NEWEST ONE RM-02C0830 Radar Object Detection System

NEWEST ONE RM-02C0830 Radar Object Detection System User Guide

Contents

NEWEST

NEWEST ONE RM-02C0830 Radar Object Detection System

Specifications:

- Object Detection Capability
- **Radar Sensor**: 8 X 30 meter
- **Display Units**: Zone 1, Zone 2, Zone 3, Zone 4, Zone 5
- **Installation:** Radar sensors should be installed in designated zones according to the manual.

Product Usage Instructions

Radar Sensor Installation:

Follow the steps provided in the user manual to correctly install the radar sensor in the designated zones.

Display Unit Installation:

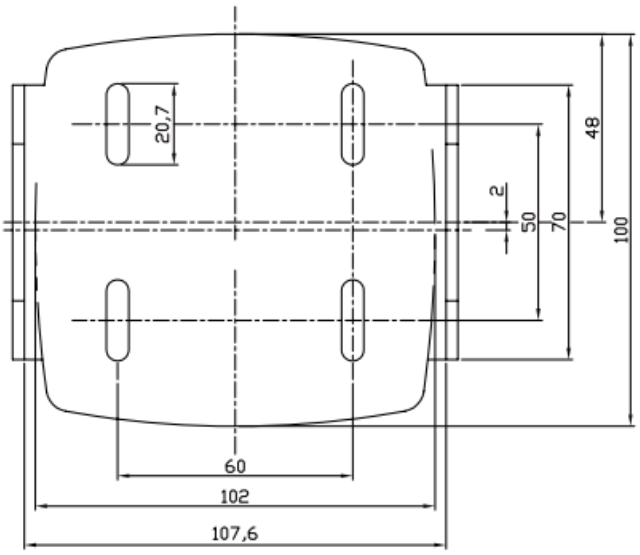
Install the display units according to the instructions provided in the manual. Ensure proper alignment and connection.

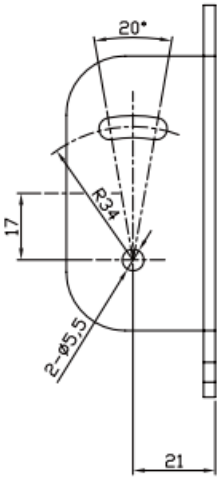
FAQ

- **Q: How do I know if the radar sensor is properly installed?**
  - **A:** The system will provide feedback on the display units indicating successful installation. Make sure to test the system after installation.
- **Q: Can the radar sensor be installed in any location?**
  - **A:** No, the radar sensor should be installed in specific zones as outlined in the manual to ensure accurate object detection.

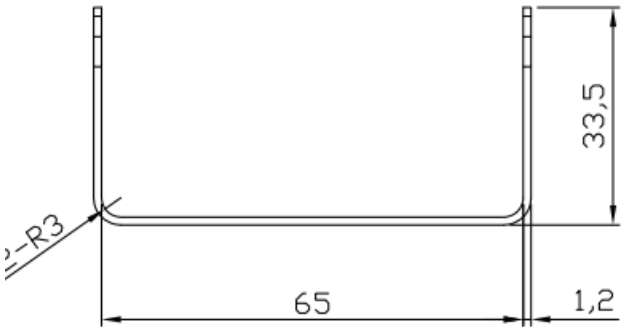
Memo

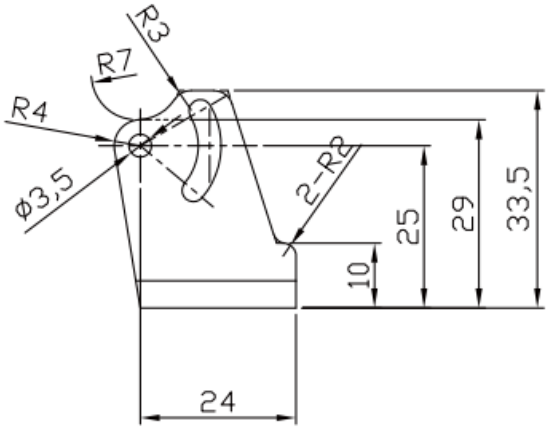
Radar Bracket (mm)

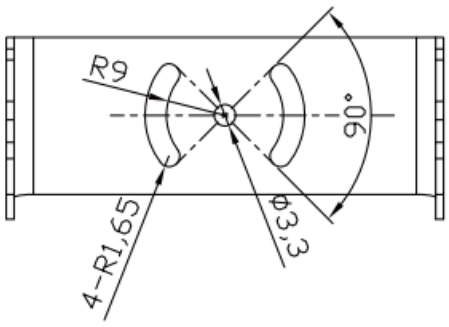




Display Bracket (mm)



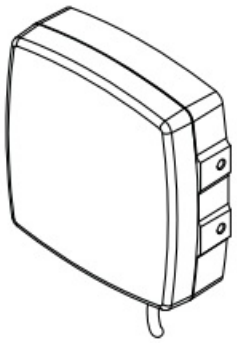




Contents

- Radar Sensor
- Display unit

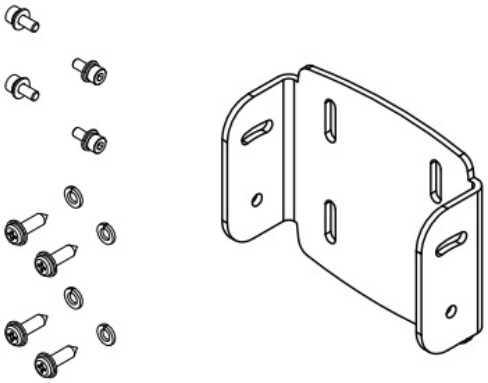
- Radar Sensor



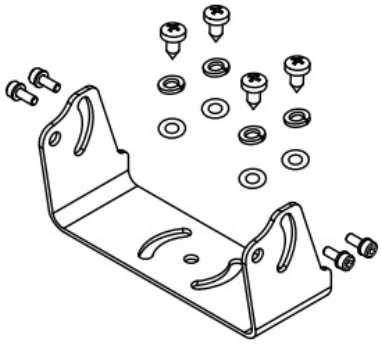
- Display unit

- Wall Mount Included screw pack
- The bracket for the Display unit Included a screw pack

- Wall Mount Included screw pack



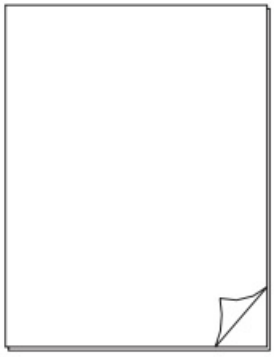
- Bracket for Display unit Included screw pack



- Extension Cable → 9M (29ft) or 20M (65ft)
- User’s Guide

- Extension Cable
  → 9M (29ft) or 20M (65ft)

- User’s Guide



Object Detection Capability

The radar sensor transmits and receives 24 GHz radar signal. It then processes the returned signals to determine

if an object has reflected any energy back to the sensor. Our test condition is a Radar sensor (height 1 meter location) with an adult person at the open side. 1dBsm (dB square meter), “Person reflection” approx.at 1dBsm, “Car reflection” at 10dBsm. The detection range test should proceed at outdoors. The detection zone should be cleared of all obstacles.

Any obstacles in the detection zone will interfere with the test. All dimensions for the detection of objects are nominal and very significantly dependent on many parameters. In the case where there are multiple objects in the detection area at various distances and/or angles, the sensor detects the closest object, which is the most important one for collision avoidance.

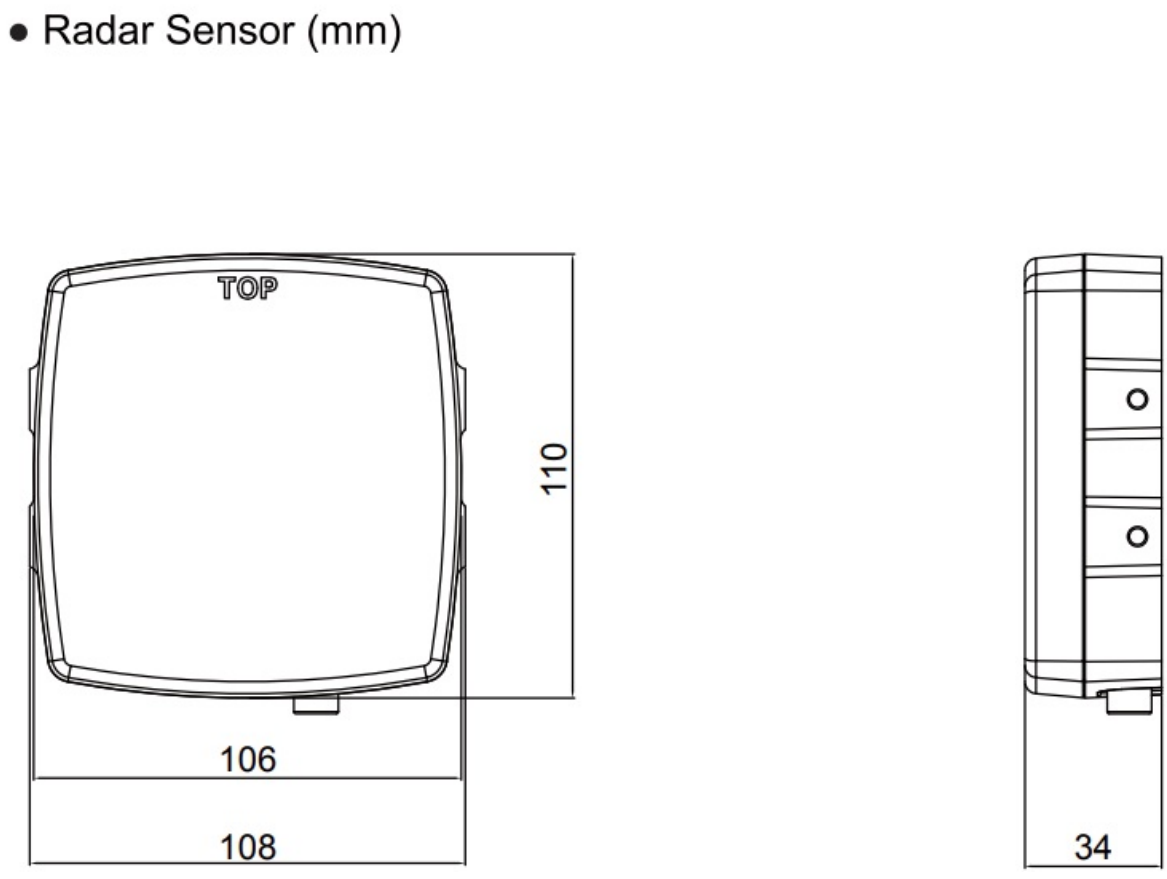
Factors Influencing the Detection of Objects

The object’s properties, location, and direction are key influences in determining if an object is detected or not.

- **Size**: A large object usually reflects more energy than a smaller object.
- **Composition:** Metal is detected better than non-metal materials
- **Shape:** A flat object is better detected than a complex shape. Variations in relative location and direction can influence detection.
- **Angle:** An object facing directly towards the sensor is detected better than an object that is located towards the edges of the detection area or at an angle.
- **Ground condition**: Objects on flat, mineral material ground are better detected than on rough or metal surfaces.

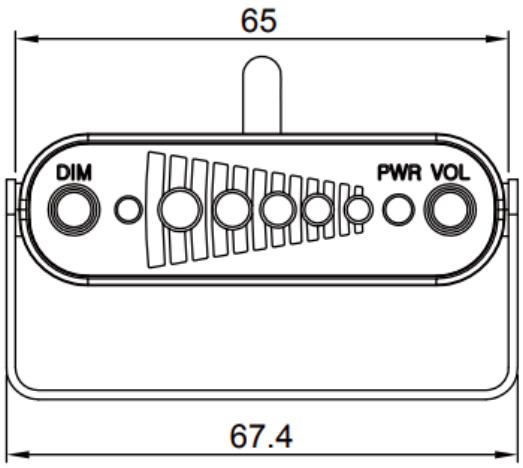
Dimension

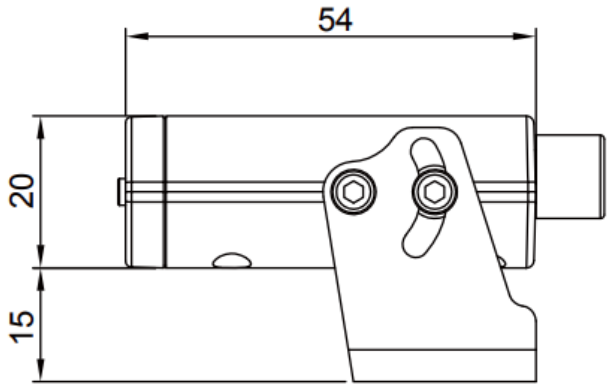
- Radar Sensor (mm)



- Display units (mm)

• Display units (mm)



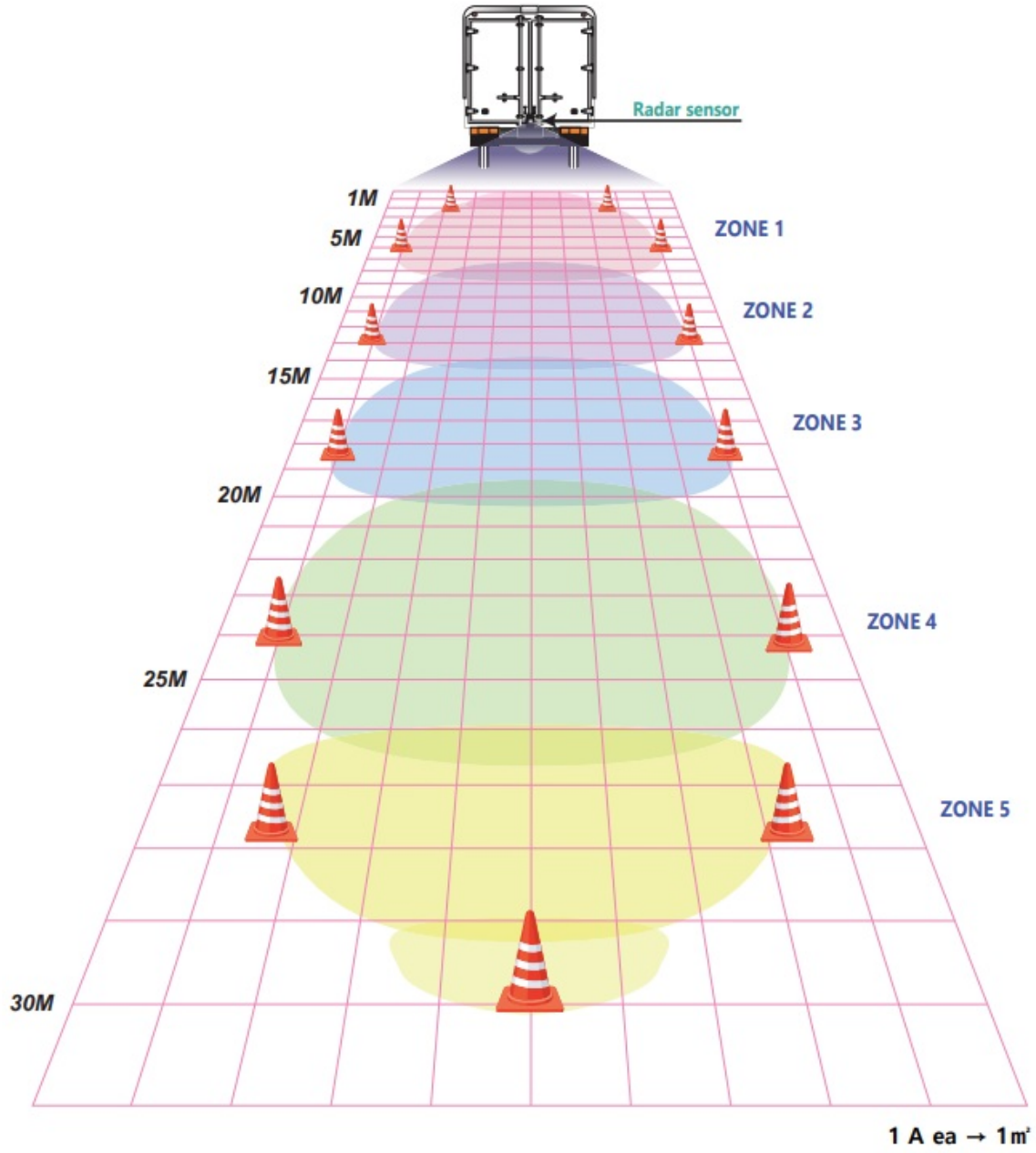


Mode 3

Mode 3.: 8 X 30 meter
(Detection zone 5)

Test Conditions
Radar sensor (Height 1.0 meter)

Test Person: 1.8 meters tall.



Installation

Sensor Mounting

The installation site should be flat. Ideally, the radar sensor should be mounted on the rear of the vehicles as close to the center as possible at roughly 1 meter above the ground.

The sensor should be mounted in the upright position with a cable exit on the sensor pointing downwards.

Mounting angle

Select the appropriate location to mount the sensor.

- **a**. Height tolerance (from ground); 1m +/- 0.3 m
- **b.** Vertical angle tolerance +5° (up), -2° (down)
- **c.** Horizontal angle tolerance +/- 5°

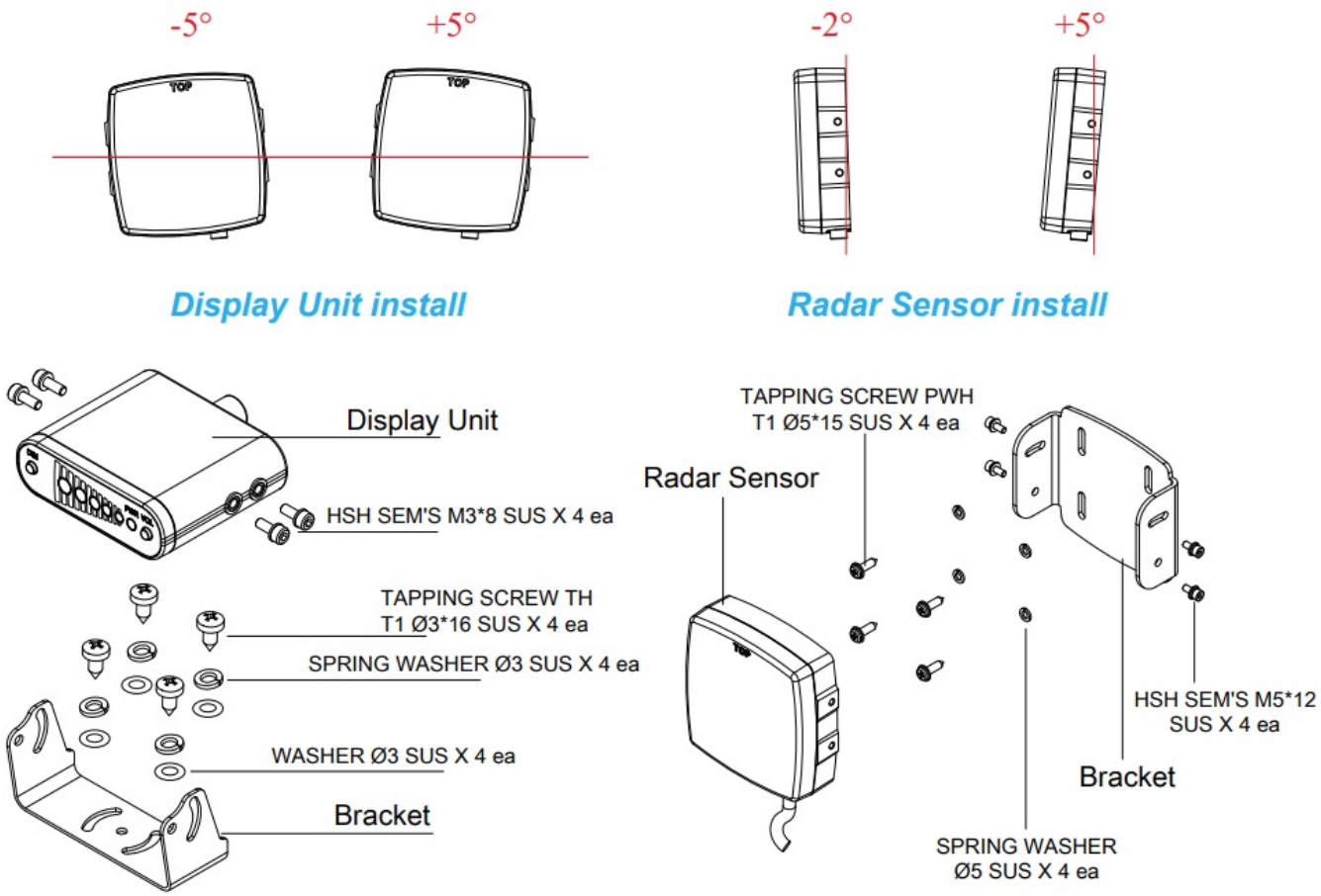
Note:

Before permanently installing the RODS(Radar object detection sensor) on the vehicle, verify that the selected sensor mounting location provides a clear detection zone. Take the machine to a clear area, temporarily attach the sensor in the proposed mounting location, apply power to the system, and verify that nothing is being detected.

Our system is not affected if multiple systems are operating in the same area or on the same vehicle, even if they are installed in close proximity with overlapping detection ranges.

Display Unit install

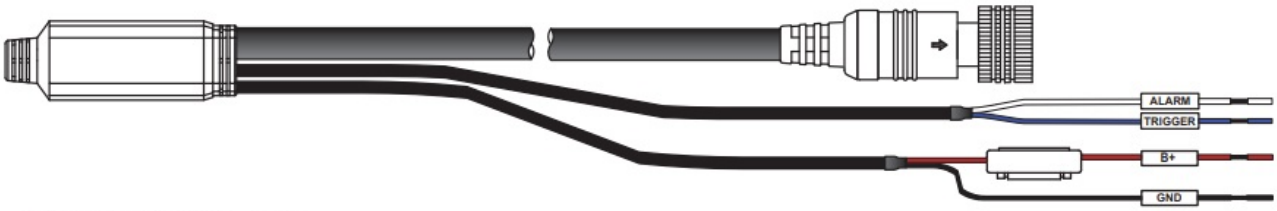
Radar Sensor install



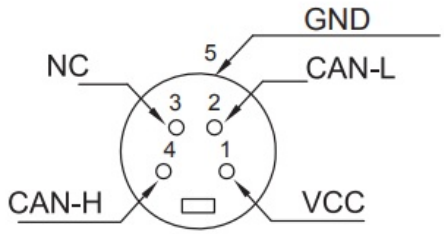
Radar Sensor

Radar Object Detection Sensor

- Rear Cable



- Connector Pin out



Cable connection

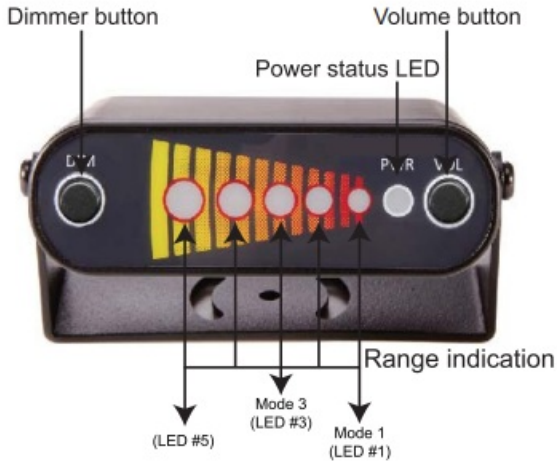
Red: + Vehicle power supply or Reverse Power (3A fuse: Range +9~24V)
Black: Ground (Supply negative)
Blue: Activation input (Trigger from vehicle, High active) changes the system status between standby and active.
White: Alarm Out (Normal close → Alarm activation open)
Alarm output – The radar sensor provides an auxiliary output that becomes active whenever it detects an object and controls when other equipment. e.g an external alarm or light is activated. Contact an agent for more information.

Alarm out	Vehicle type
9 V & 0.9AMP (max)	24V
9 V & 0.5AMP (max)	12V

- Radar Sensor Technical Specification

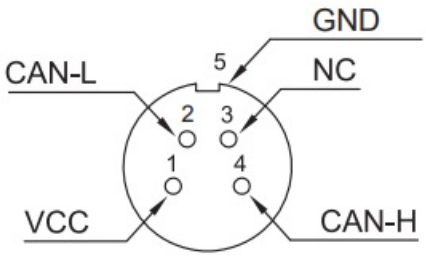
PARAMETER	Value	Units	Condition
Transmit frequency	24.05 ~ 24.25	GHz	FCC, CE, KC
Modulation	FMCW (Frequency Modulated Continuous Wave)		
Supply voltage	12 ~ 32	V dc	
Current	300	mA@12V	W/O Alarm Out
Power on time	300	ms	
Detection time	200	ms	
Communication	CAN-Bus		
Operating temperature	-40 ~ 85	℃	
IP protection rate	69K		
Vibration	15	G	
Housing material	Polycarbonate		
Dimension	110(H)x 108(L) x 34(D)	mm	
Weight	390	g	W/O Bracket
	720	g	with bracket

Display units



- Rear Cable

- Connector Pin out

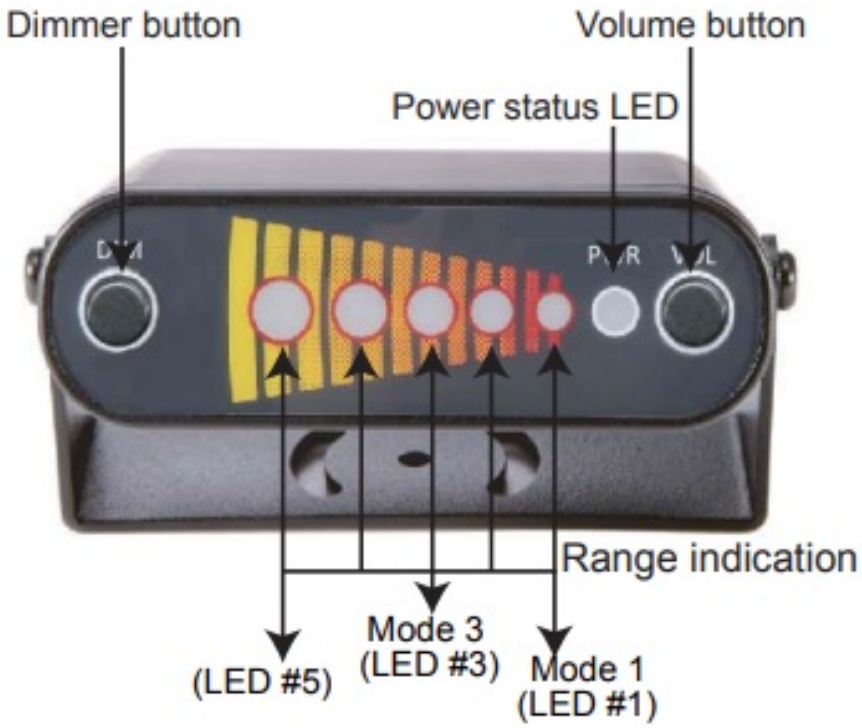


- **Volume button:** Press the volume button to adjust the volume level low, middle, and high LED # 1 (LOW level 78dB), LED#2 (Middle level 85dB), and LED#3 (High level 104dB) at a 0.3-meter distance. Press the volume button for 3 seconds to switch to silence.
- **Power Status LED**: Illuminates green continuously after power is applied to the system
- **Range Indications:** Illuminates to give the operator a distance zone to the closest detected object. LEDs operate from the left to right, with a closer object resulting in more LEDs illuminated.
- **Dim Button**: Press the Dim button to adjust the LED (2 steps) (1) Press the Dim button to verify the current mode for 3 seconds. (LED 1 is less bright and LED 2 is the most bright)
- **Factory Reset**: Press the Volume button before turning on the system. You can find that LEDs 1 ~ 3 are flashing sequentially.

Display units Technical Specification

Detection Zone	5 Zones
Speaker	3 x different volume level to be selected
Operating Temp.	-30˚C ~ +70˚C
Cable Length	0.7 Meter
Connector	4P Screw Lock type
Housing Material	Polycarbonate
Dimension	20(H) x 65(L) x 54(D)mm
Weight	220g with Bracket

Changing Detection Mode



- LED # 5 is flashing (Furthest Detection zone 5)
- LED # 5, & 4 are flashing (Detection zone 4)
- LED # 5,4,& 3 are flashing (Detection zone 3)
- LED # 5 ~ 2 are flashing (Detection zone 2)
- All LEDs are flashing (Closest Detection zone 1)

Mode Adjustment

1. Press both “Dim” and “Vol” to enter the hidden menu simultaneously for 3 seconds. (You can find all LEDs are flashing at 3 times then the power led is blinking.)
2. Press Dim button to select the Mode 1 ~ Mode 3. (Mode 1, Mode 2 and Mode 3 are available)
    - **Mode 1**: 4.0 x 20 (L) meter (5 zones)
    - **Mode 2**: 6.0 x 25 (L) meter (5 zones)
    - **Mode 3**: 8.0 x 30 (L) meter (5 zones)
3. Press the Vol button to save the required Mode. After 2 seconds, you can find all LEDs are flashing at 15 times then Power LED on (When fail to select the required mode, please press Vol button again)

Button Explanation

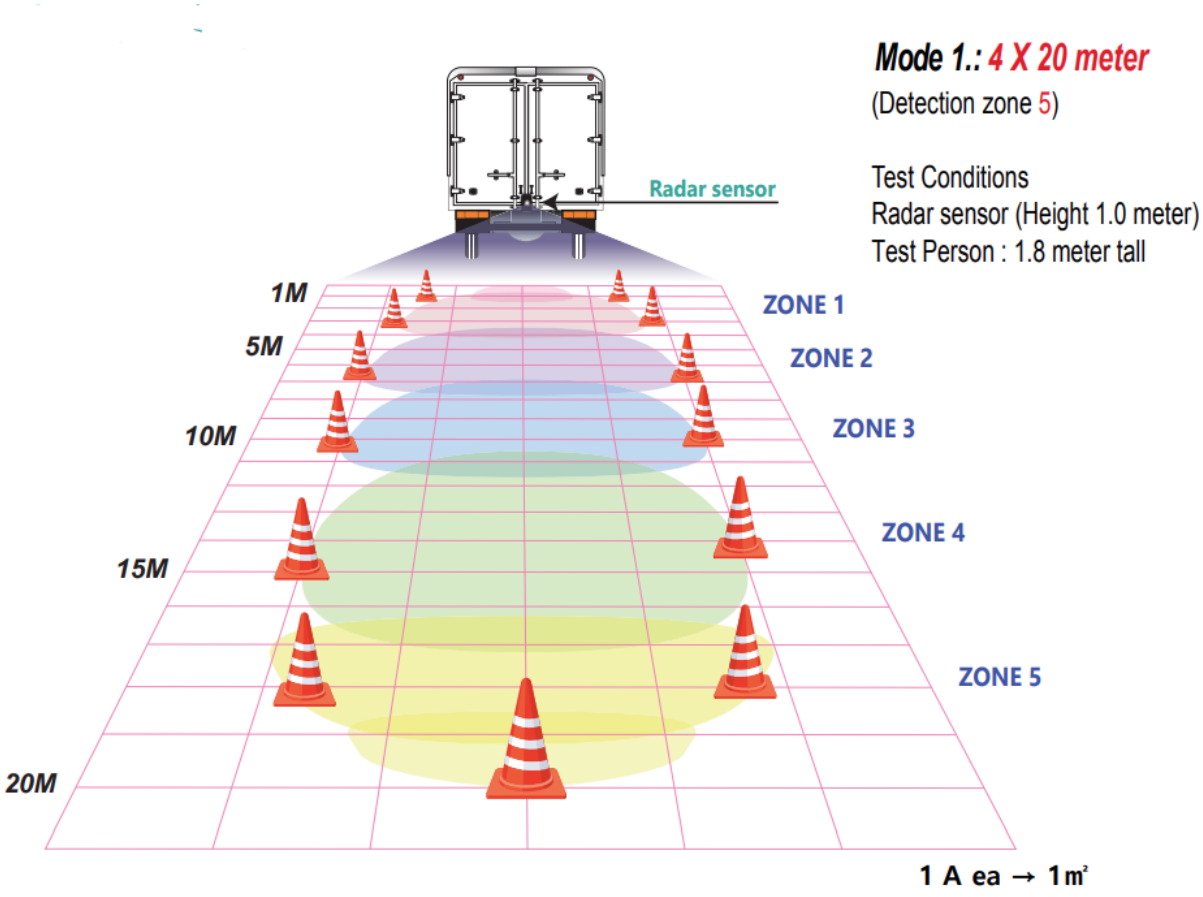
1. **1) Dim Button:** Press the Dim button to adjust the LED (2 steps) / Press the Dim button to verify the current mode for 3 seconds.
    - (LED 1 is less bright and LED 2 is the most bright)
    - Dim the button for the long key (press it for over 3 seconds), you can verify the saved current mode 1 ~ 3.
2. **Volume button**: Press the Volume button for 3 seconds to switch silence (3 Steps)
3. **Factory Reset:** Press the Volume button before turn on the system. You can find that LEDs 1 ~ 3 are flashing sequentially.
    - When LEDs #1,#3 and #5 turn on, the system has malfunction. Please contact the factory.
    - When LED #2 and #5 turn on, communication has an error.

Factory Default Mode

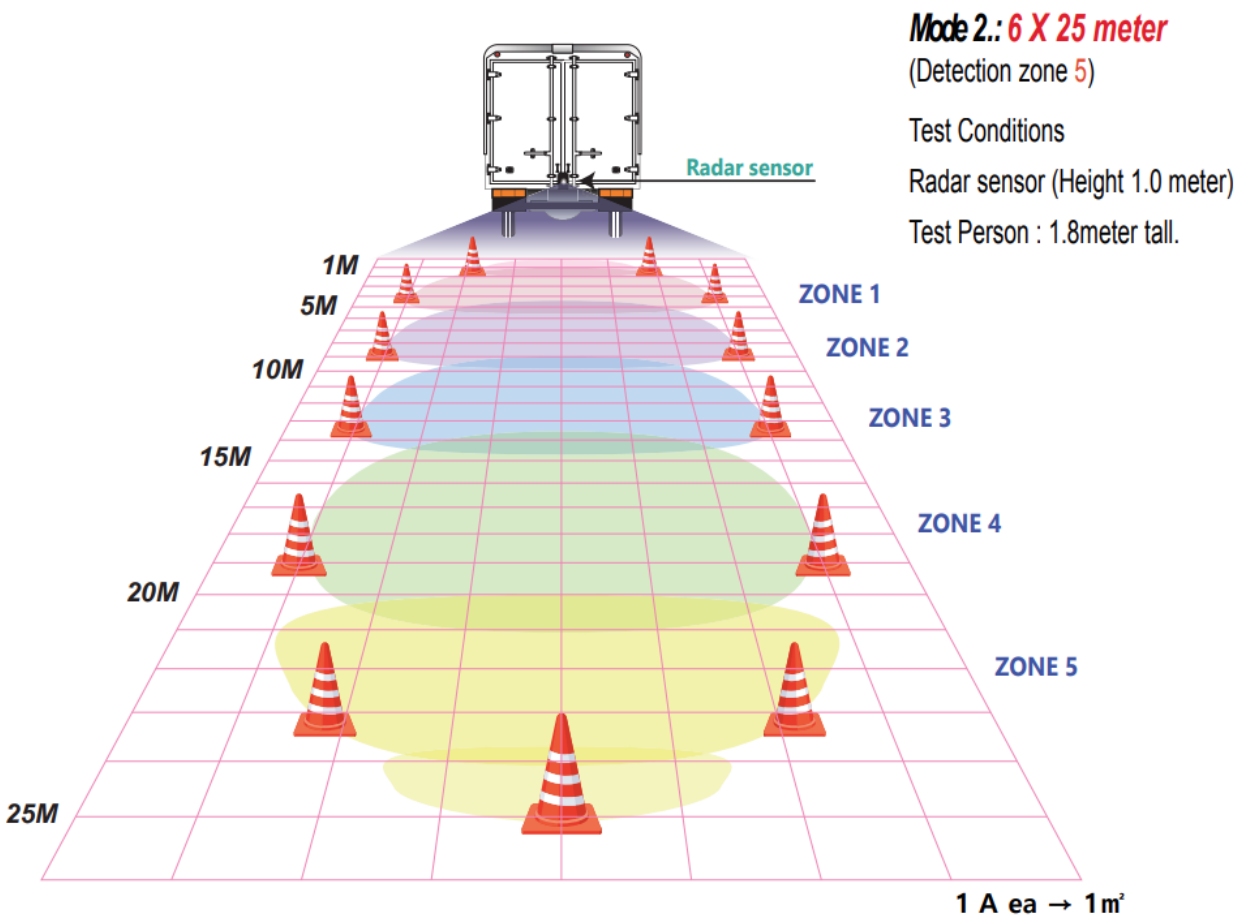
- **Detection mode**: Mode 1 (4.0 x20 meter, 5 Detection zones)
- **Audio:** Max
- **LED Bright**: Max

Before testing the system, make sure the sensors have a clear field of view.
This is the most important when testing indoors because the system may detect walls, posts, etc.
Verify the green LED on the display is illuminated and the system indicates . NO objects are detected. (Indicator LEDs are off).

Mode 1


Mode 1.: 4 X 20 meter
(Detection zone 5)
Test Conditions
Radar sensor (Height 1.0 meter)
Test Person : 1.8 meter tall
Radar sensor
1M
5M
10M
15M
20M
ZONE 1
ZONE 2
ZONE 3
ZONE 4
ZONE 5
1 A ea → 1㎡

Mode 2



Documents / Resources

	NEWEST ONE RM-02C0830 Radar Object Detection System [pdf] User Guide RM-02C0830 Radar Object Detection System, RM-02C0830, Radar Object Detection System, Object Detection System, Detection System, System

References

- User Manual

Manuals+, Privacy Policy

This website is an independent publication and is neither affiliated with nor endorsed by any of the trademark owners. The "Bluetooth®" word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. The "Wi-Fi®" word mark and logos are registered trademarks owned by the Wi-Fi Alliance. Any use of these marks on this website does not imply any affiliation with or endorsement.