

# Conventional Photoelectric Smoke Detector

DC-9102E-KID



## Overview

DC-9102E-KID Conventional Photoelectric Smoke Detector is a new-generation product. The DC series Detectors have a microprocessor and use Advanced Algorithms to reliably Detect Fire alarm conditions.

The detector utilizes drift compensation algorithm to adapt to changing environment, such as dust accumulation, humidity and temperature. The detector can adjust the sensitivity so that the amount of smoke needed to generate an alarm remains constant, irrespective of environmental conditions. The principle diagram is shown as Fig. 1.

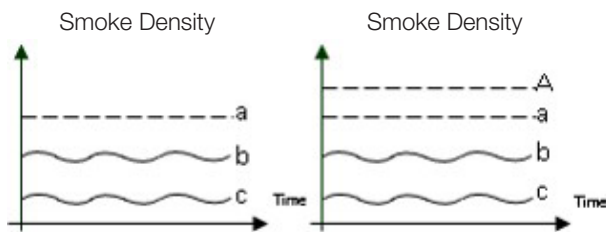


FIGURE 1

- a - Fixed Sensitivity
- b - Environment value after drifting (prone to nuisance alarm)
- c - normal environment value
- A - Variable sensitivity

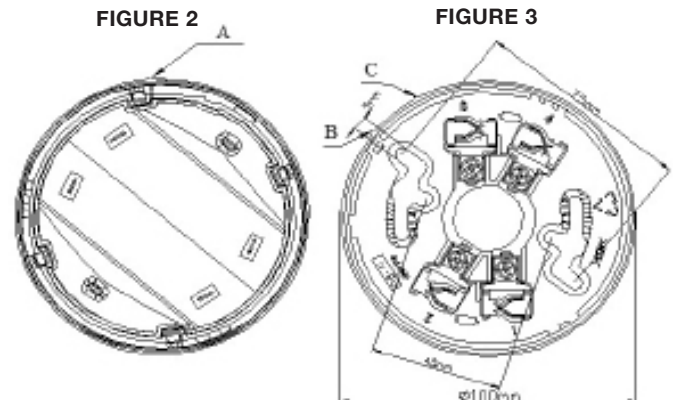
## Standard Features

- Integrated algorithm of analysing fire to recognise black smoke quickly
- Removable innovative sensing chamber, easy for maintenance
- Output terminal for remote indicator
- Magnetic test function
- 2 level sensitivities (complying with AS-7240.7 when sensitivity is level 1)

## Connection and Wiring

The orientation base is shown in Fig. 3  
There are four terminals with numbers on the base

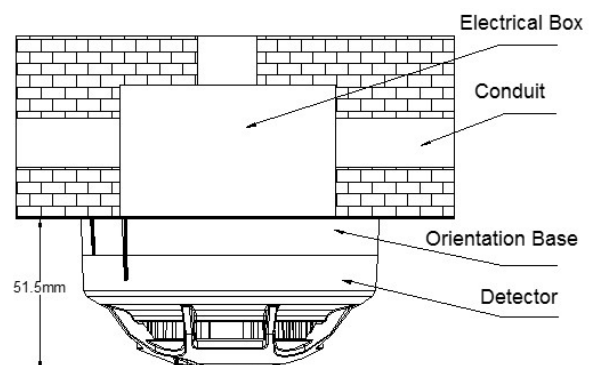
- 1: Detection zone positive IN
- 2: Detection zone positive OUT
- 3: Detection zone negative IN and OUT
- 2: Positive Terminal of remote indicator
- 4: Negative terminal of remote indicator



Fix the base with two tapping screws. Then align A (Fig. 2) with the bottom of the detector to B (Fig. 3) of the base, and rotate the detector clockwise to mark C.

## Installation

Mounting of the detector is shown in Fig. 4



**Note: To operate correctly, the DC-9102E-KID must be connected to a compatible fire alarm control panel. Connecting the smoke detector directly to 24VDC will damage the detector.**

By default, the detector is set to sensitivity level 1 and LED status is 'ON', which can be modified by using a P-9910B programmer.

**Programming or reading the detector:** Connect the handheld programmer to the heat detector terminals '1' and '3' using the clips provided.

Unlocking the Programmer: Turn the programmer on and enter the unlock pin '456' and press 'clear' a '0' should appear on the LCD.

**Program sensitivity:** To change the sensitivity, press the 'Function' key followed by '3'. A '-' should appear on the LCD. Enter: '1' for Smoke Sensitivity 1, '2' for Smoke Sensitivity 2, followed by the 'Program' button. Once complete, there will be a 'P' shown on the LCD, indicating its class is programmed.

Table 1 Parameters Setup

| Parameter | Smoke Sensitivity | Polling LED Status |
|-----------|-------------------|--------------------|
| 1         | 1                 | ON                 |
| 2         | 2                 | ON                 |

**Read Detector Sensitivity:** When the programmer is in a standby state, press the 'Test button'. 'L' will appear followed by an Address for the Detector. Pressing 'Up' will scroll through the Detector sensitivity level, device type and heat detector class. For these Conventional Smoke Detectors the Detector Address is not applicable.

**Locking the Programmer:** press 'Clear' and enter locking pin '789' followed by 'Clear' to exit.

When the detector is connected to the KID1xxA conventional FDCIE or an addressable zone monitor unit, a 4.7kΩ end of line resistor is to be fitted at the last DB-01 base on the circuit. See Fig. 5.

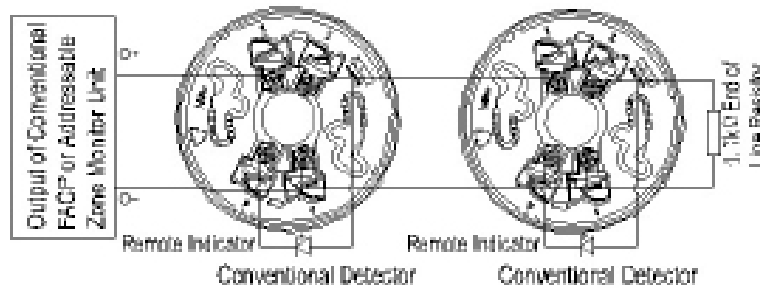


FIGURE 5

## Testing

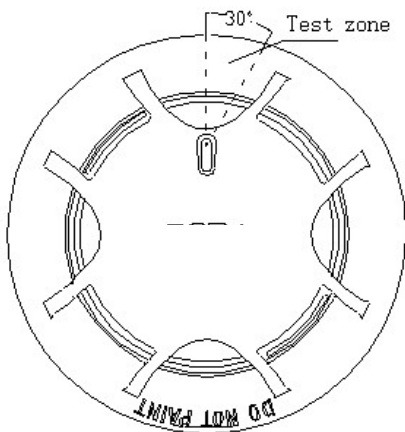


FIGURE 6

**Note: Before testing, Ensure the detector is properly installed and powered up. Testing can only commence after the detector is powered up for a minimum 10 seconds.**

The detector must be tested after installation and regular maintenance as per local code. The two methods are as follows:

- (1) Reed switch testing

Place the commission tool on the testing area of the detector as shown in Fig. 6, hold for several seconds until the detector is in alarms.

- (2) Smoke test

Apply the detector smoke tester to the detector until it alarms.

On completion of test, reset the detector at the FDCIE.

If a detector fails during testing, follow the steps outlined in the Maintenance section, and retest it. If it still fails, replace the detector .

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## Maintenance

Before performing maintenance ensure the proper authorities are notified that the system is undergoing maintenance and will temporarily be out of service. Disable the zone or system undergoing maintenance to avoid any unwanted alarms.

Prior to commissioning ensure the dust covers are left on the detectors and measures are taken to keep the detectors free from dust, dampness and corrosion.

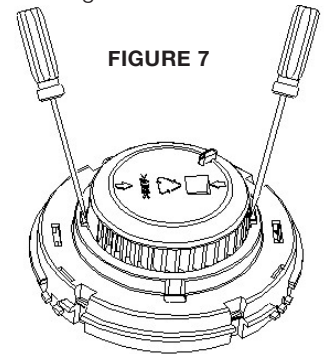
Detector should be cleaned at least once a year to ensure normal operation of the system.

The detector should be tested after any cleaning or when replaced.

Protect the metal component on the PCB against damp and improper distortion.

If nuisance alarms are often found of the detector on site, the sensing chamber should be cleaned and replaced when necessary.

- a) Open the top cover of detector, and draw out the sensing chamber by slightly lifting its two sides using a flat screwdriver, as shown in Fig. 7.
- b) Clean the sensing chamber by using an alcohol cotton swab, clean water and brush. Please note not to leave any cotton in the chamber.
- c) Re-install the sensing chamber and top cover.



## Specifications

|                           |  |
|---------------------------|--|
| Operating Voltage         | 24VDC (12VDC ~28VDC)   |
| Standby Current           | ≤60μA  |
| Alarm Current             | ≤55mA  |
| Fire LED                  | Red, periodical flash when polling when LED status is set to 'ON'. No illumination when the status is set to 'OFF'. Periodical two flashes when in fault or sensing chamber is dirty. Steady illumination when in alarm. |
| Remote indication output  | Polarity-sensitive output, directly connecting with remote indicator (built in 10k resistor in series, max. output current is 2mA); no illumination when in normal state; flash when in alarm.                           |
| Max. ripple voltage       | 2V (peak to peak value)  |
| Alarm Reset               | Instant power down 910s mon, 1.0VDC max.   |
| Sensitivity setting       | The sensitivity can be set by hand held programmer. There are two sensitivity levels: level 1 (default ) and level 2.  |
| Wiring                    | Two-wire, polarity sensitive.  |
| Ingress Protection Rating | IP2X   |
| Environmental Temperature | -10°C~+50°C  |
| Relative Humidity         | ≤95%, non-condensing   |
| Material                  | ABS  |
| Dimension                 | Diameter : 100mm    Height : 44.5mm (without base)   |
| Mounting Hole Distance    | 45mm ~ 75mm  |
| Weight                    | Approx. 110g   |

## Accessories and Tools

| Module  | Name                | Remarks          |
|---------|---------------------|------------------|
| P-9910B | Handheld Programmer | Order separately |
| DB-01   | Base                | Order separately |

## Ordering information

| Part number  | Description                               | Ship Wt., lb (kg) |
|--------------|---|-------------------|
| DC-9102E-KID | Conventional Photoelectric Smoke Detector |                   |