Opticstar Imaging Catalogue 2014

OPTICSTAR

advanced CCD imaging

High Performance Cameras for Astronomy

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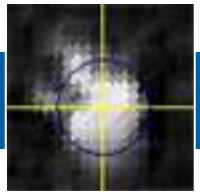
Cameras for Planetary Imaging

Cameras for Solar & Lunar Imaging

Cameras for Deep Sky Imaging

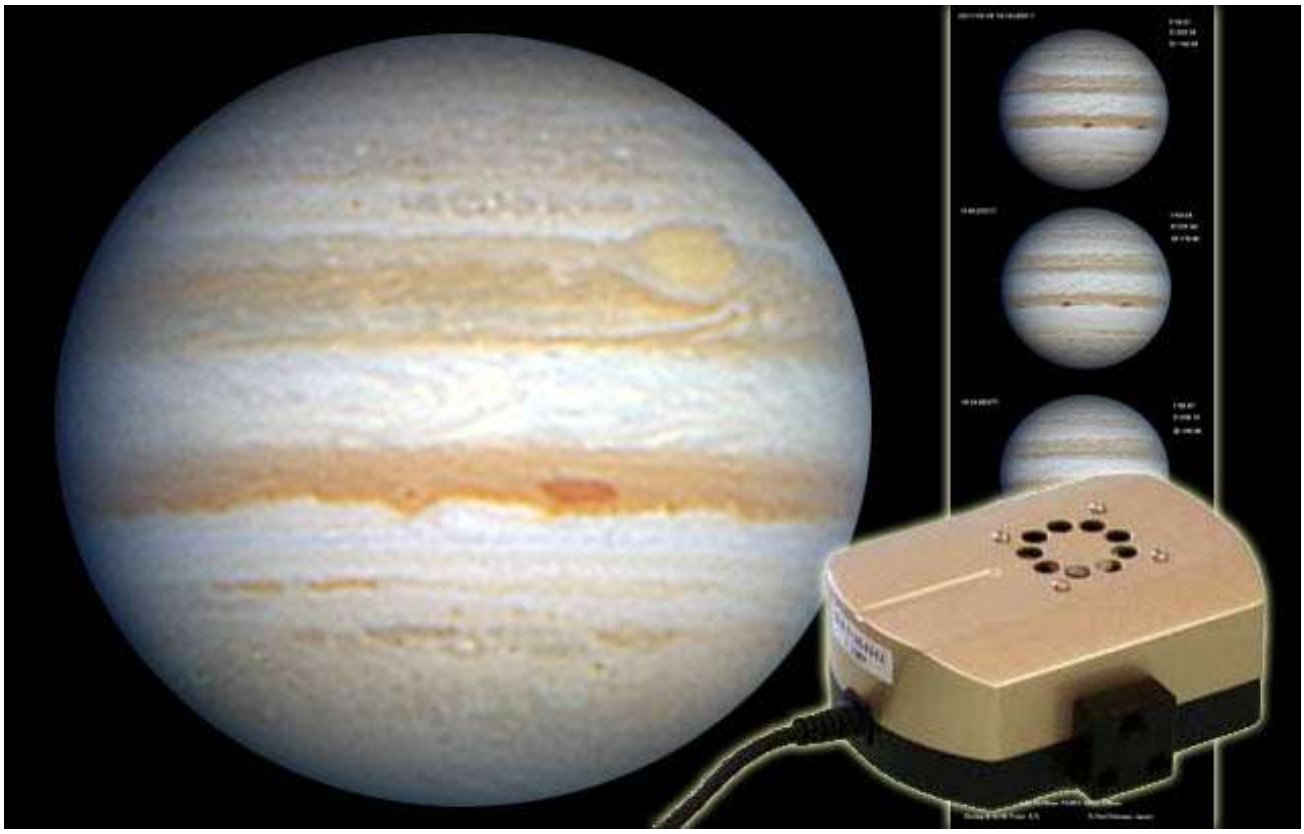


Cameras for Auto-Guiding

Imaging Accessories

3 Cameras for Planetary Imaging

Opticstar PX-35 •PX-75 • PX-137 • PX-308



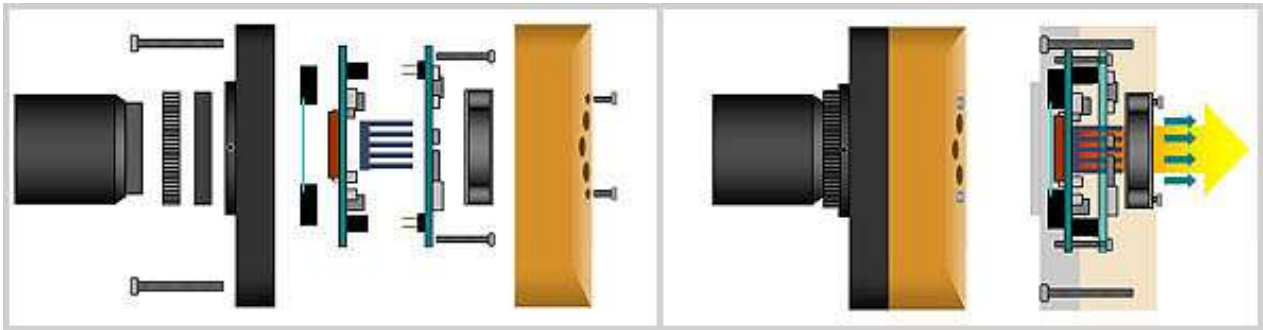
The Opticstar PX series of planetary cameras consists of high speed, high sensitivity video cameras with Sony CCD and sCMOS (scientific CMOS) sensors. Certain models with larger and higher resolution sensors are also well suited for Lunar and Solar imaging.

Please note that for Solar imaging, the camera should be used only with an appropriate solar telescope or solar filter.

The **Opticstar PX-35C CoolAir** is the ideal entry level colour planetary CCD camera with high sensitivity. The Sony ICX098BQ CCD, ¼" sized sensor (diagonal) is large enough to fit the planets even at fairly large magnifications while at the same time it's larger than usual pixels rapidly accumulate light. The camera speed is 30 frames per second at maximum resolution.

The **Opticstar PX-75C CoolAir** (colour) and **PX-75M CoolAir** (monochrome) cameras incorporate the larger Sony ICX204 CCD, 1/3" sized sensor (diagonal) offering twice the area of the field of view and more than twice the image definition. The PX-75 achieves 20 frame frames per second at full resolution.

Thermal noise is kept to a minimum via a heat-sink that is directly attached to the back of the Sony sensor and a fan that that draws the heat out of the camera quickly. This ensures clearer images with less thermal artefacts.



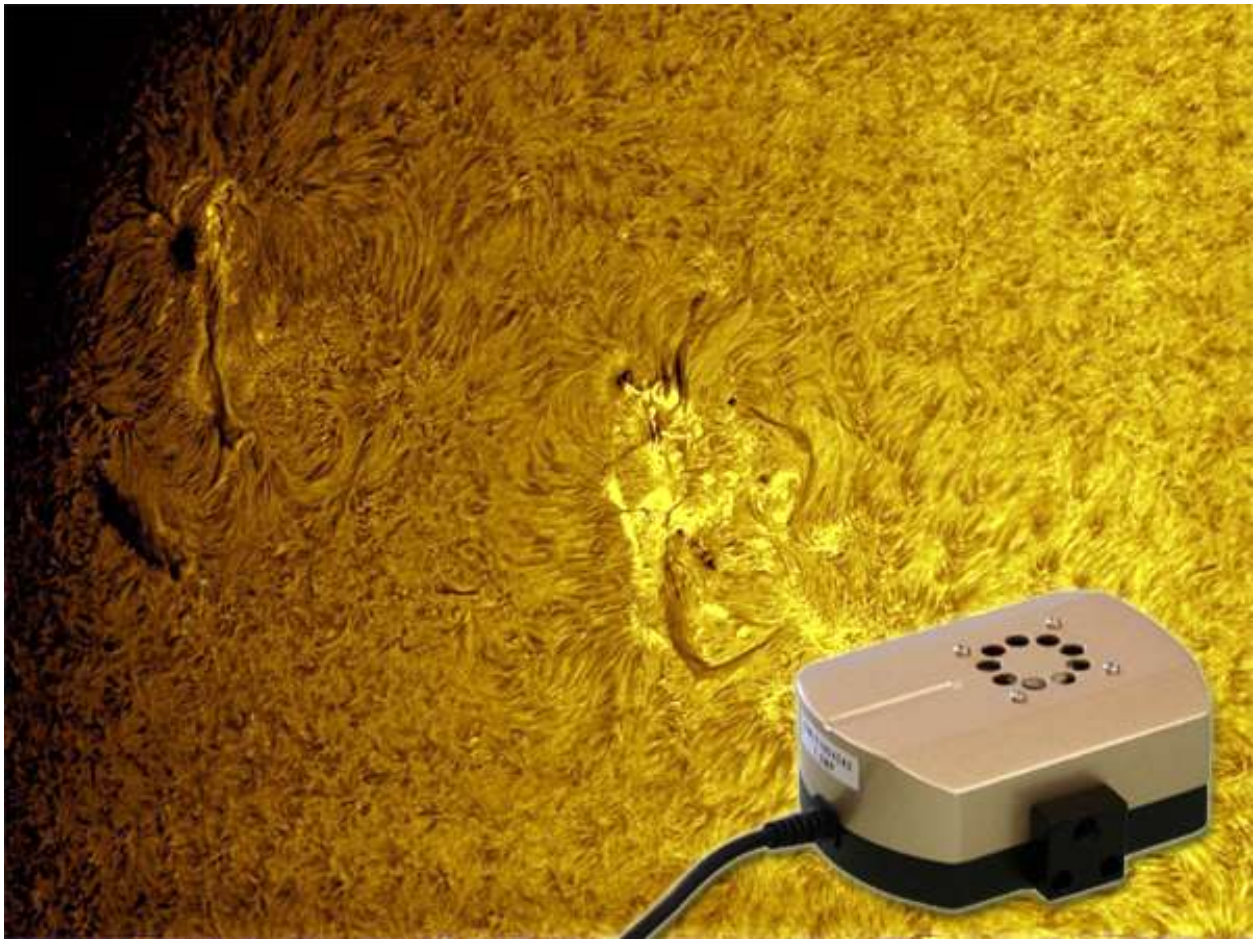
The **Opticstar PX-137C CoolAir** (colour) and **Opticstar PX-137M CoolAir** (monochrome) cameras incorporate the latest scientific CMOS technology. The Sony IMX035 sCMOS, 1/3" sized sensor (diagonal) offers the ideal combination of high definition (1.3 megapixels), high sensitivity and high speed. The **PX-308C CoolAir** (colour) is the 3 megapixel CMOS version.

The Opticstar PX cameras require a personal computer running Microsoft Windows (32-bit or 64-bit) 8/7/Vista/XP and a USB 2.0 port.

TECH BOX

	Sensor Size	Resolution	A.D.C.	Speed	RRP
PX-35C CoolAir	1/4"	640 x 480	8-bit	20 fps	£149
PX-75C CoolAir	1/3"	1024 x 768	8-bit	22 fps	£239
PX-75M CoolAir	1/3"	1024 x 768	8-bit	22 fps	£299
PX-137C CoolAir	1/3"	1280 x 1040	12-bit	25 fps	£299
PX-137M CoolAir	1/3"	1280 x 1040	12-bit	25 fps	£449
PX-308C CoolAir	1/3"	2048 x 1536	12-bit	11 fps	£449

Opticstar SL-131 • PL-131 • PX-75 • PX-308



Bright objects such as the Sun and the Moon do not require high sensitivity cameras but they benefit from larger sensors, higher resolutions and finer detail in the image data (dynamic range).

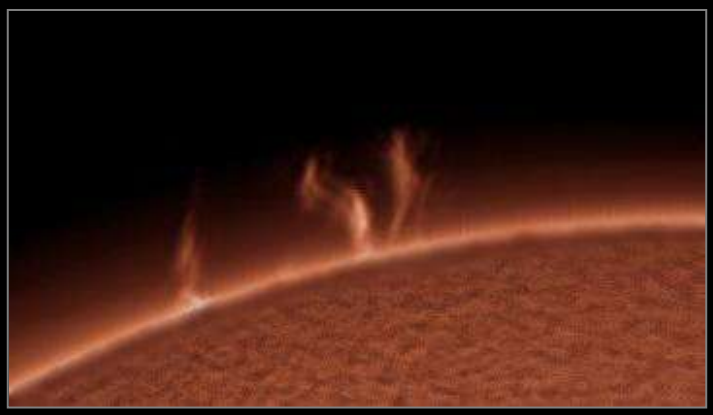
Please note that for Solar imaging, the camera should be used only with an appropriate solar telescope or solar filter.

The **Opticstar SL-131C CoolAir** is the entry level colour CMOS camera with a 1/3” sized sensor (diagonal). Its 1.3 megapixel sensor produces pleasing views of the Sun and the Moon.

The **PL-131C CoolAir** (colour) and **PL-131M CoolAir** (monochrome) incorporate larger a 1/2” sized CMOS sensors at 1.3 megapixel resolution. The PL cameras provide twice the field of view compared to the SL-131C due to their larger sensors. Furthermore, the PL cameras reproduce a better image due to their more advanced electronics. The PL-131C and PL-131M cameras are highly recommended for Lunar imaging. They support region or interest (ROI) with a maximum speed of 220 frames per second. They are the fastest cameras available in the industry at their price range.

For Solar imaging the **Opticstar PX-75C CoolAir** (colour) and **PX-75M CoolAir** (monochrome) CCD cameras perform particularly well. They incorporate the Sony ICX204 CCD. This 1/3" sized sensor (diagonal) combines high resolution at 1024x768 pixels and high frame rates. It also produces high quality image data. The PX-75 achieves 20 frame frames per second at maximum resolution.

The PX-75 cameras are also very well suited at planetary imaging. Their high sensitivity and generous sensor size makes them the all-round camera for Solar, Lunar and planetary imaging.



The **Opticstar PX-137C** CoolAir (colour) and **Opticstar PX-137M CoolAir** (monochrome) cameras incorporate the latest scientific CMOS technology. The Sony IMX035 sCMOS, 1/3" sized sensor (diagonal) offers the ideal combination of high definition (1.3 megapixels), high sensitivity and high speed. These cameras perfom particulary well in Solar and Lunar imaging due to their 12-bit data range that produces a wider range of image data.

The Opticstar SL, PL and PX cameras require a personal computer running Microsoft Windows (32-bit or 64-bit) 8/7/Vista/XP and a USB 2.0 port.

	Sensor Size	Resolution	A.D.C.	Speed	RRP
SL-131C CoolAir	**1/3"**	**1280 x 1024**	**8-bit**	**15 fps**	**£99**
PL-131C CoolAir	**1/2"**	**1280 x 1024**	**8-bit**	**22 fps**	**£149**
PL-131M CoolAir	**1/2"**	**1280 x 1024**	**8-bit**	**22 fps**	**£199**
PX-75C CoolAir	**1/3"**	**1024 x 768**	**8-bit**	**20 fps**	**£239**
PX-75M CoolAir	**1/3"**	**1024 x 768**	**8-bit**	**20 fps**	**£299**
PX-137C CoolAir	**1/3"**	**1280 x 1040**	**12-bit**	**25 fps**	**£299**
PX-137M CoolAir	**1/3"**	**1280 x 1040**	**12-bit**	**25 fps**	**£449**
PX-308C CoolAir	**1/3"**	**2048 x 1536**	**12-bit**	**11 fps**	**£449**

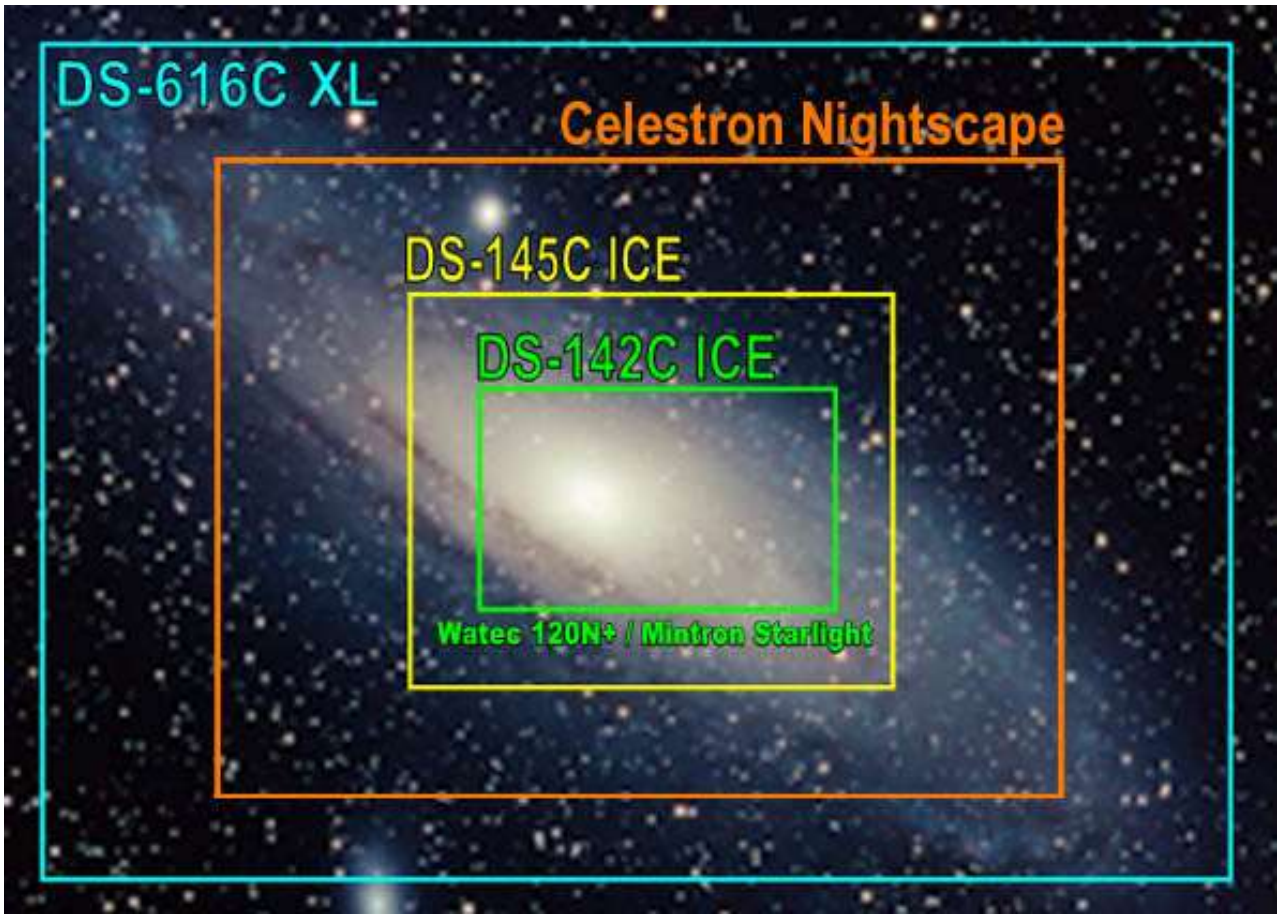
7 Large Format Camera for Deep Sky Imaging

Opticstar DS-616C XL

Not all 6 mega-pixel cooled astronomy cameras are created equal. The **Opticstar DS-616C XL** is in a class of its own with 50% higher sensitivity in real-world applications (100% maximum) than other cameras using the same Sony CCD due to its hardware gain and outstanding noise suppression, both features implemented in the camera hardware.

Focus and preview modes run at 1 frame per second. The special StarView mode enables semi real time viewing of deep sky objects in colour! The DS-616C XL offers the functionality of long exposure cameras and video cameras into one great package making this the ultimate deep sky camera.

The huge Sony ICX413AQ 1.8" format CCD sensor offers an unusually wide field of view (~13 times the sensor area of a 1/2" sensor typically found in top of the range astronomy video cameras) allowing exceptionally large targets like the Andromeda Galaxy to approximately fit on the DS-616 XL sensor at 1000mm focal length i.e. 8" f5 telescope.



The precision machined heavy duty alloy cases that provide unparalleled solidity and support sensor orthogonality. The camera uses long-life, high quality seals and offer 99%+ camera window transparency. A substantial heat-sink (over five to ten times the mass of the typical heat-sink in comparable cameras) rapidly draws the heat away from the sensor via a powerful peltier thermocouple for superior performance. This heat is then rapidly dissipated into the atmosphere with the assistance of a fan thus bringing noise.

The **Opticstar DS-616C XL** requires a personal computer running Microsoft Windows (32-bit or 64-bit) 8/7/Vista/XP and a USB 2.0 port.

TECH BOX

	Sensor Size	Resolution	A.D.C.	Exposure Time	RRP
DS-616C XL	1.8”	3032 x 2014	12-bit	1ms - 1 hour	£1299

Opticstar DS-142 ICE • DS-145 ICE

The **Opticstar DS-142C ICE** (colour) and **DS-142M ICE** (monochrome) cooled cameras incorporate the highly regarded Sony ICX205 1/2" CCD (diagonal size). The CCD has resolution of 1.4 megapixels (1434 x 1040 pixels).

The **Opticstar DS-145C ICE** (colour) and **DS-145M ICE** (monochrome) utilize the even more sensitive and larger Sony ICX285 CCD sensor. At 2/3" diagonal size it covers a larger area of the sky with image resolution of 1.4 megapixels (1434 x 1040 pixels).

Both models, the DS-142 and DS-145 incorporate the same advanced camera electronics delivering high quality image data. The electronics maximise light sensitivity and suppress noise. In fact, the cameras are approximately 50% more sensitive than other cameras using the same sensors in actual use (theoretically is can be as much as 100% higher) due to the built-in Gain electronics and advanced noise suppression.

The high frame rates combined with their high sensitivity make these cameras a pleasure to use. The unique StarView mode enables the user to see deep sky objects in semi-video mode e.g. 1 frame every 10 seconds.

A substantial heatsink, over five times the mass of the typical heatsink in comparable cameras, rapidly draws the heat away from the sensor via a powerful peltier thermocouple thus bringing noise levels down to a minimum.

Preview and focus modes run at 3 frames per second. The cameras come complete with a mains power supply unit to power the thermo-electric cooling sub-system, storage and carry case, plus the necessary adapters to attach the camera to the telescope.

The **DS-142 ICE** and **DS-145 ICE** require a personal computer running Microsoft Windows (32-bit or 64-bit) 8/7/Vista/XP and a USB 2.0 port.

TECH BOX

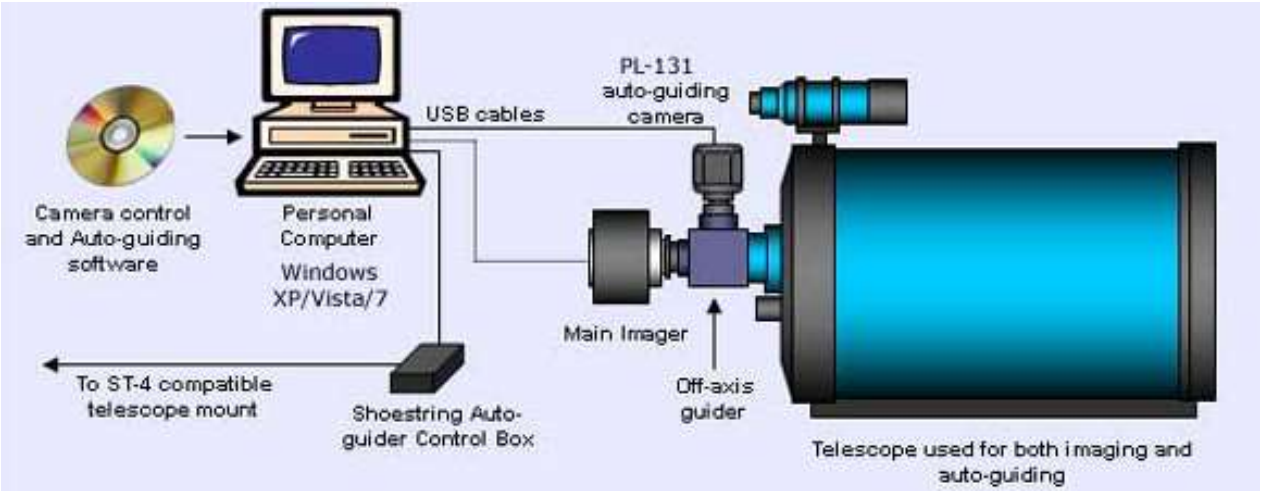
	Sensor Size	Resolution	A.D.C.	Exposure Time	RRP
DS-142C ICE	1/2”	1434 x 1040	12-bit	1ms - 1 hour	£575
DS-142M ICE	1/2”	1434 x 1040	12-bit	1ms - 1 hour	£575
DS-145C ICE	2/3”	1434 x 1040	13-bit	1ms - 1 hour	£995
DS-145M ICE	2/3”	1434 x 1040	13-bit	1ms - 1 hour	£995

Opticstar AG-131C • AG-131M CoolAir

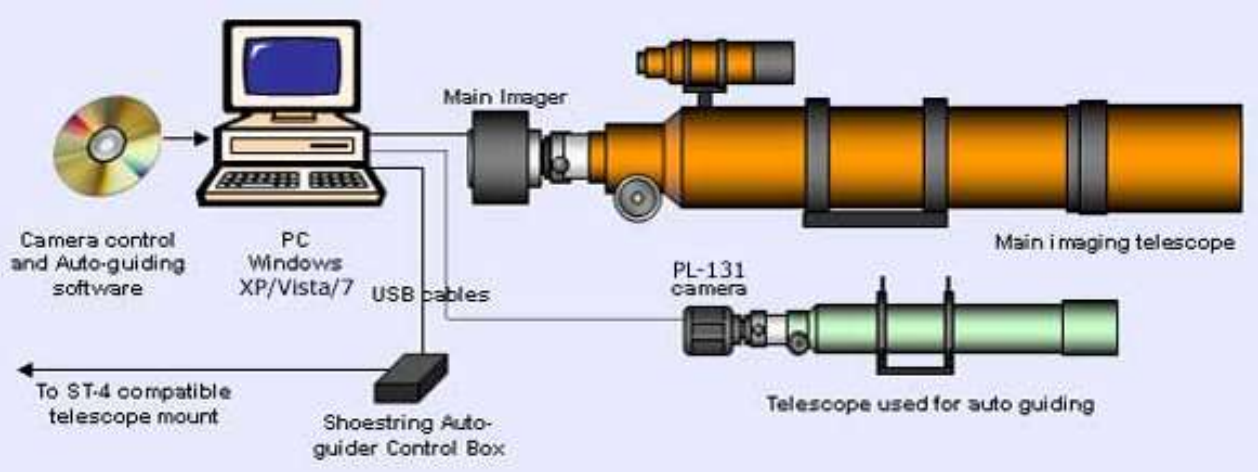
The **Opticstar AG-131C CoolAir** (colour) and Opticstar **AG-131M CoolAir** (monochrome) auto-guiding cameras, consist of the Opticstar PL-131 and the **Shoestring Astronomy GPUSB** telescope interface box for telescope control via the Guide Port (ST4). The package is complete with all the necessary cables and software to auto-guide. A personal computer running Microsoft Windows (32-bit or 64-bit) 8/7/Vista/XP and a USB 2.0 port are required.

Certain telescope mounts such as Takahashi and Vixen may need an extra adapter cable. Please refer to our website for more details.

These auto-guide packages can be used in a single telescope setup (if an Off-Axis Guider accessory is used as shown below) or a dual telescope setup.

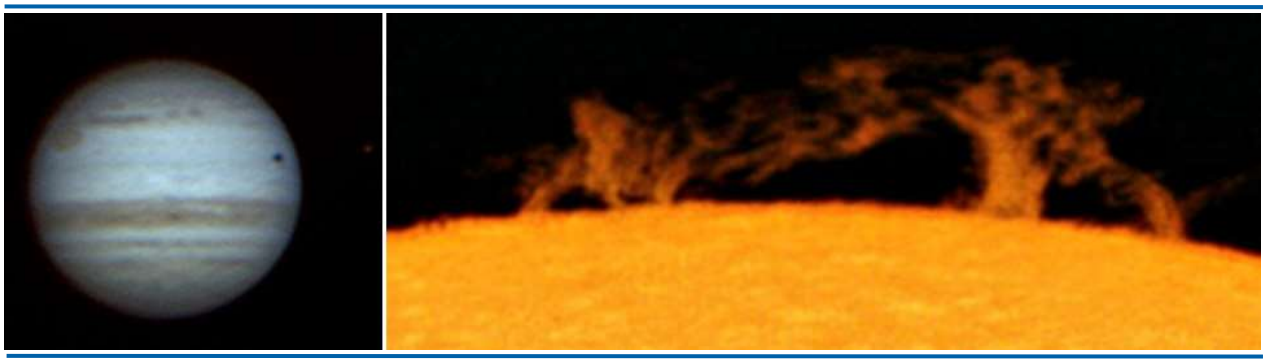


It is recommended that for single telescope setups, the telescope should be 200mm in aperture or greater, since the light will be split by the off-axis guider accessory. In a dual telescope system a smaller dedicated guide scope can be used as shown below. It is recommended that the aperture of the dedicated guide scope should be 80mm or greater.



Auto-guiding is a cost effective technique to greatly improve the tracking accuracy of a motorized GOTO mount when long exposures are required for deep sky imaging.

The PL-131 camera (part of the AG-131) can also be used on its own for planetary, Lunar and Solar imaging.



The AG-131 is also bundled with all the software plug-ins to support third party software such as MaxIm DL and AstroArt. Effectively, the AG-131 is two products in one. When the PL-131 imaging camera is combined with the GPUSB unit, it can be used as a guider with 1/2” sensor for a large field of view.

TECH BOX

	Sensor Size	Resolution	A.D.C.	Speed	RRP
AG-131C CoolAir	1/2”	1280 x 1024	8-bit	22 fps	£219
AG-131M CoolAir	1/2”	1280 x 1024	8-bit	22 fps	£269

Imaging Accessories

Opticstar C/CS to 1.25" Adaptor (Nosepiece)
Allows C/CS mount cameras to be attached to any standard 1.25" eyepiece holder. The adaptor is threaded for standard colour filters and turned with internal stepping to combat stray light.

Opticstar 1.25" Photo-Visual Focal Reducer
This F/0.5 focal reducer fits at the end of standard 1.25" eyepieces/nosepieces. It reduces the focal length of the main optics to half thus doubling the field of view. This is useful in visual observation and photography.

Opticstar 1.25" Imaging Focal Reducer
Fits to any CS or C-mounted camera and has been designed solely for imaging. The focal reducer consists of a two lens cemented system for better correction, optics are fully broadband multi-coated. Threaded for filters.

Opticstar 1.25" x3 Photo-Visual ED Barlow
A high quality 1.25" photo-visual barlow lens using special ED glass to minimise chromatic aberrations. Metal body, fully multi-coated (FMC) doublet apochromatic lens, results in high resolution, contrast and superior colour correction.

Opticstar Planetary Imaging Kit
The most effective way to increase the focal length of a telescope while keeping aberrations to a minimum is by the use of a good quality apochromatic (ED) amplifier lens or similar.

Opticstar 1x C/CS to 23mm Adaptor
Enables any C-mount camera to be attached to any microscope that accepts standard 23mm occulars. This is a high quality adaptor made with metal and glass.

Opticstar 1.25" High Transparency Imaging Filters
These high transparency filters are placed within a thin metal ring with a full 26mm clear aperture that threads into the barrel of any standard 1.25" eyepiece or filter wheel that can accept 1.25" filters.

Opticstar ED80S Gold • AR80S Gold • AR90S Gold

Quality short tube refractors suitable for observing, imaging and auto-guiding. Apochromatic ED and achromatic models are available. Ideal as portable and travel telescopes. The optical tube greatly benefits from metal knife-edge baffles (not the plastic less effective step-type) that prevent stray light outside the field of view from reaching the focal plane. Knife-edge baffles markedly increase image contrast.

The **Opticstar ED80S Gold** uses quality FPL53 Fluorite glass to suppress chromatic aberration. The dual speed Crayford type focuser, main tube and lens assembly are screwed into each other for maximum rigidity, no peripheral screws are used as they can compromise the rigidity of the telescope. This eliminates movement and ensures orthogonality.

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