Guarantee Card

This Warranty covers defects in workmanship and materials for a period of one year from date of purchase. It does not cover any unit that is damaged due to improper installation, or mishandling beyond normal use, or other acts or omissions not sanctioned by the Owner's Manual.

The owner is required to return the defective product to their place of purchase and provide dated proof of purchase. The authorized dealer will determine if there is a warrantable condition. If a warrantable condition exists, the component will be replaced free of charge. The user is responsible for any labor and installation charges.

The Warranty does not include any further obligation whatsoever, including but not limited to actual installation of the replacement unit on the customer's vehicle. No other warranty is expressed or implied. The absolute limit of liability is the purchase price of the unit.

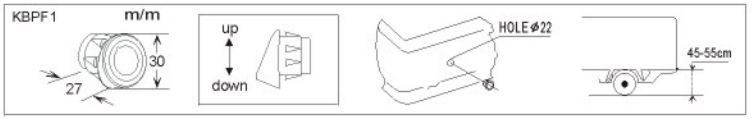
Some states do not allow limits on the validity or length of implied warranties or exclusions or limitations of incidental or consequential demages, so this warranty may not apply to you.
This warranty gives you specific legal rights.

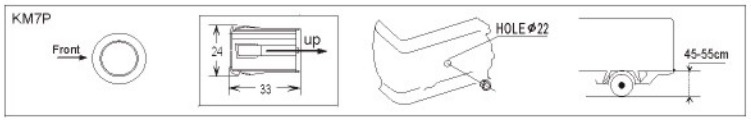
Customer	
Address	
Telephone	

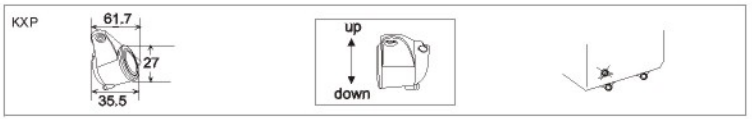
Type	
Number	
Purchase date	

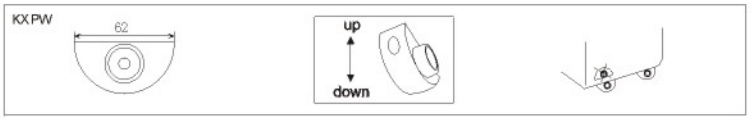
Appendix II Sensor Type

L group sensors (Unit: mm)

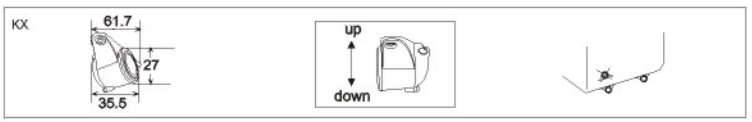








S group sensors (Unit: mm)



Before you start

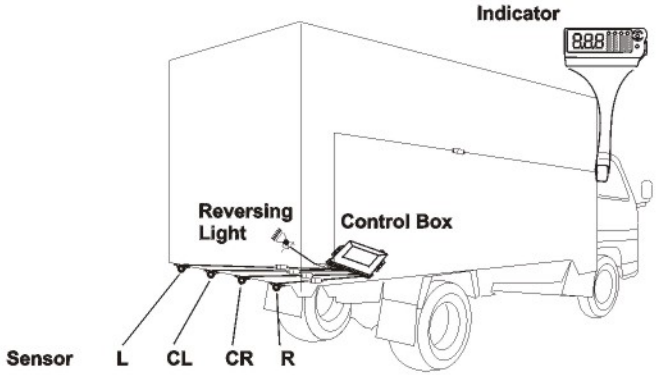
Parking sensor systems are designed with latest ultra-sonic sensing technology to assist the driver in parking or reversing vehicle. By means of audible beeping and visual display, parking sensor can alert the driver of distance of an object up to 2.5 meters or even farther.

There are four categories for grade K+ waterproof systems, i.e. ,"O", "Q" type and "L", "T" type."O" and "Q" numbered systems must use PCB built-in sensors (L group sensors) and 'L" and "T" numbered systems must use no PCB sensors (S group sensors). The systems are differently numbered as per their different alert units as well as quantity of sensors . (Refer to Appendix I and II)

Note

Part number of you kit is indicated on packaging box.

Schematic diagrams for installation and wiring



Note

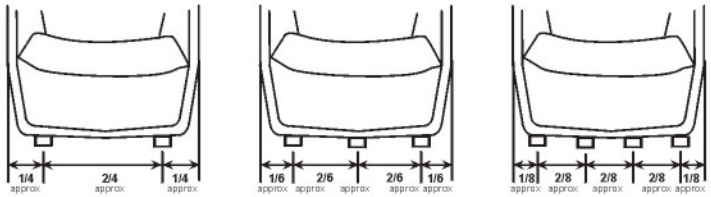
Figures are set up with FWO48K41 as an example.

Installation

❶ Install sensors

(1) Find proper positions

The ideal height to mount sensors is 45cm to 55cm where the bumper is vertical to the ground or a little bit facing upwards. Mark positions on the bumper as suggested below:



Some factors like shape of bumper, space behind bumper may affect your choosing positions. In case you need to install lower than 45cm or where the bumper is facing downwards, sensors with angled housing (e.g. Kb) or angle adjuster (e.g. Kx) are required.

Note

1. Don't install sensors too close to exhaust pipe.
2. With DSM technology (Dynamic Scan Memory) in control module, grade A+ Systems can ignore spare tire or tow-hitch at the back of your vehicle.

(2) Amount sensors

I. Recessed sensors (KBF0,KBF0-P4,KBF1,KBPF1,KMP,KM7P,).

Drill 22mm diameter holes as per the size of sensors.
Push-fit the sensors into the holes. Make sure they fit well.
To avoid damage, always ensure that there is enough clearance for the drill bit to emerge and for the depth of the sensor body when push into fully fitted position.

Trouble-shooting guide

PROBLEM	REASON	SOLUTION
System does not work when reverse gear is engaged	Bad connection of main power lead	Check power Lead
	Bad jack connection	Reconnect all jacks
Audio alarm/same distance displayed continuously		Reset the system
	Sensor detects the ground	Adjust angle of sensor installation
No any audio alarm when obstacle is in detection range		Reset the system
	Bad sensor connection	Reconnect sensors
False alarm	Sensor detects the ground	Adjust angle of sensor installation
	System sensitivity is too high	Ask your dealer/ professional installer to adjust sensitivity

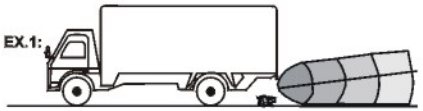
Appendix I System Part Number

MODEL	DISPLAY	BUZZER	MODEL	DISPLAY	BUZZER
FWO28K06 FWQ28K06 FWL28K06 FWT28K06			FWO28K29 FWQ28K29 FWL28K29 FWT28K29		
FWO28K41 FWQ28K41 FWL28K41 FWT28K41			FWO28K42 FWQ28K42 FWL28K42 FWT28K42		
FWO48K06 FWQ48K06 FWL48K06 FWT48K06			FWO48K29 FWQ48K29 FWL48K29 FWT48K29		
FWO48K41 FWO48K41 FWL48K41 FWT48K41			FWO48K42 FWQ48K42 FWL48K42 FWT48K42		

Situations where obstacles may not be detected

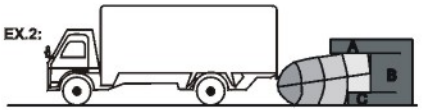
Due to the obstacle's position, angle or size, the reflected signal may not reach the receiving sensor. Complex reflections may also occur in a complex environment causing inaccurate detection. See examples 1, 2, 3, 4, 5 and 6.

EX.1:



Low lying obstacles,e.g.,kerb.

EX.2:



Complex environment: B and C will be detected but A cannot be detected.

EX.3:

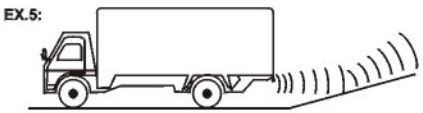
Distance A will be detected first, and then distance B be detected when the car reverse close.

However, as the car reverse closer, A may fall into the sensor's blind zone. In such cases, the system will misjudge B as the closest distance.

EX.4:

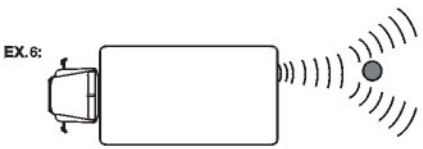
When the car approaches a glass wall (or any other smooth surface) almost paralleled to the body of the car, the wall may not be detected as most of the signal are reflected away.

EX.5:



When the car approaches a smooth slope, the slope may not be detected.

EX.6:



The system may not detect a small and smooth round pole.

Note

A too tight fitting may result in false alarm. Burnish the edge of the hole in case of too tight fitting.

II. Screw-on sensors (KX,KXP,KXPW,)

Screw-on sensors are suitable for truck or bus, to be screwed underneath bodywork or on the round bar behind bodywork.

Each Kx sensor comes with 3 different angled rubber wedges, which can optionally be used to adjust the sensor angle if the mounting position would otherwise be too low.

❷ Position control box and display & buzzer

(1) Find a protected and waterproof location inside the rear luggage compartment of body and place the control box temporarily in position.

(2) Find a suitable location on the dashboard for display and inside the cab for buzzer. Place them temporarily in position.

❸ Loose-fit and connect cables

(1) Connect sensors to the control box (loose-fit cables at this stage, in case mounting position need to be changed). Make sure sensors are not cross-connected.

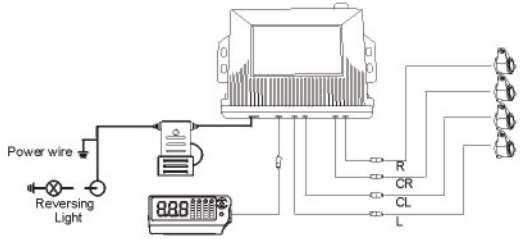
(2) Connect display & buzzer to the control box (loose-fit cables at this stage, in case mounting position need to be changed).

(3) Identify the power wires to reverse lights.

(4) Connect power wires from control box to respective positive and negative power wires of reverse lights using supplied snap-lock connectors. You may also connect the positive wires by soldering and then cover the connection with plastic shrink. The negative wire fromcontrol box can be screwed on metal body of the vehicle.

Note

If your kit includes only 2 sensors, use L and R sockets on module; if your kit includes only 3 sensors, use L, CL and CR sockets on module.

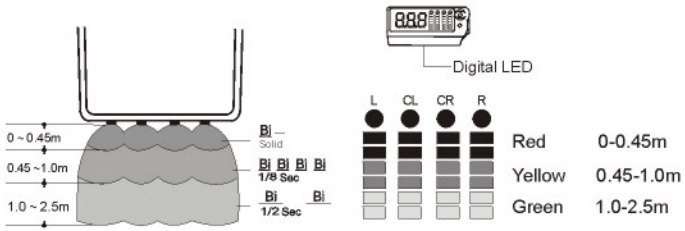


4 System/fitting check

(1) Turn the ignition switch to "On" position.

(2) Put gearshift into reverse position and make sure reverse lights are "On". Two "Beeps" from buzzer indicates the system is activated.

(3) Patterns for detection and warning.



Note

1. All sensors of type O and L systems, e.g., FWO48K41, have same detection range 0-45-100-250cm. For type Q and T systems, e.g., FWQ48K41, FWT48K41, Detection range for the central sensors is 0-45-100-250cm, that for the corner sensors is 0-45-90cm.
2. All measurement are approximate. Due to an object's position, angle, size, or shape, the reflected signal may mislead the receiving sensor(s). For better understanding of the measurement, please test from different angles after installation.
3. If 2 or more sensors detect object(s), the digital display will show the distance of the nearest object to any sensor.

5 Complete the installation

(1) Fix control box in chosen position using supplied double-side adhesive tape or screws.

(2) Fix display in chosen position using supplied double-side adhesive tape.

(3) Conceal all cables as much as possible, ensuring they are as well protected and secured as possible.

Operational test

Put the gear shift in reverse position and make sure the reverse lights are "ON". Then 2 'Bi' sound from Buzzer will indicates system is activated.

Reverse your vehicle slowly.

The first rhythm of slow bipping sound will indicate that the car about 2.5m away from the nearest obstacle.

The Sensor will subsequently give a faster bipping sound at the 1.0m range .

The driver MUST stop the vehicle when it bips at it's constant bipping sound as this indicates the final distance 0.45m of your rear bumper.

Technical data

CONTROL BOX	
ITEM	SPECIFICATION
Specified voltage	DC12V/24V
Operating voltage range	DC10.8V~27V
Standby current	Below 100mA
Operating current	Below 200mA
Operating temperature	-25°C~80°C
Storage temperature	-30°C~85°C
Operating frequency	40KHz ± 2KHz

SENSOR	
ITEM	SPECIFICATION
Operating voltage range	AC 90~130V $^{p-p}$
Operating temperature	-25°C~80°C
Storage temperature	-30°C~85°C
Operating frequency	40KHz±2KHz
Detection angle	120° Horizontal 60° Vertical
Detection method	Ultrasonic wave

IMPORTANT NOTICE

1. Parking Sensor is strictly meant as a drivers aid when parking or backing up your vehicle. Not all objects will be detected by your sensors, therefore you must exercise caution and common sense when reversing your vehicle.

2. Reverse you vehicle at a speed lower than 3km per hour for safety purpose.

3. Always stop your vehicle when a solid beeping is heard as it indicates an object in a dangerous distance no more than 45cm to your vehicle.

4. Execute regular check on your sensors for any dirt or snow, always keep your sensors clean.

5. In case of water drops on the surface of the sensor (e. g., washing, raining ... etc.), the sensitivity will be possibly decreased about 20% unless water evaporates.

6. Keep all the cables and sensors away from the vicinity of high temperature objects such as engine or exhaust which can make the system fail.

7. The design of Parking Sensor is very complicated, opening by user may damage the its completeness. The manufacturer or its distributors shall NOT take any responsibility for such ignorance by user.

8. In case of defective sensor, please check the cable close to sensor, if it is color-painted, a replacement sensor with cable same-color painted is required.

Version OX

The most reliable

PARKING SENSOR

Operation Manual

Grade K+ waterproof Systems