

## Features

- ✧ Reed switch testing.
- ✧ Remote indicator output available.
- ✧ 2 levels smoke sensitivities programmable, complies with UL268. Heat part is fixed temperature, complies with UL521.

## Description

DC-M9101 Conventional Combination Heat Photoelectric Smoke Detector integrates photoelectric detection and fixed temperature detection technology by combining smoke sensor and semi-conductor heat sensor in mechanism and circuitry structure. Just because of the combination of smoke detection and heat detection, it not only overcomes the disadvantage that detectors using common infrared scattering technology are insensitive to black smoke with small particles, but also can pick up fire with obvious rise of temperature such as alcohol flame, thus extending its application range.

On detecting a fire signal, it can change its own current to transmit the signal to fire alarm control panel (FACP) or addressable zone monitor unit. The detector keeps illuminating fire LED until it is reset by power-down.

## Connection and Cabling

The detector connects with UL-certified products such as I-M9300, DI-M9319 module and intelligent control panels. The detector bottom is shown in Fig. 1 and the base in Fig. 2.

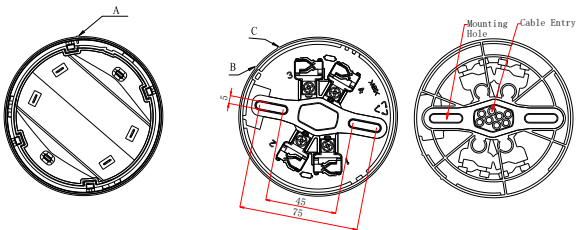


Fig. 1

Fig. 2

Please install the base according to following steps:

- 1) Locate mounting holes on the rubber layer of the base according to the holes on the back box, and punch the holes with a screwdriver.
- 2) Count the number of cables needed and punch correct quantity of holes with a screwdriver on the rubber layer. Thread the cables through the cable entry holes.
- 3) Install the base onto the back box with screws.

**Warning: Do not punch mounting holes and cable entry holes bigger than needed. Do not punch more holes than needed.**

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

It connects a 4.7k/1w resistor between number 2 and 3 at the end of the base. The system connection is shown in Fig. 3.

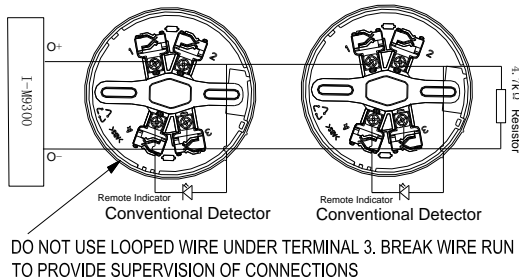


Fig. 3

## Recommended Cabling

1.0mm<sup>2</sup> or above fire cable is recommended, laid through metal or flame-retardant conduit, but subject to local codes. Different color cables for remote indicator are used to avoid wiring mistake.

I-M9300 modules connect with 15 conventional devices at most.

**Note: It's recommended to use cables of different colors to avoid incorrect wiring.**



## Installation

Refer to *D Series Detector Application Bulletin* for additional installation instructions.

A fixed installation direction is ensured by the location elements on the detector and the base. Fix the base with two tapping screws, and then align mark A on the detector with B on the base, rotate the detector to align mark A with mark C (Refer to Fig. 1 and 2 for the position of the marks), the detector will be fitted to the base.

Fig. 4 shows the installation of the detector.

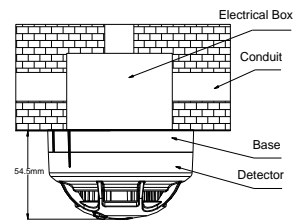


Fig. 4

## Application

**Warning: The alarm current depends on the current limit of the control panel. 24VDC cannot power the detector directly. Otherwise the detector will be blown up for lack of current limit resistor.**

Fixed temperature, level 2 and polling LED status is "ON" are default. Sensitivity level of the detector and polling LED status can be set, read or written in field by using P-9910B programmer.

In power-on state, input unlocking password and press *Clear* to unlock. Press *Function*, then press "3", the screen shows "\_" at the last digit. Input the corresponding parameter (refer to Table 1) and press *Program*, the screen will show a "P", the corresponding sensitivity or parameter is programmed. Press *Clear* to clear the "P". Input locking password and press *Clear* to return.

Table 1 Parameters Setup

Parameter	Smoke Sensitivity	Heat Part	Polling LED Status
1	1	Fixed Temperature	ON
2	2	Fixed Temperature	ON
129	1	Fixed Temperature	OFF
130	2	Fixed Temperature	OFF

Read Sensitivity Level: in power-on state, pressing *Test*, the screen displays address of the detector. Pressing "*Up*", display sensitivity level, device type and initial sensitivity in turns.

## Testing

**Before testing, please ensure that the detector has been installed correctly and powered up. After 10 seconds, testing begins.**

Before testing, notify the proper authorities that the system is under maintenance and will temporarily be out of service. Disable the automatic controls relating to the zone or system under maintenance to avoid unwanted actions.

All detectors must be tested after installation and periodically thereafter. Testing methods must satisfy the Authority Having Jurisdiction (AHJ). Detectors offer maximum performance when tested and maintained in compliance with NFPA 72. The detector can be tested in the following way:

### 1) Reed Switch Testing

Magnetic test zone is shown in Fig. 5. Put the magnet of commission tool close to that of the detector and hold on for a few seconds until the detector generates alarm.

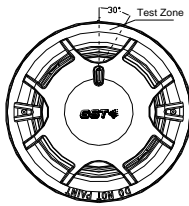


Fig. 5

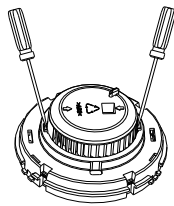


Fig. 6

### 2) Smoke entry test

The Trutest model 300 Aerosol Smoke Detector Tester can be used for smoke entry testing. Set the generator to represent 4%/ft to 5%/ft obscuration as described in the Trutest manual. Using the bowl shaped applicator, apply aerosol until the panel alarms.

Additionally, canned aerosol simulated smoke (canned smoke agent) may be used for smoke entry testing of the smoke detector. Recommended aerosol smoke products are:

Manufacturer	Model
Trutest	AERO400

When used properly, the canned smoke agent will cause the smoke detector to go into alarm. Refer to the manufacturer's published instructions for proper use of the canned smoke agent.

**Warning:** Canned aerosol simulated smoke (canned smoke agent) formulas will vary by manufacturer. Misuse or overuse of these products may have long term adverse effects on the smoke detector. Consult the canned smoke agent manufacturer's published instructions for any further warnings or caution statements.

### 3) Temperature rise test

Approach a heater (such as a hair drier of 1000w-1500w) to the thermistor of the detector until it alarms. It is 12 inches between the hair drier and the thermistor to avoid damaging on the plastic enclosure of the detector

If a detector fails in testing, replace it. After testing, reset the detector. Notify the proper authorities that the system is back to normal operation.

## Maintenance

- ✧ Clean the detectors regularly, at least once a year to ensure normal operation of the system.
- ✧ If unwanted alarms are often found of the detector on site, the sensing chamber should be cleaned. Power must be removed from the detector before cleaning.

#### Steps for chamber cleaning:

- a) Open the top cover of detector, and draw out the sensing chamber by slightly lifting its two sides using a straight screwdriver, as shown in Fig. 6.
- b) Use a vacuum cleaner or cleaned, compressed air to remove dust and debris from the insect guard and the sensing chamber. The sensing chamber can also be cleaned by clear water and brush. Put the sensing chamber in clean water to brush the dust inside and take out to dry it.
- c) Put back the chamber and the top cover.

## Cautions

1. Dust covers can't be removed until the project is put into use formally. Take well care of dust covers for future use.
2. Dust covers effectively but not absolutely prevent dust particles from going into detectors. So, we recommend that detectors should be removed prior to construction, decoration, or other activities producing dust. The proper authority should be informed of detectors removing.
3. Be careful not to damage the detector in maintenance.
4. The smoke detector may not sense fire that where smoke cannot reach it, such as in chimneys, in walls, on roofs, or on the other side of closed doors.
5. The detector cannot monitor the place beyond protection area.

6. The detector may not warn you about fires caused by insufficient safety measures, violent explosions, leaking gas, improper storage of flammable materials like diluents and other safety hazards, arson or children playing with fire.

7. The alarm of a smoke detector used in high velocity environment will be delayed due to dilution of smoke by frequent and fast airflow.

8. The smoke detector cannot last forever. In order to keep the detector working in good condition, please maintain the equipment continuously according to recommendations from manufacturers and relative state standards.

9. The detectors must be tested regularly, at least once a year.

10. The base should be fastened and the wire should be connected reliably.

11. Fire LED of the detector should face the main entrance where people can watch it easily.

12. Smoke detectors are not to be used with detector guards unless the combination has been evaluated and found suitable for that purpose.

## Specification

Operating Voltage	24VDC(16VDC - 28VDC)
Standby Current	≤ 60μA
Alarm Current	≤ 55mA
Fire LED	Red, periodically flash once in polling when the status is set to "ON"; don't illuminate when the status is set to "OFF". Periodically flash twice in fault or sensing chamber dirty; illuminate in alarming.
Remote Indicator Output	Polarized output. Directly connect to remote indicator (built in 10k resistor in series, output current is 2mA); Flash in alarming and do not illuminate in normal.
Maximum Ripple Voltage	2V ( peak-to-peak)
Alarm Reset	Instantaneous cut-out (10s Min, 1.0VDCMax.)
Wiring	Polarized 2-core for loop. Polarized 2-core for remote indicator.
Setting of sensitivity and range	Level 1: 1.23% - 2.7% per ft Level 2: 2.0% - 3.89% per ft
Maximum spacing (When Used as a Heat Detector only)	50 ft. (15.2 m)
Action Temperature	135°F (57.2°C)
UL Temperature Range	32°F (0°C) - 100°F (37.8°C) 0 - 95%, non-condensing
Operating Temperature	14°F (-10°C) - 122°F (+50°C) 0 - 95%, non-condensing
Ingress Protection Rating	IP2X
Dimensions	Diameter: 100mm Height: 54.5mm (with base)
Mounting Hole Distance	45mm - 75mm
Weight	110g

## Accessories and Tools

Model	Name	Remark
P-9910B	Hand held programmer	Order separately
DB-M01	Base	Order separately
T-MT	Commission Tool	Order separately
C-9314P	Remote Indicator	Order separately
BP-9314P	Back Plate for Remote Indicator	Order separately

## Limited Warranty

GST warrants that the product will be free of charge for repairing or replacing from defects in design, materials and workmanship during the warranty period. This warranty does not cover any product that is found to have been improperly installed or used in any way not in accordance with the instructions supplied with the product. Anybody, including the agents, distributors or employees, is not in the position to amend the contents of this warranty. Please contact your local distributor for products not covered by this warranty.

This document is subject to change without notice. Please contact GST for more information or questions.

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