Cobra®

Operating Instructions

The Cobra line of quality products includes:

CB Radios

Dash Cams

Radar Detectors

Marine VHF Radios

Power Inverters

Accessories

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please visit our website:
www.cobra.com

RADAR/LASER
PROTECTION
RAD450

Printed in the Philippines
Part No. 480-1071-P
Version C

Important Information and Customer Assistance

Important Information

Federal Laws Governing the Use of Radar Detectors
It is not against federal law to receive radar transmissions with your Cobra radar/
laser detector. The Communications Act of 1924 guarantees your right to receive
radio transmissions on any frequency. Local laws that contravene this Act, while illegal,
may be enforced by your local law enforcement officials until and unless
they are prohibited from doing so by federal court action.

Safe Driving
Motorists, as well as operators of emergency or service vehicles, are expected to
exercise all due caution while using this product, and to obey all applicable traffic
laws. Do not attempt to change settings of the unit while in motion.

Security of Your Vehicle
Before leaving your vehicle, always remember to conceal your radar detector
in order to reduce the possibility of break-in and theft.

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6500 West Cortland Street
Chicago, Illinois 60707 USA
www.cobra.com

Controls, Indicators and Connections

Windshield Bracket Mount

Speaker

12V DC Power Jack

Menu Button ▲
To select detector settings.

USB Port

LaserEye
For detection of laser signals.

On-Off/Volume Control
Allows you to adjust the volume of the alerts.

Mute Button ▼
For manual mute of audio alerts, changing standby screens, turning Quiet Drive on/off.

SEN Button ▶
Adjust sensitivity and filtering modes to reduce unwanted alerts.

Dim Button ◀
For adjusting the display brightness.

FCC NOTICE This device complies with part 15 of FCC rules: Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received including interference that may cause undesired operation.

AVIS FCC Cet appareil est conforme à la partie 15 des règles de la FCC: Son fonctionnement est soumis aux deux conditions suivantes: (1) Ce dispositif ne peut causer des interférences nuisibles, et (2) Cet appareil doit accepter toute interférence reçue, y compris les interférences qui peuvent causer un mauvais fonctionnement.

Easy-to-Read Display

Radar Band | **Signal Strength** | **Frequency**

X ☐☐☐☐☐ 10.52 GHZ
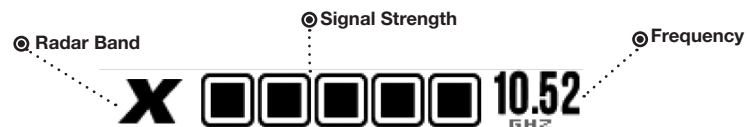
Product Features

Congratulations! You've made a smart choice by purchasing a radar/laser detector from Cobra. Just look at some of the sophisticated features and capabilities your new unit includes:

Radar/Laser Protection
Detects all radar and laser guns.

LaserEye®
Detects laser signals from both front and rear.

VoiceAlert
Digital voice announcements help keep your eyes on the road.

QuietDrive™
Muted driving mode for times driver wants less audible feedback while talking with passengers or on the phone.

Premium Anti-Falsing Circuitry
Automatically reduces false alerts from erroneous sources including automatic door openers, fixed position traffic flow monitoring systems and other radar detectors.

Updatable IVT Filter™
User updatable system automatically reduces false alerts from moving In-Vehicle Technology sources such as collision avoidance systems and adaptive cruise control.

Sensitivity Modes
Selectable Low/Med/High modes reduce falsing in densely populated areas.

Auto Mute
Automatically mutes audio for sustained alerts.

Eye-Catching OLED Display
Bright white OLED display features band identification icons and numeric signal strength meter.

Adjustable Sensitivity
Select preferred radar sensitivity (City/City Max/Highway) to suit driving environment.

Dual Language
English and Spanish voice and text alerts.

6' Power Cord and Mount Included.

This booklet describes the simple steps for mounting and setting up your detector. It also provides helpful information about how radar and laser guns are used and how you can interpret the alerts you receive.


NOTES

Contents

Installation

Where to mount your unit

You will get optimum performance from your detector if you mount it at a point approximately in the center of the vehicle, as low as possible on the front windshield without obstructing the unit's view of the road either to the front or rear. You can also mount it directly on the dashboard.

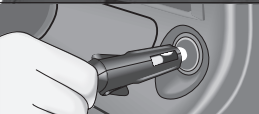| Windshield Mounting	Dashboard Mounting
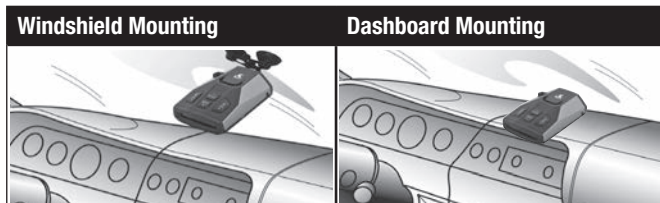
The unit's lens must not be blocked and the LaserEye should have a clear view out the back window to allow maximum detection.

The LaserEye should have a clear view
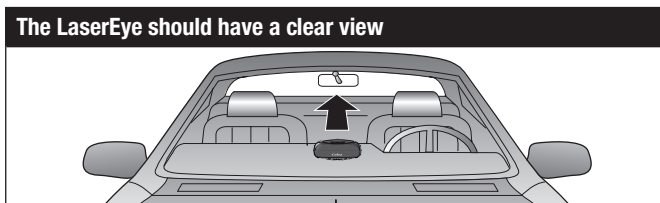
Radar and laser signals pass through glass but not through other materials and objects. Objects that can block or weaken incoming signals include:

- Windshield wiper blades

- Mirrored sun screens

- Dark tinting at the top of the windshield

- Heated windshields currently available on some vehicles (Instaclear for Ford, Electriclear for GM). Consult your dealer to see if you have this option.

Windshield mounting

1. Attach the rubber cups to the bracket.	
2. Make sure the rubber cups and your windshield are clean.	
3. Push the bracket firmly onto the windshield.	
4. Attach the detector to the bracket. **Check that the unit is parallel to the road's surface.**	
5. To adjust the angle if necessary, gently push or pull on the bracket to bend it. DO NOT use the detector to bend the bracket.	
6. Plug the power cord into the detector.	
7. Plug the cigarette lighter adapter on the power cord into your vehicle's cigarette lighter.	

Dashboard Mounting

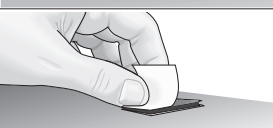|	
1. Place the detector on the dashboard to find a location where the unit has a clear, level view of the road **and is parallel to the road's surface**. The angle CANNOT be adjusted after mounting	
2. Remove the paper backing from one side of the hook-and-loop fastener.	
3. Attach the pad to the dashboard at your chosen location and remove the other paper backing.	
4. Attach the detector to the hook-and-loop fastener. You can remove and reattach the unit as often as you like.	
5. Plug the power cord into the detector.	
6. Plug the cigarette lighter adapter on the power cord into your vehicle's cigarette lighter.	
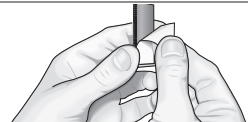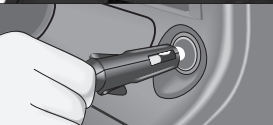
Getting Started

To Turn On The Unit And Adjust The Audio Volume		
Rotate the **On-Off/ Volume** control clockwise (away from you).	**Audible Tone**	**Visual Display**
	"Testing" Three beeps "System Ready"	

NOTE: In some vehicles, power is supplied to the cigarette lighter even while the ignition is Off. If this is the case with your vehicle, you should turn Off or unplug your detector when parking for lengthy periods.

SEN Button

Setting your detector to **Low** or **Medium** sensitivity delays the audio alerts for weak X band and K band signals until they become stronger. (A single beep will sound when the signal is first detected.) Also, additional filtering is done to reduce false alerts while you are driving in, or near, urban areas where there are many sources for conflicting X and K band signals such as microwave towers and automatic door openers.

Icon	Sens Level	For
	High	**No filtering for maximum range**
	Medium	**Minimal filtering to reduce unwanted alerts**
	Low	**Maximum filtering to reduce unwanted alerts**

Premium Anti-Falsing Circuitry

Your RAD 450 is designed to provide you the truest alerts and minimize the distraction of erroneous signals from radar-based fixed-position and moving sources.

• **Adjustable Sensitivity**: High/Medium/Low modes allow driver to adjust sensitivity to driving environment, reducing false alarms from fixed position sources such as automatic door openers.

• **IVT Filter**: updatable system automatically reduces false alerts from moving In-Vehicle Technology sources such as collision avoidance systems and adaptive cruise control.

MUTE Button

Manual Mute: Your detector allows you to quickly turn OFF an audio alert by momentarily pressing the MUTE button. If you press the MUTE button a second time during the alert, the audio alert will be turned back ON.

When an alert is being muted the audio icon on the display will change to:

Quiet Drive is a muted driving mode for times when a driver wants less audible feedback while talking with passengers, on the phone, etc. Only the first few seconds of audio will be heard. This mode is **Off** by default.

This mode can be changed in the User Settings menu or by pressing and holding the MUTE button for two seconds. When Quiet Drive is on the audio icon on the display will change to:

Battery Voltage

To display your vehicle's battery voltage, press the MUTE button while no signal is being detected.

DIM Button

You can choose from four settings for the brightness of the display. Repeatedly push the DIM button to cycle through the settings. The factory setting is Bright.

MENU Button
Menu - User Settings

To change the User settings enter the Menu by pressing the **MENU** button. A voice announces "Menu" and the display will change to

USER◀   MENU   ▶ ALERT

Press the **DIM◀** button to enter the User settings menu.

Press the **MUTE▼** or **MENU▲** buttons to switch between the User settings.

Press the **DIM◀** or **SEN▶** buttons to change the selected User setting's value. The value that is shown on the display is the selected value. To exit the menu simply wait several seconds or select **Exit Menu**.

Menu - User Settings continued

USER SETTING	VALUE
Detail	More*/Less
Quiet Drive	Off*/On
Auto Mute	Off/On*
Voice	Off/On*
Language	English*/Spanish
IntelliMute	Off*/On/Set
Screen Saver	Off/1 Minute*/3 Minute
Low V. Warning	Off*/On
Smart Power	Off*/On
System Info	Press the SEN▶ button to display system information.
Restore Defaults	Press the SEN▶ button to restore factory default settings then press SEN▶ button again to confirm.
Exit Menu	Press the MUTE▼ button to exit the menu.

* = Factory default setting

Menu - Alert Settings

To change the Alert settings enter the Menu by pressing the **MENU** button. A voice announces "Menu" and the display will change to

USER◀   MENU   ▶ ALERT

Press the **SEN▶** button to enter the Alert settings menu.

Press the **MUTE▼** or **MENU▲** buttons to switch between the Alert settings.

Press the **DIM◀** or **SEN▶** buttons to change the selected Alert setting's value. The value that is shown on the display is the selected value. To exit the menu simply wait several seconds or select **Exit Menu**.

Menu - Radar Settings continued

RADAR SETTING	VALUE
X Band	Off/On*
K Band	Off/On*
Ka Band	Off/On*
VG-2	Off*/On
Spectre	Off*/On
Exit Menu	Press the MUTE button to exit the menu.

* = Factory default setting

Detail
In the **More** detail mode, information about the radar band, signal strength and frequency will be displayed.
In Less detail mode, only the threat level is displayed (see page 10).

AutoMute
AutoMute will automatically reduce the audio volume of all alerts after four seconds for as long as the signal is detected. The factory setting for AutoMute is On.

Language
The detector can be set to either English or Spanish for all text and voice audio.

IntelliMute
INTELLIMUTE allows you to avoid alerts you don't need to hear because you are stopped or moving slowly. By sensing the "revs" (RPMs) of your engine, INTELLIM-UTE knows when you are at low speed and automatically mutes alerts (except for strobe signals from emergency vehicles).

Before INTELLIMUTE will work, you must set an activation point for your engine's revs. Whenever the revs are below that point, INTELLIMUTE will begin muting. The activation point will be stored in memory and recalled each time the power is turned **On**. The factory setting is INTELLIMUTE **Off**.

NOTE: INTELLIMUTE may not work with some vehicles because it cannot sense the engine's revs. In such cases, you can reduce unwanted audio alerts by using Auto Mute and **SEN** mode when appropriate.

Screen Saver
Your detector has a SCREEN SAVER mode. When SCREEN SAVER is turned **On** (factory default is 3 minutes), the screen will change to Dark from it's Bright, Dim, or Dimmer setting after the time interval selected. While the screen is Dark, the scanner will be displayed dimly.

NOTE: While SCREEN SAVER is activated, any alert will turn the display back on at the last brightness setting (Bright, Dim or Dimmer). Touching any button will also turn **On** the display.

Smart Power
Your detector includes the SMARTPOWER feature that, when turned **On**, will put the unit into Low Power mode 15 minutes after the car's engine has been turned **Off**.

Before SMARTPOWER enters Low Power mode, you will hear three beeps and SMARTPOWER will flash on the display. To return the unit to Normal Power mode and exit Low Power mode, start the car, press any button or turn the unit **Off** and then **On** again.

Low Car Voltage
Displays your car battery voltage and automatically warns you if this drops below 11.9V. Your detector will then shut off to prevent further draining of your car battery.

System Info
Displays information about the versions of software/firmware that are installed on your detector.

Restore Defaults
To return your detector to factory default settings, press the **SEN** Button. Press the **SEN** Button again to confirm that you want to restore factory settings. Press the **MUTE** Button to exit.

Radar Alerts

In **More** detail mode the radar band, signal strength and frequency of the detected radar signal will be displayed.

Radar Band •   • Signal Strength   • Frequency

X ▣ ▣ ▣ ▣ ▣ **10.52** GHz
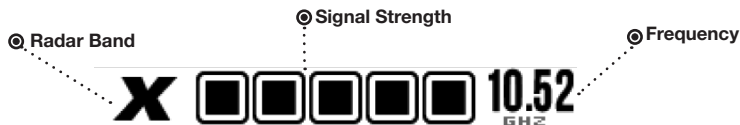
If you are a new user of radar detectors, you may want to use the Less detail mode. In this mode the display will only show one, two, or three bars which indicate how likely the alert is to be a police radar or laser gun. This threat level indication takes into account the laser or radar band, strength, and frequency of the detected signal.

Level	Display	Threat
1	▣ ☐ ☐	Low
2	▣ ▣ ☐	Medium
3	▣ ▣ ▣	High

Radar Alerts - Radar Detector-Detectors

Police use radar detector detectors (RDDs) to spot users of radar detectors. Your detector is able to identify signals from VG-2, Spectre I and Spectre IV+ RDDs and can provide alerts when any of these or similar devices are in use near your vehicle.

Laser Alerts

With Laser signals you will always receive a full strength alert. In More Detail mode the word **Laser** will be shown on the display along with the pulse rate of the Laser signal. In Less Detail mode three signal strength bars will be shown.

Responding to Alerts

Description	Interpretation	Recommended Response
Tone repeats slowly at first, then speeds up rapidly.	Probably police radar.	FULL ALERT
Tone sounds one time only.	Probably a false alarm, but possibly pulsed radar or VG-2 nearby.	Exercise caution
Tone instantly begins repeating rapidly.	Radar or VG-2 nearby has been activated suddenly.	FULL ALERT
Tone repeats slowly as you approach a hill or bridge, then speeds up sharply as you reach it.	Probably police radar beyond the hill or bridge.	FULL ALERT
Tone repeats slowly for a short period.	Probably a false alarm.	Exercise caution
Any type of laser alert.	Laser alerts are never false alarms.	FULL ALERT

Firmware Update

To update the firmware of your RAD450 use a micro-USB data transfer cable to connect the detector to a Windows based computer. You do not need to connect the detector's power cord to update the firmware. With the detector connected to your computer you should see "Download" on the detector's display. Go to the Software Downloads section in the Support area of the Cobra.com website and search for RAD450 then follow the instructions on the System Update link to install the latest firmware available to your detector.

Understanding Radar and Laser ●

Radar Speed Monitoring Systems

Three band frequencies have been approved by the Federal Communications Commission (FCC) for use by speed monitoring radar equipment:

X band	10.525 GHz
K band	24.150 GHz
Ka band	33.400 – 36.00 GHz

Your detector detects signals in all three radar bands, plus Ku band (13.435 GHz), which is an approved frequency used in parts of Europe and Asia.

VG-2

VG-2 is a "detector detector" that works by detecting low-level signals emitted by most radar detectors. Your detector does not emit signals that can be detected by VG-2, but does detect VG-2 signals and will alert you when a device is in use near your vehicle. While no signal is being detected, press and hold the **Dim** button for four seconds.

Your detector can be spotted by Spectre IV+ RDDs, but is invisible to VG-2 and Spectre I RDDs. You can choose whether you want to be alerted to VG-2 and Spectre I & IV+ RDD signals. The factory setting for VG-2 and Spectre I & IV+ alerts is Off. It is recommended to leave these Off unless you are concerned about being monitored for having a radar detector.

The factory setting for VG-2 alerts is **Off**.

LIDAR (Laser)

The correct name for the technology that most people refer to as laser is actually **LIDAR**, which stands for Light Detection and Ranging.

LIDAR operates much like radar. Its signal spreads out like a radar signal, though not as widely. Unlike radar, LIDAR must have a clear line of sight to its target vehicle throughout the entire measurement interval. Obstructions such as sign posts, utility poles, tree branches, etc., will prevent valid speed measurement.

Some common questions about LIDAR include:

- **Does weather have any affect on LIDAR?**
  Yes. Rain, snow, smoke, fog or airborne dust particles will reduce the effective range of LIDAR and can, if dense enough, prevent its operation.

- **Can LIDAR operate through glass?**
  Yes. Newer LIDAR guns can obtain readings through most types of glass. However, the laser pulse also can be received through glass to trigger an alarm by your detector.

- **Can LIDAR operate while in motion?**
  No. Because LIDAR operates by line of sight, the person using it cannot drive the vehicle, aim and operate the gun all at the same time.

- **Is it legal for police to use LIDAR?**
  Yes, LIDAR is allowed to be used in all 50 States by police. Your detector detects LIDAR (laser).

Specifications

Band and Frequencies

Band	Frequencies		
X Band	10.525	± 0.050	GHz
K Band	24.125	± 0.125	GHz
Ka Band	34.700	± 1.300	GHz
Laser	910 ± 50 nm	100	PPS
VG-2	11.500	± 0.250	GHz

⚠ **WARNING** Modifications or parts substitutions not approved by Cobra Electronics Corporation may violate FCC Rules and void your authority to operate this equipment.

U.S. Patent Number: 6,078,279

Maintenance

Your detector is designed and built to give you years of trouble-free performance without the need for service. No routine **Maintenance** is required.

If your unit does not appear to be operating properly, please follow these troubleshooting steps:

■ Make sure the power cord is properly connected.

■ Make sure the socket of your vehicle's cigarette lighter is clean and free of corrosion.

■ Make sure the power cord's cigarette lighter adapter is firmly seated in your cigarette lighter.

Limited 1-Year Warranty

Cobra Electronics Corporation warrants that this product and the component parts thereof, will be free of defects in workmanship and materials for a period of one year from the date of first consumer purchase. This warranty may be enforced by the first consumer purchaser. If the product is under warranty, it will be repaired or exchanged depending on the model as determined at Cobra's sole discretion. Such remedy shall be your sole and exclusive remedy for any breach of warranty.

The procedure for obtaining service and support, and the applicability of this warranty, will vary depending on the country or jurisdiction in which you purchased and utilize the product. For the details on obtaining product service, support and warranty please visit www.cobra.com/support

Provided that the product is utilized within the U.S.A.- Cobra will, without charge, repair or replace, at its option, defective products, products or component parts upon delivery to the Cobra Factory Service department, accompanied by proof of the date of first consumer purchase, such as a duplicated copy of a sales receipt. You must pay any initial shipping charges required to ship the product for warranty service, but the return charges, to an address in the U.S.A., will be at Cobra's expense, if the product is repaired or replaced under warranty.

This warranty gives you specific legal rights, and you may also have other rights which may vary from state to state and country to country.

Exclusions: This limited warranty does not apply: 1) To any product damaged by accident; 2) In the event of misuse, ordinary wear, failure to follow directions, or improper maintenance of the product or as a result of unauthorized alterations or repairs; 3) If the serial number has been altered, defaced, or removed; 4) If the product was purchased or is utilized in a jurisdiction not covered by the limited warranty.

All implied warranties, including warranties of merchantability and fitness for a particular purpose are limited in duration to the length of this warranty. Cobra shall not be liable for any incidental, consequential or other damages; including, without limitation, damages resulting from loss of use or cost of installation.

Some states and countries do not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state and country to country.

Product Service and Support

For any questions about operating or installing this new Cobra product, PLEASE CONTACT COBRA FIRST…do not return this product to the retail store. The contact information for Cobra will vary depending on the country in which you purchased and utilize the product. For the latest contact information, please go to www.cobra.com/support

For products purchased in the U.S.A. you may also call 1-773-889-3087.

For Products Purchased in the U.S.A., if your product should require factory service, please go to www.cobra.com/support and follow the instructions for returning your product to the Cobra Factory Service Department for service.

Optional Accessories

You can find quality Cobra products and accessories at your local Cobra dealer, or in the U.S.A., you can order directly from Cobra at www.cobra.com

Windshield Mounting Bracket
Includes suction cups
Item #545-159-N-001

Straight 12V DC Power Cord
Includes plug and fuse
Item #420-030-N-001

Coiled 12V DC Power Cord
Includes plug and fuse
Item # 420-026-N-001

Straight Combination Radar USB Cord
Includes plug and USB Output
Item # PWR USB-01

Dual Port Power Adapter
Includes adjustable plug (up to 90˚) and fuse
Item # CLP-2B

Hardwire Cord for Radar
Includes fuse
Item # RA-PSCB

Install Mount
Includes 3M Dual Lock
Item # 545-002

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