

# 5960 Series LWIR<sup>360</sup> Thermal Surveillance Camera & Positioner System

# COHU

*High performance microbolometer for precision imaging*

*Striking, yet unobtrusive, appearance*

*Three detector resolution choices*

*Sealed and pressurized environmental enclosure for total investment protection*

*Four hard-carbon coated lens options*

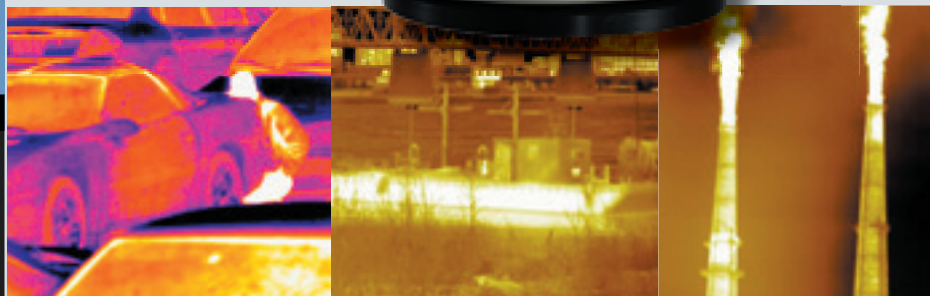
*High speed positioner with tours, position displays*

*Vertical tilt range greater than standard pan & tilts*

*NTSC or PAL output*

## APPLICATIONS

- High value surveillance and detection
- Access control
- Military installations
- Infrastructure surveillance
- ...anywhere no-light detection is critical



The LWIR<sup>360</sup> (5960 Series) brings no-light surveillance to the next level: a combination of function, reliability, style, and performance that security professionals need in our changing world. When radiated energy is all you can count on, you can count on the five decades of experience that Cohu brings to high value asset surveillance.

**A professional imaging tool** The military-grade thermal imager delivers high quality video, even in extreme conditions such as total darkness, smoke, atmospheric haze or dust, rain, light foliage, and most types of fog.

The camera's high thermal sensitivity and image resolution let you see important details quickly and clearly. There is a choice of three detector resolutions (160 x 120, 320 x 240, or 640 x 480) and lenses to suit nearly any situation. Combined with Cohu's revolutionary high-speed pan/tilt positioner and the legendary sealed and pressurized camera enclosure, you are assured of high performance and reliable service at a competitive price.

**Accurate positioning** Control of the positioner is via an RS422 interface. A single MS connector for power, video and data provides simple connectivity of the camera to the transmission system. Cohu also can provide the interface to an IP network, as well as digital recording and archiving components with i-linx<sup>®</sup>.

LWIR<sup>360</sup> answers the growing needs of increased security and homeland protection for a broad range of applications, including military facilities, nuclear power plants, bridges, airports, seaports, and subways.

**Reliability and Performance** The 5960 Series includes the legendary Cohu IP67 sealed and pressurized housing. The enclosure system prevents damage to critical internal components caused by destructive environmental elements. Fully designed, assembled, and tested by Cohu assures the finest performance and reliability of thermal imaging products on the market.

Export of this product is regulated by the U.S. Department of State in accordance with guidelines of "International Traffic in Arms Regulations (ITAR)" per Title 22, Code of Federal Regulations, Parts 120-130. This datasheet is approved for unlimited public release per 02-S-2566.



## SPECIFICATIONS

**SYSTEM****Pan/Tilt Drive**

Angular Travel: 360° continuous pan range,  
-90° to +90° tilt range  
Pan speed (preset): 140°/sec  
Pan Speed (manual): 0.1° to >80°/sec  
Tilt Speed (preset): 140°/sec  
Tilt Speed (manual): 0.1° to >40°/sec  
Preset Accuracy: >0.25°

**Presets**

64 preset positions (each preset includes pan and tilt, and 24 character ID label)

**Video Tours**

8 tours, each consisting of 32 presets with dwell time per preset per tour.

**Sector Zones**

Up to 16 programmable zones in the horizontal plane

**Privacy Zones**

8 programmable zones can be set for video blanking.

**Compass Direction**

8 or 16 direction points (i.e.: north, NE, east, SE, south, SW, west, and NW) can be displayed. Function can be on/off, 3-sec. time out or permanent.

**Absolute Position**

Displayed in 0-359° AZ and +95° to -95° EL. Function can be on/off, 3-sec. time out or permanent.

**Cloning**

Positioner settings (presets, title, etc.) can be stored to file for easy duplication

**Title Generation**

Camera ID: 2 lines of 24 characters  
Preset ID: 1 Line of 24 characters  
Sector Zone: 1 line of 24 characters per zone  
Privacy Zone: 1 line of 24 characters per zone  
Alarm Label: 2 lines of 24 characters  
Compass/Position: 1 line, includes compass direction and absolute position

**Inverted Operation**

Can be mounted in an inverted position. Software setting compensates image and control for inversion.

**THERMAL DETECTOR****Detector Type**

Microbolometer

**Array Format NTSC**

160 x 120 NTSC & PAL  
320 x 240 / 384 x 288 PAL  
640 x 480 NTSC & PAL

**Detector Material**

aSi

**Pixel Size / Fill Factor**

25 x 25 μm / 80%

**Spectral Range**

8 - 14 μm

**Dynamic Range**

> 1000:1 typical

**Operability**

>99.9%

**FPA Operating Temperature**

30°C

**NEdT (camera level)**

< 100 mK (w/ f1.0 optic)

**Analog Video**

NTSC or PAL

**FPA Frame Rate**

59.94 frames/sec NTSC, 50 frames/sec PAL

**Video A/D Resolution**

14 Bits

**Calibration Flag**

Ambient and Elevated Temp, Automated / Periodic One Point Refresh

**LENS FIELD OF VIEW**

Sensor Size	Lens Size	FOV
160 x 120	3.5mm	67° x 52°
	6.5mm	36° x 28°
	13mm	18° x 14°
320 x 240	25mm	9° x 7°
	13mm	36° x 28°
	25mm	18° x 14°
640 x 480	50mm	9° x 7°
	100mm	4.5° x 3.5°
	150mm	3° x 2.4°
	25mm	36° x 28°
	50mm	18° x 14°
	100mm	9° x 7°
	150mm	6° x 4.7°

**ELECTRICAL****Power Input**

89 VAC to 135 VAC, 120 VAC nominal 60Hz.  
Conforms to NEMA TS2 para. 2.1.2. 24 VAC, 12 VDC

**Power Consumption**

54 W max; 154 W max with p/t heater

**Power Transients/Interruptions**

Conforms to NEMA TS2 para 2.1.6

**COMMUNICATION****Data Format**

RS-422 and RS-232

**Protocol**

Cohu

**Firmware**

Stored in flash memory; upload via serial port

**MECHANICAL****Weight**

Approx. 18.5 lbs (8.4 kg)

**Dimensions**

13.3"/337.8mm x 11.4"/289.6mm H

**Connector**

18-pin MS

**ENVIRONMENTAL****Protection Rating**

IP-67 and NEMA 4X; Camera housing sealed and pressurized to 5 psi with dry nitrogen.  
IP-66 pan/tilt assembly

**Ambient Temp. Limit**

Operating: -25 to 60° C (-77 to 140° F)  
Storage: -40 to 70° C (-40 to 158° F)  
Conforms to NEMA TS2 para 2.1.5.1

**Humidity**

Up to 100% relative humidity

**Vibration**

Conforms to NEMA TS2, para. 2.1.9

**Shock**

Conforms to NEMA TS2, para. 2.1.10

**Altitude**

Sea level to equivalent of 3,000m/10,000 feet (508mm/20 inches of mercury)

**Acoustic**

Can withstand environments greater than 150 dB continuously for 30 minutes

**EMI**

FCC rules, Part 15, Subpart J, for Class B devices

**ORDERING INFORMATION**

**596X-XXX0/XXXX**

Thermal Imaging camera on high speed positioner

**POWER**

4 - 24 VAC

5 - 120 VAC

**DETECTOR**

1 - Thermal 160 x 120 NTSC

2 - Thermal 160 x 120 PAL

3 - Thermal 320 x 240 NTSC

4 - Thermal 384 x 288 PAL

6 - Thermal 640 x 480 NTSC

7 - Thermal 640 x 480 PAL

**IR LENSES**

0 - 3.5 mm (Detectors "1 & 2" only)

1 - 6.5 mm (Detectors "1 & 2" only)

2 - 13 mm (Detectors "1 & 2" only)

3 - 25 mm (Detectors "1 & 2" only)

4 - 13 mm

5 - 25 mm

6 - 50 mm

8 - 100 mm

9 - 150 mm

**ACCESSORY OPTION**

0 - None

1 - P/T Heater

**MOUNTS**

PEDD - Pedestal

CONR - Corner mount

PARP - Parapet mount

POLE - Pole mount

WALL - Wall

**COHU**

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Specifications subject to change without notice.

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