

Better Query Saul: Hyperfocal Distance

Suppose you are in Zion National Park in the springtime. There are beautiful wild flowers in front of you and snowcapped peaks in the background. You picture the perfect shot, take out your 24mm lens and shoot. But when you look in the viewfinder you see that the flowers are in focus, but the mountains in the background are not or the mountains are in focus but the flowers are not. What should you do?

One answer is to look to hyperfocal distance. Hyperfocal distance is the closest distance at which a lens can be focused while having everything far away (at infinity) in focus. For example with a 24mm lens and a full-frame sensor, I could set my aperture to f/11 and, referring to a table of hyperfocal distance, the hyperfocal distance is listed at 6 feet. Everything from 3 feet to infinity will accordingly be sharp.

Hyperfocal distance varies with the type of lens and the camera's sensor. If I had opted for a 16mm lens, the hyperfocal distance would have been 3 feet. A camera with an APS-C sensor (with a crop factor of 1.5) and the same 16mm lens, would double the hyperfocal distance to 6 feet. Changing the aperture would also produce a change in the hyperfocal distance,

The table below provides information on hyperfocal distances by f-stop and lens:

Hyperfocal Distance Chart

(Intended for full-frame cameras; values in feet.)

	f/2.8	f/4	f/5.6	f/8	f/11	f/16	f/22
16mm	10	7	5	3.6	2.5	1.8	1.3
20mm	15.5	11	7.8	5.5	3.9	2.8	2
24mm	22.3	15.8	11.2	8	5.7	4	2.9
28mm	30.4	21.5	15.2	10.8	7.7	5.5	3.9
35mm	47.5	33.6	23.8	17	12	8.5	6
50mm	96.8	68.5	48.5	34.3	24.3	17.3	12.2
85mm	280	198	140	99	70	49.7	35.2

Hyperfocal distance is only useful when you have objects that are close to you and far away that need to be **acceptably** sharp. Notice that I used the term acceptably, rather than perfectly, sharp.

How to do use hyperfocal distance for landscapes? My recommendation is to set your aperture to f/11 or f/16 and your focus to manual focus. Look up the hyperfocal distance for your camera and lens – for example – a Nikon 810 is a full frame camera and with a 24mm lens, the hyperfocal distance would be about 6 feet. I would set the focus on my lens to 6 feet¹ and then shoot away. If all I were doing is landscapes, I would probably leave my settings untouched for the rest of the day.

If your hyperfocal distance is 6 feet and some objects are 2 feet away, they will not be in focus. You could increase your f-stop to f/22 with that same 24mm lens to get everything you wanted in focus. Another option would be to move farther away, while a third option would be **focus-stacking** – a much more complicated procedure that involves taking multiple photos focused at various distances and stitching them together.²

¹ All the older lenses allowed you to focus by distance. Some newer lenses don't have distance scale marked. In those cases I would just approximate the distance.

² I hoep to further explain focus-stacking in a latter article.