

# **EDB01** Reflective Beam Smoke Detector



**User Manual**



2831-CPR-F2179



506h/01

EN54-12:2015





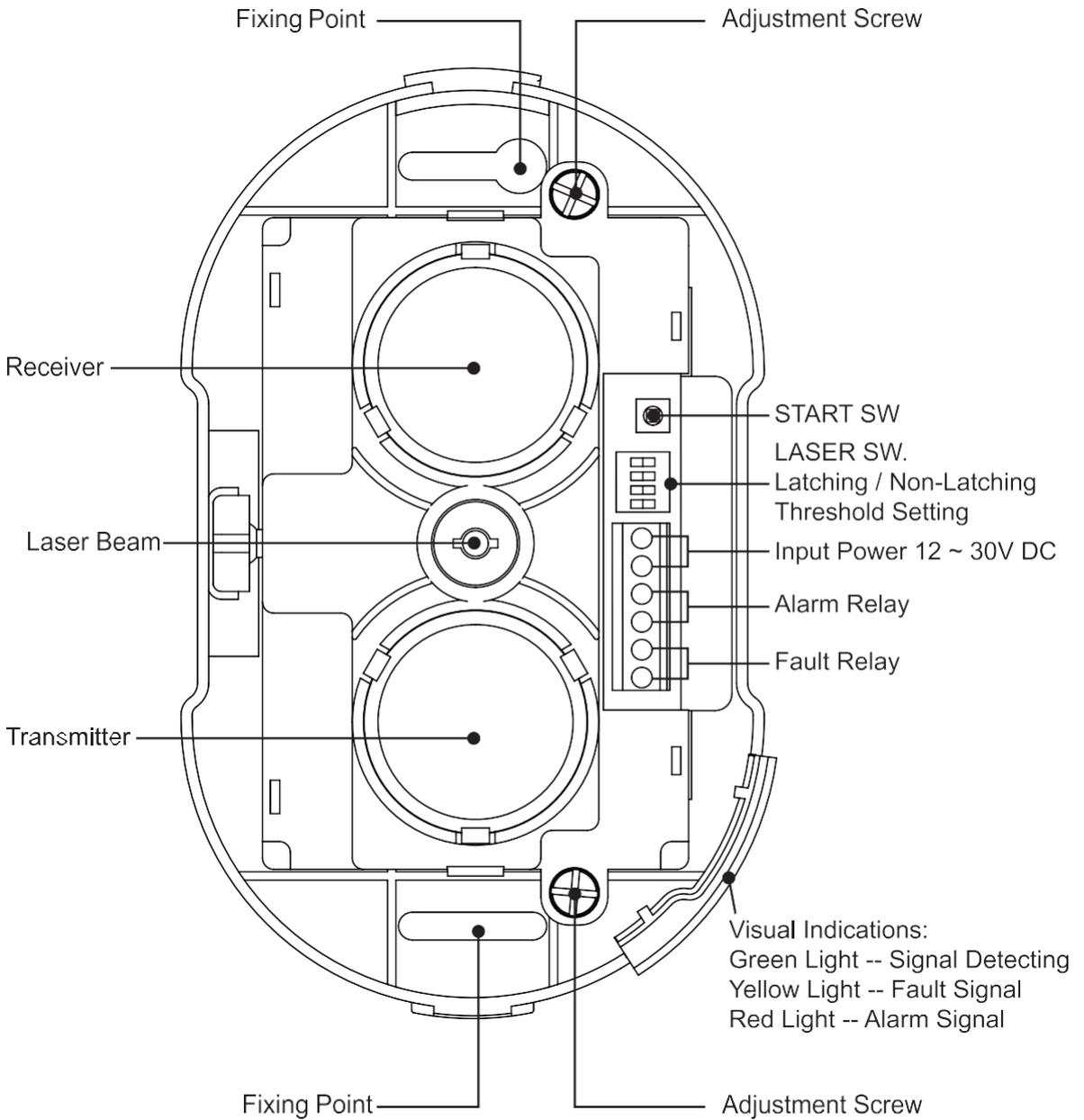
## **Descriptions:**

The reflective beam smoke detector is a single unit comprising a transmitter and a receiver. The transmitter can project a cone shaped beam of infra-red light precisely back to the receiver via special prisms. An alarm condition will be determined when the signal is analyzed to reach up to the settings of retention of smoke. As to the positioning, the system is designed to be wall-mounted and should be mounted under 20 meters ceiling height so that the beam will project approximately 0.3m to 0.6m below and parallel to the ceiling or 80% of ceiling height. As for the range of detection, the maximum lateral detection range can be up to 7.5m either side of the beam and the vertical range can be 100m, providing a maximum total area coverage of 1500 square meters. If more than 2 sets need to be installed in the same place, the detectors should be mounted opposite to each other facing the prisms.

The detection level can be set to 18%(0.75-0.96dB), 25%(1 dB), 35%(1.07dB) or 50% (1.24-1.59dB) to suit different environments. Once the IR signal reduces to below the selected threshold and continues for 10 seconds, the alarm relay is activated. If the infra-red beam is obscured by 90% and more for approximately 10 seconds, a fault condition is signaled. The Automatic Reset means that the reflective beam detector automatically resets once an alarm condition is no longer present. A normal status is returned after 2 seconds following an alarm.

Over a period of time of the use, the light might be reduced by factors such as aging components and dirt building up on the lenses. The system compensates for this automatically when the discrepancy with the standard is more than 15%/hours. At the limit of compensation, the beam detector transmits a fault signal to remind the user of the maintenance.

Before using, remove the fixing tape (blue) and take off the protective membrane on the detector cover to ensure the normal operation and accuracy.





## Installation:

### ■ Setting prior to installation: Please refer to diagram (A) on P.5

- a. Select alarm sensitivity level (1 of 4)
  - Distance 10 ~ 20M, use 18%(0.75-0.96dB)
  - 20 ~ 50M, use 25%(1 dB)
  - 50 ~ 70M, use 35%(1.07dB)
  - 70 ~ 100M, use 50%(1.24-1.59dB)
- b. Select alarm latching/non-latching
  - ※ Turn off power before adjust the sensitivity and latching.
- c. Remove the outer cover and install approximately 30 ~ 60cm below the ceiling.

### ▲ Prism Targeting:

- a. Apply the power to detector and turn on the Laser switch (SW2).
- b. Mount the prism directly opposite to the detector and ensure there is no interfere by sunlight. The detector laser beam should be aimed at the center of the prisms. (Distance less than 50M use 1 prism, more than 50M use 4 prisms, Place the 4 pieces Prism seamlessly as the right figure.).



\* 4 prisms placement method

- c. Using two positioning screws until the reflected laser light returns to the receiver °  
(Refer to P.6 Laser adjustment)
- d. Turn off the laser switch(SW2-1) after completion.

### ▲ Alignment:

Press the START button (SW1), the Green light will be ON, and then replace the cover back. Wait until the Green light turns to flash which indicates the alignment is done. After alignment and wait about 30 ~ 60 seconds until the lights turn OFF, this indicates that the installation is completed and detector is in normal operation status °

### ▲ Completion:

The detector is ready for Alarm and Trouble test.

#### ■ Indicators state :

**Continuous Green** – detector cover is not replaced

**Flashing Green** – detector is automatically adjust the signa

**Continuous Yellow** – trouble signal

**Flashing Yellow** – auto adjust the trouble signal

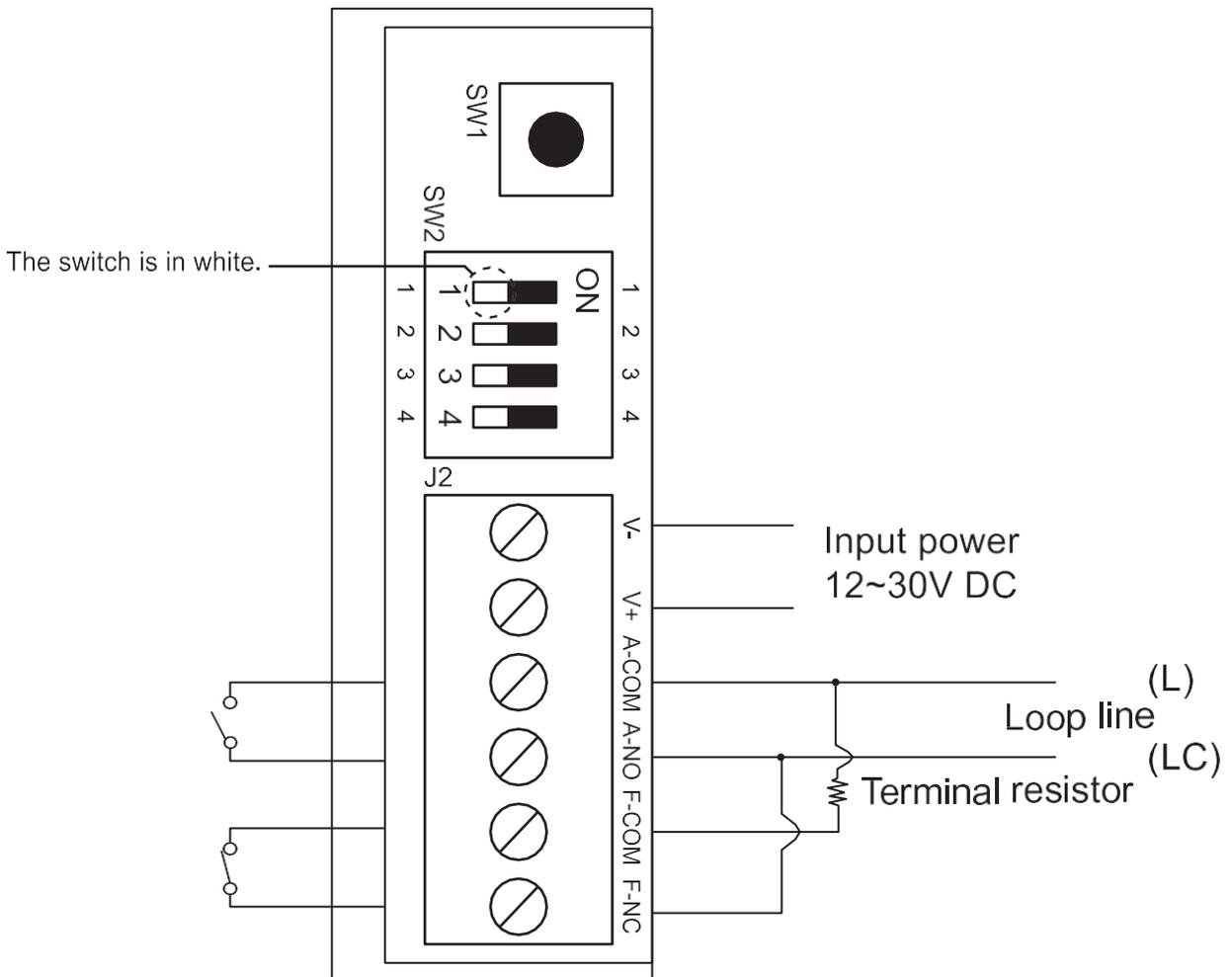
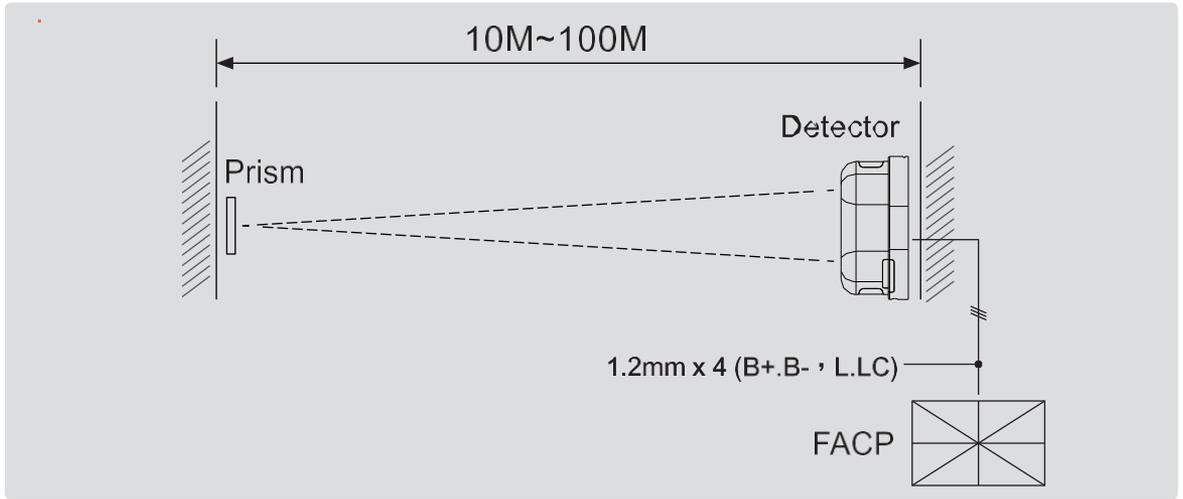
**Continuous Red** – alarm signal

**Flashing Red (optional)** – flashes once every 4 seconds for the Blue-tooth communication signal.

※ OFF – detector is in normal operation status.



## Alarm Test





## Alarm Test:

Place a filter in front of detector (select obscuration mark to correspond to the pre-set threshold) for 10 seconds, the RED lights will be ON and the alarm relay activates.

## Fault Test:

Cover the prism totally with a non-reflective material and confirm that the detector issue a fault condition after 10 seconds. The fault condition will auto reset after 2 seconds when the obstruction is removed.

## Wiring/Switch Settings:

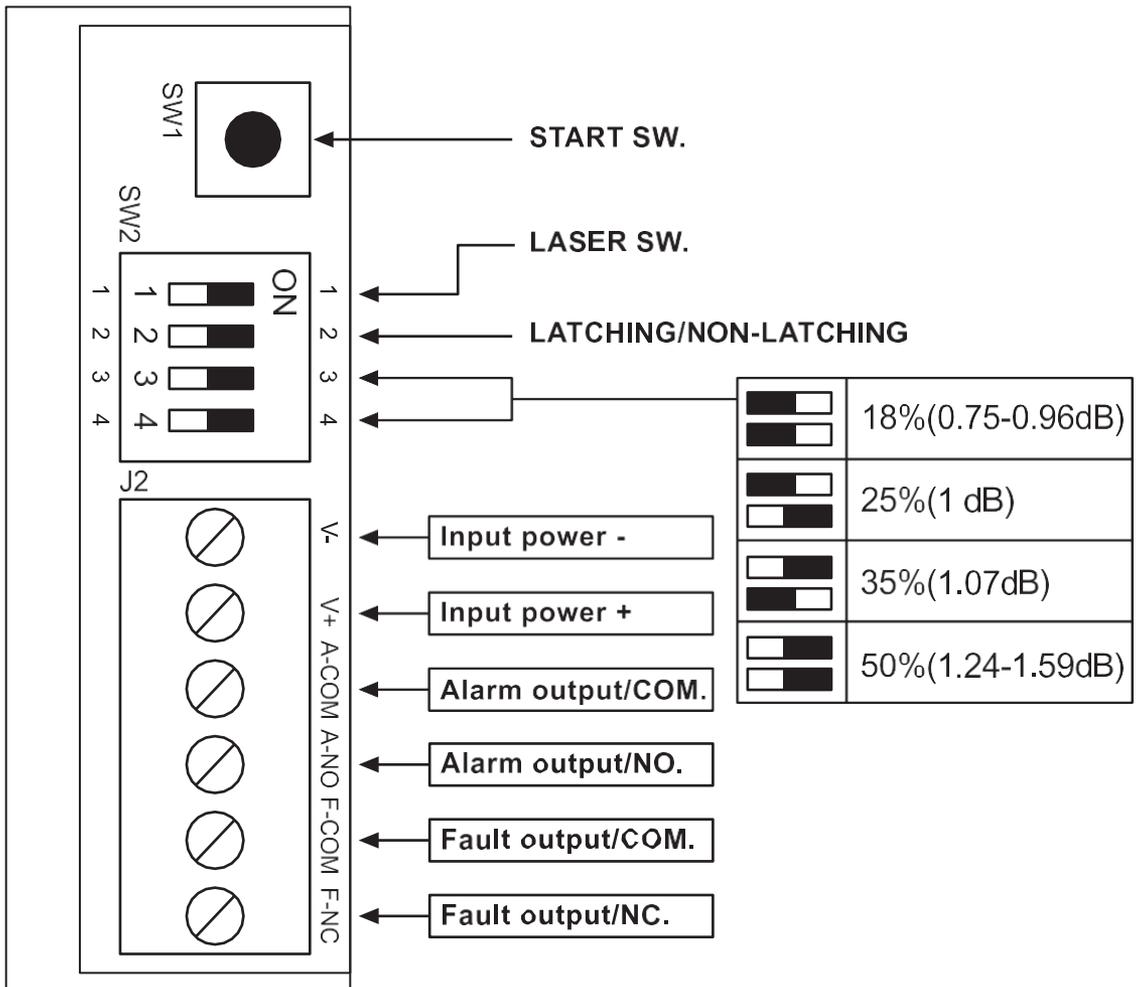
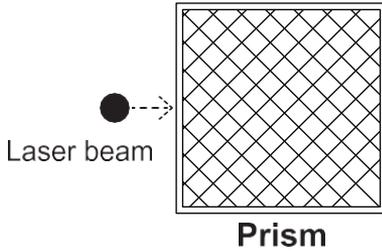


Diagram (A)



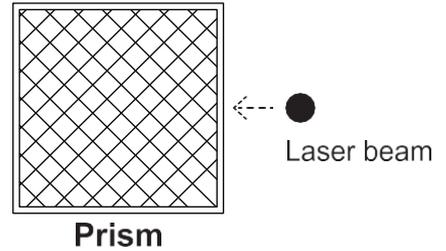
## Prism Targeting Methods:

Method 1:



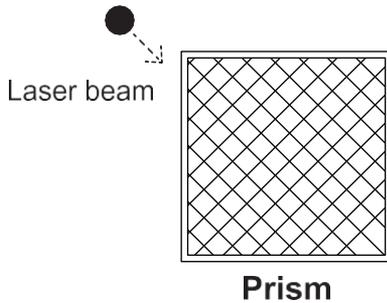
Counter-clockwise by both Adjustment screws

Method 2:



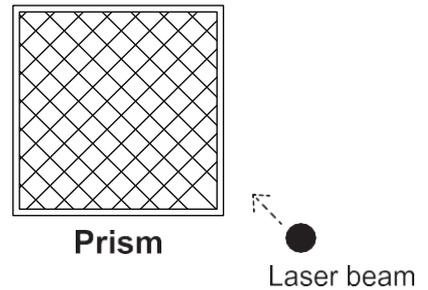
Clockwise by both Adjustment screws

Method 3:



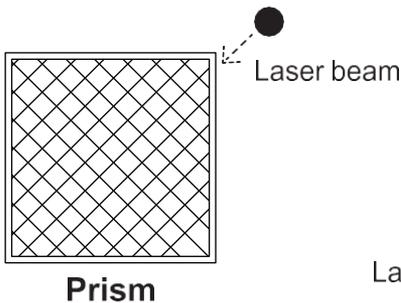
Counter-clockwise by upper Adjustment screws

Method 4:



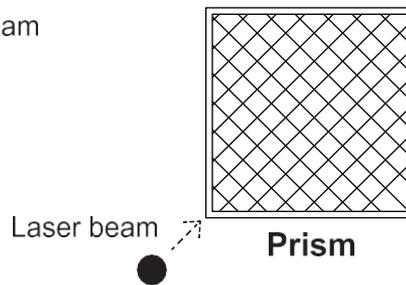
Clockwise by upper Adjustment screws

Method 5:



Clockwise by lower Adjustment screws

Method 6:



Counter-clockwise by lower Adjustment screws



## Blue-tooth APP operation (optional)

### ▲ Installing APP to mobile phone:

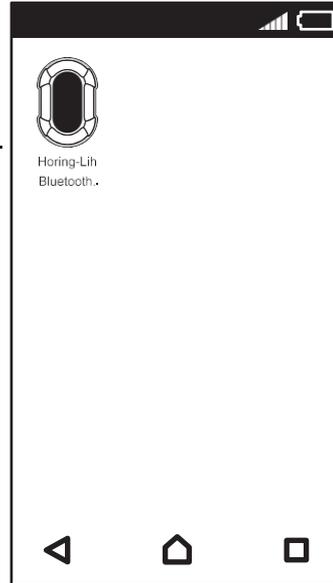
Download and install APP software, you will get the screen as shown on the right.

- Scan the QR CODE then enter the download screen.



Or access to the website

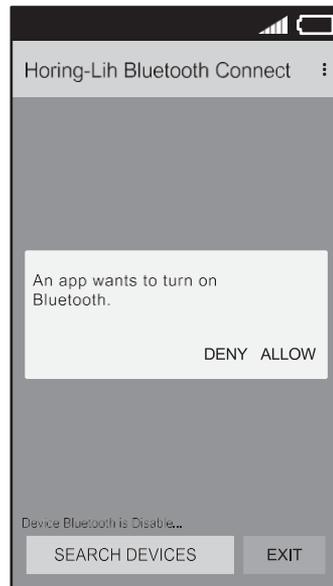
<https://play.google.com/store/apps/details?id=rd.btsearch>  
to enter the download screen



- Android system compatible version: above 4.0

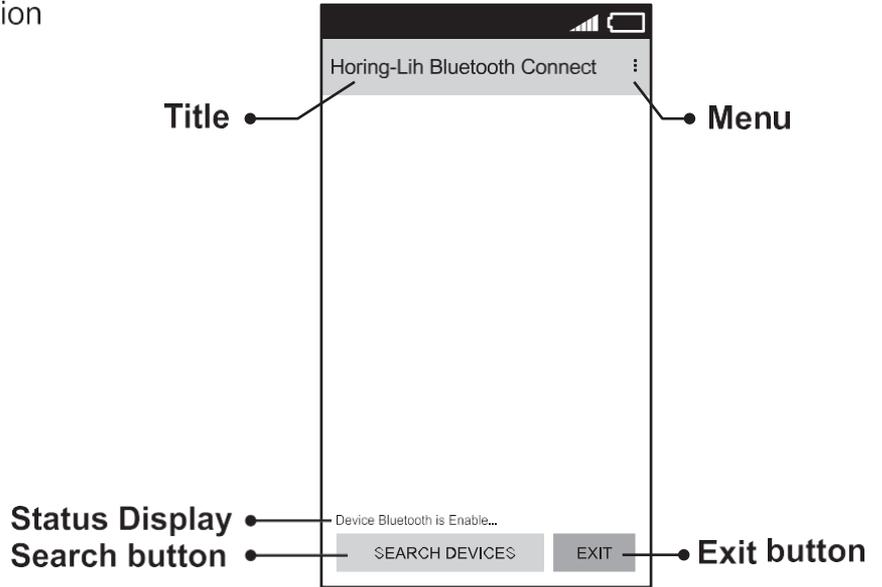
### ▲ Opening the APP for the first time will detect the Bluetooth status:

If the Bluetooth has not turned on yet:  
a pop-up window appears as shown on the right.  
Please press "ALLOW" to turn on the Bluetooth.



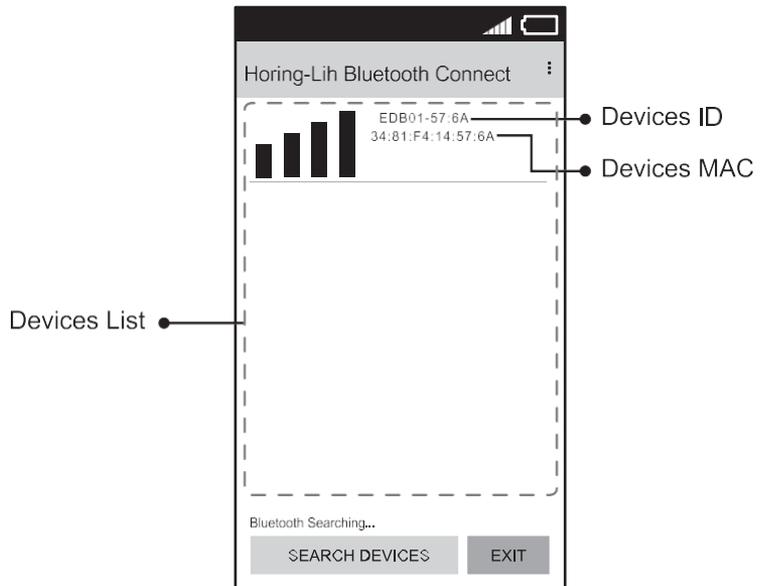


## ▲ Main screen description



## ▲ Search Devices

- Display of Devices ID  
Devices MAC
- Click the list for connection

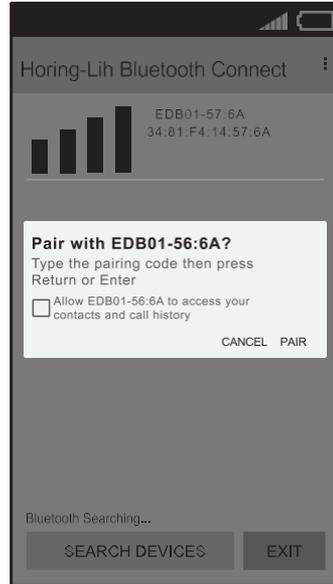




## ▲ Connection confirmation

- Connecting with the detector for the first time, the system will confirm if pair with the detector. Please check to allow to access your contacts and call history. Click it and it will start to connect. (It only shows up for the first time.)

※ **The display modes can be different based on the phone types and Android versions.**



## ▲ Display after successful connection

- Smoke Value
- Temperature
- Graphic Curve
- Status Display (Supervising, Alarm, Fault)



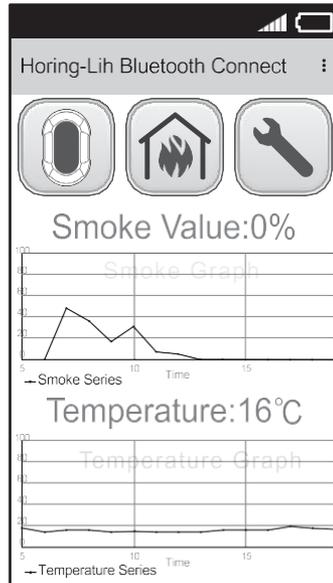
**Supervising**  
Normal status is green lights ON



**Alarm**  
Red lights ON when in alarm condition, Supervising and Fault become grey light.

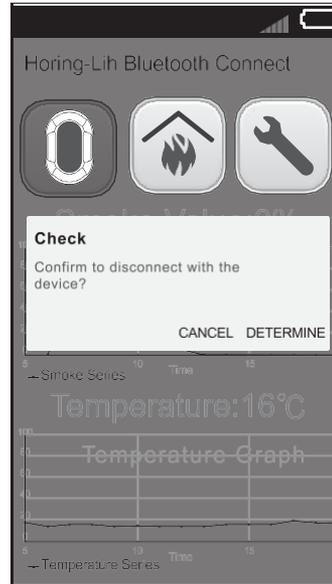


**Fault**  
Yellow lights ON when in fault condition, Supervising and Fault become grey light.





- ▲ Press the “Return” button on the phone after successful connection.
  - Ask if it requires to disconnect the Bluetooth.
- ▲ Press the “Disconnect” item to disconnect the Bluetooth on the menu.
  - After confirmation, return to the main screen.





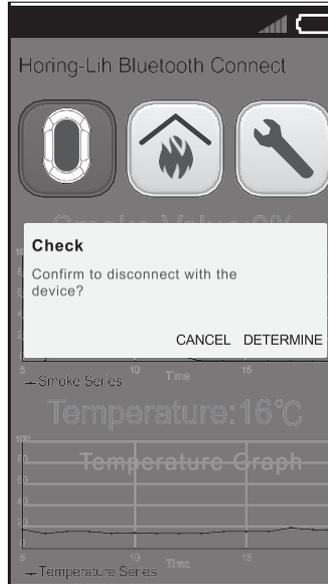
## Main screen

### ▲ Menu description

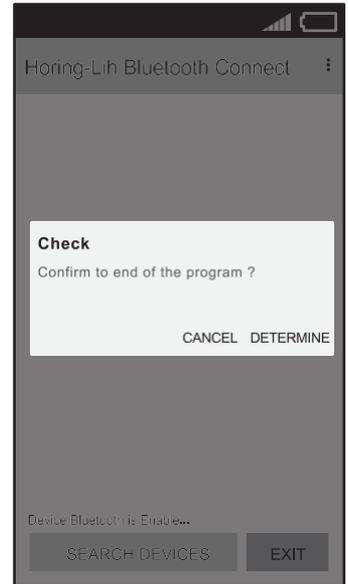
#### Menu



#### Disconnect

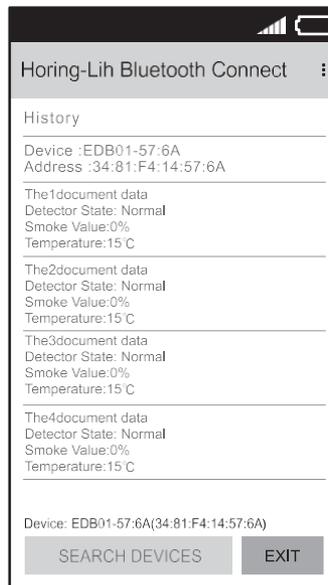


#### Exit

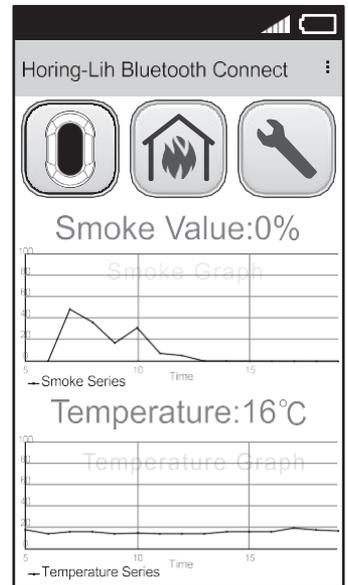


### ▲ History events

- It is available to check all the data and the status of detectors in this connection. (illustrated in Figure 1)
- If press the “Return” button on the phone, it will return to the main screen with reading graphs. (illustrated in Figure 2)



(Figure 1)



(Figure 2)



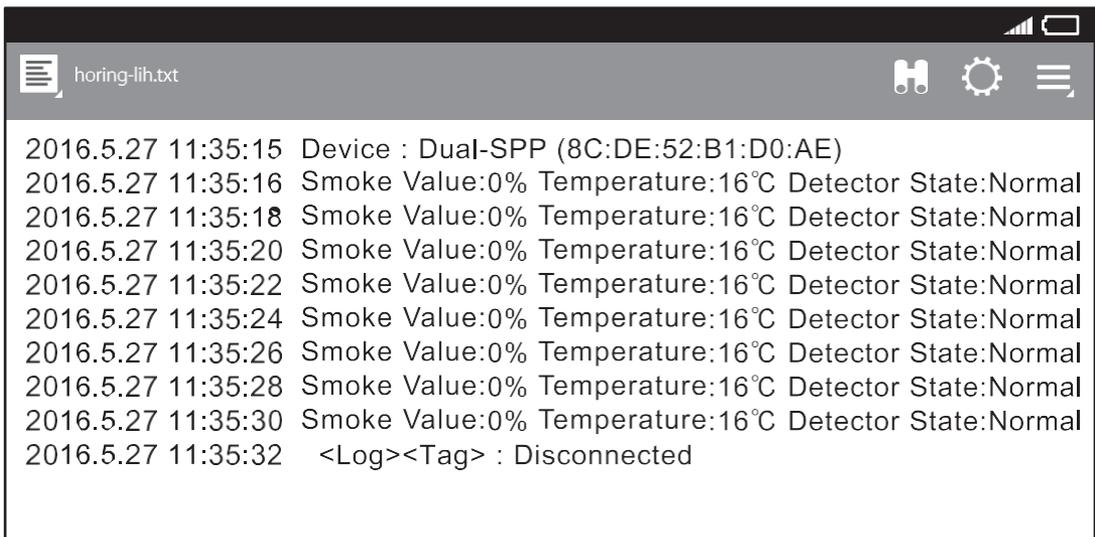
- ▲ This APP can save all the connections / received data into the smartphone.

Route : sdcard/MyAndroid/horing-lih.txt

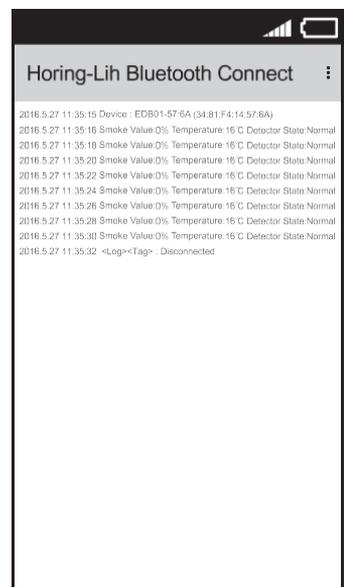
If there is no memory card in the smartphone, the save pave will be as below.

Route : MyAndroid/horing-lih.txt

It is available to check the data via any files supporting .txt.



- ▲ It is also feasible to check the data in this APP by selecting the Menu → Setting → Log files.





## Blue-tooth APP operation (optional)

### For IOS

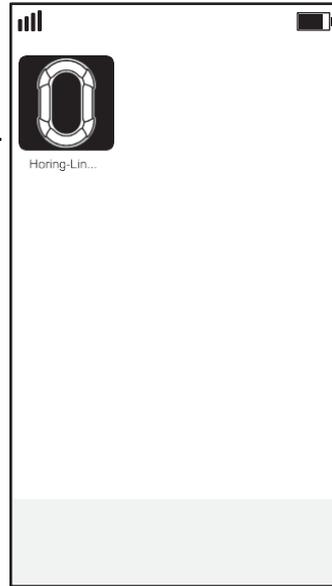
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Or in the APP STORE search for "Horing lih Bluetooth Connect App" to enter the download screen.



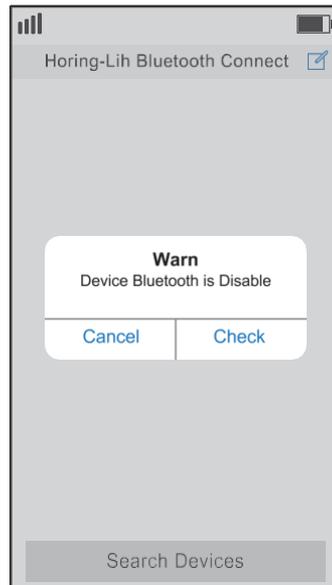
- IOS system compatible version: 12.0 following

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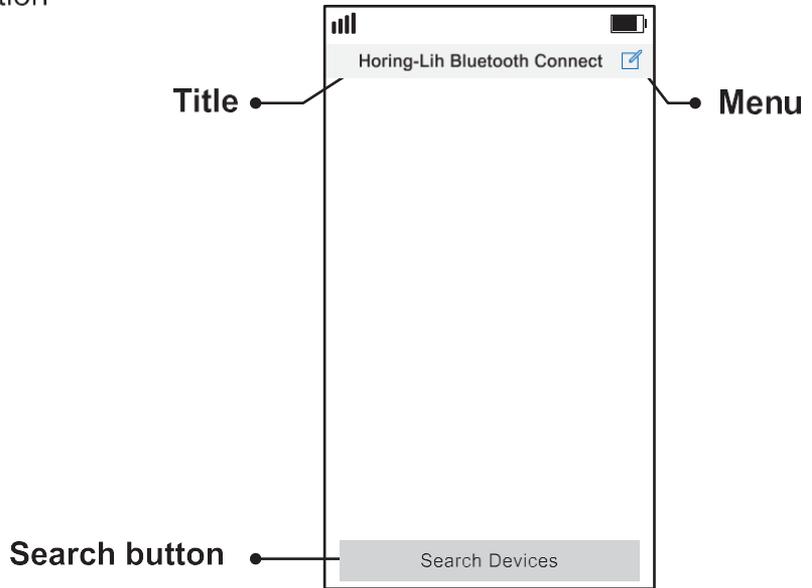
a pop-up window appears as shown on the right.

Press the setting to switch to the setting interface.



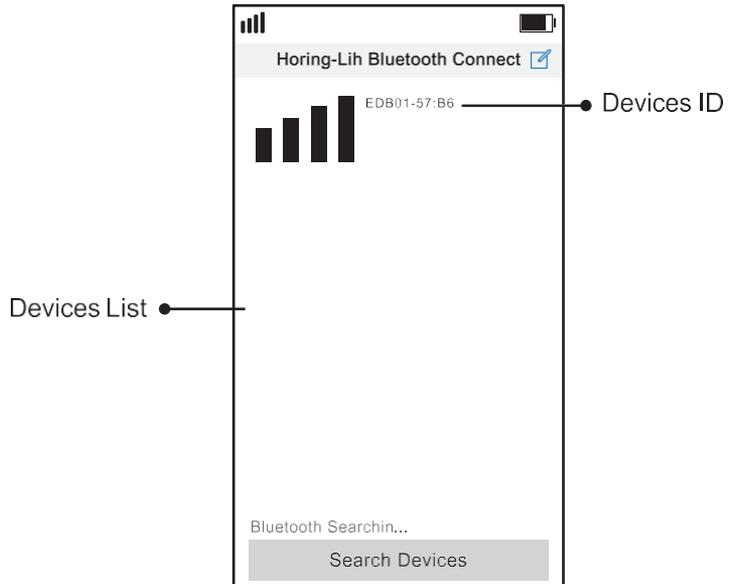


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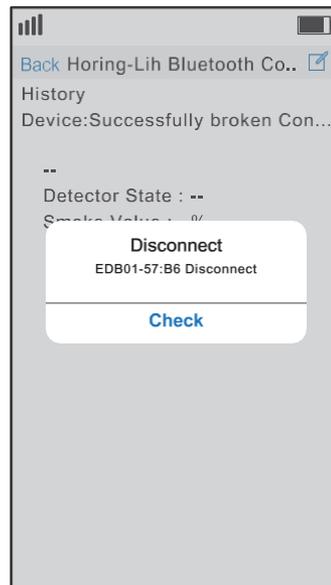
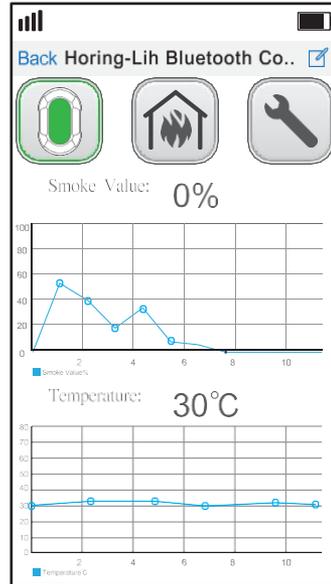
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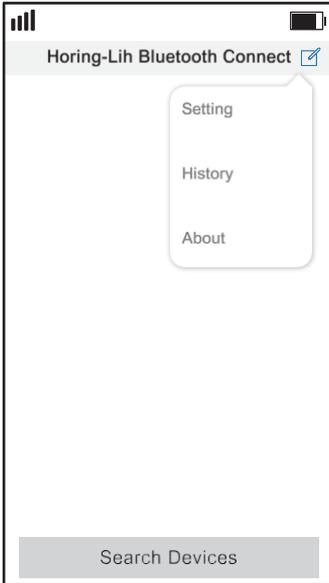
**Fault**  
Yellow lights ON when in fault condition, Supervising and Fault become grey light.



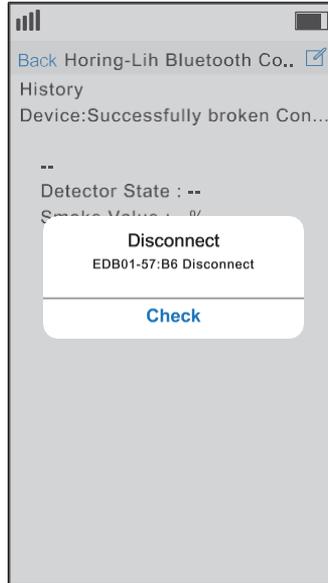


## ▲ Menu description

### Menu

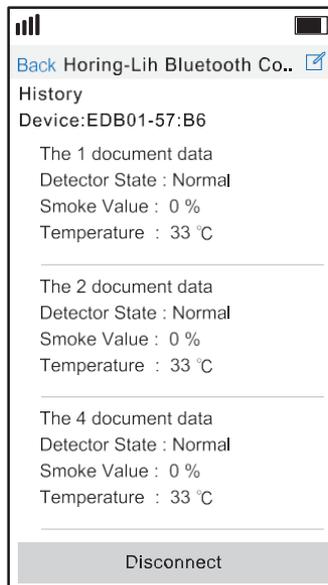


### Disconnect

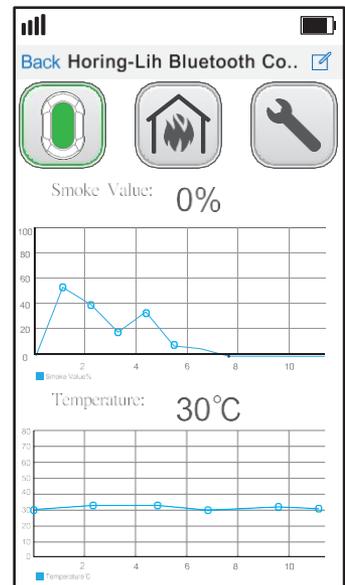


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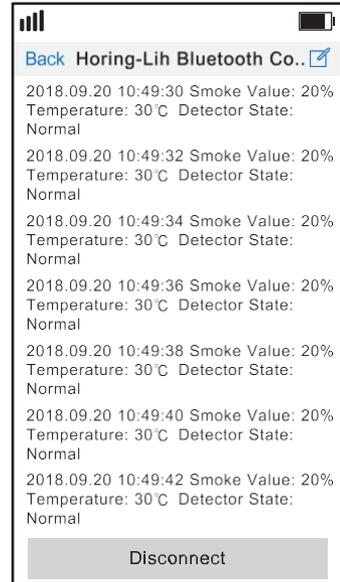
(Figure 1)



(Figure 2)



- ▲ Use the app's Menu -> Settings -> View the log file in the app.





## Trouble Shooting Q&A:

### Q1. Even turn on the Laser Switch, it can't emit the laser light?

- A1. Check the input power if it is approximately 12~30V. It is enough to measure it with an electricity meter.
- A2. If there is no problem with the input power, and the laser is still not in motion, it might be a transmitter problem. Please send it back to the manufacturer for repair.

### Q2. Alarm test & Fault relay have been carried out but there is no output there?

- A1. Check the external wiring to see if the connection or distribution is normal or not. And then refer to the manual to confirm again.
- A2. The 1st method to check the status light: red flashing lights are in operating mode; yellow flashing lights are in fault condition. If everything is okay with the light display but the relay output, please send it back to the manufacturer.
- A3. The 2nd method to check the status light: no red flashing lights in operating mode but yellow lights flash when a fault occurred. It indicates that the pre-set is abnormal, please reset it again.

### Q3. The Fault light is always in flashing condition and there is no way to get rid of it?

- A1. It might be built-up dirt on the cover. Please turn off the power first, clean the cover and apply the electricity.
- A2. It might be caused by the unsuccessful prism targeting. Please switch on the laser beam to inspect if it is tilting away from the prism or not. If it does, please align the laser beam to hit the dead center of the prism.
- A3. It might be an external wiring problem. Please reference the manual to check the distribution.
- A4. Check the beam path between the detector and the prism if there are any blocks in it.

### Q4. Alarm LED is always in flashing condition and can't back to the monitoring mode?

- A1. Check if the sensitivity settings correspond to the installation distance. And make sure to realign the detector after adjustment.
- A2. Check the beam path between the detector and the prism if there are any blocks in it.

### Q5. What if the laser beam can't point at the prism?

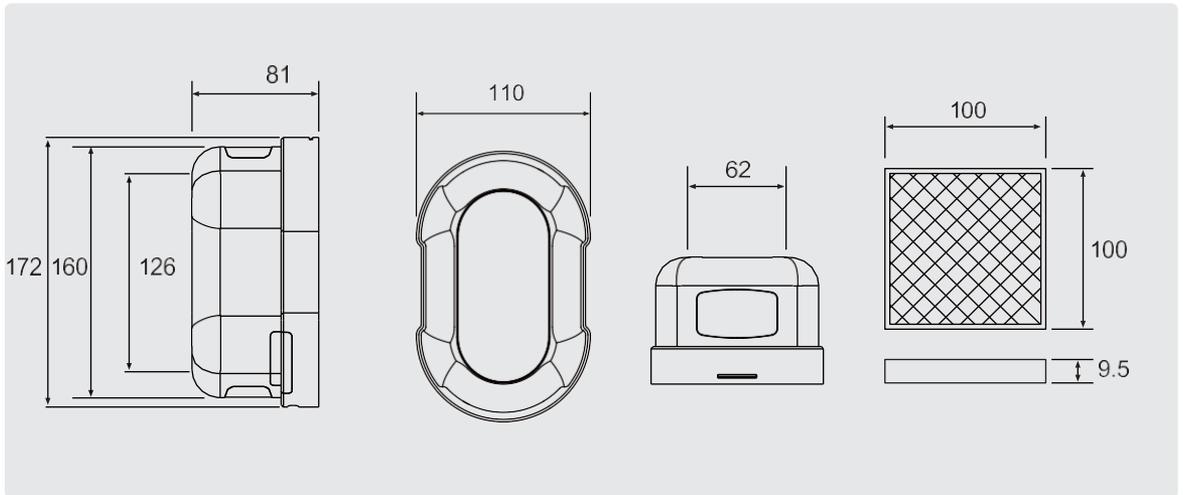
- A1. It is forbidden to have any blocks in the beam path between the detector and the prism.
- A2. After mounting the detector, turn on the laser beam and install the prism on a solid structure.

### Q6. What should I use to clean the dirt on the cover?

- A1. Use the clean cotton cloth to wipe the cover.
- A2. Do not use any wet tissue to clean the cover.



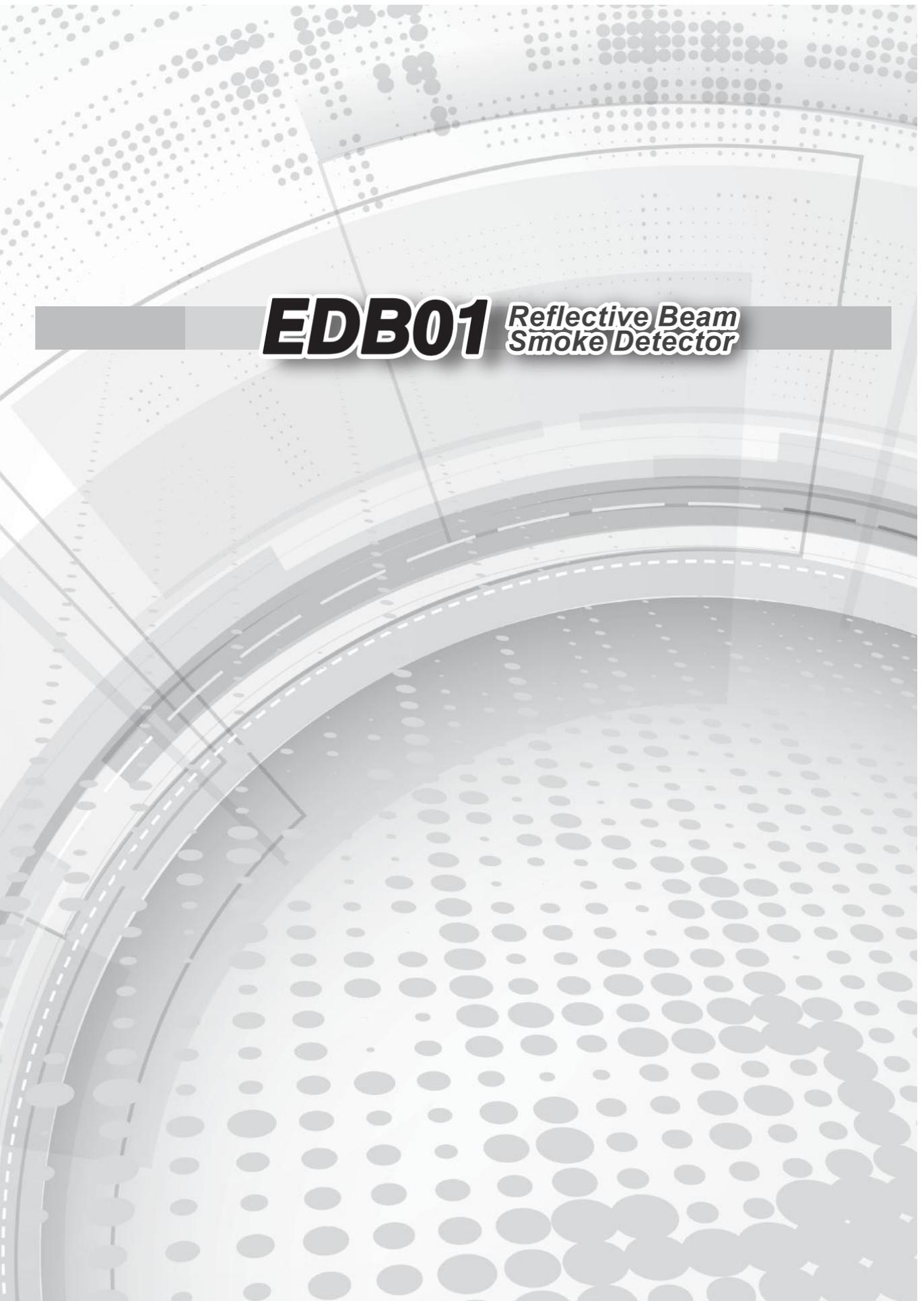
Dimensions: (unit:mm)



## Specifications

Operating voltage	12-30V DC
Standby current	3~20mA
Alarm current	20~40mA
Alarm output	COM/NO (1A @30V DC)
Fault output	COM/NC (1A @30V DC)
Ambient temperature	-10°C ~ +55°C
Sensitivity	18%(0.75-0.96dB) 、 25%(1 dB) 、 35%(1.07dB) 、 50%(1.24-1.59dB)
Weight	350g
Material	ABS
Operating Rang	10m to 50m use one prism 50m to 100m use four prisms
Angular Tolerance	Detector: $\pm 0.5^\circ$ Prism: $\pm 5.0^\circ$





**EDB01** *Reflective Beam  
Smoke Detector*