DI-9102 Digital Optical Detector

Features

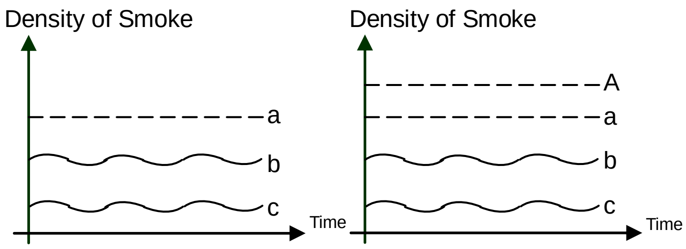
- ✧ Electronically addressed in field.
- ✧ Built-in microprocessor stores 14 history data.
- ✧ Drift sensitivity, suit to environment extensively.
- ✧ Identification of defective detectors.
- ✧ Featuring magnetic test.
- ✧ Removable innovative sensing chamber, easy for maintenance.
- ✧ Reporting dirt fault for contaminated chamber.
- ✧ The fire LED allows 360° viewing.
- ✧ Providing output terminal connecting with remote indicator.
- ✧ 3-level sensitivities (complying with EN 54-7 just when sensitivity is level 1).

Description

DI-9102 Digital Optical Detector is a new generation product, connected with intelligent fire alarm control panel to form fire alarm system. The detector turns on fire LED to indicate fire alarm condition and transmits the fire signal to the control panel.

The detector is developed from sensing chamber by scattering theory. Besides stable performance and easy maintenance, the detector has the ability to endure dust contamination and environmental light.

The detector utilizes drift compensation algorithm: When the environment is changing, such as dust accumulation, humidity and temperature changing, the detector can figure out these drift variation to make up for sensitivity, thus the amount of smoke needed to generate an alarm remains constant, irrespective of environmental conditions. The principle diagram is shown as Fig. 1.



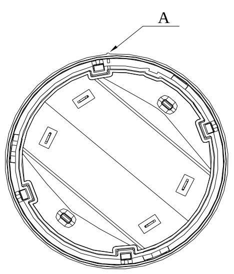
a Fixed Sensitivity   b Environment after Drifting (prone to nuisance alarm)

c Normal Environment Value   A Variable Sensitivity

Fig. 1

Connection and Cabling

The orientation base DB-01 is shown in Fig. 3.



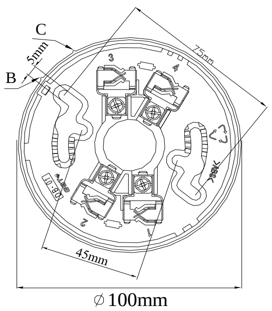


Fig. 2   Fig. 3

Connection: Loop of the control panel should be connected with terminals "1" and "3" of the base, polarized-insensitive; terminals "2" to anode of remote indicator and "4" to the cathode.

Recommended Wiring

1.0mm^2 or above fire cable for detector loop, laid out through metal conduit or flame-resistant conduit, subject to local codes. The connection of remote indicator should use different color cables to distinct polarity.

Installation

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

Mounting of the detector is shown in Fig. 4.

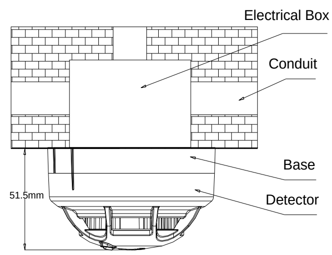


Fig. 4

Application

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.

The detector is suitable for hotels, restaurants, office buildings, teaching buildings, banks, warehouses, libraries, computer rooms and switch rooms, etc.

Testing

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

1. The detector must be tested after installation and periodical maintenance.
2. Testing method

1) Magnetic test

Magnetic 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.

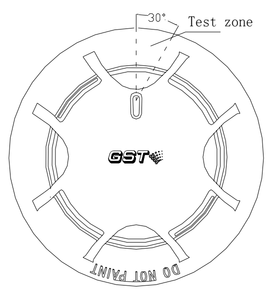


Fig. 5

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. 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 the detector 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.

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.

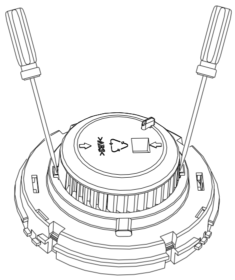


Fig. 6

b) Clean the sensing chamber by clear water, brush or alcohol cotton swab clipped with tweezers. Please don't 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. Protect the metal component on the PCB against damp and improper distortion.
8. Fire simulation test should be made to the detector at least once half a year.

Specification

Operating Voltage	Loop 24V
Standby Current	≤0.8mA
Alarm Current	≤1.8mA (without remote indicator) ≤3.8mA (with remote indicator)
Fire LED	Red, Flash in polling, and illuminate in alarming.
Remote indicator output	Directly connect to remote indicator (built in 5.1k resistor in series, output voltage is 14～22V); Flash in alarming and do not illuminate in normal.
Programming	Electronically addressed.
Programming Range	Occupying one address within 1～242.
Setting of sensitivity and range	The sensitivity can be set by programmer with three levels.
Wiring	Loop: two wire, polarity-insensitive Remote indicator cable: two wire, polarity-sensitive
Environmental Temperature	-10℃～+50℃
Relative Humidity	≤95%, non-condensing
Material and Color	ABS white (RAL 9016)
Dimension	Diameter: 100mm Height: 44.5mm(without base)
Mounting Hole Distance	45mm～75mm
Weight	About 110g

Accessories and Tools

Mode	Name	Remarks
P-9910B	Hand Held Programmer	Supplied separately
DB-01	Orientation 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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