Xiamen Unique Technology Co. , Ltd.

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# Microwave Radar

# Model: M0BPU0

## Owner's Guide

**FCC**

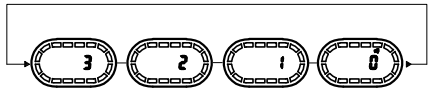
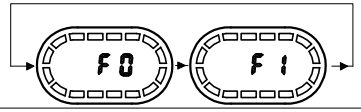
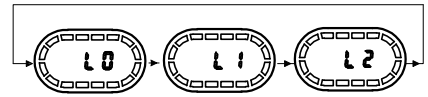
**This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.**

**Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.**

**This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:**
**—Reorient or relocate the receiving antenna.**
**—Increase the separation between the equipment and receiver.**
**—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.**
**—Consult the dealer or an experienced radio/TV technician for help.**

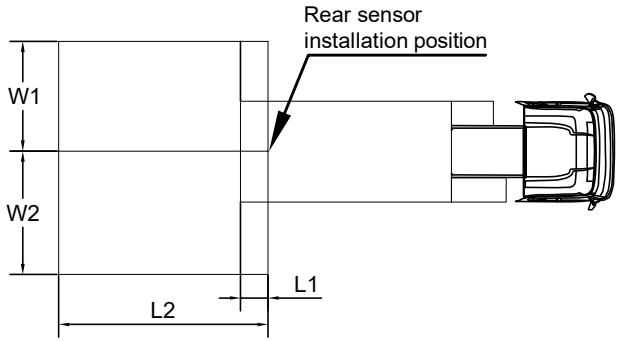
**This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment .**
**This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.**
**This equipment should be installed and operated with minimum distance 30cm between the radiator& your body.**

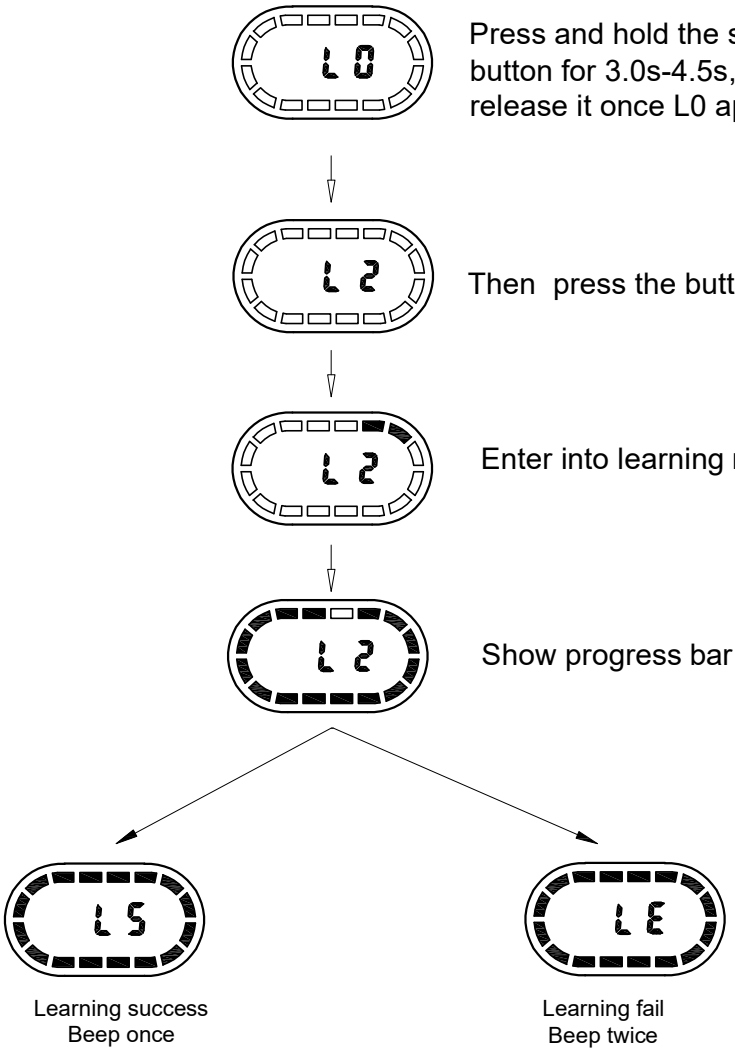
**EUT Operating Temperature Range: -40℃~85℃**

| Setup button | Button pressing time | Setting function | LED bar showing | Definition | Remark |
|---|---|---|---|---|---|
| Volume button | 0-1.5s | Volume | 0 | OFF | Shortly press the setup button, the buzzer will beep once and enter into the volume adjustment mode, the display will show the current volume; Each time you press the setup button, 3, 2, 1 and 0 cycle, stop pressing, and the display will automatically save the status and exit.  |
| | | | 1 | Low | |
| | | | 2 | Middle | |
| | | | 3 | High | |
| Setup button | 1.5s-3.0s | Imperial VS Metric display | F0 | Metric | Constantly press the setup button the buzzer will beep once and enter into the display system setting mode, and the display will show the current status; Each time you press the setup button, F0 and F1 cycle, after stop pressing, and automatically save the status and exit.  |
| | | | F1 | Imperial | |
| | 3.0s-4.5s | Automatic learning function | L0 | OFF | Constantly press the setup button the buzzer will beep once and enter into the display system setting mode, and the display will show the current status; Each time you press the setup button, L0, L1 and L2 cycle, after stop pressing, and automatically save the status and exit.  |
| | | | L1 | Front sensor automatic learning | |
| | | | L2 | Rear sensor automatic learning | |

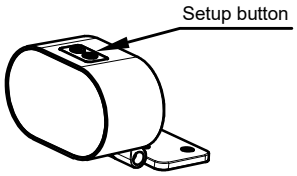
# 8. Detection range setup

The detection range of the sensor is shown in the drawing below. For different vehicle models and conditions, the detection area can be configurated by handheld setup tool:
L1: Setup for the protruding object in the front of the vehicle , the distance from the sensor installation position to the front most part of the vehicle: default value=0m;
L2: Warning distance: default value=10m (setup range 1-50m, accuracy 0.1m);
W1: Right side detection width: default value=2m (setup range 1-5m, accuracy 0.1m);
W2: Left side detection width: default value=2m (setup range 1-5m, accuracy 0.1m).






# 7. Display setup



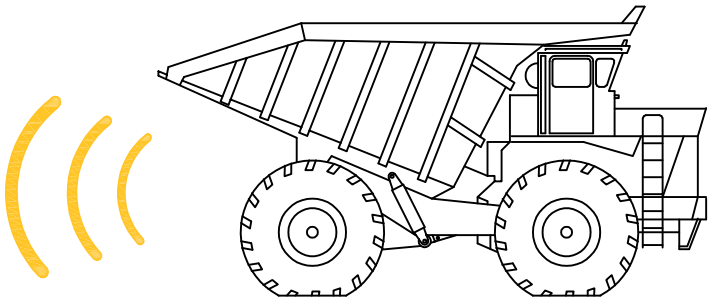



# WARNING

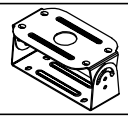
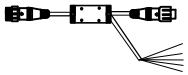
**To help preventing injuries, never use the Object Detection System as a replacement for checking the surrounding pedestrians, cyclists and vehicles. The Object Detection Radar System is not a replacement for careful driving.**

# 1.System overview

Object detection radar means a system to detect and inform the driver of the presence of objects in the close-proximity blind-spot back of the vehicle, if deemed necessary based on manufacturer strategy, warn the driver of a potential collision.



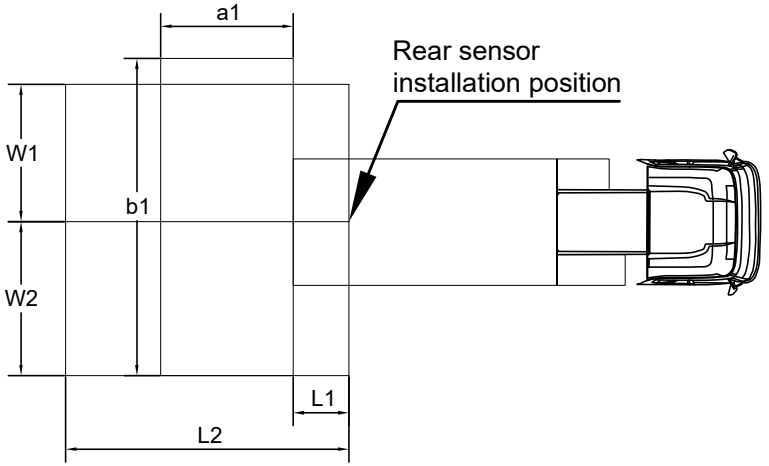
# 2.Kit Contents

| No. | Item | QTY. | Image |
|---|---|---|---|
| 1 | Radar sensor | 1 |  |
| 2 | LED display | 1 |  |
| 3 | Sensor bracket | 1 |  |
| 4 | Main Harness | 1 |  |
| 5 | Extension cable | 2 |  |
| 6 | Accessories bag | 1 | M3*8 screw 4pcs<br>M5*12 screw 4pcs<br>M4.8*16 screw 4pcs<br>M5*16 screw 3pcs<br>Double side tape 1pcs<br>Cable Tie 10pcs |



## 6.2 Learning function

When the installation position of the radar is not at the outermost side of the vehicle, the radar is easy to detect the accessories of the vehicle or vehicle body, which will result in false alarm. Therefore, in order not to make false alarm, it is necessary to enter into the learning mode to make the radar ignore the object.
Users need to follow the following steps to realize the learning function:
a.Move the vehicle to an open area and confirm that there are no obstacles other than body accessories within (a*b)m of the radar;
(1) a1＞4*L1，and a1＞3m；
(2) b1＞W1+W2，and b1＞6m；




b.Power on the system and wait for the completion of system self diagnosis;
c.Constantly press the setup button for 3.0s-4.5s, the buzzer will beep once, the display will show "L0", and enter into the automatic learning function setup mode; Release the button, and then briefly press the key to make the display shows "L2", the system enters into the automatic learning mode, and the learning results are shown after the learning process is completed. If "LS" is shown and beeps once, the learning is successful; if "LE" is shown and beeps twice, the learning is failed.

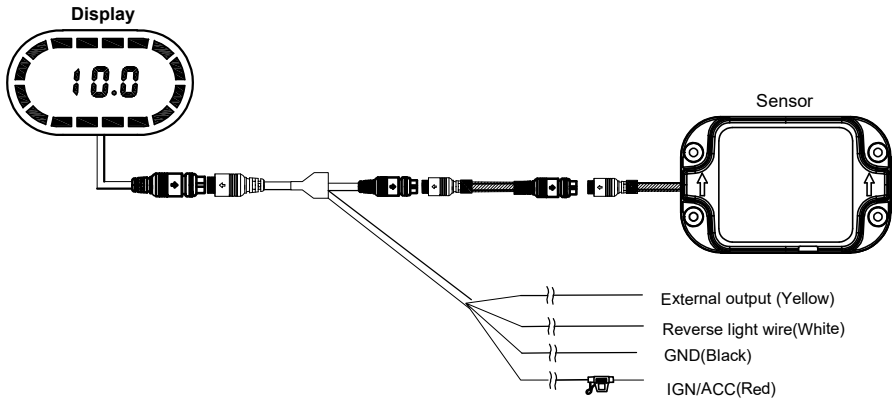
| Item No. | Object distance | Distance showing | Color bar showing | Beep frequency |
|---|---|---|---|---|
| 1 | No detection | — — | No. showing | No beep |
| 2 | 6.1 - 10.0m | 6.1-10.0 | Green LED bar  | BI-----BI-----BI<br>BI--BI--BI<br>BIBIBI<br><br>The closer the distance,the faster the warning frequency |
| 3 | 4.1 - 6.0m | 4.1 - 6.0 | Yellowish green LED bar  | |
| 4 | 2.1 - 4.0m | 2.1 - 4.0 | Yellow LED bar  | |
| 5 | 0.81 - 2.0m | 0.81 - 2.0 | Orange LED bar  | |
| 6 | ≤0.8m | -P- | Red LED bar  | Constant beep |

Note：

Above tracing LED display figure is alarm distance 10m as a reference.
No.3,4,5,6 color bar alarm showing segmentation can be setup by setup tool;
No.2 color bar alarm showing segmentation is the maximum alam distance value.



# 3. Harness Layout

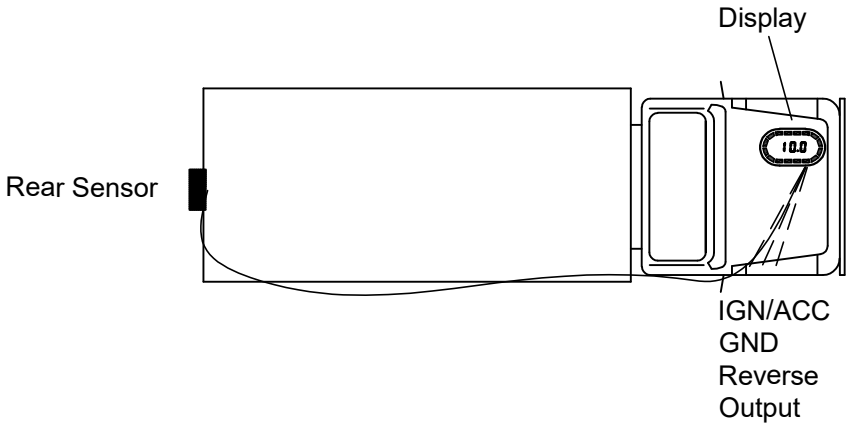



Note:

1.If the output cable won't be used, please wrap the cable to avoid short circuit.

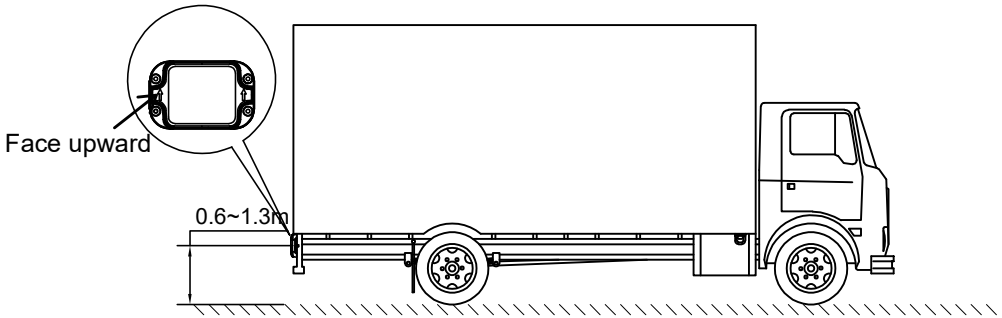
2.The output is positive, the Max. output voltage is no more than 5V.

# 4. System Layout

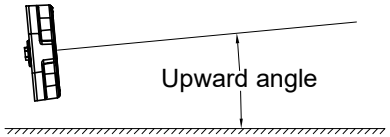


# 5. Installation

## 5.1 Installation height



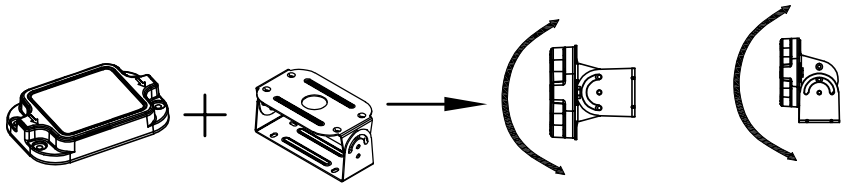

## 5.2 Requirements for vertical installation angle




| Installation height | Upward angle |
|---|---|
| 0.6 - 0.75m | 11° |
| 0.75 - 1.3m | 7° |

## 5.3 Sensor fix

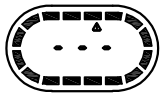
The radar is installed on the vehicle body with a bracket, and the vertical installation angle is adjusted through the mounting bracket.






# 6. Function description

## 6.1 Self-diagnosis

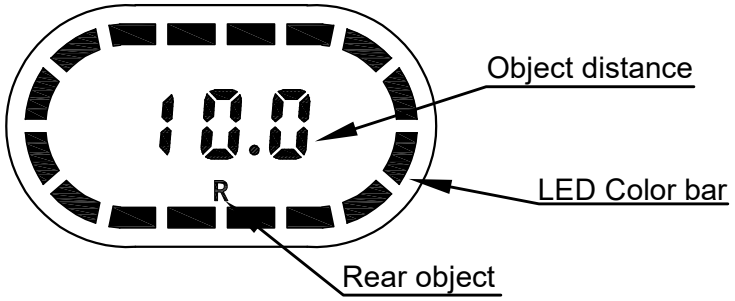
| No. | System status | Display warning method | |
|---|---|---|---|
| | | LED bar | Buzzer built in |
| 1 | Pass |  | Beep once<br>（Bi--） |
| 2 | **Sensor Failed** |  | Beep twice<br>（Bi-Bi--） |

## 6.2 Basic function

When the key is turned to ON, the front radar sensor starts to work;
When the Reverse gear is engaged, the front and rear radar sensors both work.
The LED display will provide audible and visible warnings to driver, the warning principles as below:

(1) If there's object being detected, the output cable will provide high level voltage; if there's no object being detected, it will output float;

(2) If the reverse gear is engaged, the display will show the nearest distance of rear detected object;




(3) Display will provide audible and visible warnings:
The display will show the distance of the detected object, and provide warning beep, according the warning section; the warning sections are equally divided into 5 stages.
Take the max. detection as 10m, the warning sections will be divided as below: