

Malin Space Science Systems

Exploration Through Imaging

DCAM-R

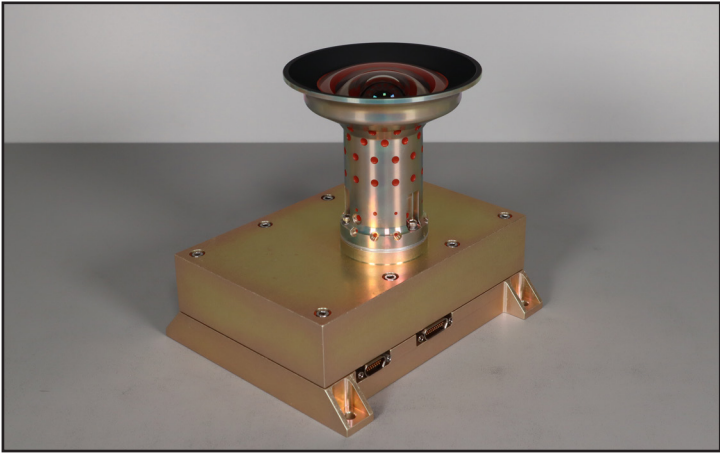
Color/Monochrome Gigabit Ethernet CMOS Camera,
Global Shutter, 2592x2048, 4.8µm

Electro-Optical	
Band	Visible
Color Band	Monochrome or RGB Bayer Color Filter
Wavelength Range	350-850 nm (mono) 400-515 nm (blue) 485-595 nm (green) 575-550 nm (red)
Peak QE	>57% at 550nm (mono)
Electronic Shutter Modes	Global
Pixels	5.3 Mpixel
Horizontal Resolution	2592 pixels
Vertical Resolution	2048 pixels
Pixel Pitch	4.8 µm
Array Diagonal	15.9 mm
Conversion Bit Depth	10 bits
Temporal Noise	14 e-
Full Well	10,000 e-
Dynamic Range	57.1 dB
Frame Rate, Native Format	14 fps

Power	
Supply Voltage	5V (4.5 to 5.5V)
Power, Idle	12 W
Power, Imaging	15 W

Thermal	
Operating Temperature	-30 to +40 °C
Protoflight Qualification	-40 to +55 °C
Non-Operating Temperature	-50 to +70 °C
Temperature Sensing	Internal ISL71590 available for readout on J2, On-Sensor Temperature Register

Survivability	
Radiation Design Environment	5 years GEO standard, up to 15 years GEO optional
NASA TRL	8



DCAM-R with 7 mm Optics

Features

- Target vehicle acquisition
- Star navigation
- Terrain Relative Navigation (TRN)
- Gigabit Ethernet interface

Programmability

- Sensor Clock Rate
- Gain
- Integration
- Companding Table
- Summing/Upsampling Mode
- Automatic Exposure Control
- Region of Interest
- Frame Rate
- Test Patterns
- h.264 Compression

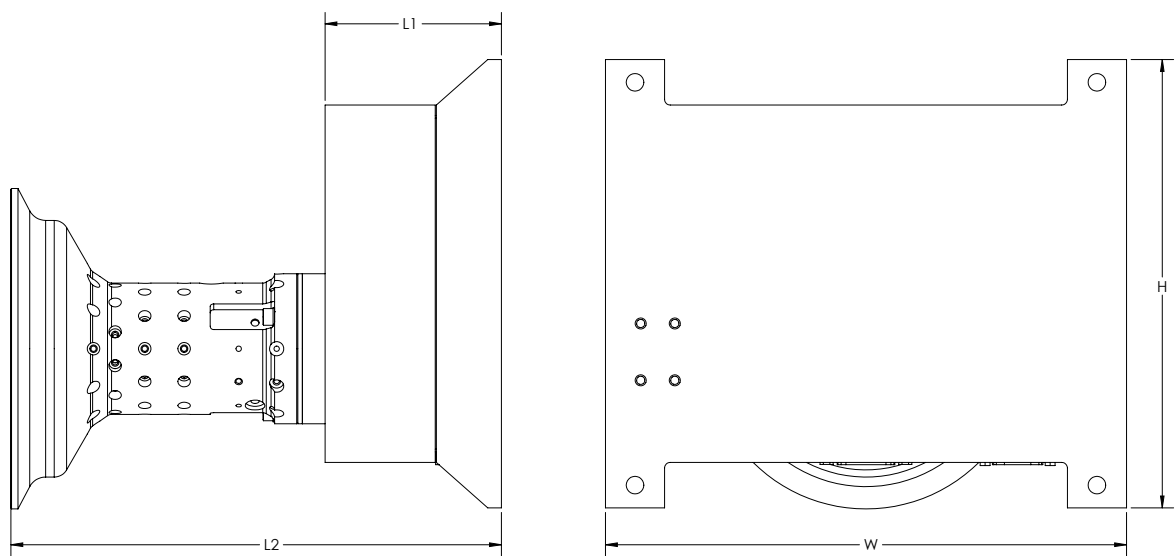
Optics			
Effective Focal Length	F/#	FOV (V° x H°)	Bandpass
5.8 mm	F/2.7	90 x 109	425-675 nm
7 mm	F/5.6	78 x 96	425-675 nm
9 mm	F/5.6	60 x 74	425-675 nm
12.6 mm	F/5.6	44 x 56	425-675 nm
22 mm	F/5.6 or F/3.5	26 x 32	425-675 nm

Digital	
Internal Memory	768 MB DDR2 (Volatile) 500 GB NAND Flash (Non-Volatile)
Digital Processing	Summing/Upsampling 12 to 8 bpp Companding (Table Lookup) h.264 Compression
Data Interface	Gigabit Ethernet



DCAM-R

Dimensional Envelope, 7 mm Optics



Mechanical/Interfaces

Mass w/7 mm optics, no baffle	1400 g
Dimensional Envelope w/7 mm optics, no baffle	H: 126 mm W: 146 mm L1: 50 mm L2: 138 mm
Connectors	J1 (power): Micro-D, 15-Socket J2 (data): Micro-D, 21-Pin