Omegon's 2.1×42 Wide-Field Binoculars

Sometimes dismissed by observers, these wide-field binoculars fill an unusual niche when it comes to viewing the night sky.

Omegon 2.1×42 Binoculars

U.S. Price: $149
Omegon.eu

What We Like

Very well made

Smooth, individually focusing eyepieces

Excellent aid for learning and enjoying the night sky under less-than-ideal conditions

What We Don't Like

Maximum field of view reduced for those who observe wearing eyeglasses

IF THESE UNUSUAL binoculars have caught your eye, but you've dismissed them as not being very useful for astronomy, you're not alone. But you're also not right. They offer a view of the starry sky unlike anything you'll see with typical binoculars and opera glasses — something that was dramatically apparent the moment I turned them skyward. Although I was well prepared for the advantages this type of optical system brings to viewing the night sky, I wasn't prepared for how instantly smitten I was with the views through the Omegon 2.1×42 Binoculars. Whether it was the views or my reaction to them I don't know, but either way it was a delightful introduction to astronomical observing with this pair of binoculars.

So why have some amateurs dismissed them? From chatter I've seen online there are two reasons. One is the low magnification, especially since most binoculars recommended for astronomy have magnifications of 7× and greater. It's true that 2.1× isn't a lot, but it is enough to split some double stars, identify a few lunar craters, and give an occasional glimpse of Jupiter's four Galilean moons. While most of us wouldn't consider that a big deal, I think everyone would agree that if nature had equipped us with eyeballs that could switch to 2×, we'd find it immensely useful for astronomical observing.

The other turnoff seems to be the objectives' 42-mm apertures, which

▲ The Omegon 2.1×42 Binoculars make the perfect optical aid for learning the constellations, especially from locations where light pollution has hidden many of the fainter stars that fill out the celestial patterns.

ALL PHOTOS BY THE AUTHOR

▶ The binoculars come with a carrying case, wrist strap, cleaning cloth, and a complete set of lens caps.

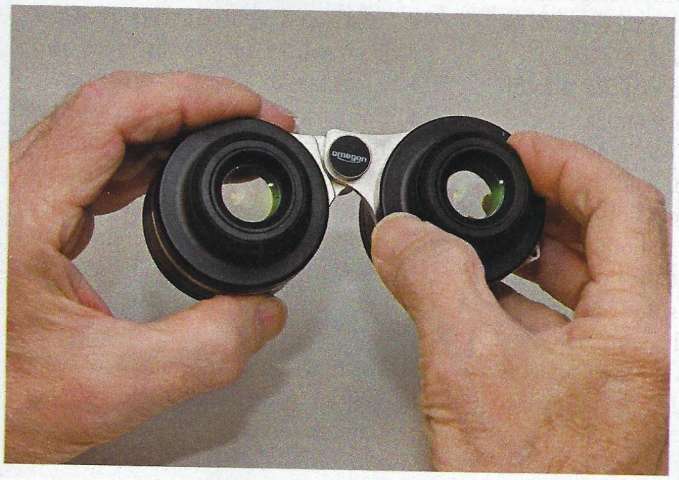
some people find misleading. The laws of optics dictate that all the light the 42-mm apertures collect cannot enter your eyes and much of it is thus wasted. Where you place your eyes in the light bundle emerging from the eyepieces of binoculars is called the exit pupil, and its diameter is equal to the binocular's aperture divided by its magnification.

For the Omegon 2.1×42 that's an exit pupil 20 mm in diameter — far greater than what can enter the dark-adapted eye's pupil, which is typically around 7 mm for young people and decreases with age. Indeed, at 2.1× the maximum aperture that can channel all the light it collects into an eye's 7-mm pupil is 14.2 mm. But the Omegon's twin 42-mm apertures are not a waste nor are they an attempt to mislead the consumer, but rather it is needed to create the binocular's very wide field of view. And it does this very well.

The Omegon 2.1×42 Binoculars are based on a Galilean optical design, which in its simplest form is a convex objective lens and a concave eyepiece (the Omegon is a more advanced version, with four lens elements). The field of view that you see with a Galilean system is governed somewhat by the diameter of your eye's pupil, and with my dark-adapted "senior" eyes it was a bit more than 25° — large enough to take in all of the Big Dipper from the end of the handle to the tip of the Pointer Stars. (This field is reduced for people who observe wearing eyeglasses and thus have their eyes farther back from the eyepieces.) Stars appeared sharp across more than half the field, but even those at the edge weren't objectionable given that I naturally concentrate my view toward the center of the field.

I was particularly interested in how much the Omegon 2.1×42 Binoculars improved the visibility of faint stars. Crunching numbers for the gain that an effective aperture of 14 mm provides versus the unaided eye's 7 mm suggests that the binoculars will show stars more than 1½ magnitudes fainter than the naked eye under a dark sky. This gain remains a constant regardless of your eye's maximum pupil diameter. And

▼ *Left:* The eyepieces individually rotate to achieve sharp focus. The mechanism is smooth and holds focus very well once set. The binoculars accommodate interpupillary distances between 55 and 75 mm. *Right:* The objective cells are threaded to accept filters made for standard 2-inch telescope eyepieces.



while it seems a bit counterintuitive, the gain is more pronounced in light-polluted skies because the binocular's 2.1× magnification darkens the background sky by a factor of more than four, thus improving the contrast with faint stars, which are not dimmed by the magnification. There were nights when I could almost convince myself I was seeing stars more than 1½ magnitudes fainter in my suburban sky. That adds a lot of stars to the view!

As mentioned above, I was familiar with the advantage this type of optical system brings to astronomy. My first 35-mm camera — a fixed lens, range-finder model — had an accessory Tele Lens that is essentially a 1.8× Galilean telescope with a 57-mm aperture. Advertisements for low-power astronomical binoculars reminded me of my old Tele Lens, so I dusted it off and started using it as an astronomical monocular. The views it provided were interesting but not exceptional, which is why I was surprised by my immediate fascination with the view through the 2.1×42 Binoculars. Certainly, the natural sensation that comes from viewing with both eyes was a factor, but it took a bit of self-reflection to figure out why it seemed to be more than that.

◀ As mentioned in the text, the author used the Tele Lens accessory from his first 35-mm camera as a wide-field 1.8× astronomical monocular after being reminded of it by the first advertisements for the Omegon binocular. The lens and binocular are both based on a similar Galilean optical design.

As a pre-teen I taught myself the constellations using star charts in several library books, including those in William Tyler Olcott's *Star Lore of All Ages*. These simple star charts were a near-perfect match for my rural skies, and the learning experience provided one of the foundation blocks for my lifelong love of observing. Light pollution has continually taken its toll in eastern Massachusetts, and the naked-eye constellations of my youth no longer grace my backyard sky. But that first look through the 2.1×42 Binoculars showed they were still there and every bit as enchanting to me as they were at the dawn of the Space Age.

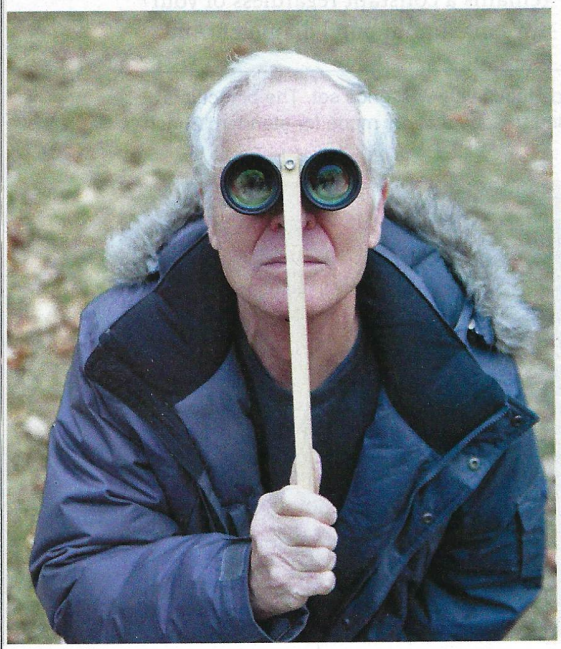
Regular binoculars reach fainter stars but can only show the smallest constellations in a single view. The 2.1×42s serve up the major outlines of Cygnus, Orion, Gemini, Auriga, the Square of Pegasus, and much more in one gulp. It's a great way for today's suburban observers to explore the constellations the way they appear above a rural landscape with the added benefit of 2.1× magnification. And the 2.1× helped me pick out occasional deep-sky objects that I've long remembered from Olcott's charts, albeit they were mostly faint but discernible smudges. Still, it was satisfying to find them.

The objective cells on the Omegon binoculars are threaded to accept standard 2-inch eyepiece filters, and there's a ¼-20 socket on the central pivot for use with tripod adapters. I fashioned a simple wooden handle that attached to the tripod socket so that I could comfortably hold the binoculars to my eyes with one hand for extended periods, much the way we think of people using opera glasses.

During the peak of last year's Geminid meteor shower I mixed naked-eye meteor watching with random intervals of scanning the sky with the Omegon binoculars and was struck with how often I caught sight of a meteor with them. I can't say that those meteors wouldn't have been visible to my unaided eyes, but the number did seem disproportionately high, especially given the smaller field of the binoculars.

The Omegon 2.1×42 Binoculars are definitely a joy to use, and I highly recommend them for anyone wanting to learn the constellations under less-than-ideal sky conditions. It was fun to look up from my back deck and see the Little Dipper as a complete dipper rather than just Polaris and a pair of stars in the dipper's bowl. And it was also nice using the binoculars to keep tabs on several well-known variable stars such as Algol in Perseus, where the wide field allowed having a complement of good reference stars in a single view. I started out with the thought that these binoculars would be interesting to test, and I ended up liking it way more than I ever expected.

▼ The binoculars' central pivot has a standard ¼-20 tripod socket. The author used it to attach a simple wooden stick that made it much easier to hold the binoculars for extended periods of observing.



■ **DENNIS DI CICCO** spends a lot of clear nights testing equipment from his backyard observatory in Boston's western suburbs.