

IP Fire Series™ Discovery Multisensor Detector

• DISC-M

Description

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

Operation

The DISC-M multisensor detector contains a photoelectric smoke detector and thermistor temperature sensor whose outputs are combined give the final analog value to the ALM.

The way in which the two signals from the two sensors are combined depends on the response mode selected. The five modes of operation provide response behaviors which incorporates pure heat detection, pure smoke detection and a combination of both. The DISC-M is therefore the most useful detector over the widest range of applications.

The DISC-M construction is similar to that of the DISC-P photoelectric smoke detector but uses a different lid and optical moldings to accommodate the thermistor temperature sensor.

The signals from the optical smoke sensing element and the temperature sensor are independent, and represent the smoke level and the air temperature in the vicinity of the detector. The detectors microcontroller processes the two signals according to the mode selected.

When the detector is operating as a multisensor (Modes 1, 3 and 4) the temperature signal processing extracts only rate-of-rise information for combination with the optical signal. The processing algorithms in modes 1-4 incorporate automatic drift compensation.

DISC-M modes are:

Mode 1: Very high smoke sensitivity and very high thermal sensitivity. Highest sensitivity to both smoldering and flaming fires.

Mode 2: Photo only/No Thermal detector. Identical characteristics to DISC-P photoelectric detector

Mode 3: Same as Mode 1 with moderate sensitivity.

Mode 4: Low smoke sensitivity/high thermal sensitivity. Ideal for environments where a certain amount of smoke or fumes are considered normal.

Mode 5: Thermal heat detector only. Low fixed temperature threshold.




Features

- **Five pre-programmed smoke/heat settings**
- **Discovery detectors distribute intelligence across the installed system**
- **Patented infrared smoke sensing design**
- **Sleek, non-fading white polycarbonate enclosure**
- **Zero insertion force base**
- **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**
- **Green/RoHS Compliant**

Listings

UL File: S5022
CSFM: 7272-1394:117
MEA: 294-95-E-4

Product	Data Sheet Number	Rev/Revision Date	
IPF Series™ Detectors DISC-M	2109	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 multisensor detector shall be the AsBuilt model DISC-M.

Technical Data

Operating Voltage: 17-28VDC
Standby Current: 400uA avg. / 650uA peak
Alarm LED Current: 3.4mA
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 Multi: Smoke (1.7%/ft.) Temp (High) 20s response
- Mode 2 Photo Only-No Thermal: (2.3%/ft.) 30s response
- Mode 3 Multi: Smoke (2.7%/ft.) Temp (Std) 20s response
- Mode 4 Multi: Smoke (3.3%/ft.) Temp (High) 20s response
- Mode 5 Thermal Only: Temp (135) 30s response

Ordering Information

Part Number	Data Sheet	Description
DISC-M	2109	Intelligent Analog Addressable Multisensor Detector (model 58000-750)
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, 2106; DISC-I, 2107; DISC-T, 2108
XP Detectors: XP-P, 2101; XP-I, 2102; XP-T, 2103; XP-M, 2104
Addressable Devices: DXP-PIM/MPIM, DXP-PID/MPID, 2810; DXP-IOM, 2812; DXP-SDR, 2814, DXP-2PID, 2816; DXP-OCR, 2818
Addressable Base Options: All Bases, 2310

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