

Photographing Fireworks

It's all trial and error! Every time I photograph fireworks there's always some element that's unpredictable so you have to adapt and learn from your own mistakes, correct for next time, and then do it again.

There are two ways to take great shots of fireworks:

1. Set the shutter speed to about 2–10 seconds and activate it to take a series of bursts. This takes a lot of practice but can be very effective. If you don't have a bulb setting (as in the Canon Sureshot) you can set the shutter for up to 15 seconds. Then time the shot to take in a group of fireworks which will give a pleasing result.

I find I get good results with the following settings:

Shutter speed 2.5 seconds; ISO 100; Aperture f/5.6; 24mm lens. Recently, I have been using a 12mm lens on a crop sensor that will be 16mm, and got good results.

2. Set the camera to Bulb and using the shutter release, hold the shutter open and cover the lens with a card or similar between bursts. Close the shutter after three or more sets of bursts. This takes practice but will give good results especially if there is no ambient lighting, but is not as good as just timing the shutter.



Fundamentals

Review the shots. If the image is too bright, reduce the aperture (higher f-stop i.e. f/5.6 to f/8 or f/16) and try again. If the shutter time is less than 2 seconds (depends on ambient light) the bursts will not show the best aspect and will be pancake-shaped instead of a nice umbrella shape. You can reduce the shutter speed by reducing the ISO, using a higher f-stop or an ND filter to slow the shutter.

The right equipment. Use a sturdy tripod and remote to fire the camera and bring an extra battery, as long exposures tend to use them up quickly. Self-timer release may not be the best way to activate your shutter. If the sky is dark you will be able to get away with pressing the shutter but beware of camera shake.

Know your equipment. Identify how to set your shutter, ISO and aperture. Set your ISO low at 100 or 200, for a couple reasons. The higher the ISO the more noise you'll introduce into your images, so keep it low to prevent that. Noise also lives in blue areas of images and night-time has a lot of blue which compounds the issue. Long exposures also tend to increase noise. If you add it all up you get a lot of noise, so keep the ISO low to eliminate that variable.



A single shot is not as pleasing as a group. Also highlights are blown out: 4 sec, f/5.6, ISO 100, 24mm.

I normally shoot in RAW and process images afterwards, but if you shoot in JPEG you can set your camera to its creative settings. I suggest setting to Vivid rather than Neutral. This will brighten the colour and add a bit of sharpening to the image.

Turn OFF long exposure noise reduction. This setting, while it does a really good job of noise reduction, adds an extra complication you don't need when photographing fireworks.

If you take, say, a 10 second exposure, Long Exposure Noise Reduction will take a second one of equal length but just black (the shutter doesn't open). Then it merges the two and blends the blank one into the shadow areas of the first one which is where noise typically shows the most. The problem is that fireworks happen so fast you don't want to wait 10 seconds to see your image, make any adjustments and shoot again.

Do NOT use Live View if your camera has it. This will eat up your battery really fast. Live view is really for shooting video and using the display screen so much uses a lot of power, as does making long exposures. Once you have focused and composed and set your camera to manual exposure, you can then watch the fireworks and just operate the shutter without looking at the camera settings.

Save your battery for actually shooting and set up your shot using the eyecup viewfinder prior to the fireworks starting, then just shoot because the focus has been set. The only time you will need to re-compose is if you change your focus length or want to include more/less background or aspect (portrait/landscape).

Settings

Set your camera on Manual mode for exposure and set Aperture to f/5.6 or f/8. Those apertures are pretty optimal for fireworks as the light streaks are controlled by the size of the aperture. Closing down more will make the light trails thinner, opening up more will make them wider and possibly too over-exposed.

Set your shutter speed to between 2 and 10 seconds. Do a test shot before the show starts and see if the sky is too dark or too bright and adjust the exposure time accordingly.

Zoom in on the image to check focus. As long as you're under 30 seconds you can let the camera time the shots for you. Or you can switch to Bulb and just open and close manually when you feel you've captured enough bursts in one image.

Focus your lens ahead of time, and then turn off AF – otherwise the camera will keep trying to refocus every shot and you may end up with missed images or blurry fireworks if the camera misses.

Assuming you're a fair distance away from the fireworks you shouldn't have to refocus at all unless you change your angle of view or want to focus somewhere else, such as the people in front of you.

I have found that focusing on the spot from where the fireworks are released is a good place to start. Don't forget that you will not know how high the fireworks will go so it is better to go wider and then zoom back once the fireworks start.



Different bursts captured on one frame. Including some foreground anchors the image: 3.5 sec, f/11, ISO 200, 18mm.

Use a neutral density filter to get a longer exposure if need be. If it's not 100% dark yet (the sky still has some light) using ND filters will allow you to get a longer exposure and make sure the fireworks bursts have a nice arch and get more bursts in the photo. But don't overdo it. If your exposure is too short you'll end up with short stubby looking bursts, not the nice umbrella-shaped ones.

If your bursts are too short, just make the exposure time longer. If you are getting too many bursts in one shot and it's coming out over-exposed, shorten the exposure time first, then change the aperture.

REMEMBER – the shutter speed will dictate the number of bursts in your photo, and the aperture will affect the exposure.

If your shots are too long, the photos will look too busy (aim for between two and four bursts at a time) and if the exposure is too large, you will blow out the highlights. If the highlights are blown out, you will not be able to recover the highlights (like the centre of the burst) but if the exposure is a bit under-exposed, you will be able to recover shadows in post-processing.

Scout your location ahead of time and be there early to get a good spot. Think about background (what's behind the show) and whether you want the people around and in front of you as part of the shot. In general, good viewing areas fill up sometimes 1–2 hours prior to the fireworks. Try to include some foreground which tends to anchor the image.

Make sure you **leave enough room in your frame to anticipate the height of the opened bursts.** Adjust as necessary if you miss on the first shot – it's a lot of trial and error and correcting.

It's often hard to tell where the highest fireworks will end up in the sky. You may want to try both horizontal and vertical compositions.

It takes a bit of practice to time your shots when you hear the fireworks being released, so ideally you can capture a few bursts. Do some testing to see how many bursts are just right for your taste. Try some with more, and some with less. Having too many may over-expose the overall image, so keep that in mind.

I tend to use the wide angle for most of my shots. You don't want to be trying to change lenses whilst the fireworks are going off. Time will pass quickly so make sure you know your gear well.

Try some telephoto shots as well as the usual wide angle. Try some close ups and zoom out during the exposure. Zoom in tighter for something a bit more abstract. If you're going to try this make sure you have focused at the maximum zoom of the lens.

Try different technique including counting half of the exposure before you zoom, or zooming right away and the last half is zoomed out. Try zooming fast, then slow. Try more bursts, or less. Get some city lights in the shot too.



Don't forget what is going on at the time: 1/80 sec, f/6.3, ISO 100, 154mm.

Don't forget about what is going on around you. Getting shots of the crowds is also a good idea and including the crowds in the fireworks shots looks great. Selective focusing may look good also, focusing on the crowds and making the fireworks bursts out of focus.

The biggest tip I can give overall, is experiment with your settings to get the look you want. Use my settings above as a starting point, adapt to your situation and your camera equipment until you're happy with the results. ENJOY and have fun!

**Kim Stewart
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