

A black and white photograph of a Willtronics radar detector, model WT1020/1030, mounted on a car's dashboard. The device is a rectangular unit with a circular control knob and a digital display showing 'HIGHWAY'. The background is a blurred image of a road winding through a mountainous landscape. Overlaid on the image are technical graphics: a crosshair reticle and a circular logo with 'DSP' and 'DIGITAL SIGNAL PROCESSING' text.

**WILLTRONICS**  
Detection system



**WT1020/1030**  
**ALL BAND PROTECTION**  
Laser, X, K, Ka Superwideband

**OWNER ' S MANUAL**

# FCC Information

Note: This equipment has been tested and found to comply with the limit for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential Installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encourage to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experience radio/TV technician for help

Change or modification not expressly approved by the party responsible for Compliance could void the user' s authority to operate the equipment

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## **I. MODEL FEATURES AND CONTROLS**

**X, K, Ka Super Wideband Detection**

**All Laser Detection**

**360 ° Laser Detectability**

**Safety Radar System (SA, SWS) Detection**

**VG2 (Radar Detector Detector) Detection**

**VG2 undetectability**

**Instant On/Pulsed Radar Alert**

**Smart Text Display (8 Digit: 280 LED Matrix)**

**Digital Voltage Meter**

**Digital Electronic Compass (WT1030 only)**

**User Programmable**

**Memory Retention**

**Signal Strength Meter**

**Visual & Audible Alarms**

**External Laser Jack (Option)**

**Power On/Off with Volume Control**

**Mute Mode**

**Dim/Dark Modes**

**City/City1 Modes**

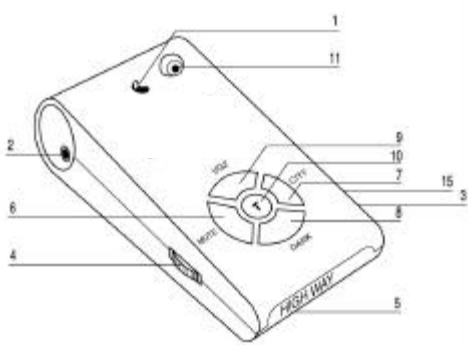
**VG2 Mode**

**Tutorial Mode**

**Voltage Meter Mode**

**User Selection (Programmable) Modes**

**Compass Calibration Mode (WT1030 only)**



1. Bracket Lock/Release Button Easy lock/release of the mounting bracket.

2. Power Jack Connection for the power cord.

3. Speaker Provides distinct audio alarms for X, K, Ka band radar, laser and the VG-2.

4. Power/Volume Control Turns unit on/off and adjusts audio level.

5. High Visibility Text Display Provides distinct visual confirmation of signals strength, signal band identification and indicates engaged modes of operation.

6. MUTE Button Pressing MUTE during a radar/laser encounter silences audio alerts.

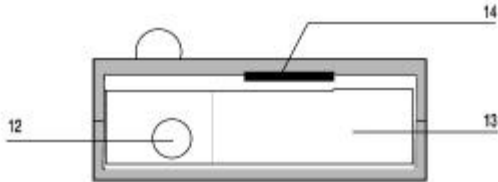
7. CITY Button Reduces the annoyance of false alerts typically encountered in urban driving areas.

8. DARK Button Reduces illumination of display to “dim” or “dark” settings.

9. VG2 Button Pressing VG2 to engage or disengage VG-2.

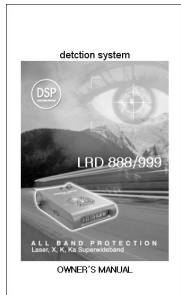
10. T Button Tutorial mode engage button

11. **Laser Lens (Rear)** An integrated optical waveguide provides superior detection of laser signals transmitted from behind
12. **Laser Lens (Front)** High gain optical lens array provides increased sensitivity and field of view for leading edge laser detection.
13. **Radar Antenna** Compact, high-efficiency antenna receives radar signals.
14. **Mounting Bracket Location** Slot holds mounting bracket firmly.
15. **EXT** Port for external laser connection (Option Laser Module)



## II. ACCESSORIES INCLUDED WITH RADAR DETECTOR

### 1. Owner's Manual



### 2. Power Cord



### 3. Mounting kit



### 4. Hook & Loop Fasteners



### 5. Spare Fuse 2A 250V



### III. MOUNTING INSTALLATION

Mount the unit as low as possible near the center of the windshield.

Do not mount your unit behind wipers, ornaments, mirrored sunscreens, etc. These obstructions have metal surfaces which can affect radar and laser signals and reduce critical warning time. (Regular tinted glass does not affect reception.)

Some newer windshields have an Instaclear™ or Electriclear™ type coating, which affect radar signals.

Avoid placing unit in direct contact with windshield.

To reduce the possibility of theft, conceal your unit when not in use.

#### Windshield Mounting

Install the mounting kit at the windshield as it follows.

IMPORTANT: Some newer cars have a plastic safety coating on the inside of the windshield. The windshield bracket may leave permanent marks on this type of surface. We recommend that you do not leave the suction cup bracket on the window in direct sunlight. If the detector is removed, this may cause blistering of the dash in some vehicles.



Slide the detector onto the bracket and get it locked with switch.

If necessary, the unit may be leveled by bending the windshield bracket. Push the bracket release switch and remove the detector before bending.

### D a s h b o a r d   M o u n t i n g

Make sure the mounting location you have chosen is relatively level and is clean and dry. Clean with isopropyl alcohol if necessary to remove any waxes or polishes.

Separate the fastener strips. Peel the paper backing off each strip and adhere one piece to the dash and the other piece to the bottom of the unit, taking care not to cover the serial number.

Be careful not to place the fastener strip over the unit ' s serial number. If the fastener strip is removed, the serial number may be pulled off the unit. Units without serial numbers are not covered under warranty.

### P o w e r   C o n n e c t i o n

Plug the small end of the power cord into the unit ' s power jack.

Plug the large end into the vehicle ' s cigarette lighter.



#### IV. OPERATION GUIDE

##### Power On And Self-Test

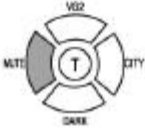
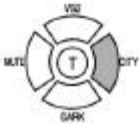
Each time your WT-1020 detector is turned on, an automatic self-test sequence confirms that the speaker and visual displays are functional and displays the engaged features.

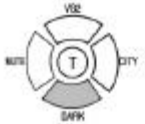
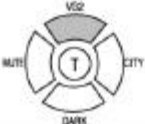
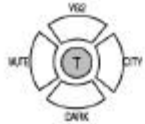
Turn Power/Volume control clockwise. Display reads:

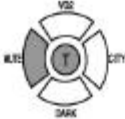
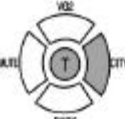
##### Feature Engaged Confirmation

Each time a button is pressed one beep confirms feature "on", two beeps confirm feature "off".

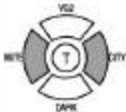
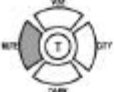
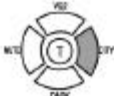
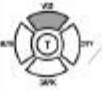
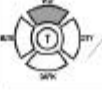
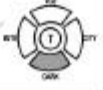
| WT-1020                  | WT-1030                  |
|--------------------------|--------------------------|
| X    □□□□   9            | X    □□□ 7 E             |
| ↓                        | ↓                        |
| K    □□□□   9            | K    □□□ 7 W             |
| ↓                        | ↓                        |
| Ka   □□□□   9            | Ka   □□□ 7 S             |
| ↓                        | ↓                        |
| LSR   □□□□               | LSR   □□□   N            |
| ↓                        | ↓                        |
| 13.5V                    | 13.5V                    |
| ↓                        | ↓                        |
| SR                    ON | SR                    ON |
| ↓                        | ↓                        |
| VG2                  OFF | VG2                  OFF |
| ↓                        | ↓                        |
| HIGHWAY                  | HIGHWAY                  |

| Function Mode | Key engage / disengage     |                                                                                   | Display                          | Function                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------|----------------------------|-----------------------------------------------------------------------------------|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MUTE          | MUTE/<br>AUTO OFF          |  |                                  | To cancel the audio when signal is detected. After 20 sec, automatically mute off                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| CITY<br>CITY1 | CITY<br>CITYx2<br>/ CITYx3 |  | <div>CITY</div> <div>CITY1</div> | <p>To reduce X band sensitivity</p> <p>To unable to detect X band signal</p> <p>•Two levels of City Mode are designed to reduce the annoyance of automatic door openers for X band detecting sensitivity, intrusion alarms and other devices which share frequencies with police radar.</p> <p>In City Mode, weak speed/safety radar signals give an initial alarm of two beeps, and then the unit remains quiet unless the signal becomes very strong. When the signal strength increases, two additional beeps are provided. In City 1 X-band is not detected. CAUTION: Some towns/small cities may still be using X band radar.</p> |

| Function Mode | Key engage / disengage     |                                                                                   | Display                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Function                                                                                                                                                                                                                                           |
|---------------|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DIM<br>DARK   | DARK<br>DARKx2<br>/ DARKx3 |  | <br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | To reduce illumination to a Dim/Dark setting<br>Dim or dark can be engaged during an alert. In Dark Mode, the display goes dark for as long as a signal is being detected and for 20 seconds after, then the display returns to the dimmer setting |
| VG2           | VG2/VG2                    |  | <br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | To detect VG2 signal                                                                                                                                                                                                                               |
| Tutorial      | T (2 sec hold)<br>/ T      |  | <br>+<br><br>+<br><br>+<br><br>+<br><br>+<br><br>+<br> | To provide simulation alert for each type of signal<br>( X band, K band, Ka band, Laser, VG2, Safety Radar)                                                                                                                                        |

| Function Mode              | Key engage / disengage               |                                                                                   | Display                                                                                                                                        | Function                                                      |
|----------------------------|--------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| VOLTAGE METER              | MUTE+T<br>(2 sec hold)<br>/ AUTO OFF |  | 12.3 V                                                                                                                                         | To display your voltage of car battery                        |
| DIGITAL ELECTRONIC COMPASS | T+CITY<br>(2 sec hold)               |  | CALIBRATION ...<br>... MODE<br>+<br>TURN UNIT ...<br>+<br>... TWICE<br>+<br>WAITING!<br>+<br>Press 'T' Button<br>+<br>CAL DONE<br>+<br>HIGHWAY | * LRD § WT-1030 only<br>To provide electronic compass heading |

# USER PROGRAMMABLE MENU MODE

| MENU MODE                                                                                                           | MODE SELECTION                                                                                                                                                         | MODE                                                            | SUB SELECTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | SUB MODE                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
|  <p>MUTE+CITY<br/>(2 sec hold)</p> | <br> | <p>DISPLAY</p> <p>TONE</p> <p>SELF TEST</p> <p>SAFETY RADAR</p> |  <br> <br> <br>  | <p>WT-1030 only<br/>[ COMBO / RADAR / COMPASS ]</p> <p>[ TONE1 / TONE2 / TONE3 ]</p> <p>[ TEST YES / TEST NO ]</p> <p>[ SR ON / SR OFF ]</p> |

• COMBO MODE DISPLAY

HWY SE

• RADAR MODE DISPLAY

HIGHWAY

• COMPASS MODE DISPLAY

135°

SE

## Memory Retention

Electronically remembers all your own settings for a certain period of time after power-off.

## V. RADAR/ LASER/ VG-2 ALERTS

### Speed Radar Visual /Audio Alerts

When X, K or Ka is detected, the band ID and signal strength is displayed with an audible alert.

Example:

Ka □□□ 4

### Laser Visual /Audio Alerts

When a laser signal is detected, LSR is displayed with signal strength. The audio alert is continuous for a minimum of 3 seconds.

Example:

LASER □□□

### VG-2 Visual /Audio Alerts

When a VG-2 signal is detected, the detector “hides” its own radiated signal and becomes undetectable by the VG-2.

Every 30 seconds, the detector checks for a VG-2 signal. If a VG-2 signal is still present, the unit continues to hide and repeats the VG-2 alert. If no signal is detected, two beeps are provided, indicating an “all clear” condition. During VG-2 Alert, the X, K, and Ka band signals cannot be received

VG2 VG2

#### Instant Visual/ Audio Alert

When an instant signal (strong signal) is detected, an urgent 3 second audio warning is sounded and the display shows:

A rectangular button with rounded corners and a thin black border. The word "PULSE" is centered in the button in a bold, black, sans-serif font.

**PULSE**

After 3 seconds standard alert pattern continues.

#### Safety radar Visual/ Audio Alert

The WT-1020/1030 detects the new Safety Warning system. This provides advanced warning of various road hazards including accident sites, highway construction, emergency vehicles and enables you to respond more appropriately to potentially dangerous conditions. It provides a distinct audio tone and illuminates the first strength bar and the last bar in the display.

A rectangular button with rounded corners and a thin black border. The word "CAUTION" is centered in the button in a bold, black, sans-serif font.

**CAUTION**

## VI. TROUBLESHOOTING GUIDE

**PROBLEM:** No display or audio.

Check fuse in the plug and replace if necessary with a 2 amp

3AG type.

Check fuse for lighter socket; replace if necessary.

Make sure lighter socket is clean.

**PROBLEM:** Unit alarms when vehicle hits bumps.

Check for loose lighter socket; tighten and clean.

Check connections at both ends of power cord. Substitute another cord to determine if cord is defective. Return defective cord to the factory.

**PROBLEM:** Unit alarms when using vehicle equipment or electrical accessories (brakes, power mirrors/windows, directionals, horn, etc.).

Vehicle's electrical system, including battery and alternator, may have electrical noise. Install a filter capacitor (470mfd. 25 volt or larger capacitance value) on the back of the lighter socket.

### Factory setting

All user features can be reset to factory settings. Please follow below steps for reset.

1. Unplug Power Cord from unit
2. Press and hold City and Mute.
3. Plug Power Cord into unit.
4. Wait for 2 beeps.
5. Release City and Mute button. Unit is now reset

- Factory reset -

Highway Mode On (WT-1030: Combo Mode On).

Dim/Dark Mode to full illumination of display.

VG-2 Detection Mode Off

## VII. SPEED MONITORING DEVICES

### Radar speed gun

A radar gun operates by transmitting radio waves at certain frequencies which reflect off objects and are then picked up by the radar gun's receiving section. When a radar beam reflects off a moving target, a measurable frequency shift occurs. The radar unit converts this shift into miles per hour to determine your vehicle's speed.

Currently, the FCC(Federal Communications Commission) permits operation of traffic radar guns at X Band(10.500 10.550 GHz), K Band (24.050 24.250 GHz), and Ka Band (33.400 36.000 GHz).

### Laser speed gun

It's well documented that many radar guns cannot reliably provide the speed of a targeted vehicle that is traveling in a group of vehicles. In contrast, a laser gun can target a specific vehicle out of a line of traffic and determine its speed.

The advantage of laser over radar in terms of target identification is the result of the laser gun's narrow beam. A radar transmission can cover more than a four-lane highway at a distance of 1,000 feet, compared with a laser transmission which covers about 6 feet at the same distance.

For best protection, keep these points in mind:

Because your vehicle's license plate or headlights are the laser gun's primary targets, mounting your detector on the dashboard can improve laser detection at short range.

Do not follow closely behind any vehicle you cannot see through. If you can't see past a vehicle ahead of you, chances are your detector won't either.

The receiving range of your laser detector will not be the same as a radar detector. Laser guns are most often used at short range

## Radar Detector Detectors

The Interceptor VG-2, or simply VG-2, is a microwave receiver used by police to detect signals radiated by the local oscillator of a radar detector. Because its purpose is to identify persons driving with radar detectors, the VG-2 is known as a “radar detector detector”.

## VIII. MAINTENANCE

### Care And Maintenance

During the summer months, avoid prolonged exposure to direct sunlight by removing your unit from the dash when your vehicle is parked for an extended period of time.

Do not spray water, cleaners or polishes directly onto the unit. The spray may penetrate through the openings and damage the unit. Also, do not use any abrasive cleaners on the unit's exterior.

## Fuse Replacement

The lighter socket plug is equipped with a replaceable 2 amp 3AG fuse located behind the silver tip. To replace the fuse, carefully unscrew the tip of the plug. (IMPORTANT: Unscrew slowly. The tip contains a spring which may fly out when disassembling.) Insert the new fuse with the spring and screw on the tip.



With use, screw cap on plug may loosen. Retighten occasionally.

## IX. SPECIFICATIONS

### General

|                    |                                                             |
|--------------------|-------------------------------------------------------------|
| Dimensions:        | 65mm(W) x 118mm(L) x 32mm(H)                                |
| Weight:            | 148 g                                                       |
| Power Requirement: | 12- 15V DC                                                  |
| Temperature Range: | Operating -20 ° C to +80 ° C<br>Storage -40 ° C to +100 ° C |

### Laser Detector

|                    |                             |
|--------------------|-----------------------------|
| Receiver Type      | Pulse Laser Signal Receiver |
| Sensor Front End   | Convex Condenser Lens       |
| Detector Type      | Pulse Width Discriminator   |
| Receiver Bandwidth | 30 MHz                      |
| Spectral Response  | 800- 1100 nm                |

### Radar Detector

|                        |                                                                                                              |
|------------------------|--------------------------------------------------------------------------------------------------------------|
| Receiver Type          | Double Conversion Superheterodyne                                                                            |
| Detector Type          | Scanning Frequency Discriminator                                                                             |
| Antenna Type           | Linear Polarization                                                                                          |
| Frequency of Operation | 10.525 GHz $\pm$ 50 MHz (X Band)<br>24.150 GHz $\pm$ 100 MHz (K Band)<br>34.700 GHz $\pm$ 1300 MHz (Ka Band) |

Specifications are subject to change without notice.

**MEMO**

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**MEMO**

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