

A NEW SCOPE FROM LEICA: APO-TELEVID 82

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Technical data:

Length (body with zoom eyepiece)	40.5 cm
Weight (incl. eyepiece and objective covers)	1990 g
Closest focusing distance	4 m
Field of view with tested eyepiece 25 – 50 x WW asph zoom:	2.35-1.6°

We have been eagerly waiting for this new scope series from Leica for quite awhile now, as news of their upcoming release was leaked in the spring of 2006. In December 2008, the first samples finally arrived in our local stores, and as the winter was turning into spring, I got a unit for testing from the importer.

The new Leica scopes come in two objective sizes, both available in straight or angled view versions. Additionally, each configuration is available with an “HD” or an “APO” objective. As is now customary, all models share the same main body and eyepieces. The smaller four have 65mm objectives, and the larger models, of which I tested the angled version, have an 82mm objective. In these new Leicas, even the “entry level” models use fluoride glass to reduce chromatic aberration, and the APO models presumably have even better color-corrected optics, although the Leica literature does not provide explicit details.

It might well be that the new zoom eyepiece designed for these scopes is an even more significant development than the scopes themselves. This zoom has only a 2x magnification ratio instead of the customary 3x, but it promises true wide-angle performance already at the minimum magnification of 25x, as well as ample eye-relief throughout the magnification range. For eyeglass-wearers and digiscopers these are valuable features, and a wide field of view is certainly welcomed by all birders.

As for the scopes’ design, Leica has adopted the current trend followed by Swarovski, Zeiss and Kowa. The scope features a non-moving Schmidt prism (Schmidt-Pechan in the straight models), focuses with a moving lens element between the objective and the prism, and sports a solid, fully rubber armored black magnesium alloy body. Like the earlier Leica scopes, there is a double focusing wheel above the scope body, with the quick focus ratio being about 2.5x faster than the fine focus ratio. The prism is phase coated, and the external lens surfaces have been treated with water and dirt repellent AquaDura coatings.

Judged by its size, the Leica resembles the Swarovski ATM/S-80 HD, but for its size it is surprisingly hefty. My trusty scale measured it at nearly two kilos, more than 200g over specification. The optional stay-on case will add another couple of hundred grams to this. The case itself is very good and convenient in use. Objective and eyepiece cover flaps stay in place with hidden magnets that held their grip well. With a little bit of ingenious folding, it was also possible to fasten the flaps under/to the side of the scope during

viewing in such a way that they were out of the way and did not flap in the wind. However, pulling out the retractable sunshade from under the snug-fitting stay-on case was a struggle.

The eyepiece is situated along the centerline of the telescope, but is so high above the level of the objective rim that aiming from the eyepiece is difficult. It mounts with a solid bayonet, and there is a locking mechanism on the body that has to be pressed down when unfastening the eyepiece. The zoom ring is wide and easy to grasp, but its movement is so stiff that need for the eyepiece locking mechanism was amply demonstrated. The twist-out eyecup is huge – 55mm in diameter – and has click-stops at 4/7/9mm extension. The eye-relief of the new zoom eyepiece was not just impressive on paper but also measured very well, being at its lowest about 16mm, at 50x and 40x magnifications, and then gradually increasing as the magnification was reduced, reaching 19mm at 25x. This eyepiece should work very well with eyeglasses as well as for digiscoping. I spot-checked the field of view measurements, and got results that, if anything, even slightly exceeded the manufacturer's specs. The WW asph is therefore a genuine wide-angle zoom eyepiece. The other available eyepieces for the new series are a 32x WW and a more traditional 20-60x zoom.

Image quality

The image quality of the Apo-Televid I tested was a somewhat mixed bag. The image was very bright, although a fraction less so than in my reference scope, the Nikon Fieldscope ED 82 A. Chromatic aberration was very well controlled by the apochromatic objective, but not quite to the amazing level attained by the Kowa 883. Colors were vibrant and natural, and harmful reflections when viewing towards the sun were minimal. The image quality of the eyepiece is nothing short of astonishing. The view is impressively wide and expansive already at the start of the zoom's range, and the 80° subjective field attainable at the largest magnifications surpasses most dedicated wide-angle eyepieces. Moreover, the image quality hardly falls at all towards the field edges. There is virtually no rectilinear distortion, focus remains the same from center to edge (i.e. there is hardly any field curvature), and measured resolution even at the extreme edge of the field was still about 50% of the centerfield resolution. The only notable optical shortcoming of the eyepiece is a rather noticeable increase of lateral chromatic aberration in outer third of the field, which is seen as a yellow-green shadow lining on inner-field edges of high-contrast objects. Ease of view is also very good, although the unusually high eye-relief takes some getting used to. After viewing with a zoom like this, coming back to the narrow view of a conventional zoom is a shock and disappointment.

It is in the areas of ultimate sharpness and contrast of the image, however, where the new Apo-Televid 82 stumbles a bit. Of course, we must take into account the unavoidable quality fluctuations that come into play with optics that are used close to or above their diffraction-limited resolution. However, although I resolution-tested only this one sample, I did get to view with another four units in stores and in the field, and on the basis of that still rather small sample, the tested unit appeared representative. Using standard line-pair resolution targets both with and without a 3x booster scope, the measured resolution was about 20% weaker than in my cherry Nikon at identical magnification settings, and the difference to the best Kowa 883 I have measured is a little bit greater still. This lack of ultimate sharpness is also visible in direct viewing with the zoom at or close to its maximum magnification, especially when there is a chance to compare it directly with a sharper scope. Contrast is excellent at smaller magnifications, but at 50x it is no longer as good as in my reference scope. When investigating point source diffraction patterns through the scope, I saw that although other aberrations are relatively well corrected in the Apo-Televid 82, there is relatively prominent undercorrected spherical aberration, which could be expected to result in just the kind of compromised resolution and contrast I had been seeing in the scope. It is a somewhat ironic coincidence that in the impressive hundred-page Leica brochure that features the new Televids, there is a very illustrative although somewhat exaggerated pair of photos depicting this very effect of spherical aberration (p. 93, Leica Nature Observation, 07/07/ADX/D).

Summary

My overall impression of the scope was predominantly positive despite the few criticisms I have voiced above. At the 50x maximum magnification of the tested combination of scope-eyepiece, the minor lack of absolute sharpness and contrast is not much of a handicap, and in the balance, the many excellent characteristics of the image are so strong, even unparalleled, that it is easy to recommend this Leica to those demanding birders who place an expansively panoramic, impressive view above ultimate sharpness at the very highest feasible magnifications. The scope feels and looks like a high-quality product, and is a pleasure to use in the field. On the other hand, for birders who wish to be able to identify the minutest smudges at the greatest possible distances, there are better choices available such as the Kowa 883.

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