

Thank you for purchasing the Tele Vue 21mm ETHOS, the eyepiece that earned a 2010 Hot Product Award from Sky and Telescope magazine.

We wish you years of exciting deep sky viewing with the 21mm ETHOS, and we welcome comments on your personal experiences.



21mm ETHOS EYEPIECE INSTRUCTIONS

Warning: Do not unscrew any sections of the eyepiece, as the lenses may fall out, thereby voiding the warranty.

Tele Vue 21mm ETHOS Specifications	
Apparent Field:	100°
Focal length:	21mm
Effective Field Stop:	36.2mm
Eye Relief:	15mm (accepts Tele Vue's Dioptx astigmatism corrector)
Barrel Size:	2" (accepts 2" filters)
Weight:	2.25 lbs.

For Newtonians/Dobsonians, we recommend our Paracorr coma corrector to eliminate the mirror coma in *f*/5.5 or faster scopes. This permits the same kind of full field sharpness routinely seen in Tele Vue's NP-Series refractors. You can use the 21mm ETHOS 2" barrel in the Paracorr with the tunable top at its full down position, Mark 5 (top mark on Paracorr slot).

Note, the 21mm ETHOS nicely complements the 13mm and 8mm Ethos, since the power spacings are 1.6x and the field area spacings are about 3x.

If you have eyesight astigmatism, you can add Tele Vue's Dioptx Astigmatism Corrector to ETHOS, instead of using eyeglasses, to get the sharpest view possible (check dioptx.com for more details).

Telescope	Magnification (x)	True Field (°)	Exit pupil (mm)
TV-60is	17.1	5.8	3.5
TV-76	22.9	4.3	3.3
NP-101, NP-101is	25.7	3.8	3.9
TV-85	28.6	3.5	3.0
NP-127is	31.4	3.1	4.0
TV-102, TV-102iis	41.9	2.4	2.4



Approximate dimensions of 21mm ETHOS

- A. Length of barrel above reference surface (4.4")**
- C. Length of 2" barrel (1.6")**
- D. Diameter of black barrel (3")**
- F. Effective location of field stop (-0.37")**
(Above Reference surface location of 2" barrel seat)

Eyepiece Reference Data

To Assist in Building Your Collection

The Basics

1. Telescope Magnification = $\frac{\text{Telescope objective F.L.}}{\text{eyepiece F.L.}}$

2. Exit Pupil: the circle of light where you place your eye.

Exit Pupil Diameter = $\frac{\text{eyepiece F.L.}}{\text{telescope f/\#}}$

3. True Field of View: angle in sky in degrees.

TFOV = $\frac{\text{eyepiece field stop dia.}}{\text{telescope obj. F.L.}} \times 57.3^\circ$

4. Apparent field: the angle the field stop circle appears in your vision, when you look through the eyepiece.

5. Eye relief: distance from center of eye lens to exit pupil.

Some General Thoughts

1. Choose a range of eyepieces in low/mid power in ratios of 1.4 to 1.7 field stops.

2. Limit low powers to exit pupils of 7mm or less for reflecting telescopes.

3. Limit high power to 200x - 300x (atmospheric limits) or to a 0.4mm minimum exit pupil.

4. If you need to wear eyeglasses to correct your eyesight astigmatism, select eyepieces with at least 15mm of eye relief or consider using DIOPTRX instead of eyeglasses.

5. In general, large apparent field eyepieces are more spectacular and permit more magnification, darker sky backgrounds and smaller exit pupils (minimizing eyesight limitations) than narrow field eyepieces having similar field stops.

Of course everyone has their own needs and preferences in eyepieces. Keep those factors in mind when choosing between eyepiece types.

For data specific to your telescope visit the Tele Vue Eyepiece Calculator at Televue.com.

Focal Length (mm)	Type	Product Code	Apparent Field (deg)	Field Stop Dia. (mm)	Eye Relief (mm)	Dioptrix Ready	Pupil size in mm for various f/ratio telescopes				
							f/4.5	f/5.2	f/7	f/10	f/14
2" Eyepieces for Wide True Fields											
55	Plössl	EPL-55.0	50	46.0	38	Y	12.2	10.6	7.9	5.5	3.9
41	Panoptic	EPO-41.0	68	46.0	27	Y	9.1	7.9	5.9	4.1	2.9
31	Nagler 5	EN5-31.0	82	42.0	19	Y	6.9	6.0	4.4	3.1	2.2
35	Panoptic	EPO-35.0	68	38.7	24	Y	7.8	6.7	5.0	3.5	2.5
21	Ethos	ETH-21.0	100	36.2	15	Y	4.7	4.0	3.0	2.1	1.5
22	Nagler 4	EN4-22.0	82	31.1	19	Y	4.9	4.2	3.1	2.2	1.6
27	Panoptic	EPO-27.0	68	30.5	19	Y	6.0	5.2	3.9	2.7	1.9
17	Ethos	ETH-17.0	100	29.6	15	Y	3.8	3.3	2.4	1.7	1.2
17	Nagler 4	EN4-17.0	82	24.3	17	Y	3.8	3.3	2.4	1.7	1.2
1 1/4" Eyepieces for Wide True Fields											
40	Plössl	EPL-40.0	43	27.0	28	Y	8.9	7.7	5.7	4.0	2.9
32	Plössl	EPL-32.0	50	27.0	22	Y	7.1	6.2	4.6	3.2	2.3
24	Panoptic	EPO-24.0	68	27.0	15	Y*	5.3	4.6	3.4	2.4	1.7
13	Ethos	ETH-13.0	100	22.3	15	Y	2.9	2.5	1.9	1.3	0.9
16	Nagler 5	EN5-16.0	82	22.1	10	N	3.6	3.1	2.3	1.6	1.1
19	Panoptic	EPO-19.0	68	21.3	13	Y*	4.2	3.7	2.7	1.9	1.4
25	Plössl	EAP-25.0	50	21.2	17	N	5.6	4.8	3.6	2.5	1.8
17.3	Delos	EDL-17.3	72	21.2	20	Y	3.8	3.3	2.5	1.7	1.2
18.2	Delite	EDE-18.2	62	19.1	20	Y	4.0	3.5	2.6	1.8	1.3
10	Ethos	ETH-10.0	100	17.7	15	Y	2.2	1.9	1.4	1.0	0.7
13	Nagler 6	EN6-13.0	82	17.6	12	Y*	2.9	2.5	1.9	1.3	0.9
14	Delos	EDL-14.0	72	17.3	20	Y	3.1	2.7	2.0	1.4	1.0
20	Plössl	EAP-20.0	50	17.1	14	N	4.4	3.8	2.9	2.0	1.4
12	Nagler 4	EN4-12.0	82	17.1	17	Y	2.7	2.3	1.7	1.2	0.9
15	Delite	EDE-15.0	62	16.0	20	Y	3.3	2.9	2.1	1.5	1.1
1 1/4" Eyepieces for Medium Powers											
12	Delos	EDL-12.0	72	15.0	20	Y	2.7	2.3	1.7	1.2	0.9
11	Nagler 6	EN6-11.0	82	14.9	12	Y*	2.4	2.1	1.6	1.1	0.8
13	Delite	EDE-13.0	62	13.8	20	Y	2.9	2.5	1.9	1.3	0.9
10	Delos	EDL-10.0	72	12.7	20	Y	2.2	1.9	1.4	1.0	0.7
15	Plössl	EAP-15.0	50	12.6	10	N	3.3	2.9	2.1	1.5	1.1
9	Nagler 6	EN6-09.0	82	12.4	12	Y*	2.0	1.7	1.3	0.9	0.6
11	Delite	EDE-11.0	62	11.7	20	Y	2.4	2.1	1.6	1.1	0.8
9	Delite	EDE-09.0	62	9.6	20	Y	2.0	1.7	1.3	0.9	0.6
11	Plössl	EAP-11.0	50	9.1	8	N	2.4	2.1	1.6	1.1	0.8
1 1/4" Eyepieces for Higher Powers											
8	Ethos	ETH-08.0	100	13.9	15	Y	1.8	1.5	1.1	0.8	0.6
6	Ethos	ETH-06.0	100	10.4	15	Y	1.3	1.2	0.9	0.6	0.4
8	Delos	EDL-08.0	72	9.9	20	Y	1.8	1.5	1.1	0.8	0.6
7	Nagler 6	EN6-07.0	82	9.7	12	Y*	1.6	1.3	1.0	0.7	0.5
4.7	Ethos SX	ETH-04.7	110	8.9	15	Y	1.0	0.9	0.7	0.5	0.3
6	Delos	EDL-06.0	72	7.6	20	Y	1.3	1.2	0.9	0.6	0.4
7	Delite	EDE-07.0	62	7.5	20	Y	1.6	1.3	1.0	0.7	0.5
3.7	Ethos SX	ETH-03.7	110	7.0	15	Y	0.8	0.7	0.5	0.4	0.3
5	Nagler 6	EN6-05.0	82	7.0	12	Y*	1.1	1.0	0.7	0.5	0.4
8	Plössl	EAP-08.0	50	6.5	6	N	1.8	1.5	1.1	0.8	0.6
4.5	Delos	EDL-04.5	72	5.6	20	Y	1.0	0.9	0.6	0.5	0.3
5	Delite	EDE-05.0	62	5.3	20	Y	1.1	1.0	0.7	0.5	0.4
3.5	Nagler 6	EN6-03.5	82	4.8	12	Y*	0.8	0.7	0.5	0.4	0.3
3.5	Delos	EDL-03.5	72	4.4	20	Y	0.8	0.7	0.5	0.4	0.3
4	Delite	EDE-04.0	62	4.3	20	Y	0.9	0.8	0.6	0.4	0.3
2.5	Nagler 6	EN6-02.5	82	3.4	12	Y*	0.6	0.5	0.4	0.3	0.2
3	Delite	EDE-03.0	62	3.2	20	Y	0.7	0.6	0.4	0.3	0.2
1 1/4" Zoom Eyepieces for Medium and Higher Powers											
6-3	Nagler Zoom	ENZ-0306	50	5.1-2.6	10	N	1.3-0.7	1.2-0.6	0.9-0.4	0.6-0.3	0.4-0.2

