

REVIEWED

OMEGON PRO PANORAMA II 100-DEGREE EYEPIECES

Wide-eyed at Omegon's new eyepieces

Steve Ringwood puts two of Omegon's Pro Panorama II 100-degree apparent-field eyepieces to the test.



▲ The 21mm and 10mm Panorama type II eyepieces provided for review. All images: Steve Kelly.

Eyeieces offering astonishing fields of view are swiftly becoming commonplace rather than exotic exceptions. Responding to the needs of deep-sky observers using rich-field instruments, Al Nagler began pushing at the wide-vista envelope in the 1980s with oculars offering a then-revolutionary 82-degree apparent field of view. Since then, designs have taken eyepieces to the limit that a standard two-inch focuser can allow (in which

case the focuser tube effectively acts as a field-stop delimiter for longer focal length eyepieces).

Omegon have introduced this range of 100-degree eyepieces in (currently) four focal lengths ranging between 21mm and 5mm. Those who have read my brief treatise on eyepiece properties (*Easy eyepiece mathematics*, AN, June 2018) will know that expansion of an eyepiece's field of view has other benefits besides showing more of the sky in one go. I was keen to find out whether this held true in this series with two examples, the 21mm and 10mm, supplied for this review.

At a glance

Focal length	Eye relief	Barrel	Weight	Price
21mm	20mm	2-inch	650g	£202
15mm	20mm	2-inch	600g	£202
10mm	19.7mm	1.25-inch	375g	£175
5mm	13mm	1.25-inch	320g	£175

For more details visit astroshop.de

Out of the box

The first thing that struck me as I removed the pair from their boxes was how relatively light and compact they are, compared to other 'mega-wide' eyepieces. The 21mm, which is the largest of the group, still only tips my scales at 650 grams

Fields of view

Apparent field is the intrinsic angle of view that the eyepiece provides to the eye. This is not to be confused with the real field, which is the portion of sky that the eyepiece will show when used at the telescope. Real field is calculated by dividing the eyepiece's apparent field by the resulting magnification. Hence, a 100-degree eyepiece, resulting in a magnification of 100 \times , will show one-degree of sky (about two Moon-widths). Generally speaking, larger apparent eyepiece fields mean wider real-sky views.

(although, oddly, the Omegon website quotes 705 grams).

The eyepiece jackets look very stylish and professionally finished, as befits their nomenclature. Beginning at the bottom, the focuser barrels of the 21mm and 10mm (two inches and 1.25 inches respectively) had safety undercuts, which are always welcome, particularly for heavier eyepieces. I would urge Omegon, however, to offer an optional screw-on two-inch tube for the 5mm and 10mm, since I quickly became irritated at having to reach for my 1.25-inch-to-two-inch adaptor every time I swapped between my two review examples.

Indeed, there is a claim that these eyepieces are parfocal – and that may be the case. However, the necessary interposition of a two-inch to 1.25-inch adaptor when swapping between the different sized barrels means that in practice refocusing on those occasions will always be necessary.

The main body sports twin rings of rubber grips that are solidly attached to the eyepiece and don't slip around the metal beneath them, as some eyepieces that I have seen do. The eye lenses of these eyepieces are very generous – there's no peeking through pin-hole apertures here. The summit of the eyepieces feature a fairly shallow fold-down eyecup – the almost essential usefulness of which I discovered later.

In harness

I began my review by deploying the eyepieces on my main instrument, a 305mm (12-inch), f/10 LX200. With the instrument's long focal length delivering the moderate power of 145 \times , the 21mm eyepiece nevertheless offered a potential real field of view that was a little over 41 arcminutes – a third again wider than the Moon's disc. Such a vista, settling on the winter delicacy of Orion's Great Nebula (Messier 42), should be stunning. I was not disappointed.



One of the advantages of wide-field eyepieces is that they spread and weaken light pollution captured in the field, making the backdrop darker than it would otherwise be. This effect on a 41-arcsecond view of M42 was breathless. At the centre, the stellar quartet of the Trapezium glowed within the nebula's dark heart. Yet the extremely wide field also presented the curving wings of the main gas lanes arcing away on either side. Nearby, the lesser nebula, M43, could also be seen within the realm of the eyepiece, only halfway towards the field periphery – a remarkably inclusive view at this magnification. Even the normally elusive wisps and knots of detail in the main nebula were lifted into plain sight by the excellent contrast delivered.

▲ The rubber eyecups can be either depressed or elevated. Our reviewer recommends the latter.

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Moving to the higher power of the 10mm eyepiece, I expected the contrast to improve with the background darkening further – and this was confirmed by observation. Even at 305 \times , the field of the 10mm eyepiece still captured most of the inner part of M42 (now distinctly mottled), the nebula looking like the frozen video frame of a dying, smokey fire, with the embers of the Trapezium within. Detail in both eyepieces was crisp to the edge.

The seeing conditions invited a chase into the centre of the nebula. Using the 21mm eyepiece on the LX200, in conjunction with a Televue 4 \times Powermate, I raised the stakes to a silly magnification of 580 \times .

Granted, resolution suffered from the over-elevated power, but with the 100-degree apparent field encircling the now bloated Trapezium, I really felt I was at the stellar cradle's doorstep.

Staying at this challenging

◀ The eyepieces have generously-sized eye lenses.



magnification, I next visited the Eskimo Nebula (NGC 2392), which is a small but reasonably bright planetary nebula almost at the zenith in Gemini. With its ghostly ball of surrounding light and a fairly tight star-like centre, this object looked remarkably like a comet. In fact, this similarity was so compelling that it almost had me thinking that my LX200 had sent me serendipitously to a happy discovery. What set it off, in context, was that the eyepiece's field at this magnification was able to comfortably include a nearby star over three-and-a-half arcminutes away.

One thing that I did notice with both eyepieces is that comfortable viewing of the entire field required using the eyecups. Without raising them, the eye is encouraged too close to the eye lens and the occluded dark zones of the kidney-bean effect (the eyepiece's delivery of light spilling over the periphery of the observer's pupil) are evident. With the eyecups raised to prevent the eye getting too close to the eye lens, this problem was obviated. Held at bay, the observer's eye is coincidentally positioned to take in the entire 100-degree field. Younger observers with wider pupils will not have to worry so much about this constraint.

I always find it instructive on these occasions to seek out familiar objects, since their elevation by good optics is more obvious. This is why I next moved to that other famous denizen of the winter sky, Messier 45 (the Pleiades), begging for attention far overhead. Even with the largesse of the 21mm eyepiece, this cluster's members were still a little too widely spread at 145x to be entirely captured in the field of view, but those it did capture were cast widely into the 100-degree apparent field, providing an incredible star-spangled view and a refreshingly unfamiliar take on a well-thumbed object.

Because of the dominance of its brighter members, it is often difficult to believe that M45 contains hundreds of stars, but there was no problem doubting that here. The wide field and high contrast conspired to lift subordinate components out of the gloom. With stars generously spread across the field, I took the opportunity to examine their fidelity from centre to periphery. It was very satisfactory, showing no distracting distortions or colour fringes.

A more-challenging telescope

Of course, the LX200's focal ratio of f/10 would be expected to be very forgiving on any eyepiece, even a wave-tossed pebble of quartz. I therefore pressed my wife's 254mm (ten-inch),

f/4.3 Newtonian into service as a sterner test of the Panorama II's corrections.

Beginning with the 21mm eyepiece, I returned southwards to M42's heartland, the sword of Orion that hangs beneath the triple-studded belt of the Hunter. At a mere 52x, I was rewarded with a stunning linear swathe of light that encapsulated the entire length of the sword. Despite the lower magnification brightening the sky background a tad, contrast was still sufficient to clearly reveal the daisy chain of clusters of which it is comprised, with the fan-shaped fog of the main nebula adding that final touch of glory. Even at this much-reduced scale, the Trapezium stars at its core were still clearly resolved. It was a wonderful view, not just aesthetically, but instructively, in showing M42 set in the context of its surroundings.

Elevating the tube to settle on the Pleiades once again, the eyepieces handled the steeper focus of the f/4.3 focal ratio very well indeed, with only residual coma at the extremity of the 10mm eyepiece's field, and hardly detectable at all in the 21mm eyepiece.

The time of review provided few opportunities for planetary observing. Only Uranus offered itself for high-resolution scrutiny. Using the 10mm eyepiece on both telescopes, I saw the planet's diminutive green disc to be sharply defined, albeit almost lost in the cavernous field of view.

Given their price and compactness (the 21mm eyepiece is 20 per cent lighter than a comparable 20mm mega-wide eyepiece that I own), the Panorama type II series is a very competitive choice and stands up well in its (100-degree) field.

Steve Ringwood is a regular contributor to *Astronomy Now*.



▲ A view of the field lens of one of the eyepieces. Each eyepiece has a barrel threaded for filters.

One of the advantages of wide-field eyepieces is that they weaken light pollution, and this effect on a 41-arcsecond view of M42 was breathless



▲ Rubber grips ensure that you don't fumble and drop these eyepieces while out in the dark.