

Solution to Video camera with a telephoto “lens” made of mirrors

A. Positions of the elements

1. focal length of the telescope is positive
2. distance between the two mirrors (S_1S_2)=87,5mm
3. $F_2F'=200$ mm.
4. Dia entrance pupil=100mm. Exit pupil at 22,2mm to the left of F_2 , dia 44,4mm.

B. Field of view and diameters of the optical elements

5. Radius of bright field in the image space to cover detector: 7,24mm.
6. Hole at the center of mirror M_1 : minimum dia 22,9mm
Minimum diameter for the mirror M_1 : 103,6mm
7. Minimum diameter for mirror M_2 : 34,7mm
Minimum diameter for the mechanical mount of mirror M_2 : 50mm
8. Central obturation of this system: 25%