

IP Fire Series™ Discovery Ionization Detector

- **DISC-I**

Description

The AsBuilt intelligent analog addressable ionization detector (DISC-I) operates seamlessly with the AsBuilt IP Fire Series™ network fire control. The DISC-I communicates to and is managed and controlled by the IPF Series™ analog loop module (ALM).

The DISC-I is physically distinguished from the Discovery photoelectric detector (DISC-P) by the red colored dual LED's. The LED's light steady when in an alarm condition and flash briefly when polled by the ALM. The dual LED's provide for 360 degree visibility.

Operation

The DISC-I ionization chamber consists of a reference chamber inside a smoke chamber. The outer smoke chamber has inlet apertures fitted with insect resistant mesh.

The radioactive source holder and the smoke chamber form positive and negative electrodes respectively. An Americium 241 radioactive source mounted within the reference chamber irradiates the air in both chambers, producing positive and negative ions. A voltage across the electrodes produces an electric field causing current to flow between the electrodes. The sensing electrode converts variations into chamber current and voltage changes.

This effect is greater in the smoke chamber than it in the reference chamber, and the imbalance causes the sensing electrode to become more positive. The analog voltage at the sensor electrode is converted to a digital format which is processed to form an analog value for transmission to the ALM.

Upon crossing the alarm threshold the detector will make the determination that an alarm condition exists and send a signal to the ALM that interrupts the normal polling process to signal the alarm condition. The ALM puts the changed state on the IP network and all outputs associated with the specific detector are activated.

The DISC-I manages its own automatic drift compensation thereby accelerating overall system performance by offloading the management of the device compensation values from the ALM to the DISC-I.

Compensation is made to adjust the detector for the infiltration and accumulation of dirt and dust over time. By compensating the detector alarm thresholds the sensing window is adjusted to remain at original factory specifications.

Like all Discovery devices, the DISC-I has five pre-programmed user settings that may be accessed and changed from the IPF Series network control. Further, the pre-programmed settings are utilized in establishing the automatic sensitivity values in place with the IPF Day/Night sensitivity programming.




Features

- Improved detection capabilities with hot burning fires
- Discovery detectors distribute intelligence across the installed system
- Patented infrared smoke sensing design
- Sleek, non-fading white polycarbonate enclosure
- Zero insertion force base
- 5 user selectable modes
- Powerful transient rejection algorithms
- Conventional device mode
- Patented XPert programming card eliminates addressing errors during system installation and maintenance
- Alarm flag sends signal to system even when device is not being interrogated
- Wide variety of addressable input/output devices
- Relay and synchronized temporal sounder bases also available
- Green/RoHS Compliant

Listings

UL File: S5022
CSFM: 7271-1394:116
MEA: 294-95-E-4

Product	Data Sheet Number	Rev/Revision Date	
IPF Series™ Detectors DISC-I	2107	1.4/ 10/1/2009	

Engineer Specification

The contractor shall furnish and install, where indicated on the plans, intelligent ionization smoke detectors with one of the several addressable mounting base options available. The detector base will contain the patented XPERT programming card which will permit the free interchange of sensor heads without requiring additional programming of the detector head or attached base. The intelligent detector shall be self compensating, self reporting and contain dual integral LED's which will flash intermittently when polled and shall latch when the unit goes into Alarm. The detector head shall have 5 programmable settings that can be accessed automatically or by manual setting from the fire control which will allow the detector sensitivity settings of the individual detector to be modified as required. The combination of the detector head and twist lock mounting base shall be UL listed and UL listed as compatible with the AsBuilt IP Fire Series network fire controls. The detector base shall be installed without regard to wire polarity. The ionization detector shall be the AsBuilt model DISC-I.

Technical Data

Operating Voltage: 17-28VDC
Standby Current: 500uA avg. / 750uA peak
Alarm LED Current: 3.5mA
Remote Alarm Output: 5mA max
Temperature range: 32°F to 140°F(0°C-60°C)
Relative Humidity (non-condensing):0%-95%
Clean-air Analog Value: 23 +4/-0
Alarm Level Analog Value: 55
Wire Supply: Two-wire supply, polarity insensitive
Recommended Spacing:
Meets the 30 ft. (9.1m) spacing guidelines in NFPA 72 Chapter 2, however, this spacing is based on ideal conditions and should be used as a layout guide only.

Five Pre-Programmed User Sensitivity Settings

- Mode 1 .55%/ft. Obscuration 5 Seconds to Alarm
- Mode 2 .55%/ft. Obscuration 30 Seconds to Alarm
- Mode 3 .63%/ft. Obscuration 5 Seconds to Alarm
- Mode 4 .63%/ft. Obscuration 30 Seconds to Alarm
- Mode 5 .70%/ft. Obscuration 5 Seconds to Alarm

Ordering Information

Part Number	Data Sheet	Description
DISC-I	2107	Intelligent Analog Addressable Ionization Detector (model 58000-550)
DXP-6	2310	6" Low Profile Base w/Expert Card (model 45681-250)
DXP-4	2310	4" Low Profile Base w/Expert Card (model 45681-210)
DXP-RLY	2310	6" Low Profile 4-wire Relay Base (model MB-RLYT-AA)
DXP-SND/T	2310	6" Low Profile 4-wire Sounder Base (model MB-SDRT-AA)
DXP65	2310	Sync Module for Temporal Sounder Bases (model MB-SDRT-SM/G/R)
DXI	2300	Line Isolator (55000-750)
DXP-LIB	2300	Isolating Base for DXI only (45681-211)
DXP-IB	2300	Line Isolating Base for Use with XP/DISC Detectors (45681-321)
DXP-XPC		Additional XPERT programming card
DXP-XPC#A		Order "A" for Addresses 1-42, "B" for 43-84, "C" for 85-126, # for Loop #
DXP-126		126 Pre-Programmed XPERT cards
DXP-REM		Remote LED (24V)


Related Data Sheets

Discovery Detectors: DISC-P, 1106; DISC-T, 1108; DISC-M, 1109

XP Detectors: XP-P, 1101; XP-I, 1102; XP-T, 1103; XP-M, 1104

Addressable Devices: DXP-PIM/MPIM, DXP-PID/MPID, 1210; DXP-IOM, 1212; DXP-SDR, 1214, DXP-2PID, 1216; DXP-OCR, 1218

Addressable Base Options: All Bases, 1112

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