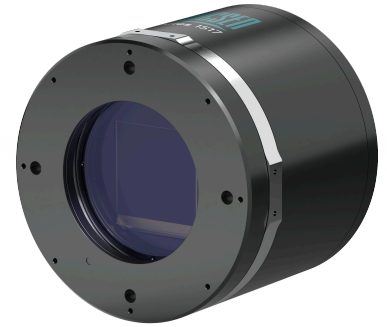


# Aries 1517

The Aries 1517 is a new-generation large BSI sCMOS astronomical camera developed by Tucsen using vacuum cooling technology. Compared with conventional CCD cameras, it offers a more compact, lightweight design and lower power consumption to meet key astronomical imaging requirements, including wide field of view, high dynamic range, and long-exposure, while greatly simplifying system integration.



## Key Features

## Benefits

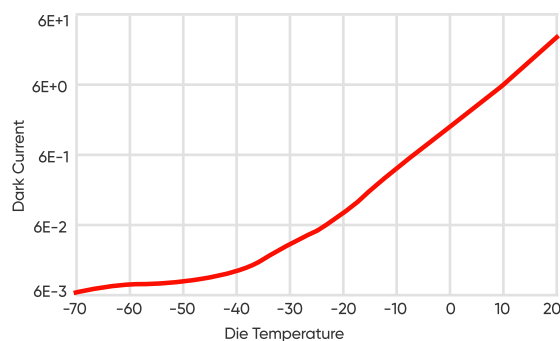
BSI sCMOS Architecture	92% peak QE, 1.2 e <sup>-</sup> readout noise, and 200 nm–1100 nm wide spectral response.
87 mm Large Format	Greatly reduces multi-camera mosaicing and improves single-exposure coverage efficiency.
15 μm large Pixel Size	Enhances photon collection and resolves under-sampling in long-focus optical systems.
81.4 Ke <sup>-</sup> Full Well Capacity	Paired with 16-bit lossless output, ensuring excellent linearity over wide photon flux.
0.023 e <sup>-</sup> /p/s Dark Current@-40°C	4.3X lower than previous large sCMOS, enhancing long-exposure imaging capability.
Vacuum Cooling Technology	Effectively isolates environmental interference for long-term stable operation. <sup>[1]</sup>
< 100 W Power Consumption	Only half that of the equivalent large CCD, reducing demands for field deployments.

## Typical Applications

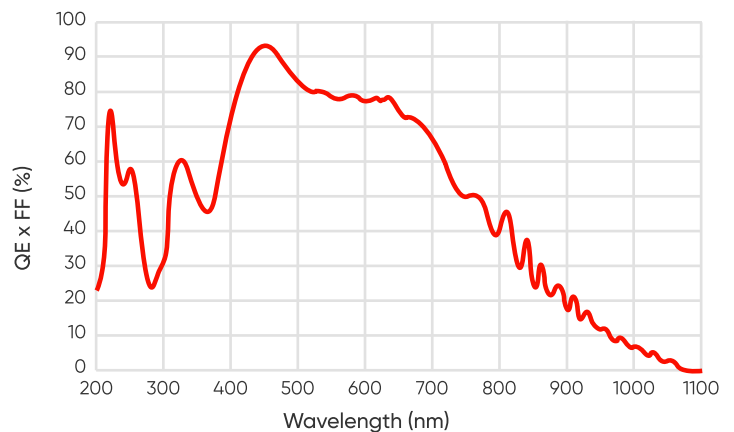
- Large-area sky survey
- Deep-space low-light imaging
- Precision photometry
- Astronomical spectroscopy
- Variable star monitoring

## Noted Examples

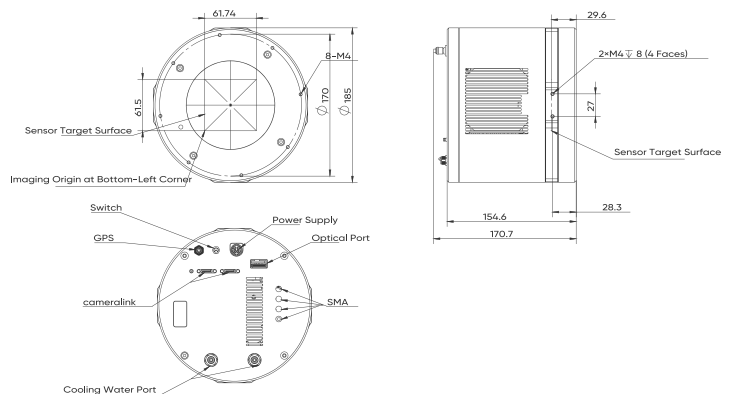
[1] The Aries 1517 supports customized cooling depth. As shown, when cooled to -70°C, the dark current can be as low as 0.008 e<sup>-</sup>/pixel/s.



## Quantum Efficiency



## Dimensions (Unit: mm)



# Specifications

Product Name	Aries 1517
Model	A1517
Sensor Type	BSI sCMOS
Sensor Model	GSENSE1517BSI
Chrome	Mono
Peak QE	92%@450 nm
Spectral Range	200 nm - 1000 nm
Resolution	4116 (H) x 4100 (V)
Pixel Size	15 $\mu\text{m}$ x 15 $\mu\text{m}$
Effective Area	61.74 mm x 61.5 mm
Frame Rate	4 fps
Full-Well capacity	67 Ke-@High Dynamic; 81.4 Ke-@Standard Low Gain; 16 Ke-@Standard High Gain
Dynamic Range	94.7 dB@High Dynamic; 80.6 dB@Standard Low Gain; 81.9 dB@Standard High Gain
Readout Noise	1.2 e-@High Dynamic; 7.6 e-@Standard Low Gain; 1.3 e-@Standard High Gain
Dark Current	0.023 e-/p/s @-40°C
DSNU	0.3 e-
PRNU	0.3%
Cooling Method	Air, Liquid
Cooling Temp.	Air: -40°C@Ambient Temperature 10°C; Liquid: -50°C@Liquid Temperature 10°C
Binning	1 x 1, 2 x 2, 4 x 4
Shutter Mode	Rolling
ROI	Support
Exposure Time	61.35 $\mu\text{s}$ ~ 3600 s
GPS	Support
Timestamp	Support
Trigger Mode	Hardware, Software, Grabber
Trigger Output	Readout End, Global Exposure, Exposure Start, Trigger Ready, High, Low, Any Row, First Row
Trigger Interface	SMA
Data Interface	CoF, CameraLink
Optical Interface	User Customization
Bit Depth	14 bit, 16 bit
Power Supply	DC 24 V
Power Cons.	< 100 W
Dimensions	$\phi$ 185 mm x 169.1 mm
Weight	9 kg
Software	Sample Pro
SDK	C, C++
Operating System	Windows 7 / 10, Ubuntu 18.04, Customization
Operating Environment	Working: Temp. -40°C~50°C, Hum. 0%~85%, Altitude 0 m~6000 m; Storage: Temp. -40°C~60°C, Hum. 0%~95%;

\*Specifications in this manual are subject to changes without prior notice.

