DI-M9101N Intelligent Multi-criteria Smoke and Heat Detector

Features

- ✧ Remote indicator output available;
- ✧ Reed switch test;
- ✧ Self-diagnostic;
- ✧ Polling LED can be set to OFF;
- ✧ Address can be programmed in field;
- ✧ 3 levels of smoke sensitivity programmable, complying to UL268 7th Edition; Fixed temperature feature complies to UL521.

Description

DI-M9101N Intelligent Multi-criteria Smoke and Heat Detector integrates photoelectric detection and fixed temperature detection technology by combining smoke sensor and semi-conductor heat sensor in mechanical and circuit structure. Using Multi-Wave Multi-Angle (MWMA) technology, DI-M9101N detector can identify features of smoke particles from different types of fire, improving sensitivity while reducing unwanted alarms caused by dust and vapor. With its heat sensor, the detector can also detect open fire with significant temperature rise such as alcohol flame, thus extending its range of application.

Connection and Cabling

Fig. 1 shows the detector bottom and Fig. 2 DB-M01N base.

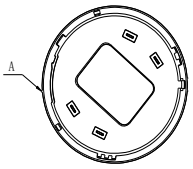

Fig. 1

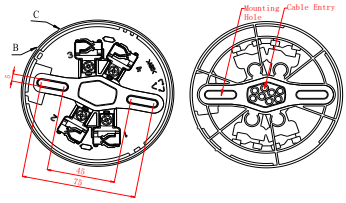

Fig. 2

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) Double check the number of cables needed and punch holes accordingly on the rubber layer with a screwdriver. 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.

Loop of the control panel should be connected with terminals “1” and “3” of the base, polarity-insensitive; Terminal “2” to anode of remote indicator and “4” to the cathode. System connection is shown in Fig 3.

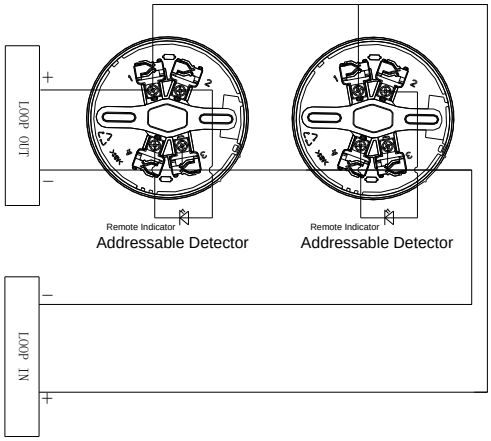

Fig. 3

Warning: The detector is to be connected only to the control unit specified in the detector or control unit literature or the system may not operate

Recommended Cabling

1.0mm^2 or above fire cable is recommended, laid through metal or flame-retardant conduit, but subject to local codes. It’s suggested to use cables of different color for remote indicator connection to distinct polarity.

The detector can be used together with GST UL-certified intelligent control panels.

Helps Reduce Cooking Nuisance Alarms

Installation

Refer to *D Series Detector Application Bulletin（30310026 Issue1.04）* for additional installation instructions.

Fix the base with two tapping screws, and then align mark A on the detector with B on the base, rotate the detector clockwise 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.

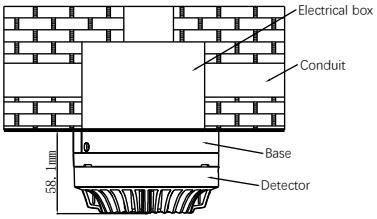

Fig. 4

Application

The factory default setting is fixed temperature and smoke sensitivity Level 2. The detector can be addressed, and information be read or written in field using P-9910B programmer.

Program smoke sensitivity: In standby state of the programmer, input unlocking password and press *Clear* to unlock the screen. Press *Function*, then press “3”, the screen shows “-” at the last digit. Input corresponding parameter of the detector and press *Program*, the screen will show a “P”, the parameter is programmed successfully. Press *Clear* to clear the "P". Input locking password and press *Clear* to return to standby state.

Parameters set using programmer

Detector Parameter	Smoke Sensitivity	Heat Setting	Polling LED
1	1	Fixed	Normal
2	2	Fixed	Normal
3	3	Fixed	Normal
129	1	Fixed	OFF
130	2	Fixed	OFF
131	3	Fixed	OFF

Read sensitivity level: In standby state of the programmer, press *Test*, the screen shows the address of the detector; Press *Up*, it shows in turn the sensitivity level, device type and initial sensitivity.

Testing

All detectors must be tested after installation and periodically thereafter. Testing methods must satisfy the Authority Having Jurisdiction (AHJ) requirement.

Please ensure that the detector has been installed correctly and powered up for at least 10 seconds before starting the tests.

Before testing, 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.

The detector should be tested and maintained in compliance with NFPA 72. The detector can be tested in the following ways:

1) Reed Switch Test

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

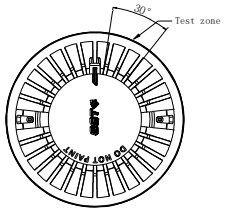

Fig. 5

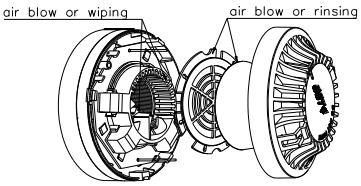

Fig. 6

2) Smoke entry test

A canned hand-held smoke aerosol may be used for smoke entry testing Recommended hand-held smoke aerosol products are:

Manufacturer	Model
No Climb	SmokeSabre 100-001
No Climb	SmokeSabre-01-001

Please refer to the manufacturer's published instructions for proper use of the canned smoke aerosol.

Warning: Formulas of canned aerosol smoke simulation agent may vary among different manufacturers. Misuse or overuse of these products may have long term adverse effects on the smoke detector. Please refer to the manufacturer's published instructions for any further warnings or caution statements.

3) Temperature rise test

A hair drier of 1000w-1500w can be used to test the heat sensor. Put the drier to the heat sensor unit the detector alarms. Please keep the drier about 12 inches away from the heat sensor to avoid damage of the plastic cover. The detector can only be reset when fully it's cooled down.

Please replace detectors that fail the tests. Please reset the system back to normal monitoring state and notify the proper authorities that the system is resumed.

Maintenance

1. **The detector must be cleaned once a year to ensure normal operation of the system.**
2. 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.

   Steps of cleaning the chamber (Fig. 6):

   a) Open the top cover of detector.

   b) Use a vacuum pump or cleaner, remove dust from the insect guard and the sensing chamber. The sensing chamber can also be cleaned by alcohol and dried out.

   c) Put back the top cover.

Cautions

1. The dust cover CANNOT be removed during installation and commission. But it MUST be removed when the system is in service, otherwise the detector may fail to alarm because smoke cannot enter the sensing chamber. Please take well care of dust covers for future use.
2. Dust covers effectively but not absolutely prevent dust particles from going into detectors. It's recommended that detectors should be removed prior to construction, decoration, or other activities that produce dust. The proper authority should be informed of detectors being removed.
3. Be careful not to damage the detector during maintenance.
4. The detector may not sense fire 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 places beyond its protection area.
6. The detector may not provide prompt alarm on 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. Smoke detectors have their own service life. To keep the detector working in good condition, please maintain it according to recommendations from manufacturers and relative national standards.
9. The detectors must be tested regularly, at least once a year.
10. The base should be fastened securely, and the wires connected reliably.
11. Fire LED of the detector should face the main entrance where people can observe 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	loop 24V (16V～28V)
Standby Current	≤0.4mA
Alarm Current	≤1.4mA (without remote indicator) ≤ 3.4mA (with remote indicator)
Fire LED	Red. Flashes in polling, and illuminates in alarm
Fault LED	Yellow. Illuminates steadily in fault.
Remote Indicator Output	Polarity-sensitive output, directly connects to remote indicator (built in 10k resistor in series with max. output current 2mA); Flashes in alarming and does not illuminate in normal state.
Programming Method	Electronically addressed
Address Range	Occupying one address within 1~242
Wiring	Loop: two wire, polarity-insensitive Remote indicator: two-wire, polarity-sensitive
Smoke sensitivity Range	Level 1: 1.38%~3.38%/ft Level 2: 2.25%~4.25%/ft Level 3: 3.12%~5.12%/ft
Max. spacing (when used as heat detector only)	50 ft. (15.2 m)
Action Temperature	135℉(57.2℃)
UL Approved Environment Temperature	32°F (0°C)~120°F (49°C) 0 - 95%，non condensing
Operating Environment 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	About 110g

Accessories and Tools

Model	Name	Remark
P-9910B	Hand held programmer	Supplied separately
DB-M01N	Flame-retardant Base	Supplied separately
DI-M9402	Addressable Sounder Base	Supplied separately
DC-M9402	Conventional Sounder Base	Supplied separately
T-MT	Commission Tool	Supplied separately
C-9314P	Remote Indicator	Supplied separately
BP-9314P	Back Plate (for remote indicator)	Supplied separately

Limited Warranty

GST will repair or replace the product to the original purchaser free of charge, if defective in materials or workmanship during the warranty period, subject to the terms below. GST and CRSS are not responsible for defects or problems as a result of conditions or applications including normal wear and tear; catastrophe; fault or negligence of any user or any party other than GST and CRSS; improper installation, application, storage, maintenance, or use of products; other causes external to products; or failure to conform to any applicable recommendations of GST and CRSS. In no event shall GST and CRSS be liable for incidental, indirect, special or any other consequential damages. To the fullest extent permissible by law, the foregoing limited warranty is exclusive and in lieu of all other warranties, whether written, oral, implied or statutory. Subject to applicable law, in no event shall the liability of GST and CRSS exceed the purchase price of the products. NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE SHALL APPLY. Anybody, including the agents, distributors or employees, is not in the position to amend the contents of this warranty.

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