

**FROM VEHICLE-MOUNTED THERMAL IMAGING SYSTEMS TO SIDE / REAR CAMERAS...  
INTEGRATED VISION-BASED SOLUTIONS THAT MEET YOUR NEEDS.**



## **Vision Systems Cameras and Displays**

(Left to Right) Head-Up Display, Raytheon 4000B ProtectIR Pan & Tilt Thermal Imaging Camera, Side / Rear Camera, Fixed Thermal Imaging Camera, Flat Panel Display

## **Complete Systems**

Vision Systems by Bendix Commercial Vehicle Systems is the industry's most complete line of vehicle-mounted vision solutions for commercial vehicles. With nine turnkey configurations to choose from, the Vision Systems line offers solutions that fits your needs and your budget.

## **Customized Solutions**

What makes this flexibility possible is the complete compatibility of the Vision Systems line of cameras and displays. Any of the components can be combined to create the system that is right for you.

## **Extended Visibility Day and Night**

The Vision Systems line offers a wide range of products designed to improve your visibility on the road, day and night. From thermal-imaging cameras designed to see well beyond your headlights, to back-up cameras that minimize blind spots, the Vision Systems line has you covered 24/7.

## **No Driver Distraction**

Studies have shown that using Vision Systems products, either with the head-up or the flat panel display unit, does not contribute to driver distraction or driver fatigue while driving at night.



## **Turn Night Into Day**

A real-time thermal image as seen on the in-cab display unit.



## **Minimize Blind Spots**

A real-time rear vision image as seen on the in-cab display unit.



### Fixed Thermal Imaging (IR) Camera

- 1500+ feet Visibility
- Avoid Dangers In The Dark
- See Through Smoke and Dust
- React Sooner
- Drive Safer

This product is subject to U.S. export laws. License required for export outside the U.S. or Canada.

The exterior-mounted thermal imaging (IR) camera utilizes infrared technology to see 1500 feet and beyond. Since the camera senses heat and not light, it operates even on the darkest, unlit roads.

Although only 28 percent of driving happens between 6 p.m. and 6 a.m., over 50 percent of all accidents occur during these hours. Studies have shown that reduced visibility at night is one of the top-three causes of accidents, and that 20/20 vision during daylight is reduced to 20/50 - at best - at night. The fixed IR camera provides the extra visibility and time to react that drivers need to safely navigate through the night.

A driver's visibility is limited to about 350 feet with low-beam headlights, and 500 feet with high beams. The fixed IR camera increases a driver's visibility more than five times beyond that, to 1,500+ feet. It also enables drivers to see through the glare from oncoming headlights, allowing them not only to see farther, but to see better as well.

When every second counts, field tests show that the fixed IR camera increases a driver's time to detect and react to objects by a factor of four, from 4 seconds at 60 mph with standard vehicle headlights, to a full 17 seconds. It's the extra time a driver needs to avoid unexpected encounters with pedestrians, animals, highway construction, stalled cars, road debris, poorly lit vehicles or other hazards on the road.

### Specifications

<b>Dimensions</b>	7.2" (18.3cm) H x 9.5" (24.1cm) W x 5.5" (14.0cm) D [8.1" (20.6cm) H with aiming adjuster assembly]
<b>Weight</b>	Camera – 2.0 pounds (0.90 kgs) Bracket – 2.3 pounds (1.04 kgs)
<b>Operating Temperature</b>	-40°F (-40°C) to +140°F (+60°C)
<b>Depth of Field</b>	82 ft. (25m) to infinity
<b>Field of View</b>	11° horizontal x 4° vertical (±1°)
<b>Temperature Differential Detection</b>	0.4°F (0.2°C)



### Side / Rear Camera

- Minimize Blind Spots
- Works in the Dark
- Embedded Microphone

The side / rear vision camera reduces blind spots when backing up or changing lanes. This LED-assisted camera provides superior low-light performance. An embedded microphone supplies audio to the flat panel display speaker.

### Specifications

<b>Dimensions</b>	1.89" (4.8cm) H x 3.54" (9.0cm) W x 2.56" (6.5cm) D (w/o bracket)
<b>Operating Temperature</b>	-4°F (-20°C) to +149°F (+65°C)
<b>Power System</b>	12 VDC
<b>Operating Voltage</b>	9 V to 14 V
<b>Current Draw @ 12V</b>	150 mA
<b>Model</b>	Black / White Mirrored Image (Inverted)
<b>Minimum Illumination</b>	0.05 Lux
<b>View Angles - Diagonal</b>	120°
- Horizontal	96°
- Vertical	72°



### Raytheon 4000B ProtectIR Pan & Tilt Thermal Imaging (IR) Camera

- Search & Surveillance
- 360° Operation
- 1500+ feet Visibility
- Joystick Controlled Pan & Tilt

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The Raytheon 4000B ProtectIR pan & tilt thermal imaging (IR) camera is designed for search & surveillance operations. It combines IR technology with vertical and horizontal scanning, using a joystick, to allow the user to easily and quickly scan a large area. The Raytheon 4000B ProtectIR camera is well suited for a variety of applications including fire/rescue, forestry, border patrol, mobile surveillance, service utilities, and many more.

### Specifications

<b>Dimensions</b>	11" (27.9cm) W x 11.4" (29.0cm) H x 9" (22.9cm) D
<b>Weight</b>	10 lbs. (4.5 kg)
<b>Operating Temperature</b>	-40°F (-40°C) to +130°F (+55°C)
<b>Operating Voltage</b>	9 VDC to 16 VDC, 12 VDC nominal
<b>Depth of Field</b>	25 ft. (7.6m) to infinity
<b>Field of View</b>	12° horizontal to 9° vertical
<b>Pan Function</b>	360° continuous
<b>Tilt Function</b>	-16° to 40° from horizontal



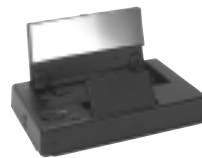
### Flat Panel Display

- Accepts Multiple Inputs
- Embedded Speaker
- On-Screen Menus
- One-Touch Day/Night Adjustment

The flat panel display is designed as a multipurpose display for use with any combination of Vision Systems cameras. The flat panel display allows for dual camera inputs and can be upgraded to allow for up to eight camera inputs.

#### Specifications

<b>Outer Dimensions (Monitor)</b>	7.76" (19.7cm) W x 5.25" (13.3cm) H x 1.15" (2.9cm) D
<b>Operating Temperature</b>	-4°F (-20°C) to +149°F (+65°C)
<b>Power System</b>	12 VDC
<b>Operating Voltage</b>	10 V to 16 V
<b>Current Draw @ 12V</b>	1.25 A
<b>Viewable Screen Size</b>	6.8" (17.3cm) Diagonal
<b>Aspect Viewing Ratio</b>	4:3
<b>Resolution</b>	1152 W x 234 H 270,000 pixels



### Head-Up Display

- Notebook Design
- 1:1 Viewing Ratio
- No Driver Distraction
- Ideal for Extended Driving Hours

The Head-Up Display (HUD), with dimming capability, is ideally suited for extended nighttime driving. It receives signals from an IR camera and projects the images onto a combiner mirror. The HUD can be mounted either to the vehicle's dash or beneath the headliner. When not in use, the notebook-size HUD folds flat.

#### Specifications

<b>Dimensions</b>	Open – 4.5" (11.4cm) H x 8.92" (22.7cm) W x 7.0" (17.8cm) D [1.25" (3.2cm) H when closed]
<b>Weight</b>	2 pounds (0.90 kgs)
<b>Power System</b>	12 Volts DC
<b>Combiner Size</b>	Approximately 2" (5.1cm) H x 6.5" (16.5cm) W

## Optional Hardware

### Side / Rear Camera Kit

Contains a side / rear vision camera and a 50' side/rear camera extension harness.

<u>Description</u>	<u>OEM PN</u>	<u>Aftermarket PN</u>
Side / Rear Camera	5011788	801495

### Fixed IR Camera Shroud Kit

Provides a one-piece cover for the fixed IR camera that can be trimmed and painted to fit most applications.

<u>Description</u>	<u>OEM PN</u>	<u>Aftermarket PN</u>
Camera Shroud	5012079	801469

### Automatic Camera Switcher

Necessary when using more than two cameras, or when the driver requires a camera to activate after a desired +12V input is applied (i.e. reverse gear).

<u>Description</u>	<u>OEM PN</u>	<u>Aftermarket PN</u>
4 Camera Switcher	5012077	801496

### Mounting Bracket Kits

Provide additional flexibility when mounting displays and cameras.

<u>Description</u>	<u>OEM PN</u>	<u>Aftermarket PN</u>
Flat Panel Display Fold Back Mount	5011763	801492
Flat Panel Display Fold Forward Mount	5011765	801493
Flat Panel Display Swivel Mount	5011767	801494
Head-Up Display Overhead Mount	5010082	5010082
Side Camera Mounting Bracket	5012931	801572

### Wiring Harness Extensions

Provide additional range when installing various Vision Systems components.

<u>Description</u>	<u>OEM PN</u>	<u>Aftermarket PN</u>
25' Side / Rear Camera Harness	5011952	801422
50' Side / Rear Camera Harness	5011953	801423
75' Side / Rear Camera Harness	5011954	801424
3' Fixed IR Camera Harness	5010441	801152
6' Fixed IR Camera Harness	5011377	801434
12' Fixed IR Camera Harness	5011380	801437
5' Flat Panel Display Harness	5011945	801411

# System Configurations

Nine all-inclusive configurations, each part number is complete with all necessary hardware for easy installation.

**Configuration 1** OEM PN: 5010086 | Aftermarket PN: 5010086

Driving aid application



**Configuration 2** OEM PN: 5012083 | Aftermarket PN: 801500

Driving aid application



**Configuration 3** OEM PN: 5012081 | Aftermarket PN: 801499

Search & rescue and scanning application



**Configuration 4** OEM PN: 5012088 | Aftermarket PN: 801502

Side / rear blind-spot aid application



**Configuration 5** OEM PN: 5012085 | Aftermarket PN: 801501

Driving aid application with additional passenger display unit



**Configuration 6** OEM PN: 5012090 | Aftermarket PN: 801503

Combination driving and side / rear blind-spot aid application



**Configuration 7** OEM PN: 5012080 | Aftermarket PN: 801498

Combination side / rear blind-spot aid and search & rescue application



**Configuration 8** OEM PN: 5012092 | Aftermarket PN: 801504

Search & rescue and scanning application with additional passenger display unit



**Configuration 9** OEM PN: 5012093 | Aftermarket PN: 801505

Combination side / rear blind-spot aid and search & rescue application with passenger display unit



## Picking Up Where Your Mirrors and Headlights Leave Off

See what you've been missing. Vision Systems products are available as a retrofit system through any Bendix® distributor or truck dealer. Vision Systems products are also available on new vehicles from many OEMs. Get the details. Contact your local Bendix representative, call 1-800-AIR-BRAKE (1-800-247-2725), or email [visionsystems@bendix.com](mailto:visionsystems@bendix.com) today.