

NOPTIC™

INSTALLATION INSTRUCTION MANUAL



Infrared camera systems manufactured by Autoliv ASP, Inc. may not be exported without prior approval of the U.S. Department of State and/or the U.S. Department of Commerce.

Autoliv will not accept liability in the event the purchaser is unable to obtain required valid export license(s).

Table of Contents

Cautions and Warnings.....	3-4
Contents Included	5
Replacing Existing Spotlight with NOPTIC Spotlight	6
Routing NOPTIC Camera Cable	7-9
NOPTIC Camera Operations	10
Recommended Power Switch.....	11



Caution and Warnings

We have provided important safety messages in this manual. Always read and obey all safety messages.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



CAUTION

The word CAUTION and the safety alert symbol indicate a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

CAUTION

The word CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

The following is a list of all safety notices pertaining to the installation of the NOPTIC.



Caution: Avoid injury

Do not rely on the NOPTIC to the exclusion of all other surveillance techniques. It is intended to be used as supplemental night vision equipment on the vehicle spotlight only.



Caution: Avoid injury

Fire hazard or shock hazard may result from improper installation of this product.



Caution: Avoid injury

Electrical hazards are present. Shorting of circuitry may result in vehicle system outage or NOPTIC system outage and possible physical harm.



Caution: Avoid injury.

Before beginning the installation of the NOPTIC, carefully inspect the package to ensure no damage occurred during shipping or delivery. If you suspect any possible damage, contact NOPTIC Product Group at 1-888-NOPTIC1 (1-888-667- 8421) or visit our website at www.NOPTIC.com. Always use ANSI-approved safety glasses.



Caution: Avoid property damage

Route only as instructed. Do not route cable over sharp metal edges which damage cable. Do not route cable where it can be damaged from engine heat. Do not route cable assembly where it can be pinched by moving parts (e.g., the hood mechanism).

Caution: Avoid property damage

Incorrect installation drilling may cause property damage and/or NOPTIC equipment failure. Placement of installation drilling must not damage or interfere with vehicle components on engine component side of firewall. Check engine component side of firewall before installation drilling.

Caution: Avoid property damage

Loose cable may cause property damage. Do not leave cable loose in engine compartment. Secure cable to fixed point with zip ties.

Caution: Avoid property damage

Improper circuitry may result in system outage, NOPTIC failure and property damage. Circuitry must be connected to a power source requiring the ignition switched to be in the “ON” position. The NOPTIC will drain vehicle battery if connected to power source not requiring ignition switched “ON.”

Important:

It is up to the user to investigate applicable laws and regulations (State and Federal) concerning the use of this product. This device should be used only in a legal and lawful manner.



Contents Included



Contents Included:

- NOPTIC Camera
- NOPTIC Camera Cable Assembly
- NOPTIC ECU
- Unity Spotlight
- Analog RCA Cable
- Digital USB Cable
- Foot well, Strain Relief grommet

Tools you will need:

- 3/32" Allen Tip
- Drill
- 14 mm wrench
- Small amount of grease

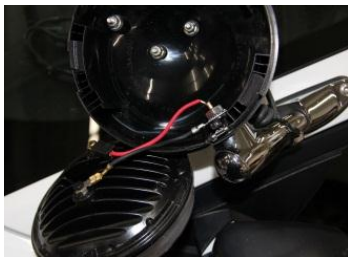
NOTE:

The system does not come equipped with a video screen. The NOPTIC system provides an NTSC compatible Analog output. You simply connect the Analog output from your NOPTIC ECU to either your existing video display or any compatible vehicle laptop or tablet Analog input. If required, a separate video screen can be purchased through your local Audio/Video retailer.



Replacing Existing Spotlight with NOPTIC Spotlight

1. Remove the screw from the light housing ring (See Figure 1).
2. Twist the ring counterclockwise until it disengages from the head and remove.
3. Remove the light bulb and disconnect the nut on the head post (See Figure 2).
 - a. The light shell assembly can now be removed from the light post by lifting it up and sliding off the post.
4. Remove the screw, light ring and light on the NOPTIC spotlight assembly.
 - a. Similar to steps 1-3 above.
5. Place the NOPTIC light shell assembly onto the light post (see Figure 3).
6. Replace the lock washer, light bulb ground wire and post nut.
 - a. Tighten the nut securely to 95 in-lbs. \pm 5 in-lbs.
7. Attach the light bulb (LED or Halogen) power connection and insert the bulb into the light shell.
8. Replace the shell ring and attaching screw (See figure 4).
9. Test to verify the spotlight is working properly.

**Figure 1****Figure 2****Figure 3****Figure 4****NOTE:**

Due to added weight from the NOPTIC camera assembly, you may need to adjust the up and down tension of your spotlight. Please refer to your Spotlight User Manual.



Routing NOPTIC Camera Cable

IMPORTANT

The following installation instructions provide the correct procedures for routing the cable assembly into the vehicle. These instructions were designed to work best with most vehicles, but installation and cable routing procedures **may** vary depending on the specific make and model.

1. Run the cable exiting the spotlight head along the light shaft and secure at the end of the light shaft with zip ties or something similar.
2. Route the wire down the A-pillar through the A-pillar door seal (See figure 5).

NOTE:

A small amount of grease placed on the inside of the seal will help the cable slide through the opening easier.

3. Open the vehicle hood and route the wire carefully into the engine compartment.
4. Locate a clear flat location on the firewall where the hood release cable exits through the firewall for drilling the routing hole. The cable and connector will route through an opening in the firewall to enter into the cabin of the vehicle.

NOTE:

The cable and connector may also be routed through a pre-existing grommet hole. (See Figure 7) If so then skip to step 6.



CAUTION!

Avoid property damage

- Route only as instructed
- Do not route cable over sharp metal edges which may damage cables
- Do not route cable where it can be damaged from engine heat
- Do not route cable where it can be pinched by moving parts (ex: the hood mechanism)



Figure 5



CAUTION!

Avoid property damage

- Incorrect installation may cause property damage and equipment failure
- Placement of installation drilling must not damage or interfere with vehicle components on engine compartment side of firewall.
- Check engine compartment side of firewall before installation drilling

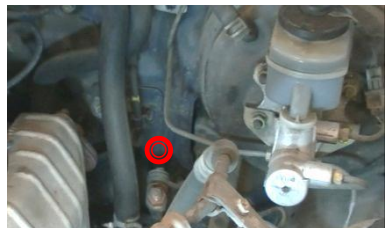


Figure 6 (Engine bay view, example)



Figure 7 (Foot well view, example)



5. Drill a small 16 mm hole through the firewall from inside the vehicle. File down any rough edges to help prevent cable damage during install (See figure 8).
6. Route the cable through the hole and into the vehicle cabin (See Figure 9 and 10).
7. Attach the strain relief to the cable so that it engages in the firewall hole without leaving tension on the cable.



Figure 8 Drilled hole example



Figure 9 (Foot well view)

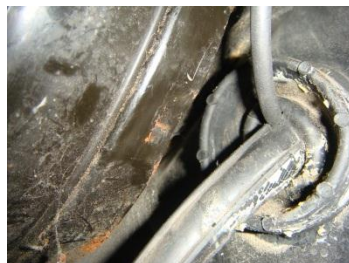


Figure 10 (Engine bay view)



Figure 11

NOTE:

The NOPTIC cable assembly includes a strain relief grommet that can be put into place to make sure the cable is protected and installed securely in the firewall opening.

8. Route the cable assembly under the dash to a clear area where you can mount the Electronic Control Unit, ECU (See Figure 11).
9. Mount the ECU using two sheet metal screws, securing them through the holes in the control module.



CAUTION!

Avoid property damage

- Loose cable may cause property damage
- Do not leave cable loose in engine compartment
- Secure cable to fixed points with zip ties or a similar product

NOTE:

- All vehicles have different space constraints under the dash and may have additional equipment that has been previously installed.
- Determine the best location to where the ECU should be mounted based on the vehicle's space constraints.
- Care must be taken to mount the ECU close to a power source. Make sure the power line from the ECU will reach the power source before it is mounted.



10. Connect the camera cable into the mating camera connector in the ECU – making sure they are properly aligned (See Figure 12).
11. Connect the RCA cable into the mating RCA connector in the ECU – making sure they are properly aligned (See Figure 13).
12. Connect the video signal to the vehicle laptop or the video display screen that will be used (See figure 14 and 15).



Figure 12

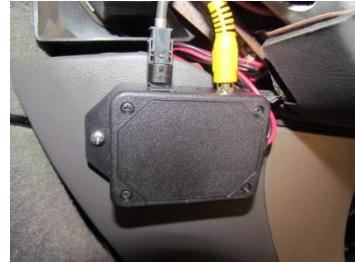


Figure 13

NOTE:

Example use of Analog: TV with RCA female receptor.
 Example use of Digital: Computer with USB Standard A socket/port.



Figure 14 (Analog Video)



Figure 15 (Digital Video)

13. Locate an ignition wire in either the fuse panel or in the police wiring package (if available).
14. Connect the red wire to the switched ignition wire you have identified.
15. Connect the black wire to a convenient ground location, ideally chassis ground.

**CAUTION!****Avoid property damage**

- Improper circuitry may result in system outage, NOPTIC Spotlight System failure and property damage
- Circuitry must be connected to a power source requiring ignition switched "ON"
- The NOPTIC Spotlight system will drain vehicle battery if connected to power source not requiring ignition switched "ON"

NOTE:

The camera will now be ON when the key is in the RUN or ACCESSORY ON position.
 The video display ON/OFF switch should be used to turn the NOPTIC Spotlight system on and off as needed while the vehicle is running.





Follow the steps below to ensure installation has been performed correctly

1. Start the vehicle or turn the key to the “Accessory on” position. The camera is designed to always be on when the vehicle is on.
2. Turn on the video screen to view the image.
3. Adjust the orientation of the camera by using the pillar mount spotlight adjustment handle (the same way you would orient the spotlight).
4. Turn on the spotlight once you identify the target and are ready to illuminate it. The target will be perfectly aligned with the camera image.

NOTE:

Make sure the installation procedure has been followed correctly and that the camera power is connected to a switched ignition power source. If it is not connected to a switched power source (i.e. a cigarette lighter or fuse), the camera may remain on when the vehicle is off and will drain the battery.



Recommended Power Switch

A toggle switch/ rocker switch should be installed to ensure a longer lasting system. Adding an inline toggle switch allows user turn off the system when not in use even if the vehicle is on.

Install a switch in-line between the red wire of the ECU and the vehicle power, reference step 14.

From the ECU to the fuse box, you should have the following set up: ECU(red lead) to toggle switch to fuse box or police wiring package (See Figure 16 and 17).

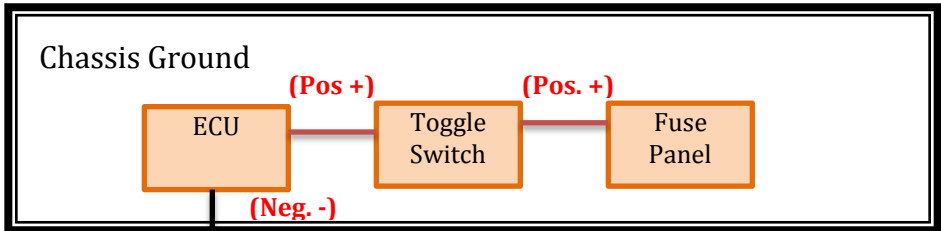


Figure 16

See the following link for a recommended toggle or rocker switch to use.

Toggle Switch:

<http://www.mouser.com/ProductDetail/Carling-Technologies/6FC53-73-TABS/?qs=sGAEpiMZZMvudeGI7i40XFx6j5Ew6Hs3YrDKD%252b85Ya8%3d>

Rocker Switch:

<http://www.mouser.com/ProductDetail/CHERRY/RRA22H3BBBNN/?qs=sGAEpiMZZMtFyPk3yBMYYPFvUbFOir2Hb7TF0jPFqIk%3d>

Installer may route the switch to an ideal location for driver's convenience.

The example install below shows a double throw rocker switch, with use of only 1 throw.



Figure 17

Now the system can be turned on and off via a toggle switch when the vehicle is on.



NOPTIC™

1-888-NOPTIC1

www.NOPTIC.com

