# NOPTIC Thermal Imager Summary

Made in USA

The NOPTIC (**N**ightime **OP**tical **T**hermal **I**maging **C**amera) is a Made in America, thermal imaging camera with a patented application for public safety professionals. The NOPTIC is a spotlight-mounted I/R unit. NOPTIC is a Sole Source product as there is no other manufacturer of this type of application.

This design allows the public safety professional to pan and tilt the camera by using the spotlight. An A-pillar spotlight is required for power, pan / tilt capability, and transmittance to a tablet or MDT inside the vehicle. Unlike 'night vision' technology that needs light to amplify, the NOPTIC needs no light and can work in complete darkness. By seeing in darkness from inside the vehicle, L/E professionals can work with more stealth, advanced situational awareness, and safety (from inside the vehicle).

NOPTIC connects to most in-car monitors with a provided USB cable.

Has built in video recording and picture-taking capability; if desired for field use.

Rugged field testing for dust, vibration, temperature extremes of -40F and +176F

Inherent benefit is that it is cost-effective for multiple vehicle deployment and since it is mounted to the

L/E vehicle's spotlight, the ability to see at night is always ready and always available

Visibility is rated at 1,500 feet. However, we have recorded video of distances at 2,800 feet.

Built-in thermostat pre-set at 40deg F. automatically turns on heating filament to prevent freezing.

Install takes approximately 1.5hrs.

Vehicle is required to have a pillar-mounted spotlight and display or MDT with USB port

# Technical

The NOPTIC Spotlight System utilizes passive infrared uncooled micro bolometer sensor technology. The following is a technical summary of the camera.

## NOPTIC System Configurations

| 7.5 Hz | 30 Hz |
|---|---|
| P/N: 628497501 – with Halogen Bulb | P/N: 628497500 –with Halogen Bulb |
| P/N: 628497511 – with LED Bulb | P/N: 628497510 - with LED Bulb |

## Nominal NOPTIC System Power Consumption

| Component | Current Consumption |
|---|---|
| NOPTIC System (Heater Off) | 300mA @12V (excludes Lamp)* |
| NOPTIC System (Heater On) | 700mA @12V (excludes Lamp)* |

***System current consumption excludes lamp current consumption, reference lamp manufacture for further details.**

## 7.5Hz and 30Hz Features & Specifications for NOPTIC Camera

| Features | Specifications |
|---|---|
| IR sensor type | Passive Infrared Uncooled micro bolometer |
| IR spectral range | 8 - 14 micrometer |
| IR sensitivity NEdT | <100 mK |
| Sensor array size | 320 x 240 pixels |
| Horizontal Field of View (FOV) | 24 degrees |
| Focus | Fixed to infinity |
| Video output | Composite (monochrome) video, NTSC compatible |
| Image polarity | White = Hot |
| Video Process | Video Conversion Box mounted inside the vehicle converts the camera signal into NTSC. |
| Supply Voltage | 9 - 16V;Operating No function during cranking Protected against Over voltage, Jump start, Reverse battery |
| Operating temperature | -40°F to +176°F |
| Mounting provisions | “A” pillar spotlight |
| Humidity | 95% Relative Humidity @ +150°F to +14°F |
| Altitude | Functional up to 3700 m @ +185°F Storage up to 12000 m @ -70°F |
| Enclosure resistance | High pressure cleaning Salt spray Solar radiation |

# Validation Testing

The NOPTIC Spotlight Camera meets Automotive OEM manufacturer specifications that are designed to simulate 10 years of harsh environmental exposure.

| Test Description | Specifications |
|---|---|
| Temperature Cycle | • -40°F to +176°F 35 cycles at 8 hours each cycle. |
| Low Temp Durability | • -70°F for 72 hours. |
| Thermal Shock | • -40°F to +176°F for 100 cycles<br>• 30-second transition time<br>• 60 minute dwell at each temperature. |
| Mechanical Shock | • Half-sine pulse with 30g peak acceleration in x, y, and z direction<br>• 5 shocks /direction. |
| Random Vibration &Temp Cycle | • 8 hour/direction x, y & z direction<br>• Temperature from -40°F to +176°F. |
| Thermal Shock with Splash Water | • 100 cycles. Camera at +176°F splashed<br>• +32°F water for 3 seconds each cycle. |
| Drop Test | • 3 units dropped from 1 meter onto concrete floor.<br>• Two different directions/unit. |
| Hot Water Jet Test | • +194°F water @ 1450 PSI. 4.5 gal/min<br>• 30 cycles per accessible direction. |
| Salt Spray | • 168 hours exposure to salt spray mixture |
| Immersion test | • Camera @ +176°F is submerged in water @32°F for 5 minutes. 20 cycles |
| Humidity Heat cycle | • Low temp is 14°F<br>• High temp is +150°F<br>• Relative humidity is 95%<br>• 6 cycles for Duration of 10 days. |
| Contamination | • Expose unit to diesel fuel, engine oil, hydraulic oil, coolant, car wax, paint sealer, ammonia based glass cleaner, insect remover, tar remover, gasoline, and ethanol. |

# Operational Benefits

- **Conduct stealth surveillance with all vehicle lights off**
- **Record and view thermal video on your MDT**
- **Internal heater that automatically burns through ice on camera window**
- **Pan quickly using spotlight handle in vehicle**
- **Locate missing persons; even at distances up to ½ mile**
- **Spot vehicles that have recently been running**
- **Locate disturbed soil**
- **See tire tracks after accidents**
- **Find evidence after it has been tossed**
- **Secure perimeters**
- **Patented Design**
- **World-class technical support**

# Installation Support

1. **Technical and Installation Support**: A detailed installation manual is supplied with each camera. Estimated installation time is less than one hour.  . Technical support is available for installers and end-users.

**The following are links to short video clips of NOPTIC in use; of particular interest is the side-by-side real time video capture of seeing with a spotlight vs. seeing only with NOPTIC.**

1100Feetdistance
Rainy Daytime
Knuckleheads in parking lot bushes
AtlanticCityBridge
AtlanticCityRamp
NOPTIC Fog
NOPTIC Parked Cars