



Very small and light Orion 4x21 binoculars with a powerful 18-degree field of view. Perfect for concerts, outdoor events or landscape observations. The special construction of the binoculars is very bright and the image is very sharp and clear already from 10 meters. Profiled shells, large distance between the pupils, light weight and size make the Orion 4x21 binoculars a handy optical device for everyone. In addition, the Orion 4x21 finds recognition among lovers of extremely wide field astronomical observations - the binoculars cover powerful areas of the sky, and give the image as if we had the eyes of an owl. Technical parameters ∅ magnification: 4x ∅ lens diameter: 21 mm ∅ field of view: 18 ° ∅ own field of view of the eyepieces: 72 ° ∅ exit pupil offset: 11 mm ∅ exit pupil: 5.2 mm ∅ minimum observation distance: 10 meters ∅ focus system: no (no adjustment / fixed setting) ∅ prisms: Porro, BaK-4 ∅ dimensions: 14.5 cm (width) x 7 cm (height) 9 x cm (depth) ∅ weight: 350 g ∅ in the set: binoculars, case, neck strap Warranty 12 months

**INDEPENDENT TESTER OPINION** In the life of probably every binoculars lover comes such a moment that he would like to be able to observe the world around him differently. Differently, i.e. at a smaller magnification but more broadly. So instead of thinking about buying another binocular with 8x or 10x magnification comes the desire to observe in a much wider field at the expense of smaller magnification. Sometimes a descendant appears in the house, eager to observe binoculars but needs light, wide-angle binoculars with simple focus adjustment and an image easy to keep in view. All these users start searching for binoculars with 6x and even 4x magnification. While among binoculars with a 6x magnification there is still such a choice (although wide-angle binoculars are like a medicine among them), among binoculars with a 4x magnification there is a real drought. We are doomed to either opera or retro binoculars known as "sports". Unfortunately, they usually have a field of view of 10 ° or even less, which translates into a claustrophobic at most 40-degree apparent field of view. Fortunately, for a long time Bushnell's offer includes 4x30 binoculars (which in fact turned out to be 4x21 binoculars), and recently a very similar binocular appeared in the Orion company's offer. The binoculars called Orion 4x21 SWA have an apparent 18-degree field of view, which means that it is equipped with glasses with a great field of view of 72 °. The price of this binoculars is budget, so I wanted to check how the binocular observations look in practice with such interesting parameters and attractive price. The test was possible thanks to the kindness of Teleskopy.pl, for which I would like to thank you. Factory set : with the binoculars we get a durable, non-rigid material pouch and a neck strap. The housing and the mechanics of the binoculars : the binoculars have a barrel shape and a very interesting, pleasant to the eye physiognomy of the "sad mouth". It fits well in the hands, thanks to the

profiled thumbs and notches on the housing under the other fingers. Unfortunately, the rubber does not perfectly adhere to the housing everywhere. The eyecups are properly profiled, cutting off most of the side lights. The binoculars are equipped with one central hinge, without a tripod exit. Optics : Orionka eyepieces and lenses have a delicate navy blue coating. The binoculars themselves are built in a Galileo system, without additional focus adjustment. The diaphragm is cut off sharply, without any colored border. Two things stand out from the first use. A large, comfortable field of view of the binoculars and blur appearing far too quickly and rising to a very high level at the edge of the field of view. Depending on whether we focus our eyes on the sharp center of the field of view or we like to look around "sideways" or we like Orionek very much or observations before it will be unacceptable to us. Chromatic aberration : in the middle of the field of view, it is at a low level and increases to the average level at the diaphragm. Coma : already appears in the middle of the field of view and grows quite quickly to large sizes. Astigmatism : it is significant in the whole field of view. Distortion : occurs very quickly, after exceeding 30% of the field of view radius, but interestingly up to the diaphragm is kept at a low level. When scanning terrain horizontally, the "sphere effect" is noticeable but not annoying. Faithfulness to color reproduction : the paintings given by Orionek are very cool, the dominant blue color tone is clearly visible. Measured parameters of the binoculars Weight : 348 g - the binoculars are handy and light, easy to maintain even for a five-year-old Eye distance adjustment range : 54-70 mm - the range is wide, the lower value is low enough, which will make Orion observations possible even for older preschoolers. The diameter of the eyepieces : 20 mm is sufficient for comfortable observation. Lantern test result : 21 mm - the binoculars use the entire aperture. Focus distance: from 7.5 meters to ∞; the minimum distance could be a little shorter but it's still good. Eyesight quickly adapts to changes in the distance of observed elements. Field of view measured on the stars: The field of view of the binoculars is in contact with the entire central Orion polygon with a "diameter" slightly exceeding 18 °! It is a pity that we can not enjoy admiring it in all its glory, but more on that below. Sharp field of view in daily observations: 9-10 °, which unfortunately only 55% of the field of view of the binoculars. Nevertheless, daily observations with this binoculars can be fully acceptable. Focusing on the sharp center and treating the edges only as a context, we are able to admire wide landscapes or even birds over shorter distances. Sharp field of view in night observations: here it is not even a little worse, it is sharp only 7-8 ° in the center of the field of view, i.e. only 42% in the center. It is a pity that Orionek does not allow the user to admire the wide star fields visible in the field of view. Focus in the center on a scale of 1-6: 4.0 - the image is more than satisfactory, if we remember that we are dealing with a budget product. Orion 4x21 SWA is a budget binoculars with great parameters and quite decent performance, adequate for the price. Its biggest drawback is its rapidly falling sharpness. Of course, the binoculars make up for with interesting physiognomy and a very large field of view. If the user learns to focus on the sharp center during the observation and treat the sides as a context, he should be pleased with the use of this interesting binoculars. I can easily recommend it to people looking for the first optical instrument for their children. Tomasz Miazgowicz - lover of optics