

Astronomy tests a great new collimator

Align your SCT quickly, easily, and in broad daylight with HOTECH's Advanced CT Laser Collimator. **by Tom Trusock**

No other telescope design offers the combination of features and portability as a Schmidt-Cassegrain telescope (SCT). You may not consider it the best for any one application, but it does everything pretty well. One thing it's not so great at, though, is holding optical alignment, i.e., collimation. Good collimation is a critical step to ensure that you get the best image possible.

Refractors tend to hold collimation well, and they typically arrive with good alignment from the vendor. Most refractor users won't ever have to worry about collimating their telescopes.

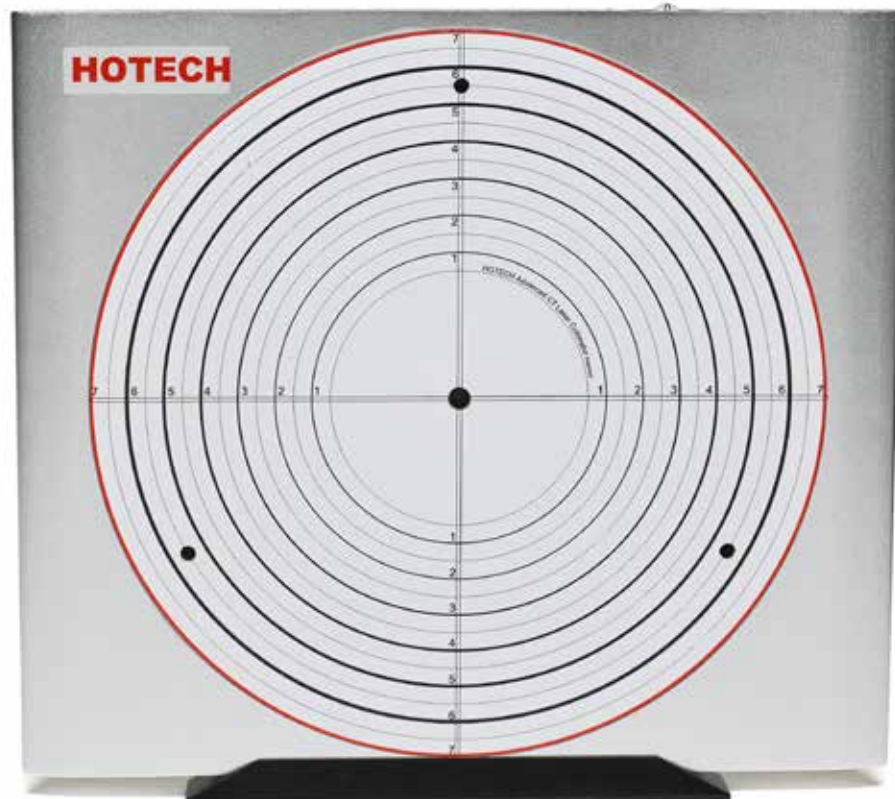
Newtonian reflectors require their owners to be familiar with the process, but there's a plethora of tools to assist. SCTs, however, need some care when it comes to collimation, both out of the box and as an ongoing process. I've seen many amateur astronomers dissatisfied with the performance of their SCTs and yet unaware of how to collimate them properly.

Until fairly recently, the best way to collimate an SCT was the star test — checking optical alignment by using a star at night. This can be a frustrating process, especially if the user is unaware of specifics that can affect the test, like poor seeing, an uncooled telescope, differences between mechanical and optical alignment, and other issues. But worst of all for me, star collimation eats into my rather limited observing time.

Wouldn't it be nice to have an easy way to collimate an SCT during the day? Well,



The author photographed his collimating setup.



HOTECH designed its Advanced CT Laser Collimator to allow observers to align Schmidt-Cassegrain telescopes easily — even during the daytime. ASTRONOMY: WILLIAM ZUBACK

HOTECH has developed the Advanced CT Laser Collimator for just this purpose.

Manufacturers made a few attempts at creating SCT laser collimators in the past, with mixed results. Most of these devices only succeeded in returning you to a known good configuration. In other words, you first had to collimate using the star test. The Advanced CT Laser Collimator does not have that restriction. In addition, the product works for many types of Cassegrain designs — not just SCTs.

Unpack and read

When you open the box, you'll find a high-quality carrying and storage case, the

collimator, batteries, the company's Reflector Mirror (1¼" or 2", depending on your order), and an adjustable tripod head for mounting the collimator to a camera tripod, which you have to supply. The tripod head is essential for ensuring that the collimator and telescope square up properly.

The fit and finish of all hardware is top-notch, and the review unit came with both Reflector Mirrors. The standard package includes your choice of return reflector as well as seven pages of instructions, which — I can't emphasize this enough — are

Tom Trusock tests products from his home in Uby, Michigan.



The light from the lasers enters the telescope and returns to the target. At this point, you'll know if the scope's alignment needs tweaking. TOM TRUSOCK



The collimator comes with either HOTECH's 1¼" or 2" Reflector Mirror and an adjustable tripod head. ASTRONOMY: WILLIAM ZUBACK



required reading. If you find the instructions a bit confusing or still aren't getting the results you think you should, HOTECH has made videos available on YouTube. If your issue still isn't resolved, call HOTECH directly, and they will be happy to help you.

I had no problems that required either a video or a phone call. When you use HOTECH's product, however, be prepared to abandon most, if not all, of what you know about using a laser collimator.

A simple process

First, install the appropriate Reflector Mirror (1¼" or 2") in the back of your SCT. If you intend to use the scope visually, insert



The entire kit fits snugly in a padded carrying case.

your chosen return reflector into your star diagonal. Then position the collimator at the proper distance as described in the instructions. Proper distance for my setup was right around one tube length.

Next, co-align the collimator and telescope. I found this to be the most time-consuming part of the procedure. But don't skimp here. Make certain that the collimator's support is solid because you don't want it to shift during the process.

The last stage is the optical alignment. Line up the three return spots on the same collimator ring, and you're done. After you use the Advanced CT Laser Collimator for the first time, HOTECH recommends (and I concur) that you check your scope's alignment by performing a star test.

The instructions cover this as well.

Assessing the results

The first time I used the device, it took me just under an hour to set up and collimate. As I became more familiar with the steps, however, I became significantly faster, peaking at around 10 minutes.

And once I mastered the procedure, the Advanced CT Laser Collimator did a good job aligning the optics. I did notice via the star test (which I performed each time) that collimation typically required a few tweaks. In looking back, I suspect I was not quite critical enough in ensuring alignment between the collimator and the primary mirror.

I found several mechanical issues that could affect collimation. My 11-inch SCT is an older model that sits atop a German equatorial mount. The primary support structure

isn't as solid as it once was. I suspect that SCT users whose telescopes have fork mounts would see a more consistent collimation because the movement of their scopes is limited to two dimensions.

Don't forget that mirror shift can affect the collimation — as die-hard SCT users already know. Mirror shift in an SCT is a byproduct that occurs because manufacturers sometimes choose to focus by moving the primary mirror. A Crayford focuser eliminates that issue because, with it, moving the primary isn't necessary.

Please note, and this is important, that all these issues lie with the SCT and/or the mount, not with the collimator. I point them out here because I feel that some users may experience similar problems and then unfairly blame them on the collimator.

I found that the HOTECH Advanced CT Laser Collimator did a consistently good job of aligning the optics in my scope. If you or your astronomy club are interested in getting the most out of your SCTs while saving valuable observing time, I recommend checking into this product. ☉

PRODUCT INFORMATION

Advanced CT Laser Collimator

Includes: Reflector Mirror, adjustable tripod head, batteries, carrying case
Price (1¼" or 2" model): \$455

Contact:

HOTECH
9320 Santa Anita Ave. #100
Rancho Cucamonga, California 91730
[t] 909.987.8828
[w] www.hotechusa.com