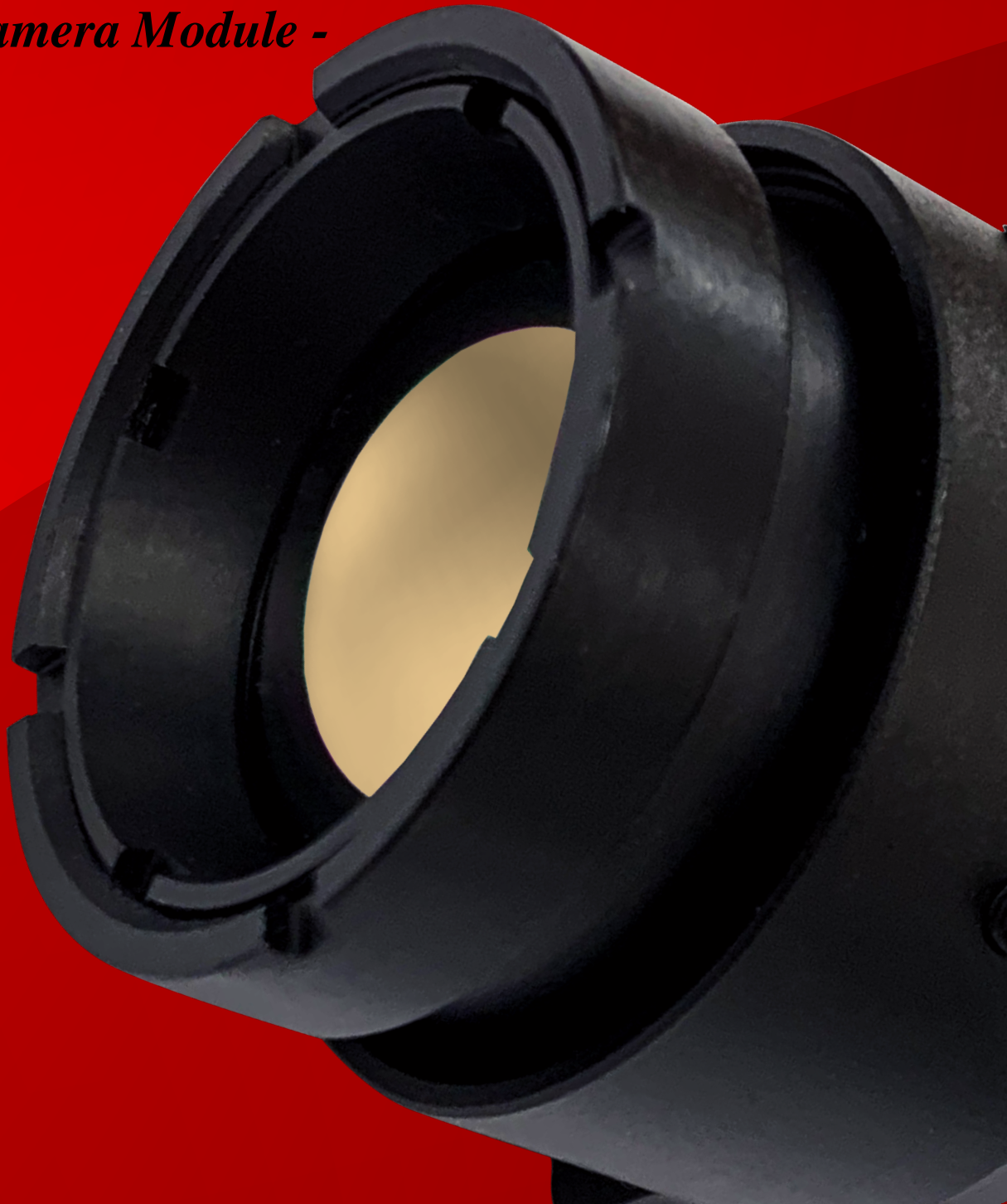




Creative Sensor Inc.

Mars Series

- LWIR Camera Module -





Creative Sensor Inc.

Mars Series

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Feature Details



NDA Compliant

100% made in Taiwan.
Supply Chain NDA compliant.



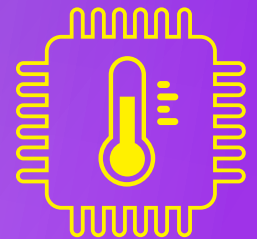
Small & Lightweight

24(H) x 24(W)mm & only **13g** weight,
best for drone & handheld imager.



Flexible Interface

Dual channel output for image & raw
data through single or dual video outputs
selectively, easy to integrate.



High Accuracy & Speed

Best Radiometric Accuracy with
non-linear regression **AI**.
Algorithm. **+/-1.5°C** @10~100oC
obj. (+/-0.5oC for body temp.)
Two temp. modes switchable
(High/Low Gain), observe up to
500°C , cover 95% **industrial inspec-**
tion demand
30(VGA)/60(QVGA) FPS and excellent
AGC/DDE performance, catch every
detail for **video surveillance**.



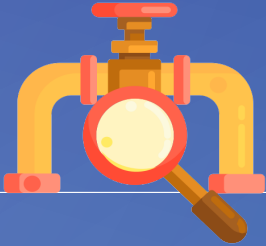
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Applications



Temperature
Screening



Industrial
Inspection



Handheld
Thermal Imager



Surveillance



Drone



Automotive

Mars Series - LWIR Camera Module -



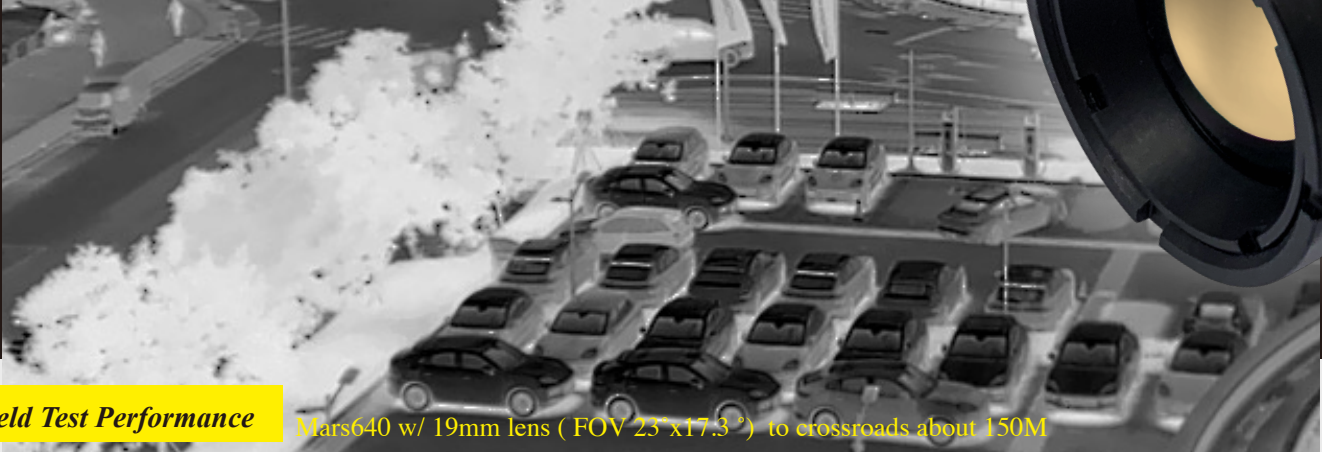
Field Test Performance

Mars640 w/ 19mm lens (FOV 23°x17.3°) to highway about 400M

Specification

ITEM	Mars 640	Mars 320
Resolution	640 x 480	320 x 240
Wavelength	8 - 14μm	8 - 14μm
Sensor Pitch	12μm	12μm
NETD (F/1, 300K, 30Hz)	< 40mK	< 40mK
Max. frame rate	25Hz 8bit with DDE 30Hz 8bit without DDE	60 FPS
Scene dynamic range	High gain: 5°C to 120°C Low gain: 5°C to 500°C (optional)	High gain: 5°C to 120°C Low gain: 5°C to 500°C (optional)
Radiometric Accuracy (Optional)	HG: 10~100°C, +/-3°C, Ta: -20~50°C +/-1.5°C, Ta: 25°C LG: 30~500°C, +/-5°C, Ta: -20~50°C	HG: 10~100°C, +/-3°C, Ta: -20~50°C +/-1.5°C, Ta: 25°C LG: 30~500°C, +/-5°C, Ta: -20~50°C
Shutter	yes	yes
Symbol overlay	OSD function	OSD function
Electronic Zoom	1/2/4/8 X	1/2/4/8 X
Non-Uniformity Correction	25Hz 8bit with DDE 30Hz 8bit without DDE	25Hz 8bit with DDE 30Hz 8bit without DDE
Video Output	CMOS (RGB888, BT656), USB(UVC-RGB888, UVC-H.264), RTSP	
Command and Control	UART	UART
Input Supply Voltage (nominal)	5V	5V
Power Dissipation	<1.5W@ 25°C	<1.5W@ 25°C

Mars Series - LWIR Camera Module -



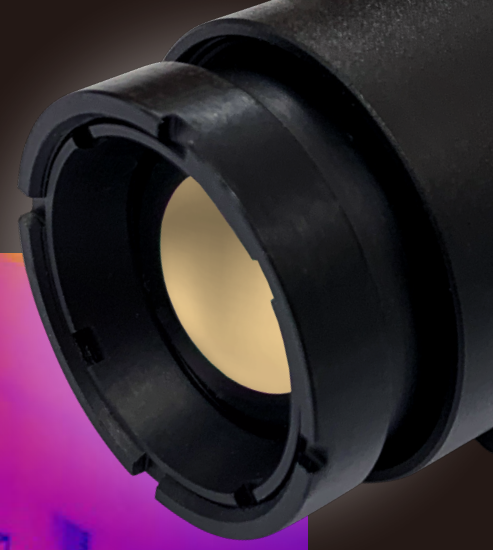
Field Test Performance

Mars640 w/ 19mm lens (FOV 23°x17.3°) to crossroads about 150M

Specification

ITEM	Mars 640	Mars 320
Filter	Spatial noise reduction (SNR)	Spatial noise reduction (SNR)
Colorization	<ul style="list-style-type: none"> ▪ White hot ▪ Black hot ▪ Rainbow ▪ Rain HC ▪ Iron bow ▪ Lava ▪ Arctic ▪ Glow bow ▪ Grade Fire ▪ Hottest 	<ul style="list-style-type: none"> ▪ White hot ▪ Black hot ▪ Rainbow ▪ Rain HC ▪ Iron bow ▪ Lava ▪ Arctic ▪ Glow bow ▪ Grade Fire ▪ Hottest
Dimensions	Standard Module : 24x24x14.9mm	Standard Module : 24x24x14.9mm
Weight (w/o Lens)	Standard Module : 13g / 26.7g (w/ holder and shutter)	Standard Module : 13g / 26.7g (w/ holder and shutter)
Lens Options	6.2 / 7.5 / 9.1 / 13.5 / 19 / 25 / 50mm (Others upon request)	6.2 / 7.5 / 9.1 / 13.5 / 19 / 25 / 50mm (Others upon request)
Operating Temperature	-20°~70°C	-20°~70°C
Storage Temperature	-40°~85°C	-40°~85°C
Shock	30g /11ms IEC 60068-2-27	30g /11ms IEC 60068-2-27
ESD	EN 61000-4-2 Level 4	EN 61000-4-2 Level 4
Accessory (Optional)	<ul style="list-style-type: none"> ▪ USB + Analog VPC ▪ MIPI 	<ul style="list-style-type: none"> ▪ USB + Analog VPC ▪ MIPI

Mars Series - LWIR Camera Module -



Field Test Performance

Mars640 w/ 19mm lens (FOV 23°x17.3°) to facilities about 60M

Lens Option

Mars640 (VGA)

Lens Option

Lens focus (mm)	6.2	7.5	9.1	13.5	19	25	50
Resolution	640x480	640x480	640x480	640x480	640x480	640x480	640x480
Pitch (um)	12	12	12	12	12	12	12
FOV ((HxV, °))	75x55	61x45	48.6x38.6	32x26	23x17.3	17.3x13.1	8.8x6.6
Detection Distance (M)	238	288	350	519	730	960	1921
Recognition Distance (M)	60	72	87	130	182	240	480
Identification Distance (M)	30	36	44	65	91	120	240

Mars320 (QVGA)

Lens Option

Lens focus (mm)	6.2	7.5	9.1	13.5	19	25	50
Horizontal Res.	320x240	320x240	320x240	320x240	320x240	320x240	320x240
Pitch (um)	12	12	12	12	12	12	12
FOV (HxV, °)	36x27	30x22	23.8x18	16.2x12.2	11.5x8.7	8.8x6.6	4.4x3.3
Detection Distance (M)	238	288	350	519	730	960	1921
Recognition Distance (M)	60	72	87	130	182	240	480
Identification Distance (M)	30	36	44	65	91	120	240

- Image Display : Detection (2x2 pixel) / Recognition (8x8 pixel) / Identification (16x16 pixel)
- Object Size : Adult (1.7m x 0.5m) rectangle area transform a side length = 0.92 m
- Other lens upon request