

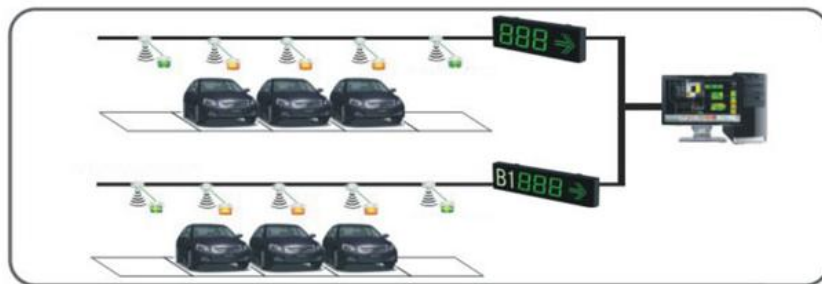
Ultrasonic Detector Instructions

1. Overview

Ultrasonic detector is a component of parking guidance system. It detects the parking status of each parking space and then sends the info to signal collection system through 485 bus line.

Operating principle: The module emits ultrasonic wave to analyze the reflected waves from car roof or ground and calculate the distance between reflecting surface and detector.

Features: use transceiver ultrasonic probe to eliminate the influence of natural environment effectively.

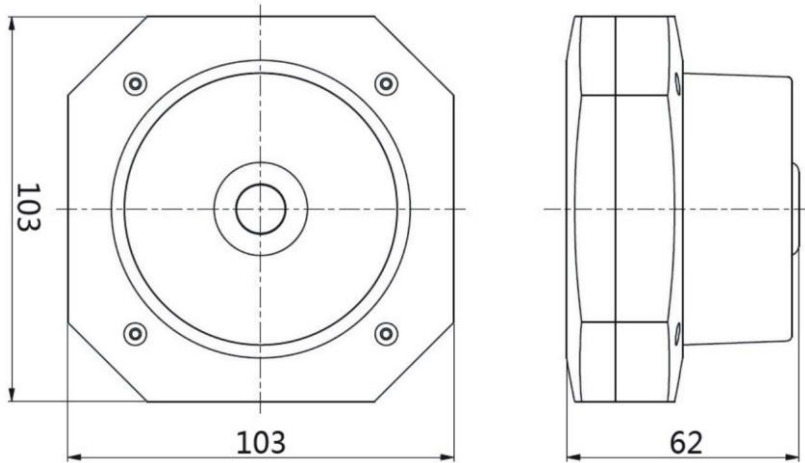


DUD-20D



DUD-20LD(Parking Space Light Included)

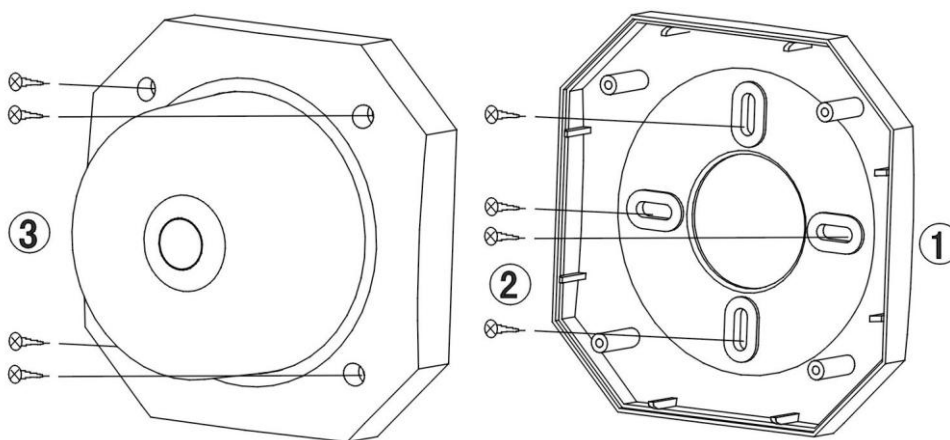
2. Appearance Characteristics Unit (mm)



3. Product Parameter

| Type | DUD-20D | DUD-20LD (Parking Space Light Included) |
|----------------------|--------------------------|---|
| Input Voltage | DC15~24V | |
| Rated Power | 0.5W | 2W |
| Working Temperature | -25~65°C | |
| Size | 103*103*62 (mm) | |
| Weight | 135g | 150g |
| Ultrasonic Frequency | 40.0±1.0KHz | |
| Measure Range | 1.8m~4.0m (Customizable) | |
| Measure Angle | About 70° | |
| Communication Way | RS485, 9600bps | |

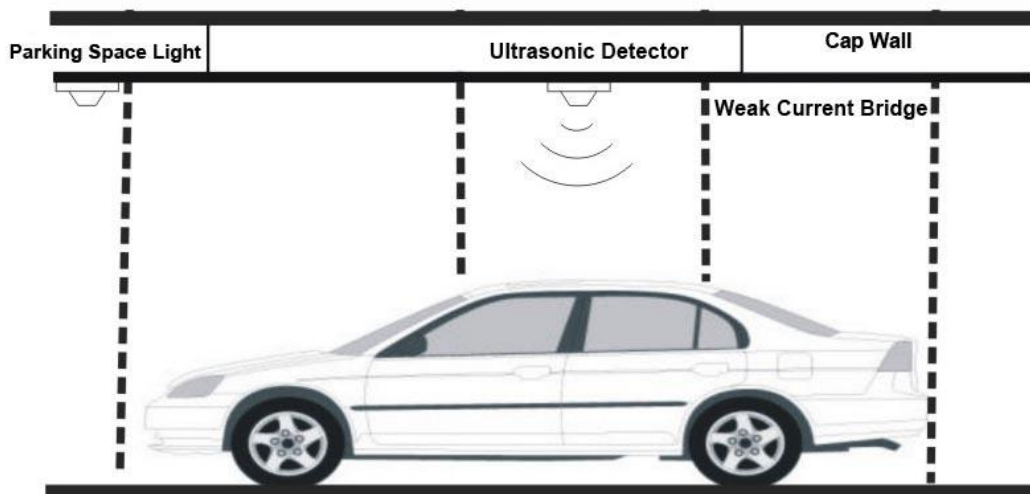
4. Installation Diagram



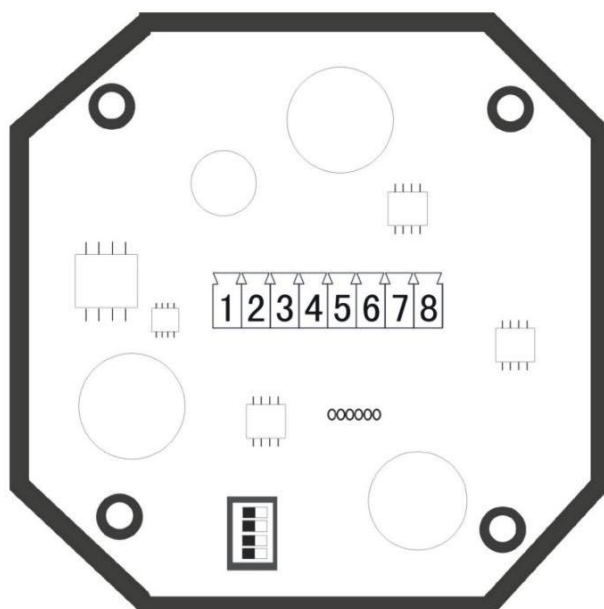
Ultrasonic detector DUD-20D should be installed on the weak current bridge right above the car roof (see chart) instead of front/back windscreens. Parking space light DUD-20L is suggested to be installed on the weak current bridge right above the head.

Before installation, you can place 86 box in the installation point and then fix ultrasonic detector on the box or directly under the weak current bridge.

Notice: Ultrasonic detector DUD-20LD (parking space light included) should be installed on the weak current bridge right above the car roof.



5. Wring Instructions



| | |
|---|-------------------|
| 1 | Vin+ |
| 2 | Vin- |
| 3 | RS485+ |
| 4 | RS485- |
| 5 | RS485-GND |
| 6 | Red-LED-Control |
| 7 | Green-LED-Control |
| 8 | LED-Control-GND |

It is suggested to use double-core wire (RVV2*1.0) as DC24V power wire, double-wire twisted-pair shielding wire (RVV SP2*1.0) as RS485 communication wire, double-core twisted-pair shielding wire (RVV SP2*1.0) as the control wire between Ultrasonic detector DUD-20D and parking space light DUD-20L.

6. Dial Setting Parameter

Reference distance dial setting (Position 1 & 2) Black parts as the dials

| | | | |
|----|--------|--------|--------|
| 2m | ON | 2. 5m | ON |
| 3m | ON | Custom | ON |

Reserved parking space (Position 3) Black parts as the dial

| | | | |
|------------------------|--------|----------------------|--------|
| Reserved Parking Space | ON | Normal Parking Space | ON |
|------------------------|--------|----------------------|--------|

Conduct settings through dial switch. Dial switch 12 is used to set reference distance, 00-setting value (through RS485), 0.1-2.0m, 10-2.5m, 11-3.0m.

Reserved parking space: Dial switch 3 is used to set reserved parking space. Switch3 up means reserved parking space, otherwise normal parking space. Reserved parking space delivers a message of occupied or booked. Upper controller counts out reserved parking space for free parking space. The indicator light status can be set (through RS485) when parking space is in the status of reversed.

7. Indicating Status LED Color Display Instructions of Parking Space

Normal parking space: constant flashing red light when occupied; constant flashing green light when empty.

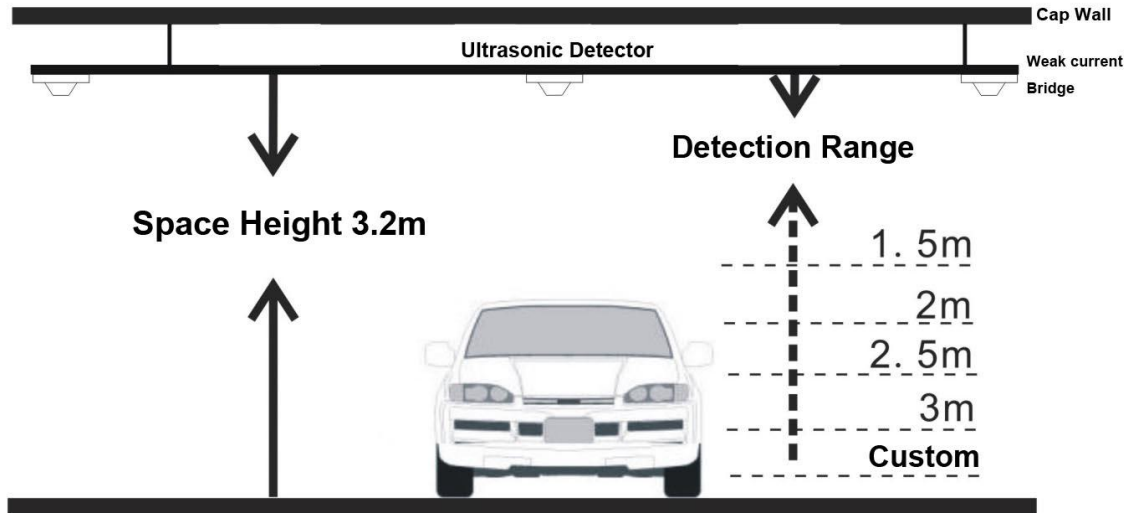
Reserved parking space: constant flashing red light when occupied; light status settable when empty (default to flash red and green alternatively).

8. Reference Distance Choosing

Reference distance is no-vehicle judging distance + 50m, which is the distance between ultrasonic detector and the ground.

The value can be set to 2.0m/2.5m/3.0m through dial switch according to needs. RS485 can also be used to set custom value.

The ultrasonic detector must be restarted to take effect after settings.



9. Sensitivity Setting

Emit data through RS485 to set the parking info sensitivity of ultrasonic detector. Lower value, higher sensitivity. However corresponding accuracy will lower.

10. Module ID Number Setting

Emit data through RS485 to set the ID number (1-32) of ultrasonic detector.

11. Requirements of Switch Power Supply Parameter

The access AC of switch power supply requires tri-core power wire (L/N/Ground). Switching frequency of switch power supply should be greater than 100 KHz and ripple less than 100 mV.

