DC-M9102 Conventional Photoelectric Smoke Detector

Features

✧ Providing for connections to remote indicators.
✧ A magnet test available.
✧ Standard: UL268

Description

DC-M9102 Conventional Photoelectric Smoke Detector (the detector) is a new-generation product by building in a microprocessor, embedding a solid fire analyzing program, and performing effectively and efficiently.

Checking a fire alarm signal, the detector will send it to a fire alarm control panel (FACP) or addressable zone monitor unit by means of current changes. The detector indicates its fire condition by turning on fire LED and keeping the LED on until it is reset.

Using infrared scattering technology, with an innovative chamber, the detector receives very weak infrared light under normal smokeless condition. If smoke particles enter the chamber, the received light signal will increase by scattering. When smoke density reaches certain density, the detector will output fire signal. In order to reduce interference and power consumption, the emitting circuit works in pulse mode to prolong the life of IR LED.

Connection and cabling

The detector connects with our UL certified GST-M200, GST-IFP4M FACP and I-M9300, DI-M9319 Module. DB-M01 base shown in Fig. 2 is used together.
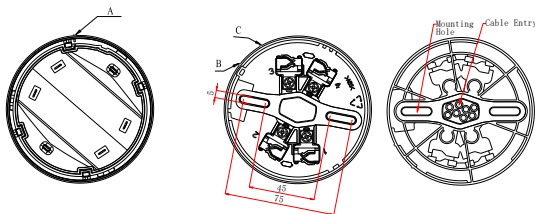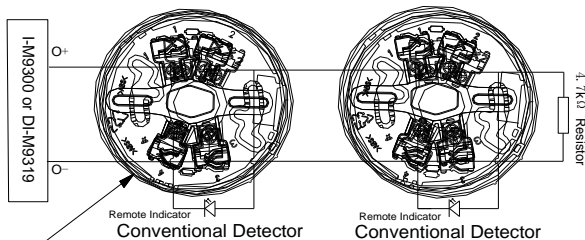

Fig. 1   Fig. 2

Please install the base according to the following steps:

1) Locate the mounting holes on the rubber seal of the base according to the holes on the electrical junction box, and punch the holes with a screwdriver.

2) Count the number of cables needed and punch correct number of holes with a screwdriver on the rubber seal at the cable entry position. Thread the cables through the cable entry holes.

3) Install the base onto the junction 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 number on the base. "1" is connected with output anode of I-M9300 or DI-M9319 module; "2" is used as output, connected with anode of next detector (Terminal 1) and also connected with anode of remote indicator; "3" is connected with output cathode of I-M9300 or DI-M9319 module or the cathode of the power supply; "4" connects with the cathode of remote indicator. Connect 4.7k/1w resistor to terminal 2 and 3 of the base. Maximum 15 detectors can be connected to the output circuit of I-M9300 or DI-M9319. The system connection is shown in Fig. 3.

DO NOT USE LOOPED WIRE UNDER TERMINAL 3. BREAK WIRE RUN TO PROVIDE SUPERVISION OF CONNECTIONS

Fig. 3

Recommended Wiring

1.0mm^2 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

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

Fix the base with two taping screws. Then align A (Fig.1) on the bottom of the detector to B (Fig.2) of the base, and rotate the detector clockwise to mark C.

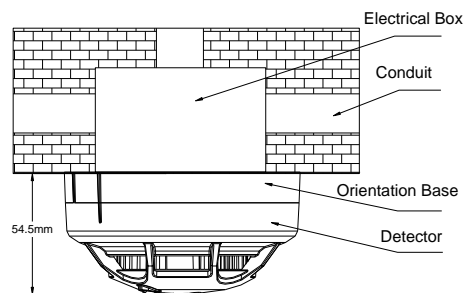Mounting of the detector is shown in Fig.4.

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.

Polling LED status is "ON" by default. Its status can be set to OFF (parameter is 129) through 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 parameter is written. Press *Clear* to clear the "P". Input locking password and press *Clear* to return.

Table 1 Parameters Setup

Parameters	Polling LED status
1	ON
129	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 can begin.

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.

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:
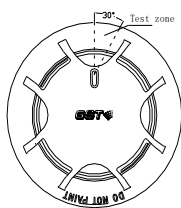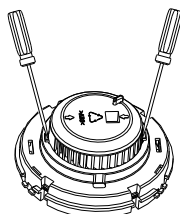

Fig. 5   Fig. 6

1)   Magnetic test

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

2)   Smoke 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.

3)   After testing, cut off the power above 10 seconds and reset the detector and then notify the proper authorities that the system is back in operation.

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.

When testing is complete, restore the system to normal operation and notify the proper authorities that the system is back in operation.

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.

Chamber Clearing Steps:

   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)   Install the sensing chamber and the top cover back.

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.

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.

4. The detector cannot monitor the place beyond protection area.

5. 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.

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

7. Smoke detectors have their own service life. In order to keep the detector working in good condition, please maintain them according to recommendations from manufacturers and relative state standards.

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

9. 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	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 indication output	Polarity-sensitive output, directly connecting with remote indicator (built in 10k resistor in series, max. output current is 2mA); don't illuminate when in normal; flash in alarming.
Max. ripple voltage	2V (peak to peak value)
Alarm reset	Instant power down (10s Min, 1.0VDC Max
Wiring	Two-wire, polarity sensitive.
Sensitivity Range	1.23% - 3.20% per ft
UL Temperature Range	32°F (0°C) - 100°F (37.8°C) 0 - 95%, non-condensing
Operating Temperature	14°F (-10°C) - 131°F (+55°C) 0 - 95%, non-condensing
Material and color	ABS, white (RAL 9016)
Ingress Protection Rating	IP2X
Dimension	Diameter:100mm Height: 44.5mm (without base)
Mounting Hole Spacing	45mm-75mm
Weight	About 110g

Accessories and Tools

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