

## Features

- ✧ Integrated algorithm of analyzing fire, recognize black smoke quickly.
- ✧ Strong environmental adaptability due to drift compensation.
- ✧ Reed switch testing.
- ✧ Removable innovative sensing chamber, easy for maintenance.
- ✧ Fire LED allows 360° viewing.
- ✧ Remote indicator output available.
- ✧ 3 levels sensitivities programmable; fix temperature or rate of rise programmable.

## Description

DC-9101 Innovative Multi Sensor (the detector), non-addressable, is a kind of combination detector consisting of smoke sensing parts and semi-conductor heat sensing parts in technological structure and circuit structure. It's designed according to UL 268/UL 521.

Together with DP-9907, it can connect to conventional fire alarm control panel or connect with intelligent fire alarm control panel through I-9319 Addressable Zone Monitor Unit conduct the processing of detector signals. The detector has the advantages of both conventional photoelectric detector and rate of rise and fixed temperature heat detector. Just because of the combination of smoke detector and heat detector, it overcomes the non-sensitivity to dark smoke particles of ordinary scattering photoelectric detectors. It can also pick up fire with obvious rise of temperature such as alcohol flame, thus extending the application range.

## Connection and cabling

The base is shown in Fig. 2.

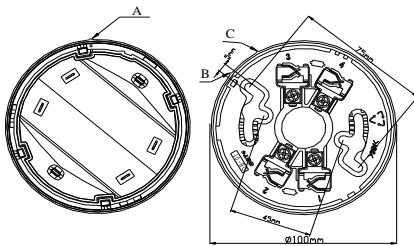


Fig. 1

Fig. 2

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
- 4: Positive terminal of remote indicator
- 4: Negative terminal of remote indicator

### Recommended Wiring

1.0mm<sup>2</sup> or above fire cable for all terminals laid through metal conduit or flame proof conduit, subject to local codes.

**Note: Different color cables are used to avoid wiring mistake.**

## Installation

Fix the flame retardant base with two tapping screws. Then align A on the bottom of the detector to B of the base, and rotate the detector clockwise to mark C (Refer to Fig.1 and Fig. 2 for mark A, B, C ). Mounting of the detector is shown in Fig.3.

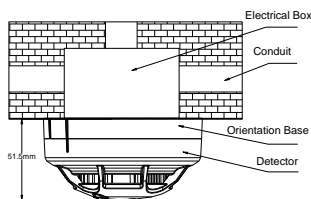


Fig. 3



## 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.**

The sensitivity level 1 is defaulted, which can be modified by P-9910B programmer. Refer to P-9910B Hand Held Programmer Installation and Operation Manual for details.

In power-on state, input unlocking password and press *Clear* to unlock. Press *Function*, then number "3", the screen shows "-" at the last digit. Input corresponding sensitivity or parameter 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.

Rate of rise and level 1 is defaulted.

Parameters set using programmer

Input Number	Smoke Sensitivity	Heat Sensitive
1	Level 1	Rate of rise
2	Level 2	Rate of rise
3	Level 3	Rate of rise
11	Level 1	Fixed temperature
12	Level 2	Fixed temperature
13	Level 3	Fixed temperature

✧ When the detector connects with conventional fire alarm control panel or addressable zone monitor unit from GST, and if DP-9907 Active End of Line Unit is connected to the end of output loop, DB-01D base should be used.

➤ Used as the detector base, DP-9907 Active End of Line is used to be installed a conventional detector on it. The system connection is shown in Fig. 4.

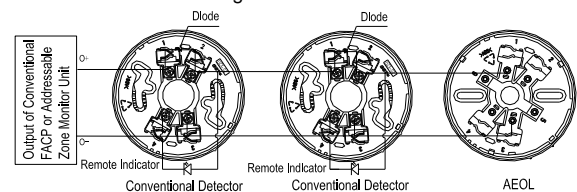


Fig. 4

➤ When DP-9907 Active End of Line Unit is not used as the detector base, a cover should be added to it. The system connection is shown in Fig.5.

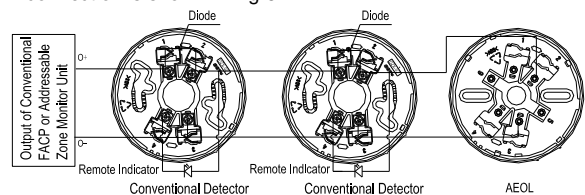


Fig. 5

✧ When the detector is connected with conventional fire alarm control panel or the addressable zone monitor unit from GST, if a 4.7KΩ terminal resistor is connected to the end of output loop, then DB-01 base

is used. The system connection is shown in Fig. 6.

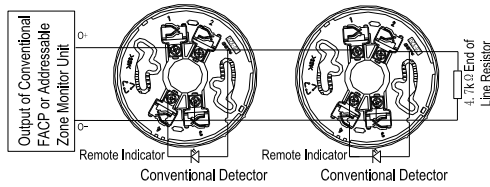


Fig. 6

When a remote indicator connects with a few of detectors, a diode 1N5819 needs connecting with Terminal 4 of the orientation base in series and with anode of the remote indicator. The system connection is shown in Fig. 7.

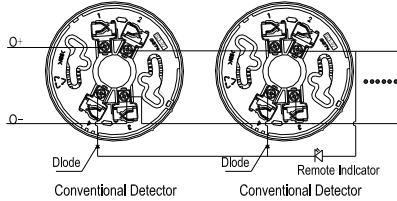


Fig. 7

Output loop of the addressable zone monitor unit can be connected with up to 15 conventional field devices. The addressable zone monitor unit features loop checking. When the loop is broken, the addressable zone monitor unit will send fault signal to fire alarm control panel. When any field device in the output loop is removed, the addressable zone monitor unit reports fault. If a DP-9907 Active End of Line Unit is connected, it will not affect the normal operation of other field devices.

### Testing

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

1. The detector must be tested after installation and periodical maintenance.
2. Testing method
  - 1) Magnetic test  
Test zone is shown in Fig. 8. Put the magnet of commission tool close to that of the detector and hold on for a few seconds until the detector generates alarm.

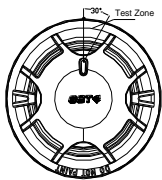


Fig.8

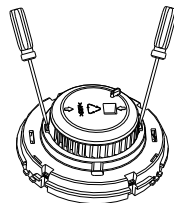


Fig.9

- 2) Smoke test  
Taking a cotton rope burning without flame close to the detector, blow the smoke into the detector until the detector generates alarm.
- 3) Temperature test  
Approach a heater (such as a hair drier) to the thermistor of the detector until it alarms.
3. After testing, cut power for 5 seconds at least and reset the detector. Notify the proper authorities that the system returns to normal state.

Clean the failure detector in the test according to *Maintenance*, and test it again. If it is still fail to pass, please return it to repair.

### Maintenance

1. The detector should be installed just before commission and kept well before installation, taken corresponding measures for dust-proof, damp-proof and corrosion-proof.
2. The dust cover cannot be removed until the project has been plunged into usage. Otherwise it can't alarm normally.

3. Clean the detector at least once a year to ensure normal operation of the system.
4. 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 straight screwdriver, as shown in Fig. 9.
  - b) Clean the sensing chamber by alcohol cotton swab clipped by tweezers, and also by clear water and brush. Please note not to leave any cotton in the chamber.
  - c) Install the sensing chamber and top cover back.
5. Before cleaning, notify the proper authorities that the system is undergoing maintenance and will temporarily be out of service. Disable the zone or system undergoing maintenance to avoid unwanted alarms.
6. The detector should be tested again after cleaning and re-installing.
7. Fire simulation test should be made to the detector at least once half a year.

### Specification

Operating Voltage	16VDC~28VDC
Standby Current	≤60μA
Alarm Current	10mA≤I≤30mA
Fire LED	Red, flash in polling and illuminate in alarming.
Remote indication output	Directly connecting with remote indicator; quiet in normal; flashes in alarm.
Max. ripple voltage	2V(peak to peak value)
Alarm reset	Instant power down (2s Min, 1.0VDC Max)
Heat Sensitivity	Action Temperature: 135°F (57.2°C) Response Velocity: 15°F/min (8.3°C/min)
Wiring	Two-wire, polarity sensitive. When the polarity is reversed, the detector can give alarm but the remote indicator doesn't work normally.
Environment Temperature	32°F (0°C)~100°F (37.8°C)
Relative Humidity	≤95%, non condensing
Material of Enclosure	ABS
Ingress Protection Rating	IP23
Dimension	Diameter:100mm Height: 54.5mm (without base)
Mounting Hole Spacing	45mm~75mm
Weight	About 110g

### Accessories and Tools

Model	Name	Remark
P-9910B	Hand held programmer	Supplied separately
DB-01	Base	Supplied separately
DB-01D	Base	Supplied separately
JTY-HM-GST102	Commission tool	Supplied separately

### Limited Warranty

GST warrants that the product will be free from defects in design, materials and workmanship during the warranty period. This warranty shall not apply to 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 Data Sheet is subject to change without notice. Please contact GST for more information or questions.

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