Features

With novel structure, attractive appearance, stable and reliable performance, the detector is especially applicable to places where fire occurs with sharp rise of temperature. Used together with smoke detectors, it can detect fire with more reliability to reduce losses and chemical corrosion proof.

Description

DC-9103(IS) Intrinsically Safe Conventional Rate of Rise and Fixed Temperature Heat Detector is applicable to zone 1 and zone 2 of areas with explosion-proof requirement in petroleum, chemical industries and ships. Used together with I-9332 interface, it can be connected with compatible FACP (fire alarm control panel) to process fire alarm signals.

The detector has two classes: A1R and BS. They can be set through an programmer on site.

Connection & Wiring

Warning: Installation must strictly comply with the relative explosion-proof code.
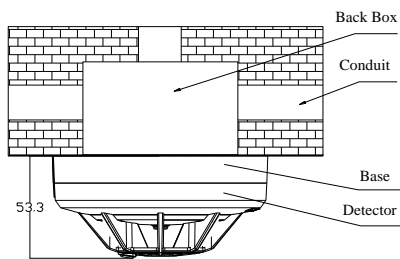Mounting of the detector is shown in Fig. 1.

Fig.1

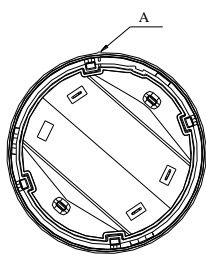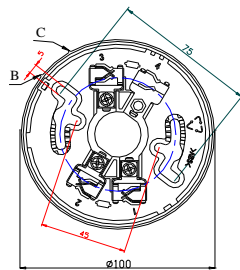Bottom and DB-01(IS) base are shown in Fig. 2 and Fig.3

Fig. 2   Fig. 3

The explosion-proof base of the detector is shown in Fig. 3. First secure the detector base with two tapping screws, and then connects the DC power supply cable of the detector and the positive end of power output cable to Terminal No. 1, 3 and 2 of the base. Please note to connect Terminal No. 1 to the positive of power supply and Terminal No. 3 to negative. Terminal No. 2 connects with positive power output cable; Terminal No. 4 doesn't connect to any cable.

There are two marks B and C on the orientation base, and mark A on the detector bottom. Aligning mark A to B of the base, and rotating the detector clockwise to mark C, the detector will be installed onto the base. Refer to Fig. 2 and Fig. 3.

Wiring:

$1.0mm^2$ or above intrinsically safe cable is recommended. Make sure distributed capacitance among cables is not over $0.083\mu F$, and distributed inductance not over 4.1mH.

Note: Please use cables of different colors to avoid possible confusion.

Operation

Set Class of the Detector
Setting is done in safety area.
When the programmer is in standby state, entering unlock password and pressing "Clear", it will be unlocked. Pressing *Function* followed by *4*, there will be a "-" at the last digit. Entering different number corresponding to the classes ("2" for A1R, "1" for BS) followed by "Program", there will be a "P" shown on the screen, indicating its class is programmed. Pressing "Clear" can return, and entering locking password followed by "Clear" will exit. If there will be an "E" shown on the screen, indicate it is fail to program. Press Clear and program again.

Table 1

Class	BS	A1R
	1	2

1.   After installation and connection of the system, turn on the FACP and enter commissioning state. Check if all interfaces are registered. If not, take down the number of the unregistered ones and check the problem.
2.   After all interfaces and detectors are registered, making the system into normal standby state, there should be no fault or alarm from detectors.
3.   After system commissioning, please do fire test.
Fire simulation test: in normal state, heat the temperature sensitive component using blower fan, and the detector should send fire signal and light the alarm LED. Press "Clear" on the fire alarm control panel when the temperature is decrease, the system returns to normal state.

Note: To ensure every detector works normally, please make sure the base connection is correct. The method is as follows: power up the detector, and measure the voltage between terminals. There should be 24VDC between Terminal "1" and "3". "1" should be positive and "3" should be negative.

Application

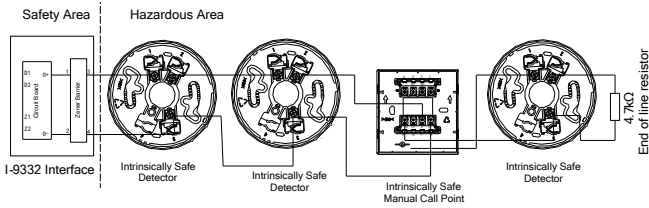System connection is shown in Fig. 4.

Fig. 4

When the detector is to be connected with I-9332 Interface or Explosion-proof Manual Call Point in series, a 4.7kΩ end-of-line resistor connected to the end of loop.

There are three conductive elements on the base with terminals. The bases are connected in series with an end-of-line resistor connected at the end. Please note polarity when connecting the system with the method shown in the above figure.

The interface is integrated with a safety barrier, which shall be installed in safe area. The total number of explosion-proof devices connected in the system shall not be over 10.

Barrier Parameter: Uo＝28V，Io＝93mA，Co=0.083uF，Lo=4mH，Po=651mW，Explosion-proof Mark: [ExibGb] IIC，Explosion-proof Certificate No.:CE12.2146

Troubleshooting

No alarm: First check external wiring and screws when there is a problem. If there is no problem, return it for repair.
False alarm: Return it for repair.

Maintenance

✧ The detector should be installed just before commission and kept well before installation, with corresponding measures taken for dust-proof, damp-proof and corrosion-proof.

✧ The dust-proof cover should not be removed until the project is put into usage.

✧ Fire test should be done at least once every 6 months.

Cautions

✧ I-9332 interface box should be installed in safety area; the wires of "Safety Area" should be separated from those of "Hazardous Area", and be kept a certain distance (At least 50mm).

✧ The safety barrier should be well grounded. The screws should not be loose. Ground resistance should not be over 1 Ω. The assigned parameters in the intrinsically safe loop should not be over the specified value, that is, the capacitance distributed among cables should not be over 0.083μF, and the inductance distributed should not be over 4.1mH.

✧ During maintenance, products passing the explosion-proof test should not be replaced and parts and structure affecting explosion-proof functions should not be modified.

Specification

Detector Class	P (A1R and BS can be set, factory default is A1R)
Operating Voltage	16VDC～28VDC
Static Current	≤60μA (Note: In standby state, the detector can work within 16VDC~28VDC)
Alarm Current	10mA≤I≤30mA (**Warning: The alarm current depends on the current limit of the FACP. It's not allowed to power the detector directly by 24VDC. Otherwise the detector will be blown as a result of without current limiting resistor.**）
Maximum Ripple Voltage	4V (peak-to-peak)
Alarm Reset	Instantaneous Power-off (5s Min, 2.5VDC Max)
Power-up Time	≤10s
Alarm Indicator	Red. Flashes in polling. Illuminates when fire is reported.
Explosion-proof Mark	Ex ib IIC T6 Gb
Explosion-proof Certificate No.	CE17.2124
Safety Barrier Parameters	U_0=28V I_0=93mA C_0=0.083μF L_0=4mH Pi=651mW
Device Max Input Parameter	Ui=28V、Ii=93mA、Ci=0、Li=0、Pi=651mW
Wiring	Polarity-sensitive, two-wire for connecting with power supply
Operating Environment	Temperature: A1R: typical temperature is 25℃, ranging -10℃～+50℃ BS : typical temperature is 40℃, ranging -10℃～+65℃ Relative Humidity ≤95%, non-condensing
Dimensions	Diameter: 100mm Height 53.3mm (with base)
Material and Color of the Enclosure	ABS（surface resistance≤10^9Ω）
Weight	About 130g
Mounting Hole Spacing	45mm～75mm

Accessories and Tools

Model	Name	Remark
I-9332	Interface	Order separately
DB-01(IS)	Base	Order separately

Limited Warranty

GST warrants that the product will be free of charge for repairing or removing from defects in design, materials and workmanship during the warranty period. This warranty doesn't 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 Data Sheet is subject to change without notice. Please contact GST for more information or questions.

Gulf Security Technology Co., Ltd.

No. 80, Changjiang East Road, QETDZ, Qinhuangdao, Hebei, P. R. China 066004

Tel: +86 (0) 335 8502434   Fax: +86 (0) 335 8502532

service.gst@fs.utc.com   www.gst.com.cn