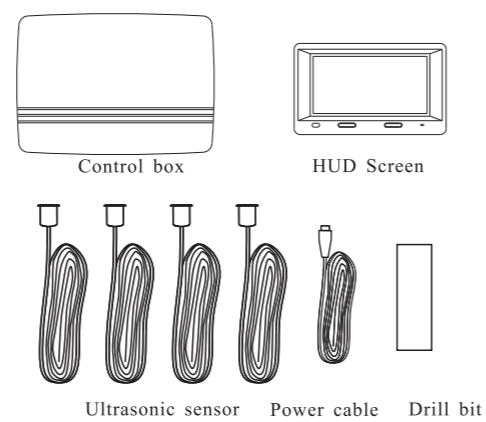


231HUD-F
 Head Up Display Parking Sensor
 232HUDS-F
 Head Up Speed Display Parking Sensor
 233HUDS-F
 Head Up Speed Display

Instruction Manual

Packing List : 231HUD-F/232HUDS-F

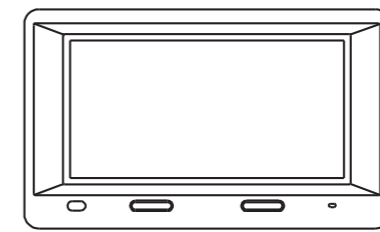
HUD screen	1PC
Control box	1PC
Ultrasonic sensor	4/6/8PCS
Drill bit	1PC
Power cable	1PC
8" angle rest	1PC
15" angle rest	1PC
Reflecting film	1PC
3M double side adhesive tape	2PCS
Instruction manual	1PC



Picture 1

Packing List: 233HUDS-F

HUD screen	1PC
8" angle rest	1PC
15" angle rest	1PC
Reflecting film	1PC
3M double side adhesive tape	2PCS
Instruction manual	1PC



HUD Screen

Picture 2

Catalogue

User's Guide

1. Introduction.....	1
2. Product character	2
3. Using method.....	5
4. Using notice.....	7
5. Setting method.....	8
1)Volume setting.....	9
2)Brightness setting.....	9
3)Start display speed setting.....	9
4)Speed calibration.....	10
5)Speed correction.....	10
6)Peak speed value record.....	11
7)Attention value setting.....	11
8)Overspeed value setting.....	11
9)Metric and British system setting.....	12
10)Sensor sensitivity adjustment.....	12
11)Setting detection distance of front sensor.....	12

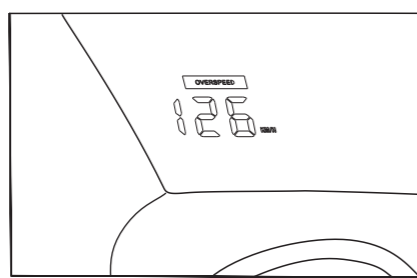
Installation Guide

1. Installation notice.....	13
2. System Wiring Diagram.....	15
3. HUD screen power cable connection.....	17
4. HUD screen installation.....	18
5. Ultrasonic sensor installation.....	20
6. Control box connection.....	22
7. Power cable connection.....	24
8. Fix the control box.....	25
9. Technical parameter.....	26
10. Problem and solution.....	27

User's Guide

Introduction

Parking sensor system is supplementary safety equipment that specially designed for car reversing. HUD (Head Up Display) is one kind of military aviation display technology, which displays the information on the front windshield of the car, please see Picture 3



Picture 3 Head Up Display Technology

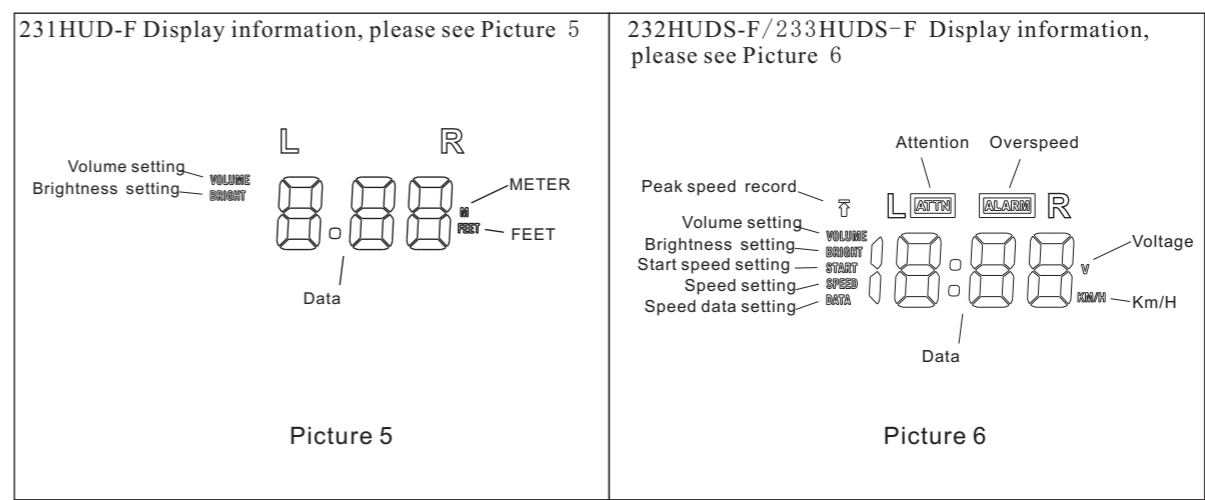
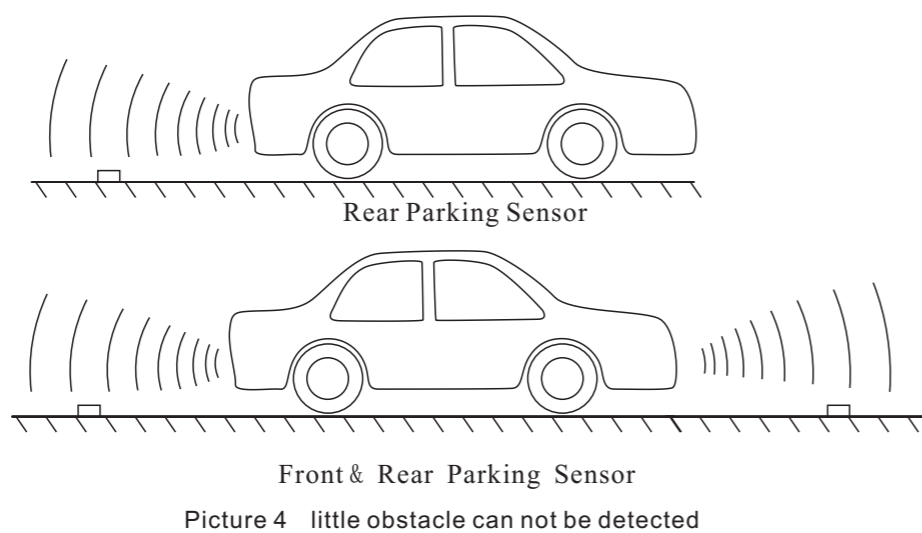
Product character

232HUDS-F/233HUDS-F

- When driving,system displays the "RUNNING SPEED", "ATTENTION", "OVERSPEED" information on the windshield, avoiding hidden peril of lowering your head to look the speedometer when driving on high speed.
- When power on,system displays the voltage of the storage battery for 3 seconds, help you know the car power supply condition.
- Brightness can follow the environment to change automatically,never dazzle at night

231HUD-F/232HUDS-F

- When reversing, system displays the reversing distance and obstacle direction "L or R" on the windshield and sends out four beeping tone as a reminder at meantime.
- Brightness can follow the environment to change automatically,never dazzle at night
- Beep reminds, optional voice module, easy installation, reports reversing distance with graceful sounds.
- No-ground detecting technology: the ultrasonic beam is flat shape(see Picture 4)
The little obstacle can not be detected so that system works very stably.
- Intellectualized anti-interference analysis system,lower error report
- Sensor sensitivity can be chosen by the user.
- All plugs are sealed in the control box, dustproof, moistureproof and never loose.



Using method

232HUDS-F/233HUDS-F

- When the power is turned on, system displays the voltage of the storage battery for 3 seconds. If the voltage lower than 11V, the information glitters and sends out di-di-di 3 beeps as a reminder.
- Display running speed after power on 3 seconds. The start value can be pre-set, default value is 0km/h.
- If the start value setting ≥ 10 km/h, but the running speed lower than 10km/h, only display "KM"
- If the running speed achieved the early warning value (attention speed value can be pre-set, default value is 100km/h), "ATTENTION" lightens and sends out 3 beep tone "di-di-di" as a reminder; if the running speed achieved overspeed value (overspeed value can be pre-set, default value is 120km/h), "ALARM" lightens and sends out 2 beep tone "di-di" as a reminder.

231HUD-F/232HUDS-F(231 can do 4/6/8 sensors,232 only can do 4 sensors)

- Front sensors start to work upon braking activation, If there is not any obstacle within 0.6 meter or 0.9 meter in the front of car (the distance can be set), system displays nothing. Otherwise, system displays the distance of obstacle and reports the distance rapidly with graceful sounds. (Only for 6 or 8 sensors)
- If the red wire connect to ACC, front sensors stop work after release the braking for 5 seconds. If the red wire connect to brake, front sensors stop work as soon as release the braking.

- Front sensors do not work when vehicle in reverse. (Only for 6 or 8 sensors)
- Front sensor's detection range can be chosen for 0.6M or 0.9M or OFF (Only for 6 or 8 sensors)
- Rear sensors are activated when reverse gear is engaged. System automatically switches to reversing distance indication. If there is no obstacle within two meters behind the car, it displays "----". When the obstacle move closer, system displays the distance and direction of nearest obstacle and sends out four beeping tone as a reminder, please see table 1.
- Both in Metric and British system.
- Due to the inertia of the car, it will show the distance 10 cm(4inch) less than the real distance.

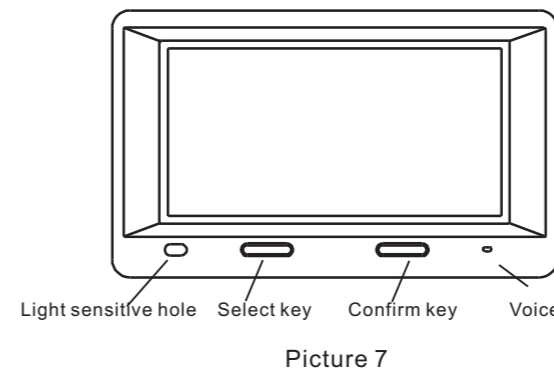
Table 1: Safety distance and buzz

Distance (meter)	Distance (feet)	Buzz
>1.5	>4.9	No buzz
1.5-1.0	4.9-3.3	Slow buzz
1.0-0.6	3.3-2.0	Middle speed buzz
0.6-0.3	2.0-1.0	Quick buzz
<0.3	<1.0	Urgent buzz

Using notice

- Parking sensor is designed only for reverse assistance. The driving safety depends on the driver's prudence. Our company will not be responsible for the traffic accidents.
- As the system does not connect to car braking, please brake immediately once hearing rapidly "di-di" reminder.
- Cleaning the reflecting film with wet towel, sponge or soft cloth, not hard rag.
- Do not press the sensor core. Please clean the ice, snow, silt or others dust away of the surface of sensors.
- All parking sensors may fail to detect the following objects based on the ultrasonic detecting principle:
 - 1)Vertical objects lower than the sensor such as pillar and low wall
 - 2)Sharp corners, such as corner of wall, diagonal quadrate pillar
 - 3)Hanged objects, such as trunk, horizontal sign pole and projecting steel bar
 - 4)Objects or shapes which are disadvantaged for ultrasonic wave projection, such as the wheels of bike, human body is away from one meter or above.

Setting method



Data setting please use "Select" and "Confirm" key. Display information please see Picture 5&6. First, press "Select" key to choose the item that you want to set up. Then press "Confirm" to enter. The selected parameter will glitter, press "Select" to set up the parameter, press "Confirm" to finish the setting, one long beep remind you the setting succeed. System will automatically exit upon 'in-active' activity after 20 seconds

Volume setting

- Press "Select" to lighten the "VOLUME" menu, press "Confirm" to enter. Press "select" to set the volume value, press "Confirm" to finish the setting.
- Volume range is 0~3, 0 is the static sound while 3 is the loudest

Brightness setting

- Press "Select" to lighten the "BRIGHT" menu, press "Confirm" to enter. Press "Select" to set the luminance value, press "Confirm" to finish the setting.
- Brightness range is 0~7, 0 indicates the darkest while 7 indicates the brightest. Brightness setting only affects at night.

Below for 232HUDS-F/233HUDS-F only

Start display speed setting

- Press "Select" key to lighten the "START" menu, press "Confirm" to enter. Press "Select" to set start value, press "confirm" to finish the setting.

Speed calibration

- This product adapt each kind of different vehicle through the speed calibration, to make the Heap Up display the same speed value as the vehicle speed.
- Firstly, driving the vehicle to a wide road that is advantageous to the acceleration, or built on stilts four wheels.
- Then press "Select" key to lighten the "SPEED" menu, press "confirm" to enter, then glitter display 50km/h.
- Starts the vehicle and drive up to a speed of 50km/h. Upon reaching the indicated speed, press any button to finish the setting.
- Check the display speed value on the consistency with the actual speedometer reading. If it has the deflection, please set again or please set as per speed correction
- If the vehicle isn't started, or the speed line isn't connected to the HUD screen correctly, it will be unable to finish the setting, the system will automatically exit after 20 seconds.

Speed correction

- If the display speed still isn't exactly after calibration, it also can be corrected as follows: Press "Select" key to lighten the "DATA" menu, press "confirm" to enter, then display five digital speed parameter as two parts. For example: 20000, display "20" firstly, then display "000". The speed parameter is proportional to display speed, so increase or reduce the parameter, the display speed also can be increased or reduced.

Press "Select" key to reduce the parameter, Press "confirm" key to increase the parameter. Release the key for 20 seconds or power off to exit.

- If the system will be installed on several same type car, it only need to pre-set the speed parameter (get the parameter from first system which had installed on the first car) into system, this way does not need speed calibration or correction again.

Peak speed value record

- Press "Confirm" key for 2 seconds to enter into peak speed record function and arrow on top left corner will be lightened. Here display the peak speed value on driving, press "Confirm" key or power off to exit.

Attention value setting

- Press "Select" key to lighten the "ATTN" menu, press "Confirm" to enter. Press "Select" to set the speed value, press "confirm" to finish the setting.
- Attention speed value range: 40~250km/h

Over speed value setting

- Press "Select" key to lighten the "ALARM" menu, press "Confirm" to enter. Press "Select" to set the speed value, press "confirm" to finish the setting.
- Over speed value range: 60~250km/h. Note: it must be more than attention speed value.

Below for 231HUD-F/232HUDS-F only

Metric and British system setting

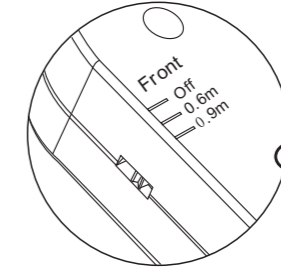
Press "Select" key to lighten the "M" or "FEET" menu, press "Confirm" to enter. Press "Select" to switch from "M" to "FEET", press "confirm" to finish the setting.

Sensor sensitivity adjustment

The system is already set to a middle sensitivity when ex work, if the error report appears frequently in using please move the sensitivity pin to high or low.

Setting detection distance of front sensor

Please choose the detection range as per Picture 8 indication: 0.6M means the farthest range is 0.6M, 0.9M means the farthest range is 0.9M, Off means the front sensor is closed.

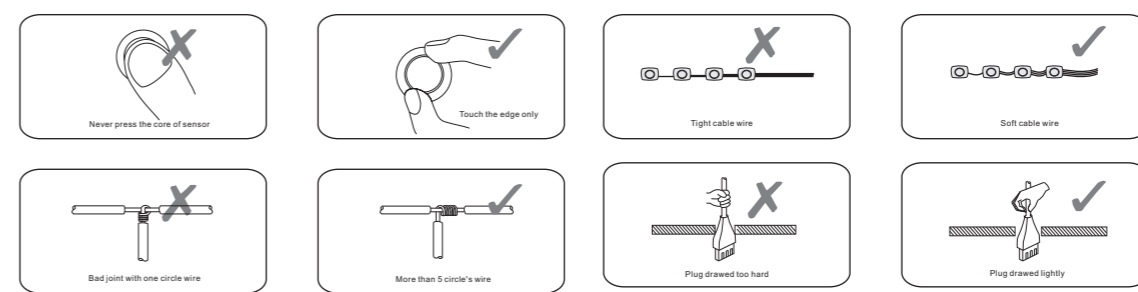


Picture 8

Installation Guide

Installation notice

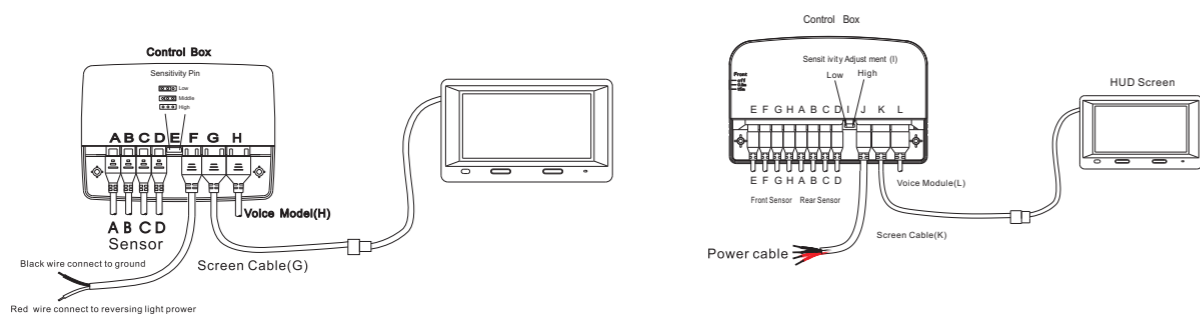
- Please ensure the power is OFF prior to connecting any wires
- All joints should be enlaced more than 5 circles with good insulation.
- Do not press the sensor core during installation.
- Front sensor installation with the order of E,F,G,H
Rear sensor installation with the order of A,B,C,D
Sensor cable is connected to the control box with the order of E,F,G,H,A,B,C,D
- Please do not close up the engine or face to the cooling fan during front sensor installation.
- Do not have anything higher than sensors on the body.
- The sensor and control box have been matched strictly in production. Different types of sensor can not be exchanged.
- Other notice please see Picture 9



Picture 9

System Wiring Diagram

231HUD-F Please see Picture 10&11

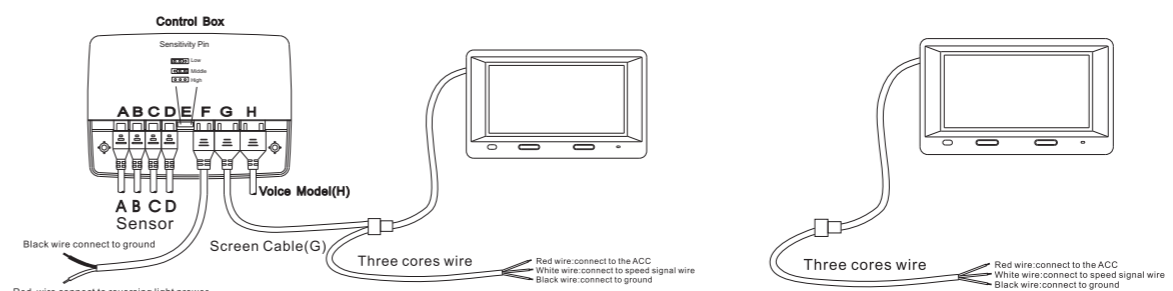


Picture 10 System wiring diagram (4senosrs)

Picture 11 System wiring diagram (6 or 8 senosrs)

232HUDS-F Please see Picture 12

233HUDS-F Please see Picture 13



Picture 12

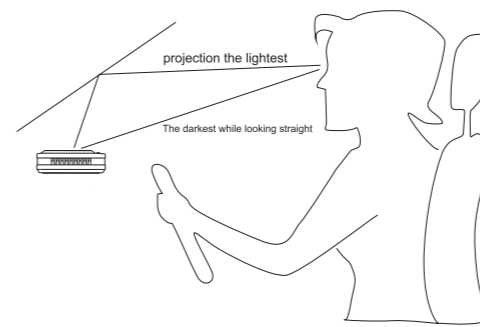
Picture 13

HUD screen power cable connection (Only for 232HUDS-F/233HUDS-F)

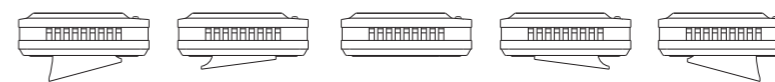
Connect the red wire of three cores wire to ACC, connect the black wire to ground. Connect the white wire to the vehicle speed signal wire. The vehicle speed signal wire usually is located on the speedometer, speed sensor, car alarm which have automatic lock function when driving and so on. The following method is helpful to confirm which one is the vehicle speed signal wire: Built on stilts of car four wheels, starts the vehicle and drive up to a speed above 50km/h in simulation condition. Then have a try to connect the white wire to any line of the speedometer, if the system can switch to speed indication, that means this is the vehicle speed signal wire. This way may not damage the vehicle and the HUD screen. After installation, the system requires a speed calibration. See "Speed calibration".

HUD screen installation

Please start the vehicle then seek the best position of reflecting film and HUD screen, then stop the vehicle. Sticking the reflecting film: The method is similar to sticking window film. Remove two sides protective tape covered on the reflecting film carefully. Spraying some soap water on the windshield and reflecting film, then sticking the film at a suitable position on the inside of windshield. Remove unnecessary bubbles or moisture, do not leave the air bubble and the fingerprint. Turn on power again, place the HUD screen in a suitable location, ensure the lightest projection on the windshield (Please see the picture 14) 8° or 15° angle rest is available to adjust the angle of screen. (Please see the picture 15) A 3M adhesive tape is required to firmly stick the screen onto the dashboard.



Picture 14

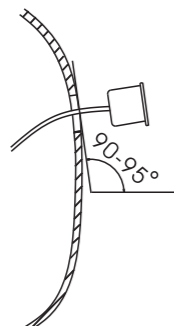


Picture 15

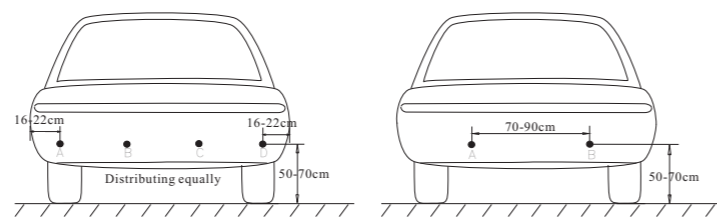
Below for 231HUD-F/232HUDS-F only

Ultrasonic Sensor Installation

Front Sensors are installed on the shell beside of the headlight, rear sensors are installed on the back bumper. Choosing a place where is vertical with the ground or a bit up tilting to the ground, please see Picture 16. It should be installed 5-10 degree up tilting to the ground if the installation position is lower than 50 cm to the ground.

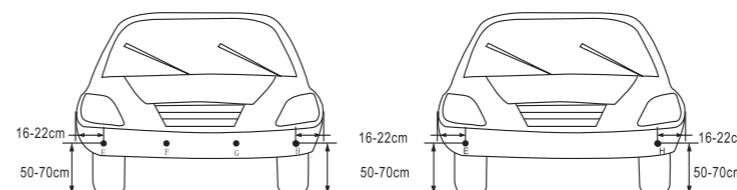


Picture 16

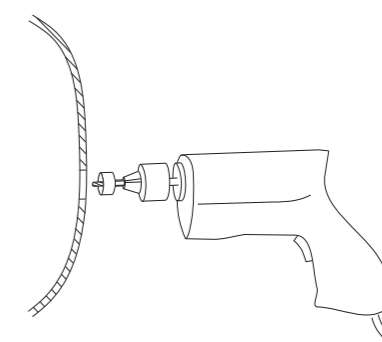


Picture 17 Rear sensor installation distance

Drill a hole by drill bit which prepared in the package, please see Picture 19. After drilling, please clean the edge of hole. Put the sensors into the holes according to Picture 16, sensor cables go through into the trunk of car.



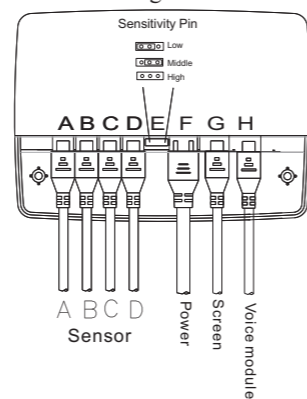
Picture 18 Front sensor installation distance



Picture 19

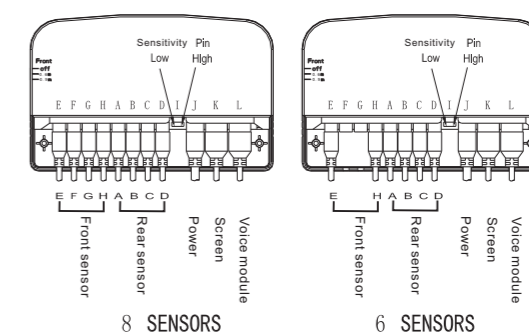
Control box connection

Before connection, please remove the screws of the control box firstly. 4sensors: please see picture 20. Insert the sensor cables into the four sockets A, B, C, and D from left to right. Insert the power cable into F socket. Insert the screen cable into G socket. Insert the voice module cable into H socket if selection.



Picture 20

6 or 8sensors: please see picture 21. Insert the front sensor cables into the four sockets E, F, G, and H from left to right. Insert the rear sensor cables into the four sockets A, B, C, and D from left to right. Insert the power cable into J socket. Insert the display screen cable into K socket. Insert the voice module cable into L socket if selection.

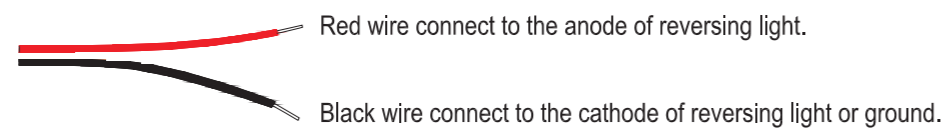


Picture 21

Arrange the cables in a good order and then screw the lid tightly.

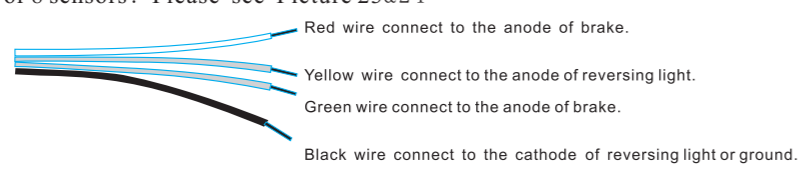
Power cable connection

4sensors: Please see Picture 22

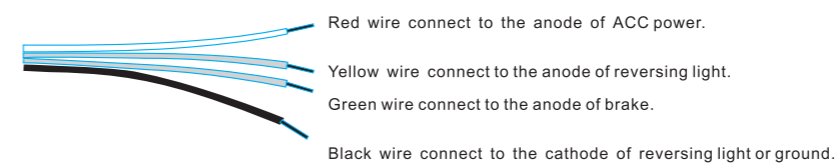


Picture 22 Power cable connection(4 sensors)

6 or 8 sensors: Please see Picture 23&24



Picture 23 Power cable connection for automatic transmission(6 or 8 sensors)



Picture 24 Power cable connection for manual transmission(6 or 8 sensors)

Fix the control box

Tear off the shield of the velcro strap on the back of control box and stick on the sidewall of the trunk. If the sidewall of trunk is covered by felt, you can take off the half of the velcro and stick on the felt directly. Clean the dust before sticking.

Technical Parameter

Working voltage: D.C.10-15.5 V
 Working current: : 300 mA
 Power protection for wrong connection: Yes
 Fuse: built in automatic recovery fuse
 Buzz volume: \cong 60 db
 HUD screen:75 x 45 x 15mm
 Working temperature: -40 ~ +80 °C

Below for 231HUD-F/232HUDS-F only:
 Rear detection distance : 0.30m-2m(1-7 ft)
 Rear sensor cable length: 2.50m
 Front detection distance : 0.30m-0.60m(default) Or 0.30m-0.90m(optional), also can be closed.
 Front sensor cable length: 7.60m
 Display screen cable length: 6.00m (231&232) 1.80m (233)
 Control box size: 105x75x21mm (4sensors) 140x90x25mm (6 or 8 sensors)

Problem and solution

Table 2 Problem and solution

Number	Problem	Solution
1	No display when power on	1) Abnormal power supply, check power cable and ground 2) Check if all plugs and joints connected firmly
2	Don't switch to speed display when driving	Speed cable open circuit or wrong connection
3	Car speedometer doesn't work	Speed cable short circuit
4	Wrong speed indication	Refer to speed calibration or correction
5	Display but no buzz	1) If the system assembled with voice module, the buzz will be forbidden. 2) Check if screen cable connected to the correct socket 3) If the buzzer volume was set as "0"
6	Don't switch to distance display when reversing	1) Check if the cable between HUD screen and control box connected firmly 2) No power supply
7	One of sensor doesn't work	1) Check if sensor connected to control box correctly 2) Check if sensor core is damaged while installation 3) Check if heavy silt on the surface of the sensor
8	Wrong display	1) Check if other pressure car washing nearby, or another parking sensor is working 2) Check if anything higher than sensors on the car 3) Check if sensor installed too low and downward 4) Check if sensor face to the ground 5) Check if all plugs and joints connected firmly 7) Try to lower the sensor sensitivity
9	Keep beeping without obstacle	Same as above
10	Low sensitivity	1) Check if heavy silt on the surface of the sensor 2) Check if all plugs and joints connected firmly 3) Check if power voltage is normal 4) Check if the sensitivity adjustment on left
11	Two different digital display	1) Two obstacles 2) Obstacle is moving
12	Sometimes good and sometimes bad	Check if all plugs and joints connected firmly
13	No-start often	Poor contact of power cable or ground
14	Display when raining	Detect raindrops if it is raining heavily
15	Display on the snow ground	Detect snow if the snow is much higher than the ground