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› Syneticusa 4-Sensor Car Parking Assist System User Manual

Syneticusa PK-SENS-BK

Syneticusa 4-Sensor Car Parking Assist System User Manual

Model: PK-SENS-BK

1. PRODUCT OVERVIEW

The Syneticusa 4-Sensor Car Parking Assist System is designed to enhance safety and convenience when reversing your vehicle. This system utilizes four ultrasonic sensors to detect obstacles behind your car, providing audible alerts and visual distance feedback via an LED display. It helps prevent collisions with pedestrians, small children, and other objects, making parking and reversing safer and easier.

Key features include:

- 4-sensor system with double CPU and advanced chipset for accurate detection.
- Detection range from 0.3 to 2.0 meters.
- Digital colored LED display showing distance and obstacle location.
- Audible "Beep-Beep" alarm with increasing frequency as obstacles get closer.
- Anti-freeze and rain-proof design for reliable performance in various weather conditions.
- Universal compatibility for most vehicles.

2. PACKAGE CONTENTS

Please verify that all components listed below are included in your package:

- 1 x Main Control Box
- 1 x LED Display Indicator
- 4 x Parking Sensors with 2.5M Line
- 1 x Hole Saw (for bumper drilling)
- 1 x Power Cable
- 2 x Double-Sided Adhesive Stickers



Figure 2.1: All components included in the Syneticusa 4-Sensor Car Parking Assist System kit. This image shows the monitor, sensors, adhesive tape, power cable, hole saw drill bit, and the main control unit (host).

3. INSTALLATION GUIDE

Careful installation is crucial for optimal performance. It is recommended to have this system installed by a professional if you are not familiar with automotive electrical systems or bodywork.

3.1 Sensor Placement and Drilling

1. **Determine Sensor Locations:** Identify four suitable locations on your vehicle's rear bumper for the sensors. Ensure they are evenly spaced and provide adequate coverage. Refer to the diagram below for recommended mounting height and positions. The ideal mounting height (H) is typically 50-80cm (20-32 inches) from the ground.
2. **Mark Drilling Points:** Use a marker to precisely mark the drilling points on the bumper. For best results, apply painter's tape over the marked areas to prevent paint chipping during drilling.
3. **Drill Holes:** Use the included hole saw to drill the sensor holes. Ensure the drill is held straight and steady.
4. **Insert Sensors:** Carefully insert the sensors into the drilled holes. Ensure the sensor's orientation is correct (e.g., sticker facing up, if applicable) and that no other parts of the vehicle fall into the detecting range. The rubber tabs on the sensors should secure them in place. If your bumper material is too thick

for the tabs to lock, a strong adhesive may be required.

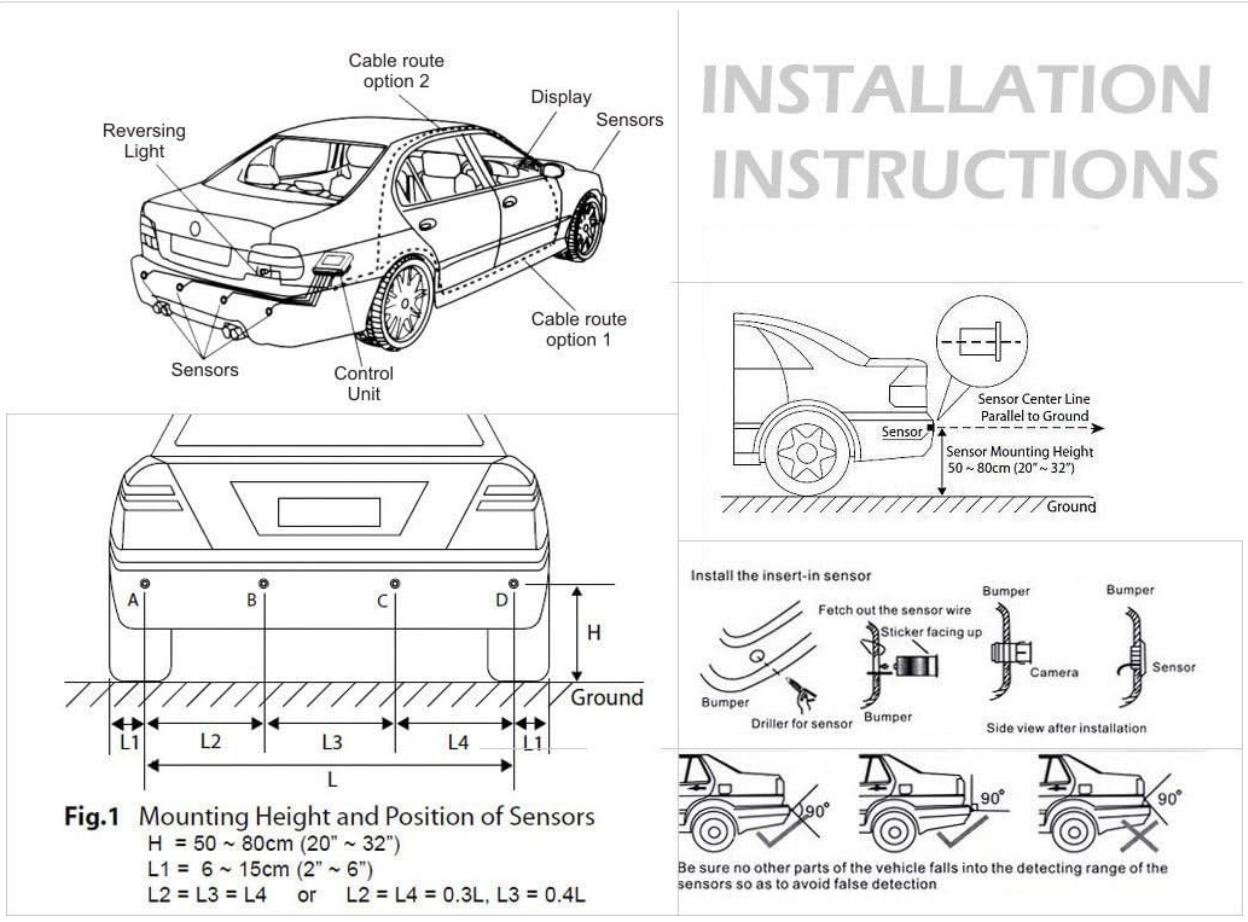


Figure 3.1: Diagram illustrating recommended sensor mounting height (H) and positions (L1, L2, L3, L4) on the rear bumper. Ensure sensors are parallel to the ground.



Figure 3.2: Visual guide for sensor installation, including cable routing options and proper sensor insertion.



Figure 3.3: Dimensions of a single parking sensor, approximately 1 inch in diameter and length.

3.2 Wiring the System

1. **Connect Sensors to Control Box:** Route the sensor cables through the bumper and into the vehicle's trunk area. Connect each sensor cable to the corresponding port on the Main Control Box (labeled A, B, C, D or 1, 2, 3, 4). Ensure sensors are connected in order from left to right (e.g., Sensor 1 to port 1, Sensor 2 to port 2, etc.) for accurate display readings.
2. **Power Connection:** Connect the power cable to the Main Control Box. The red wire of the power cable should be connected to the positive (+) wire of your vehicle's reverse light. The black wire should be connected to a reliable ground point on the vehicle chassis. This ensures the system activates only when the vehicle is in reverse.
3. **Connect LED Display:** Connect the LED Display Indicator cable to the designated port on the Main Control Box. Route the display cable to your desired mounting location in the vehicle's cabin (e.g., dashboard, near the rearview mirror).
4. **Mount Control Box and Display:** Secure the Main Control Box in a dry, protected area in the trunk using the double-sided adhesive stickers or other suitable fasteners. Mount the LED Display Indicator in a visible location using the adhesive stickers.

3.3 Initial Test

After installation, perform a test to ensure proper functionality:

- With the vehicle ignition on, engage reverse gear (without actually backing up).
- The LED display should power on.
- Have someone walk slowly towards each sensor from behind the vehicle. The display should show decreasing distance readings, and the audible alarm should activate, increasing in frequency as the person gets closer.
- Verify that the display accurately indicates the side of the obstacle.

4. OPERATING INSTRUCTIONS

The Syneticusa Parking Assist System automatically activates when your vehicle is shifted into reverse gear.



Figure 4.1: Illustration of the parking sensor system detecting obstacles behind a vehicle using ultrasonic waves.

SIZE & SPECIFICATIONS

RATE VOLTAGE:	12V
OPERATION VOLTAGE RANGE:	10.5~ 16V
RATED CURRENT:	40-300MA
DETECTING DISTANCE:	0.3-2.5M
ULTRASONIC FREQUENCY:	40KHz
WORKING TEMPERATURE:	-40~+80°C
DISPLAY WORKING TEMPERATURE:	0~+60°C

Figure 4.2: Examples of the LED display showing various distance readings (in meters) and corresponding bar indicators as an object approaches.

4.1 LED Display Indicator

- The LED display shows the distance to the nearest obstacle in meters.
- Colored bars on the display indicate the proximity and direction of the obstacle (left, center, right).
- As the vehicle approaches an obstacle, the displayed distance will decrease, and more colored bars will illuminate.

4.2 Audible Alarm

- The system provides an audible "Beep-Beep" alarm.
- The frequency of the beeps increases as the vehicle gets closer to an obstacle.
- A continuous tone typically indicates a very close proximity (e.g., less than 0.3 meters).

4.3 Detection Range

The system detects objects within a range of approximately 0.3 to 2.0 meters (1 to 6.5 feet). Be aware that the system may not detect very thin objects or objects that are too low or too high to be within the sensor's detection cone.

5. MAINTENANCE

To ensure the longevity and accurate performance of your parking assist system, follow these simple maintenance guidelines:

- **Keep Sensors Clean:** Regularly clean the sensor surfaces on your bumper. Dirt, mud, snow, or ice can obstruct the ultrasonic waves and lead to inaccurate readings or false alarms. Use a soft cloth and mild soap solution.
- **Inspect Wiring:** Periodically check all wiring connections for any signs of wear, corrosion, or damage. Ensure all connections are secure.
- **Avoid High-Pressure Washing:** When washing your vehicle, avoid directing high-pressure water jets directly at the sensors, as this could potentially damage them.
- **Environmental Factors:** While the sensors are designed to be rain-proof and anti-freeze, extreme weather conditions (e.g., heavy snowfall, thick ice buildup) can temporarily affect performance. Clear any obstructions before relying on the system.

6. TROUBLESHOOTING

If you encounter issues with your parking assist system, refer to the following troubleshooting tips:

6.1 System Not Activating

- **Check Reverse Gear:** Ensure the vehicle is properly in reverse gear. The system is designed to activate only when reverse is engaged.
- **Power Connection:** Verify that the power cable is correctly connected to the reverse light's positive wire and a good ground. Check for loose connections or blown fuses in the reverse light circuit.
- **Control Box Connection:** Ensure the main control box is securely connected to the power cable and the LED display.

6.2 Inaccurate Readings or False Alarms

- **Clean Sensors:** Ensure all four sensors are clean and free from dirt, mud, snow, or ice.
- **Sensor Orientation:** Verify that the sensors are installed correctly and are parallel to the ground, not pointing upwards or downwards excessively.
- **Obstructions:** Check for any objects on the bumper or vehicle that might be interfering with the sensor's field of view (e.g., tow hitches, bike racks, loose trim).
- **Sensor Connection Order:** Confirm that the sensors are connected to the control box ports in the correct left-to-right sequence.
- **Environmental Interference:** Heavy rain or certain types of road surfaces can sometimes cause temporary interference.

6.3 Alarm Too Loud

- The alarm volume is fixed. If it is excessively loud, some users have modified the display unit by placing a piece of tape over the speaker inside the display to reduce the volume. This modification is done at your own risk and may void warranty.

6.4 Display Not Working

- **Check Cable:** Ensure the display cable is securely connected to both the display unit and the main control box.
- **Power:** If the main control box is receiving power but the display is blank, the display unit itself might be faulty.

6.5 One or More Sensors Not Working

- **Check Connection:** Verify the specific sensor's cable connection to the main control box.
- **Inspect Sensor:** Visually inspect the sensor for any physical damage. If a sensor is faulty, it may need replacement.

7. SPECIFICATIONS

Technical specifications for the Syneticusa 4-Sensor Car Parking Assist System:



Figure 7.1: Detailed table of product specifications.

Feature	Specification
Rate Voltage	12V DC
Operating Voltage Range	10.5V - 16V DC
Rate Current	100mA - 300mA
Detecting Distance	0.3 - 2.0 meters
Ultrasonic Frequency	40KHz
Control Module Working Temperature	-30°C to 80°C (-22°F to 176°F)

Display Working Temperature	-20°C to 70°C (-4°F to 158°F)
LED Display Size	9 x 1.5 cm (approx.)
Main Control Box Size	10.5 x 6 x 2 cm (approx.)

8. WARRANTY AND SUPPORT

This product is covered by a standard manufacturer's warranty against defects in materials and workmanship. Please refer to your purchase documentation for specific warranty terms and duration. Keep your proof of purchase for warranty claims.

For technical support, troubleshooting assistance, or warranty inquiries, please contact Syneticusa customer service through the retailer where the product was purchased or visit the official Syneticusa website for contact information.

When contacting support, please have your product model number (PK-SENS-BK) and purchase details readily available.