



Nienna Solar Finder

Product Manual

Manual Version SOLARFINDER-2024-03-26.1EN



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Warning (seriously, do read this part!)

Never observe the sun with an unfiltered telescope, binocular, spotting scope, or any similar type of optical instrument. Viewing the sun with these requires the use of specially designed filters to be mounted in front of the instrument's aperture. Always follow the instructions that come with the instrument or the solar filter. Incorrect use may cause permanent eye injury. Viewing the sun without a solar filter WILL destroy your eyes before you have time to react!

1. Introduction

Given how easy it is to spot the sun it may seem unintuitive that it can actually be difficult to locate and centre the sun in a telescope. Normal finder scopes supplied with telescopes are not suitable for viewing the sun, and even if they were they would still force you to look straight at the sun – an uncomfortable and hazardous situation. The same applies for simply sighting along the telescope's tube to try and locate the sun. For this reason it is necessary to locate the sun indirectly.

There are two usual solutions that you may use to locate the sun without a proper solar finder:

1. You can observe the shadow cast by the telescope on the ground. What you are looking for is the shadow of the telescope tube itself. When pointed at an angle to the sun you may see that the shadow is elongated. Once pointed straight at the sun the shadow will be as small as possible and perfectly round. (In reality it will not be round since the telescope is almost certainly not at a 90 degree angle towards the ground. This means the shadow will likely be long and narrow. The goal is for the shadow to become as narrow and as short as possible.)

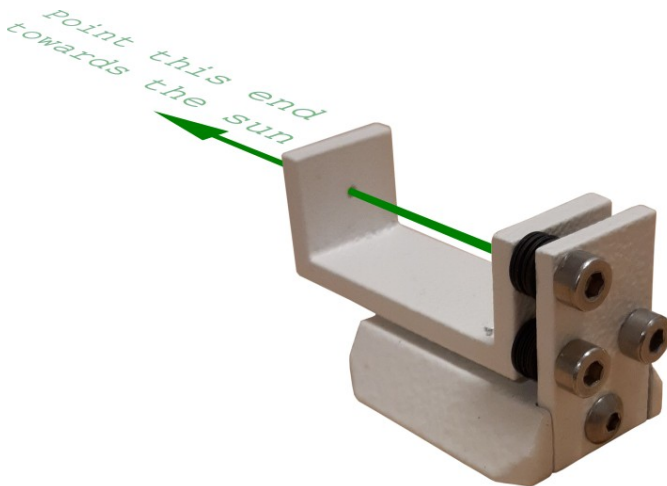
The problem with this method is that it is not very precise. It will get you in the vicinity of the sun, but you will likely still need to proceed with the following:

2. You can scan the sky until you “accidentally” find the sun. What you do is to point the telescope as close to the sun as possible with method 1, then look into the telescope’s eyepiece (or on the camera’s display), and slowly move the telescope left and right as well as up and down. Eventually you will locate the sun, but this may take several minutes and can at times be quite a frustrating experience.

The Nienna solar finder was developed to solve this problem and make locating the sun a quick, easy, and painless process.

2. Mounting instructions

By default the Nienna Solar Finder comes equipped with a dovetail connector that will fit finder bases commonly found on most telescopes by Sky-Watcher, Celestron, TS-Optics, Omegon, some Bresser and Meade models and several more. Simply slot the finder into the base and lock it with the base’s thumbscrew.



The correct orientation of the finder is with its adjustment screws pointing away from the sun.

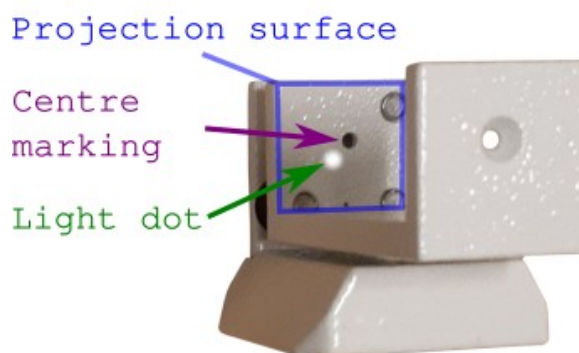
If your telescope does not come equipped with a standard finder base you can buy a suitable finder base available from most astronomical retailers. There is a variety of options that will fit on almost any telescope.

2b. Compatibility limitations

The distance between the opening at the front of the solar finder and the bottom of the mounting base is approximately 22-24mm. On some telescopes, particularly some refractors, the diameter of the dewcap is so large that it will cast a shadow on the front of the solar finder, rendering it impossible to use. Please check your telescope before ordering, especially if you own a refractor with a large dewcap diameter.

3. How to find the sun with the Nienna Solar Finder

1. When using the finder for the first time or if you find that it is misaligned please see the next chapter, "How to align the Solar Finder".
2. Point the telescope towards the sun. You do not need to be extremely precise with this, a rough approximation will do. Once you are in the vicinity of the sun check the projection surface of the solar finder (see image). You should see a shadow cast by the forward part of the solar finder.



3. You should see a light dot within the shadow. If the shadow is offset too far towards one side you may need to move the telescope until the shadow nearly completely covers the rear surface. At this point the dot should be visible.
4. Move the telescope until the light dot ends up on the centre marking of the projection surface (see image). The sun should now be centred in the field of view of your telescope. We recommend using an eyepiece with the lowest possible magnification in order to locate the sun.

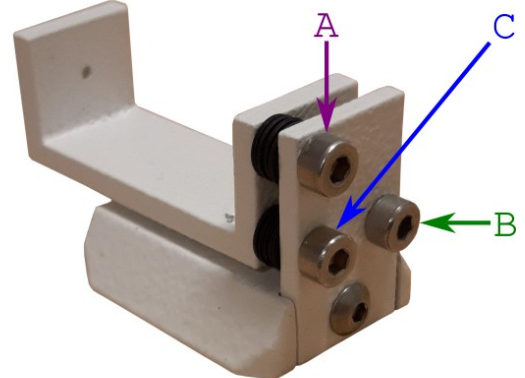
4. How to align the Solar Finder

Before the first use of the Solar Finder you will need to align it to your telescope. This may also become necessary after you have recollimated your telescope. In this latter case only a small adjustment will usually be required.

1. Point the telescope roughly towards the sun. You can do so by following steps 1-4 above in the chapter "How to find the sun with the Nienna Solar Finder". At the end of step 4 you may need to scan the sky for a little bit until you have actually located the sun since the finder isn't yet aligned to the telescope.

2. Centre the sun in the field of view of your telescope. Now check the projection surface of the solar finder (see image above.) You should see a shadow cast by the forward part of the solar finder with a lighter dot inside the larger shadow.

3. Use the adjustment screws at the back of the finder to move the light dot to the centre marking of the rear surface. You can mainly use screws A and B (see image.) Screw A will move the dot up and down, screw B will move the dot left and right. The mechanism is spring loaded, so you do not need to unlock another screw in order to make adjustments to any particular screw.



- If the adjustment range of screws A or B isn't sufficient you can angle the finder by use of screw C. This will move the light dot roughly at a 45 degree angle.

4. Check that the sun is still centred in the field of view of your telescope. If it isn't then move it back to the centre and repeat step 3. This time a smaller adjustment should suffice.

5. General advice: How to observe the sun safely

Observing or photographing the sun can be great fun. Contrary to most objects on the night sky you can see changes on the sun's "surface" from day to day and sometimes even within just a few minutes. Also, you can observe the sun during the daytime and thus at presumably more comfortable temperatures.

Done correctly it is perfectly safe to observe the sun, even with children. So don't get scared away from viewing this fascinating object! Below we have collected everything you need to know for safe solar observations.

But first, a few necessary disclaimers:

- Observing the sun is potentially dangerous! Done incorrectly there is a very high risk of permanent eye damage. It is thus imperative that you educate yourself in how to properly observe or photograph the sun before doing so. This guide is a good starting point, but please use all the resources available to you!
- Never view the sun without a specially designed and properly attached solar filter!
- Nienna cannot be responsible for personal injury or damages caused by unsafe practices or incorrect use of your telescope. Only proceed once you have read all relevant manuals and have understood the risks as well as how to mitigate them.

With the disclaimers out of the way, this is what you should and should not do:

- Always use solar filters that have been specifically designed for observing the sun. We recommend Baader-Planetarium AstroSolar filters as a very affordable, optically excellent, and perfectly safe option. Do not use improvised solutions made from rescue foil or any other material not intended for observing the sun.
- Only use filters that are mounted at the front of the telescope. You may sometimes find filters that are mounted in the eyepiece. We find that these filters are potentially dangerous as they might crack due to the heat generated by

the sun. If you have such a solar filter please follow these steps for proper handling:

1. Put the filter on a sturdy surface, such as a workbench or the floor.
2. Use a hammer to destroy the filter. Apply copious amounts of force to make sure nobody will ever be able to use it again.
3. Discard the filter.

We're not being facetious. In our opinion this type of filter should not exist and should never be included with any telescope.

- Inspect the filter before attaching it to the telescope. Check for cracks or holes. Best practice is to hold up the filter between you and the sun and move it back and forth to "scan" the filter's surface. This will allow you to easily detect any cracks or holes of a dangerous size.
- Make sure the filter is attached securely to the telescope so that it can withstand gusts of wind, and cannot easily be removed by a bystander. Important: don't forget the finder scope! If it is an optical finder scope it must be covered or equipped with a solar filter of its own. The Nienna solar finder can however be left uncovered.
- Before putting your eye to the eyepiece hold a piece of paper above the eyepiece and check the intensity of the light. In case you do not have a piece of paper at hand you can use some other object. You may use your hands instead of an object, but it is possible for your hands to get burned. (This would only happen if no filter is properly mounted to the telescope.) Better your hands than your eyes, but a piece of paper avoids this risk.

6. Solar observations with other people

1. Make sure that everyone knows not to touch the solar filter or remove it "as a prank".
2. For children use your best judgement on whether they understand the danger and can act responsibly. If in doubt use extra care and always supervise children.

3. Even young children can safely observe the sun given proper parental supervision. But please, make sure to follow the safety recommendations as outlined in this manual, use common sense, and when unsure err on the side of caution!

Finally, we would like to encourage you once again to give solar observing a try! All of the above may sound intimidating, and it is true that care must be taken. But taking care is not difficult and all rules are common sense! Just be sensible, hold short and double-check if you are unsure at any point, and refer to this and other manuals. Your astronomical retailer will also happily help you. If you do that, observing the sun is perfectly safe and very rewarding!

7. A note on photography

The cautions above apply for cameras as well. For cameras with a viewfinder the exact same care must be taken and the same danger exists for your eyes. Cameras without a viewfinder present less danger to you the user, but the camera itself can easily get damaged or destroyed.

Outside of these cautions it is quite easy to take images of the sun. Exposure times are very short so you do not need a motor drive on your telescope. This makes the sun one of the easiest astronomical objects to photograph, second only to the moon.

Do you have questions or feedback? Contact us!

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You find all our product manuals at www.nienna.eu/en/manuals.html