# USER MANUAL

APPS4WFR
## WIRELESS FRONT & REAR PARKING SENSOR KIT
WITH LCD DISPLAY & WATERPROOF ECU

# Contents

## Notes

1. This Aerpro parking system is designed as a parking aid and should not replace careful driving.

2. Under no circumstances will the manufacturer, supplier, and/or dealer accept any responsibility or be held liable for any direct or indirect, incidental, or consequential damage, or for injuries resulting from installing or using this system.

3. Neither Aerpro nor the supplier is responsible for any additional promises or claims made by the retailer of this product.

4. To the extent permitted by law, Aerpro excludes all liability, including negligence, for any loss incurred in reliance on the contents of this publication.

## Cautions

1. Please read this manual carefully before using the product.

2. We recommend practicing with the system using various obstacles to understand its performance.

3. Though the minimum detection distance is 0.30m, maintaining enough space to stop your car is still recommended. Considering the car's inertia, it is best to stop when the displayed distance is shorter than 0.60m.

4. False alarms can be caused by interference from sound waves such as horns and air brakes.

5. Car speed should be less than 3-5 km/h when parking. No matter how effective a parking alert system is, parking too quickly can cause accidents.

# Usage

## ● Wireless LCD Display & Functions



1. Distance Display: The distance between the closest obstacle and the front or rear sensor is displayed in meters, with a resolution of 0.01 meters.

2. Sound Warning: The built-in beeper provides an audible distance warning with a variable cadence.

3. Orientation Indication:
* After self-test, illuminated icons indicate that the corresponding position sensors are operating normally. If a sensor fails, its corresponding icon will be extinguished.
* The location of the closest obstacle is indicated by a flashing icon.

4. Zone Caution: When an obstacle is detected, the display will indicate the safe zone (blue), alert zone (yellow), and dangerous zone (red).

5. Front Sensor On/Off Setting: The front sensor display can be turned on or off by pressing the button once while the car is moving forward. (Note: There is no memory function; the system defaults to ON when powered on.)
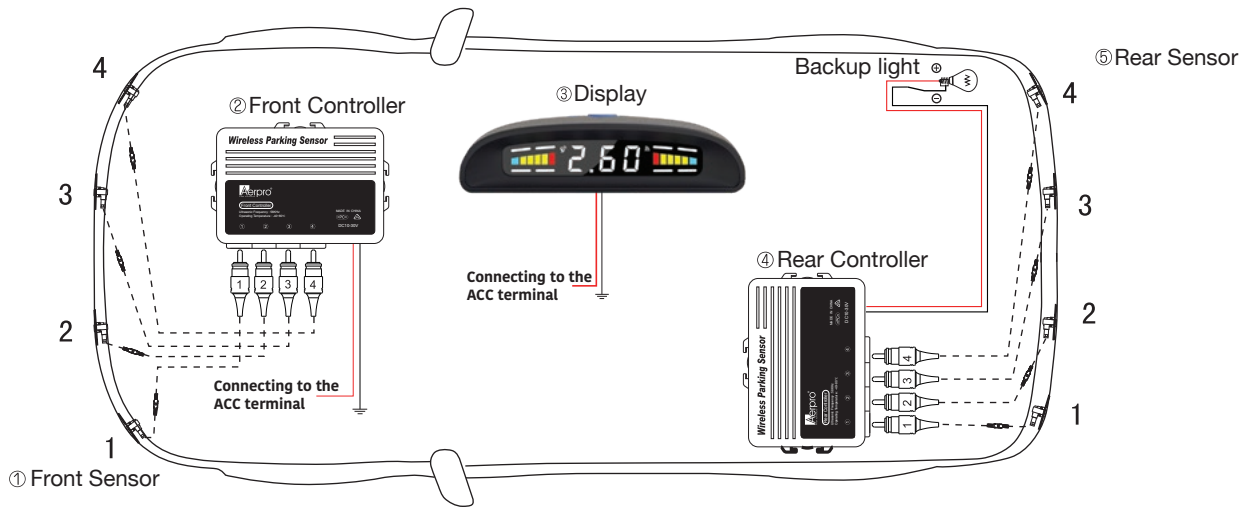
6. Volume Setting: The volume can be adjusted from level 0 to level 8 using the button on top of the display.

7. GPS Speed Controlling: The system is activated when the car's speed is less than 15 km/h, as determined by the car's GPS. The system is deactivated, and the speed is displayed, when the car's speed exceeds 15 km/h. The speed display can be turned off by pressing the Front On/Off button.

8. Voltage Display: The voltage is displayed for 3 seconds after the car is started.

# Installation

## ● Component Location and Wiring Schematic

4

② Front Controller

**Wireless Parking Sensor**

③ Display

*2.60*

Connecting to the
ACC terminal

Backup light

⑤ Rear Sensor

4

3

④ Rear Controller

**Wireless Parking Sensor**

3

2

Connecting to the
ACC terminal

① Front Sensor

2

1

1

APPS4WFR 4 head front & Rear Kit with LCD Display

**Front sensor detection range and warning method**   ● **Rear sensor detection range and warning method**



Front

```
(0.30~0.50) ★
(0.30~0.60) ★★
(0.30~0.70) ★★★
(0.30~0.80) ★★★★ — d
(0.30~0.90) ★★★★★

(0.30~0.80) ★
(0.30~1.10) ★★
(0.30~1.60) ★★★ — c
(0.30~2.10) ★★★★
(0.30~2.60) ★★★★★

(0.30~0.80) ★
(0.30~1.10) ★★ — b
(0.30~1.60) ★★★
(0.30~2.10) ★★★★
(0.30~2.60) ★★★★★

(0.30~0.50) ★ ------- a
(0.30~0.60) ★★
(0.30~0.70) ★★★
(0.30~0.80) ★★★★
(0.30~0.90) ★★★★★
```

Rear

```
        (0.30~0.80) ★
        (0.30~1.00) ★★
        (0.30~1.10) ★★★
4 —     (0.30~1.60) ★★★★
        (0.30~2.10) ★★★★★

        (0.30~1.00) ★
        (0.30~1.30) ★★
3 —     (0.30~1.60) ★★★
        (0.30~2.10) ★★★★
        (0.30~2.60) ★★★★★

        (0.30~1.00) ★
        (0.30~1.30) ★★
2 —     (0.30~1.60) ★★★
        (0.30~2.10) ★★★★
        (0.30~2.60) ★★★★★

        (0.30~0.80) ★
        (0.30~1.00) ★★
1 —     (0.30~1.10) ★★★
        (0.30~1.60) ★★★★
        (0.30~2.10) ★★★★★
```
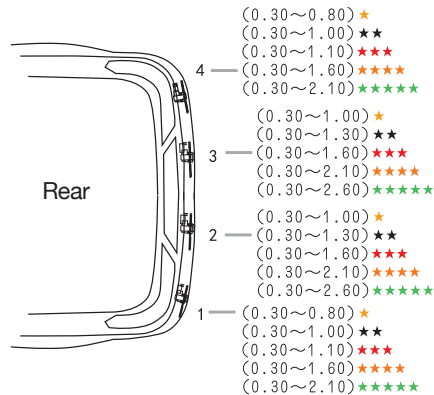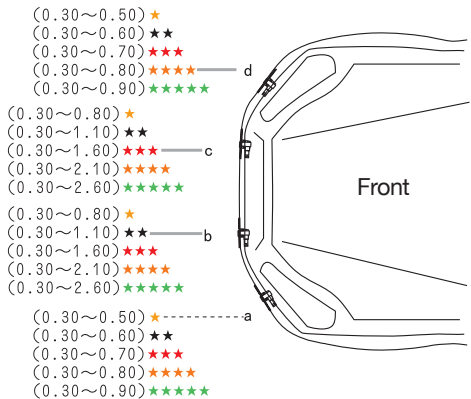
★ level 1    ★★ level 2    ★★★ level 3 (factory default)    ★★★★ level 4    ★★★★★ level 5

* The speaker will emit a heartbeat-like alarm sound when an object is detected.
* The frequency of the beeping sound will increase as the object gets closer to the front of the vehicle.
* A continuous beep will sound when the detection distance is less than 30 cm.
* If the detection distance remains unchanged, the alarm volume will automatically decrease after 3 seconds and will stop completely after approximately 2 seconds at the low volume.

## ● Forward

When driving forward slowly, the front sensors are active. If no objects are detected within 3 seconds, a "/" symbol indicates that the sensor is operational. The display turns on when an object is detected.

## ● GPS Speed Control

The front sensor is controlled by the car's GPS speed. The sensors activate when the speed is below 15 km/h and deactivates when the speed exceeds 15 km/h. When deactivated, the display shows the current speed. You can turn off the speed display by pressing the large button on top of the LCD Display.

## ● Sensor Detection Range Setting

The maximum and minimum detection range of each sensor can be adjusted to optimize performance and meet individual driver preferences. This adjustability helps prevent false alarms triggered by body obstacles like decorative bars, tow bars, and spare wheels.

## ● Maximum Distance Detection Setting

1. Press the Front On/Off button to turn on the power.
2. Press the Volume button to select the sensor you want to adjust.
3. Press the Front On/Off button to increase the distance in 0.1-meter increments. Use the circle to choose the desired distance.
4. Power off and then repower on for the new setting to take effect.

## ● Minimum Distance Detection Setting

1. Press the Volume button to turn on the power.
2. Press the Volume button to select the sensor you want to adjust.
3. Press the Front On/Off button to increase the distance in 0.1-meter increments. Use the circle to choose the desired distance.
4. Power off and then repower on for the new setting to take effect.

## ● Reset to Default Setting

Press the Pair button and turn on the power. A "beep" sound confirms that the settings have been reset.

# ● Notes

Aerpro Parking Assistance System uses wide angle, high sensitivity sensors and advanced data processing technology. The blind zone is relatively small. But in some cases, the measurement may not be entirely accurate due to a combination of factors such as the height of the sensors, the shape, location, angle, and reflectivity of the obstacle, or other characteristics. Please check the condition behind your car before reversing. Some examples are given below（The picture shows the reversing sensor, also applies to the front sensor).


Fig.a


Fig.b


Fig.c


Fig.d
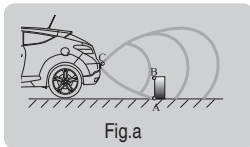
a. As shown in Fig. a, point B is lower than sensors, and point A has a strong reflection, the distance of CA will be shown first. When the obstacle is within the blind zone, neither A nor B will be detected. This usually occurs when the obstacle is lower than the level of sensors.
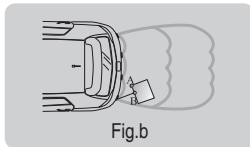
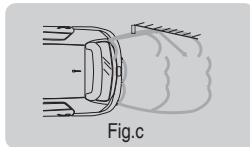b. As shown in Fig. b, though point A is closer to the sensor than point B, the distance from sensor to point B is detected.

c. As shown in Fig. c, in case of small angle (α) of incidence to the obstacle, such as glass wall or other smooth plane, the obstacle is not detected.
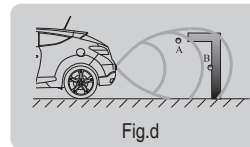
d. As shown in Fig. d, point B will be detected sooner or later, but point A may not be detected at all.
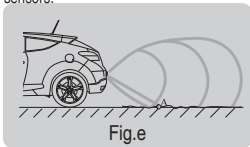

Fig.e


Fig.f

e. As shown in Fig. e, in certain conditions, for example, if the car is slanted backward or/and on a rough road, the ground might be detected and the distance from the sensor to the ground will be detected.
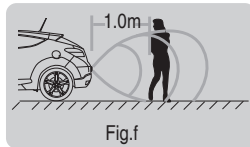
f. As shown in Fig. f, not all obstacles can be detected from 2.6m. For instance, a person is detected from 1.0~1.5m because of the weak reflection of clothes.
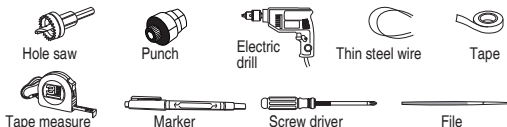
# ● Maintenance

1. Clean any sand, ice, snow or other dirt on the sensors' surface immediately and ensure the sensors' surface is kept clear.

2. You may re-paint the surface of the sensors if you use a very light coat of paint. Be careful, because thick paint will significantly affect detection.

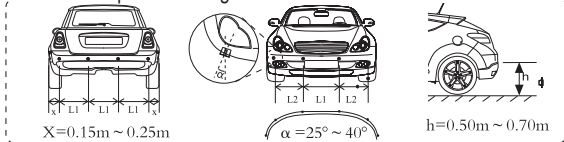3. Do not press in the sensor center core.

## ● Installation Tools



Hole saw   Punch   Electric drill   Thin steel wire   Tape

Tape measure   Marker   Screw driver   File

Horizontal position and ground clearance



$X=0.15m \sim 0.25m$   $\alpha = 25° \sim 40°$   $h=0.50m \sim 0.70m$

⚠The position of the sensors must be within the required scope of installation, and the whole surface should be perpendicular to the ground.

⚠ Make sure that the rear of the installed sensor is not in contact with any objects.

⚠ The wires cannot be cut and reconnected. The wiring should be installedwithout pulling or squeezing and kept away from exhaust pipes, water tanks, electronic fans, and other similar components.

⚠ Ensure the plug between the sensor and the extension cable, as well as the extension cable connector to the controller socket, are firmly rotated and inserted into place. Failure to do so may result in malfunctions.

## ● Sensor Installation

Plug-in sensor installation direction



Arrow upward   Arrow horizontal   Arrow tilt
Rear   Front   Rear   Front   Rear   Front
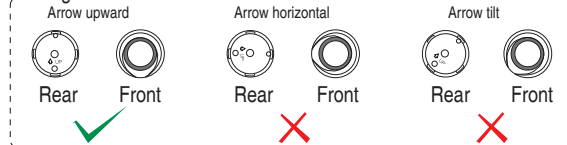
⚠ The direction of the sensor installation, the arrow should be upward. If the installation surface is too high or inclined upward, the arrow can also be downward to correct the angle.

⚠ For metal bumper bars please first install the supplied silicone/rubber sleeves and then install the sensor.

## ● LCD Display Installation

The LCD display can be mounted on the driver's side left or middle of the dashboard.
Route the display power cord through the concealed part of the dash seal to the ACC power supply at the fuse panel.
Red = Power (ACC or IGN supply)
Black = Ground (Ideally crimp an eye terminal and connect to an existing factory bolt going to the chassis)

## ● Front Control Module Installation

Please note that the front wireless controller is waterproof and can be installed in a suitable, fixed position within the engine bay.
For optimal performance, install the controller as far away as possible from the car battery and any high-current wiring harnesses.
The front wireless controller can be powered directly to the car battery or to ACC source in the engine bay, as its static current is less than 0.3mA.
Red = Power (ACC or IGN supply)
Black = Ground (Ideally crimp an eye terminal and connect to an existing factory bolt going to the chassis)

## ● Pairing Procedure

To ensure a unique wireless signal between the controller and the receiver (built in the display) please follow the below steps:

1. Turn the key or push the start button to the ACC or IGN position.
2. Use a paper clip or similar then press and hold the pairing button found on top of the LCD display (See page 4 for description).
3. The display will show "----" and the beeper will emit two beeps. At this point release from pressing the pairing button.
4. If the display shows "CONN", code matching is successful.
5. If pairing wasn't successful, please repeat the above process.

## ● Functional Verification



Functional verification with simulated obstacles

1. Functional test: According to the relevant content in the "Usage" section of this manual, verify whether the system is powered on, self-checked and detected normally.

2. Put the simulated obstacles close to each sensor from far to near, and listen to the alarm sound to see if it is normal.

3. Front parking sensor interference test: Choose a site without any obstacles, get on the car, turn on all the lights, hit the throttle several times (7~10 times) in neutral, if the Speaker alarm indicates that the controller is interfered and needs to change the position of the controller again, and secure the controller in position until it is not interfered.

4. Level optimization: The detection range of the sensor is divided into 5 levels, including the 1st level, the 2nd level, the 3rd level, the 4th level and the 5th level. The factory setting is the 3rd level. It can be adjusted according to the road test and specific requirement:

When the road test encounters false alarms such as uphill, uneven roads, speed bumps,etc., it may be caused by the sensor detecting the ground.

At this time, you can lower one level (reduce the sensitivity),and retest it under the same road conditions. If the above phenomenon disappears, you can keep the current setting.

If the above mentioned road conditions give a normal alarm and you want the detection distance to be longer, you can also add one level (increase the sensitivity) for a road test.

Find the best detection level through the above method.

## ● Troubleshooting

| Phenomenon | Cause | Remedy |
|---|---|---|
| 1. There is no sound when starting the car (front sensor) or putting on reverse gear (rear sensor), and all indicator lights are off | The speaker power supply is not powered on | Check whether the power cord is connected correctly and tightly |
| 2. Continuously beep | a. Detect objects within 0.30m from the sensor<br>b. The position of the sensor is too close to the ground and the direction is too inclined to the ground<br>C. The sensor plug and the extension cord socket, or the extension cord plug and the controller socket are not inserted in place<br>d. Ice, snow, and mud stick to the surface of the sensor | a. In order to avoid spare tires, decorative bars, tow hooks, etc., you can return to the factory to customize the controller<br>b. Reduce the detection sensitivity by reducing the maximum detection distance of the corresponding sensor<br>c. Rotate forcefully and insert it in place<br>d. Clean the surface of the sensor |
| 3. Always keep one rhythm alarm | a. The object with a strong reflective surface on the ground is detected<br>b. The sensor sweeps to the smooth ground<br>c. There is electrical pulse interference around the controller | a. If the phenomenon disappears after moving the car, it is normal and there is no need to deal with it<br>b. Lower the detection range level to reduce the sensitivity<br>c. Change the installation position of the controller, and stay away from the battery and the vehicle cables. |
| 4. Speaker alarm abnormally | a. There is ultrasonic interference near the sensor<br>b. Electrical pulse interference exist around the controller | a. Normal phenomenon: Pneumatic tools, grinding machines, knocking sounds, etc. will generate interference signals<br>b. Change the installation position of the controller, and stay away from the battery and the vehicle cables. |
| 5. The Speaker volume is too loud or too low | The volume setting is not appropriate | reset volume |

## ● Safety Information & Warnings

Do not try opening the shell or try to repair the product by yourself.
If the product or it's accessories have any problems and is still under warranty, then take it back to the place of purchase with the original purchase receipt.
If out of warranty then contact the authorised repair agent, Aerpro Support.
Do not use a chemical substance, cleaning solvent or cleaner to clean the product, please use a moist soft cloth if you would like to clean the product.
Do not use the product under conditions where dust is present.
Please pay attention to cleaning the display surface, use a moist soft cloth to clean the display."

## ● Technical Assistance

Please retain this user guide for future reference. If you would like to download a digital copy of this manual, or other Aerpro manuals/software, please visit the Aerpro.com website and search for information on your model.
This user guide is considered correct at time of printing but is subject to change.
For latest user guide, manuals, videos and updates refer to the website.
Copyright © 2025 by TDJ Australia
All rights reserved. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, copying or other electronic or mechanical methods, without the prior written permission of the author.

TEL: 03 – 8587 8898     FAX: 03 – 8587 8866
Mon-Fri 9am – 5pm AEST  or EMAIL: service@tdj.com.au