Distributed Intelligence Photoelectric & Ionization Smoke and Thermal Detectors
The Intelligent Smoke Detectors

SmartOne®

FEATURES

- **True Distributed Intelligence**
- **Field Programmable Alarm and Pre-Alarm Set Points**
- **Internal Supervision**
- **Calibrated Alarm Test by Command to Sensor Level**
- **Drift Compensation**
- **Non-Polarized**
- **Full Analog Display of Detector Values**
- **Electronic Addressing**
- **UL Listed #S1064**
- **FM Approved**
- **CSFM Approved: 7272-1076:142**

DESCRIPTION

These unique SmartOne® Detectors provide true distributed intelligence by storing and analyzing calibration data and pre-alarm and alarm values. Each detector head continuously makes on-location decisions and reports status to the Central Control Panel as required.

This distributed intelligence architecture, featuring an intrinsic microprocessor in each individual detector, analyzes data and makes decisions within the monitored area.

SMARTONE IONIZATION SMOKE DETECTOR

CPD-7052 models are dual chamber ionization type detectors which sense both visible and invisible smoke. A unique sensing chamber design permits full 360 degree smoke entry and response.

SMARTONE PHOTOELECTRIC SMOKE DETECTOR

PSD-7152 models are smart photoelectric smoke detectors. These detectors will respond to a broad range of flaming and smoldering fire conditions.

The photoelectric smoke detector can be used for open-area application as well as duct mounting applications with air velocity of 2000ft/min up to 4000ft/min..

SMARTONE THERMAL HEAT DETECTOR

Model THD-7252 are thermistor based analog devices that can be programmed to respond to fixed temperature without problems associated with thermal lag.

The SmartOne thermal detector can be used for open area applications applications as well as in-cabinet applications.

TWO PROGRAMMABLE ALARM SET POINTS

The detector alarm and pre-alarm set point levels are factory-set in units of percent obscuration/foot or degrees Fahrenheit and may be changed by the operator. Both set points, however, can be set within the UL allowable

limits which are stored in the nonvolatile memory of the control panel. The pre-alarm set point typically is used as an early warning signal. On receipt of a pre-alarm signal, a trouble condition is generated at the panel. In addition to a physical investigation, the operator may request actual percent obscuration levels from the detector in alarm or any other detector.

The alarm and pre-alarm setting of each detector may be changed either electronically from the control unit program. For example, a detector located in a cafeteria can be programmed to desensitize automatically every lunch hour except weekends and holidays.

DRIFT COMPENSATION

Each smoke detector is self-monitoring for drift from alarm set point caused by long-term environmental conditions, contamination or electronic component aging.

Using a carefully designed algorithm, the detector measures and averages 32 days of "normal" smoke level.

This data then is used in the drift compensation algorithm to maintain the proper set point as programmed for the unit. If the detector cannot compensate, a trouble signal is sent to the control unit identifying the affected detector and the state "Drift Error."

INTERNAL SUPERVISION

The SmartOne constantly monitors its own status by supervising and reporting a trouble condition when a fault occurs in one of the following items:

1. Internal Power Supply Voltage
2. Improper Line Voltage from the Control Panel
3. Faulty Data being Written to Memory
4. Uncompensated Drift

STATUS LED

An LED is provided on the detector to indicate status of the smoke detector. A high flash rate indicates alarm, a slow rate normal. When a trouble exists, the LED is turned off.

PROGRAMMING INFORMATION

Each detector is field programmed with the owner location message (location of the detector in the building or on the site), the system address (a four digit code), pre-alarm set point and alarm set point (if different from factory settings). In addition, the detector type, photoelectric, ionization or thermal and the proper calibration are stored in memory at the factory. This permits the Control Panel to verify that the proper detector type using the correct address is installed in the system.

The system will reject attempts to program alarm and pre-alarm set point levels exceeding the UL designated window.

ALARM TEST BY COMMAND

Any or all detectors can be tested by command from the Control Panel. This test procedure precisely duplicates in-place testing of each detector by imposing a signal on the detector sensing chamber that will cause an alarm output. Results of the test will be indicated at the Control Panel or any remote location for monitoring or trouble-shooting purposes.

COMMUNICATION VERIFICATION

When a detector reaches its pre-alarm or alarm set point, it conducts a verification procedure with the Control Panel which repeats the communication cycle four separate times before the system accepts its change of status. The maximum time for this verification procedure is 2.5 seconds.

INSTALLATION

Detector bases are mounted directly to a 4-in. octagonal box.

The detector base is equipped with an integrally molded locking tab to prevent unauthorized removal. Once locked into place, the detector can be removed only by inserting a screwdriver blade into the slot while turning the detector head counterclockwise.

RADIOACTIVE MATERIAL

WARNING

Do not attempt disassembly of the factory sealed sensing chamber. This assembly is sealed for your protection and is not intended to be opened for servicing.

Less than 1.0 microcuries Americium 241 in ionization detector. Shielded by stainless steel housing.

APPLICATION DATA

Each SLC circuit can communicate with up to 255 addressable devices. The circuitry may be either Class "A" or Class "B". Class "A" requires a series loop circuitry with the loop returning to the SLC connector within the control unit. Class "B" does not require a return to the SLC connector and permits T-tapping.

All SmartOne detectors utilize the same base and may be interchanged. Installation is both simple and fast using screw-type connections and the non-polarized detector feature. The detector is fitted to the base by a twist-to-lock action. A removable locking tab secures the detector to the base to provide some degree of vandal resistance or inadvertent removal.

Note: While units are interchangeable, changing detector **type** will require a change in system programming.

The ionization smoke detector can be used for open-area application as well as duct mounting applications with air velocity of 2000ft/min up to 4000ft/min.

SMARTONE DETECTOR MOUNTING BASES

All models of SmartOne detection devices use a universal mounting base arrangement. The mounting base is available in two models, Model 6SB and Model 4SB. Base model 6SB provides a trim ring which masks any inconsistencies between the electrical box and the ceiling material. Model 4SB is electrically the same as model 6SB but does not provide the trim ring. The 4SB outside diameter matches that of the detection devices thus allowing installation into tight spaces (i.e., underfloor areas).

MA-002 MECHANICAL RETROFIT ADAPTOR

APPLICATION

The MA-002 mechanical retrofit adaptor is used to allow all old style detector bases (Series 70-400000-000) to accept the CPD-7052, PSD-7152 and THD-7252 addressable detectors. No rewiring is required to retrofit the base. The MA-002 is intended primarily for applications such as college dormitories, hotels, and motels where each sleeping room requires a dedicated notification appliance. It is designed to simplify the design and installation of systems that require selective or sympathetic occupant notification with old style detector base. These systems are not only required to notify the occupants in the room of fire origin, but also in either the adjacent rooms or the entire floor of fire origin.

SPECIFICATIONS

Input Voltage:
- 16.5 - 27.5 Vdc

Standby Current:
- 350µA, typical

Alarm Current:
- 425µA, typical

Max. Detectors per SLC:
- 255

All detectors can be in alarm simultaneously.

LED PULSE MODES

Normal:
- 9 second interval

Trouble:
- LED is off

Alarm:
- 2 second interval

Operating Temperature:
- 32ºF (0ºC) - 100ºF (38ºC)

EMI Immunity:
- Meets UL 268

Note: Nominal factory settings of detectors are as follows:

Photoelectric detectors:
- Alarm 2.0%/ft.
- Pre-alarm 1.5%/ft.

Ionization detectors:
- Alarm 1.0%/ft.
- Pre-alarm 0.8%/ft.

Thermal detectors:
- Alarm 140ºF (60ºC)
- Pre-alarm 120ºF (49ºC)

SENSITIVITY

Open Area:
- – Ionization: 0.5 - 1.5%/ft.
- – Photoelectric: 0.5 - 3.5%/ft.

High Velocity:
- – Ionization: 0.5 - 1.0 %/ft.
- – Photoelectric: 0.5 - 2.0%/ft.

THERMAL DETECTOR SPACING

50 ft.:
- 135ºF (57ºC) - 145ºF (63ºC)

70 ft.:
- 135ºF (57ºC) - 155ºF (68ºC)

Thermal detectors are limited to 20 ft. spacing when used on FM approved applications.

Note: These detectors are compatible only with fire alarm systems utilizing an compatible SLC protocol.

PSD-7152
CPD-7052
THD-7252

RETROFIT
ADAPTER
MA-002
P/N 70-400001-200

EXISTING
FENWAL
70-400001-000
BASE