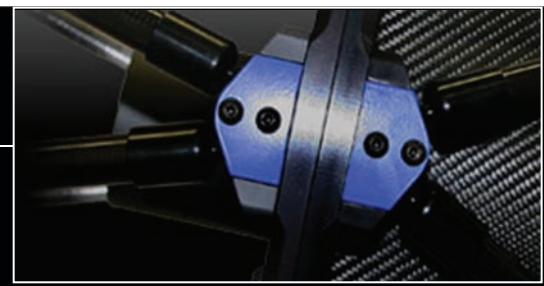




PlaneWave CDK 12.5

The CDK optical design is now available in a smaller and even more affordable aperture. The CDK optical design is the innovative solution for unsurpassed astro-imaging quality at an affordable price. The purpose of the design is to provide a telescope that will excel at imaging with large format CCD cameras while remaining superb for visual use. The CDK design far exceeds the off-axis performance of most commercial telescope designs including the Ritchey-Chrétien design. The RMS spot sizes at the edge of a 35mm frame remain smaller than a single pixel on the most advanced CCD cameras available to amateurs today. This no-compromise design is unique in making the optical alignment very forgiving and collimation very easy. This guarantees the user will be sure to get the best performance out of the telescope possible. The end result at the image plane of the CDK design is no off-axis coma, no off-axis astigmatism, and a perfectly flat field, all the way out to the edge of a 52mm image circle. All this means, the stars will be pinpoints from the center of the field of view out to the corner of the field of view.

FEATURES & SPECIFICATIONS



SYSTEM

Aperture	12.5" (.32m)
Focal Length	2541mm
Focal Ratio	f/8
Central Obstruction	39%
Back Focus	10.45" from Backplate, 7.2" from Racked in Focuser
Weight	46 lbs
OTA Length	31.5"
Optical Tube	Carbon Fiber
Performance	11 micron RMS spots 25mm off-axis

PRIMARY MIRROR

Diameter	13"
Aperture	12.5"
Focal Ratio	f/3
Mounting	Laser Collimated and Permanently Fixed
Material	Precision Annealed Pyrex
Shape	Prolate Ellipsoid
Coating	Enhanced Multi-layer Reflective Coatings

SECONDARY MIRROR

Diameter	4.65"
Material	Precision Annealed Pyrex
Shape	Spherical
Coating	Enhanced Multi-layer Reflective Coatings

LENS GROUP

Diameter	70mm
Number of lenses	2
Coating	High Transmission Anti-reflective Coatings

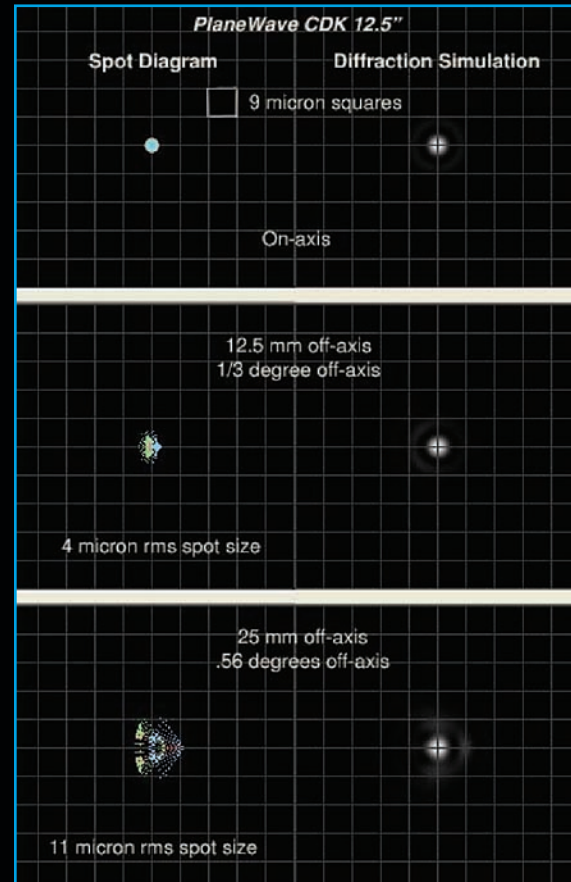
STANDARD FEATURES

Carbon Fiber Tube: Minimizes thermal expansion which causes focus shift as the temperature changes. The closed tube also protects the primary mirror and minimize dew.

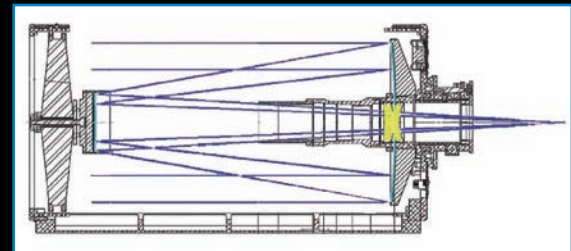
Dovetail Expansion Joint: Allows for the difference in thermal expansion between carbon fiber tube and the aluminum dovetail. The expansion joint allows the aluminum dovetail to expand and contract without stressing telescope.

2.75" Hedrick Focuser: Heavy duty no-slip focuser. The focus tube runs on 5 bearings and is driven by a leadscrew so there is no chance of slipping. It accepts an optional dial indicator and PlaneWave's Electronics Focus Accessory (EFA Kit) to control many electronic accessories. The focus draw tube travel is 1.3".

Cooling Fans: Three fans blow out of the optical tube pulling air through the telescope and by the primary mirror. This helps the telescope to equilibrate quickly. The fans are controlled by a switch on the optical tube or can be controlled by a computer if the optional Electronic Focus Accessory (the EFA Kit) is purchased.



RGB = 720, 585, 430 nm Simulation is for a flat field.



CDK 12.5 Optical Design



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STL-6303E

Typical Specifications



CCD	
CCD	KAF-6303E/LE
Total Pixels	6.3 million
Array	3072 x 2048 pixels
CCD Dimensions	27.7 x 18.5 mm
Pixel Size	9 x 9 μ
CCD Type	Full Frame
CCD Class Available	Class 1, 2
ABG/NABG	NABG standard / ABG on request
Full Well Capacity	100,000e-
Dark Current e-/p/s at 0°C	0.3e-
Read Noise	13.5e- RMS
Gain e-/ADU	1.4 unbinned / 2.3 binned
Full Frame Download	~15 seconds
Antiblooming	Optional
Peak QE	68%
Focal Length at 1 arcsecond per pixel	73 inches
FOV at 1 arcsecond per pixel	0.9 x 0.6 degrees

Camera Mechanical Specifications	
Dimensions	6.5 x 6 x 3.5 inches (16.5 x 15.2 x 8.9 cm) excluding nosepiece and handles
Weight	Approx. 4 lbs. (1.8kg) without filters
Computer Interface	USB 1.1 (transfer rate approx. 425,000 pixels/second)
Telescope Interface	Threaded accessory ring, mounting plate and 2" nosepiece supplied, Nikon 35mm lens adapter optional
Filter Wheel	5 position internal carousel accepts 48mm threaded filter cells and 2" unmounted round filters

Shutter	Internal Mechanical Shutter on all cameras, plus electronic shutter on Interline CCDs
Cooling	2 stage thermoelectric, water circulation, -40°C below ambient with uncooled water, regulated to +/- 0.1 degree (~32°C air only). Further cooling may be achieved by using water cooled below ambient and above the dew point.
Backfocus	Approximately 1.7 inches +/- 0.1 inches (~4.3 cm +/- 0.25 cm) with 2" nosepiece attached
Power Requirements	10 – 18VDC, 12VDC nominal, Universal 110 - 220VAC to 12VDC desktop supply provided (extension cord and 12VDC field power cord are optional)
Carrying Case	Pelican 1550 Case with custom cut foam insert
Software	CCDOPS ver. 5.xx, CCDSoftV5, CCDSharp, TheSky v.5, level II

Remote Head Mechanical Specifications	
Dimensions	2.75 x 2 x 2 inches (7 x 5 x 5 cm) excluding nosepiece and desiccant plug
Weight	Approx. 0.5 lbs. (0.23kg)
Computer Interface	USB 1.1 through main camera to computer. Proprietary protocol between remote head and camera body.
Telescope Interface	T-thread or supplied 1.25" nosepiece, optional T-thread to C-mount and 35mm camera lens adapters
Shutter	Internal Mechanical Shutter for dark frames plus electronic shutter for short exposures
Power Requirements	None (Remote head receives power through the head cable from the main camera)
Mounting connections	1/4-20 threaded hole on side of camera housing

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