Progressive Safe System

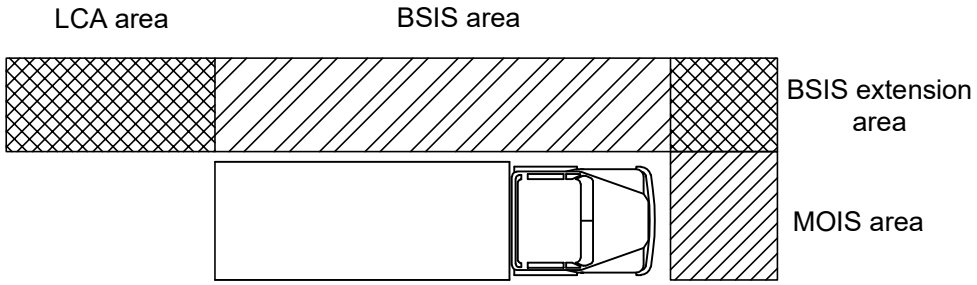
Owner’s Guide

WARNING

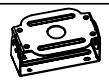
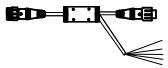
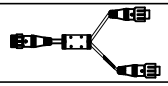
To help preventing injuries, never use the Progressive Safety System (PSS) as a replacement for checking the surrounding pedestrians and cyclists. The Progressive Safety System is not a replacement for careful driving.

1.System overview

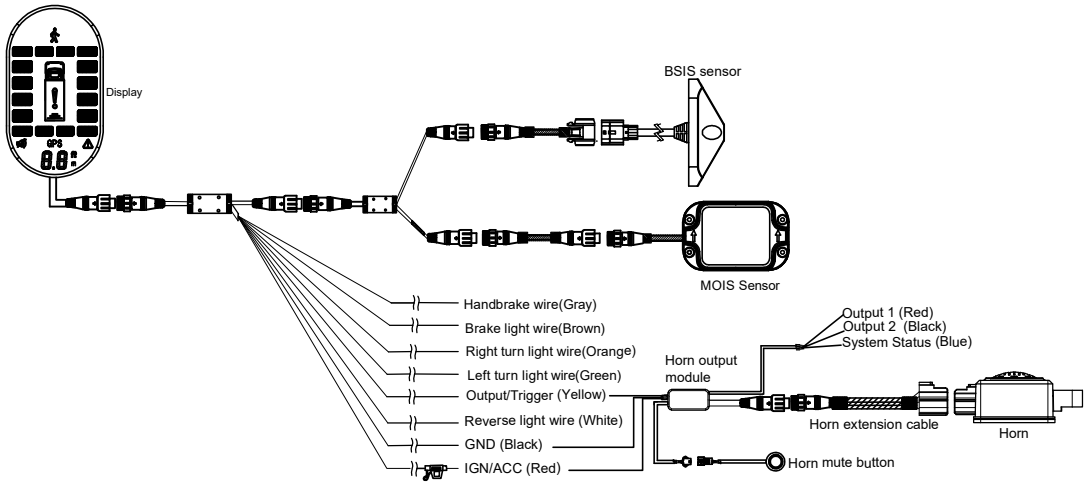
Progressive Safety System (PSS) means a system to detect objects and inform the driver of the presence of pedestrians and cyclists in deemed monitor area of the vehicle, warn the driver of a potential risk by information signal and warning signal.



2.Kit Contents

No.	Item	QTY.	Image
1	MOIS sensor	1	
2	BSIS sensor	1	
3	LED display	1	
4	MOIS sensor bracket	1	
5	BSIS sensor bracket	1	
6	Main Harness	1	
7	Sensor branch cable	1	
8	Extension cable (For MOIS sensor)	1	
9	Extension cable (For BSIS sensor)	1	
10	Accessories bag	1	M5*12 screw 4pcs M5*20 screw 4pcs M4.8*16 screw 4pcs M5*16 screw 3pcs M5*14 screw 2pcs M4.8*16 screw 3pcs Cable Tie 20pcs Double side tape 1pc
11	Horn	1	
12	Horn mute button	1	
13	Extension cable (For horn)	1	
14	Horn output module	1	

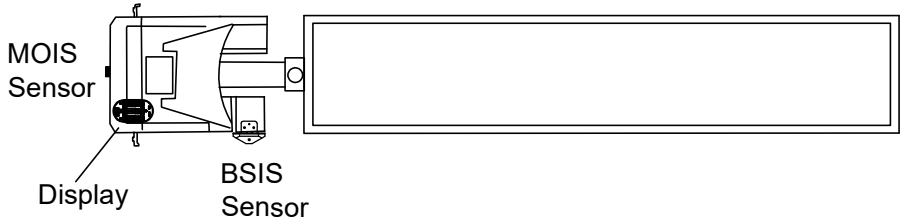
3. Harness Layout



Note:
1.If the output/trigger cable won't be used, please wrap the cable to avoid short circuit;
2.The output is positive, the Max. output voltage is less than 5V;
3. Handbrake wire should be connected to handbrake signal, the default input of the handbrake signal is positive, means when the handbrake is on, the signal should be positive. If the output is positive when the handbrake is on, please add relay to convert the output. This connection is optional, if it was connected and handbrake is on, the MOIS sensor will work in static mode; If handbrake was released, the MOIS sensor will enter dynamic mode, then enter normal operation mode after 10s.
Static mode: vehicle speed=0km/h;
Dynamic mode: MOIS function: 0<vehicle speed<20km/h;
Normal operation: normal driving forward status;
4. Brake light wire should be connected to foot brake signal, with foot brake, there will be no warning beep for MOIS function (display showing keeps same);
5. Left and right turning light wire should be connected to left and right turning light, this makes the BSIS warning alert happen;
6. The system status cable is to output system self-diagnosis status, if the system self-diagnosis failed, this cable will output high level, otherwise it will output low level.

4. System Layout

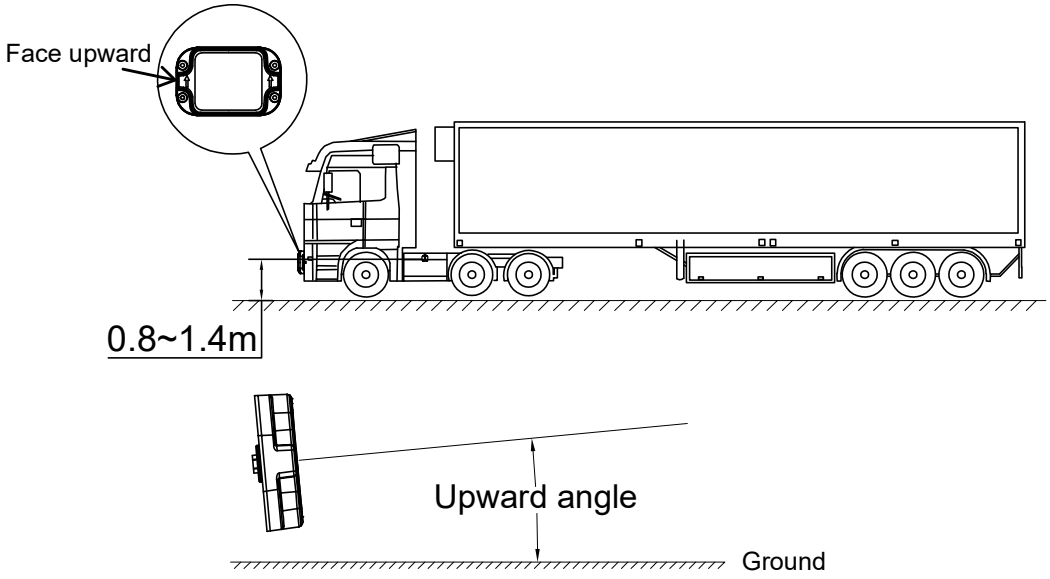
IGN/ACC
GND
Output/Trigger
Reverse light wire
Handbrake wire
Foot brake wire
Left turn light wire
Right turn light wire



5. Installation

5.1 Sensor installation height and angle

5.1.1 MOIS sensor fix

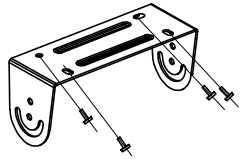


For different installation height, please follow the installation angle as below:

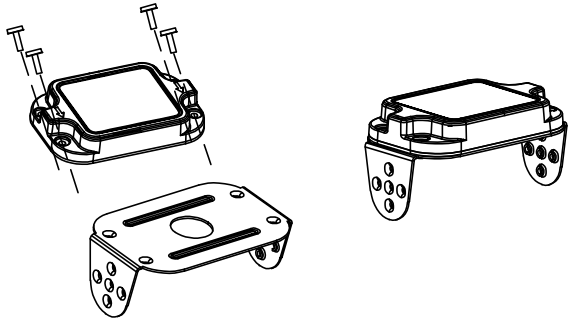
Installation height	Upward angle
0.8 - 0.9m	7°
0.9 - 1.2m	5°
1.2 - 1.4m	3°

MOIS sensor bracket fix

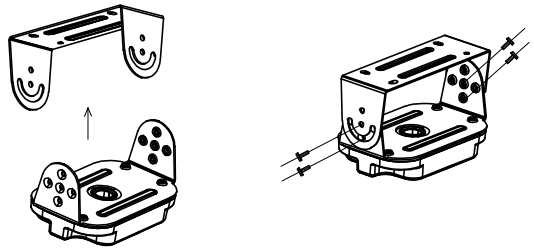
Step 1: Fix the bottom bracket on the vehicle by screw (M4.8*16)



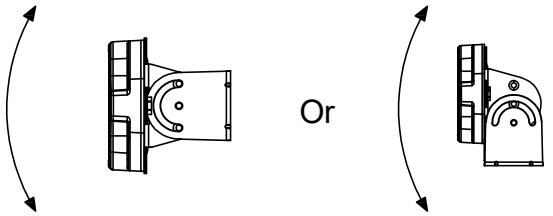
Step 2: Fix the sensor on the upper bracket by screw (M5*20)



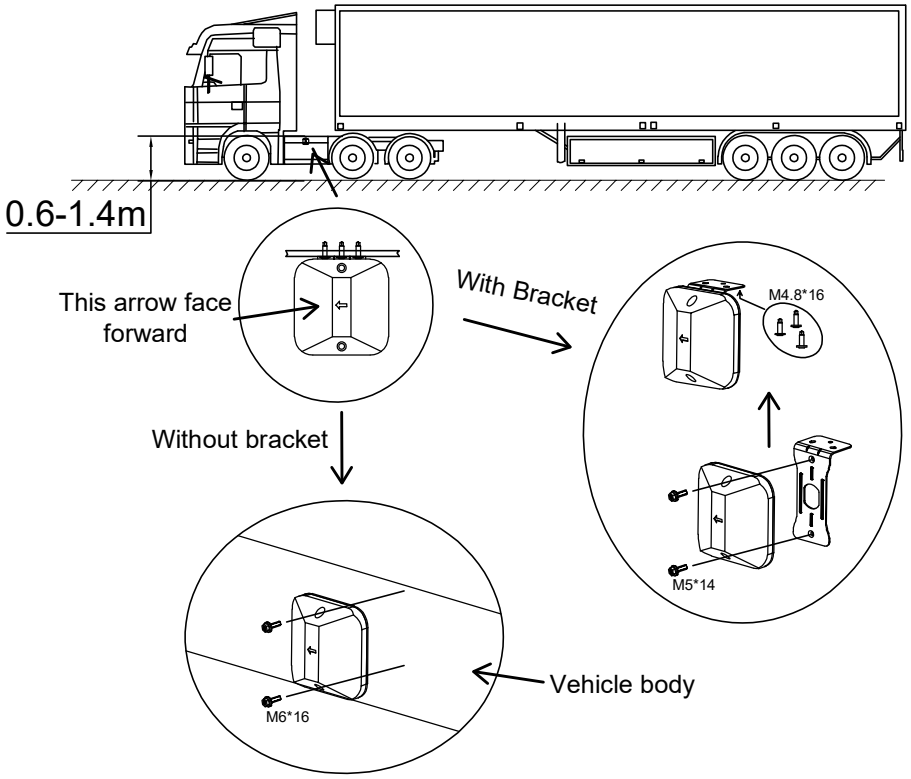
Step 3: Fix the bottom and upper bracket together by screw (M5*12)

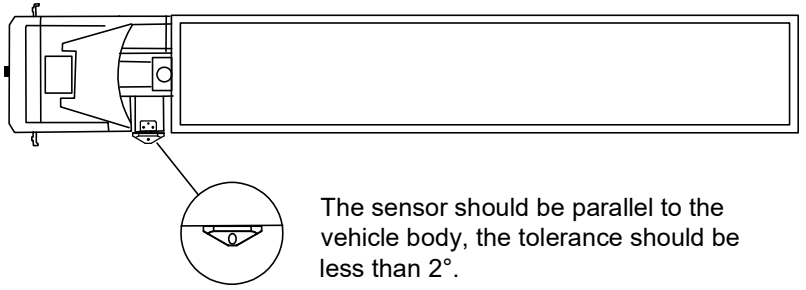


Step 4: Rotate the bracket and find a proper angle, and fasten the screws.

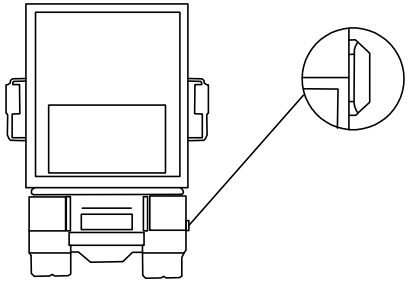


5.1.2 BSIS sensor fix

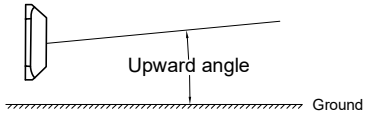




The sensor should be parallel to the vehicle body, the tolerance should be less than 2°.

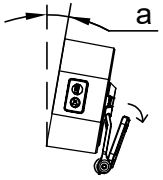


The sensor should face upward, the angle between 1-2°.

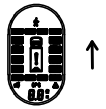


5.2 Display fix

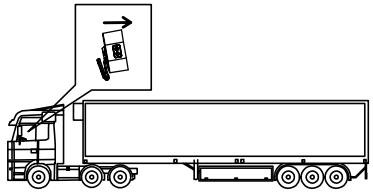
Step 1: Loose the screw of the display and rotate the display base to get a proper installation angle, make sure the driver can watch the display easily and fulfil the below request;



a.-30°< a < 30°



b.Face upward

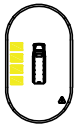


c. The display should face rear side of the vehicle, the angle between vehicle axis should be less 45°

Step 2: Fix the display on the dashboard by screw (M5*16), make sure the display is fixed well without any shaking;

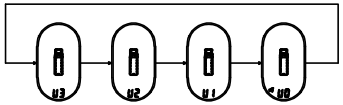
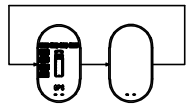
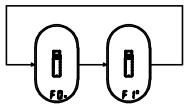
6. Function description

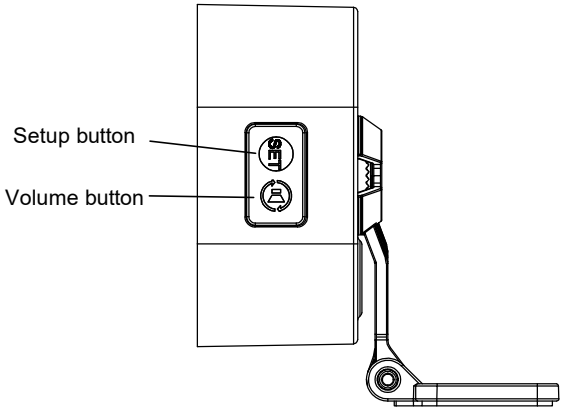
6.1 Self-diagnosis

No.	System status	Display warning method	
		LED bar	Buzzer built in
1	Pass	LED bar show in green color 	Beep once （Bi--）
2	**MOIS Sensor Failed**	Front LED bar show in orange color, and ⚠ show in red. 	Beep twice （Bi-Bi--）
3	**BSIS Sensor Failed**	Side LED bar show in orange color， and ⚠ show in red. 	Beep twice （Bi-Bi--）
4	GPS signal valid	GPS Icon show green color 	No Beep
5	GPS signal invalid	GPS Icon show orange color 	No Beep
6	GPS damage	GPS Icon show red color 	No Beep

6.2 Display setup

Turn on and off the system via display setup button. If the system was turned off, there will be no warning alert. There's no memory of the ON and OFF function, after the system power on again, the system will be on. When the system is turned off, the display will show as below:

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	0s-1.5s	System ON & OFF	LED bar show green color	System on	Constantly press the setup button and enter into the display system setting mode, and the display will show the current status; Each time you press the setup button, ON and OFF cycle, after stop pressing, and automatically save the status and exit. 
			LED bar not showing	System off	
	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	



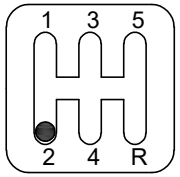
6.3 MOIS function

The radar sensor detect the target in the front monitored area of vehicle, and provide warnings of potential risk to remind drivers via LED display.

6.3.1 Start condition

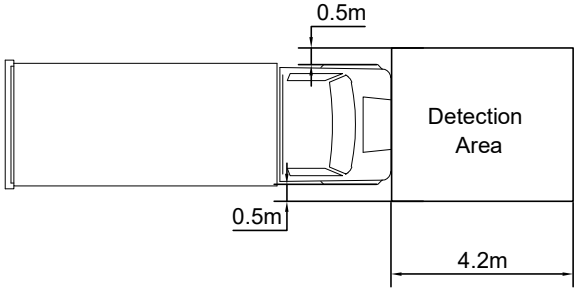
Ignition turned to ON

Any gear position but not R



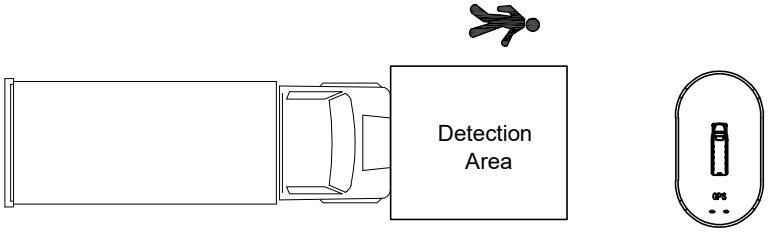
6.3.2 Warning range definition

The warning range as below drawing, the warning range can be set via setup too.

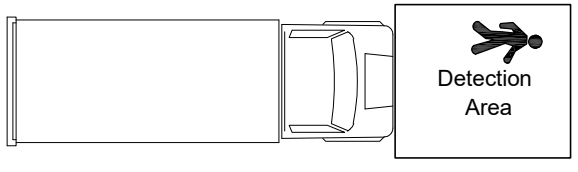


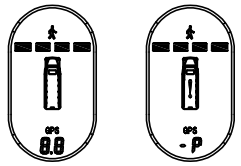
6.3.3 Static mode function (vehicle speed=0km/h)

（1）When pedestrians or bicycles (VRUs) are not in the detection area (see below drawing), and TTC>1.4s, the display will show nothing.



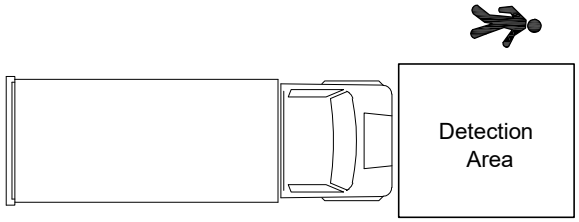
（2）When pedestrians or bicycles (VRUs) appear in the detection area (see below drawing), the display will show target distance. When the distance between VRUs and the front most vehicle less than 0.8m, the display will show "-P", and "！" blink.



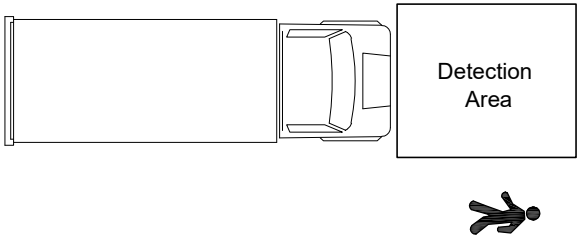


Distance <0.8m

（3）When pedestrians or bicycles (VRUs) appear from the left side of the detection area (see below drawing), and the TTC<1.4S, the display show as below:



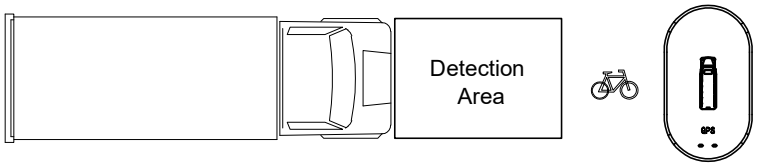
（4）When pedestrians or bicycles (VRUs) appear from the right side of the detection area (see below drawing), and the TTC<1.4S, the display show as below.



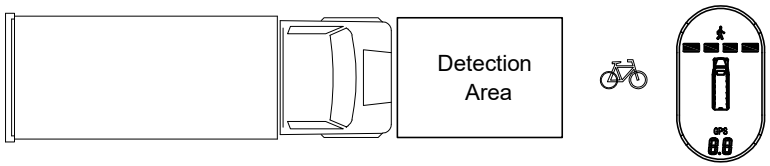
6.3.4 Low Speed function (0km/h<vehicle speed<20km/h)

Note: When the vehicle speed increase to higher than 20km/h, the MOIS function will turn off automatically, and when the vehicle speed reduced to 15km/h, the MOIS function will be on automatically.

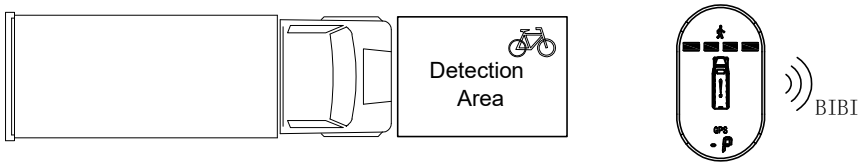
（1）When pedestrians or bicycles (VRUs) are not in the detection area (see below drawing), and TTC>2s, the display will show nothing.



（2）When pedestrians or bicycles (VRUs) are not in the detection area (see below drawing), and TTC<2s, the display will show target distance (Max. 10m).



（3）When pedestrians or bicycles (VRUs) are in the detection area (see below drawing), and TTC<2s, buzzer beeps twice and ″!″ blink，the display will show "-P".



Note: Foot brake light cable connection is considered as an optional function. If this cable was connected, when the brake light is on, the display buzzer will be mute.

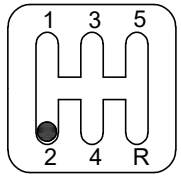
6.4 BSIS function

The radar sensor detect the target at the side monitored area of vehicle, and provide warnings of potential risk to remind drivers via LED display.

6.4.1 Start condition

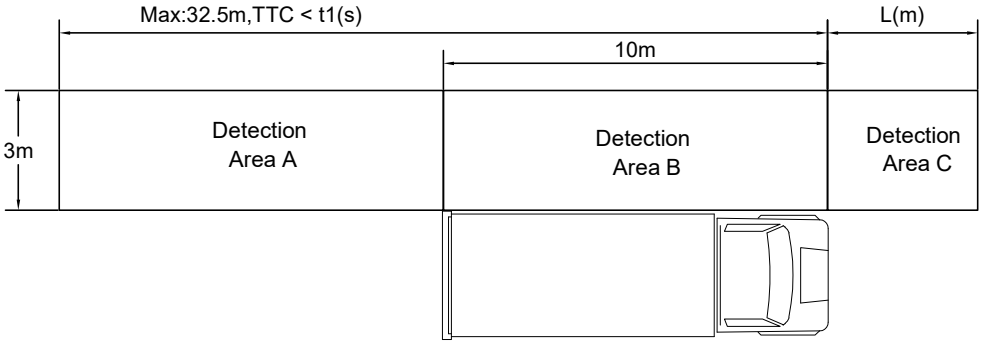
Ignition turned to ON

Any gear position but not R



6.4.2 Warning area definition

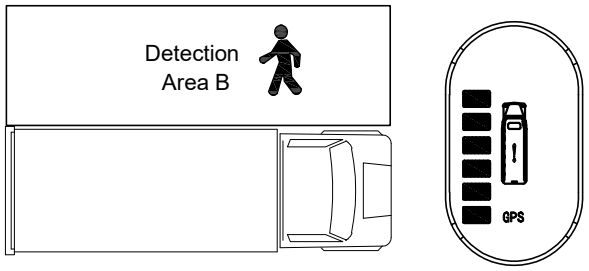
The warning range as below pictures, and below range can be set via setup tool.



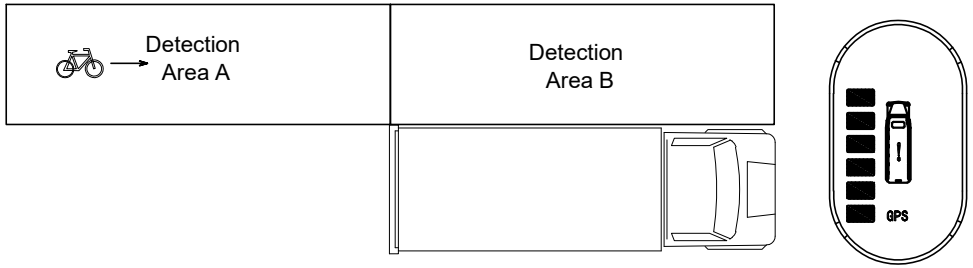
Vehicle speed <5km/h，t1=2s，L=0m;
5km/h<Vehicle speed<30km/h, t1=12S,L=4.2m;
Vehicle>30km/h, t1=3s, L=0M.

6.4.2 Static mode function (Vehicle=0km/h)

(1) When there's pedestrian or cyclist moving (lateral or longitude direction) in the detection area B , the display will provide warning signal (LED bar keeps on in red color), as below picture. If the driver turn on the corresponding turning signal, the display will provide collision warning (color bar show in red and ″!″ blink, buzzer beeps twice), the external output cable will provide a high level output.

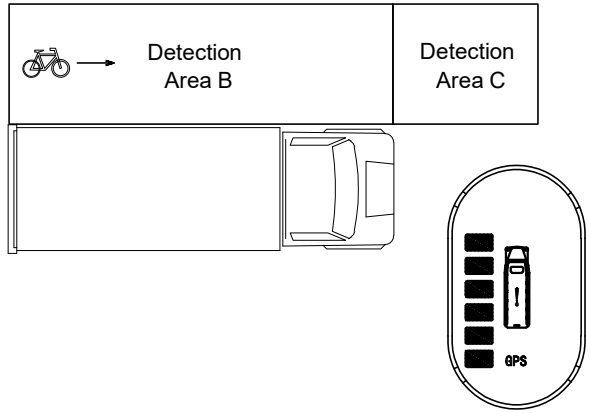


(2) When there's pedestrian or cyclist come into the detection area A from rear and will overtake the subject vehicle in 2s, the display will provide warning signal （LED bar keeps on in red color）. If the driver turn on the corresponding turning signal, the display will provide collision warning (color bar show in red and ″!″ blink, buzzer beeps twice), the external output cable will provide a high level output.



6.4.3 Low speed mode function (Vehicle speed ≤ 30km/h)

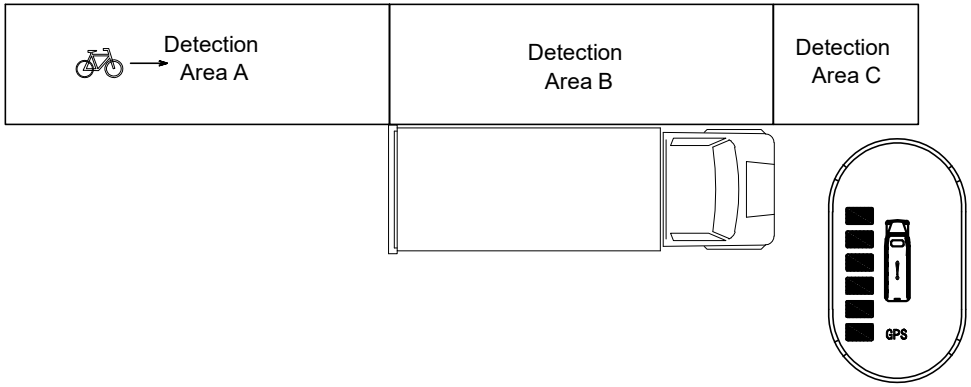
(1) When there's pedestrian or cyclist coming into the detection area B or C, or stay in detection area B or C, the display will provide warning signal (LED bar keeps on in red color), as below picture. If the driver turn on the corresponding turning signal, or the system detects the vehicle is turning to the corresponding side, the display will provide collision warning (color bar show in red and ″!″ blink, buzzer beeps twice), the external output cable will provide a high level output。



(2) When there's pedestrian or cyclist come into the detection area A from rear and will overtake the subject vehicle in 12s, the display will provide warning signal （LED bar keeps on in red color）.

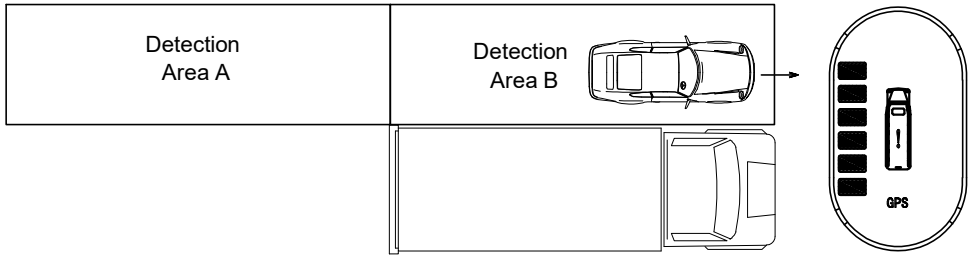
----when TTC<3s，If the driver turn on the corresponding turning signal, or the system detects the vehicle is turning to the corresponding side, the display will provide collision warning (color bar show in red and " ! " blink, buzzer beeps twice), the external output cable will provide a high level output.

---When TTC≥3s, even if the corresponding turning light was triggered or turing action detected, the collision warning won't be triggered.

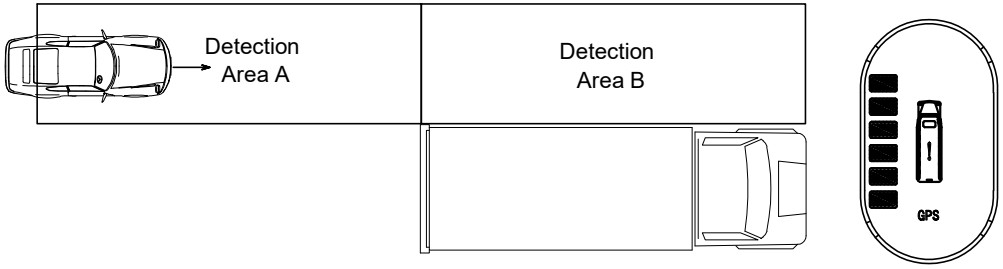


6.4.4 High Speed BSD, LCA, AOA functions (Vehicle speed≥30km/h)

(1) When there's moving target coming into the detection area B or stay in the area, the display will provide warning signal (LED bar keeps on in red color), as below picture. If the driver turn on the corresponding turning signal, the display will provide collision warning (color bar show in red and " ! "blink, buzzer beeps twice), the external output cable will provide a high level output.



(2) When there's moving target coming into the detection area A from rear and will overtake the subject vehicle in 3s, the display will provide warning signal （LED bar keeps on in red color）. If the driver turns on the corresponding turning signal, the display will provide collision warning (color bar show in red and " ! " blink, buzzer beeps twice), the external output cable will provide a high level output.



6.5 System Setup

After installation, the installers could setup the parameters according to the installation position and function requests via setup tool:

1. The distance from BSIS sensor to front most of vehicle cabin: 2.5m (Default);

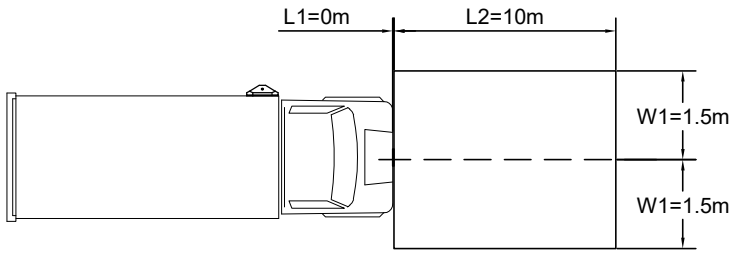
2. The installation position of BSIS sensor: left (Default);

3. MOIS function: ON (Default) ;

4. BSIS function: ON (Default) .

MOIS sensor default setup:

Static function distance:4.2m



BSIS sensor default setup: