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Фотоэлектрические автомобильные камеры серии Spike



Features of SPIKE-A Best Inspection Camera for Automotive Use

1. High resolution, large array

Infrared resolution 1024×768/1280×960 (optional)

Visible light resolution 1920×1080

2. Intelligent target identification and tracking

Optimized visual algorithm allows more accurate recognition and track of people and vehicles in FOV.

3. High stability

Visible light module optical axis stability ≤ 3 pixels

4. Multi-sensor integration

The integration of infrared, visible light, and laser makes it capable of 24h long-distance identification and tracking as well as video and evidence collection. The low light module is optional.

5. High reliability

IP67 protect it from dust and water, vibration, and impact. The consistency between any two optical axes ≤ 0.3 mrad.



SPIKE-A Laser Rangefinding



SPIKE-A Laser Rangefinding



SPIKE-A Passenger and Vehicle Recognition



SPIKE-A Picture in Picture



SPIKE-A Maritime Patrol

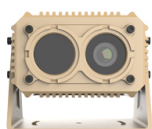


Specifications of SPIKE-A Best Inspection Camera for Automotive Use

| Model | | Spike-A |
|----------------------|----------------------|----------------------------|
| Infrared Module | Detector type | Uncooled infrared detector |
| | Resolution | 1024×768 |
| | Spectral band | 8~14μm |
| | Pixel size | 12μm |
| | Frame rate | 50Hz |
| | Focal length | 22.9~100mm |
| | FOV | 30.0°×22.8°~7.0°×5.3° |
| | NETD | ≤50mK @25°C, F#1.0 |
| | MRTD (small FOV) | ≤400mK @25°C, F#1.0 |
| | Focusing mode | Auto or electric focusing |
| | Starting time | ≤20s |
| | Continuous zoom time | ≤4s |
| | Recognition distance | Human (1.7m×0.5m) |
| Vehicle (2.3m×2.3m) | | 2.5km |
| Visible light module | Detector target area | 1/1.8" |
| | Resolution | 1920×1080 |
| | Pixel size | 2.7μm |
| | Focal length | 10~150mm |
| | FOV | 29.1°×16.6°~2.0°×1.1° |

| | | |
|--------------------------|---------------------------------------|---------------------------|
| | Focusing mode | Auto or electric focusing |
| | Fog penetration | Support |
| | Continuous zoom time | ≤2s |
| | Recognition distance | Human (1.7m×0.5m) |
| | | Vehicle (2.3m×2.3m) |
| Laser Rangefinder | Laser wavelength | 1535±5nm |
| | Measuring range | 50m~6km (2.3m×4.6m) |
| | Measuring accuracy | ≤2m |
| | Accuracy rate | ≥98% |
| | Measuring frequency | 1~10Hz |
| | Eye safety | Class 1 |
| | Beam divergence angle | ≤0.35mrad |
| | Number of detection targets | ≥3 |
| Environment Adaptability | Operating temperature | -40°C~+55°C |
| | Storage temperature | -43°C~+70°C |
| | Ingress protection | IP67 |
| Hardware Interfaces | Power supply range | DC24V±6 |
| | Power consumption at room temperature | ≤25W |
| | Communication protocol | RS-422/CAN2.0B |
| | Video format | SDI |
| Physical Parameters | | |
| | | |
| | | |

Spike-BF Thermal Imager Night Vision for Vehicles



1. Shutterless infrared module provides images without lagging.
2. Digital video output which is anti-interference with small delay.
3. Optional display supports inputs up to 4 channels.
4. Fusion of infrared and visible light provides rich details and highlighted targets.
5. Infrared resolution 640×512, HD 1080P star-level low light.

Applications of Spike-BF Thermal Imager Night Vision for Vehicles



Spike-BF For Desert Fusion



Spike-BF For City Fusion



Spike-BF For Ocean Fusion



Spike-BF For Low Illumination Visible Light Night Vision





Spike-BF For Snow Fusion



Spike-BF For Infrared Night Vision

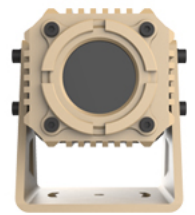
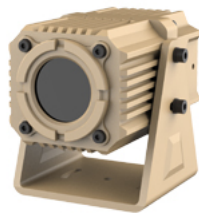


Spike-BF For Jungel Fusion

Specifications of Spike-BF Thermal Imager Night Vision for Vehicles

| Model | Spike-BF |
|----------------------------------|------------|
| Infrared detector | |
| Resolution | 640×512 |
| Spectral band | 8~14μm |
| Low-light visible light detector | |
| Resolution | 1920×1080 |
| Spectral band | 400~1100μm |
| Optics | |
| Infrared FOV | 45.5°×37° |

Spike-BS Thermal Imager Night Vision Camera for Car



Features of Spike-BS Thermal Imager Night Vision Camera for Car

1. Shutterless infrared module provides images without lagging
2. Digital video output which is anti-interference with small delay
3. Optional display supports inputs up to 4 channels
4. Infrared resolution 640×512

Applications of Spike-BS Thermal Imager Night Vision Camera for Car



Spike-BS For Thermal Imaging



Specifications of Spike-BS Thermal Imager Night Vision Camera for Car

| Model | Spike-BS3 | Spike-BS6 |
|----------|-----------|-----------|
| Detector | | |

| | | |
|---------------|---------|--|
| Resolution | 384×288 | |
| Spectral band | 8~14μm | |

| | | |
|----------------------------|---|---|
| Infrared FOV | 39°×30° | 45.5°×37° |
| Recognition distance | 1.7m×0.5m Human Target 150m | 1.7m×0.5m Human Target 200m |
| | 2.3m×2.3m Vehicle Target 200m | 2.3m×2.3m Vehicle Target 250m |
| Power | | |
| Power supply requirements | 12V | 12V |
| Power consumption | ≤2W (5W while de frosting) | ≤2W (5W while de frosting) |
| Interface | | |
| Interface | Aviation socket | Aviation socket |
| Video | PAL/FPD_LINK | PAL/FPD_LINK |
| Communication | RS232 | RS232 |
| Environment Specifications | | |
| Operating Temperature | -40°C ~ + 60°C | -40°C ~ + 60°C |
| Encapsulation | IP67 | IP67 |
| Lens protection | Protective window, automatic heating, and replaceable protective window | Protective window, automatic heating, and replaceable protective window |
| Physical Characteristics | | |
| Dimension | 80mm×50mm×46mm | 80mm×50mm×46mm |
| Weight | ≤350g | ≤350g |

Spike-E On-board Photoelectric Thermal Imager



Features of Spike-E On-board Photoelectric Thermal Imager

1. Multispectral integration

Multiple functions are provided thanks to the integration of infrared, visible light, and laser rangefinding modules.

The integration of infrared and visible light modules allows quick target recognition at night, on foggy days, under high light, or in other harsh environments.

The laser rangefinding module provides an accuracy of $\pm 2\text{m}$, achieving accurate range measurement.

2. High resolution and clear images

The self-developed 1024×768 infrared detector and the 1920×1280 visible light detector can output clear images, achieving remote target recognition.

3. High-quality continuous zoom lens, zooming as required

The infrared module and visible light module are equipped with the 22.9~100mm and 10~150mm continuous zoom lenses respectively, allowing free switch between large and small FOVs.

Press for autonomous focusing makes operation convenient and easy.

4. Automatic target recognition and tracking

Self-developed advanced image algorithms help effectively recognize and highlight pedestrians and vehicles so that the rotary imager can automatically locate and track recognized targets.

5. Wide rotating range and high stabilization precision

Azimuth: $n \times 360^\circ$ rotating; pitch: $-90^\circ \sim +85^\circ$ rotating.

The wide rotating range makes no blind spots.

Max. $90^\circ/\text{s}$ angular velocity and max. $90^\circ/\text{s}^2$ angular acceleration for azimuth and pitch allow quick tracking.

0.05mrad stabilization precision for azimuth and pitch ensures stable imaging.



Spike-E For Outdoor Observation



Spike-E For Outdoor Observation



Spike-E For Target Recognition



Spike-E For Target Recognition



Spike-E For Visible Light Disclosure

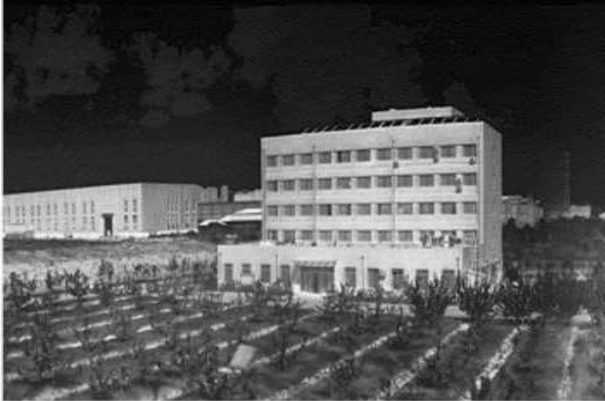


Specifications of Spike-E On-board Photoelectric Thermal Imager

| Item | | Specifications |
|--|---------------------------|--|
| Infrared | Detector Type | Uncooled infrared standard module |
| | Resolution | 1024×768 |
| | Pixel Size | 12μm |
| | Focal Length | 22.9mm~100mm electric continuous zoom |
| | FOV | 7.0°(H)×5.3°(V) (focal length: 100mm) |
| | | 30.0°(H)×22.8°(V) (focal length: 22.9mm) |
| Operating Band | 8~14μm | |
| Visible Light | Detector Type | CMOS |
| | Resolution | 1920×1080 |
| | Pixel Size | 2.7μm |
| | Focal Length | 10mm~150mm electric continuous zoom |
| | FOV | 2.0°(H)×1.1°(V) (focal length: 150mm) |
| 29.1°(H)×16.6°(V) (focal length: 10mm) | | |
| Laser | Laser Wavelength | 1535±5nm |
| | Optical Receiver Aperture | Φ30 |
| | Maximum Measuring Range | ≥6,000m |
| | Minimum Measuring Range | 50 (20 optional) |

| | | |
|--------------------------|--|--|
| | Measuring Accuracy | ≤2m |
| | Range Resolution | 30m |
| | Accuracy | ≥98% |
| | False alarm rate | ≤1% |
| | Multi-target Detection | ≥3 |
| Thermal Imager | Rotating Range | Azimuth: N×360° |
| | | Pitch: -90° ~ +85° (downward: positive) |
| | Maximum Angular Velocity | Azimuth: ≥90°/s |
| | | Pitch: ≥90°/s |
| | Maximum Angular Acceleration | Azimuth: ≥90°/s ² |
| | | Pitch: ≥90°/s ² |
| | Angle Report Accuracy | Azimuth: ≤0.5mrad (1σ) |
| | | Pitch: ≤0.5mrad (1σ) |
| Stabilization Precision | Azimuth: ≤0.05mrad (1σ) (1°/2Hz swing) | |
| | Pitch: ≤0.05mrad (1σ) (1°/2Hz swing) | |
| Load Capacity | ≤9kg | |
| Power Supply System | Power Supply | 24±6V DC |
| | Power Consumption | Normal≤50W; peak≤300W |
| Environmental Parameters | Operating Temperature | -40°C~+60°C |
| | Ingress Protection Rating | IP66 |
| | Air Tightness | 20kPa hyperpressure in the load module. After 2-hour pressure maintaining, the hyperpressure in the optical module can not be less than 19kPa. |
| Physical Characteristics | Weight | ≤22kg |
| | Dimensions | 306×241×426mm (L×W×H) |
| | Video Interface | SDI/Network interface |
| | Communication Interface | RS422/CAN |

Spike-J Panoramic Stitching Vision-enhanced Night Vision Device



Spike-J For Thermal Imaging

Specifications of Spike-J Panoramic Stitching Vision-enhanced Night Vision Device

| Model | | Spike-J Standard | Spike-JS Smart |
|----------|-------------|-------------------|-------------------|
| Infrared | Type | Uncooled | Uncooled |
| | Pixel pitch | 12 ^μ m | 12 ^μ m |

| | | | | |
|--------------------|-----------------------|---------------|---------------------------------------|---------------------------------------|
| | Resolution | 640×512 | 640×512 | |
| | FOV | 130°×40° | 130°×40° | |
| Visible light | Pixel pitch | 2.9µm | 2.9µm | |
| | Resolution | 1920×1080 | 1920×1080 | |
| | FOV | 130°×29° | 130°×29° | |
| Interface | Video interface | SDI | SDI/H.264 encoded | |
| | FPS | 25 | 25 | |
| | Power supply | 18-36 VDC | 18-36 VDC | |
| | Communication | CAN | CAN | |
| Target recognition | ---- | Unavailable | Available | |
| Operating distance | Detection distance | Human | 750m(infrared), 1800m(visible light) | 750m(infrared), 1800m(visible light) |
| | | Vehicle | 1100m(infrared), 2300m(visible light) | 1100m(infrared), 2300m(visible light) |
| | Recognition distance | Human | 200m(infrared), 430m(visible light) | 200m(infrared), 430m(visible light) |
| | | Vehicle | 250m(infrared), 590m(visible light) | 250m(infrared), 590m(visible light) |
| Appearance | Dimension | 260×130×120mm | 260×130×120mm | |
| | Weight | < 3.5kg | < 4kg | |
| Environment | Operating temperature | -40°C~+55°C | -40°C~+55°C | |
| | Shock | 40g | 40g | |
| | Waterproof grade | IP67 | IP67 | |

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