NEOLINE

X-COP S500

SIGNATURE RADAR-DETECTOR SET FOR HIDDEN INSTALLATION WITH WI-FI HOTSPOT UPDATE AND LOW NOISE AMPLIFIER

User Manual

X-COP S500 technologies

HIDDEN INSTALLATION
All elements of the Neoline X-COP S500 are seamlessly installed in the car interior and engine compartment. A reliable cable connection guarantees stable operation of the entire device.
Best choice for premium cars with non-standard windshields.

Wi-Fi HOTSPOT
A unique technology developed by Neoline for updating Firmware and GPS Database using Wi-Fi and a “Hotspot” in a smartphone. No application required. Updating happens in one click!

LNA EXD PLUS MODULE
The advanced signal amplifier from Neoline enhances weak signals in the K/M/Ka bands, significantly improving detection of low-power police radars.

AUTO PRESET
The X-COP S500 has a brand-new function developed by Neoline, which allows automatic switching of radar detector settings and signatures when entering another country or region. When you travel, you do not need to switch any settings or frequencies by yourself, everything will happen completely automatically. The device will apply the most appropriate settings for the specific country in which you are traveling.

SIGNATURE
Each police radar pulse has a certain type of signal, called a "signature". The X-COP S500 signature library includes all police radars that can be found in Europe. X-COP S500 recognizes the type of police radar by its signature. At the same time, all other signals (including false ones) are blocked.
The signature library is part of the software and is updated as necessary.

MODULE MULTA
The X-COP S500 detects MultaRadar CD and CT. This type of radar is common in Europe and has a unique signal structure, requiring a special module for detection. Detection occurs in the M-band, which is specifically designed for this type of radar.

WORLDWIDE GPS DATABASE
The X-COP S500 is equipped with a unique GPS database of radars and cameras from Neoline, containing the most accurate data worldwide
It contains an advanced GPS/GLONASS module, which provides fast connection to satellites.

LASER RECEIVER
The X-COP S500 RD unit has a built-in special laser receiver for detecting the Poliscan lidar. This lidar operates fully automatically and is often installed as a mobile police patrol on tripods or in metal boxes. To detect it in advance, a special laser receiver and lens are required.

MADE FOR EUROPE
Created specifically for the European countries. Includes 5 languages: EN, DE, ES, CZ, PL.

Equipment

• Radar-detector unit (1)
• Main HUB (2)
• OLED display (3)
• GPS antenna (4)
• Speaker (5)
• Diode (6)
• MUTE Button (7)
• Power cable from the Main HUB to the vehicle's electrical network (8)
• OLED display holder with 3M tape (9)
• Cable fastening element x 8 pcs (10)
• Cable connectors x 3 pcs (11)
• Metal plate for mounting the radar-detector unit (12)
• Metal platform for mounting the radar-detector unit (13)
• Metal reflector for radar-detector unit (14)
• USB OTG cable for software update using a flash memory card (15)
• Velcro tape (16)
• 3M plate for display holder x 2 pcs (17)
• Cable for RD unit
• Set of screws and nuts for radar-detector unit fastening: T5.0x20.0 screws x 4 pcs, spring washers x 7 pcs, washers x 7 pcs, nuts x 7 pcs, M5.0x12.0 screws x 7 pcs, T4.0x10.0 screws x 2 pcs, T4.0x14.0 screws x 2 pcs,

T4.0x16.0 screws x 2 pcs (18)
• User manual

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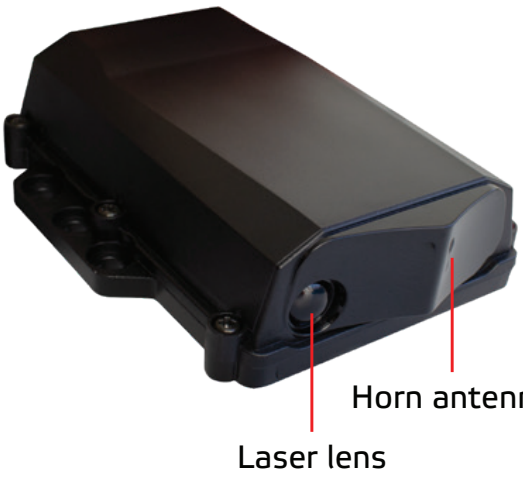
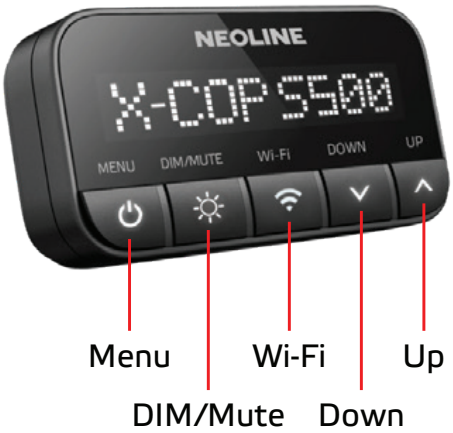
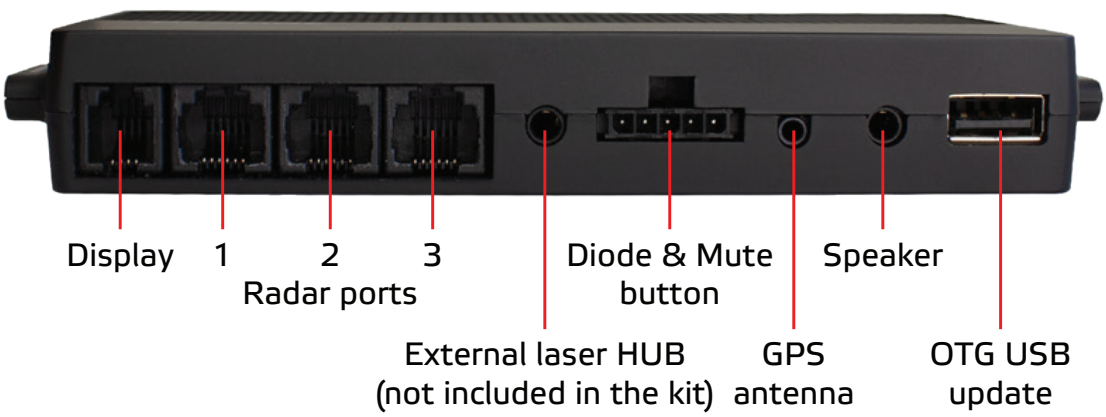
Installation description







Before starting installation, check the functionality of all elements of the kit by connecting to a power source. Carry out installation only after checking.

Attention! Independent unprofessional installation of the Neoline X-COP S500 radar-detector set into a car may result in incorrect operation of the device or the car, even complete inoperability. If you do not have the skills to connect electrical equipment to your car, contact a service installation center.
Be careful! X-COP S500 malfunction caused by improper installation may result in the cancellation of the warranty obligations.

Radar-detector unit installation

Attention! For safety reasons, disconnect the car battery terminals before installation!

Take the radar-detector unit and, if necessary, a set of fasteners, consisting of a metal plate and a platform for mounting the radar-detector unit, as well as a set of screws and nuts.

Note: Before installing the radar unit, determine a suitable location for it under the hood of the car, ensuring there is enough space to place the unit horizontally and that the antenna is not blocked by any body elements.

Attention! Do not install the radar detector unit behind any metal surfaces of the car, as this will block signals from police radars. Installation behind plastic elements will prevent the detection of laser radars.

The recommended installation location:
- under the hood, behind the decorative radiator grill.

• If necessary, clear access to the installation location (check with the manufacturer for the method of removing body elements and/or other components of your car).
• If necessary, prepare mounting holes for attaching the mounting metal plate and/or platform (in some cars it is possible to mount the unit to the body without using the mounting metal plate and platform).
• Using a set of screws and nuts, securely fix the metal plate and/or platform in the selected location.
• Install and secure the radar-detector unit on the plate or platform
• Pull the radar-detector unit cable through the engine compartment shield into the vehicle interior to the location where the Main HUB will be installed.
• Secure the cable using cable connectors and fasteners.
• Connect the radar-detector cable to the Main HUB into the Radar port 1.

Attention! To avoid damage to the cable insulation, route it away from excessively hot motor surfaces. Do not allow the cable to be severely kinked and keep it away from moving parts of the engine.

Possible installation problems:

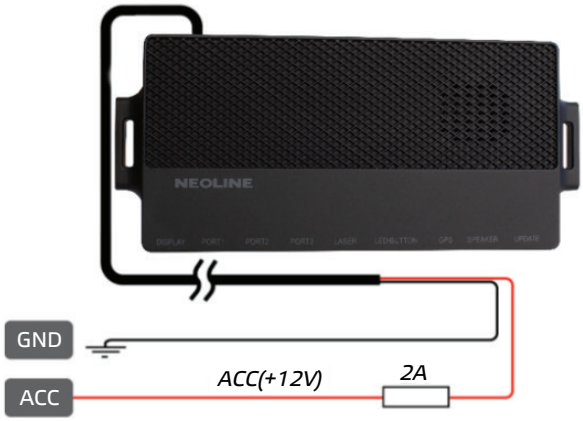
- Some vehicles may have active radiator shutters that prevent the radar unit from being installed behind the decorative radiator grille.
- If there is not enough free space, it is possible to install the radar unit in a vertical position using the metal reflector (however, this will lead to the inability to detect laser radars and reduce the sensitivity of the radar-detector unit).

Main HUB installation

Note: Before installing the Main HUB, determine a suitable location in your vehicle that allows access for updating the firmware and GPS database using an OTG USB.

The recommended installation locations:
- under the glove box
- near the driver's armrest
- under the steering column

• If necessary, clear access to the installation location (check with the manufacturer for the method of removing trim and/or other elements of your car's interior).
• Secure the Main HUB to a solid surface using zip ties, threading them through the mounting hardware on the chassis, and/or securing the chassis to a flat surface using double-sided tape.
• Connect the power cable according to the diagram. Connect the red (positive) wire to ACC+ 12V or another connector where the voltage will disappear after the engine is turned off. Connect the black (negative) wire to the car body.
• Connect the cable to the Main HUB



Note:
Terminal 15 - receives power only when the ignition is on from the ignition switch. In this case, along with the ignition/injection system, current is supplied to electrical consumers that should only receive power during vehicle operation.
Terminal 31 - ground terminal, through which the electrical consumer must be connected to ground in order to complete the electrical circuit.

Attention! To avoid damage to the cable insulation, route it away from excessively hot motor surfaces. Do not allow the cable to be severely kinked and keep it away from moving parts of the engine.

Display installation

Note: Before installing the display, find a suitable location in the car and attach the mount using 3M tape. Ensure that the display is positioned at a comfortable distance from the driver and does not obstruct the view.

The recommended installation locations:
- on the car dashboard
- on the left side of the dashboard

Attach the display to the mount with 3M tape and adjust the tilt angle.
Connect the display to the Main HUB using the Display cable.

GPS antenna installation

Note: Before installing the antenna, find a suitable location in your vehicle and attach it using a magnet or double-sided tape. Position the antenna so that the "GPS" inscription on the antenna body is directed towards the outside of the vehicle and towards the sky.

Attention! Do not install the GPS antenna behind metal surfaces of the car, as this can degrade satellite search performance and result in incorrect GPS operation. The stability of the GPS module relies on selecting the appropriate antenna installation location.

The recommended installation locations:
- on the dashboard, as close as possible to the windshield
- behind the rear view mirror
- under the decorative trim of one of the front pillars
- if there is athermal glass or heated glass, it is necessary to install the antenna in a special radio transparency window on the windshield, in which there is no metal mesh or spraying,
- in the front bumper of the car,
- in special cases it is possible to install a GPS antenna outside the car.

External GPS antenna is attached using a built-in magnet when installed in a rack or on other elements of the car body. In other cases, it is possible to mount the antenna using double-sided 3M tape. Connect the antenna to the Main HUB using the connection cable to the “GPS antenna” port.

Speaker installation

Note: Before installing the speaker, find a suitable location in the car where the device's voice commands can be clearly heard. Attach the speaker using 3M or Velcro tape.

The recommended installation locations:
- under the driver's seat
- under the front passenger seat
- under the steering column

Connect the speaker to the Main HUB using the speaker cable.

Diode and Mute button installation

> **Note:** Before installing diode and mute button, determine a suitable place for it in the car.

The recommended installation location of Diode:
- on a dashboard

The recommended installation location of Mute button:
- neat driver’s seat
- under the steering column

Connect the diode and mute button to the Main HUB using their cable.

> **Attention!** When installing the X-COP S500, you must not forget that the elements of the device should not block the driver’s view and not be a potential source of injury during an accident.

X-COP S500 is connected and ready for use.

X-COP S500 installation restrictions

Modern cars with blind spot sensors, adaptive cruise control systems and other warning systems may have limitations on the correct operation of the receiver of wide-frequency signals.
Example of these systems:
Audi - Side Assist

Volkswagen - Side Assist
BMW - Active Hybrid
Mazda - RVM
Lexus - Blind Spot Monitoring
Mercedes - Distronic, Distronic plus
Volvo - Blind Spot Information System

Typical problems and solutions:
• When the device is operational, it may not respond to signals from a wide range of frequencies, including those from real police radars and interference. In such cases, interference from electrical equipment installed in the car is possible. It's advisable to check with the manufacturer for the presence of electrical equipment in the car.

• No connection to satellites:
  - Check the connection diagram of the external GPS antenna.
  - Verify the integrity of the external GPS antenna cable.

• No detection of radio signals when the radar unit is connected:
  - Restore the default settings in the menu.
  - Check for any restrictions on connecting the radar unit.

Display controls and functions

UP/DOWN buttons
- Volume adjustment.
- Switch between function parameters in the menu.
- Adding or removing a Dangerous Zone (satellite connection required).

Press and hold the Up button for 1.5 seconds to add a Dangerous Zone.
The Dangerous Zone is an area that requires your attention. For example, a series of speed bumps, a school, a busy intersection, a mobile police control, etc.
- when adding a Dangerous Zone, a voice notification “Dangerous zone has been added” will occur.
- upon entering the Dangerous Zone, a corresponding voice and text alert will occur.
- to remove the Dangerous Zone, press the “Up” button for 1.5 seconds while in the Dangerous Zone.
- in the Menu you can adjust the range of the Dangerous Zone, for example, by setting the value to 600m.

MENU button

- Entering the menu
- Switch between functions in the menu
- Exit the menu and save the settings - press and hold Menu button for 1.5 seconds.
- Turn off the device - press and hold for 1.5 seconds.

DIM/MUTE button

- Switch the display brightness – in a Dark brightness the Display will be completely black except of one pixel, which shows the display is working.
- When a radar is detected, the sound is muted when pressed.

Wi-Fi button

- Wi-fi hotspot updating starts when pressed - before the first update, you need to perform a one-time Wi-Fi setup. You can then update your device with one button.

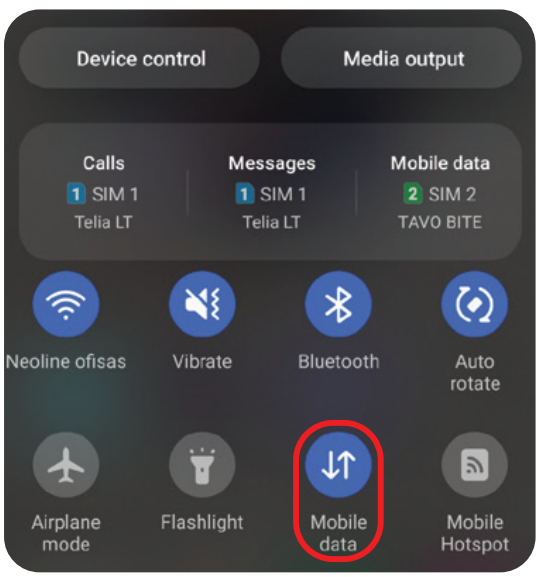
Wi-Fi HOTSPOT

This update technology was developed by Neoline specialists and does not require the use of a mobile application.

Setup

1) Turn on mobile internet on your smartphone

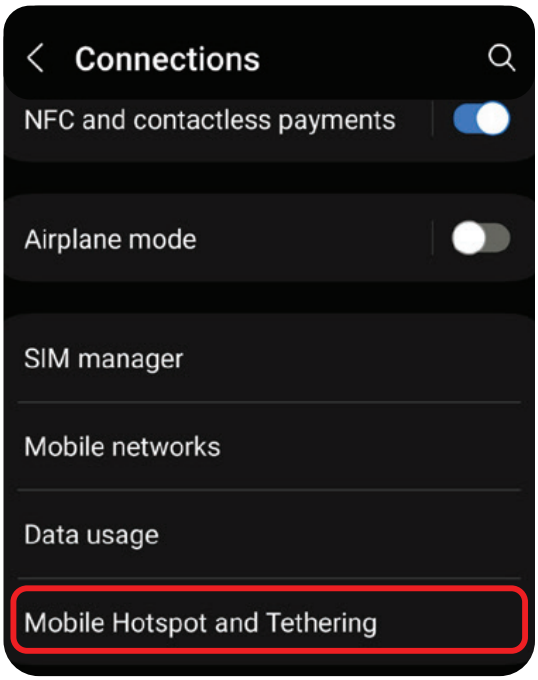
Android



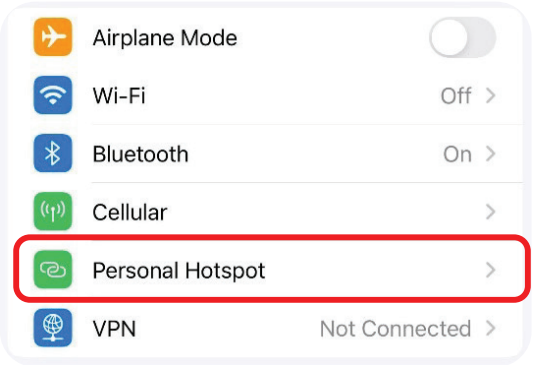
iOS

2) Go to your smartphone Settings:

Android - “Mobile Hotspot”

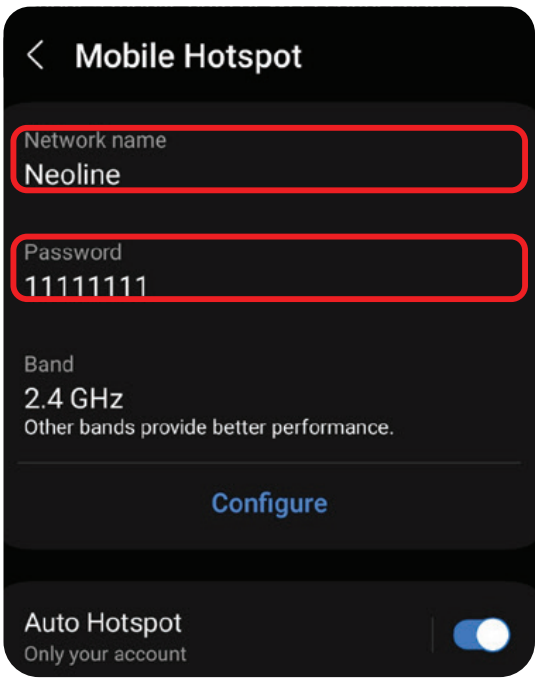


iOS - “Personal Hotspot”

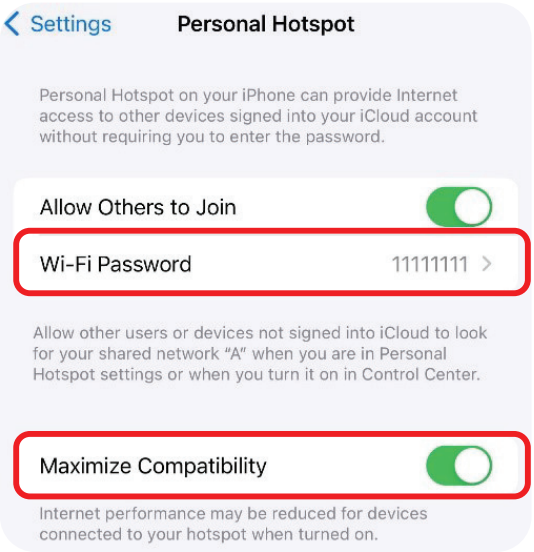


3) In the “Mobile Hotspot” or “Personal Hotspot” settings, look and remember your login and password.

Android - “Setting up an access point**”**

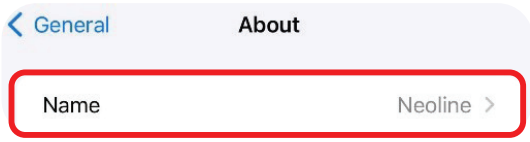


iOS - Settings > Personal Hotspot Wi-Fi Password:



Switch “Maximize Compatibility” ON

Wi-Fi Login: Settings > General > About > Name
(you may change the name if you wish)



4) Turn on X-COP S500 and go to the menu.

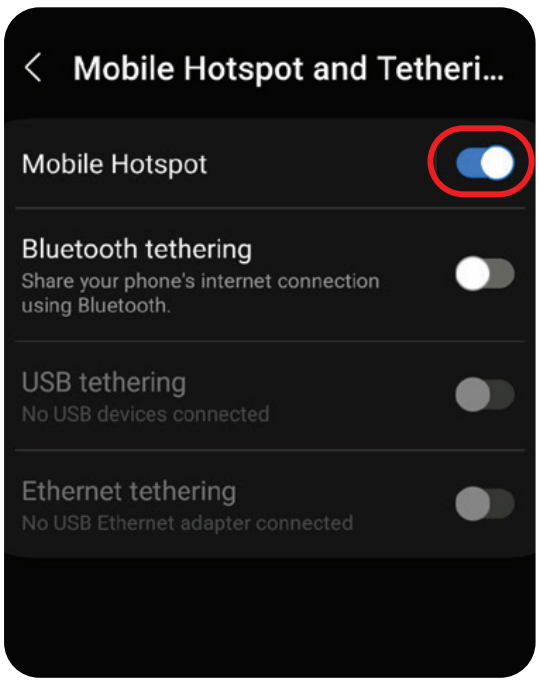
5) In the menu find “Wi-Fi login” and enter the name of your “Mobile Hotspot” or “Personal Hotspot”.
To switch characters use the Up and Down buttons.
To move to the next character, hold down the “Up” button.
To go to the previous character, hold down the “Down” button.

> **Note:** The value length is limited to 8 characters. If your login or password is longer, please change it on your smartphone.

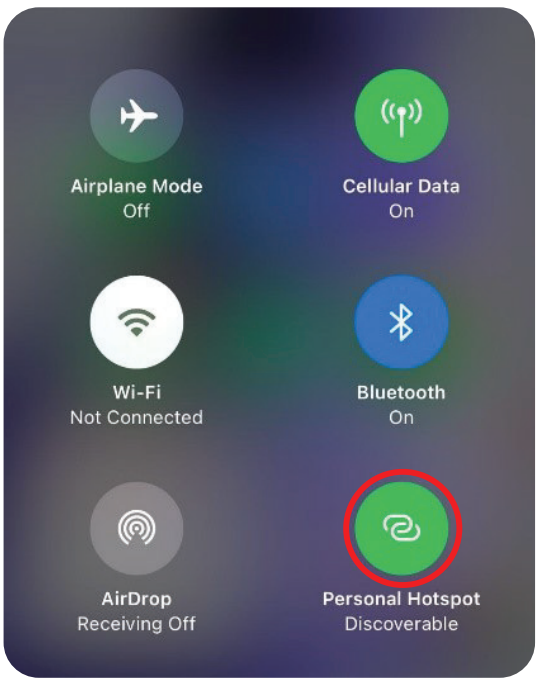
6) In the menu find “Wi-Fi password” and enter the password of your “Mobile Hotspot” or “Personal Hotspot” the same way as you entered login.

7) Enable “Mobile Hotspot” or “Personal Hotspot” in your smartphone.

Android - “Mobile Hotspot”



iOS - “Personal Hotspot”



Wi-Fi Hotspot updating

Note: Every time before updating your device, make sure that Hotspot or Tethering Mode is enabled on your smartphone!

Attention! Do not turn off the power to the radar-detector during all upgrade steps. Otherwise, there may be malfunctions in the operation of the radar detector, even complete failure!

Press Wi-Fi button on a display. The update will happen automatically.

- X-COP S500 will begin checking for Wi-Fi connectivity to your smartphone using a Hotspot or Personal Hotspot.
- Then the display will show which part of the software will be updated to the latest version:

GPS – GPS firmware
VOICE – voice package
DB – GPS database of police radars and cameras
RD – firmware of the radar part of the device

- The next step will be to download all parts of the software one by one. It can take some time. The screen will display the part of the software being loaded and the download stages from 0 to 99.
- Next, the current software in the device will be updated to the downloaded one (steps 0 to 99).

That's all – the software update using the Wi-Fi Hotspot is complete, and the radar detector will automatically reboot.

Note: We recommend updating the radar detector twice a month.

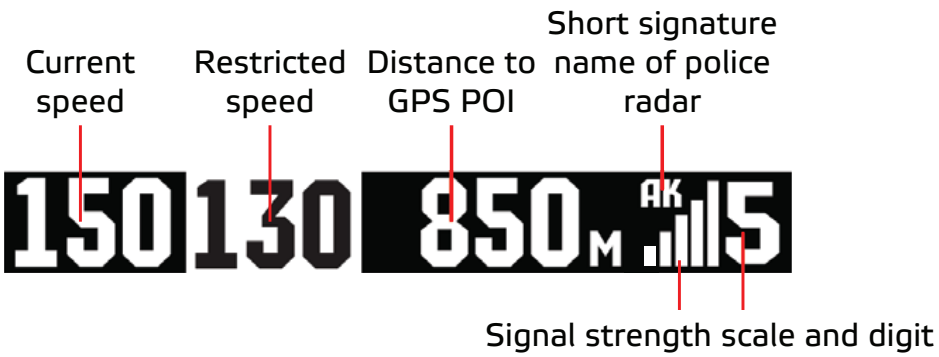
Diode and Mute button operation

Diode - will blink blue during police radar detection, green during laser radar detection, and red when an error occurs.

Mute button – when a radar is detected, pressing it mutes the sound.

Information on a Display

During detection, the display shows the following information:



Note: During section camera control, the display alternates between the current speed and the average vehicle speed.

Average speed control is carried out by cameras without a radar unit. On a section of road, two cameras are installed from 500 m up to 20 km from each other. When passing the 1st camera, the travel time is recorded. When passing the 2nd camera, the travel time is also recorded and the average speed of the car is calculated. If the average speed of the car in the area between the two cameras was higher than the permitted speed, a fine is automatically issued.

Audio information during detection of police radars and cameras

• Voice notification about the name of the police radar, type of GPS POI, traffic control, permitted speed for example: *MultaRadar, backshot, 60.*

• Continuous sound signal when receiving police radar signals.
• Voice notification about the need to reduce speed (this function can be configured or disabled in the menu) - Slow Down function.
• Sound signal when speed is exceeded.
• Sound signal after passing a GPS POI.

Types of traffic control cameras

• Bus lane control;
• Traffic light or intersection control;
• Crosswalk control;
• Roadside control;
• Speed control "in the back";
• Road lines control;

Functions in the Menu

PRESET
When selecting AUTO, the radar detector settings will automatically switch to the most appropriate ones depending on the region or country of use. Many settings will be locked in the menu. When this function is disabled, the user must manually change the detection settings.

LANGUAGE
Selecting the notification language.

Wi-Fi login
Enter the name of your “Hotspot” or “Personal Hotspot”.

Wi-Fi password
Enter the password of your “Hotspot” or “Personal Hotspot”.

DIODE
Setting the diode brightness.

DIODE STAND-BY
Setting the diode operations in stand-by mode.

AUTOMUTE
Reducing the volume by a specified percentage (%) within 6 seconds after the

start of notification of a detected signal. 10 seconds after the end of the notification the volume will be restored.

FW version
Firmware version.

DB version
GPS Database version.

SETTINGS RESET?
Restore default settings.

PRO SETTINGS
When you enable this feature, a submenu with additional settings will appear.

> **Note:** We recommend that only advanced users make changes to the PRO settings.

AUTO TURBO
The "Turbo" mode automatically activates when the specified speed is reached. In "Turbo" mode, there is no filtering of interference or signature detection of police radars.

VOICE
Enable or disable all voice notifications.

BEEP
Enable or disable audio (not voice) alerts about police radars.

GPS MUTE TILL
If the vehicle speed is below the set value, audio and voice notifications about GPS points will not be provided. When you select 'GPS Off,' all notifications, including those on the display, about GPS points are turned off.

RD MUTE TILL
If the vehicle speed is below the set value, there will be no sound notification of incoming signals from the radar module.

PRIORITY
- **GPS**: Priority is given to notifications regarding POIs in the GPS database. During GPS and radar alerts, GPS information is provided both on the

display and by sound, while radar information is provided only on the display.

- **RD**: Priority in notifications is given to the radar module. During notifications from the radar module and GPS, information about the radar signal is provided both on the display and audibly, while information about GPS POIs is provided only on the display.

GPS DISTANCE

- **DB**: Each camera in the GPS database is assigned a specific value in meters, indicating when the alert will begin.
- **In meters** – according to the established value from 300m to 900m.
- **Speed**: The alert distance for GPS points is determined based on the vehicle's current speed. The higher the speed, the greater the distance at which the GPS point will be alerted.

DZ RADIUS

Setting the radius of the Dangerous Zone to indicate areas requiring attention, schools, busy intersections, mobile police patrols, etc.

DELETE ZONES?

Removing all Dangerous Zones set by the user. Radar and camera coordinates will not be deleted from the GPS database.

GPS AVERAGE SPEED

Enable or disable alerts for section camera control areas.

GPS DUMMIES

Enable or disable notifications about dummy radars and cameras included in the GPS database.

GPS POLICE PATROLS

Enable or disable alerts about possible police mobile ambushes in the GPS database.

GPS REDLIGHT

Enable or disable alerts about intersection traffic cameras.

The next settings are related to Radar-detector units in ports 1, 2, 3. R1 means radar-detector unit in port 1, etc.

R

Enable or disable the radar-detector unit in a specific port (1, 2 or 3).

R AUTO. K
Automatic activation of a wide K-band based on vehicle speed. At the same time, the number of false alerts may increase.

R MR CD
Enable or disable M-band for MultaRadar CD signature detection.

R MR CT
Enable or disable M-band for MultaRadar CT signature detection.

> **Note:** We recommend turning on this band only if you are sure that MultaRadar CT are in your area

R MR FILTER
Filtering false signals in the M-band.

R GATSO RT3
Enable or disable G-band for Gatso RT3 signature detection.

R GATSO RT4
Enable or disable G-band for Gatso RT4 signature detection.

R DAHUA
Enable or disable DAHUA signature detection.

R REDFLEX
Enable or disable REDFLEX signature detection.

R EKIN SPOTTER
Enable or disable EKIN SPOTTER signature detection.

R KA 34.0 GHz, 34.3 GHz, 34.7 GHz, 35.5 GHz
Enable or disable specific KA-band detection.

R KA POP
Enable or disable KA-band POP signals detection.

> **Note:** We recommend turning on this function only if you are sure that KA POP police radars are in your area.

R KA FILTER
Filtering false signals in the KA-band

R LASER
Enable or disable Laser police radars detection.

R EKIN
Enable or disable invisible police radar Ekin Patrol detection.

> **Note:** To detect Ekin Patrol or similar police radars operating in the 77 GHz frequency range, you should connect the special radar detector unit PATROLSCAN R1 to the main HUB. Please note that this unit is not included in the basic set of X-COP S500.

EXTERNAL LASER
Enable this function when connecting an additional Laser HUB to the Main HUB.

> **Note:** Laser HUB is not in the basic set of X-COP S500.

Updating firmware and GPS database using USB OTG

1) Go to https://neoline.com to the "Update" section.
2) Select the “Radar Detectors” category and choose your model.
3) From the drop-down list, download the latest GPS database and firmware (if required)
4) Unzip everything downloaded using any archiver program.
5) Connect the USB flash drive to your computer and copy all unzipped firmware and GPS database files to it.
6) Connect the USB flash drive to the radar detector.
7) Turn on the radar detector and the automatic firmware update process will begin.
8) After a successful update, the device will return to standard operating mode, and the firmware files will be automatically deleted from the USB drive.

Specifications

Radar-detector:
Ultra K-band
K-band (23.900 – 24.250 GHz)
M-band (23.900 – 24.250 GHz)
KA-band (34.000 – 35.500 GHz)
Laser (800 ~ 1100 nm)

GPS:
GPS module: Quectel LC76F
Warm start: < 1 min
Cold start: < 5 min

General:
Input voltage: DC 12 ~ 24 V
Power consumption: 300~1000mA

Exploitation conditions

• The appliance must only be used with supplied accessories. Neoline Company is not liable for any damage caused by the use of other manufacturers' accessories with Neoline device.
• Radar-detector impressions may be inaccurate due to extraneous radiation. Strong source of radiation can damage the stable work of the radar-detector.
• Device impressions may vary due to landscape features.
• Radar-detector is designed to detect only radiation sources. The manufacturer cannot guarantee the full detection of all available radio sources due to the potential for the use of ancillary devices.
• External GPS antenna may not work properly if it is located on a windshield which is heated by electricity. Depending on the fact that these glasses have an integrated metal structure, this could compromise the device's GPS detection module.
• Satellite search time can increase depending on weather conditions, daylight time, relief properties and car design.
• Use the device only in accordance with the stated storage and operating conditions (indicated on the package).
• Protect the appliance from fire and water, chemically active substances (gasoline, solvents, reagents, etc.).
• Do not disassemble or modify the device.

• Neoline Company is not responsible for the loss of data and / or damage caused directly or indirectly by the driver or a third party due to incorrect use of the device or firmware, incorrect installation, connection of the extraneous devices to the manufacturer’s device.

The manufacturer reserves the right to make changes to the package, technical and software support without prior notice.

The manufacturer recommends that you comply with all laws and regulations governing radar-detectors and shall not be responsible for the use of the equipment in contravention of the legal provisions.

UAN Neolainas is responsible for declaring that the product X-COP S500 complies with the essential requirements of Directive 2014/53/EU.

Manufacturer for UAB NEOLAINAS
Made in South Korea

Technical support: support@neoline.com

Warranty: 24 months