

Hot Products for 2014



Our 16th annual roundup of Hot Products highlights the most intriguing new astronomy gear in the worldwide market.

By the Editors of **Sky & Telescope**

Wow! What a year it's been for product introductions.

When we finished compiling our “short list” of candidates for this year’s Hot Products, we had the biggest list ever in the history of preparing our annual survey. Furthermore, when the dust settled and we had our final selection, it too comprised the most items ever. While it’s been a great year for new products, things need to be more than just “new” to make our list. They need to introduce new technologies, offer solutions to old problems, or deliver unprecedented value. As such, our selection aims to honor the products that help our hobby evolve.

This year’s picks range from the elegantly simple (the dual finder bracket on page 68) to the mind-bogglingly complex (the Differential Autoguider System on page 66). The costs are equally varied, ranging from a free smartphone app to telescopes costing \$15,000 and more.

As always, we hope you enjoy reading about the new products that intrigued us the most for 2014.

► **StarSense AutoAlign**

Celestron • celestron.com

U.S. price: \$329.95

Celestron’s SkyProdigy telescopes (reviewed in our March 2013 issue, page 62) introduced the company’s StarSense Technology, which uses a dedicated imaging module to provide foolproof initialization of the scopes’ computerized Go To pointing. The new StarSense AutoAlign system now brings that technology to the company’s full line of Go To telescopes. It’s also compatible as a retrofit to almost all of the Celestron Go To scopes made in the past decade.



◀ Filter Slider

Starizona • starizona.com

U.S. price: \$129.00

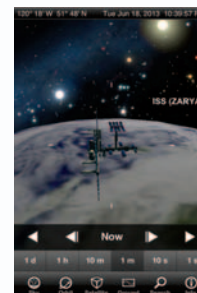
Some astrophotographers don't need (or can't use) a multi-slot filter wheel. Starizona's Filter Slider offers an easy way to add filters to just about every imaging system imaginable (as well as many setups for visual observing). It's also noteworthy for its compatibility with the company's HyperStar imaging systems (reviewed in our February 2010 issue, page 34), which transform selected Schmidt-Cassegrain telescopes into ultra-fast astrographs.

▼ Aspen CCD Cameras

Apogee Imaging Systems • ccd.com

U.S. price: from \$3,355

In designing the new Aspen CCD cameras, Apogee Imaging Systems rolled its years of experience serving professional and amateur astronomers into a camera line that can suit every need. In addition to deep cooling, robust shutters rated for 5 million cycles, and USB and Ethernet connectivity, there are subtle features such as mechanical adjustments for precisely squaring the detector to an imaging system's optical axis.



▲ Satellite Safari

Southern Stars
southernstars.com

U.S. price: \$4.99

Today there are lots of internet resources for people wanting to observe and identify Earth-orbiting satellites. But we've never seen one that surpasses *Satellite Safari* for packing more capability and information into an app for Apple and Android mobile devices. And some of its graphics are worthy of a Hollywood studio.

▲ Advanced VX Computerized Mount

Celestron • celestron.com

U.S. price: \$799

High-end, do-everything, super-precise German equatorial mounts grab lots of headlines, but they're also more than what many amateurs need or can afford. So Celestron's engineers set about designing high-end performance into a mount for astrophotographers with more modest needs and budgets. The result is the Advanced VX mount designed for payloads up to 30 pounds (13½ kg).

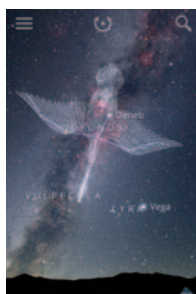
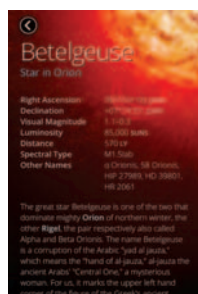
◀ ALPY 600 Spectroscope

Shelyak Instruments • shelyak.com

U.S. price: from about \$950

Spectroscopy is a small but growing field of amateur astronomy thanks, in part, to the continuing efforts of Shelyak Instruments in France. The company's new ALPY system offers high performance in a compact modular design. It can record astronomical spectra from near-ultraviolet to near-infrared wavelengths. It's pictured with optional assemblies for autoguiding and spectral calibration.





► **Deep-Sky Planner 6**
Knightware • knightware.biz
U.S. price: \$80.95

Deep-Sky Planner 6 is a major upgrade to one of the most popular Windows programs for scheduling observing sessions. It can now export your custom observing plans to a variety of telescope-control programs, including *Argo Navis*, *Sky Commander*, and *SkySafari*. It also connects directly to Go To telescopes that use the ASCOM 6 protocol.



▲ **Sky Guide**

Fifth Star Labs • fifthstarlabs.com
U.S. price: \$1.99

Want to know what you're looking at in the sky right now? Then just open the *Sky Guide* app on your Apple mobile device and hold it up to the sky. The view automatically matches the direction you're pointing, and a tap of the screen will identify the brighter objects and provide information about them. Oh, and did we mention that the app has some of the most elegant graphics we've seen?

▼ **Baader Classic Q-Turret Eyepiece Set**

Baader Planetarium
available in U.S. from alpineastro.com
U.S. price: \$395

As our in-depth Test Report in the October 2013 issue (page 60) notes, this eyepiece set is ideal for planetary observers and imagers. It includes four eyepieces (three based on the legendary Zeiss Jena orthoscopic design), a versatile Barlow, and the turret eyepiece holder, all of which can be purchased separately.



◀ **VSD 100/f3.8 Astrograph**

Vixen Optics • vixenoptics.com
U.S. price: not available at press time

This new astrograph from Vixen hits a real sweet spot between high-end camera lenses and small telescopes. Its 380-mm focal length and 100-mm aperture yield an f/3.8 system that offers more than enough field to cover the largest CCD detectors. Its new optical design adds a fifth lens element to eliminate the violet halo around stars that is present in older astrographs in this class with four-element designs.

► **NGT-18 Reflector**

JMI • jimsmobile.com
U.S. price: \$14,995
This portable 18-inch f/4.5 Newtonian reflector on a splitting equatorial mount has been JMI's flagship telescope for more than a quarter century (it was introduced in early 1989, and we reviewed it in our January 1991 issue, page 35). The design has been tweaked during the intervening years, but now it takes a major leap forward with computerized Go To pointing and a built-in database containing more than 29,000 celestial objects.



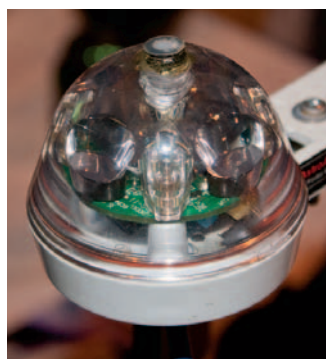


◀ **Imaging Power Panel**

Kendrick Astro Instruments
kendrickastro.com

U.S. price: from about \$380

Digital imaging brings huge advantages to today's astrophotographers, but it also brings with it lots of USB connections and auxiliary devices needing power. To make life a little less tangled at the telescope, Kendrick's Imaging Power Panels use a single external 12-volt source to supply a variety of outputs from 5 to 18 volts (including an 8-volt output for DSLR cameras). There's also a built-in 7-port USB 2.0 hub.



▶ **1100GTO Equatorial Mount**

Astro-Physics • astro-physics.com

U.S. price: from \$8,800

Long a leading manufacturer of transportable German equatorial mounts designed for high-end astrophotography, Astro-Physics has replaced its venerable 900 mount with the new 1100GTO. Its rated payload capacity of approximately 110 pounds (50 kg) is a boost of roughly 60% from its predecessor. It can be fitted with a wide variety of options, including state-of-the-art precision encoders that improve pointing accuracy and eliminate all forms of periodic error in the main drive.



▲ **AstroAlert Weather Monitor**

Foster Systems • fostersystems.com

U.S. price: \$455.50

Fully robotic amateur observatories now span the globe. You'll find them in suburban backyards, remote mountaintops, and just about every place in between. But lacking real-time human oversight, these facilities are vulnerable to sudden changes in the weather. That's when AstroAlert can step in and save the day (or night) by letting the observatory's control system know when it's safe to observe.

▶ **Astrocloset**

Astroclosets • astroclosets.com

U.S. price: from \$2,995

Backyard observatories come in all shapes and sizes, but Astrocloset will likely win the prize for the most efficient use of a small space. The standard model is roughly 4 feet (1.2 meters) square and 8 feet tall. It can accommodate any telescope that will fit through its 34x84-inch (86x213-cm) door. When rolled away from the scope, the observatory provides a cozy workspace with optional shelving and interior lighting.



▼ SVR102T Raptor APO

Stellarvue • stellarvue.com

U.S. price: \$2,395

As our Test Report on page 62 of the September 2013 issue points out, this beautifully made new apo refractor from Stellarvue has a lot going for it. The three-element, 4-inch f/7 objective is among the finest we've ever tested, and the carbon-fiber tube assembly, which tips the scales at a mere 9 pounds (4 kg), breaks down into pieces that will easily fit in airline carry-on luggage. It can be ordered with various focusers to suit visual observers and imagers alike.



► iOptron ZEQ25GT Mount

iOptron • ioptron.com

U.S. price: from \$799

iOptron has built its reputation on a series of computerized Go To mounts, ranging from lightweight alt-azimuth and equatorial models to mid-level German equatorials. The new "Z" mount is a clever design that has its center of mass near the middle of the equatorial head, leading to a greater natural stability than found in traditional German equatorials. This enables the mount to be unusually lightweight for its load capacity, which is a big benefit for portable setups. Watch for our review in the coming months.



▲ Differential Autoguider System

SBIG Astronomical Instruments • sbig.com

U.S. price: not available at press time

This revolutionary new method of guiding a telescope for deep-sky imaging offers the advantages of a separate guidescope while completely eliminating the insidious problem of differential flexure that accompanies them. It also eliminates any guiding errors that arise from flexure of the optics in the imaging telescope. The system uses an artificial-star generator near the main telescope's focal plane and a retroreflector to feed the artificial star's image to the guidescope.

It's a challenging concept to think about, but we've seen impressive results from the prototype.



▲ ZWO ASI120MM

ZW Optical

available in U.S. from highpointscientific.com

U.S. price: \$329.95

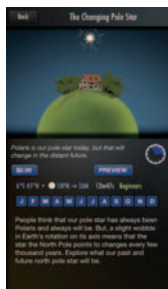
Astrophotographers who concentrate their efforts on the Moon and planets love cameras with small pixels and high frame rates. The ASI120MM from ZW Optical fills both bills with its extremely sensitive CMOS sensor and 3.75-micron pixels. It can record up to 35 full-resolution frames per second (fps) over a USB 2.0 connection, and up to 215 fps with on-chip region of interest (ROI). Our Test Report will appear in an upcoming issue.

◀ Hinode SG Solar Guider

Astro Hutech • hutech.com

U.S. price: \$695

There are lots of autoguiders made for tracking faint stars at night, but the Hinode is the only autoguider made for tracking the brightest star of all — our Sun. With many astroimagers interested in capturing time-lapse sequences of solar activity, the Hinode is a product whose time has come. The system works with any equatorial mount having an autoguider input port, but the mount does not have to be accurately polar-aligned. Since it tracks the circumference of the solar disk, Hinode is not suited for solar eclipses. The optional hand controller enables the Hinode SG to work as a stand-alone unit without a separate computer.

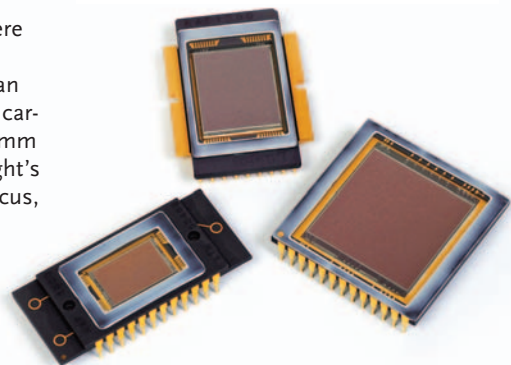


◀ **Starmap Media**

Starmap Media • star-map.fr

U.S. price: Free with two stories (additional stories \$0.99 each)

The original *Starmap* planetarium app for Apple's iPhone so wowed us that it was one of our Hot Product picks for 2010. Now from the same maker, *Starmap Media* offers more than seven hours of interactive animations and narration to tell the stories of dozens of celestial objects visible in your current sky. It runs as a stand-alone app or in conjunction with the Standard, Pro, or HD versions of the *Starmap* app.

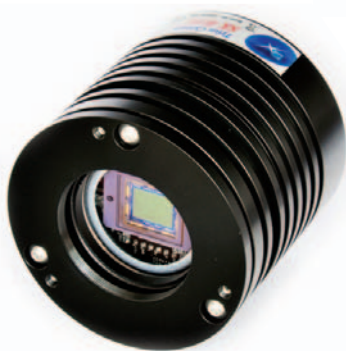


▶ **SX Mini-USB Filter Wheel**

Starlight Xpress • sxccd.com

U.S. price: \$425

Today there are many astrophotography setups having focal reducers or field flatteners with a fixed back focus of only 55 mm (a standard set by the popular T-system that hails from the early days of conventional SLR film cameras). This limited back focus presents a challenge for anyone trying to squeeze an off-axis guider, filter wheel, and camera into an imaging train. That's where the Mini-USB Filter Wheel from Starlight Xpress will help. It has an off-axis guider port and a 5-filter carousel built into a unit barely 28 mm thick. Coupled with any of Starlight's cameras having a 17-mm back focus, it fits perfectly within the 55-mm limit. Problem solved.



▲ **EXview HAD CCD II Sensors**

Sony • sony.net

We've seen this before — a new line of CCDs hits the market and changes the way we think about capturing the night sky. Such is the case with the EXview HAD CCD II chips from Sony. These CCDs offer high sensitivity, low noise, and pixels as small as 3.69 microns square, making them ideal for shooting with short focal lengths. The chips are quickly working their way into astronomical cameras from most of the major manufacturers.

▼ **Skyris CCD Camera**

Celestron • celestron.com

U.S. price: from \$499.95

The new line of Skyris video cameras from Celestron is a collaborative effort between the venerable telescope manufacturer in California and The Imaging Source in Germany. They are the first models marketed as astronomical cameras with 12-bit image capture and state-of-the-art, high-speed USB 3.0 connections for exceptionally high frame rates (up to 120 full-resolution frames per second depending on camera model). They usher in a new era for solar, lunar, and planetary imagers.



▶ **SX Trius CCD Camera**

Starlight Xpress • sxccd.com

U.S. price: from \$1,850

With many astronomical cameras, filter wheels, autoguiders, and focusers requiring a powered USB connection to a computer, there can be a lot of cables hanging around the focal plane of a telescope. But the Trius cameras from Starlight Xpress can help. Each model has an internal powered USB hub with three ports, thus making it possible to operate the camera and up to three USB accessories via a single cable.



◀ **Dob Dolly**

Orion Telescopes & Binoculars • telescope.com

U.S. price: \$129.99

Sometimes the thought of hauling a telescope out of storage (not to mention putting it away afterwards) is all it takes to put a damper on an enjoyable evening under the stars. Enter the Dob Dolly from Orion Telescopes & Binoculars. It offers the most economical way we've seen for easily moving most Dobsonian telescopes up to 10-inch aperture across any smooth surface.

► 14-inch CDK Telescope

PlaneWave Instruments • planewave.com

U.S. price: \$15,000

Designed from the get-go for high-end digital imaging, the CDK telescopes from PlaneWave have gained a prestigious following among elite astrophotographers. Nevertheless, until now there has been a significant gap in the CDK line between the 12½-inch f/8 model (reviewed in our November 2010 issue, page 36) and the 17-inch f/6.8. That's now been filled by the 14-inch f/7.2, which, for many, strikes an ideal balance between aperture, focal length, and price.



▼ FLI Imaging Train

Finger Lakes Instrumentation
fli-cam.com

U.S. price: determined by configuration

In a rare collaboration between major manufacturers, the folks at Tele Vue Optics and Finger Lakes Instrumentation (FLI) have teamed up to offer a turnkey setup for high-end imaging. The specially configured Tele Vue NP127 (5-inch f/5.3) apo refractor replaces the scope's regular focuser with a rigid adapter that has its optical components perfectly spaced for an imaging train comprising FLI's Atlas focuser, 10-position CenterLine Filter Wheel, and ProLine PL16803 CCD camera. The system produces tack-shape stars across a 4°-wide field. The FLI components are sold separately for those imagers who may already own one or more of them.

▼ Tele Vue NP127fi APO

Tele Vue
televue.com

U.S. price: not available at press time



▲ Dual Finder Scope Mounting Bracket

Orion Telescopes & Binoculars
telescopes.com

U.S. price: \$49.99

The name says it all, and it's such a simple concept that we have to wonder why someone hasn't done it before now. This little bracket's foot and dual finder mounts all use the same dovetail fittings that are found on many popular telescopes. This makes it a snap to equip your telescope with red-dot *and* traditional magnifying finders.



◀ RiDK 305 Astrograph

Officina Stellare • officinastellare.com

U.S. price: from \$16,595

Officina Stellare has added a new scope to its line of high-performance astrographs. The 100% Italian-made RiDK 305 is a 12-inch f/7.9 modified Dall-Kirkham reflector designed by the company's chief optician, Massimo Riccardi. It promises diffraction-limited imaging performance over a wavelength range from the near-ultraviolet (380 nm) to the near-infrared (2,000 nm). The flat field covers an imaging circle more than 60 mm in diameter, making it suited for the largest CCDs in common use by astrophotographers. As with other astrographs in the Officina Stellare line, the RiDK has a full complement of accessories, including focusers, field rotators, and custom adapters for cameras, filter wheels, and off-axis guiders.



▼ SkyTracker

iOptron • ioptron.com

U.S. price: from \$399

As more photographers discover that their DSLR cameras are capable of capturing great pictures of the starry sky, there's a growing interest in small tracking mounts, which greatly expand upon the astrophotography possible with a camera mounted only on a fixed tripod. The best value we've seen for a tracking mount is iOptron's SkyTracker. As our Test Report noted (May 2013 issue, page 64), the easy-to-use device has an accurate polar-alignment scope, high load capacity, and an excellent motorized drive having precision metal gears that are powered by four internal AA batteries.



▼ TheSky HD

Software Bisque • bisque.com

U.S. price: \$4.99

Introduced during the earliest days of personal computers, *TheSky* has become one of the most popular planetarium programs ever developed. It's the standard by which other programs are measured. Now you can carry it with you. After several years of anticipation, Software Bisque has introduced a version for Apple's iPad (with another version for Apple's other mobile devices soon to follow). It requires the iOS 7.0 (or later) operating system.



► Binotron-27 Super System

Denkmeier Optical • denkmeier.com

U.S. price: \$1,099

Building on years of experience making binoviewers for telescopes, Denkmeier Optical has created its Binotron-27 Super System. It features 27-mm prisms that allow full illumination of 1¼-inch eyepieces. Each eyepiece holder has adjustable collimation and a built-in helical focuser. The Binotron-27 fits telescopes with 2-inch focusers and it includes the popular Power X Switch that enables users to quickly select three magnification levels for a given set of eyepieces.



► AWB Dob

Astronomers Without Borders
astronomerswithoutborders.org

U.S. price: \$199.99 with free shipping

If you poll a dozen astronomy experts about their picks for ideal beginners' telescopes, you'll likely get a long list of candidates. But this new 5-inch f/5 Dobsonian would certainly be near the top of everyone's list. Imported by Celestron exclusively for sale in the United States by Astronomers Without Borders (AWB), the scope is shipped completely assembled and includes two eyepieces. Tipping the scales at just 14 pounds (6 kg) with a built-in carrying handle and collapsible tube assembly, this little Dob is the perfect instrument for everyone's grab-and-go observing. We'll give you all the details in our Test Report scheduled for the February 2014 issue. But we can tell you now that our reviewer is impressed. Also, all profits from the sale of the scope go to support AWB's global astronomy programs. ♦

