

CLASS 2™ Air Sampling System Detector

High Sensitivity Smoke Detector (HSSD)



CLASS 2 Detector without optional display module



CLASS 2 Detector with optional display module

Description

► STATE-OF-THE-ART TECHNOLOGY

The Chemetron Fire Systems CLASS 2 High Sensitivity Smoke Detector consists of a laser particle counter detector head, a high-efficiency fan module and a termination board. One CLASS 2 Detector, when connected to a pipe network designed using "SPEC" software, provides coverage for an area up to 20,000 sq. ft.

The CLASS 2 Detector (with a dynamic sensitivity range of 0.00075% to 0.3%/ft) is designed for early warning smoke detection applications such as telecommunications facilities, data processing facilities, museums, and warehouses.

► FEATURES

- Air Sampling Smoke Detector for Early Warning Applications
- Thousands of times more sensitive than conventional smoke detectors
- Programmable sensitivity range of 0.00075%/ft to 0.3%/ft obscuration
- Laser Particle-Counting Technology
- Uses particle size discrimination-no filter required
- Up to 20,000 sq. ft. of coverage
- Well suited for high air-flow environments
- Two programmable alarm levels and two programmable pre-alarm levels
- Three color status LED
- Optional LCD display module
- Configuration and History Data stored in non-volatile memory
- History buffer stores up to 28 days of smoke history
- Advanced signal processing features

- Full configuration using CLASS 2 Configuration Software
- Modular design for fast and easy servicing

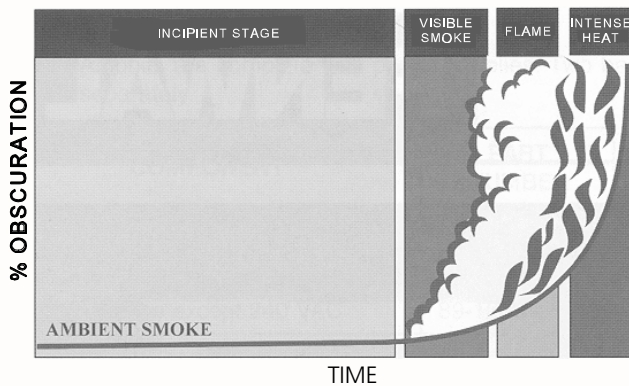
LISTINGS AND APPROVALS

- UL 268 Listed for Open Area Protection and Special Applications (pending)
- UL 268A Listed for Duct Detection (pending)
- FM Approved (pending)
- ULC Listed for Open Area Protection and Special Applications (pending)
- CSFM Listed (pending)
- NYC MEA Approved (pending)

► WHY HIGH SENSITIVITY SMOKE DETECTION?

The CLASS 2 Detector's laser particle counter detects particles of combustion at levels of obscuration as low as 0.0015%/ft. This is sensitive enough to detect invisible products of combustion such as the outgassing of plasticizers from overheating PVC wire insulation and electrical components, or small changes in the ambient level of obscuration during the incipient stage of a fire.

When a combustible material reaches its ignition temperature, the combustion becomes self-sustaining and is called a fire. At temperatures much below the ignition temperature, chemical reactions generate airborne particles. This is typically called the incipient stage of a fire and is followed by visible smoke, flame and finally an intense heat stage. Detection during the incipient stage allows time for corrective action, possibly preventing an escalation of the fire condition, and thus minimizing fire damage.



The CLASS 2 detects ambient smoke in the incipient stage of a fire.

➤ PARTICLE SIZE DISCRIMINATION = NO FILTER!

The CLASS 2 Detector uses a high-efficiency centrifugal fan to draw air continuously from the protected area, into a piping network and through the detector head, without filtration or flow restriction. As a result, filter maintenance and loss of sensitivity due to filter clogging is eliminated. Smoke concentration is determined by counting the number of discrete particles of a specific size in a given time period. The Detector's particle size discrimination feature allows only a specific range of particle sizes (between 0.01 and 10 microns) to be measured and counted as products of combustion. Anything above or below this range is generally ignored and does not contribute to smoke signal calculations. This discrimination band corresponds to the center of the range of all particles of combustion. Dust particles, which are typically larger than 10 microns, are ignored.

➤ AIR SAMPLING PIPE NETWORK

The air sampling pipe network is a system of pipes extended into the protected area with strategically placed sampling holes. The UL Listed/FM Approved computer program is used to dynamically balance the pipe network. The program allows greater flexibility in pipe configuration and balances the pipe network to insure equal sensitivity at each sampling hole. Each sample hole may be considered an equivalent spot-type detector with a maximum coverage of 900 sq. ft. to provide UL Listed Open Area Protection.

The CLASS 2 product line offers an array of air sampling network accessories such as a sampling point, capillary tube rolls, sampling point, port and pipe labels.

➤ COMPONENT FEATURES

DISPLAY OPTIONS

The CLASS 2 Detector has two display options: a status LED faceplate or a Display Module. The status LED faceplate is a plastic molded insert with a tri-color LED that indicates an Alarm, Pre-Alarm or Trouble condition. The standard configuration of a CLASS 2 Detector has an installed status

LED faceplate. The LED reports the following conditions:

- CONTINUOUS GREEN NORMAL
- FLASHING GREEN AUTO-SETUP
- CONTINUOUS YELLOW TROUBLE/ISOLATED
- FLASHING RED PRE-ALARM
- CONTINUOUS RED ALARM

For applications where a user interface at the Detector is necessary, Chemetron offers an optional Display Module with a backlit LCD screen. The Display Module allows the user to browse through more detailed information such as protected area smoke levels, sampling pipe airflow rate and selected configuration settings. The optional display module also allows limited detector control functions such as reset, test and isolate. The Display Module can be integrated into the CLASS 2 Detector or externally mounted away from the Detector.

FIRE ALARM PANEL INTERFACE

The CLASS 2 Detector was designed with the flexibility to interface with any fire alarm control panel. There are two different configurations to choose from depending on the type of control panel in the system.

The CLASS 2 Detector can also interface to other fire alarm control panels by using relay contacts inside the Detector. Each CLASS 2 Detector is equipped with six relays (Pre-Alarm 1, Pre-Alarm 2, Alarm 1, Alarm 2, Trouble, and Isolate), which allows the Detector to directly interface with the control panel.

CONFIGURATION

The CLASS 2 Detector is configured with CLASS 2 Configuration Software. To configure the Detector, a computer running OCS software is connected via a programming cable to the RS-232 jack located on the side of the Detector. OCS provides the ability to monitor, configure and download history from the Detector. The advanced signal processing software features of the Detector allow the response of the detector head to be tailored to the environment it is installed in. This provides the most sensitive detection with a minimum of unwanted alarms.

- Two Pre-Alarm and Two Alarm Levels Programmable in increments of 5% of the Detector's selected output. Alarm Level 2 and Pre-Alarm Level 2 are optional.
- Day/Night Alarms -A second set of programmed alarm levels is available for the night period which allows the Detector's response to be more sensitive during the day.
- Alarm Delays -Programmable from 0 to 60 seconds for each alarm level. The delays can be used to eliminate unwanted alarms caused by transient conditions.

- Alarm Latching -An option which allows alarm conditions to remain latched until reset, or to automatically reset after a programmable delay of 0 to 60 minutes.
- Smoke Signal Averaging -An option that averages the smoke level over a programmable 2, 4, or 8 second period. This may be used to eliminate spikes in the smoke level caused by transient smoke.

AUTO-SETUP FEATURES

Automatically sets the CLASS 2 Detector's optimal alarm sensitivity threshold at the time of installation. The Auto-Setup learning time period can be set for fifteen minutes to two weeks.

HISTORY REPORTING FEATURES

- Smoke Level History -A powerful diagnostic feature of the Detector. Up to four weeks of date and time stamped smoke history (40,320 data collection points) may be stored in the Detector. History sampling rate is programmable from 1 to 60 seconds. Using the configuration software, this history can be retrieved and graphically displayed, printed or stored to disk.
- Event History -Stores up to 128 events such as alarm or trouble activations, configuration changes or operator actions. Using the configuration software, this history can be retrieved and displayed, printed or stored to disk. This feature aids in the analysis of trouble or alarm incidents.

EASE OF INSTALLATION AND MAINTENANCE

The CLASS 2 Detector is designed for ease of installation and maintenance. The Detector's main components can be serviced without removing the Detector's enclosure, conduit, inlet or exhaust pipe. The Detector can be surface-mounted by four #10 mounting holes in the back of the Detector or by an optional flush mount trim ring.

POWER SUPPLY OPTIONS

The CLASS 2 Detector has four different power supply configurations. The Self-Contained Power Supply is designed to provide 24 VDC power to a Detector from 120 or 240 VAC (see data sheet CLASS SCPS - 9152001)). For systems with multiple CLASS 2 Detectors, a Multi-Zone Power Supply can provide 24 VDC power for up to eight Detectors from 120 or 240 VAC (see data sheet CLASS MZPS - 9152001).

Detectors can also have 24 VDC power supplied by the fire alarm control panel or any listed or approved power supply.

ORDERING INFORMATION

Component	Stock Number
CLASS 2 Detector, 0.00075 - 0.3%/ft (0.0025 - 1%/m)	70101109
Flush Mount Trim Ring for Detector	70101119
Sampling Point Kit, package of 25. Consists of 25 each: sampling point, ½" male NPT capillary tube adapter, ½" female NPT capillary tube adapter, label for sample point	70101116
Capillary tube, 3/8" - 250 ft roll	70101117
Sampling point label - Roll of 100	70101053
Sampling port label - Roll of 100	70101054
Sampling pipe label - Roll of 100	70101055
CLASS 2 Installation, Operation and Maintenance Manual	70000255
CLASS 2 Configuration Software	70101123
RS-232 programming cable assembly	70101056
CLASS 2 "SPEC" (Sampling Pipe Evaluation Calculator) Software	70101122

TECHNICAL SPECIFICATIONS

Description	Specification
Detector Sensitivity Range	0.00075%/ft. To 0.3%/ft. (0.0025%/m to 1%/m)
Maximum Coverage	20,000 sq.ft. (2,000 sq.m.)
Input Voltage	24 VDC nominal (18 to 30 VDC)
Maximum Input Current	310 mA standby, 342 mA alarm
Operating Temperature	32°F to 125°F (0°C to 52°C)
Operating Humidity	10 to 93% RH non-condensing
Enclosure Rating	NEMA-1 (IP-31)
Finish	Light Grey Polycarbonate with Painted Steel Backbox
Dimensions	12.6" W x 8.98" H x 4.25" D (32.0 cm W x 22.8 cm H x 10.8 cm D)
Alarm & Pre-Alarm Relays	Four relays; each has normally open contacts, 2 Amp 28 VDC, resistive
Trouble Relay	Form C, 2 Amp @ 28 VDC, resistive (energized on power-up)
Isolate Relay	Optional: Form C, 2 Amp @ 28 VDC, resistive
Electrical Connections	18 to 12 AWG (0.75 to 2.5 mm ²) wiring to removable terminal blocks
Service Port Connection	RS-232 communications with modular RJ-12 jack. Requires CLASS 2 Configuration Software
Remote Display Connection	Optional: 1 pair RS485 communications, 1 pair power
Power Supply Supervision Input	Optional: Monitors normally closed contact on power supply
Air Inlet Port	3/4" NPT threaded
Exhaust Port	Side exhaust, optional rear exhaust with supplied adapter, optional 1" NPT threaded exhaust pipe connection with supplied adapter.
Weight	8.0 lb (3.6 kg)



2316 So. 24th Street
Omaha, NE 68108
800.550.1AFP (1237) toll free
402.733.2800 voice
402.344.7469 fax
www.associatedfire.net
E-mail: info@associatedfire.net

This literature is provided for informational purposes only. Chemetron Fire Systems assumes no responsibility for the product's suitability for a particular application. The product must be properly applied, installed and maintained to work correctly.