



VEHICLE DETECTION SENSOR

OVS-01 BG / BGB

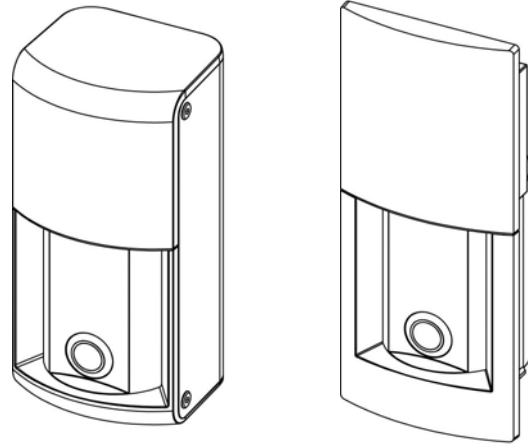
for BARRIER GATE

OVS-01 CC / CCB

for CAR COUNTING

OVS-01 PK / PKB

for PARKING



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.

FCC WARNING(For USA)

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

-NOTICE-

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.

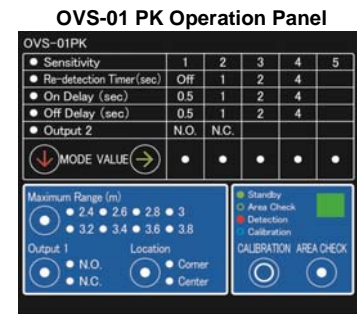
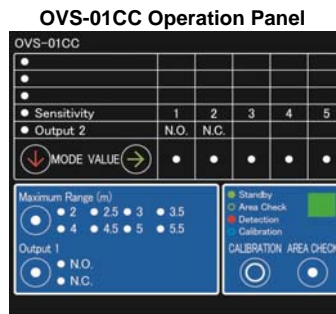
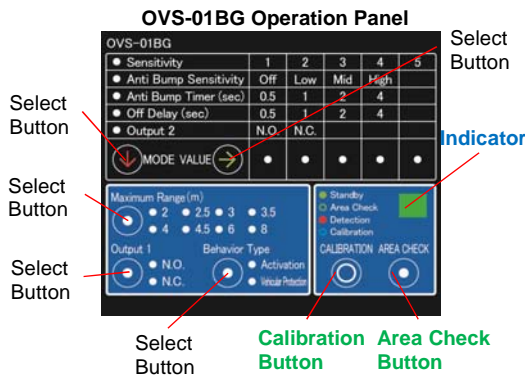
-NOTICE-

- 1.The antennas cannot be exchanged.
- 2.To comply with FCC RF exposure compliance requirements, a separation distance of at least 20cm must be maintained between the antenna of this device and all persons.

Vehicle Detection Sensor OVS-01 series

1) Product Line-Up

Type designation		Application
OVS-01BG	OVS-01BGB	Barrier Gate 
OVS-01CC	OVS-01CCB	Car Counting 
OVS-01PK	OVS-01PKB	Parking 



2) Specifications

Item	OVS-01BG	OVS-01BGB	OVS-01CC	OVS-01CCB	OVS-01PK	OVS-01PKB
1 Power Supply	DC12-24V±10%					
2 Current Draw	Heater ON : 150mA max. (Heater Off : 80mA max.)					
3 Output	2(Two) outputs (Output 1/ Output 2) 1a Relay output 30V, 0.3A					
4 MW detection Range	0.8 - 8m		0.8 - 5.5m		0.8 - 3m	
5 Ultrasonic Detection Range	0.1 - 1.5m Fixed					
7 Mode	5 level (1,2,3,4,5) selectable by Select button Default 3					
Sensitivity	5 level (1,2,3,4,5) selectable by Select button Default 3					
Anti Bump Sensitivity	Off, Low, Mid, High selectable by Select button Default Mid.		-		-	
Anti Bump Timer	0.5, 1.0, 2.0, 4.0sec selectable by Select button Default 2 sec		-		-	
Re-detection Timer	-		0.5, 1.0, 2.0, 4.0sec selectable by Select button Default 2 sec		-	
Off Delay	0.5, 1.0, 2.0, 4.0sec selectable by Select button Default 2 sec		-		0.5, 1.0, 2.0, 4.0sec selectable by Select button Default 2 sec	
On Delay	-		-		0.5, 1.0, 2.0, 4.0sec selectable by Select button Default 2 sec	
Output 1 NO/NC select	NO / NC selectable by select button Default NO					
Output 2 Relay/Trouble	Output 2 NO / Output 2 NC / Trouble output NO / Trouble output NC selectable by Select button Default Output 2 NO					
Maximum Range (MW)	8 level (2, 2.5, 3, 3.5, 4, 4.5, 6, 8m) selectable by Select button Default 4m		8 level (2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5m) selectable by Select button Default 4m		8 level (2.4, 2.6, 2.8, 3, 3.2, 3.4, 3.6, 3.8m) selectable by Select button Default 3.2m	
Behavior Type	Activation / Vehicular Protection selectable by Select button		-		-	
Location	-		Corner / Center selectable by Select button		-	
8 Human cancel	Equipped					
9 Calibration	By Calibration button					
10 Area Check	By Area Check button					
11 Response Time	500ms		300ms		500ms	
12 Operating temperature	-30 ~50°C					
13 Operating Humidity	93% max.					
14 Protection Category	IP65					
15 Sensor Aiming Adjust	Pan : ±30° Tilt: Not available	Pan : ±15° Tilt: Not available	Pan : ±30° Tilt: Not available	Pan : ±15° Tilt: Not available	Pan : ±30° Tilt: Not available	Pan : ±15° Tilt: Not available
16 Detection Speed	20km/h max.		60km/h max.		20km/h max.	
17 Reset	Back to default, Press one sec. " Area Check " and " Calibration " button same time					
18 Frequency	MW : 24GHz, Ultrasonic : 58KHz					
19 Indicator	3 (Three) color LED Standby :Green, Area check : Not detect Green flashing, Detect Red, Calibration : Blue flashing					
20 Narrow Lens	-		Equipped		Equipped	
21 Radio approved standard	FCC Parts 15 Subpart C:2013, ARIB STD-T73 1.2 and R & TTE					

3) Installation

OVS-01BG / BGB

1. Install the Base to Square Pillar or Wall
2. Wiring
3. Adjust Sensor Angle, Maximum Range and Behavior Type
4. Calibration
Press the Calibration button
5. Area Check
Press the Area Check button
6. Set the Parameter
7. System Check
8. Put the Cover

Indicator
 *Blue LED flashing (8 sec.)
 *Blue LED fast flashing (2 sec.)
 *Blue LED to Green LED
 *Completed

Indicator
 *Green LED flashing
 *Red flashing when detecting Human, Vehicle Test pole
 *Press the Area Check button or Wait for 30 sec. with Green LED flashing
 *Completed

Anti Bump Sensitivity
 Anti Bump Timer
 Off Delay
 Output 2
 Output 1

OVS-01CC / CCB

1. Install the Base to Square Pillar or Wall
2. Wiring
3. Adjust Sensor Angle and Maximum Range
4. Calibration
Press the Calibration button
5. Area Check
Press the Area Check button
6. Set the Parameter
7. System Check
8. Put the Cover

Indicator
 *Blue LED flashing (8 sec.)
 *Blue LED fast flashing (2 sec.)
 *Blue LED to Green LED
 *Completed

Indicator
 *Green LED flashing
 *Red flashing when detecting Human, Vehicle Test pole
 *Press the Area Check button or Wait for 30 sec. with Green LED flashing
 *Completed

Off Delay
 Output 2
 Output 1

OVS-01PK / PKB

1. Install the Base to Square Pillar or Wall
2. Wiring
3. Adjust Sensor Angle and Maximum Range
4. Calibration
Press the Calibration button
5. Area Check
Press the Area Check button
6. Set the Parameter
7. System Check
8. Put the Cover

Indicator
 *Blue LED flashing (8 sec.)
 *Blue LED fast flashing (2 sec.)
 *Blue LED to Green LED
 *Completed

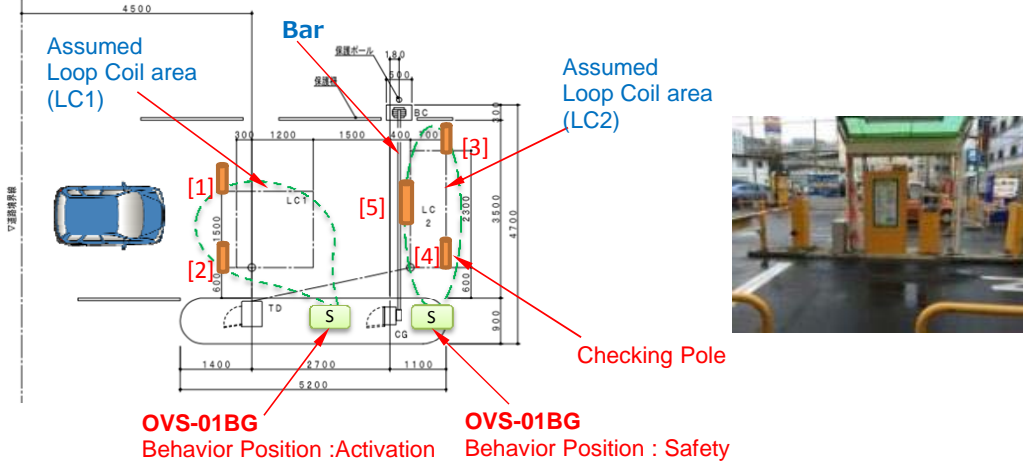
Indicator
 *Green LED flashing
 *Red flashing when detecting Human, Vehicle Test pole
 *Press the Area Check button or Wait for 30 sec. with Green LED flashing
 *Completed

Off Delay
 Output 2
 Output 1

4) How to check the Detection Area

For the detection area checking, we recommend to use diameter 60mm pole (Height around 1m~1.5m) as standard.

Example



1. Press the Area Check button
2. Check the Indicator turn to Green flashing



Area Check button

3. Put the Checking Pole to corner of assumed loop coil area [1]
4. Leave from detection area
5. Check the indicator turn to Red flashing



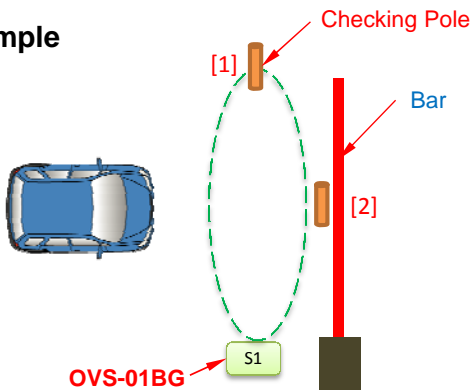
6. Repeat 3-5 for [2] [3] and [4]

7. Check the checking pole to near the Bar [5]
8. Check the Indicator turn to Green LED flashing (Not detect pole)

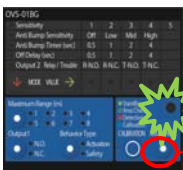


9. Press the Area Check button or wait for 30 sec. With Green LED flashing
10. Completed.

Example



1. Press the " Area Check " button
2. Check the indicator turn on to Green LED flashing.



Area Check button

3. Put the checking pole to expected area Top [1]
4. Leave from detection area
5. Check the indicator turn to Red flashing



7. Check the checking pole to near the Bar [2]
8. Check the Indicator turn to Green LED flashing (Not detect pole) (keep Green flashing)



9. Press the Area Check button or wait for 30 sec. With Green LED flashing
10. Completed.

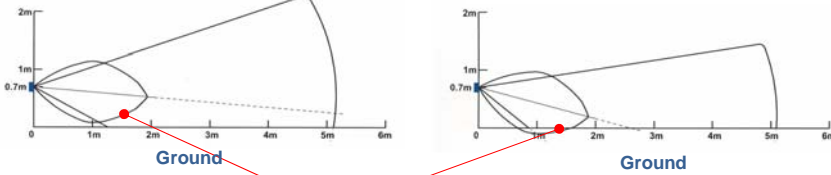
5) Other Precaution

1. The detection area of Ultrasonic sensor should not contact with anything, (the ground, flower pot, the box etc.)

Example

-5° OK. (Detection area is not contacting with the ground)

-15° NG. (Detection area is contacting with the ground)

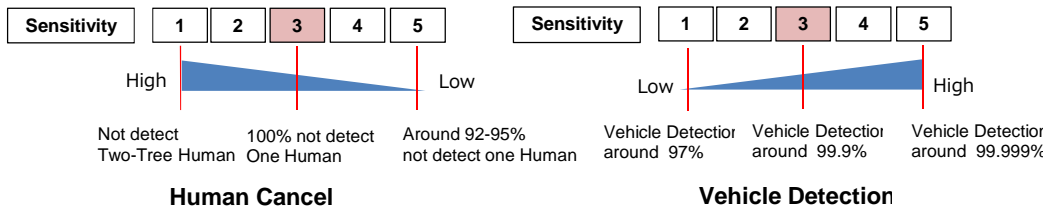


Detection area of Ultrasonic Sensor

2. Mounting Height 60-80cm will have 100% performance.

3. Sensitivity Level (Human detection and Vehicle detection)

The following are relation between Human cancel and Vehicle detection. Position 3 is used generally.

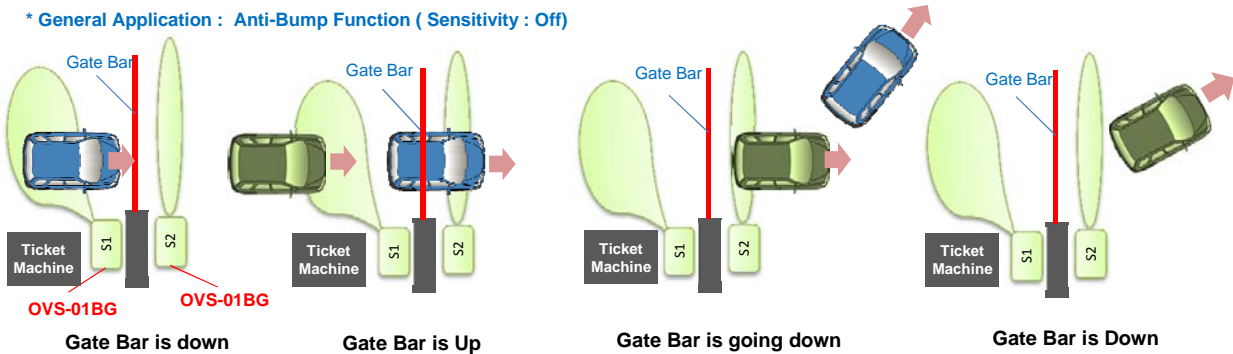


4. Anti-Bump function

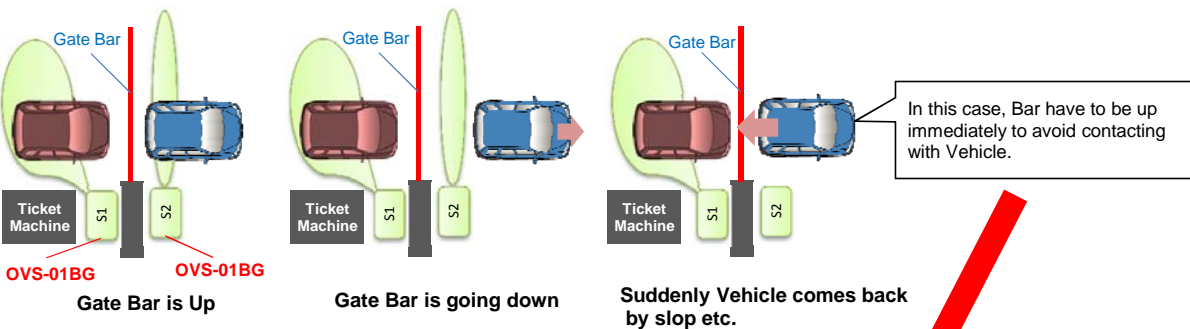
Anti Bump Sensitivity	Off	Low	Mid	Hig
Anti Bump Time	0.5	1.0	2.0	4.0

Generally, Anti Bump Sensitivity position use " Off " position. Anti Bump Time function does not work in the Off position. However, If more safety is required to avoid the Bar contact with Vehicle, Anti-Bump function will be used.

* General Application : Anti-Bump Function (Sensitivity : Off)



* Use Anti Bump Function (Sensitivity Mid)



Leave from the detection area

Note

* After Vehicle leave from the detection area, Sensitivity is more sensitive for 0.5 or 1 or 2 or 4 sec. (selectable by Anti-Bump timer). (During Anti Bump function is working, Human cancel function dose not work.)

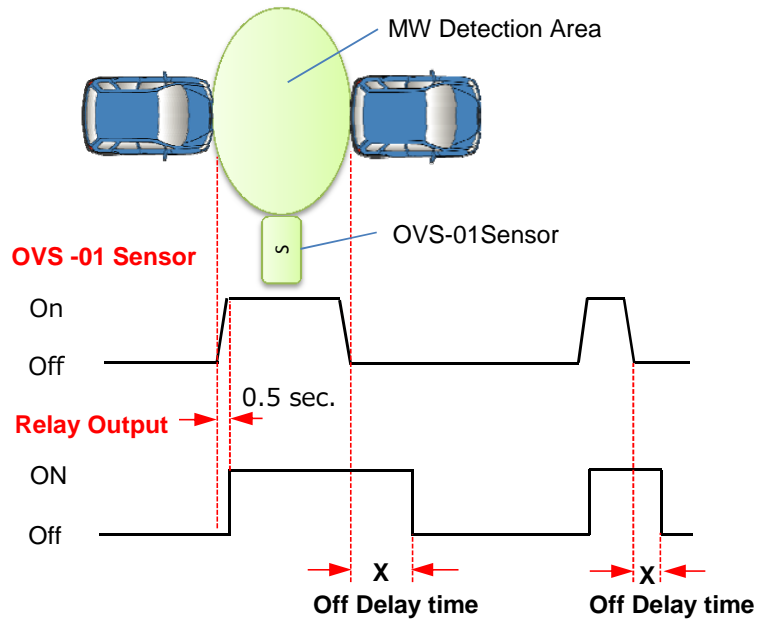
* Sensitive level is selected. (Low, Mid, High). Generally Mid position is used.

Note : Anti Bump function works in the only Behavior position "Safety"

5. Off Delay Timer

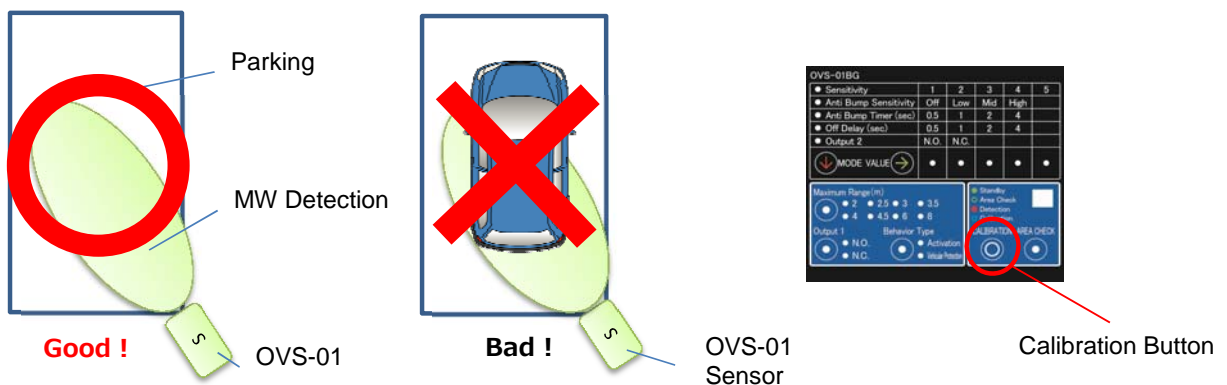
Off delay	0.5	1	2	4
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Selectable Off delay time (0.5, 1, 2, 4 second)



6. Calibration

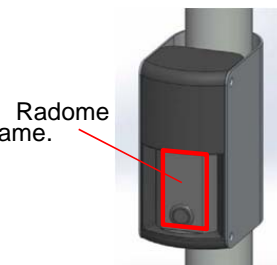
- * Calibration must be definitely executed after installation.
- * Calibration must be executed with stable parking condition.. It mean there are no Vehicle, human, Big plant pot and Box etc within the detection area when calibration is executed.



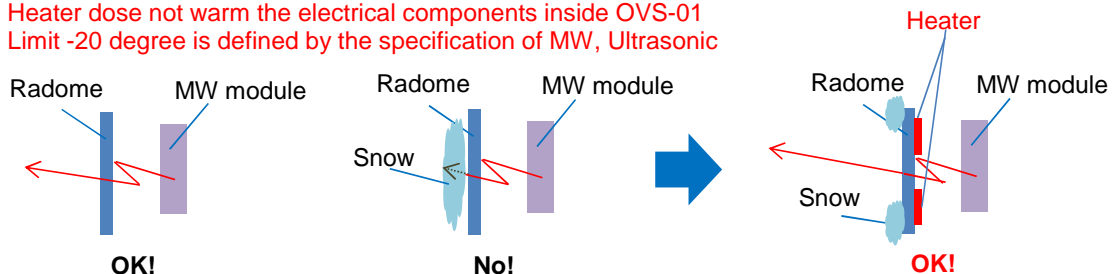
7. Heater

- MW dose not work if snow is stuck to the surface of Radome..
- Purpose of Heater is to melt the snow that is stuck to the surface of Redame.
- Heater will work when outside temperature become around 0 degree automatically.

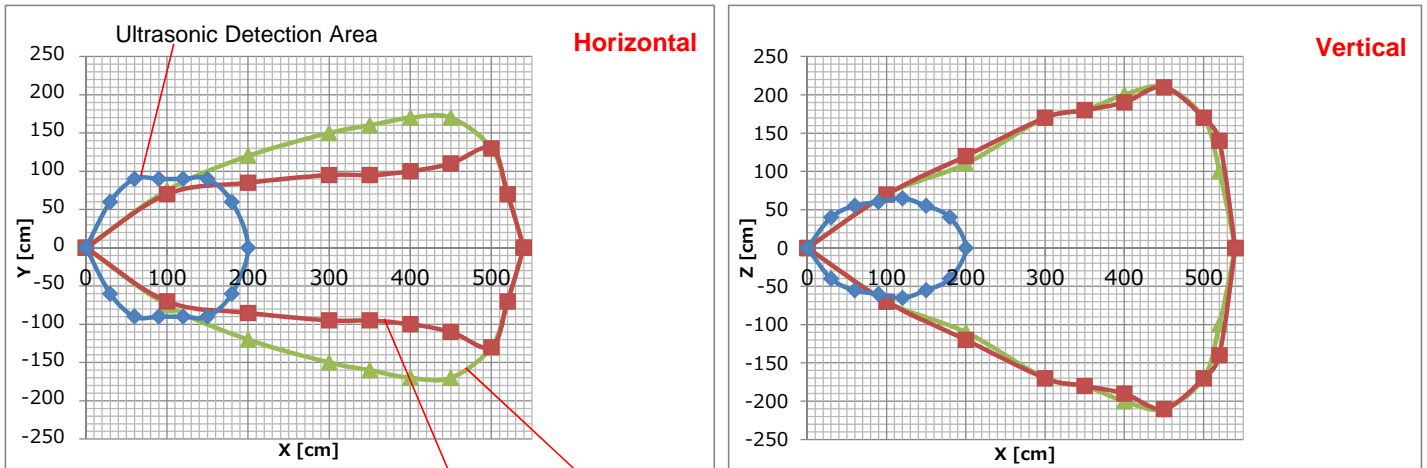
Radome surface keep around 4 degree or more by this heater.
Snow is not stuck to surface of radome of 4 degree or more



1. Rain becomes snow if temperature becomes less 0 °C.
2. 0 °C must be guaranteed because it is operating temperature range.
3. Heater which is attached to rear surface of radome solves this problem.
4. Heater dose not warm the electrical components inside OVS-01
5. Limit -20 degree is defined by the specification of MW, Ultrasonic



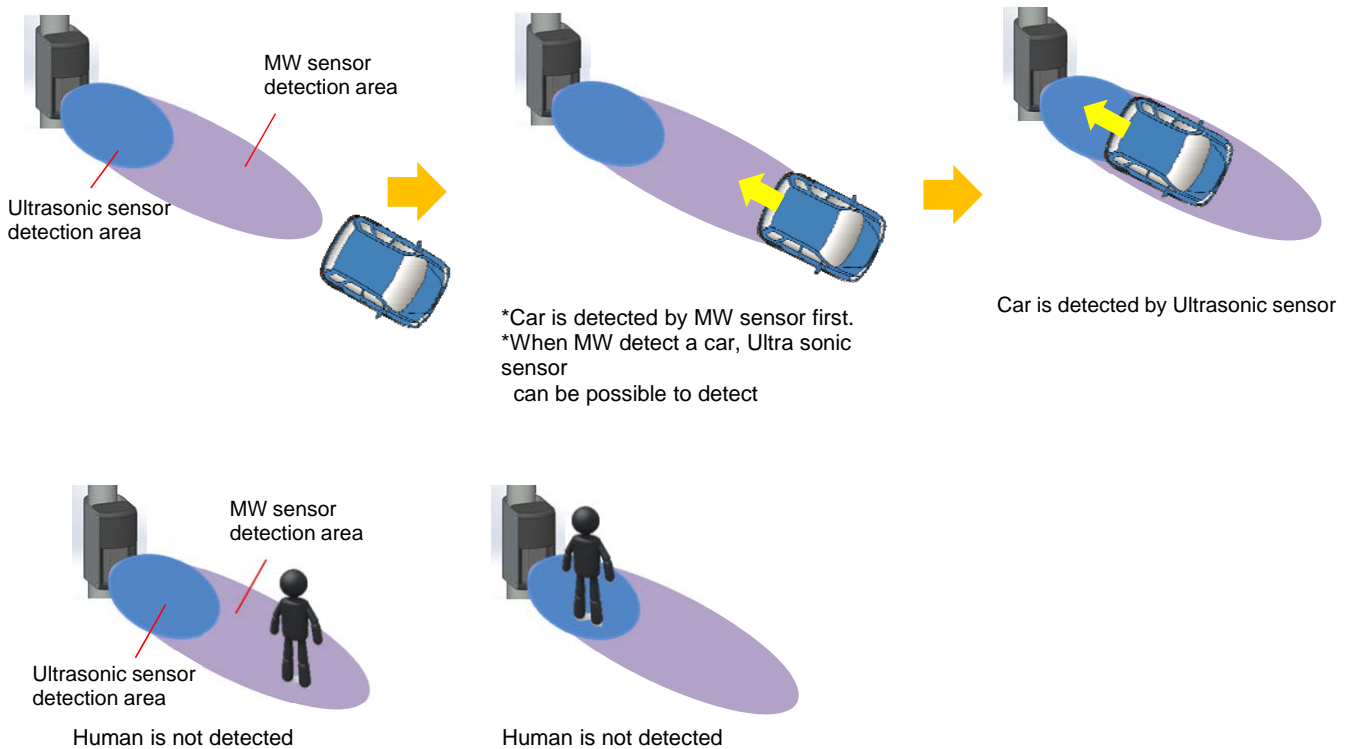
8. Detection Area



- **OVS-01BG / BGB** MW area with Narrow Lens MW area without Narrow Lens
This model does not equip the narrow lens.
- **OVS-01CC / CCB / PK / PKB**
This model equips the narrow lens.

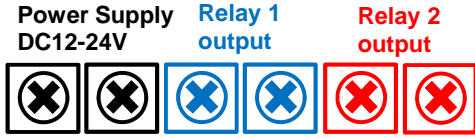
9. MW and Ultrasonic

- OVS-01 series equips MW and Ultrasonic sensor.
- Presence detection is possible by FMCW.
- Ultrasonic Sensor detects near side range.
- Detection logic
 - ① MW detects a car first.
 - ② When MW detects a car, Ultrasonic can be possible to detect.
 - ③ Output is OR gate of MW and Ultrasonic sensor.



10. Output

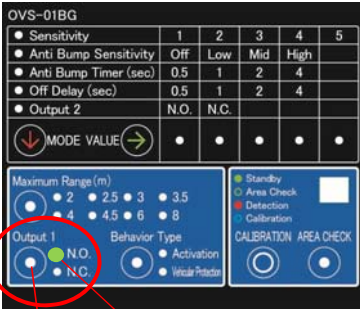
* All OVS-01 series equips six terminals



Output 1 (Main output)

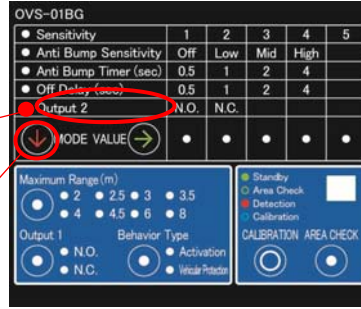
Output 2 (Sub output) or Trouble output

Select NO or NC by Button



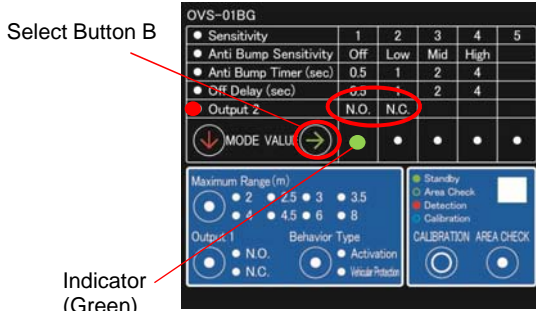
Button Indicator (Green)

Select "Output 2 Relay / Trouble" by Select Button A



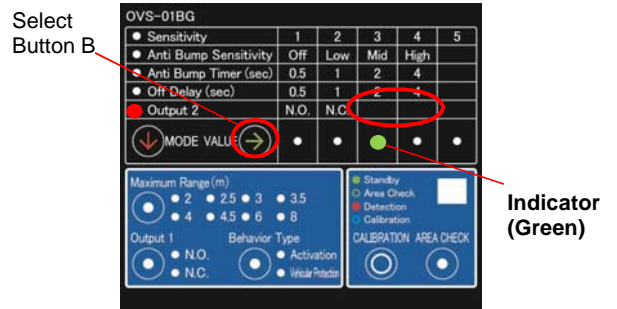
Indicator (Red) Select Button A

Select Output 2 by Button B



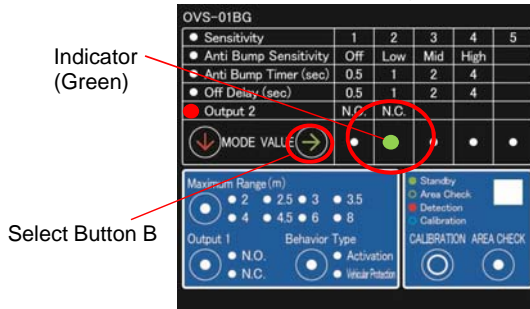
Select Button B Indicator (Green)

Select Trouble Output by Button B



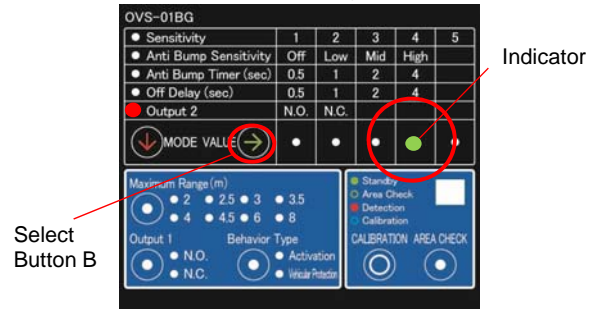
Indicator (Green)

Select R.N.O or R.N.C by Select Button B



Indicator (Green) Select Button B

Select T.N.O or T.N.C by Select Button B



Indicator Select Button B

Trouble Output

When either MW or Ultrasonic sensor is failed (dead), it is outputted. However, This output do not understand that either Sensor is failed (dead).