

BELTRONICS™

—PERFORMANCE RULES.™

BELTRONICS™
—PERFORMANCE RULES.™

Beltronics
5442 West Chester Road
West Chester OH
45069 USA

USA 800-341-2288
www.beltronics.com

©2006 Beltronics
Designed and Manufactured In Canada
Features, specifications and prices subject to change without notice.
Model: V940



VECTOR **940**

RADAR AND LASER DETECTOR

Owner's Manual

Congratulations

The Bel V940 is the most advanced radar, laser and safety detector ever designed by Beltronics.

The Bel V940 includes full X, K, SuperWide Ka, and Safety Warning System radar capability, front and rear laser detection, varactor-tuned (VTO) microwave receiver, digital signal processing (DSP) for superior range and reduced false alarms, our patented Mute and AutoMute, audible and visual band alerts, and all the performance you'd expect from Beltronics.

In addition, the Bel V940 introduces the following revolutionary features:

- Varactor-tuned receiver provides long-range protection against all radar threats
- New easy-to-use Programming lets you customize up to 6 features
- Ultra-bright text-display provides easy to read information from any angle
- Detects and decodes Safety Warning System messages

If you've used a radar detector before, a review of the Quick Reference Guide on pages 4 and 5, and the Programming information on pages 12 and 13 will briefly explain the new features.

If this is your first detector, please read the manual in detail to get the most out of your V940's outstanding performance and innovative features.

Please drive safely.

FCC Note:

Modifications not expressly approved by the manufacturer could void the user's FCC granted authority to operate the equipment.

Quick Reference Card

Remove card along perforations

BELTRONICS V940 Quick Reference Card

There are 6 user-selectable options so you can customize your V940 for your own preferences.

The buttons labeled CITY and BRT are also used to enter the Program Mode, REVIEW your current program settings, and to CHANGE any settings as desired. The words PGM, RVW and CHG are located on the top of the detector, and are highlighted in graphics.

How to use Programming

- 1 **To enter Program Mode, press and hold both CITY and BRT buttons down for 2 seconds.** (The unit will beep twice, and will display the word "Program").
- 2 **Then press the RVW button to review the current settings.** (You can either tap the button to change from item to item, or hold the button to scroll through the items).
- 3 **Press the CHG button to change any setting.** (You can either tap the button to change from setting to setting, or hold the button to scroll through all the options).
- 4 **To leave Program Mode, simply wait 8 seconds without pressing any button.** (The unit will display Complete, beep, and return to normal operation).

Factory Default Settings

To reset your V940 to its original factory settings, press and hold the "CITY" and "BRT" buttons while turning the power on. The V940's display will provide a "Reset" message, accompanied by an audible alert, acknowledging the reset.

An example

Here is how you would turn the V940's AutoMute feature off.

- 1 Enter the Program Mode by holding both the CITY and BRT buttons down for 2 seconds. The V940 will beep twice and display Program.
- 2 Then hold the RVW button down. V940 will scroll through the categories, starting with Display (Pi lot), then Voice (Voice), then Power-On sequence (PwrOn), and then AutoMute (aMute).
- 3 Release the RVW button when the V940 shows the AutoMute item. Since the factory setting is for AutoMute to be on, the V940 will display aMute ON.
(If you accidentally don't release the Review button in time, and the V940 goes to the next category, hold the RVW button down again, and after the V940 scrolls through all categories, it will begin again at the top of the list.)
- 4 Press the CHG button to change from aMute ON to aMute OFF.
- 5 To complete the Programming, simply wait 8 seconds without pressing any button. The V940 will display Complete, beep 4 times, and return to normal operation.

Remove card along perforations

Quick Reference Card

Remove card along perforations

BELTRONICS V940 Quick Reference Card

Press the **RWW** button to go from one category to the next

Press the **CHG** button to change your setting within a category

PILOT (Power-on indication)	Pi l o t HWY Pi l o t H	* Full word: Highway or City Letter: H or C
VOICE	Voi ce ON Voi ce OFF	* Voice alerts on Voice alerts off
POWER-ON SEQUENCE	PwrOn STD PwrOn FST	* Standard power-on sequence Fast power-on sequence
AUTOMUTE	aMute ON aMute OFF	* AutoMute on AutoMute off
CITY MODE SENSITIVITY	Ci ty STD Ci ty LoX	* Standard City mode sensitivity Low X band sensitivity in City Mode
BANDS	Bands DFT Bands MOD	* Factory default settings Factory default settings modified

Turn bands "ON" or "OFF" by pressing the VOLUME/MUTE button

POP ON or OFF (default is off)
SWS ON or OFF (default is off)

Remove card along perforations

Table of Contents

Quick Reference Guide	4-5	Programming	11-14
Installation	6-7	• How to use Programming	11
• Power Connection	6	• Example of Programming	11
• Mounting Location	6	• Overview of Programming	12
• Windshield Mount	7	• Details of Programming	13-14
Controls and Features	8-10	Technical Details	15-21
• Power and Volume Control	8	• Specifications	15
• Power-on indication	8	• Interpreting Alerts	16-17
• Voice	8	• How Radar Works	18
• AutoMute	8	• How "POP" Works	18
• Mute	8	• How Laser Works	19
• Highway / City Button	9	• How Safety Radar Works	20-21
• Brightness and Dark Mode	9	Service	22-28
• Audible Alerts	10	• Troubleshooting	22-23
• Power Connector	10	• Service	24
• Signal Strength Meter	10	• Warranty and Accessories	25
		• Registration	27-28

To begin using your V940, just follow these simple steps

- 1 Plug the small end of the power cord into the side jack of the detector, and plug the large end of the power cord into your car's lighter socket.
- 2 Mount your V940 on the windshield using the supplied windshield mount.
- 3 Press the PWR button, located top left, to turn the V940 on.
- 4 Press and hold the Volume/Mute button to adjust the volume.

Please read the manual to fully understand your V940's operation and features.

QuickMount Slot

Insert the V940's adjustable Windshield mount into this slot. *Page 7*

QuickMount Button

Press the button, and slide the Windshield mount into one of its four locking positions. *Page 7*

City Button

Switches between City and Highway, settings. In general, we recommend Highway. *Page 9*

Power

Press the PWR button to turn the V940 on or off.

AutoMute

Your V940's patented AutoMute automatically reduces the volume level of the audio alert after a brief period. If you prefer, you can turn AutoMute off. *Page 8*

Programming

Your V940 is ready to go, just plug it in and turn it on. But you can also easily change 6 features for your preferences. *Page 12-14*

Radar Antenna and Laser Lens

The rear panel of your V940 should have a clear view of the road ahead. For best performance, do not mount the V940 directly behind windshield wipers or tinted areas. *Page 6*

Rear Laser Port

Receives laser signals from behind the vehicle.

Earphone Jack

Accepts standard mono 3.5mm earphone.

Brightness Button

Press to adjust display brightness. There are three brightness settings, plus Dark Mode. In the Dark Mode, the power-on indication will be changed to a "HD" or "CD" (indicating Highway Dark or City Dark). In the Dark Mode, the V940's meter will not display during an alert, only the audio will alert you. *Page 9*

Power Jack

Plug the power cord into this connector. *Page 6*

Volume and Mute Button

Press and hold the Volume/Mute button to adjust the alert volume level. *Page 8*
Briefly press this button to silence the audio for a specific alert. (The audio will alert you to the next encounter.) *Page 8*

Alphanumeric Matrix Display

Your V940's display will show Highway or City as its power-on indication. If you prefer, you can choose other power-on indications. *Page 12-14*

During an alert, the display will indicate radar band, and a precise bar graph of signal strength. *Page 10*

Note: In the Dark Mode the display will not light during an alert. *Page 9*



Power Connection

To power your V940, plug the small end of the power cord, (telephone-type connector) into the modular jack on the V940's right side, and plug the lighter plug adapter into your vehicle's lighter socket or accessory socket.

Your V940 operates on 12 volts DC negative ground only. The lighter plug provided is a standard size and will work in most vehicles. However, some vehicles may require the optional European sleeve to ensure a snug fit. If so, simply call our service department to order one. This sleeve slides over the lighter plug. Of course, your lighter socket must be clean and properly connected for proper operation.

Note: Depending on your vehicle, the lighter socket power may either be continuously on, or it may be switched on and off with your ignition switch.

Optional power cords

See the Accessories section for details on our optional coiled SmartPlug or Direct-wire power cords. *Page 25*

Mounting Location

WARNING: BELTRONICS cannot anticipate the many ways the V940 can be mounted. It is important that you mount your V940 where it will not impair your view nor present a hazard in case of an accident.

Where to mount your V940

For optimum detection performance, we recommend the following:

- Using the QuickMount bracket, mount your V940 level, and high enough on your front windshield to provide a clear view of the road from the front and rear.
- Mount the V940 away from windshield wipers, other solid objects, and heavily tinted areas that might obstruct the radar antenna or laser lens.

Windshield QuickMount

The V940's QuickMount bracket is designed for unobtrusive and hassle-free mounting.

1 Depress the QuickMount button on the top of the V940 (by the word BELTRONICS) and slide the QuickMount bracket into the slot until it is locked into the position which best fits the angle of your windshield (there are four settings available). For extremely horizontal or extremely sloped windshields, the QuickMount bracket can be bent.

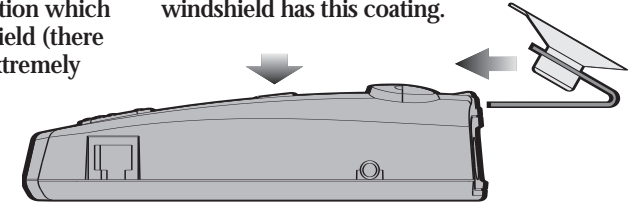
To ensure that the suction cups adhere to the windshield firmly, be sure to keep both your windshield and the suction cups clean.

2 To adjust the V940 on your windshield, use the QuickMount adjustment button located on the top of the V940, and slide the V940 forward or backward to obtain a level horizontal position.

When installed and adjusted properly, the back top edge of the V940 should rest solidly against your windshield.

Caution!

A few vehicles (including some Porsches) have windshields with a soft anti-lacerative coating on the inside surface. Use of suction cups will permanently mar this coating. Consult your dealership or the vehicle owner's manual to determine if your windshield has this coating.



User's Tip

You can leave the QuickMount bracket in place on your windshield, and easily remove the V940 by pressing the adjustment button and sliding the V940 off the mount. Again, be sure to position the bracket where it won't present a hazard in the event of an accident. Additional mounts are available.

Power

To turn your V940 on or off, press the PWR button located on the top. When you turn your V940 on, it goes through a sequence of alerts.

If you prefer, you may program your V940 for a shorter power-on sequence. See the Programming section for details.

Volume

Press and hold the Volume/Mute button located on the top case to adjust the V940's alert volume level. The audio will ramp up and down, accompanied by a bar-graph on the display. Once you've reached your preferred audio level, simply release the button.

Power-on indication

After the V940's start-up sequence is complete, the alphanumeric display will show Highway or City to indicate which sensitivity mode is selected.

If you prefer, you can select alternate power-on displays. See the Programming section for details.

Voice Alerts

The V940 provides digital voice announcements of radar and laser bands detected. If Safety Radar (SWS) is turned on, a safety radar message will also be announced. See the Programming section for details.

If you prefer, you can turn Voice Alerts off. See Programming section for details.

AutoMute

Your V940 has our patented AutoMute feature. After the V940 alerts you to a radar encounter at the volume you have selected, the AutoMute feature will automatically reduce the volume to a lower level. This keeps you informed without the annoyance of a continuous full-volume alert.

If you prefer, you can turn the AutoMute feature off. See the Programming section for details.

Mute

The Mute button, located on the V940's top case, allows you to silence the audio alert during a radar encounter.

To mute the audio for a single specific signal, briefly press the Mute button. After that radar encounter has passed, the mute will automatically reset and the audio will alert you to the next encounter.

Highway / City Button

The City button selects the V940's sensitivity mode. We recommend the Highway mode for most driving.

When driving in urban areas where annoying X-band intrusion alarms and door openers are common, City mode can be engaged to lower X-band sensitivity and reduce X-band alerts. Full sensitivity is maintained on all other bands. See the Programming section for details.

Brightness

The V940's BRT button selects the brightness of your V940's display. There are four settings: Maximum, Medium, Minimum, and Dark. Press the BRT button to select your preferred brightness.

Dark Mode

When you select the Dark mode with the BRT switch, your V940 changes to a very inconspicuous power-on indication: a very Dim HD or CD. (In this display, the H or C indicates Highway or City, and the D indicates Dark.)

When the V940 is in the Dark mode, the display will not show visual alerts when V940 detects signals. Only the audible alert will tell you of detected signals.

Audible Alerts

For Radar signals:

Your V940 uses a Geiger-counter-like sound to indicate the signal strength and type of radar signal being encountered.

When you encounter radar, a distinct audible alert will sound and occur faster as the signal gets stronger. This allows you to judge the distance from the signal source without taking your eyes from the road.

Each band has a distinct tone for easy identification.

X-band = chirping

K-band = buzzing

Ka-band = double-chirp

POP = full double-chirp

For Laser and POP signals:

Since laser and POP signals (if turned on) are a possible threat no matter how weak, the V940 alerts you to these bands at full strength.

For Safety signals:

Your V940 will alert you to these signals with a double-beep tone, and a corresponding text message. A complete listing of the text messages is on page 21.

Power Connector

The V940's power jack uses a telephone-type connector. This 4-conductor connector only works with the included power cord, optional direct-wire, or SmartPlug cord.

For more information or to order, call us toll-free at 1-800-341-2288.

Signal Strength Meter

Your V940's alphanumeric display consists of 280 individual LEDs, to provide an intuitive ultra-bright display of signal strength and text messages.

The V940's standard bar-graph signal strength meter only displays information on a single radar signal. If there are multiple signals present, the V940's internal computer determines which is the most important threat to show on the bar-graph meter.

When your V940 detects radar, it displays the band (X, K, or Ka), and a precise bar-graph of the signal strength. When your V940 detects a laser signal, the display will show "LASER."

NOTE: If you are operating the V940 in the Dark mode, the display will not light when a signal is detected, only the audio will be heard.

There are 6 user-selectable options so you can customize your V940 for your own preferences. The buttons labeled CITY and BRT are also used to enter the Program Mode, REVIEW your current program settings, and to CHANGE any settings as desired. The words PGM, RVW, and CHG are located on the top of the detector, and are highlighted in colored graphics. Pages 13-14 explain each option in more detail.

How to use Programming

1 To enter Program Mode, press and hold both the CITY and BRT buttons down for 2 seconds. (The unit will beep twice, and will display the word Program).

2 Then press the RVW button to review the current settings. (You can either tap the button to change from item to item, or hold the button to scroll through the items).

3 Press the CHG button to change any setting. (You can either tap the button to change from setting to setting, or hold the button to scroll through all the options).

4 To leave the Program Mode, simply wait 8 seconds without pressing any button, or press the PWR button. (The unit will display Compl ete, beep 4 times, and return to normal operation).

An example

Here is how you would turn your V940's AutoMute feature off.

1 Enter the Program Mode by holding both the CITY and BRT buttons down for 2 seconds. *The V940 will beep twice and display Program.*

2 Then hold the RVW button down. *The V940 will scroll through the categories, starting with Pilot (Pi lot), Voice (Vo ice), Power-on sequence (Pwr On), and then AutoMute (aMute).*

3 Release the RVW button when the V940 shows the AutoMute item. *Since the factory setting is for AutoMute to be on, the V940 will display aMute ON. (If you accidentally don't release the RVW button in time, and the V940 goes to the next category, hold the the RVW button down again, and after your V940 scrolls through all categories, it will begin again at the top of the list.)*

4 Press the CHG button to change from aMute ON to aMute OFF.

5 To complete the Programming, simply wait 8 seconds without pressing any button, or press the PWR button. *The V940 will display Compl ete, beep 4 times, and return to normal operation.*

Overview of Programming

Press the **REVIEW** button to go from one category to the next

PILOT
(Power-on indication)

Pi l o t HWY
Pi l o t H

Press the **CHANGE** button to change your setting within a category

*Full word: Highway or City
Letter: H or C

VOICE

Voi ce ON
Voi ce OFF

*Voice alerts on
Voice alerts off

POWER-ON SEQUENCE

PwrOn STD
PwrOn FST

*Standard power-on sequence
Fast power-on sequence

AUTOMUTE

aMute ON
aMute OFF

*AutoMute on
AutoMute off

CITY MODE SENSITIVITY

Ci ty STD
Ci ty LoX

*Standard City mode sensitivity
Low X band sensitivity in City Mode

BANDS

Bands DFT
Bands MOD

*Factory default settings
Factory default settings modified

Turn bands "ON" or "OFF" by pressing the VOLUME/MUTE button

POP ON or OFF (*default is off*)
SWS ON or OFF (*default is off*)

* Factory Default Settings
To reset your V940 to its original factory settings, press and hold the "CITY" and "BRT" buttons while turning the power on. The V940's display will provide a "Reset" message, accompanied by an audible alert, acknowledging the reset.

Details of Programming

Pilot (Power-on indication)

Note: When you are using the Dark mode, the display will only show HD or CD, (Highway-Dark or City-Dark).

Pi l o t HWY (Full description)

In this setting, your V940 will display "Highway" or "City," as its power-on indication. (factory default)

Pi l o t H (Letter)

In this setting, your V940 will display "H" for Highway and "C" for City.

Voice

Voi ce On (Voice announcements on)

In this setting, all radar, laser, and SWS messages (if programmed) will be announced using a digital voice.

Voi ce Off (Voice announcements off)

In this setting, only the distinct audio tone will be heard when a radar, Laser, or SWS message is detected.

Power-on Sequence

PwrOnSTD (Standard)

In this setting, each time you turn on your V940, it will display "BEL V940," "Laser," "Ka-band," "K-band," "X-band," "Safety," followed by a brief X-band alert. (factory default)

If any bands have been changed from the factory default settings, a double X-band tone and corresponding message (i.e. "SWS ON"), will alert you that one or more bands have been changed.

PwrOnFST (Fast power-on)

In this setting, your V940 will provide a single X-band tone. If any bands have been changed from the factory default settings, a double X-band tone and corresponding message (i.e. "SWS ON"), will alert you that one or more bands have been changed.

AutoMute

aMute ON (AutoMute on)

In this setting, your V940's audio alerts will initially be at the volume you set, but after a few seconds, the V940 will automatically reduce the volume level, to keep you informed, but not annoyed. (factory default)

aMuteOFF (AutoMute off)

With AutoMute off, your V940's audio alerts will remain at the volume you set for the duration of the radar encounter.

City Mode Sensitivity

City STD (Standard)

In this setting, when you put your V940 in the City mode, X-band sensitivity is significantly reduced, to reduce annoyance from X-band intrusion alarms and motion sensors. (factory default)

City LoX (Low X band sensitivity)

In this setting, when you put your V940 in the City mode, X-band sensitivity is reduced more than the standard setting. This will reduce X-band alarms from other sources even further, but also significantly reduces range to X-band traffic radar.

Bands

BandsDFT

In this setting, all North American radar and laser frequencies are monitored. This is the factory setting and it is recommended that you use your V940 in this mode.

BandsMOD

In this setting, your V940 will warn you with an audible alert, and associated text message stating which band has changed from the original factory setting (i.e. "SWS ON"). This warning is displayed during the start up sequence (standard or fast).

Features and Specifications

Operating Bands

- X-band 10.525 GHz \pm 25 MHz
- K-band 24.150 GHz \pm 100 MHz
- Ka-band 34.700 GHz \pm 1300 MHz
- Laser 904nm, 33 MHz bandwidth

Radar Receiver / Detector Type

- Superheterodyne, VTO
- Scanning Frequency Discriminator
- Digital Signal Processing (DSP)

Laser Detection

- Quantum Limited Video Receiver
- Multiple Laser Sensor Diodes

Display Type

- 280 LED Alphanumeric
- Bar Graph
- 3 Levels of Brightness, plus Dark Mode

Power Requirement

- 12VDC, Negative Ground
- Power cord (included)

Programmable Features

- Power-On Indication
- Voice Alerts
- Power-On Sequence
- AutoMute
- City Mode Sensitivity
- Bands

Sensitivity Control

- Highway and City

Auto Calibration Circuitry

VG2 Immunity

Dimensions (Inches)

- 1.25 H x 2.75 W x 4.75 L

Patented Technology

The V940 is covered by one or more of the following US patents.

6,836,238 6,693,578 6,614,385 6,587,068
 6,400,305 6,249,218 6,069,580 5,668,554
 5,600,132 5,587,916 5,559,508 5,365,055
 5,347,120 5,446,923 5,402,087 5,305,007
 5,206,500 5,164,729 5,134,406 5,111,207
 5,079,553 5,049,885 5,049,884 4,961,074
 4,954,828 4,952,937 4,952,936 4,939,521
 4,896,855 4,887,753 4,862,175 4,750,215
 4,686,499 4,631,542 4,630,054 4,625,210
 4,613,989 4,604,529 4,583,057 4,581,769
 4,571,593 4,313,216 D314,178 D313,365
 D310,167 D308,837 D296,771 D288,418
 D253,752

The V940 is also covered by one or more of the following Canadian patents:

2,330,964 1,295,715 1,295,714 1,187,602
 1,187,586

European patent:
 1,145,030

Other patents pending. Additional patents may be listed inside the product.

Interpreting Alerts

Although the V940 has a comprehensive warning system and this handbook is as complete as we can make it, only experience will teach you what to expect from your V940 and how to interpret what it tells you. The specific type of radar being

used, the type of transmission (continuous or instant-on) and the location of the radar source affect the radar alerts you receive.

The following examples will give you an introduction to understanding the your V940's warning system for radar, laser and safety alerts.

Alert

Explanation

The V940 begins to sound slowly, then the rate of alert increases. The Signal Meter ramps accordingly.

You are approaching a continuous radar source aimed in your direction.

The V940 emits short alerts for a few seconds and then falls silent only to briefly alert and fall silent again.

An instant-on radar source is being used ahead of you and out of your view.

The V940 suddenly sounds a continuous tone for the appropriate band received. All segments in the Signal Strength Meter are lit.

An instant-on radar source or laser source is being used nearby. This kind of alert requires immediate attention!

A brief laser alert.

Laser is being used in the area. Because laser is inherently difficult to detect, any laser alert may indicate a source very close by.

The V940 receives weak signals. These signals may be a little stronger as you pass large, road-side objects. The signals increase in frequency.

A moving patrol car with continuous radar is overtaking you from behind. Because these signals are reflected (reflections are increased by large objects), they may or may not eventually melt into a solid point even when the patrol car is directly behind you.

Alert

Explanation

The V940 alerts slowly for a while and then abruptly jumps to a strong alert.

You are approaching a radar unit concealed by a hill or an obstructed curve.

The V940 alerts intermittently. Rate and strength of alerts may be inconsistent or vary wildly.

A patrol car is traveling in front of you with a radar source aimed forward. Because signals are sometimes reflected off of large objects and sometimes not, the alerts may seem inconsistent.

The V940 alerts intermittently. Rate and strength of signal increases with each alert.

A patrol car is approaching from the other direction, sampling traffic with instant-on radar. Such alerts should be taken seriously.

The V940 gives an X-band, or K-band alert intermittently.

You are driving through an area populated with radar motion sensors (door openers, burglar alarms, etc.). Since these transmitters are usually contained inside buildings or aimed toward OR away from you, they are typically not as strong or lasting as a real radar encounter.

CAUTION: Since the characteristics of these alerts may be similar to some of the preceding examples, overconfidence in an unfamiliar area can be dangerous. Likewise, if an alert in a commonly traveled area is suddenly stronger or on a different band than usual, speed radar may be set up nearby.

How Radar Works

Traffic radar, which consists of microwaves, travels in straight lines and is easily reflected by objects such as cars, trucks, even guardrails and overpasses. Radar works by directing its microwave beam down the road. As your vehicle travels into range, the microwave beam bounces off your car, and the radar antenna looks for the reflections. Using the Doppler Principle, the radar equipment then calculates your speed by comparing the frequency of the reflection of your car to the original frequency of the beam sent out.

Traffic radar has limitations, the most significant of these being that it typically can monitor only one target at a time. If there is more than one vehicle within range, it is up to the radar operator to decide which target is producing the strongest reflection. Since the strength of the reflection is affected by both the size of the vehicle and its proximity to the antenna, it is difficult for the radar operator to determine if the signal is from a sports car nearby or a semi-truck several hundred feet away.

Radar range also depends on the power of the radar equipment itself. The strength of the radar unit's beam diminishes with distance. The farther the radar has to travel, the less energy it has for speed detection.

Because intrusion alarms and motion sensors often operate on the same frequency as radar, your V940 will occasionally receive non-police radar signals. Since these transmitters are usually contained inside of a building, or aimed toward the ground, they will generally produce much weaker readings than will a true radar encounter. As you become familiar with the sources of these pseudo alarms in your daily driving, they will serve as confirmation that your V940's radar detection abilities are fully operational.

How "POP" Works

"POP" mode is a relatively new feature for radar gun manufacturers. It works by transmitting an extremely short burst, within the allocated band, to identify speeding vehicles in traffic. Once the target is identified, or "POPPED," the gun is then turned to its normal operating mode to provide a vehicle tracking history, (required by law).

How Laser (Lidar) Works

Laser speed detection is actually LIDAR (Light Detection and Ranging). LIDAR guns project a beam of invisible infrared light. The signal is a series of very short infrared light energy pulses, which move, in a straight line, reflecting off your car and returning to the gun. LIDAR uses these light pulses to measure the distance to a vehicle. Speed is then calculated by measuring how quickly these pulses are reflected given the known speed of light.

LIDAR (or laser) is a newer technology and is not as widespread as conventional radar, therefore, you may not encounter laser on a daily basis. And unlike radar detection, laser detection is not prone to false alarms. Because LIDAR transmits a much narrower beam than does radar, it is much more accurate in its ability to distinguish between targets and is also more difficult to detect. **AS A RESULT, EVEN THE BRIEFEST LASER ALERT SHOULD BE TAKEN SERIOUSLY.**

There are limitations to LIDAR equipment. LIDAR is much more sensitive to weather conditions than RADAR, and a LIDAR gun's range will be decreased by anything affecting visibility such as rain, fog, or smoke. A LIDAR gun cannot operate through glass and it must be stationary in order to get an accurate reading. Because LIDAR must have a clear line of sight and is subject to cosine error (an inaccuracy, which increases as the angle between the gun and the vehicle, increases) police typically use LIDAR equipment parallel to the road or from an overpass. LIDAR can be used day or night.

How Safety Radar Works

Safety Warning System, or SWS, uses a modified K-band radar signal. The SWS safety radar system has 64 possible messages (60 currently allocated). The SWS messages your V940 can display are listed on the facing page.

From the factory, your V940 is programmed with SWS decoding OFF. If SWS is used in your area, your V940 will display the safety messages associated with the signal. If you wish to detect this system, use the Programming feature to turn the V940's SWS decoding ON.

NOTE: Some of the safety messages have been condensed, so that each message can be displayed on one or two screens on the V940's eight-character display.

Since Safety radar technology is relatively new, and the number of transmitters in operation is not yet widespread, you will not receive Safety signals on a daily basis. Do not be surprised if you encounter emergency vehicles, road hazards and railroad crossings that are unequipped with these transmitters. As Safety transmitters become more prevalent (the number of operating transmitters is growing every day), these Safety radar signals will become more common.

SWS Text Messages

Highway Construction or Maintenance

- 1 Work Zone Ahead
 - 2 Road Closed Ahead/Follow Detour
 - 3 Bridge Closed Ahead/Follow Detour
 - 4 Highway Work Crews Ahead
 - 5 Utility Work Crews Ahead
 - 6 All Traffic Follow Detour Ahead
 - 7 All Trucks Follow Detour Ahead
 - 8 All Traffic Exit Ahead
 - 9 Right Lane Closed Ahead
 - 10 Center Lane Closed Ahead
 - 11 Left Lane Closed Ahead
 - 12 *For future use*
- #### Highway Hazard Zone Advisory
- 13 Stationary Police Vehicle Ahead
 - 14 Train Approaching/At Crossing
 - 15 Low Overpass Ahead
 - 16 Drawbridge Up
 - 17 Observe Drawbridge Weight Limit
 - 18 Rock Slide Area Ahead
 - 19 School Zone Ahead
 - 20 Road Narrows Ahead
 - 21 Sharp Curve Ahead
 - 22 Pedestrian Crossing Ahead
 - 23 Deer/Moose Crossing
 - 24 Blind/Deaf Child Area
 - 25 Steep Grade Ahead/Truck Use Low Gear
 - 26 Accident Ahead
 - 27 Poor Road Surface Ahead
 - 28 School Bus Loading/Unloading
 - 29 No Passing Zone
 - 30 Dangerous Intersection Ahead
 - 31 Stationary Emergency Vehicle Ahead
 - 32 *For future use*

Weather Related Hazards

- 33 High Wind Ahead
 - 34 Severe Weather Ahead
 - 35 Heavy Fog Ahead
 - 36 High Water/Flooding Ahead
 - 37 Ice On Bridge Ahead
 - 38 Ice On Road Ahead
 - 39 Blowing Dust Ahead
 - 40 Blowing Sand Ahead
 - 41 Blinding Snow Whieout Ahead
 - 42 *For future use*
- #### Travel Information/Convenience
- 43 Rest Area Ahead
 - 44 Rest Area With Service Ahead
 - 45 24 Hour Fuel Service Ahead
 - 46 Inspection Station Open
 - 47 Inspection Station Closed
 - 48 Reduced Speed Area Ahead
 - 49 Speed Limit Enforced
 - 50 Hazardous Materials Exit Ahead
 - 51 Congestion Ahead/Expect Delay
 - 52 Expect 10 Minute Delay
 - 53 Expect 20 Minute Delay
 - 54 Expect 30 Minute Delay
 - 55 Expect 1 Hour Delay
 - 56 Traffic Alert/Tune AM Radio
 - 57 Pay Toll Ahead
 - 58 Trucks Exit Right
 - 59 Trucks Exit Left
 - 60 *For future use*
- #### Fast/Slow Moving Vehicles
- 61 Emergency Vehicle In Transit
 - 62 Police In Pursuit
 - 63 Oversize Vehicle In Transit
 - 64 Slow Moving Vehicle

Problem	Solution
The V940 beeps briefly at the same location every day, but no radar source is in sight.	<ul style="list-style-type: none"> An X or K-band motion sensor or intrusion alarm is located within range of your route. With time, you will learn predictable patterns of these signals.
The V940 does not seem sensitive to radar or laser.	<ul style="list-style-type: none"> Make sure that windshield wipers do not block your V940's radar antenna and that the laser lens is not behind tinted areas. Determine if your vehicle has an Instaclear®, ElectriClear® or solar reflective windshield which may deflect radar or laser signals. Your V940 may be in City Mode.
The V940 did not alert when a police car was in view.	<ul style="list-style-type: none"> VASCAR (Visual Average Speed Computer and Recorder) a stopwatch method of speed detection, may be in use. Officer may not have radar or laser unit turned on.
The V940 did not provide a Safety signal while within range of an emergency vehicle.	<ul style="list-style-type: none"> Safety transmitters may not be commonly used in your area.
The V940's display is not working.	<ul style="list-style-type: none"> Press the BRT button to deactivate Dark Mode.
The V940's audible alerts are less loud after the first few alerts.	<ul style="list-style-type: none"> The V940 is in AutoMute Mode. See page 8 for details.
The V940 bounces or sags on windshield.	<ul style="list-style-type: none"> The V940 is not making contact with the windshield to provide stability. While holding down the V940's QuickMount button, slide the V940 toward the windshield so that the back top edge makes firm contact.
The V940's power-on sequence reoccurs while you are driving.	<ul style="list-style-type: none"> A loose power connection or dirty lighter socket can cause the V940 to be briefly disconnected.

Problem	Solution
Your 14-year old son has changed all 6 of the Programming options.	<ul style="list-style-type: none"> You can return all of the programming options to the factory defaults by holding down the CITY and BRT buttons while you turn the V940 on.
The V940 will not turn on.	<ul style="list-style-type: none"> Check that the power is ON. Check that vehicle ignition is ON. Check that vehicle lighter socket is functional. Try the V940 in another vehicle.
The V940 feels very warm.	<ul style="list-style-type: none"> It is normal for the V940 to feel warm.

Explanation of Displays

HD	Sensitivity control is in Highway mode, display is in Dark mode (page 9)
CD	Sensitivity control is in City mode, display is in Dark mode (page 9)
<i>No display</i>	The V940 is in the Dark mode (page 9)
Pi oTHWY	One of the many programming messages (pages 11-14)
WorkZone	One of the many Safety Radar messages (pages 20-21)
Cauti on	The V940 has detected a Safety Radar Signal, but the signal isn't yet strong enough to decode the specific safety message (page 20-21)
Sel f Cal	The V940 is running a self-calibration test
Servi ce Requi red	The V940 has failed the calibration test. Contact Beltronics for repair

Service Procedure

If your V940 ever needs service, please follow these simple steps:

- 1 Check the troubleshooting section of this manual. It may have a solution to your problem.
- 2 Call us at 1-800-341-2288. We may be able to solve your problem over the phone. If the problem requires that you send your V940 to the factory for repair, we will provide you with a Service Order Number, which must be included on the outside of your shipping box.

Enclose the following information with your V940:

- Your Service Order Number
- Your name and return address
- Your daytime telephone number
- A description of the problem you are experiencing
- Copy of original purchase receipt

Beltronics Extended Service Plan

Beltronics offers an optional extended service plan. Call Beltronics for details at 1-800-341-2288

Out Of Warranty Repairs

For out of warranty repairs, include prepayment in the amount you were quoted by the Beltronics Customer Service Representative. If the detector has been damaged, abused or modified, the repair cost will be calculated on a parts and labor basis. If it exceeds the basic repair charge, you will be contacted with a quotation. If the additional payment is not received within 30 days (or if you notify us that you choose not to have your V940 repaired at the price quoted), your V940 will be returned, without repair. Payment can be made by check, money order, or credit card.

Ship your V940 and power cord to:

BELTRONICS
 Customer Service Department
 Service Order Number _____
 5442 West Chester Road
 West Chester OH 45069

For your own protection, we recommend that you ship your V940 postpaid and insured. Insist on a proof of delivery, and keep the receipt until the return of your V940.

BELTRONICS One Year Limited Warranty

What this warranty covers: BELTRONICS warrants your Product against all defects in materials and workmanship.
For how long: One (1) year from the date of the original purchase.
What we will do: BELTRONICS, at our discretion, will either repair or replace your Product free of charge.
What we will not do: BELTRONICS will not pay shipping charges that you incur for sending your product to us.
What you must do to maintain this warranty: Show original proof of purchase from an authorized BELTRONICS dealer.
Warranty Exclusions: Warranty does not apply to your product under any of the following conditions: 1. The serial number has been removed or modified. 2. Your product has been subjected to misuse or damage (including water damage, physical abuse, and/or improper installation). 3. Your product has been modified in any way. 4. Your receipt or proof-of-purchase is from a non-authorized dealer or internet auction site including E-bay, U-bid, or other non-authorized resellers.
To obtain service: 1. Contact BELTRONICS (1-800-341-2288) to obtain a Return Authorization number. 2. Properly pack your product and include: your name, complete return address, written description of the problem with your product, daytime telephone number, and a copy of the original purchase receipt. 3. Label the outside of the package clearly with your Return Authorization number. Ship the product pre-paid (insured, for your protection) to: Beltronics Inc, 5442 West Chester Rd., West Chester, OH 45069.
LIMITATION OF WARRANTY: EXCEPT AS EXPRESSLY PROVIDED HEREIN, YOU ARE ACQUIRING THE PRODUCT "AS IS" AND

"WHERE IS," WITHOUT REPRESENTATION OR WARRANTY. BELTRONICS SPECIFICALLY DISCLAIMS ANY REPRESENTATION OR WARRANTY INCLUDING, BUT NOT LIMITED TO THOSE CONCERNING THE MERCHANTABILITY AND SUITABILITY OF THE PRODUCT FOR A PARTICULAR PURPOSE. BELTRONICS SHALL NOT BE LIABLE FOR CONSEQUENTIAL, SPECIAL OR INCIDENTAL DAMAGES INCLUDING, WITHOUT LIMITATION, DAMAGES ARISING OUT OF THE USE, MISUSE OR MOUNTING OF THE PRODUCT. The above limitations or exclusions shall be limited to the extent they violate the laws of any particular state. BELTRONICS is not responsible for products lost in shipment between the owner and our service center.
Other legal rights: This Warranty gives you specific rights. You may have other legal rights, which vary, from state to state.

Accessories

The following accessories and replacement parts are available for BEL V940.

Coiled SmartPlug	\$29.95
Direct-wire SmartPlug	\$29.95
Standard Coiled Power Cord	\$14.00
Direct-wire Power Cord	\$10.00
Accessory Kit	\$19.95
Extra Windshield Mount	\$4.00

Features, specifications and prices are subject to change without notice.

DIGITAL RADAR • LASER • SAFETY DETECTOR



▼ Remove card along perforations ▼

Register
online:
@
www.
beltronics
.com

BELTRONICS PRODUCT REGISTRATION CARD

BELTRONICS™

- ▶ If you purchased your detector directly from BELTRONICS, you do not need to fill this out.
- ▶ If you did not purchase your detector directly from BELTRONICS, please fill out this section and return to us, or register online at our web address: www.beltronics.com.

1. First Name: _____ Middle Initial: _____ Last Name: _____
Address: _____
City: _____ State: _____ ZIP: _____
Phone Number (In case we have a question): _____

2. Product Purchased **Vector 940 Radar & Laser Detector** Serial Number _____

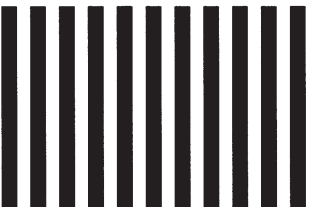
3. Place of Purchase: _____ Date: _____ Price: _____

4. Primary reason for purchasing this BELTRONICS product: _____

Remove card along perforations



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO 300 WEST CHESTER OH
POSTAGE WILL BE PAID BY ADDRESSEE

ATTN CUSTOMER SERVICE
BELTRONICS INC
5442 WEST CHESTER RD
WEST CHESTER OH 45069-9789

