CREATIVE PHOTO ADVENTURES

Long/Slow Exposure Calculator

SHUTTER SPEED WITHOUT FILTER	3 Stops 0.9 ND8	4 Stops 1.2 ND16	5 Stops 1.5 ND32	6 Stops 1.8 ND64	7 Stops 2.1 ND128	8 Stops 2.4 ND256	9 Stops 2.7 ND512	10 Stops 3.0 ND1000	11 Stops 3.3 ND2000	15 Stops 4.5 ND32000
1/8000s	1/1000s	1/500s	1/250s	1/125s	1/60s	1/30s	1/15s	1/8s	1/4s	4s
1/4000s	1/500s	1/250s	1/125s	1/60s	1/30s	1/15s	1/8s	1/4s	1/2s	8s
1/2000s	1/250s	1/125s	1/60s	1/30s	1/15s	1/8s	1/4s	1/2s	1s	16s
1/1000s	1/125s	1/60s	1/30s	1/15s	1/8s	1/4s	1/2s	1s	2s	32s
1/500s	1/60s	1/30s	1/15s	1/8s	1/4s	1/2s	1s	2s	4s	1m 4s
1/250s	1/30s	1/15s	1/8s	1/4s	1/2s	1s	2s	4s	8s	2m 8s
1/125s	1/15s	1/8s	1/4s	1/2s	1s	2s	4s	8s	16s	4m 16s
1/60s	1/8s	1/4s	1/2s	1s	2s	4s	8s	16s	32s	8m 52s
1/30s	1/4s	1/2s	1s	2s	4s	8s	16s	32s	1m 6s	17m 6s
1/15s	1/2s	1s	2s	4s	8s	16s	32s	1m 6s	2m 13s	33m 20s
1/8s	1s	2s	4s	8s	16s	32s	1m 4s	2m 5s	4m 10s	1h 6m 40s
1/4s	2s	4s	8s	16s	32s	1m 4s	2m 8s	4m 10s	8m 20s	2h 13m 20s
1/2s	4s	8s	16s	32s	1m 4s	2m 8s	4m 16s	8m 20s	16m 40s	4h 26m 40s
1s	8s	16s	32s	1m 4s	2m 8s	4m 16s	8m 32s	16m 40s	33m 20s	8h 46m 40s
2s	16s	32s	1m 4s	2m 8s	4m 16s	8m 32s	17m 4s	33m 20s	1h 6m 40s	17h 23m 20s
4s	32s	1m 4s	2m 8s	4m 16s	8m 32s	17m 4s	34m 8s	1h 6m 40s	2h 13m 20s	1d 12h 24m 32s
8s	1m 4s	2m 8s	4m 16s	8m 32s	17m 4s	34m 8s	1h 4m 18s	2h 13m 20s	4h 26m 40s	3d 0h 49m 4s
15s	2m	4m	8m	16m	32m	1h 4m 18s	2h 13m	4h 26m	8h 53m	5d 16h 32m
30s	4m	8m	16m	32m	1h 4m	2h 8m 36s	4h 26m	8h 53m	17h 6m	11d 9h 4m

Step-by-Step Guide

1. **Set ISO to the lowest native value** (usually ISO 64, 100, or 200).
   This gives the cleanest image with the least noise. Turn **Auto ISO off** so the camera doesn't change exposure mid-shot.

2. **Turn image stabilisation OFF** (lens and/or camera).
   Stabilisation can cause blur when the camera is locked on a tripod.

3. **Block the viewfinder (film or very long exposures)**.
   Light entering through the viewfinder can affect exposure during long shots.

4. **Set the camera to Manual (M) mode**.
   This gives full control over aperture and shutter speed.

5. **Decide if a polarising filter is useful**.
   A polariser can reduce glare and reflections and slightly lengthen exposure times.

6. **Use a sturdy tripod and keep the centre column down**.
   Lower setups are more stable and reduce vibration.

7. **Compose your shot and focus carefully**.
   Autofocus works best before fitting strong ND filters. Switch to manual focus afterward to lock it.

8. **Choose your aperture** (f/9-f/11 is a good starting point).
   This range provides good sharpness and depth of field.

9. **Set a correct base exposure and note the shutter speed**.
   This is your "no-filter" exposure and is needed for ND calculations.

10. **Calculate the new shutter speed using your ND filter**.
    Use a phone app or chart to convert the base shutter speed.

11. **Set the calculated shutter speed on the camera**.
    Double-check the value before proceeding.

12. **Use a remote shutter release or a 2-second self-timer**.
    This prevents vibration when pressing the shutter button.

13. **Carefully attach the ND filter**.
    Avoid bumping the lens or changing focus while fitting it.

14. **Take the exposure and review the result**.
    Check brightness and motion blur. Adjust shutter speed and repeat if needed.