

# Astronomy tests Celestron's StarSense

*This accessory allows you to transform your old go-to mount into one that aligns itself.*

by Phil Harrington

One of the tasks stargazers find most time-consuming is aiming a telescope toward an intended target. Go-to technology revolutionized amateur astronomy when it first appeared more than two decades ago. But most go-to mounts still required the user to initialize the system by aiming at several alignment stars.

In an effort to make setup easier, many next-generation go-to mounts now do most of this initialization automatically. This equipment requires minimal action on the user's part other than setting up the mount, flicking a switch, and sometimes entering time, date, and location.

But what about those of us who already own older go-to mounts? To enjoy these state-of-the-art features, do we have to buy new ones? Not necessarily. That's the beauty of the new StarSense AutoAlign add-on from Celestron.

By mounting the AutoAlign unit on your telescope in place of the finder scope and then plugging it into your older Celestron mount's auxiliary inputs, StarSense technology will automatically align the mount in a matter of minutes.

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Adding Celestron's StarSense AutoAlign accessory to one of the company's older telescopes lets you align its go-to drive much more easily than before.

CELESTRON

## How it works

StarSense uses a small built-in digital camera to take a series of sky images 6.88° wide by 5.16° high. The software then scans for bright, recognizable stars. That information, coupled with the data you input, allows StarSense to use a technique astronomers call "plate solving" to find the coordinates of the center of the captured image. That determines where the telescope is pointing. From that starting point, the observer can select from more than 40,000 celestial objects programmed into the hand controller's database.

Included with the AutoAlign unit is a matching StarSense hand controller (which takes the place of Celestron's original NexStar hand controller), two mounting brackets, and an input cable to couple the imager to your mount's auxiliary input.

Please note that the mount must have two auxiliary inputs: one for the imager cable and one for the hand controller. Mounts with only one port for the hand controller, like the vintage CG-5 Computerized Mount I used for this review, require Celestron's AUX Port Splitter (\$19.95).

## How it performs

Attaching the StarSense to your instrument is a simple task. Remove the existing finder scope, install the appropriate mounting bracket, and slide on the imager.

The company includes two mounting brackets. The smaller bracket is compatible with the Vixen-style dovetail bases found on Celestron's refractors and reflectors, while the larger one matches the base you'll find on Celestron's Schmidt-Cassegrain and EdgeHD instruments. For this test,



The author attached the StarSense to his Celestron C6 telescope. This instrument rides on an older CG-5 mount, which required Celestron's AUX Port Splitter. PHIL HARRINGTON

I mounted the larger bracket on my C6 Schmidt-Cassegrain telescope.

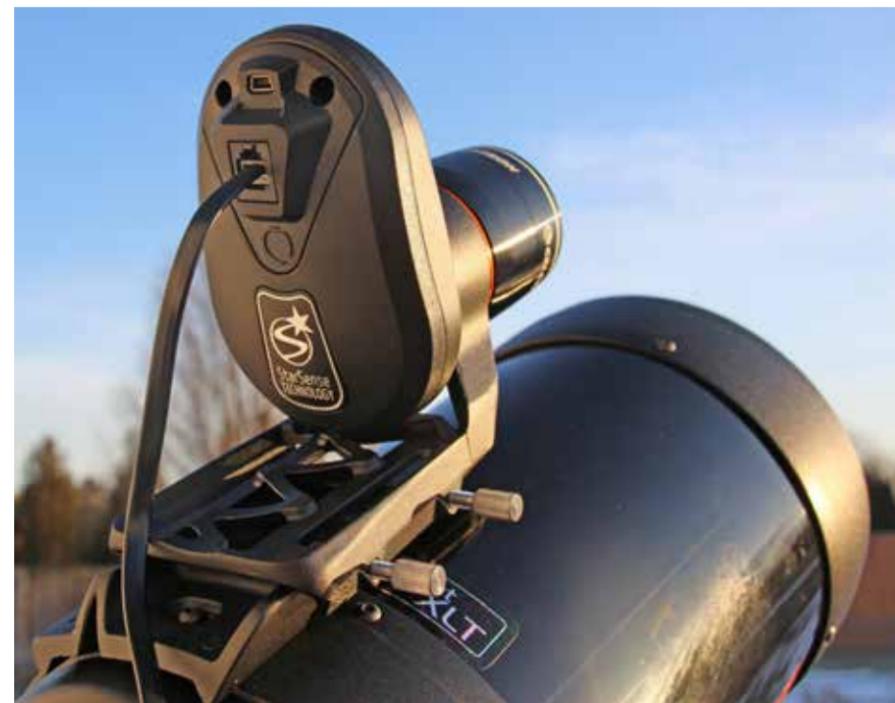
With the StarSense in place, all I had to do was plug one end of the included auxiliary cable into the imager and the other end into the mount's auxiliary port. After I attached the hand controller into the other auxiliary input, I was ready to go.

One nice touch Celestron added was to make the StarSense hand controller the same shape as its NexStar controllers. That means you can stow it in the same holster as you had been using in the past.

After turning on the unit, I entered the date and time and then selected the closest location in the hand controller's database. The nearest choice was 11 miles (18 kilometers) away, which proved close enough for the StarSense's purpose.

The unit prompted me to press the "Align" button, followed by "StarSense Auto Align." The telescope then began to move to different areas of the sky automatically. Each time the telescope paused, the hand controller's display read "Acquiring Position," followed by "Acquiring Image," and finally "Sensing." The telescope slewed to four positions in the process, two on each side of the meridian (the imaginary line that runs north to south passing through the overhead point).

The instructions warn that if the unit doesn't sense enough stars, the controller will read out "Too Few Stars" and move the scope to a different region of sky. While



The StarSense AutoAlign accessory replaces the finder scope on older Celestron telescopes. The unit comes with two mounting brackets; pick the one that works with your instrument. PHIL HARRINGTON

## PRODUCT INFORMATION

### Celestron's StarSense AutoAlign

**Communication ports:** RS-232 communication port on hand control; AUX interface and USB on camera

**Computer hand controller:** Four-line, 16-character backlit Liquid Crystal Display with 19 fiber optic backlit LED buttons

**Database:** 40,000+ objects

**Weight:** 17 ounces (482 grams)

**Price:** \$329.95

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The StarSense hand controller's database contains 40,000 objects. Celestron gave it the same shape as its other controllers. PHIL HARRINGTON

strong twilight, terrestrial obstructions, heavy light pollution, and moonlight could be problematic, the StarSense had no problem completing the process from my moonless suburban backyard, which isn't exactly a dark site. The naked-eye limiting magnitude there is about 4.5.

The StarSense also offers a manual mode that lets the user select the area of sky for the alignment images. This is useful in locations with an obstructed horizon. Celestron warns, however, that this method is not as accurate as automatic alignment. Still, I found that it does offer reasonably good accuracy within that region of sky.

The first time I used the StarSense, I had to perform a second operation to align its center with that of my telescope — in effect the electronic equivalent of aligning a finder scope with the main instrument. This process required that I select a named star from its database and instruct the StarSense to go there.

I chose Aldebaran (Alpha [ $\alpha$ ] Tauri). With a wide-field eyepiece in place, the scope slewed to Aldebaran's general vicinity. It was a bit more than one field of view off. Using the hand controller's arrows, I centered the star in the eyepiece, pressing "Enter" and "Align" when instructed. Once I finished this, the message "Realignment Required" appeared. This meant I needed to shut off the telescope, turn it back on, and repeat the AutoAlign process.

Once done, the hand controller's read-out posted "Alignment Complete," and I was ready to observe. And guess what? It worked perfectly.

Purposely trying to throw it off, I chose widely separated objects, going from the Orion Nebula (M42) to Ursa Major's Cigar Galaxy (M82), to the Ghost of Jupiter (NGC 3242) in Hydra, and then onward to Jupiter itself in Gemini. Each time, my target was in the eyepiece's field of view.

## How it rates

I came away impressed with Celestron's StarSense accessory. Despite the age of my CG-5 mount, the new unit worked perfectly the first time, and every time. Rather than manually initialize the go-to control when I went out, I simply set up the scope, hit "Auto Align," and while the scope was doing its thing, I was inside making a cup of tea. What could be better than that? ☺