry mode toggle button will “flip” the sensor format entry window to show alternate entry modes (see below).

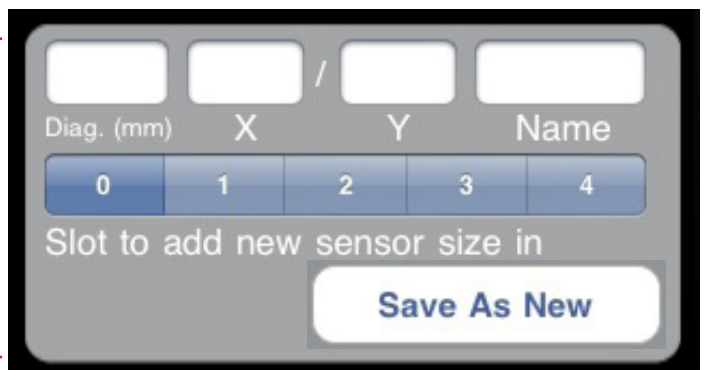
Enter the Sensor Format Browser. (See p.3)

Exit the configuration screen, discarding any changes that were not added or set.

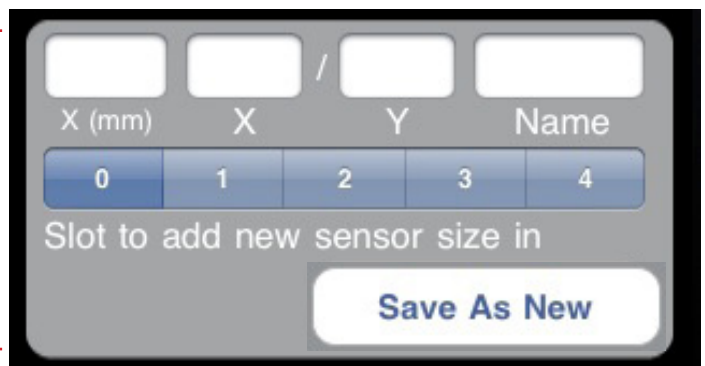
Clears all current entries. (Lose unsaved changes!)

## Alternate entry modes

The diagonal + aspect entry mode allows you to add or modify a sensor format by setting the diagonal size of the sensor and the aspect ratio to be used. This is useful for “multi-aspect-ratio” cameras by Panasonic (GH2, LX5, etc.), since the sensor uses a set diagonal size at several common aspect ratios to avoid resolution loss. (See p.3)



The horizontal + aspect entry mode allows you to add or modify a sensor format by setting the horizontal size of the sensor and the aspect ratio to be used. This is useful for determining the aspect ratio of a camera when shooting at a non-native aspect ratio (e.g. Canon 5D Mk II shooting at 16:9). (See p.3)



## ABOUT ABSOLUTE ZOOM

The main display shows a zoom factor called absolute zoom. What does this mean? Well, the point of this is to bring sense and order to the confusing world of zoom terminology.

Let me explain.

Up until now, camera companies have described their zoom as a relative number. If a lens starts at 10mm and zooms out to 100mm, that's a 10x zoom. However if it starts at 20mm and zooms out to 200mm then that's also a 10x zoom.

The problem with this is that the average consumer thinks that the higher the zoom factor, the more magnification the lens will give. After all, a 12x binocular always gives more magnification than a 10x one. Why should cameras be any different?

The answer to this is that traditionally there has been no agreed-upon standard for what should serve as "normal" magnification on a camera. Some people say it should be a 50mm lens on a 135-format camera, since when you would look through the SLR viewfinder then the subject would appear the same "size" to your eye as it would without the camera. I've also heard that 80mm on a 6x6 camera was determined by the Germans to be the closest to human vision.

However, using human vision as the basis for measuring magnification in cameras is a bad idea because optical viewfinders vary in their magnifying power, and furthermore, many cameras don't even have viewfinders. Also, humans vary between each other as to how they see.

So the best solution seemed to me to be the simple equation: width of frame divided by distance to subject.

For example: On 135-format (35mm film), a 36mm lens gives you a 62° diagonal angle-of-view and a 3:2 aspect ratio. The distance to the subject is the same as the distance across the field of view. Therefore, the Absolute Zoom factor would be 1x at a 36mm focal length on 135-format.

- Jonathan Gilbert, programmer

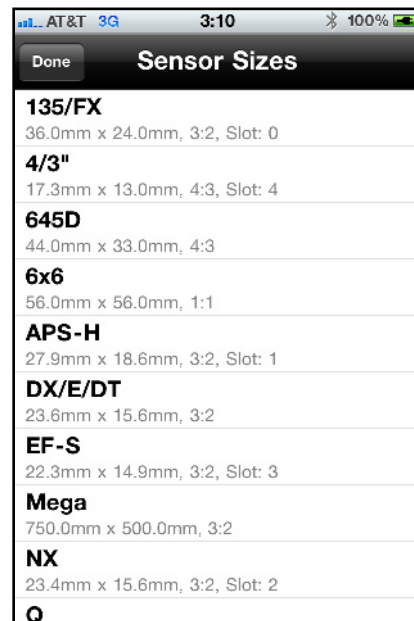
## ABOUT CREATING AND EDITING FORMATS

Here's how Angle of View works.

When you start entering data into the fields for sensor size, behind the scenes the software creates a new database entry for your new sensor size. As you edit your new format, the database gets populated with the numbers you're entering.

Then if you change entry modes, you're going to notice that the data you've entered will carry over into the next entry mode (of which there are three that you can cycle between).

Once you lock your sensor format into being a multi-aspect-ratio sensor, or a sensor that crops when its aspect ratio is changed, then you can't switch it back to being the other kind. You can undo your changes by shaking your iOS device, but once you have committed your changes then you can no longer undo. Aw.



Any formats you have saved will be available to load later from the [Sensor Format Browser](#) screen.

You can also delete any format that is not assigned to a slot by swiping across it from left to right.

To load a format, touch it and hit "use."

After you press "use" then the sensor format will load up into the editor. From there you can make modifications to it, rename it, and either save your changes to the existing database entry (press "Mod Existing") or save it as a new format (press "Save as New").

You can even create fake sensor formats like Mega!

## **PARTING SHOTS**

### Feedback

Email any feature requests, bug reports, suggestions, complaints, praise, etc. to:  
**support@physicalsoftware.com**

### Website

For support and more information about this and other PS products, please visit our website at:  
<http://www.physicalsoftware.com>

### About Us

Physical Software is located in Portland, Oregon.

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### Version

1.1 release

#### Version History:

1.1 -

- \* Added aspect ratio display to main screen.
- \* Added Rate! button and Feedback button to Settings screen.
- \* Changed color scheme of main display to black background for better visibility of the color-coded displays. (Send email feedback if you preferred the original colors, or if you want a fully customizable color scheme, and we'll add it in a future version).
- \* Fixed several bugs.
- \* Patched a potential crash (saved data will reinitialize to default values if it becomes corrupt instead of crashing).
- \* Enhanced behavior of distance slider.
- \* Added "zoom" feature for angle display. (When focal length is at extreme high levels, the angle no longer becomes a tiny sliver. Now the display zooms in on the subject area while the origin point now goes off screen.)
- \* Updated wording of button text in Settings view to more standard terminology (e.g. "Save As New" instead of "Add", etc.) for better intuitiveness/ease of use.
- \* AoV now remembers your choice of limits for the distance slider, and units for meters/feet, between updates or after quitting etc.

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