

User Manual

BRD03

DUALRAY AND LED DISPLAY

TRAFFIC DETECTOR



Version: V2

Release date: 4th August 2023

MAG.COM.MY



Contents

Overview.....3

Features3

Technical parameters.....4

Dimension4

Device Interface description.....5

Cable Description5

Precaution6

Installation.....9

Wiring connection11

Parameter Setting Description.....12

Overview

BRD03 DualRay and LED Display is a new traffic detector with dual lens 3D detection that adopts 24 -24.25GHz Frequency Modulated Continuous Wave (FMCW) and high-speed digital signal processing technology to calculate the target distance accurately by calculating the frequency difference between the received echo and the transmission. It is suitable for vehicle monitoring and controlling the opening and closing of barrier gate for smooth parking access.



Features

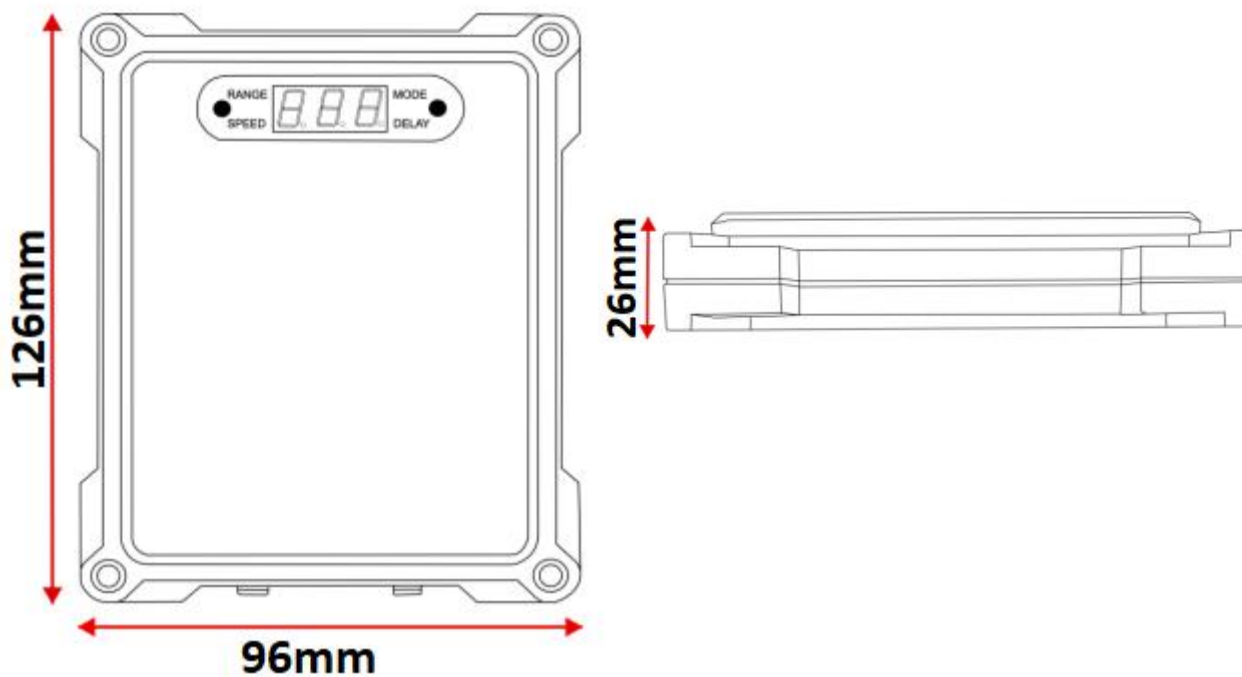
- **Double accuracy.** DualRay technology is enhanced with dual lens 3D detection to highly improve the accuracy and stability of the detection.
- **Easier installation.** Can be easily mounted on the body of barrier gate without requires ground/road surface cut and complicated wiring work. Default setting is 2.5m detection range, doesn't distinguish and low sensitivity level.
- **Long lasting and weatherproof.** The traffic detector have strong environmental adaptability with IP67 where it can withstand of dust, sunlight and raining. It can last longer and requires minimum maintenance. Thus, save you time and cost in long term.
- **Intelligent detection.** Can effectively distinguish vehicles and humans to avoid any hitting whereas loop detector can only detect metal objects/ vehicle.
- **Extended functionality.** It can be used to trigger detection, for example trigger camera to capture the picture, trigger the alarm in the warning zone and even trigger by long range reader to read card.
- **User Friendly.** With LED Display it allow users to set detection range, mode, delay output and sensitivity level more easier. With the Menu button just below the BRD03 its easier for user to configure according to the their desire setting.

Technical Parameters

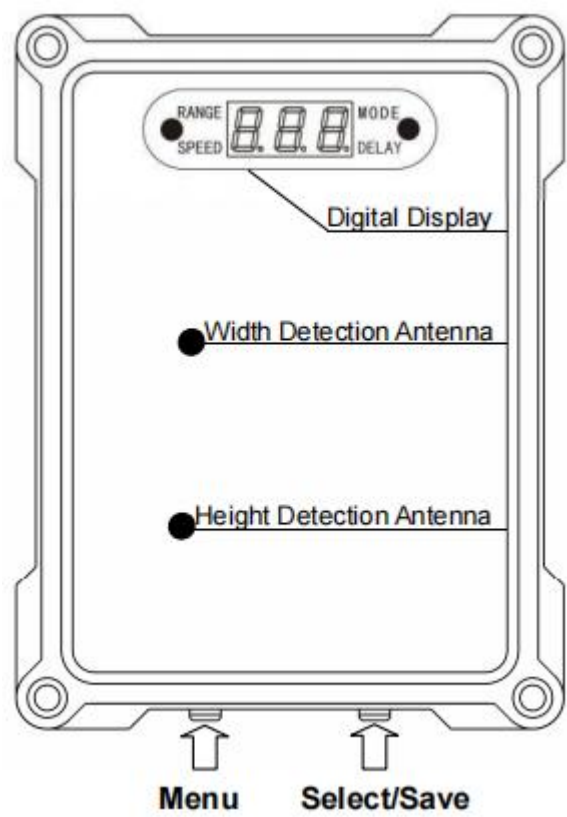
Description	Parameter
Input Voltage	DC 12V, 250 mA
Detection	Dual Lens for 3D Detection
Working Frequencies	24 - 24.5 Ghz
Modulation Mode	FMCW
Transmission Power	10 - 15 dBm
Detection Distance	1 - 6 Meter, ± 0.2 meters
Working Temperature	-40°C - 85°C
IP Rating	IP 67
Dimension	126mm (L) x 96mm (W) x 26mm (H)

(Table 1)

Dimension



Device Interface Description



Cable Description

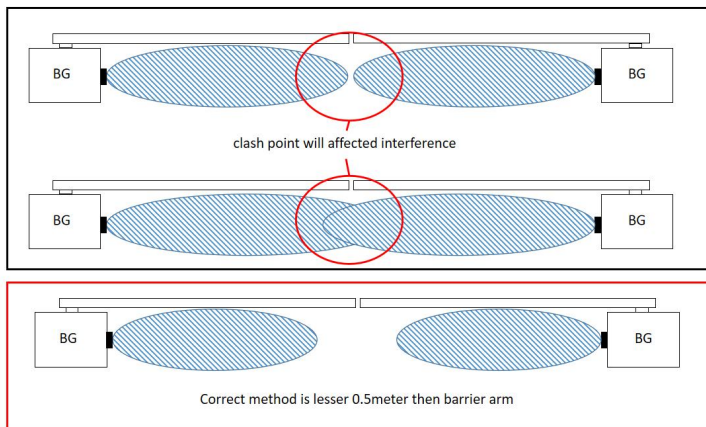


Cable Colour	Description
Red	12V
Black	GND
Yellow	NO SIGNAL
Blue	NC SIGNAL (OPTIONAL)
White	COM SIGNAL
Green	Not In Use

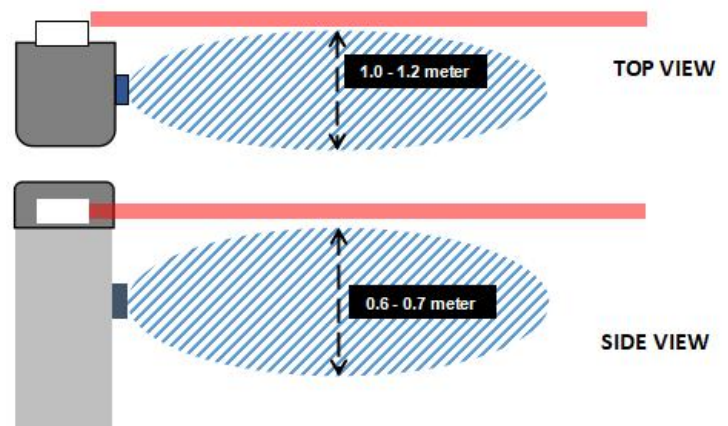
(Table 2)

Precaution

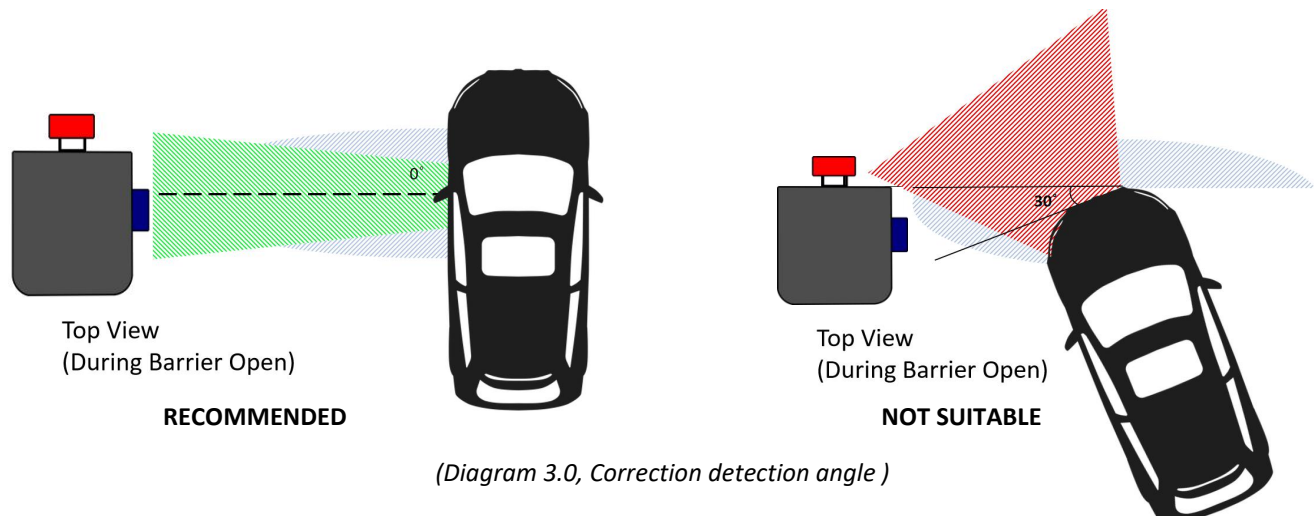
- Please use a low noise power supply.
- BRD03 DualRay must be mounted 550mm from the bottom of the barrier gate (not included base).
- Recommend to perform Ground Stationary Filter if there are obstacles at target distance BRD03 DualRay.
- Detection distance must be set less than 0.5 meter than barrier gate arm length.
(Refer to Diagram 1.0 below)
- Installation not recommended to be done while raining.
- BRD03 DualRay scanning wave is in oval wave shape. (Refer to Diagram 2.0 below)
- If car entry angle is more than 30° from the BRD03 detection range, it may cause miss detection. Recommend to use safety pole or cone to guide the vehicle into a straight angle direction. (Refer to Diagram 3.0 below)
- Not recommended to install BRD03 DualRay right in front of uneven road such as speed bump. Please make sure BRD03 DualRay is installed at flat surface road to avoid any miss detection.



(Diagram 1.0, Correction detection)

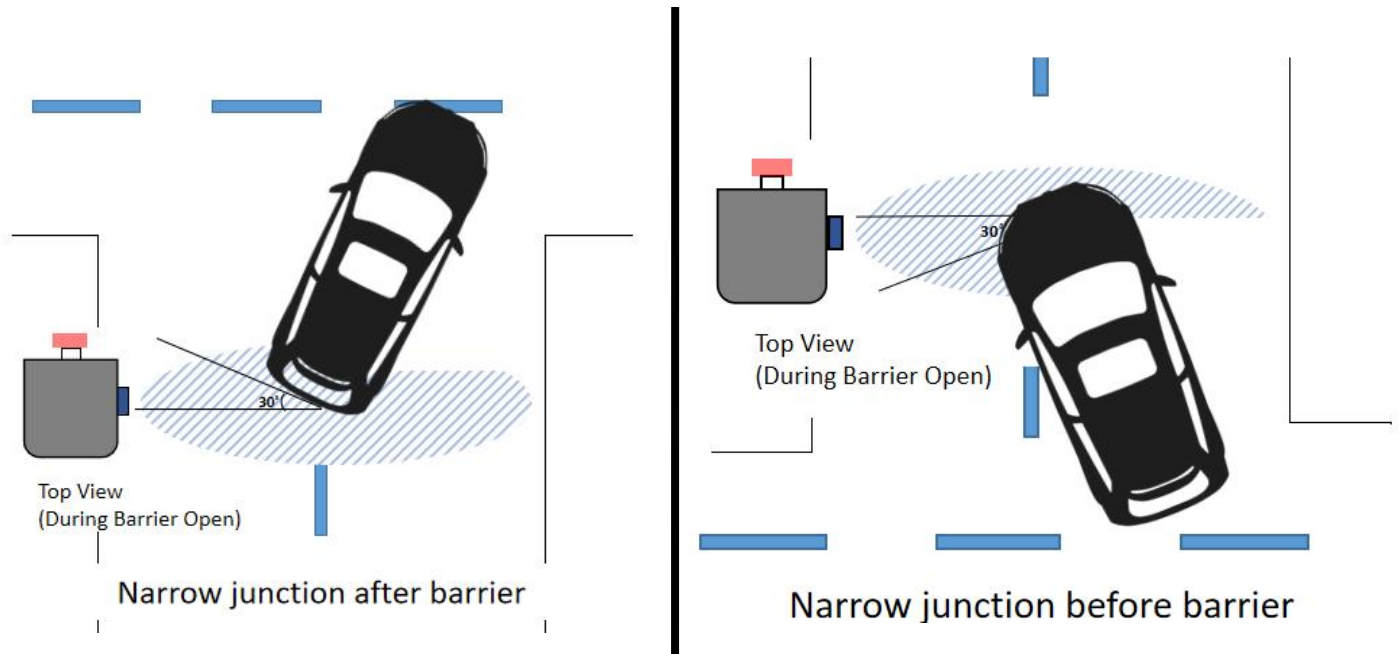


(Diagram 2.0, Scanning wave shape)



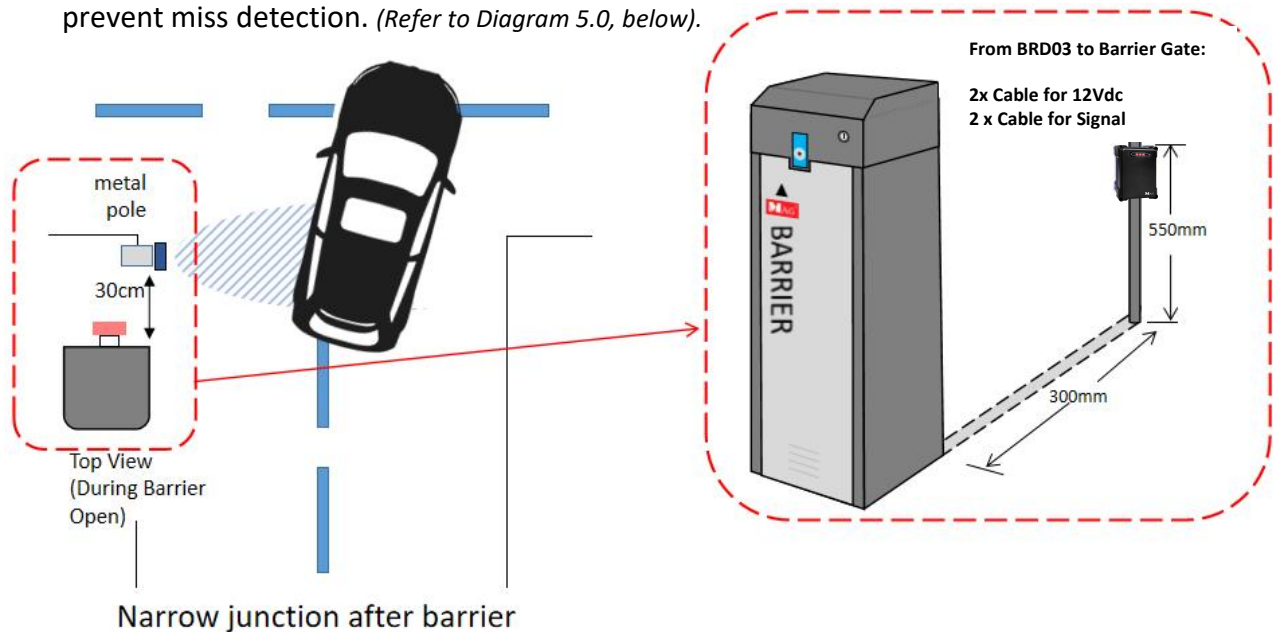
(Diagram 3.0, Correction detection angle)

- For installation where the vehicle lane is connected to a narrow junction (Refer to Diagram 4.0, below). Traffic detector will miss detect if the vehicle angle is more than at 30° angle while enter or exit. This might cause the barrier arm close down even though the vehicle have not fully pass through.



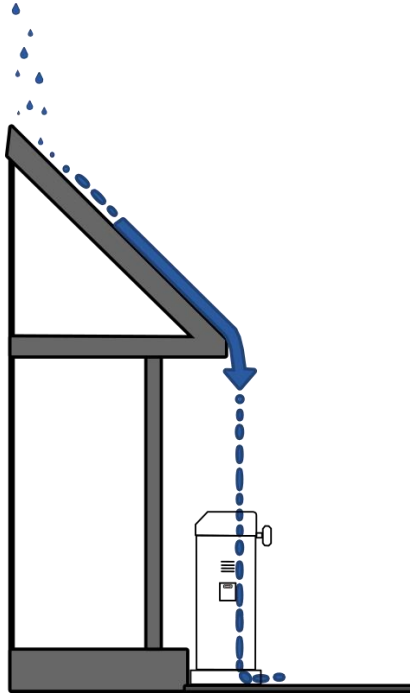
(Diagram 4.0, Narrow Junction with Vehicle Angle)

- Solution for this scenario, the traffic detector is recommended to be install separately onto a metal pole. Metal pole should be 30cm away from barrier gate to prevent miss detection. (Refer to Diagram 5.0, below).

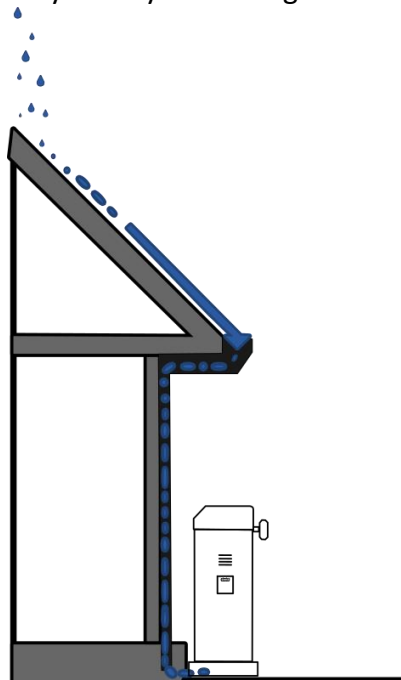


(Diagram 5.0, BRD03 DualRay Mount on Metal Pole)

- For installation where the traffic detector is install just below the roof.(Refer to Diagram below). During Heavy raining, lot of water will drop direct in-front of the traffic detector and it will cause detector to miss interpreter water as an object. This will cause the barrier will not close down even though the car already fully pass through.

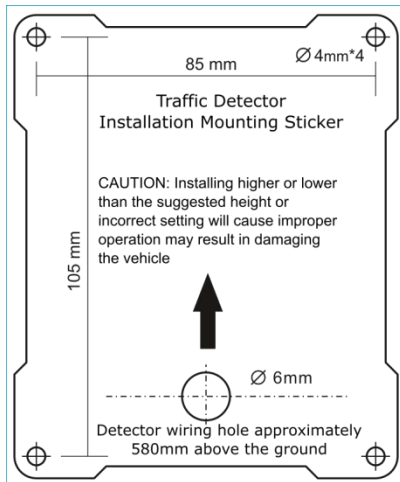


- Its recommended to install Barrier gate at least 2Meter from roof edge. If the barrier gate already install and traffic detect is install just below the roof edge, please install water conveyance system as figure shown below



Installation

- Before the installation, make sure within the detection distance there is no obstacles except the barrier pole. Such as road cones and signboard etc.
- The BRD03 DualRay traffic detector need to be installed 550mm from the bottom of the barrier gate (included base). (Refer to Diagram 7.0, below)
- Use the mounting sticker that included inside the BRD03 DualRay packaging box (Refer to Diagram 6.0, below). Paste the sticker on the area that BRD03 DualRay will be mounted.

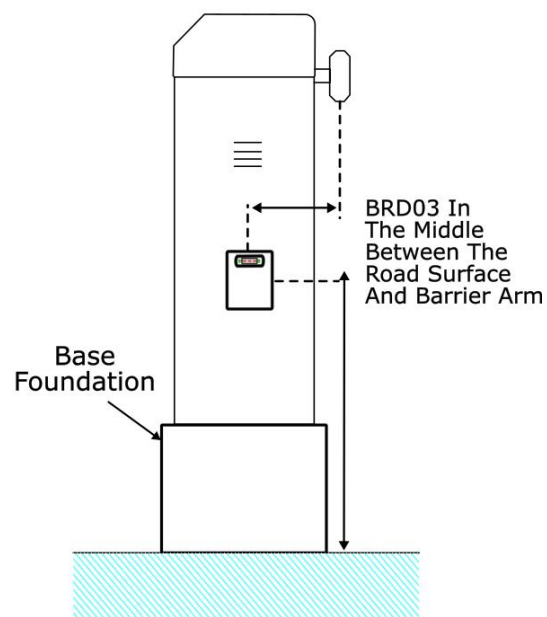


(Diagram 6.0, BRD03 Mounting Sticker)

(Diagram 7.0, BRD03 Mounting)

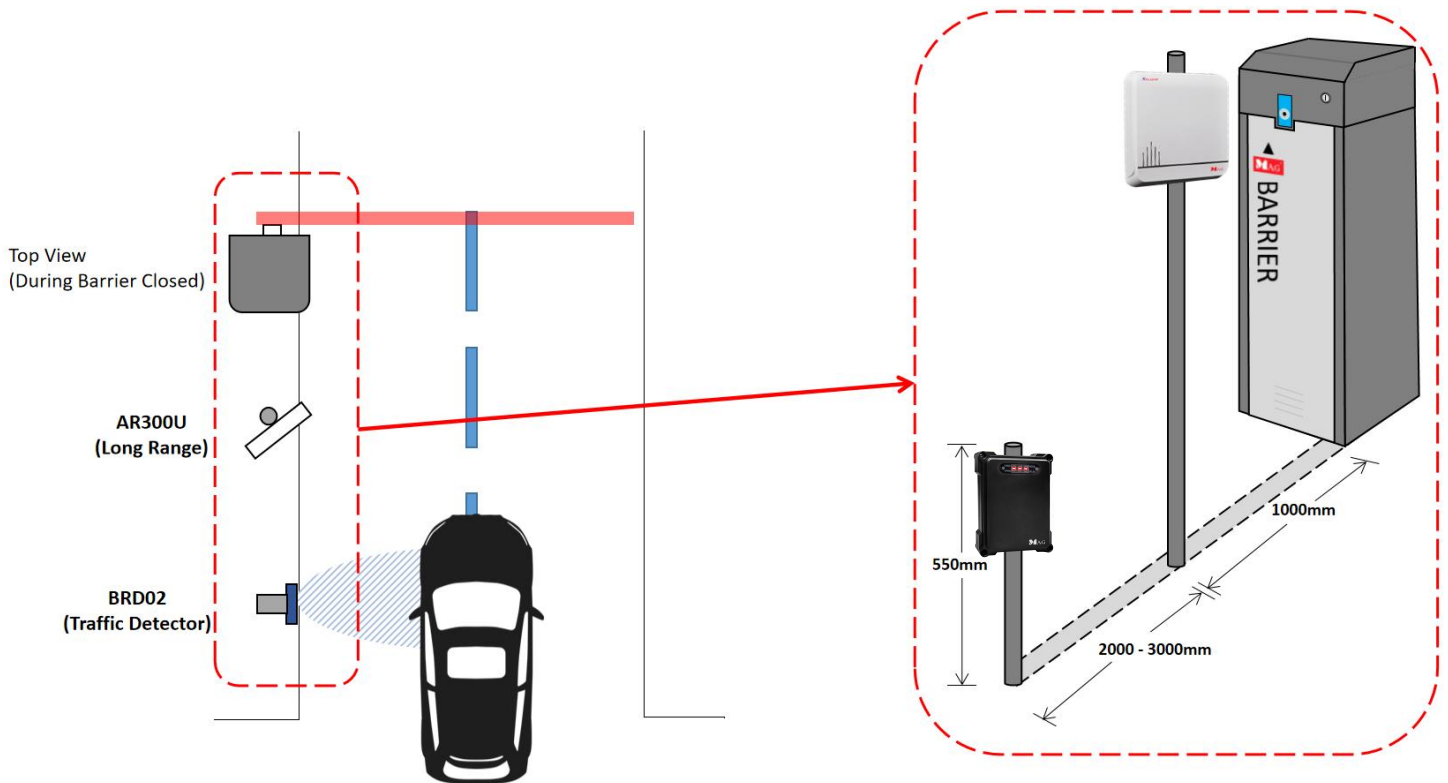
- Drill all necessary hole by referring to the sticker diagram.
- Mount the BRD03 DualRay on flat surface and insert all 4 screw and cable into each hole.
- For special installation that require high base such as toll gate for trucks and lorries. Please refer to (Refer to Diagram 8.0, below).

***Note: For a higher base foundation, the traffic detector location must be in the middle between the road surface and below the barrier gate arm. Sensitivity must be set to high.**
**** It is advisable to use double tape first before drill a hole to test the exact height for BRD03 to work at optimal performance**



(Diagram 8.0, BRD03 Installation)

- For access card reader that require trigger mode function. BRD03 DualRay have work mode called trigger mode. (Refer Table 1, Page 10, Menu 6)
- For trigger mode scenario **BRD03 DualRay is recommend to install in separate metal pole from access card reader pole between 2000mm to 3000mm.** (Refer to Diagram 9.0, below).
- During certain scenario, example the BRD03 DualRay is mounted on the same metal pole under the long range reader, miss detection may occur. (Refer to Diagram 3.0, Correction detection angle, page 5)



(Diagram 9.0, BRD03 Mount on Metal Pole for Trigger Mode)

Wiring Connection

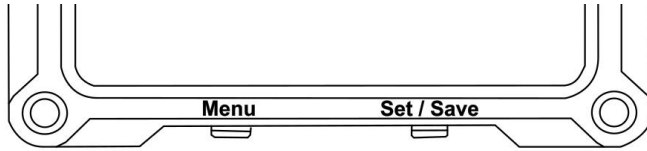


(BRD03 to BR600T Wiring Diagram)

Cable Colour	Description
Red	12V
Black	GND
Yellow	N.O SIGNAL (Vehicles Detector Signal)
Blue	N.C SIGNAL
White	COM SIGNAL (Vehicles Detector Signal)
Green	Not In Use

(Table 3)

Parameter Setting Description



Setting instruction:

1. Press and hold the "MENU" button for 3 seconds.
2. The LED Display show first menu which is "RANGE".
3. Press the "MENU" button again to change to other parameters
4. To set the value, press "SET/SAVE" button
5. After done, press and hold the "SET/SAVE" button until the LED flash then let go the button, it will automatically save and exits the menu.
6. Once complete, LED Display will back to Normal.

*(Note: After done any setting, it must be saved; otherwise the setting will not change and the

Menu	Parameter Setting	Remark	Default Value
- RANGE	Set maximum detection distance	The range distance increase by 0.5meters	2.5 meters
- SPEED	Detection sensitivity	Time how long the sensitivity boost (only on fence arm mode)	6 seconds
- DELAY	Set timer delay output	Timer for Barrier stay open after car is passed by	0 seconds
- MODE	Working Mode	1: Straight Arm Mode / 2: Fence Mode	1.0

(Table 4)

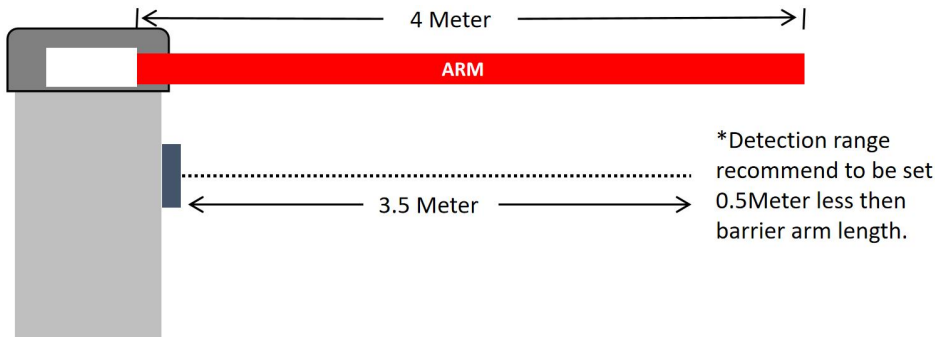
IMPORTANT NOTE

* Make sure to use low noise power supply.

** Its Important to install the BRD03 on flat surface and do not install it in front uneven road surface.

1. Menu [RANGE]: Set detection distance

- Default distance is 2.5 meter.
- Minimum Distance can be set is 0.5m, and Maximum distance can be set is 6m
- The distance increase by 0.5m each time button "SET/SAVE" is press



Setting instruction:

1. Press and hold the button to enter Menu "RANGE"
2. Press the "SET/SAVE" button to set the distance.
3. After select distance. Press and hold the "SET/SAVE" button, LED display will start blinking
4. After setting is done only LED display will back to normal

*Maximum distance can be set is 6 Meters

*(Note: Make sure detection range is 0.5 meter less then the actual arm length)

2. Menu [SPEED]: Set Detection Sensitivity (Only for Fance Arm Mode)

- Default sensitivity is set to 6 sec.
- the sensitivity will start trigger once BRD03 is detect an object
- It will improve the 3D scanning wave by the set time, and if there is no object detected, the 3D scanning wave will back to normal
- Minimum time can be set is 2sec, and maximum time is 12sec.

*(Note: The sensitivity adjustment is only working if using fence arm mode)

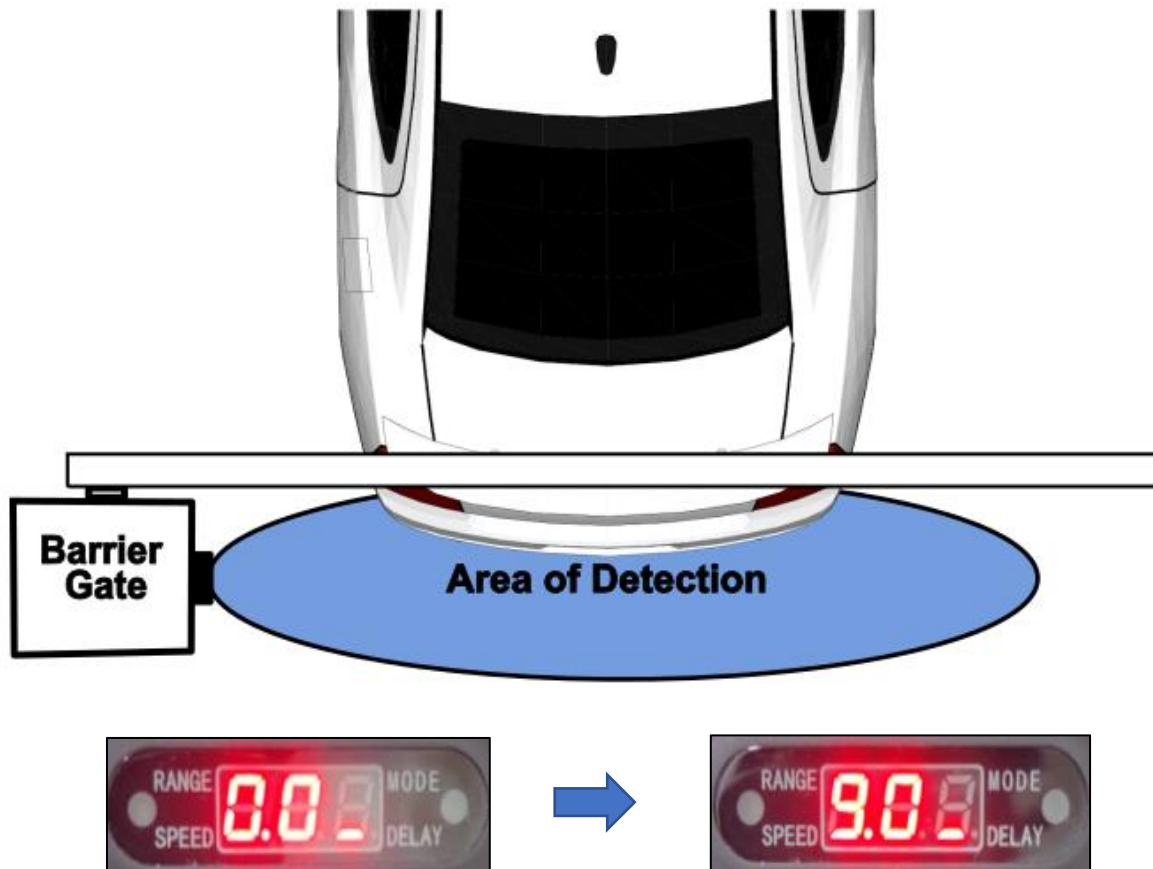
Setting instruction:

1. Press and hold the button to enter Menu
2. Press "MENU" button until "SPEED" Menu
3. Press the "SET/SAVE" button to set the time.
4. After done configure. Press and hold the "SET/SAVE" button, LED display will start blinking
5. After setting is done only LED display will back to normal



3. Menu [DELAY]: Timer Output Release Delay

- Default relay output release delay time is 0 sec.
- The timer will start counting after it not detect any object or car is passed by the area of detection, and it will release relay to close the barrier gate once time is ended.
- This is used to hold output from N.O or N.C on BRD03.
- Minimum time can be set is 0sec, and maximum time is 9sec



Setting instruction:

1. Press and hold the button to enter Menu
2. Press "MENU" button until "DELAY" Menu
3. Press the "SET/SAVE" button to set the time.
4. After done configure. Press and hold the "SET/SAVE" button, LED display will start blinking
5. After setting is done only LED display will back to normal

4. Menu [MODE]: Detector Working Mode

- Default detector work mode is straight arm mode “1.0”.
- It has two main working mode (Straight Arm Mode and Fence Mode), and each mode has three sub-mood(.L , .0 and .H)

1. Straight Arm Mode

- is set when Barrier gate is using Straight Arm

2. Fence Arm Mode

- is set when Barrier gate is using Fence Arm only

Working Mode	Sensitivity Low	Sensitivity Medium	Sensitivity High
Straight Arm Mode	1.L	1.0 (default)	1.H
Fence Mode	2.L	2.0	2.H

(Table 5)

Setting instruction:

1. Press and hold the “MENU” button to enter Menu
2. Press “MENU” button until “MODE” Menu
3. Press the “SET/SAVE” button to set the mode.
4. After select mode. Press and hold the “SET/SAVE” button, LED display will start blinking
5. After setting is done only LED display will back to normal

***Note: Working mode is important and it depends on barrier arm type. Its advisable to set to 1.0 (Default) to make BRD03 working at optimal performance.**

Low Sensitivity is used for distinguish.

Menu [MODE]: Human Distinguish and Vehicle

- Default setting is non-distinguish, “1.0”
- To use distinguish mode, set the working mode to “1.L”
- The BRD03 can recognize and differentiate between human, and motorcycle/car

* (Note: Human is not recommend to maintain inside detection range for a long time because human body reflection is not strong and miss detection may easily occur)

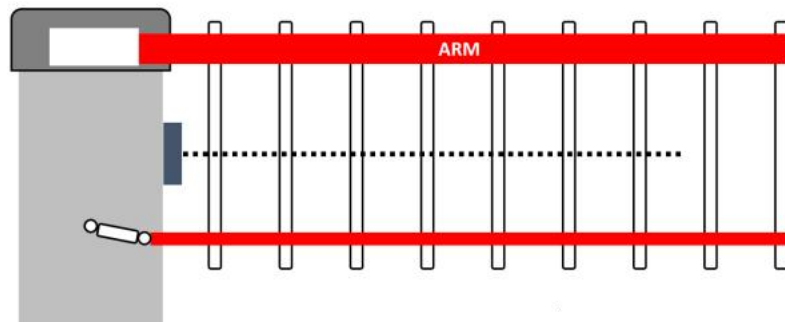
Menu [MODE]: Fence Work Mode Setting Instruction:

1. Make sure the barrier arm is in close position during setup.
2. Press and hold the “MENU” button to enter Menu
3. Press “MENU” button until “MODE” Menu
4. Press the “SET/SAVE” button to set the mode.
5. After select mode. Press and hold the “SET/SAVE” button, LED display will start blinking
6. After setting is done only LED display will back to normal

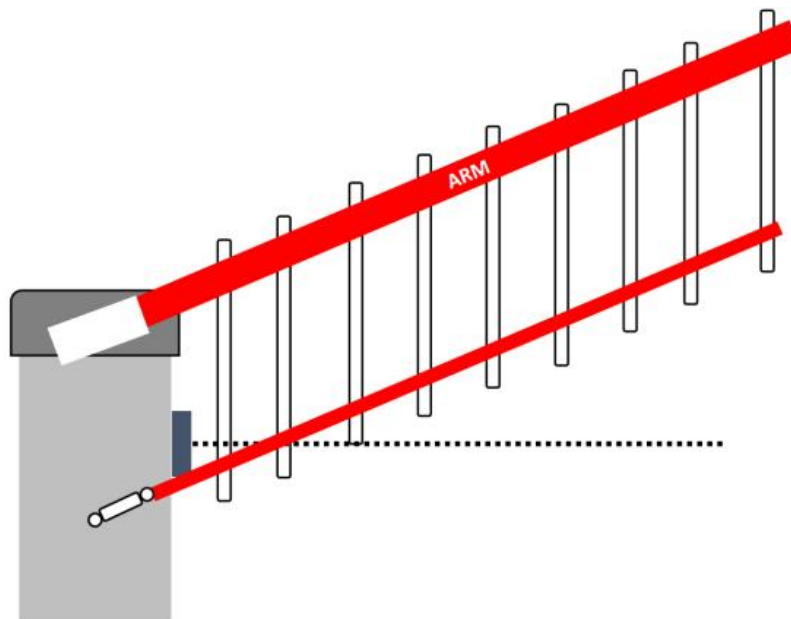
Menu [MODE]: Fence Barrier Closing Time setting

- Default fence barrier closing time setting is 6 sec.
*(base on time set on "SPEED" menu)
- Fence barrier closing time setting is the total time that the traffic detector will ignore barrier arm fence as an object while barrier arm is opening and closing.
- Because any object under the barrier arm will be detected by the traffic detector.(e.g. fencing and big signboard)

* (Note: Example for MAG BR660T_FE opening and closing is 6 sec, please set the Menu "SPEED" setting to 6 sec on the traffic detector)



(Barrier fence arm close diagram)



(Barrier fence arm open diagram)

***Product performances is based on testing in a controlled environment. Your result may vary due to several external and environment factors.**



© COPYRIGHT 2023.This documentation served as a reference only. It is subject to change without further notice. All the diagrams and information in this documentation may not be duplicated or modified in any form without the written approval from the management.