BELTRONICS™

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Designed and Manufactured In Canada
Features, specifications and prices subject to change without notice.
Model: V995

BELTRONICS™

Owner's Manual

DIGITAL RADAR • LASER • SAFETY DETECTOR

VECTOR 995

Congratulations

The Bel V995 is the most advanced radar, laser and safety detector ever designed by Beltronics.

The Bel V995 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 V995 introduces the follow revolutionary features:

- Varactor-tuned receiver provides long-range protection against all radar threats
- New easy-to-use Programming lets you customize up to 7 features
- New AutoScan mode intelligently reduces unwanted false alarms, plus Highway and City settings
- Ultra-bright text-display provides easy to read information from any angle
- New Tech Display provides actual numeric radar frequency for any radar signal
- New Programmable Bands (on/off), including Ku-band for European travel.
- 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 V995's outstanding performance and innovative features.

Please drive safely.

Quick Reference Card

▼ Remove card along perforations ▼

BEL V995 Quick Reference Card

There are 7 user-selectable options so you can customize your V995 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 PROGRAM, 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 V995 to its original factory settings, press and hold the "CITY" and "BRT" buttons while turning the power on. V995's display will provide a "Reset" message, accompanied by an audible alert, acknowledging the reset.

An example
Here is how you would turn V995's AutoMute feature off.

1 Enter the Program Mode by holding both the CITY and BRT buttons down for 2 seconds. *V995 will beep twice and display* `Program`.

2 Then hold the RVW button down. *V995 will scroll through the categories, starting with Display (*`Pilot`*), then Voice (*`Voice`*), then Power-On sequence (*`PwrOn`*), then Signal Strength Meter (*`Meter`*), and then AutoMute (*`aMute`*).*

3 Release the RVW button when V995 shows the AutoMute item. *Since the factory setting is for AutoMute to be on, V995 will display* `aMute ON`.

(If you accidentally don't release the Review button in time, and V995 goes to the next category, hold the RVW button down again, and after V995 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 V995 will display* `Complete`, *beep 4 times, and return to normal operation.*

▶ Remove card along perforations ▶

Programming Details ▶

Quick Reference Card

▼ *Remove card along perforations* ▼

BEL V995 Quick Reference Card

Press the RVW button to go from one category to the next

Press the CHG button to change your setting within a category

PILOT (Power-on indication)	Pilot HWY	*Full word: Highway or AutoScan or City
	Pilot H	Letter: H or A or C
	Pilot V	Vehicle voltage
VOICE	Voice ON	*Voice alerts on
	Voice OFF	Voice alerts off
POWER-ON SEQUENCE	PwrOn STD	*Standard power-on sequence
	PwrOn FST	Fast power-on sequence
SIGNAL STRENGTH METER	Meter STD	*Standard signal strength meter
	Meter TEC	Tech Display
AUTOMUTE	aMute ON	*AutoMute on
	aMute OFF	AutoMute off
CITY MODE SENSITIVITY	City STD	*Standard City mode sensitivity
	City LoX	Low X band sensitivity in City Mode
	City NoX	No X band sensitivity in City Mode
BANDS	Bands ALL	*All bands enabled
	Bands MOD	One or more bands are disabled

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

X	ON	*or*	OFF	*(default is on)*
K	ON	*or*	OFF	*(default is on)*
Ka	ON	*or*	OFF	*(default is on)*
POP	ON	*or*	OFF	*(default is off)*
Ku	ON	*or*	OFF	*(default is off)*
LSR	ON	*or*	OFF	*(default is on)*
SWS	ON	*or*	OFF	*(default is off)*

* Factory Default Settings

◀ *Remove card along perforations* ◀

Table of Contents

To begin using your V995, 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 V995 on the windshield using the supplied windshield mount.
3. Press the PWR button, located top left, to turn the V995 on.
4. Press and hold the Volume/Mute button to adjust the volume.

Please read the manual to fully understand V995's operation and features.

QuickMount Slot
Insert V995'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 AutoScan, City and Highway, settings. In general, we recommend AutoScan. *Page 8*

Power
Press the PWR button to turn the V995 on or off.

Volume
Press and hold the Volume/Mute button to adjust the alert volume level. *Page 8*

AutoMute
V995's patented AutoMute automatically reduces the volume level of the audio alert after a brief period. *Page 8.* If you prefer, you can turn AutoMute off. *Page 8*

Programming
V995 is ready to go, just plug it in and turn it on. But you can also easily change 7 features for your preferences. *Page 12-16*

Radar Antenna and Laser Lens
The rear panel of your V995 should have a clear view of the road ahead. For best performance, do not mount V995 directly behind windshield wipers or tinted areas. *Page 6*

Alphanumeric Matrix Display
V995's display will show Highway, AutoScan, 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*

Rear Laser Port
Receives laser signals from behind the vehicle.

Earphone Jack
Accepts standard 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 "AD," "HD," or "CD" (indicating AutoScan, Dark, Highway Dark, or City Dark). In the Dark Mode, V995'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. *Pages 6*

Mute Button
Briefly press this button (above the display) to silence the audio for a specific alert. (The audio will alert you to the next encounter.) *Page 8*

Power Connection

To power V995, plug the small end of the power cord, (telephone-type connector) into the modular jack on V995's right side, and plug the lighter plug adapter into your vehicle's lighter socket or accessory socket.

V995 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 29*

Mounting Location

WARNING: BELTRONICS cannot anticipate the many ways the V995 can be mounted. It is important that you mount V995 where it will not impair your view nor present a hazard in case of an accident.

Where to mount V995

For optimum detection performance, we recommend the following:

• Using the QuickMount bracket, mount your V995 level, and high enough on your front windshield to provide a clear view of the road from the front and rear.

• Mount V995 away from windshield wipers, other solid objects, and heavily tinted areas that might obstruct the radar antenna or laser lens.

Windshield QuickMount

V995's QuickMount bracket is designed for unobtrusive and hassle-free mounting.

1 Depress the QuickMount button on the top of V995 (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.

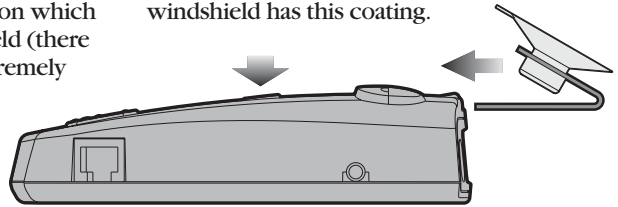
To ensure that the suction cups adhere to the windshield firmly, be sure to keep both your windshield and the suction cups clean.

2 To adjust V995 on your windshield, use the QuickMount adjustment button located on the top of the V995, and slide V995 forward or backward to obtain a level horizontal position.

When installed and adjusted properly, the back top edge of the V995 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 V995 by pressing the adjustment button and sliding V995 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 V995 on or off, press the PWR button located on the top. When you turn V995 on, it goes through a sequence of alerts.

If you prefer, you may program your V995 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 V995'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 V995's start-up sequence is complete, the alphanumeric display will show Highway, AutoScan, 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 V995 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 select turn Voice Alerts off. See the Programming section for details.

AutoMute

Your V995 has our patented AutoMute feature. After V995 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 V995'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 / AutoScan / City Button

The City button selects V995's sensitivity mode. We recommend the AutoScan mode for most driving.

V995's AutoScan mode provides long-range warning, with minimum false alarms. In this mode, V995's internal computer continuously analyzes all incoming signals and intelligently filters out false alarms.

You can also select conventional Highway and City modes. 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. You can also customize V995's City mode sensitivity, including "No X" mode. See the Programming section for details.

Brightness

V995's BRT button selects the brightness of V995's display. There are four settings: Maximum, Medium, Minimum, and Dark. Press the BRT button to select your preferred brightness.

If you prefer, you can have V995 always turn on at a specific brightness. See the Programming section for details.

Dark Mode

When you select the Dark mode with the BRT switch, V995 changes to a very inconspicuous power-on indication: a very Dim AD, HD, or CD. (In this display, the A, H, or C indicates Auto, Highway, or City, and the D indicates Dark.)

When V995 is in the Dark mode, the display will not show visual alerts when V995 detects signals. Only the audible alert will tell you of detected signals.

If you prefer, you can have V995's display totally dark (see the Programming section).

Audible Alerts

For Radar signals:

V995 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
Ku-band = high pitched buzzing

For Laser and POP signals:

Since laser and POP signals (if turned on) are a possible threat no matter how weak, the V995 alerts you to these bands at full strength.

For Safety signals:

V995 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 23.

Power Connector

V995'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

V995's alphanumeric display consists of 280 individual LEDs, to provide an intuitive ultra-bright display of signal strength and text messages.

V995's standard bar-graph signal strength meter only displays information on a single radar signal. If there are multiple signals present, V995's internal computer determines which is the most important threat to show on the bar-graph meter.

When V995 detects radar, it displays the band (X, K, or Ka), and a precise bar-graph of the signal strength. When V995 detects a laser signal, the display will show "LASER."

NOTE: If you are operating V995 in the Dark mode, the display will not light when a signal is detected, only the audio will be heard.

Tech Display

Bel V995's new Tech Display option is for the experienced detector user. In this mode, V995 will display the actual numeric frequency of the radar signal being received.

K 24.150

Tech Display shows one K-band signal at 24.150 gigahertz.

Note: Even long-time detector users will require a significant amount of time to get familiar with this new level of information about detected signals.

Programming

There are 7 user-selectable options so you can customize your V995 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 14-16 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 Complete, beep 4 times, and return to normal operation).

An example
Here is how you would turn V995's AutoMute feature off.

1 Enter the Program Mode by holding both the CITY and BRT buttons down for 2 seconds. *V995 will beep twice and display* Program.

2 Then hold the RVW button down. *V995 will scroll through the categories, starting with Pilot (*Pilot*), Voice (*Voice*), Power-on sequence (*PwrOn*), Signal strength meter (*Meter*), and then AutoMute (*aMute*).*

3 Release the RVW button when V995 shows the AutoMute item. *Since the factory setting is for AutoMute to be on, V995 will display* aMute ON.

(If you accidentally don't release the RVW button in time, and V995 goes to the next category, hold the RVW button down again, and after V995 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 V995 will display* Complete*, beep 4 times, and return to normal operation.*

Overview of Programming

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

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

PILOT (Power-on indication)	Pilot HWY	*Full word: Highway or AutoScan or City
	Pilot H	Letter: H or A or C
	Pilot V	Vehicle voltage
VOICE	Voice ON	*Voice alerts on
	Voice OFF	Voice alerts off
POWER-ON SEQUENCE	PwrOn STD	*Standard power-on sequence
	PwrOn FST	Fast power-on sequence
SIGNAL STRENGTH METER	Meter STD	*Standard signal strength meter
	Meter TEC	Tech Display
AUTOMUTE	aMute ON	*AutoMute on
	aMute OFF	AutoMute off
CITY MODE SENSITIVITY	City STD	*Standard City mode sensitivity
	City LoX	Low X band sensitivity in City Mode
	City NoX	No X band sensitivity in City Mode
BANDS	Bands ALL	*All bands enabled
	Bands MOD	One or more bands are disabled

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

X	ON	*or*	OFF	*(default is on)*
K	ON	*or*	OFF	*(default is on)*
Ka	ON	*or*	OFF	*(default is on)*
POP	ON	*or*	OFF	*(default is off)*
Ku	ON	*or*	OFF	*(default is off)*
LSR	ON	*or*	OFF	*(default is on)*
SWS	ON	*or*	OFF	*(default is off)*

* **Factory Default Settings**
To reset V995 to its original factory settings, press and hold the "CITY" and "BRT" buttons while turning the power on. V995's display will provide a "Reset" message, accompanied by an audible alert, acknowledging the reset.

Pilot (Power-on indication)

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

Pilot HWY (Full description)
In this setting, V995 will display "Highway," "City," or "AutoScan" as its power-on indication. (factory default)

Pilot H (Letter)
In this setting, V995 will display "H" for Highway, "C" for City, and "A" for AutoScan.

Pilot V (Vehicle voltage)
In this setting, V995 will continually display "H" for Highway, "C" for City, and "A" for AutoScan, and the vehicle's voltage. If the vehicle's voltage drops below 10.5 volts, a low voltage warning is displayed, followed by an audible alert. A high voltage warning is also given if the voltage goes above 16.0 volts. The high-voltage warning is also followed by an audible alert.

Voice

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

Voice 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 V995, it will display "BEL V995," "Laser," "Ka-band," "K-band," "X-band," 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. "X OFF"), will alert you that one or more bands have been changed.

PwrOnFST (Fast power-on)
In this setting, V995 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. "X OFF"), will alert you that one or more bands have been changed.

Signal Strength Meter

MeterSTD (Standard meter)
In this setting, the meter displays the band of the received signal, and a bar graph shows the relative signal strength. (factory default)

MeterTEC (Tech Display meter)
In this setting, the meter displays the actual numeric frequency of the radar signal received.

Note: The Tech Display feature is explained in more detail on page 11.

AutoMute

aMute ON (AutoMute on)
In this setting, V995's audio alerts will initially be at the volume you set, but after a few seconds, V995 will automatically reduce the volume level, to keep you informed, but not annoyed. (factory default)

aMuteOFF (AutoMute off)
With AutoMute off, V995'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 V995 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 V995 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.

City NoX (No X-band sensitivity)
In this setting, when you put V995 in the City mode, V995 will not respond to any X-band signals. **WARNING: Only choose this setting if you are absolutely certain that there are no X-band traffic radar units where you drive.**

NOTE: These settings only apply when V995 is operated in City mode. X-band sensitivity is not affected when used in "AutoScan" or "Highway" modes.

Bands

BandsALL

In this setting all radar, laser, and SWS frequencies are monitored. This is the factory setting, and it is highly recommended that you use your V995 in this mode.

BandsMOD

In this setting, V995 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).

WARNING: Do not turn off a band unless you are absolutely certain that there are no traffic radar units using that specific band in your area.

Faceplate

Removing the top faceplate

1 Using a sharp knife, or similar item, lift one of the corners of the faceplate and pull it off.

2 Remove any visible adhesive.

Installing the optional faceplate

1 Remove the backing from the button area (lower half) first.

2 Align the optional faceplate over the buttons first, and press down when it is aligned correctly.

3 Once the button area of the faceplate is pressed down, remove the remaining half of the backing and press it into place.

4 Press firmly around the entire faceplate to make certain the adhesive has made good contact.

Features and Specifications

Operating Bands
- X-band 10.525 GHz ± 25 MHz
- K-band 24.150 GHz ± 100 MHz
- Ka-band 34.700 GHz ± 1300 MHz
- Ku-band 13.400 GHZ ± 25MHz
- 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 or Tech Display
- 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
- Signal Strength Meter
- AutoMute
- City Mode Sensitivity
- Radar / Laser Bands

Sensitivity Control
- Highway, AutoScan and City

Auto Calibration Circuitry

VG2 Immunity

Dimensions (Inches)
- 1.25 H x 2.75 W x 4.75 L

Patented Technology

V995 is covered by one or more of the following US patents.

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

V995 is also covered by one or more of the following Canadian patents:

1,295,715 1,295,714 1,187,602 1,187,586

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

Interpreting Alerts

Although the V995 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 V995 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 V995's warning system for radar, laser and safety alerts.

Alert	Explanation
The V995 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.
V995 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.
V995 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.
V995 receives weak signals. These signals may be a little stronger as you pass large, roadside 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.
V995 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.
V995 alerts intermittently. Rate and strength of alerts may be consistent 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.
V995 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.
V995 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 X-Band radar, your V995 will occasionally receive non-police radar signals. Since these X-Band 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 V995'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 V995 can display are listed on the facing page.

From the factory, your V995 is programmed with SWS decoding OFF. If SWS is used in your area, your V995 will display the safety messages associated with the signal. If you wish to detect this system, use the Programming feature to turn V995'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 V995'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 Whiteout 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
V995 beeps briefly at the same location every day, but no radar source is in sight.	• An X-band motion sensor or intrusion alarm is located within range of your route. With time, you will learn predictable patterns of these signals.
V995 does not seem sensitive to radar or laser.	• Make sure that windshield wipers do not block V995'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. • V995 may be in City Mode.
V995 did not alert when a police car was in view.	• 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.
V995 did not provide a Safety signal while within range of an emergency vehicle.	• Safety transmitters may not be commonly used in your area.
V995's display is not working.	• Press the BRT button to deactivate Dark Mode.
V995's audible alerts are less loud after the first few alerts.	• V995 is in AutoMute Mode. See page 8 for details.
V995 bounces or sags on windshield.	• V995 is not making contact with the windshield to provide stability. While holding down V995's QuickMount button, slide V995 toward the windshield so that the back top edge makes firm contact.
V995's power-on sequence reoccurs while you are driving.	• A loose power connection or dirty lighter socket can cause V995 to be briefly disconnected.
Your 14-year old son has changed all 7 of the Programming options.	• You can return all of the programming options to the factory defaults by holding down the CITY and BRT buttons while you turn V995 on.

Problem	Solution
V995 will not turn on.	• Check that the power is ON. • Check that vehicle ignition is ON. • Check that vehicle lighter socket is functional. • Try V995 in another vehicle.
V995 feels very warm.	• It is normal for V995 to feel warm.

Explanation of Displays

AD	Sensitivity control is in Auto mode, display is in Dark mode (page 9)
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)
No display	V995 is in the Dark mode (page 9)
PilotHWY	One of the many programming messages (pages 12-16)
WorkZone	One of the many Safety Radar messages (pages 22-23)
Caution	V995 has detected a Safety Radar Signal, but the signal isn't yet strong enough to decode the specific safety message (page 22-23)
Self Cal	V995 is running a self-calibration test
Service Required	V995 has failed the calibration test. Contact Beltronics for repair

Service Procedure

If your V995 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 V995 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 V995:

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

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 V995 repaired at the price quoted), your V995 will be returned, without repair. Payment can be made by check, money order, or credit card.

Ship V995 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 V995 postpaid and insured. Insist on a proof of delivery, and keep the receipt until the return of your V995.

Register online: @ www.beltronics.com

Remove card along perforations

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_____ Model_____ Serial Number_____
3. Place of Purchase_____ Date_____ Price_____
4. Primary reason for purchasing this BELTRONICS product_____

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

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

Remove card along perforations

Warranty and Accessories

BELTRONICS One Year Limited Warranty

BELTRONICS warrants your V995 against all defects in materials and workmanship for a period of one (1) year from the date of the original purchase, subject to the following terms and conditions:

The sole responsibility of BELTRONICS under this Warranty is limited to either repair or, at the option of BELTRONICS, replacement of the V995 detector. There are no expressed or implied warranties, including those of fitness for a particular purpose or merchantability, which extend beyond the face hereof. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.

BELTRONICS is not liable for any incidental or consequential damages arising from the use, misuse, or mounting of the V995. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This Warranty gives you specific rights. You may have other legal rights, which vary, from state to state. This Warranty does not apply if the serial number on the housing of the V995 has been removed, or if your V995 has been subjected to physical abuse, improper installation, or modification.

Accessories

The following accessories and replacement parts are available for BEL V995.

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