TRIUS

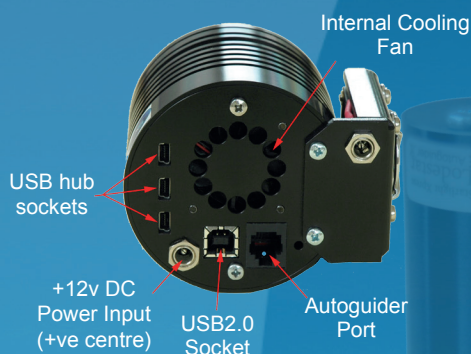## The latest range of cameras from Starlight Xpress

Starlight Xpress has always been renowned for small, compact, innovative designs, along with excellent build quality. The new Trius range of deep-sky, cooled CCD cameras has just taken these values to a whole new level.

In addition to the already super low-noise performance of the previous generations of SXV, SXVF, & SXVR cameras, the new Trius range is even better, whilst still offering fast download times of approximately 2 million pixels per second.

Remarkably, we have also managed to incorporate a complete powered USB hub into the main camera, which offers 3 x USB 2.0 ports at the rear of the camera. Each port is capable of delivering up to 200mA, thus able to drive a Lodestar, SuperStar or CoStar for guiding leaving another two USB ports for a USB filter wheel and one other peripheral. This integration greatly reduces the number of cable trails back to the computer and gives less potential for cables tangling around the mount during your imaging session.

New Peltier cooler combinations have been designed into the Trius cameras, along with an Argon-Filled CCD chamber, allowing a greater differential cooling delta to be achieved.

Below are some of the innovative design features of the new Starlight Xpress Trius cameras

Internal Cooling Fan

USB hub sockets

+12v DC Power Input (+ve centre)

USB2.0 Socket

Autoguider Port

Rear Camera Panel

The Trius camera provides multiple inputs and outputs. The main control connections to the camera are the USB2.0 socket that controls the camera from the computer and the +12v DC jack socket which provides power (approximately 1.25Amps at 12v DC). In addition, there is an RJ11 Guider Port output that is opto-isolated and will drive any standard active-low guider input via the RJ11 'telephone' lead provided. The remaining sockets are three Mini-5pin USB2.0 sockets that can be used to power up to three different USB devices, such as a Lodestar Autoguider, an SX USB Filter Wheel and a focuser. Each USB port is capable of providing 5v DC at a maximum of 200mA.

Fused Silica Window

Unlike less expensive cameras, we fit a specially manufactured fused silica window, with a 7 layer anti-reflective coating, to all of our Trius cameras. This offers exceptional strength and heat transfer characteristics to ensure there is less chance of dewing of the front window during humid weather.

Efficient Cooling System

The cooling system is designed for the most efficient cooling possible in a small compact package. The Trius cameras are fitted with a new peltier cooler configuration to give approximately -40C delta T. A built in fan at the rear of the camera draws air in through small holes in the front of the barrel (which increases the surface area to aid the convection), through the heatsink where all the heat is generated, and expels it out of the rear of the camera. An additional fan is fitted to the side, just to help keep the external body at the ambient temperature during warmer weather. Set-Point Cooling as standard.

Argon Filled CCD Chamber

Argon filled CCD chambers are normally only associated with really high-end cameras; the new Trius cameras have dry argon injected into the CCD chamber to ensure there is no moisture to condense on the CCD during the cooling process. The low thermal conductivity of argon also helps with the cooling process, allowing a lower delta T to be achieved.

Unique Tilted Camera Front

This unique approach to camera design allows the front plate of the camera to be orthogonally aligned to ensure that the CCD and the optics are parallel to each other. This enables the user to adjust for any collimation issues throughout the whole optical train, to ensure pinpoint stars across the entire field.

TRIUS
Monochrome Cameras

Product	CCD	Mega Pixels	CCD Size (mm)	No of Pixels/Size	Download Time	Read Noise	Size Dia/ Length	QE	Weight	Full Well Depth	Data Format
SX-16	KAI-4022	4M	15.15 x 15.15	2048 x 2048 (7.4um x 7.4um)	3 secs	7-e	75 x 70mm	55%	0.45Kg	>40K	16 bit
SX-814	ICX814	9.2M	12.5 x 10	3388 x 2712 (3.69um x 3.69um)	5 secs	4.5-e	75 x 70mm	77%	0.45Kg	>18K	16 bit
SX-694	ICX694	6.1M	12.5 x 10	2750 x 2200 (4.54um x 4.54um)	3.5 secs	4.5-e	75 x 70mm	77%	0.45Kg	>20K	16 bit
SX-674	ICX674	2.8M	9 x 6.7	1940 x 1460 (4.54um x 4.54um)	2.5 secs	4.5-e	75 x 70mm	77%	0.45Kg	>20K	16 bit
SX-285	ICX285	1.45M	9 x 6.7	1392 x 1040 (6.45um x 6.45um)	0.6 secs	4.5-e	75 x 70mm	68%	0.45Kg	>23K	16 bit

TRIUS
Colour Cameras

Product	CCD	Mega Pixels	CCD Size (mm)	No of Pixels/Size	Download Time	Read Noise	Size Dia/ Length	QE	Weight	Full Well Depth	Data Format
SX-26C	ICX493	10M	23.4 x 15.6	3900 x 2616 (6.05um x 6.05um)	8 secs	7-e	75 x 70mm	55%	0.45Kg	>25K	16 bit
SX-25C	ICX453	6.2M	23.4 x 15.6	3024 x 2016 (7.8um x 7.8um)	3.5 secs	7-e	75 x 70mm	60%	0.45Kg	>25K	16 bit
SX-814C	ICX814	9.2M	12.5 x 10	3388 x 2712 (3.69um x 3.69um)	5 secs	4.5-e	75 x 70mm	77%	0.45Kg	>18K	16 bit
SX-694C	ICX694	6.1M	12.5 x 10	2750 x 2200 (4.54um x 4.54um)	3.5 secs	4.5-e	75 x 70mm	77%	0.45Kg	>20K	16 bit
SX-674C	ICX674	2.8M	9 x 6.7	1940 x 1460 (4.54um x 4.54um)	2.5 secs	4.5-e	75 x 70mm	77%	0.45Kg	>20K	16 bit
SX-285C	ICX285	1.45M	9 x 6.7	1392 x 1040 (6.45um x 6.45um)	0.6 secs	4.5-e	75 x 70mm	68%	0.45Kg	>23K	16 bit