TAA COMPLIANT

MS-500 Ultra-High-Sensitivity Camera

The first advanced long-range, low-light camera from Canon, developed for viewing remote objects at a distance of several miles, in color – day or night. Equipped with the ultra-high-sensitivity Single-Photon Avalanche Diode (SPAD) sensor and the B4 mount that can support Canon broadcast lenses.

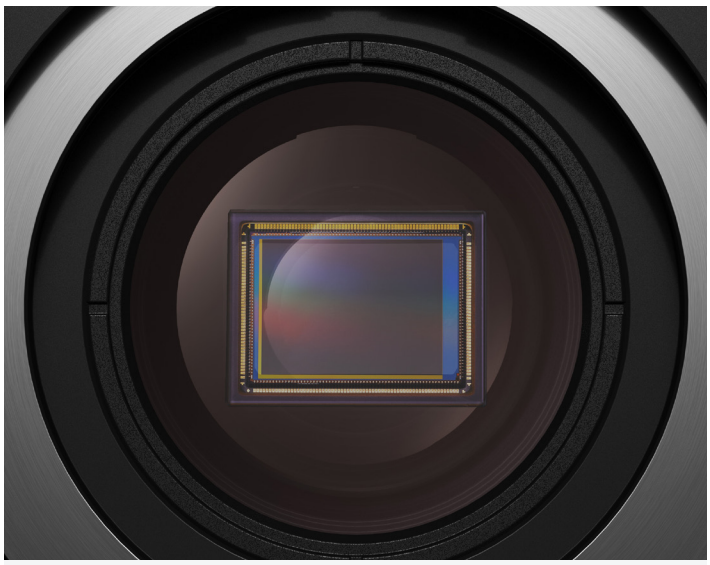
SPECIFICATIONS

IMAGE SENSOR	MS-500
Sensor	1" SPAD Sensor
Total Pixels	3.2M
Effective Pixels	2.1M
Maximum Resolution	1920x1080
Minimal Subject Illumination	.001 lux (Color (Night Mode), no light accumulation, f/1.4 equivalent, shutter speed 1/30, 50IRE, maximum gain)
LENS SYSTEM	
Lens Mount	Bayonet lens mount based on BTA S-1005B standards
TERMINALS	
LAN Terminal	RJ-45 for IP Video Streaming and Control
Output Format	3G/HD-SDI (4:2:2 10-bit)
Remote Camera Control	NU Protocol (Canon proprietary, Serial), Pelco-D (RS-232C/RS-422/RS-485)
Lens Terminal	Circular 12-pin Jack x1
GenLock Terminal	BNC jack (input only) x 1, 1.0 Vp-p/75
3G/HD-SDI Terminal	BNC jack (output only) x 1, 0.8 Vp-p/75, unbalanced 3G-SDI: SMPTE 424, SMPTE 425, SMPTE ST 299-2 HD-SDI: SMPTE 292, SMPTE ST 299-1 Time code (VITC/LTC)
IMAGE CONTROL	
Focus Control	Manual, One-shot AF AF frame: Large, small AF frame position: Center, specified area
Resolution/Frame Rate	**Frame Frequency 59.94P:** • 1280 x 720: 59.94P** (4:2:2 10-bit) **3G-SDI mapping Level A/B supported **Frame Frequency 29.97P:** • 1920 x 1080: 29.97P, 29.97PsF (4:2:2 10-bit) **Frame Frequency 50.00P:** • 1920 x 1080: 50.00P***, 50.00i (4:2:2 10-bit) • 1280 x 720: 50.00P (4:2:2 10 bit) ***3G-SDI mapping Level A/B supported **Frame Frequency 25.00P:** • 1920 x 1080: 25.00P, 25.00PsF (4:2:2 10-bit)
Shutter Speed	1/2000s to 1/4s [59.94P] – Only when the Extended Shutter Speed is set to [Enable], 1/600 – 1/2000 options can be selected.
Filter	ND filter: motor operated insertion-extraction (manual/automatic), 1 density level (approx. 1/64) IR cut filter: motor operated insertion-extraction (manual/automatic)

IMAGE CONTROL	MS-500
Exposure	Auto, Tv, Av, AGC, Manual AE Shift
Metering Mode	Standard, Spotlight, Backlight, AF Frame Monitoring
Gain	0.0-72.0 dB
Custom Picture	CrispImg2, BT.709 Standard, Canon 709
Smart Shade Control (SSC)	Available
Haze Compensation	Available
DIFFRACTION CORRECTION	
Chromatic Aberration Correction	Available (excluding certain non-supported lenses)
Digital Zoom	Available 10x (Max.)
IP VIDEO OUTPUT AND CONTROL	
Video Compression	JPEG, MPEG-4 AVC/H.264, H.265/HEVC
Video Size	1920 x 1080, 1280 x 720, 640 x 360, 320 x 180
Video Output Frame Rate	JPEG: 0.1 – 15 fps MPEG-4 AVC/H.264, H.265/HEVC Frame Frequency 59.94P/29.97P: 0.99/4.99/9.99/14.98/29.97/59.94 fps Frame Frequency 50.00P/25.00P: 1/5/12.5/25/50 fps
Network Protocol	IPv4, IPv6, TCP/IP, UDP, HTTP, SNMPv1/v2c/v3 (MIB2), RTP/RTCP, RTSP, DHCP, AutoIP, DNS, mDNS, ARP, ICMP, NTP, SSL/TLS
Control Protocol	NU (Canon proprietary, Serial), Pelco-D (Serial), ONVIF, WV-HTTP (Canon proprietary), WVCOM (Canon proprietary)
POWER INPUT	
External Power Input	External power source: 12 – 30 V DC (connector included)
Power Consumption	DC input: Max. 23.7 W (camera body only)
OTHER	
Temperature	Operating temperature range: -20°C – +45°C (-4°F – +113°F) Start-up temperature range: -10°C – +45°C (+14°F – +113°F)
Dimensions	Approx. 128 x 128 x 184 mm (5.04 x 5.04 x 7.24 in.) (excluding protrusions)
Weight	Approx. 2.2 kg (4.86 lb.) (camera body only)
Included In Box	MS-500 Camera, Power Supply Connector, Warranty Card

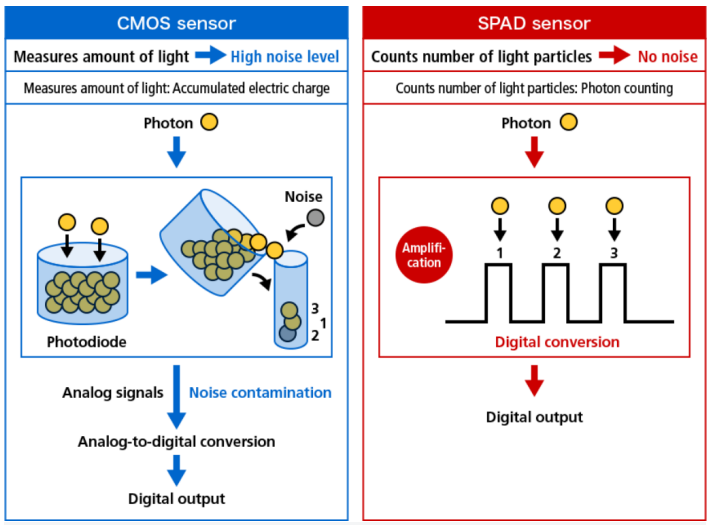
*Additional specifications for MS-500 camera and SPAD sensor available under NDA.

Single Photon Avalanche Diode



Innovative Ultra-High-Sensitivity SPAD Sensor

The MS-500 camera's SPAD sensor captures the brightness of a subject by digitally counting each incoming light particle (photon) through a method called photon counting, which is completely different from the conventional CMOS sensor.

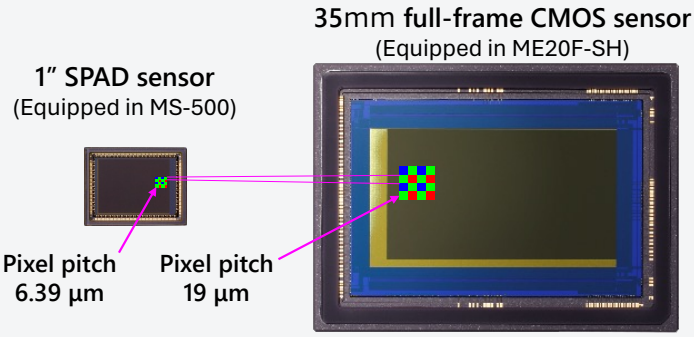


CMOS Sensor vs SPAD Sensor

Unlike conventional CMOS sensors, when even one photon reaches a pixel and generates an electron the SPAD sensor instantaneously[1] multiplies the electron by approximately 1 million times via the electron avalanche effect[2] and outputs it as an electrical pulse signal – which ultimately allows the sensor to detect light more accurately with less noise.

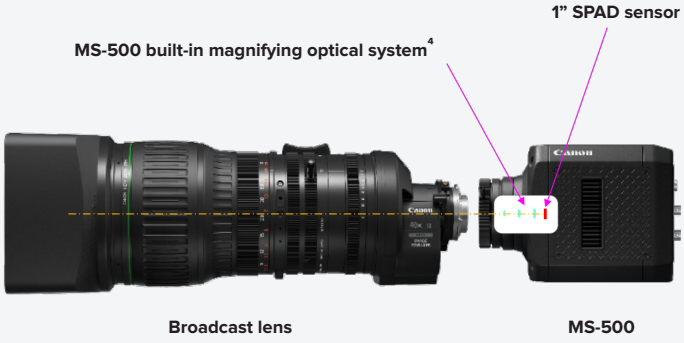
Camera & Lens Control

The MS-500 camera is equipped with an Ethernet port that can be used to remotely control the camera, the lens and the pan-tilt head control using NU, Pelco-D or ONVIF protocols and access its video output over IP. Serial communication is also available. Remote operation allows for more subtle manipulations and fine adjustments when shooting at a long distance with an ultra-telephoto lens with a very narrow angle of view, rather than operating directly with a camera button or lens ring.



Ideal for Low-light, Long-range Shooting

The SPAD sensor features approximately 3.2 million pixels, the highest in the world[3]. With this large pixel number achieved by minimizing pixel pitches to approximately 6.39 µm, the MS-500 can capture Full HD high-resolution color images with a small sensor.



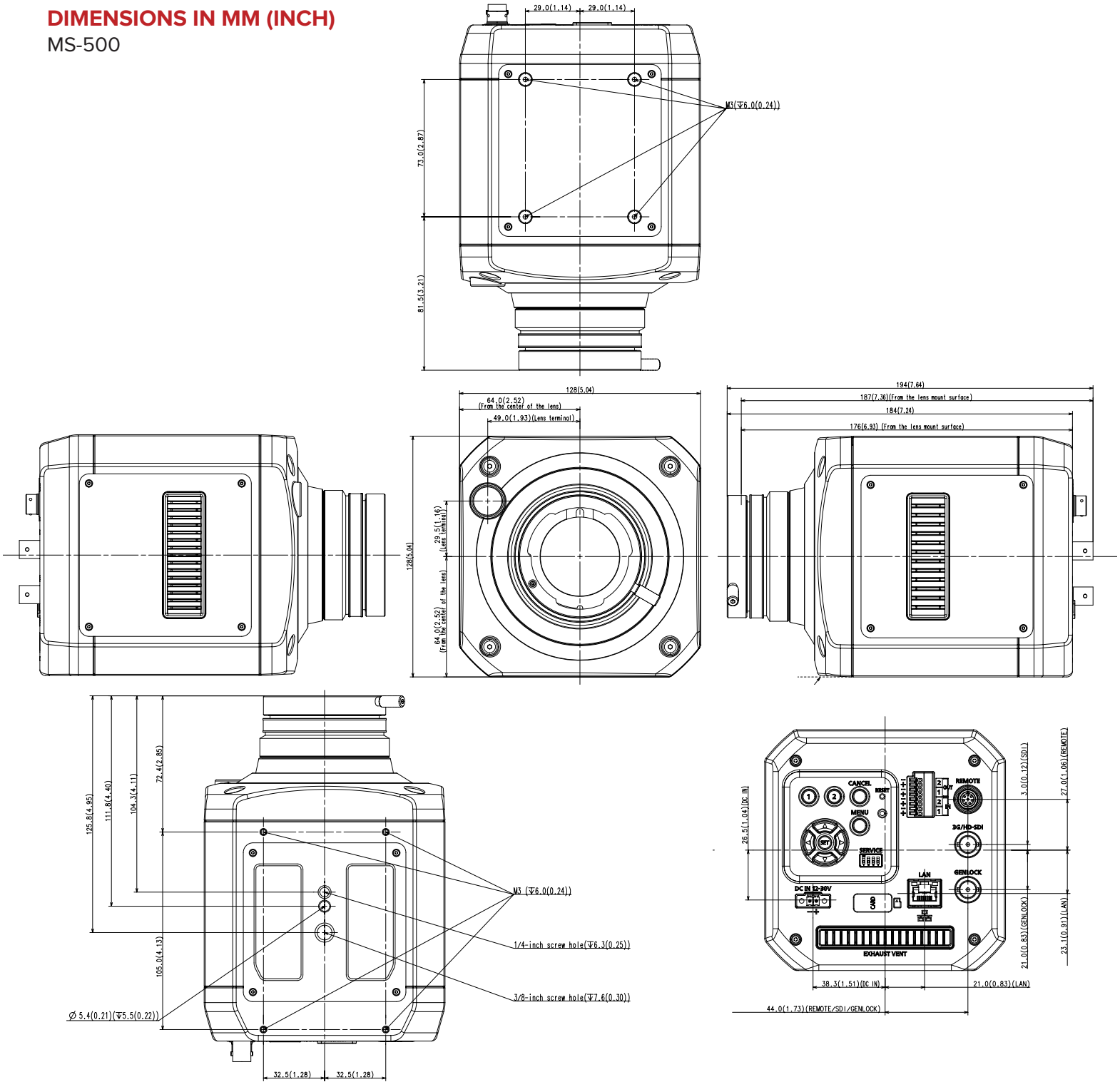
Broadcast Lens B4 Mount & Built-in Magnifying Optical System

Featuring Broadcast Industry standard B4 mount, the SPAD sensor is able to take advantage of Canon's extensive lineup of broadcast lenses. Since most broadcast lens optics are designed for 2/3" sensors, the camera has a built-in magnifying optical system[4] that matches the built-in 1-inch sensor, allowing the lens to be attached directly to the camera mount for shooting without cropping the sensor pixels.

[1] Minimal time of 100 picoseconds or less (1 picosecond = 1/1 trillionth of a second).
[2] The effect of generating a large number of electrons explosively in a very short time from one electron generated by a photon is called the Electron Avalanche Effect.
[3] Among cameras equipped with SPAD sensors used for color video shooting. As of July 31, 2023. Based on Canon research.
[4] The built-in magnifying optical system of the MS-500 has a magnification of about 1.3x.

DIMENSIONS IN MM (INCH)

MS-500



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Scan QR code or visit usa.canon.com/ms-500 to learn more.

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