



Genesis II Select Directional™



User's Manual and Installation Guide

This manual not intended for use in Canada



Genesis II Select Directional™

User's Manual & Installation Guide

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SONCELL NORTH AMERICA
A PUBLIC SAFETY COMPANY

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Welcome to Decatur Electronics, Inc.

Thank you for choosing the Decatur Electronics Genesis II Select Directional™ — A highly advanced traffic radar unit that will reward your department with years of dependable service. The Genesis II Select Directional design incorporates high performance and long range, with many leading features. We urge you to study this manual before using the Genesis II Select Directional, so you can maximize the benefits of this sophisticated radar device. We believe you will be pleasantly surprised by the features and advantages.

The Genesis II Select Directional is small, dependable, features instant target acquisition, and is designed using a quality management system certified to ISO 9001. If you are as pleased with its performance as we think you will be, ask your Decatur sales representative about other Decatur products including the Genesis™ line of radars, the Onsite™ line of speed trailers, dollies, and pole signs and the Responder™ line of in-car video systems.

Traffic officers told us exactly what they wanted in a radar device - and we built it. Try any one of our products and see if you don't agree that it is the best-in-class!

—The Management and Staff at Decatur Electronics,
The Nation's Oldest Radar Company

Genesis-II Select Directional™ Features

The Genesis-II Select Directional™ is a highly advanced traffic radar device offering many advanced capabilities. It includes 32-bit digital signal processing (DSP), a versatile detachable computer/display unit, K-band directional antennas, and an easy-to-use hand-held remote control. It also features Faster Mode for detecting the next strongest target going faster than the strongest in multiple target situations.

The Genesis-II Select Directional is able to determine which direction targets are moving. Directional technology enables the radar to single out vehicles moving in one specific direction, while ignoring vehicles moving in the other direction. This capability makes stationary operation far more effective and makes moving same lane mode very easy to operate.

The Genesis-II Select Directional digital signal processing (DSP) provides instant target acquisition and speed lock as well as more precise tracking and speed measurement.

If space in your vehicle is at a premium, you will appreciate the detachable computer/display unit. For more safety conscious installation options, you can separate the pieces and mount them wherever best meets your specific needs.

The hand-held remote controls all of the functions of the radar unit. The remote features convenient "eyes-off" raised buttons for use without taking your eyes off the road and fits comfortably in the palm of your hand, positioning all controls at your fingertips.

About This Manual

This manual contains valuable information to help you set up, use and maintain your Genesis II Select Directional™, so you can extend its life and keep it at peak performance. Please take a moment to read through it, and keep it handy for future reference.

Note the following symbols in this manual:



Indicates a warning message about safety precautions. Please read it carefully.



Indicates a helpful tip or precaution to note.

[OPT] Indicates section refers to optional equipment.

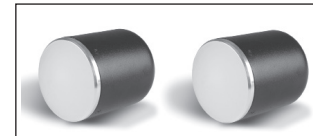
Your Genesis-II Select Directional radar unit includes selections from the following components:



**Detachable Computer/
Display Unit**



**Computer Unit/
Antenna Mounting Bracket**



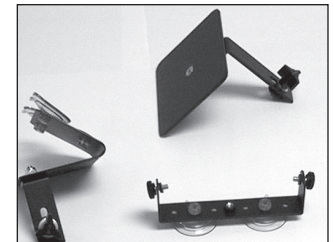
K Band Directional Antennas



Various Connector Cables



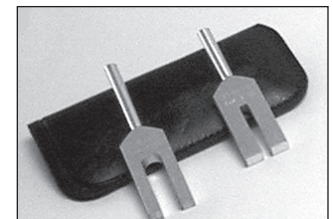
Handheld Remote



Various Mounting Brackets



Optional Radar Mirror Display



Tuning Forks

1. Quick Start

Use the following instructions to quick start your Genesis II Select Directional:

1. With all cables, antennas and the hand remote attached, plug the cigar plug of the radar into a powered 12VDC cigarette lighter receptacle in the patrol vehicle.
2. Press the PWR button on the hand-held remote to power up the radar unit. The radar will run through a brief self-test.
3. Press the ANT FRONT or REAR button to select the antenna from which you want the radar to transmit. Press the same ANT button when you wish to place the radar back into standby mode.
4. {OPT.} Press and release the MODE button to quickly toggle between Moving Mode Opposite Direction and Moving Mode Same Direction. Press and hold the MODE button for two seconds to activate Stationary Mode.
5. {OPT.} Press and hold the FAST button to select Faster Mode when you want to track the next strongest target going faster than the strongest.
6. If you are in the Moving Mode Same Direction setting and want to track a target that is traveling slower than the patrol vehicle, press and release the FAST button for Slower Mode.
7. To lock on a target speed, press the LOCK button. The target speed will transfer to the LOCKED window. The radar will continue to process speeds and display them in the TARGET window.
8. To clear a locked speed, press the LOCK button when an antenna is transmitting and no target is present.

2. Installation

Use the following instructions to mount your radar.

2.1 Separating the Computer/Display Unit (optional)

If the space in your vehicle is at a premium, you will appreciate Genesis II Select Directional's compact size and versatile components. You can separate and remotely mount the computer unit from the display unit. Common places to mount it are behind the dash, under the driver's seat, or on the console.

To separate the combined unit, firmly grasp the ends and pull them apart.



Figure 2.1a
Separating the computer/display unit.

Note the 9-pin connectors on each half of the unit. Screw two standoffs into the holes next to each connector to attach the two pieces with the 9-pin connector cable.



Figure 2.1b
To connect the separated unit, first insert the standoffs to secure the cable connectors.

Then attach and secure the connectors with the thumbscrews on the sides of each cable connector.

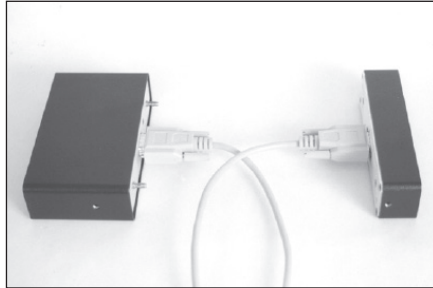


Figure 2.1c

Secure the connecting cable by fastening the thumbscrews into the standoffs.

To return the unit to a one-piece configuration, remove the cables and standoffs, line up the 9-pin connectors, and push the two pieces together.

2.2 Mounting the Computer/Display Unit and Connecting the Cabling.



WARNINGS

- Do not place the Genesis II Select Directional components in locations that will obscure the driver's view of the road.
- Double-check each component to ensure it is securely mounted. In an accident, a loose component could strike an occupant of the vehicle.
- Do not place the Genesis II Select Directional computer, antennas, cables, or brackets in your vehicle's air bag deployment zones. Refer to your vehicle's owner's manual or call the vehicle manufacturer if you are unsure where the air bag deployment zones are.

You can mount the computer/display unit behind and to the side of the steering wheel or on the dashboard. The computer unit easily withstands and remains accurate in temperature extremes. Dash-mounting the unit promotes safety; you can read the display without taking your eyes off the road.

To mount the unit, use the Velcro™ fastening material or the mounting bracket. Before applying the Velcro™, use a clean cloth to remove any foreign material from the dashboard and bracket face. Position the Velcro™ lightly on the computer/display unit and mounting surface.

After the unit is in the correct position, press it firmly to affix it to the surface. For the bracket mount, simply place and tighten the screws on the mounting bracket into the holes in the unit. Then adhere the suction cups to a clean glass surface. For maximum adhesion, moisten the suction cups before affixing them to the surface.

There are five locations where cables connect to the rear panel of the computer unit. Four are quick-disconnect connectors, and a fifth is a nine pin DB9 connector.

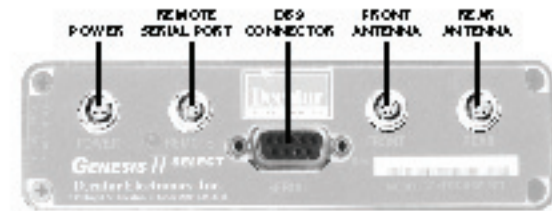


Figure 2.2a

The quick-disconnect connectors plug into the computer unit in the above locations.

1. Align the red dot on the connector with the red dot at the top of the receptacle.
2. Push the connector into the receptacle until you hear a click.

**Figure 2.2b**

Align the red dot on the connector with the red dot on the computer receptacle.

Power connector



WARNING

- Be sure to plug the connector into the computer unit first before plugging the power plug into the auxiliary power source. If the power source is on, it can damage the unit.

The power cable has a larger 12-volt power plug (cigar plug) on one end. Make sure the plug fits securely in the vehicle's auxiliary power (cigarette lighter) receptacle.

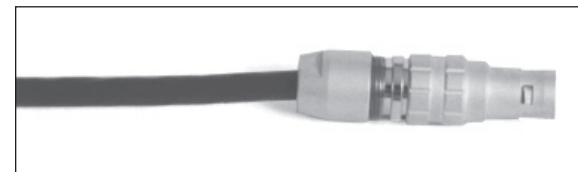
**Figure 2.2c**

The cigar plug for the auxiliary power receptacle.

Remote connector

There are two styles of hand-held remotes. One style has the cable hardwired into the remote with a connector on the other end of the cable, which connects to the back of the computer unit. On the other style the cable has two connectors, one that plugs into the remote

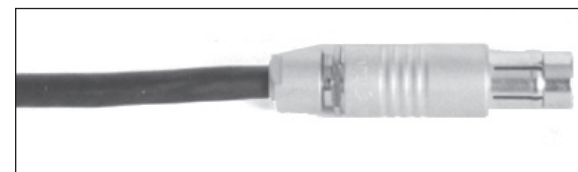
and the other that plugs into the back of the computer unit. While both connectors are the same, the connector with the strain relief boot typically connects to the hand-held remote.

**Figure 2.2d**

Cable connector that plugs into the computer unit.

Antenna connector

The connector that plugs into the antenna has a more smooth finish than the connectors that plug into the unit.

**Figure 2.2e**

Cable connector that plugs into the antenna.

To remove a cable, grasp and pull the connector.

Serial connector

On the back of the computer unit there is a female DB-9 connector marked "serial" that allows you to connect the Genesis II Select Directional to other devices (i.e. display signs, in-car video, PCs). To use this RS232 serial connector you will need a communications cable. (A communications cable for video and PC is not included. You can order it from Decatur Electronics by calling 800.428.4315).

2.3 Mounting and Connecting the Antenna

To attach the antennas to the brackets, align the threaded mounting hole on the antenna with the slot on the L-brace. Then screw the post into the threaded mounting hole.

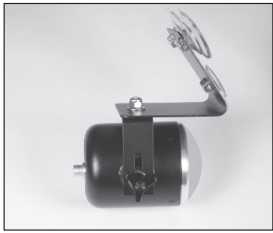


Figure 2.3a
A front mount antenna
using the suction cup bracket

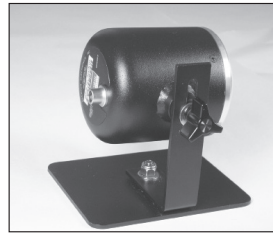


Figure 2.3b
A rear mount antenna
using the deck mount bracket

When affixing the suction cup mounted front antenna, for maximum adhesion, moisten the suction cups on the bracket before affixing them to a surface of the glass. Mount the forward-facing antenna assembly on the windshield. Mount the rear-facing antenna near the center brake light where it is not obstructing a clear view of traffic.

After you affix the bracket to a surface, adjust the position of the antenna. ANY SIGNIFICANT DEVIATION FROM A PARALLEL ORIENTATION CAN AFFECT THE RADAR'S ACCURACY.

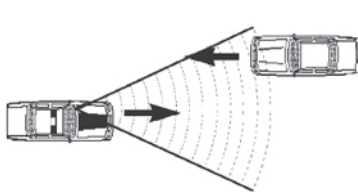


Figure 2.3c
Correct Orientation
The antenna is parallel to the target
vehicle's direction.

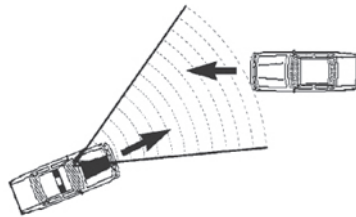


Figure 2.3d
Incorrect Orientation
The antenna and target vehicle's
direction are not parallel.

Point the antenna so it is parallel with the patrol vehicle, (the direction the patrol vehicle is facing) and parallel with the ground.

After mounting the antenna, plug the cable into the antenna and the antenna receptacle on the computer/display unit. If you are using only one antenna, you must connect it to the FRONT antenna

receptacle. Either the FRONT or REAR button on the remote can activate a single antenna system.

- • Use only the mounting hardware provided. Damage to the antenna housing can occur if you use incorrect fasteners.
- Do not modify the brackets. Most brackets incorporate an isolator that prevents the metal housing of the antenna from coming into contact with the frame of the car. Removal of the isolator can cause interference to be easily picked up diminishing performance.
- To reduce interference, position the antenna away from the patrol vehicle's display, fans, engine, and the Genesis-II Select computer unit.
- When removing brackets that have suction cups, use the tabs on the suction cups to break the vacuum seal.

2.4 Installation Check

After you install the components, for safety, double-check to ensure all components are secure. Then check for potential interference from sources such as the air conditioner/heater fan.

1. With all other vehicle accessories off, turn on the heater/air conditioner fan.
2. Power up by pressing the PWR button on the hand-held remote and select the front antenna by pressing the FRONT button.
3. Cycle through the fan's low to high settings.
4. If the unit displays a reading, reposition the antenna to eliminate it. Often, the far-left corner of the front windshield is an interference-free zone where you can place an antenna.
5. Repeat this process for the rear antenna.

3. Operating the Genesis II Select Directional

After you test and confirm that the unit is properly installed, it is ready for use.

3.1 Power

The PWR button on the hand-held remote turns the Genesis II Select Directional on and off. After you press the PWR button, the display illuminates and the computer checks the circuitry. If the power-up checks pass, the computer displays TEST PASS in the MODE window. If the power-up checks fail, a system error message (SYS) will display in the MODE window and the unit will not respond to any control except the PWR button to power down. Turn the unit off then back on. If the error message persists, remove the unit from service and contact Decatur Electronics.



- When the Genesis II Select Directional is powered down, it stores the current settings. These settings are restored the next time you power up the unit.

3.2 Front and Rear Antenna

At power up, the Genesis II Select Directional antennas are in standby mode. (Standby mode is when the antenna is not transmitting.) If no antenna is connected to the unit, the FRONT and REAR lights cycle on and off and Ant? displays in the MODE window.

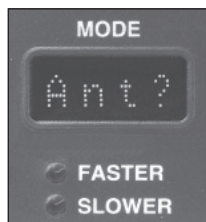


Figure 3.2a

If no antenna is connected, Ant? displays

The radar unit *will not* begin transmitting until you press an antenna button. The antenna (ANT) buttons, up arrow (FRONT) and down arrow (REAR), on the hand-held remote activate and deactivate the antennas. The FRONT or REAR light will illuminate when the antenna is transmitting.



Figure 3.2b

When the FRONT light illuminates, the FRONT antenna is transmitting.

To *discontinue* transmitting (to place the radar back into standby mode), press the same (ANT) button.

The Genesis II Select Directional has three main operating modes: Stationary, Moving Mode Opposite Direction, and Moving Mode Same Direction.

3.3 Stationary Mode

You can use Stationary Mode to monitor traffic that is moving toward or away from the parked patrol vehicle. You can also select a specific direction of traffic (towards or away) to monitor.

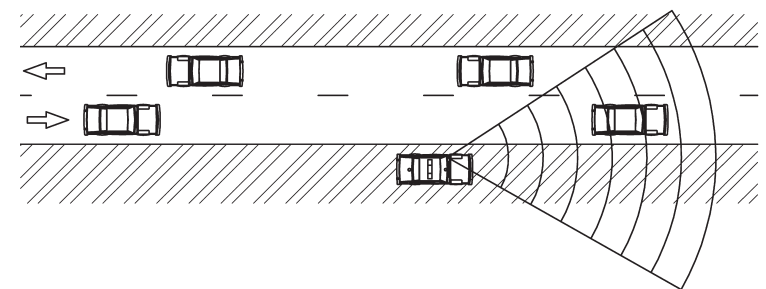


Figure 3.3a

Tracking a target vehicle with a parked patrol vehicle and the radar in Stationary Mode.

Stationary Both

Tracks vehicles moving towards or away from the patrol vehicle.

Stationary Towards

Only tracks vehicles moving away from the patrol vehicle.

Stationary Away

Only tracks vehicles moving away from the patrol vehicle.

To select a Stationary Mode of operation, press and hold the MODE button for two seconds. The "Stationary Both" mode will be represented by two arrows on the left (one pointing up, one pointing down) and a solid line on the right representing a parked patrol car. When targets are measured, the letter "T" or "A" will be displayed along side of the solid line to indicate the target is moving TOWARDS or AWAY from the patrol car.

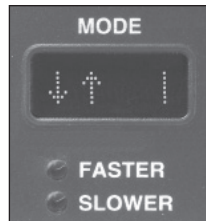


Figure 3.3b
Stationary Both Mode.



- In order to select the "Stationary Toward" or "Stationary Away" modes, one of the antennas must be activated..

Detected target speeds will display in the TARGET window. The PATROL window will always remain blank while in this mode.

After the "Stationary Both" mode has been selected, briefly press and release the MODE button a second time to select the "Stationary Towards" mode. Pressing and releasing the MODE button a third time will select the "Stationary Away" mode. Pressing and releasing the

MODE button a fourth time will cycle to the moving opposite mode of operation.

When the radar is toggled into the "Stationary Towards" mode, a "T" will briefly be displayed along side of the solid line on the right. The radar will then replace the "T" with an arrow representing the direction of travel in which the radar will search. (When using the FRONT antenna, targets moving towards the patrol will be represented by an arrow on the left pointing down. An arrow will be pointing up when the REAR antenna is selected.) Once a solid target is acquired, the letter "T" will again appear.

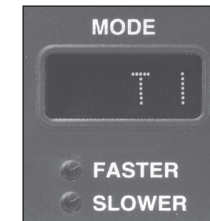


Figure 3.3c

Initially the letter "T" will indicate the Stationary Towards Mode has been selected. The "T" will also appear when a target is acquired.

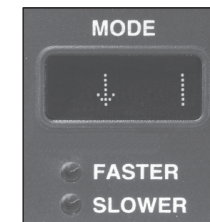
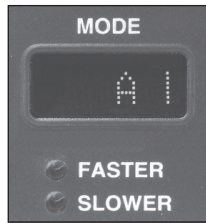


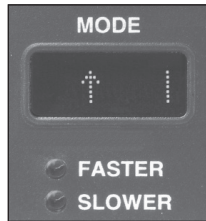
Figure 3.3d

For a FRONT antenna selection, the Stationary Towards Mode will show an arrow pointing down.

When the radar is toggled into the "Stationary Away" mode, an "A" will briefly be displayed along side of the solid line on the right. Once the "A" is cleared, an arrow pointed in the appropriate direction (based on the antenna selection) will be displayed to indicate the direction of the targets moving AWAY from the patrol car. Once a solid target is acquired, the letter "A" will again appear.

**Figure 3.3e**

Initially, the letter "A" will indicate the Stationary Away Mode has been selected. The "A" will also appear when a target is acquired.

**Figure 3.3f**

For a FRONT antenna selection, the Stationary Away Mode will show an arrow pointing up.

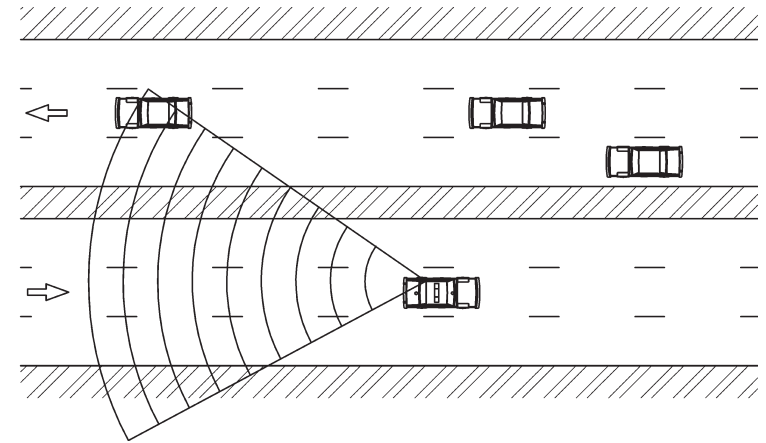
Detected target speeds will display in the TARGET window. The PATROL window will always remain blank while in all of the stationary modes.

**WARNING**

- When operating with the Directional Antenna, be sure the antenna facing forward is connected into the "FRONT" antenna port. If using dual antennas, the antenna facing the rear should be connected into the "REAR" antenna port.

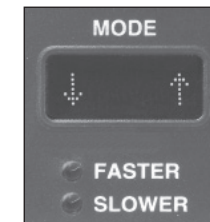
3.4 Moving Mode Opposite Direction

Use the Genesis II Select Directional in the Moving Mode Opposite Direction setting to display the speed of a target moving in the opposite direction from the moving patrol vehicle. These targets will be moving towards the patrol (using the front antenna) or away from the patrol (using the rear antenna).

**Figure 3.4a**

A patrol vehicle that is tracking a target vehicle with the rear antenna while traveling with the radar unit in Moving Mode Opposite Direction.

To select Moving Mode Opposite Direction, press the MODE button until the MODE window displays a down arrow on the left and an up arrow on the right. The down arrow indicates the target's travel direction. The up arrow indicates the patrol vehicle's travel direction.

**Figure 3.4b**

The MODE window with Moving Mode Opposite Direction arrows.

In this mode, the Genesis II Select Directional simultaneously processes and displays the patrol and target vehicle speeds. Detected target speeds will appear in the TARGET window. When no targets are present, the TARGET window will show three dashes. Patrol speeds will display in the PATROL window while the patrol vehicle is moving.

3.5 Moving Mode Same Direction

To display the speed of targets traveling the same direction as the patrol vehicle, use the Moving Mode Same Direction setting.

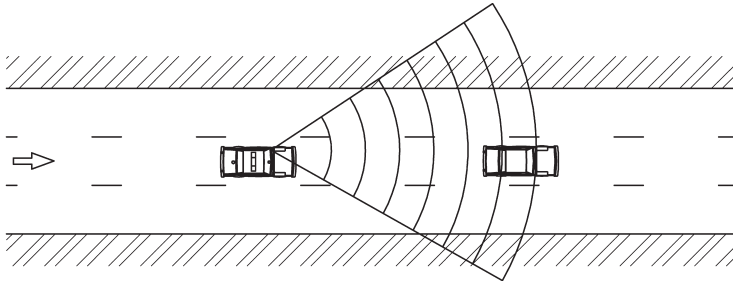


Figure 3.5a

A patrol car tracking a target using Moving Mode Same Direction.

To select this mode, press and release the MODE button until the MODE window shows two upward pointing arrows.

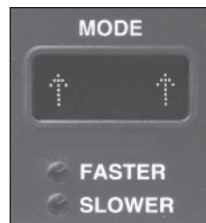


Figure 3.5b

The MODE window when the radar is in Moving Mode Same Direction.

Unlike conventional moving radars, the operator is not required to choose a "Faster or Slower" setting when measuring same lane targets. The Genesis II Select Directional chooses the correct setting automatically.



WARNING

- When operating with the Directional Antenna, be sure the antenna facing forward is connected into the "FRONT" antenna port. If using dual antennas, the antenna facing the rear should be connected into the "REAR" antenna port.

3.6 Faster Mode

The FAST button¹ activates the Faster Mode, modifying the operation of the Stationary and Moving Mode Opposite Direction modes. The Faster light illuminates when you press and hold the FAST button on the hand-held remote. (The unit will remain in Faster Mode for 2 seconds after you release the FAST button.)

When activated, the system switches from processing the speed of the strongest target signal to processing the next strongest target signal going faster than the strongest reference signal. In the figure below, the 77 mph vehicle is the target vehicle that the TARGET window will display.

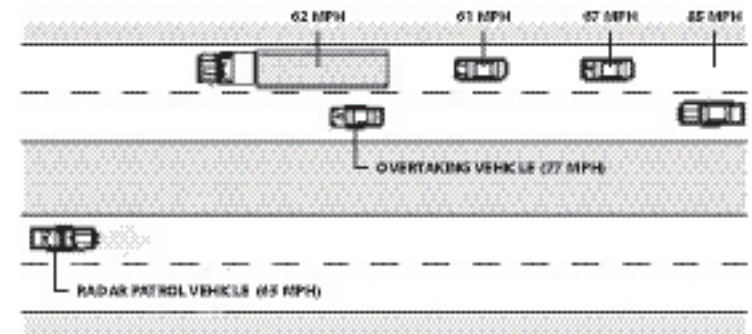


Figure 3.6

Evaluating multiple targets in Faster Mode.



WARNING

- When in Stationary Mode, it is possible that the Faster vehicle not traveling in the same direction is the Strongest vehicle.

¹The FAST button for Genesis II Select Directional software for the State of Florida works in a different manner. When you press the FAST button when the system is in either moving or stationary mode while the strongest target displays in the TARGET window, the next strongest target speed going faster than the strongest target displays in the LOCKED window.

3.7 Lock a Speed

The LOCK button transfers the target speed in the TARGET window to the LOCKED window. After locking the speed, the radar unit continues to process speeds and display target speeds in the TARGET window. This lets you continue to track the history of the target. Clear a locked speed one of the following ways:

- Press the LOCK button when an antenna is transmitting and no target is present.
- Change the operating mode.
- Turn the antenna off then on again.



- The locked speed will remain as tracking history when you change a dual-antenna transmission status from front to rear or rear to front.
- You may use the lock feature even when the radar is in Faster mode.

3.8 Range Setting

You can adjust the range (sensitivity) of the Genesis II Select Directional in each of the three operating modes independently:

- Moving Opposite Mode
- Moving Same Lane Mode {OPT.}
- Stationary Modes

The Genesis II Select Directional can track the speed of targets that exceed 3000 ft. when the unit is set at maximum range. The five LED lights above the word RANGE indicate the target-acquisition range.

Press the negative (–) or positive (+) side of the RANGE button to decrease or increase the range setting. The range lights progressively illuminate as you increase the distance. When all lights are on, the unit is in maximum range. Initially, you will want to start with

maximum range, then decrease the range setting until you obtain a desired range. For example, an officer would usually reduce range when operating within a city environment.

The range setting for each operating mode will be remembered when the radar is powered off.

3.9 Stopwatch Operation Mode [OPT]

Calculate target speeds without transmitting radar by using the stopwatch mode. The stopwatch mode relies on the time/distance formula to calculate target speeds by measuring the amount of time a vehicle takes to travel a known distance.

$$\text{SPEED} = \text{DISTANCE} / \text{TIME}$$

To place the radar into stopwatch mode, first ensure that no antenna is currently selected, then press and hold the OPTN button for two seconds. The MODE window should display “StpW” to indicate you have activated the stopwatch functions.

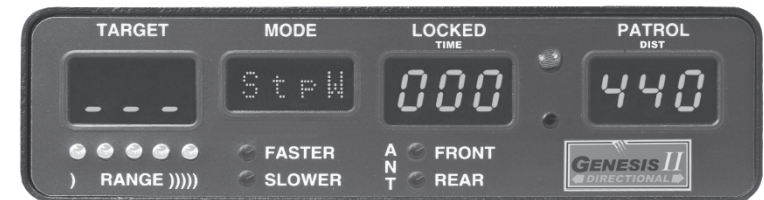


Figure 3.9a

The Mode window will display “StpW” whenever the Genesis II Select Directional is operating in the Stopwatch Mode

The three numeric windows display time, distance and speed.

TARGET WINDOW	Calculated Speed in MPH
LOCKED WINDOW	Time in Tenths of Seconds
PATROL WINDOW	Distance in Yards

Example:

Distance Set to: 440 Yards
 Time Measured: 150 (15.0 Seconds)
 Calculated Speed: 60 MPH

To make use of the stopwatch mode, you need a road surface that is marked with known distance intervals, or you will need to independently make a measurement between two visible points on the road in which you can time vehicles passing between those points (for example a bridge underpass and a road sign) with some precise distance measuring equipment.

Once you have an established measurement area, use the “-” or “+” side of the RANGE button to enter the distance of the measurement area in yards. Quickly press and release the (-) or (+) side of the button to cycle up or down one single distance unit. By holding one side of the RANGE button, the units will cycle up or down by tens, and then later by hundreds.

When the correct distance is set, you can time vehicles as they cross between the markers in your measurement area. Use the LOCK button to start and stop the timer. The time will be counted and displayed in the LOCKED window.

Each sequential number represents a tenth of a second (there is no decimal point displayed between the right two digits). For example 150 represents 15.0 seconds.

After you have started and stopped the timer, a calculated speed will be displayed in the TARGET window. The speed shown will be in MPH.

The accuracy of the stopwatch mode will be limited by the precision in which the distance measurement was made and the precision in which the timer start and stop was activated. In general, to increase the accuracy of the measurement, use a longer measurement area. Press the MODE button to exit the Stopwatch mode.

(If km/h units have been selected in the radar's setup menu, then the distance units will be in meters and the speed shown will be in km/h units.)

4. Computer/Display Unit

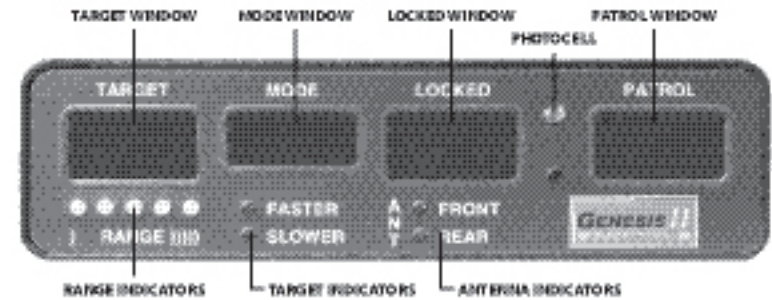


Figure 4a
The Genesis II Select Directional front display.

The Genesis II Select Directional display faceplate contains a photocell that automatically dims the display at night for less glare and makes the display brighter in daylight conditions, so you can easily read the display windows.



Figure 4b
The Genesis II Select rear interface

4.1 Display Windows

TARGET: The TARGET window displays target speeds and is blank when no target is present.

MODE: The MODE window displays the mode of operation (Stationary, Moving Mode Opposite Direction, or Moving Mode Same

Direction) except during power up, self-test or when an error occurs. When an error occurs, one of the following appears in the MODE window:

- LowV low voltage
- RFI radio frequency interference
- SYS system failure
- RMT? disconnected hand-held remote

LOCKED: When you press the LOCK button, the LOCKED window holds and displays the target speed that was in the TARGET window.

PATROL: The PATROL window displays the patrol speed. The window is blank when the radar unit is in Stationary Mode or when the vehicle is traveling below the minimum patrol speed.

4.2 Lights

RANGE: The range scale indicates the sensitivity setting (or the target-acquisition distance). The range can be independently set for each main operating mode.



Figure 4.2a
Short Range



Figure 4.2b
Medium Range



Figure 4.2c
Maximum Range

FASTER: The Faster light illuminates when you press and hold the FAST button to activate Faster Mode.

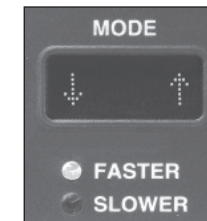


Figure 4.2d
The Faster light

ANT FRONT and REAR: The ANT FRONT and REAR indicator lights show which antenna is transmitting. In standby mode, neither light is on and neither antenna is transmitting.



Figure 4.2f
Antenna lights

5. Antennas

The Genesis II Select Directional K-band antennas are incredibly strong, yet compact and lightweight.

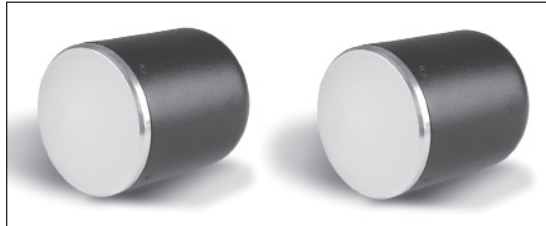


Figure 5

K-band antennas for the Genesis II Select Directional

6. Hand-Held Remote Controls

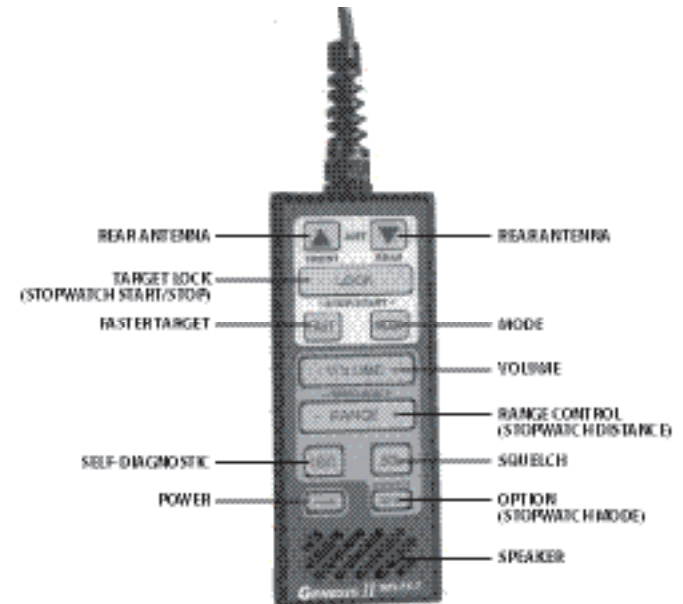


Figure 6a

The S778-41-0 hand-held remote control unit.



Figure 6b

The S778-41CC-0 hand-held remote control unit with detachable cable.

- If the hand-held remote is removed during operation, RMT? appears in the Mode window and will stay on until the remote is plugged back in.



- Both hand remotes operate in the exact same manner and have the exact same button layout. The only difference is that the S778-41CC-0 cable detaches from both the remote and the radar computer.

6.1 Control Buttons

POWER (PWR): The PWR button powers the Genesis II Select Directional on and off.

OPTION (OPTN): The City/Highway option helps reduce shadowing (see Section 8.2.9) by setting a different minimum patrol speed for city and highway speed conditions. This option works only while the unit is set in a Moving Mode.

When you press the OPTN button, CITY temporarily appears in the MODE window, and the unit tracks patrol speeds only as low as 5 mph. Press OPTN again to set the unit to Highway Mode. HWY temporarily appears in the MODE window, and the unit tracks patrol speeds no lower than 20 mph. The radar unit will power up with the settings you select.

STOPWATCH MODE: To place the Genesis II Select Directional into the Stopwatch operational mode, press and hold the OPTN button for two seconds. The letters StpW will appear in the MODE window. Press the OPTN button again to exit this mode. See section 3.9 for a full description of the Stopwatch Mode.

PATROL SPEED LOCK, RECALL, AND BLANKING [OPT]: This option locks the patrol speed at the time you lock the target speed.

1. In either moving mode, press the LOCK button to lock both the target and patrols speed.
2. Turn the antenna off. The locked patrol speed will appear in the PATROL window.

3. To blank the patrol speed, press the OPTN button. Then press the OPTN button again to recall it.
4. To permanently remove the locked patrol speed, reactivate the antenna by turning it on.

TEST (TEST): Pressing the TEST button starts an extensive self test of the radar unit's circuitry. During self test, the system will not power down until the test is complete. If the self test fails, the SYS message will appear in the MODE window. For more information on tests, see Section 9: Field Tests.

Pressing and holding the test button activates the menu feature. This feature allows the operator to adjust some of the settings of the radar. See Appendix B for more information.

SQUELCH (SQL): The SQL button lets you select the type of Doppler audio you hear. In squelch mode, the sound is only the Doppler tone for the currently displayed target. In the unsquelched mode, the unit sends out all Doppler tones received by the antenna—patrol vehicles, targets, interference, and noise. You typically use unsquelched audio when you listen for interference.

RANGE (– RANGE +): The RANGE button on the hand-held remote regulates the maximum target-acquisition distance. You press the negative (–) or positive (+) side of the RANGE button to decrease and increase the target acquisition distance. When in the Stopwatch Mode, the RANGE button cycles through distance units.

VOLUME (– VOLUME +): The 8-step volume control regulates the Doppler audio and system status tone (beep) volume. Press the negative (–) or positive (+) side of the VOLUME button to decrease and increase the volume level.

FAST (FAST) [OPT]: Controls Faster Mode feature when evaluating multiple targets; use the FAST button to switch between Faster and Slower settings when operating in Moving Same Direction Mode.

MODE (MODE): The MODE button switches between the three operating modes: Stationary Mode, Moving Mode Opposite Direction, and Moving Mode Same Direction.

LOCK (LOCK): The LOCK button transfers the target speed in the TARGET window to the LOCKED window. After locking the speed, the system continues to process and display target speeds in the TARGET window, so you can continue to track the history of the target speed. If you have the Patrol Speed Lock, Recall, and Blanking option, pressing the LOCK button locks both the target and patrol speed.

ANTENNA (ANT) FRONT AND REAR: The antenna (ANT) up arrow (FRONT) and down arrow (REAR) buttons activate and deactivate the front and rear antenna. An antenna must be activated to track a target speed.

7. Communication System Controls

You can configure the Genesis II Select Directional through the serial communications (COM) port on the rear panel to communicate with PCs, speed signs, and in-car video systems, such as the Decatur Electronics Responder 1000™ in-car video system. The communications cable does not come with your order and can be purchased separately from Decatur Electronics. See Appendix A for the more details on the serial communications port configuration.

8. Performance Tips

Understanding potential radar interference and what to do when it occurs can greatly improve your results.

8.1 How Radar Works

Determining a vehicle's speed begins with the radar antenna transmitting and directing a beam of microwave energy (radio waves) at an approaching (or receding) target vehicle. When energy from this beam strikes a moving vehicle, a small amount of the beam is reflected back to the antenna. The reflected signal frequency shifts by an amount proportional to the speed of the target vehicle. This is known as the Doppler Effect. The radar device then determines the

target vehicle speed from the difference in frequency between the reflected and transmitted signal.

8.2 Interference Sources and Remedies

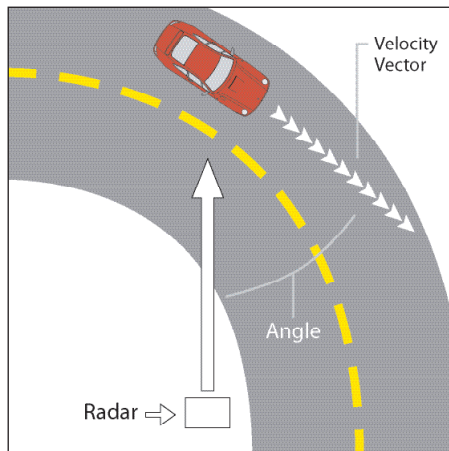
When properly installed and operated, Doppler radar technology is extremely accurate and reliable. However, variations in the environment can cause situations and circumstances, which can cause spurious (erratic and unusually low or high) speeds to display. Signs that a speed is spurious can include the following characteristics:

- A reading appears when no target vehicle is in the operational range of the antenna.
- A target vehicle entering the operational range overrides the interference signal, causing the display speed to change suddenly to the vehicle's speed.
- The Doppler tone is corrupted with noise.
- Speeds are irregular and do not provide a valid tracking history.
- Erroneous speeds appear to track with the engine speeds.

8.2.1 Angular Interference (Cosine Error Effect)

When operating in the Stationary Mode, the cosine effect causes the radar unit to display a speed, which is lower than the actual vehicle speed. This condition exists when the target vehicle's path is not parallel to the antenna, including conditions such as the vehicle traveling on a curve or a hill.

As the angle between the beam of the antenna and the target vehicle increases, the displayed speed decreases. Ideally, an angle of zero (0) degrees is preferable, because the displayed speed is the actual target vehicle speed. However, in all uses of police radar, the radar device is always at a slight angle to the target vehicle to avoid collisions.

**Figure 8.2.1**

An angle between the antenna and the target vehicle causes the cosine effect.

The following table shows the effect that an increasing angle has on a displayed speed.

Actual Speed	Horizontal Angle Degrees										
	0°	1°	3°	5°	10°	15°	20°	30°	45°	60°	90°
	Displayed speed:										
30 mph	30	29	29	29	29	28	28	26	21	15	0
40 mph	40	39	39	39	39	38	37	34	28	20	0
50 mph	50	49	49	49	49	48	46	43	35	25	0
60 mph	60	59	59	59	59	57	56	51	31	30	0
70 mph	70	69	69	69	68	67	65	60	49	35	0
80 mph	80	79	79	79	78	77	75	69	57	40	0

Table 8.2.1

Actual and displayed speeds at different antenna-to-target angles.

Small angles (less than 10°) have little effect on accuracy. As the angle increases, the displayed speed decreases. At 90°, the displayed target speed is 0 mph.

8.2.2 Fan Interference

Fan interference is the most common form of interference that you are likely to experience. It is caused when the radar measures the speed of the vehicle blower fan. Changing the fan speed causes a proportional change in the display speed. To correct this, relocate the radar antenna so it does not display spurious speeds or turn off the fan motor.



- Fan interference can be problematic in Same Direction Mode and should be checked carefully.

8.2.3 Batching

In past years, some radar devices occasionally could not correctly process speeds when the patrol vehicle was accelerating or decelerating at unusually high rates. In these cases, radar devices used an earlier speed to calculate the target speed, rather than the current speed. The radar will display an incorrect target speed, because it is using an incorrect patrol speed. With the DSP algorithms the Genesis II Select Directional uses, this error will not occur.

8.2.4 Electromagnetic Interference (EMI)

Operating electric motors can produce EMI. EMI from power seats or windshield wipers can also produce spurious target speeds. To correct this type of interference, simply turn off its source.

8.2.5 Feedback Interference

When radar is directed at computer screens, street lights, and other electronic devices, it can display spurious speeds. To correct this type of interference, relocate the radar antenna.

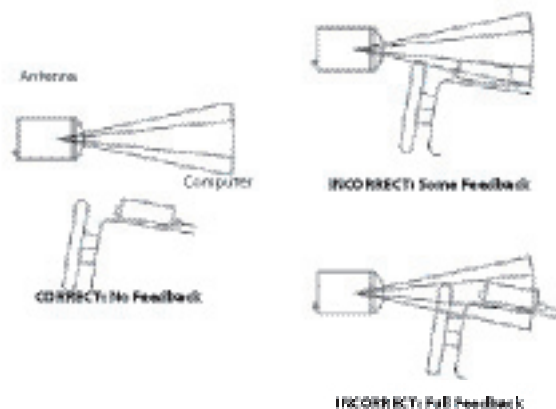


Figure 8.2.5
Correcting feedback interference.

8.2.6 Multi-Path Beam Cancellation

If multi-path beam cancellation occurs, the target vehicle speed sporadically blinks and reappears at semi-random intervals. This type of interference occurs when the radar loses track of a target vehicle, because the target is reflecting two or more signals, which are interfering with each other. The Genesis II Select Directional is immune to multi-path cancellation.

8.2.7 Patrol Harmonics

In all police radar, when a patrol vehicle passes a large, stationary object such as a road sign, building, or overpass, the return signal can briefly overload the processing circuitry. The Genesis II Select Directional detects this condition and will not display speeds which are generated by this overloading.



- Targets traveling at speeds which are close to the patrol speed can also mimic this condition and will be rejected. The target window will show an “_H_” indicating that it is a patrol harmonic. To process this type of target, simply increase or decrease your patrol speed by at least 2 mph (3 km/h).

8.2.8 Radio Frequency Interference (RFI)

The system can inadvertently process radio energy as Doppler speeds, including that from police radios, airport radar, microwave transmission towers, CB radio transmitters, and AM/FM transmission towers. For this type of interference to occur, the radar unit must be operating very close to the radio transmitter.

The Genesis II Select Directional contains an RFI detection circuit that detects excess radio frequency energy. When stray radio frequency energy reaches an excessive level, the system displays the RFI message and stops processing and displaying speeds. The system resumes normal operation when the RFI condition no longer exists. At that time, any locked speeds will display again.

8.2.9 Shadowing

In Moving mode, the radar processes two speeds—patrol and closing (target). The stronger of the two, the patrol speed, is created when the radar beam reflects from passing stationary objects, such as the pavement or terrain the vehicle is traveling on. However, some situations cause return signals to be larger than the reflection from the ground, such as when the patrol vehicle is rapidly overtaking a slow-moving 18-wheeler. Given a choice between reading passing ground clutter or the large return signal generated by the vertical expanse of the truck's trailer, the radar might ignore the ground speed and lock onto the stronger return signal. Rather than receiving a true patrol speed, the radar reads the differential speed between the vehicle and the 18-wheeler. The computer then subtracts this artificially low speed from the closing speed and assigns a higher speed to the target.

The shadowing error is easy to recognize, because the radar patrol speed and the speedometer reading will vary significantly. The target speed in this instance also will vary considerably from your visual estimation. The correct City/Highway setting helps to minimize this effect.



- The Genesis II Select Directional usually recognizes and ignores shadowing. On the rare occasion that it appears, turning the antenna on and off usually quickly remedies shadowing.

8.2.10 Vehicle Ignition Interference

The Genesis II Select Directional has been designed to operate from the vehicle's cigarette lighter receptacle. However, some vehicles exhibit excessive alternator noise at the lighter receptacle. In these rare cases, the radar can exhibit erratic readings, especially when the vehicle's electrical system is operated under heavy load. Wiring an accessory outlet directly to the battery minimizes the effect.

If you suspect your vehicle's electrical system, contact Decatur Electronics' Customer Service Department for more information.

9. Field Tests

You can do the following tests to verify the operation and accuracy of the Genesis II Select Directional.

9.1 Operator-Requested Self Test

Pressing the TEST button initiates a comprehensive system self test, which checks the numeric displays and runs a target and patrol speed simulation.

The Genesis II Select Directional will not power down during a self test and checks the following:

DISPLAY TEST: The display test verifies that the digit segments and status LED lights are working correctly and that none of the pixels in the number segments are burned out.

CIRCUITRY TEST: The system checks the internal circuitry. If the unit passes all internal checks, the messages ROM PASS, RAM PASS, and DSP PASS or FAIL (if a test fails) display in the MODE window.

SPEED SIMULATION TEST: The Genesis II Select Directional verifies the speed accuracy using synthesized Doppler frequencies corresponding to a series of four simulated speeds: 15, 30, 45, and 60 (when in mph mode) and 25, 50, 75, and 100 (when in km/h mode).

9.2 Tuning Fork Test

In addition to the system test, you can verify signal processing accuracy with a tuning fork. Test your Genesis II Select Directional with two tuning forks—a high and low speed fork.

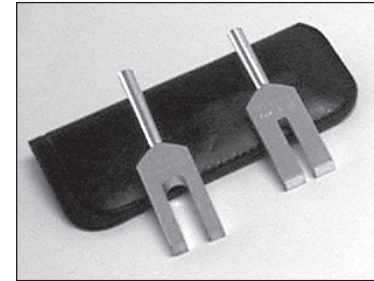


Figure 9.2a

A set of two tuning forks is used to fully test the Genesis II Select Directional.

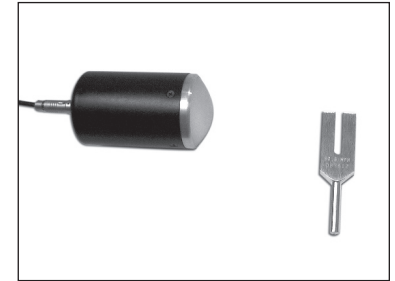


Figure 9.2b

Place the vibrating tuning fork about three inches in front of the antenna.

9.3 Stationary Mode Test

1. Place the radar unit in Stationary Mode. (Be sure to select the Both Directions Stationary mode. There are no directional properties to a ringing tuning fork. If a stationary tuning fork test is done in either the Towards or Away modes, the radar will generally ignore the tuning fork.)
2. Select maximum range and activate the antenna to be tested.
3. Grasp the low speed tuning fork (the longer fork) by the handle. Then tap the tines against a firm, non-metallic surface, and hold the vibrating fork approximately three inches in front of the antenna.
4. Verify that the TARGET display and speed marked on the tuning fork are within ± 1 display unit of each other.
5. If desired, repeat test with high speed tuning fork (short fork).

9.4 Moving Mode Opposite Direction Test

1. Place the system in Moving Mode Opposite Direction.
2. Select maximum range and activate the antenna that you want to test.
3. Then grasp the low speed tuning fork (the longer fork) by the handle. Tap the tines of the fork against a firm surface, and hold it approximately three inches in front of the antenna.
4. Before the low speed fork stops vibrating, tap the high speed fork (the shorter fork) against a firm surface, and hold it approximately three inches away from and slightly above the low speed fork. The speed produced from the high speed fork (shorter fork) will appear in the TARGET window, while the speed from the low speed fork (longer fork) will appear in the PATROL window.²

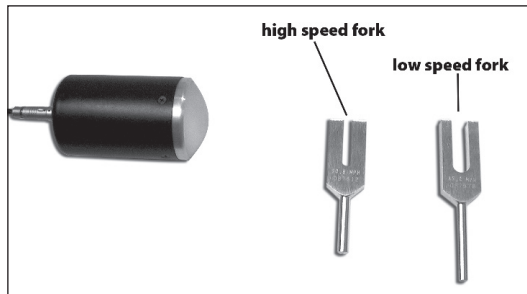


Figure 9.4a

Hold the low speed fork approximately three inches in front of the antenna and hold the high speed fork approximately three inches and slightly above the low speed fork.

5. The speed should match those in Figures 9.4b

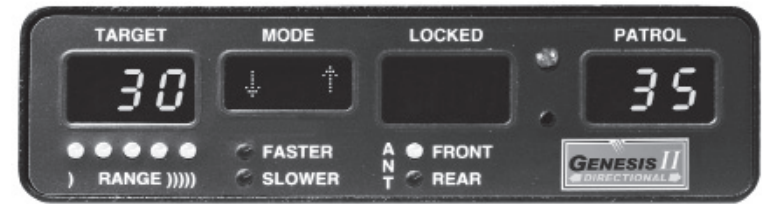


Figure 9.4b

When testing the K-band antenna with the high and low K-band tuning forks in Moving Mode Opposite Direction, the speeds in the display windows should look like this.

9.5 Moving Mode Same Direction Test (with Directional Antenna)

A tuning fork does not properly simulate the direction of a vehicle. The Genesis II Select Directional must be placed in a special tuning fork mode to perform the same direction tuning fork test. To activate this mode:

1. Place system in Moving Mode Same Direction Mode.
2. Activate the directional antenna.
3. Press and hold the TEST button for about three seconds, until FORK is displayed in the MODE window.
4. Release the TEST button. Notice that a tuning fork symbol is shown in between the two arrows in the MODE window.

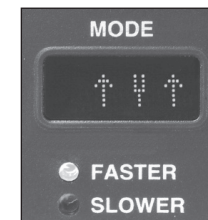


Figure 9.5a

When the test fork function is activated.

5. Select maximum range, an adequate squelch volume, and the antenna you want to test.

²The speed displayed will be the difference between the speed stamped on the high speed and low speed tuning forks.

6. Then grasp the high speed tuning fork (the shorter fork) by the handle. Tap the tines of the fork against a firm surface, and hold it approximately three inches in front of the antenna.
7. Then before the high speed fork stops vibrating, tap the low speed fork (the longer fork) against a firm surface, and hold it approximately three inches away from and slightly above the first fork. The speed produced from the high speed fork (shorter fork) will appear in the PATROL window, while the calculated TARGET speed will appear in the TARGET window.
8. Press and release the FAST button to toggle between the FASTER or SLOWER settings. When the FASTER setting is active, the TARGET speed should be the sum of the two tuning fork speeds. When the SLOWER setting is active, the TARGET speed will be calculated by subtracting the speed from the low speed fork from the speed from the high speed fork.
9. The speeds should match those in Figure 9.5b 9.5c and 9.5d.
10. Press the test button to exit tuning fork mode.

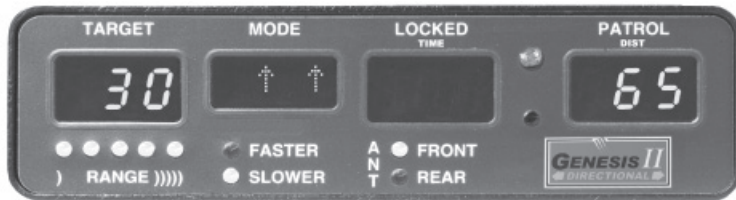


Figure 9.5b

When testing the K-band antenna with the high and low K-band tuning forks after pressing the FAST button in Moving Mode Same Direction, the speeds in the display windows should look like this. (The slower light is on because the target speed is lower than the patrol speed.)

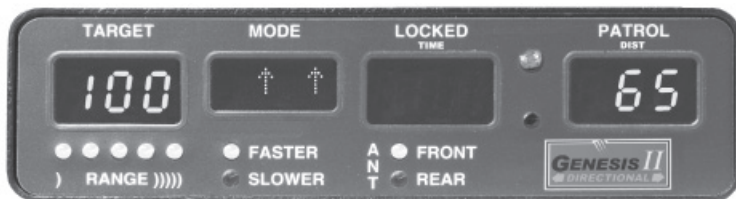


Figure 9.5c

When testing the K-band antenna with the high and low K-band tuning forks after changing the unit to the FASTER setting the readings should match this.

9.6 Road Test

After the radar unit passes the self test and tuning fork tests, you may want to conduct a road test during each shift to confirm that the patrol vehicle's speedometer matches the unit's patrol speed.

The road test verifies that the radar unit's patrol speed and the vehicle speedometer are within ± 1 display unit of each other.

You need to conduct the road test on a level road.

1. Verify that the antenna is aimed correctly and parallel to the direction of travel.
2. Drive the patrol vehicle at a constant, legal speed to verify that the speedometer reading and the patrol speed are within ± 1 display unit of each other.
3. If the difference is greater than ± 1 display unit, verify that the antenna is aligned correctly. If the antenna is aligned correctly, this reading can indicate a speedometer inaccuracy.



- An incorrectly aimed antenna will cause the radar unit's patrol speed to be lower than the speedometer's speed.
- The IACP, through the Highway Safety Committee, recommends, as a minimum, that each speed-measuring device be tested for measurement accuracy within a period of three (3) years prior to an alleged violation in which the device was used to collect evidence for presentation in court and whenever the device undergoes repair.

10. Care, Cleaning, and Storage

- Avoid spilling food, beverages, and other liquids and substances on the radar device.
- When you are not using or transporting the device, store it in its original packaging.
- To clean the radar device, dust it with a soft clean cloth, which is free of cleaning solutions.
- The Genesis II Select Directional can withstand temperature variations, however, only the antenna is weather resistant.
- Insert and remove the connectors by following the correct connect and disconnect procedures.



WARNING

- In case your unit has a blown fuse, please replace the fuse with another fuse rated at the same capacity. DO NOT replace the fuse with a higher rated fuse since this may cause damage to the equipment and/or the vehicle. Higher rated fuses will cause internal damage unit and may result in voiding the warranty. In case the replacement fuse blows please send the unit in for the repairs.

11. Specifications

11.1 Mechanical
Display Unit

Dimensions	5.25 in x 1.45 in x 1.10 in (13.33 cm x 3.68 cm x 2.79 cm)
Weight	5.90 oz (0.17 kg)

Computer Unit

Dimensions	5.25 in x 1.45 in x 3.00 in (13.33 cm x 3.68 cm x 7.62 cm)
Weight	16 oz (0.45 kg)

Hand-Held Remote

Dimensions	5.00 in x 1.20 in x 2.10 in (12.70 cm x 3.04 cm x 5.33 cm)
Weight	9.10 oz (0.26 kg)

K-Band Antenna

Dimensions	4.15 in x 3.00 in (10.54 cm x 7.62 cm)
Weight	13.25 oz (0.37 kg)

11.2 Antenna
K-Band Directional

IACP type	IV
Nominal transmission frequency	24.150 GHz
Nominal horizontal beamwidth	12°
Polarization	Linear (Vertical)
Nominal microwave power output	5mW
Maximum aperture power density	< 1mW/cm2

11.3 Environment

Ambient operating temperatures	-22°F to 158°F -30°C to +70°C
Maximum humidity	90% relative humidity at 98.6°F (37°C)

11.4 Power Consumption

Supply voltage range	10.8 to 16.5VDC with internal, resettable fuse
Low voltage threshold	10.8VDC with visual indicator

Current draw with 13.6VDC applied in various modes:

Standby (antenna OFF)	0.35 amperes
Ant. ON, no targets displayed	0.50 amperes
Ant. ON, 55 target displayed	0.53 amperes
Ant. ON, 20 target, 35 patrol	0.55 amperes
Ant. OFF, segment check 888 888 888	0.60 amperes
Ant. ON, segment check 888 888 888	0.75 amperes

11.5 Speed Range**Stationary Mode**

Target	12 mph - 210 mph (19 km/h - 337 km/h)
--------	--

Moving Mode Opposite Direction

Patrol	5 mph - 100 mph (8 km/h - 161 km/h)
Patrol with High-Speed Option	10 mph - 110 mph (16 km/h - 180 km/h)
Target	(12 mph - Closure of 210 mph) (19 km/h - Closure of 337 km/h)

Moving Mode Same Direction

Patrol	20 mph** - 100 mph (32 km/h - 160 km/h)
Slower Target	12mph - 75 mph (19 km/h - 120 km/h)
Faster Target	25 mph - 175 mph (40 km/h - 281 km/h)

The Moving Mode Same Direction target speed is computed as follows:

when tracking a slower target	$TS = PS - SS$
when tracking a faster target	$TS = PS + SS$

where TS = Target Speed, PS = Patrol Speed and SS = Separation Speed, which must be at least 3 mph (4 km/h)*, but no greater than 75% of the patrol speed.

*See Appendix B

**15 mph (24 km/h) when in city mode

12. Legal Requirements

12.1 FCC Documents

FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

GRANT OF EQUIPMENT AUTHORIZATION
Certification

Decatur Electronics Inc
715 Bright Street
Decatur, IL 62522
Attention: Randall Sanner

Date of Grant: 02/28/2000
Application Dated: 12/21/1999

NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE, and is VALID ONLY for the equipment identified hereon for use under the Commission's Rules and Regulations listed below.

FCC IDENTIFIER: HTRCR-1KD
Name of Grantee: Decatur Electronics Inc

Equipment Class: Part 15 Field Disturbance Sensor
Notes: Traffic Safety Radar

Grant Notes	FCC Rule Parts	Frequency Range (MHz)	Output Watts	Frequency Tolerance	Emission Designator
	15	24075 - 24175		%	

Mail To:

EA96328

12.2 Canadian Industry Certificate of Technical Acceptability

 Industry Canada / Industrie Canada		No. 18276	
TECHNICAL ACCEPTANCE CERTIFICATE		CERTIFICAT D'ACCEPTABILITÉ TECHNIQUE	
CERTIFICATION No. No. DE CERTIFICATION	▶ 1270A-G VPD		
ISSUED TO DÉLIVRÉ À	▶ DECATUR ELECTRONICS INC.		
TYPE OF EQUIPMENT GENRE DE MATÉRIEL	▶ RADAR		
TRADE NAME AND MODEL MARQUE ET MODÈLE	▶ GENESIS II KD		
FREQUENCY RANGE BANDE DE FRÉQUENCES	▶ 24134 GHz		
EMISSION DESIGNATION DÉSIGNATION D'ÉMISSION	▶ 3M0000N		
R.F. POWER RATING PUISSANCE NOMINALE H.F.	▶ 368.6 mW/200		
CERTIFIED TO CERTIFIÉ SELON LE	▶ SPECIFICATION CAHIER DES CHARGES	RSS210	ISSUE 5 ÉDITION
FAMILY APPROVAL WITH GENESIS-VP DIRECTIONAL (CERTIFICATE NO.18062)			
Certification of equipment means only that the equipment has met the requirements of the above noted specification. License applications, when applicable to use certified equipment, are noted on accordingly by the issuing office and will depend on the existing radio environment, service and location of operation. This certificate is issued on condition that the holder complies and will continue to comply with the requirements of the radio standards specifications and procedures issued by the Department.		L'homologation de matériel n'implique que l'équipement se conforme aux exigences du cahier des charges mentionné ci-dessus. Les demandes de licence, le cas échéant au vu de l'utilisation de matériel certifié, sont traitées en conséquence par le bureau chargé de délivrer les licences, en tenant compte du milieu radioélectrique existant, du service et de la location de l'installation. Le présent certificat est délivré à condition que le détenteur se conforme et continue d'être conforme aux normes des charges et procédures aux normes radioélectriques publiées par le ministère.	
ISSUED UNDER THE AUTHORITY OF MINISTER OF INDUSTRY DÉLIVRÉ AVEC L'AUTORISATION DU MINISTRE DES INDUSTRIES			
DATE May 19, 2003			
FOR			
DIRECTOR GENERAL SPECTRUM ENGINEERING BRANCH		DIRECTEUR GÉNÉRAL GÉNIE DU SPECTRE	
			

12.3 Radar Case Law

Judicial notice is an elementary principal of law. The principal applies to facts that are common knowledge and states that it is not necessary to introduce evidence to prove what is common knowledge. The following landmark rulings have made it simpler to introduce radar speed measurements as evidence.

1. State v. Dantonio, June 1995, State of New Jersey
The New Jersey Supreme Court took judicial notice of the Doppler Principle. Other states quickly followed.
2. State v. Tomanelli, 1966
The court pointed out that while the tuning fork testing method is acceptable, the result of the test is only as good as the tuning fork used.
3. Honeycutt v. Commonwealth, 1966
The court ruled that it is sufficient for an officer to have enough knowledge and training to properly setup radar, test its accuracy and read the instrument to obtain the speed measurement.
4. State v. Hanson, 1978
The court decreed that the officer must be able to testify:
 - To having had adequate training and experience in the operation of moving radar
 - That the moving radar instrument was in proper working order and that its testing had followed suggested methods
 - That the instrument was used in an area where road conditions presented only the minimum possibility of distortion
 - That the patrol car's speed was verified
 - That the instrument was expertly tested soon after the arrest and that the testing did not rely on the instrument's own internal circuit testing.

13. Frequently Asked Questions (FAQ)

Q. My radar device will not power up. What should I do?

- A. Make sure the radar device is plugged into the power source and that the power source has power. Also, check to see if the LED light on the power plug is on and that the fuse in the power plug is working. If the unit still does not power up, contact Decatur Electronics.

Q. My radar device has poor range. How can I remedy this?

- A. Make sure the range control is adjusted properly and verify that no obstructions are in front of the antenna. If the antenna still has poor range, increase the range (sensitivity) level. If this problem continues, contact Decatur Electronics.

Q. Do the Decatur Electronics traffic safety radar devices interface with in-car video systems?

- A. Yes. Decatur's traffic safety radar devices will interface with various in-car video systems with an active communications (COM) port, including the Decatur Electronics Responder 1000™ in-car video system. Please call the Decatur Electronics sales staff to see which video systems will work with your Decatur radar device.

Q. How often do I need to recertify my radar unit?

- A. In the past, the Federal Communications Commission (FCC) required that you check all devices with transmitters once a year to guarantee that they are transmitting within the allowed band. The FCC has since dropped this requirement. Now, most states have set up their own standards to regulate the timing of radar certification. Because each state has different requirements, Decatur Electronics recommends that you check with your local department policy.

Q. Does Decatur Electronics carry other law enforcement products?

- A. Yes, Decatur offers handheld radar units, a full line of OnSite radar speed and message trailers and the Responder line of in car video solutions

Q. Does Decatur Electronics have a sports radar gun?

- A. Decatur Electronics has developed a radar gun specifically for use in sports applications such as baseball and softball. Decatur's Prospeed™ model sports radar also works well for boat, personal watercraft and snowmobile racing. Contact Decatur Electronics for more information on this product.

Q. Does Decatur Electronics make speed trailers or speed signs?

- A. Yes, Decatur has a variety of speed signs and radar/message trailers—the OnSite™ series. Contact your Decatur sales representative for more information on these products.

Q. What upgrades are available now for my Genesis II Select Directional?

- A. Contact Decatur Electronics Sales Department 800.428.4315 for upgrade information.

Q. SYS appears in the MODE window and nothing else works?

- A. If your unit has a system error, turn the unit off and on. If it still says SYS, contact Decatur Electronics.

14. Warranty and Service**14.1 Warranty****TWO-YEAR RADAR WARRANTY**

Decatur Electronics, Inc. guarantees the Genesis II Select Directional to be free from defects in workmanship and material and to operate within specifications for a period of two years. During this period, Decatur Electronics will repair or replace, at its option, any component, found to be defective, without cost to the owner providing you return the unit to the factory or a Decatur authorized warranty service center.

The full warranty on parts and workmanship does not include normal wear and tear, crushing, dropping, fire, impact, immersion, damage from attempted repair, modifications by unauthorized service agents, or improper voltage and fusing (including removal of the power plug.)

For repairs, simply return the unit (transportation prepaid) directly to the factory or to a Decatur authorized warranty service center. Refer to section 14.2 Service Return Procedure.

TWO-YEAR WARRANTY EXCEPTION

If you purchased the radar unit under a special buying program, such as a state purchase contract, etc., the above warranty may not apply. Please refer to the buying program contract for the appropriate warranty terms or contact Decatur Electronics.

If you are interested in an extended warranty contact your sales representative to discuss the options.

14.2 Service Return Procedure

If you have questions, want a quick problem diagnosis, or need to return your Genesis II Select Directional to the factory:

- Call Decatur Electronics Customer Service and ask to speak with a Customer Service Representative. Have the serial number of the radar unit ready.

Phone: 800.428.4315

Fax: 217.428.7508

If you need to return your radar unit to Decatur Electronics:

- Ask to arrange for a Return Authorization Number. You will need to give the serial number of the radar that is to be serviced. The serial number is located on the back of the main computer unit.
- Return ALL of the Genesis II Select Directional parts in the original packaging (transportation prepaid).
- If so directed, include a note describing the problem and/or the incident that resulted in the problem. Failure to do so can delay the return of your radar device.
- Based on the information that you have given, the Customer Service Representative will issue you a return authorization (RA) number. Write the RA number on your note and shipping label.
- Return the system to:
Decatur Electronics, Inc.
3433 East Wood Street
Phoenix, AZ 85040 USA
RA# XXXXXX

The customer is responsible for the shipping charges to send the system to Decatur Electronics, Inc.

If we receive a system from a customer COD that is still under warranty, we will charge the customer for the amount of COD freight charges plus an additional 10% for handling after we repair the system. Also, we will add COD and a 10% handling fee to the repair bill for out-of-warranty repairs.

The customer is responsible for all shipping charges to the Decatur service location. Decatur does not accept incoming COD shipments. Decatur Electronics will pay the freight (up to \$10.00 US) for shipping the system from the repair facility to the customer, provided the system is still under warranty. We will charge the customer for any shipping charges above the initial \$10.00. If you want to ship your package express or next day air, we will invoice you for these freight charges.

If your radar is out of warranty and you would like to know the cost of repair prior to the actual repair work being performed, Decatur would be happy to give you a repair estimate. To obtain an estimate, request it either on the paperwork you submit with the radar device when you send it in for service or when you obtain a Return Authorization (RA) number. Decatur provides estimates only upon request.

The initial charge for an estimate is currently \$50.00 per unit if your radar gun is not under warranty, plus the return shipping and handling fees. If, after reviewing the estimate cost, you decide not to have your radar repaired, you will be invoiced a \$50.00 minimum service charge plus return shipping costs.

Date	What Was Done	By Whom
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[illegible]

You can order upgrades (when available) to the Genesis II Select Directional from Decatur Electronics as well as cases, power supplies, tripods, tuning forks, different cable lengths and mounting brackets. To see product descriptions or to order products, visit the Decatur Electronics website at www.DecaturRadar.com or contact the Decatur Electronics sales office at 800.428.4315.

K-band directional antenna S778-44-0

4-ft. antenna cable	S769-117-0
8-ft. antenna cable	S769-105-0
16-ft. antenna cable	S769-118-0
22-ft. antenna cable	S769-115-0

Windshield bracket	S758-38-0
Universal window bracket	S758-33-0
Deck mount (mounts on flat surface)	S758-34-0
Visor bracket (mounts on sun visor)	S758-40-0
Glue-on bracket (mounts on windshield)	S773-235A-0

24-ft. cable P769-10
(connects to IBM format PC and some video systems)

35.2/65.6 mph (K-band)	S900-25
55.2/105.6 km/h (K-band)	S900-26

Cardboard packing box / carrying case	P1025-36
Hard case with cutout foam	P801-20

Interconnect cable for use in separating detachable display from computer unit or for use in connecting communications port to other equipment

10-ft. interconnect cable S769-116-0

Mounting bracket for use with detachable display or the computer unit

Detachable display bracket S758-51-0

Appendix A: Communications Port

The RS232 communications port (COM) is located on the rear panel of the computer unit. The serial communication has the following characteristics (8:n:1) and is transmit only:

- One (1) start bit
- Eight (8) data bits
- No parity
- One (1) stop bit
- Transmission at 1200 baud

The Genesis II Select transmits data as ASCII symbols in the following digit sequence:

Target	Patrol
[hundreds][tens][ones]	ASCII [hundreds][tens][ones] carriage return<CR> (<CR> = ASCII decimal value 13)

The Genesis-II Select sends the data in this sequence when the TARGET or PATROL speed display changes, or when the MODE or antenna (ANT) selection changes. During the test sequence the target and patrol speeds transmit, but the display segment check data do not.

When you press the LOCK button, the Genesis-II Select transmits the following digital sequence

[hundreds][tens][ones]<CR>
(<CR> = ASCII decimal value 13)

Appendix B Menu Feature

The menu feature allows the operator to fine tune some of the settings of the radar. To activate the menu feature, press and hold the TEST button down until MENU is displayed in the mode window. Pressing OPTN steps through the menu items and the antenna ▲/▼ buttons change the settings. Pressing the TEST button again exits the menu feature and saves the settings.

Feature	Setting	Function
LOSP	4, 25 (km/h)	Low Speed - Minimum speed that the radar will process in stationary mode. Default is 15 mph (25 km/h).
BEEP	ON, OFF	Beep - Beeps when button is pushed on the hand remote. Default is ON.
UNTS	MPH, KPH	Display units - Measure speeds in mph or km/h. Factory set based on order.
COMX	0 through 5	Serial Port Communication Protocol - Selects protocol for interfacing to MDT, signs, etc. 0 - no output 1 - Decatur format 2, 3, 4, 5 - Reserved (no output) Default is 1.
FSTL	ON, OFF	Fast Lock - Allows the locking of a target if FAST mode is active. Default is ON.
HAR	ON, OFF	Harmonic Indicator - The radar displays “_H_” in the target window in the presence of a patrol harmonic. If turned off, the target window is blank. Default is ON.
SDSS	4, 8, 12 (km/h)	Same Directions Separation Speed - Sets the minimum separation speed that the radar will process in Same Direction mode. Default is 3 mph (4 km/h).

User Notes:

User Notes:



www.DecaturElectronics.com

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800.428.4315 | 217.428.4315 | Fax 217.428.5302



SONCELL NORTH AMERICA
A PUBLIC SAFETY COMPANY