

Conventional Duct Detectors

The SL-2000 Series Smoke Duct Detector is the latest innovation for early detection of smoke and products of combustion present in air moving through HVAC ducts in Commercial, Industrial, and Residential applications. The unit is designed to prevent the recirculation or spread of smoke by air handling systems, fans, and blowers. Complete systems may be shut down in the event of smoke detection. The SL-2000 is designed and built to meet all local code requirements, as well as the NFPA and ICC standards regarding HVAC supply and return duct smoke detectors. Output terminals are provided for a wide range of remote accessories such as horns, strobes, remote status indicators, and test/reset key switches or push buttons.

The SL-2000 includes many features that represent true innovations from current generation duct smoke detectors. Our traditional installer/servicer-friendly approach has been closely followed and expanded throughout the SL-2000. This philosophy provides a new level of efficiency in after-purchase value to both the installer/servicer and end-user. Our attention to detail has yielded a host of “No-Tools Required” features, as well as a multi-application performance level as yet unmatched in the industry. Innovative product combined with unsurpassed customer service equals the right combination for all of your projects. The key features below detail many of the customer-driven innovations incorporated in the SL-2000 Series.



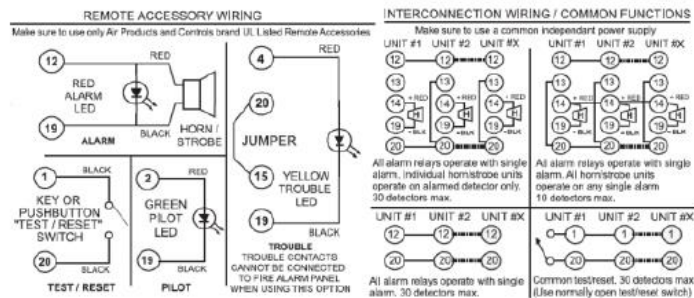
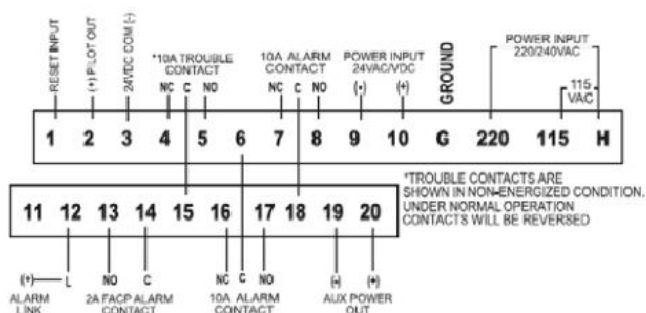
Features

- Photoelectric and Ionization Versions Available
- Low-flow Technology (100-4000ft/min)
- Listed for High-temp Applications
- Patented “No-tools Required”
- Patented “Test Port Valve”
- Magnet Test Capability
- Operating Voltages: 115VAC, 230VAC, 24VDC, 24VAC
- Flashing Detector LED Indicating Normal Operation
- Various Remote Accessories Available
- Green Pilot and Red Alarm Indicators
- Compatible with WP-2000 Weatherproof Enclosure
- External Mounting Tabs for Ease of Installation
- Compact and Lightweight
- Two 10A Form “C” Alarm Contacts
- One 2A Form “A” Alarm Contact
- One 10A Form “C” Trouble Contact
- Large Screw Terminals

Listings and Approvals

- UL, CUL, CSFM and MEA Listed

Terminal Connections



Specification

Detector Model Number:	SL-2000-N 55000-225APO SL-2000-P 55000-328APO
Accessories:	MS- and MSR-Series Remote Accessories, WP-2000 Weatherproof Enclosure, TG-2000 Aerosol Test Gas, and T-PB Power Supplies available from Air Products and Controls Inc.)
Power Requirements: (Without Accessories)	230VAC 8mA, 115VAC 14mA, 24VAC 55mA, 24VDC 14mA
Standby	230VAC 18mA, 115VAC 32mA, 24VAC 190mA, 24VDC 68mA
Alarm	
Relay Contact Rating:	
Alarm Contacts:	Resistive load: Two form "C" rated at 10 Amps @ 115VAC Resistive load: One form "A" rated at 2 Amps
Trouble Contacts:	Resistive load: One form "C" rated at 10Amps @ 115VAC
Air Velocity:	100 to 4,000 ft./min.
Ambient Temperature:	SL-2000-N 32°F to 158°F (0°C to 70°C) SL-2000-P 32°F to 140°F (0°C to 60°C)
Humidity:	85 ±5 % RH (@32 ±2°C; 86 ±3.6°F) Non-condensing / Non-freezing
Wiring	Solid or stranded: #12 to #22 AWG terminals
Approvals:	UL & CUL listed (UL268A, UROX, UROX7) file # 82829, CSFM listed (3240-1004:105), MEA accepted (73-92-E; VOL. 27)
Material:	Grey plastic back box, clear plastic cover (Makrolon 94V-O)
Dimensions:	13 1/2" L x 4 1/2" W x 2 1/4" H
MAX. Net Weight:	2 1/2 lbs
Radioactive Element:	For SL-2000-N (Ionization) americium 241; 0.9 micro-curie. Do not expose to corrosive atmospheres
Hardware:	7" exhaust tube, sampling tube end cap, mounting template, test magnet, and mounting hardware included

Order Codes and Options

SL-2000-P	Photoelectric Duct Detector, 230VAC, 115VAC, 24VAC, 24VDC
SL-2000-N	Ionization Duct Detector, 230VAC, 115VAC, 24VAC, 24VDC
STN-1.0	10" sampling tube for ducts 6" - 12" wide
STN-2.5	30" sampling tube for ducts 1' - 3' wide
STN-5.0	5' sampling tube for ducts 3' - 5' wide
STN-10.0	10' sampling tube for ducts 5' - 10' wide

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As our policy is one of constant product improvement the right is therefore reserved to modify product specifications without prior notice.

FIRERAY® 3000

The FIRERAY® 3000 End to End infrared Optical Beam Smoke Detector (OBSD) has been designed using the latest optical technology, incorporating modern industrial, electronic and software techniques. This detector offers cost effective protection of large, open area spaces with high ceilings. It is also very suited to applications where access to ceiling mounted smoke detectors presents practical difficulties.

The FIRERAY® 3000 is ideal for applications where line of sight for the IR (infra-red) detection path is narrow and where the building structure uses reflective surfaces. It has also been designed to be aesthetically pleasing and thus can equally suit modern architectural buildings as well as historical sites, particularly where ornate ceilings exist.

**Features**

- Separate Transmitter and Receiver Heads
- Range 16.5 to 393 Feet (Configurable per set of detectors)
- Integrated Laser Alignment in Receiver
- 2-wire Interface Between Controller and Receiver
- Single and Twin Channel Capability
- Separate Fire and Fault Relays per Detector
- Low Level Controller with LCD Display
- Programmable Sensitivity and Fire Threshold
- Automatic Gain Control (AGC) for Drift Compensation
- Built-in Electronic UL/ULC Obscuration-Acceptance Fire Test
- Knockouts for Ease of Installation and Wiring
- Optional Transmitter Powering from Controller

Listings and Approvals

- UL and ULC Listed: S3417
- CSFM: 7260-1508:105

Specification

Operating Range:	16.5 to 393 feet (5-120 m)
Operating Voltage Range:	12 to 36 VDC $\pm 10\%$
Operating Controller Current (With 1 or 2 Receivers):	14 mA (Constant)
Operating Transmitter Current:	8 mA (per Transmitter)
Power Down Reset Time:	>20 seconds
Fire and Fault Relay Contacts:	Resistive VFCO 2A @ 30 VDC
Operating Temperature (UL):	-40°F to 131°F (-20°C to 55°C)
Optical Wavelength:	850 nm
LED Indications:	
Control Unit:	Red = Fire Amber = Fault Green = System ok
Receiver:	Red = Fire
	Alignment LEDs for single person alignment
IP Rating:	IP54
Relative Humidity (Non-Condensing):	93%
Parts List:	
System:	1 x Transmitter (Clear lens) 1 x Receiver (Dark lens) 1 x Control unit
Additional Detector:	1 x Transmitter (Clear lens) 1 x Receiver (Dark lens)
Housing Material (Transmitter/Receiver/Controller):	UL94V2 PC
Cabling between each Receiver & Controller:	18-14 AWG, 1-pair, twisted jacketed
Maximum Cable Distance between Receiver & Controller:	330 feet (100 m)
Dimensions & Weight:	
Control Unit:	7.99" wide x 4.88" high x 2.81" deep, 1.34 lbs
Transmitter & Receiver:	3.07" wide x 3.03" high x 6.33" deep, 0.456 lbs

Order Codes and Options

3000-103	FIRERAY® 3000 End to End Beam Smoke Detector, 16.5 ft to 393 ft system includes 1x transmitter, 1x receiver, and 1x system control unit
3000-016	Additional Detector Pack (set of Transmitter and receiver heads) use up to 1 additional detector pack per 3000-103
3000-201	FIRERAY® 3000 Adjustment Bracket
3000-202	FIRERAY® 3000 Surface Mount Adaptor
3000-203	FIRERAY® 3000 4" Square Cover Plate
5000-011	FIRERAY® 3000 Surface Mount Detector Back Box (Requires one 3000-202 surface mount adaptor for each head - ordered separately)
3000-209	FIRERAY® 3000 Controller Back Box
3000-210	FIRERAY® 3000 Semi Flush Trim Plate
1000-018	Wire Cage for FIRERAY® 3000 when used with the 5000-011 detector back box and 3000-202 (ordered separately)

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FIRERAY® 5000

The FIRERAY® 5000 System is an auto-aligning, self-correcting infrared beam smoke detector. Up to 2 detector heads can report to a single ground level controller. In addition, each system controller houses two pairs of fire and trouble relays, one per detector. Once the detector head is installed, using the easy-fit mounting system an integral LASER can be activated. This allows the reflective prism to be located quickly and with confidence.

The Auto-Align function ensures proper alignment and maximum signal during the beam installation. Auto-Optimise automatically steers and maintains the beam in the optimum position for reliable performance. The signal generated in the transmitter element and reflected by the prism back to the receiver element is analyzed for the presence of smoke. The internal microprocessor determines an alarm condition when a predetermined level obscuration is reached.

The system is designed to be mounted so the beam will project between 19" (0.5m) and 24" (0.6m) below the ceiling. Lateral detection may be up to 30ft. (9.144m) on either side of the beam, providing a maximum total coverage area of up to 19,800 square feet (60ft. x 330ft. or 18.29m x 100m).

**Features**

- Range of 26.25 ft to 330 ft (8 m to 100 m)
- Built-in Laser Assisted Prism Mounting
- Auto-Optimise: Auto-Correction Due to Building Shift
- Contamination Compensation
- Programmable Alarm Thresholds: 10% - 60% in 1% Increments
- Separate Trouble and Alarm Relays for Each of the 2 Channels
- Password Protected Settings
- Low Current Draw 5 to 8.5 mA
- Built-in 1/2" (M-20) Conduit Knockouts on System Controller
- Programmable Fault and Alarm Delay: 2 - 30 Seconds Up to 2 Detector Heads Reporting to one Ground Level Controller
- Built-in Electronic UL/ULC/FM Obscuration-Acceptance Fire Test

Listings and Approvals

- UL and ULC Listed: S3417
- FM Approved
- CSFM: 7260-1508:104
- MEA - 22-08-E

Specification

Primary Input Power:	14 to 36 VDC
Standby Current:	
Low Current Mode	Low current mode: 5 mA to 8.5 mA @ 24 VDC (Depending on number of detector heads used)
High Current Mode	37 mA @ 24 VDC
Alarm Current:	5 mA to 8.5 mA @ 24 VDC (Depending on number of detector heads used)
Relay Contacts:	1 A @ 30 VDC resistive
Reset Time:	5 seconds maximum
Start-Up Time:	45 seconds
Optical Wavelength:	850 nm
Alarm Threshold:	10% - 60% (35% default)
Temperature Rating:	-40°F to 131°F (-20°C to 55°C)
UL Listed Installations	32°F to 100°F (0°C to 38°C)
Relative Humidity:	0% to 93%, Non-condensing
Range:	26.25 ft. to 330 ft. (8 m to 100 m)
Cabling Between Each Detector & Controller:	18 - 14 AWG, 1-pair
Housing:	Flame retardant ABS
IP Rating:	IP54
Finish:	Light grey/black
Knockouts:	
Controller	
Detector Head	
Controller	7 - 1/2" (M-20)
Detector Head	1 - 1/2" (M-20)
Weight:	Head & controller 3.24 lbs (1.47 kg)
Dimensions:	
Head	5.28" deep x 5.16" high x 5.28" wide (134 mm x 131 mm x 134 mm)
Controller	3.43" deep x 9.06" high x 7.95" wide (87 mm x 230 mm x 202 mm)
Prism	0.37" deep x 4.13" high x 3.94" wide (9.5 mm x 105 mm x 100 mm)

Order Codes and Options

5000-103	Reflective Auto Align Beam Smoke Detector, 27 ft to 330 ft system includes 1 detector head, 1 controller and 1 prism
5000-031	Additional Detector Head and 1 prism use up to 1 additional detector head per 5000-103
5000-004	Long Range Prism Kit, 3 additional prisms for installations between 160 ft and 330 ft (50 m - 100 m)
5000-005	Universal Alignment Bracket used with F-5000 detector head, 5000-007 and 5000-008
5000-201	Universal 1300 Alignment Bracket used with F-5000 detector head, 5000-007 and 5000-008
5000-006	Wall Bracket Mounts 1 or 4 Prisms
5000-007	4 Prism Alignment Adaptor Plate
5000-008	1 Prism Alignment Adaptor Plate
5000-009	Controller Back Box
5000-010	Semi-Flush Trim Plate for 5000-009
5000-011	Detector Surface Mount Uni-Box
5000-012	Detector 2 Gang Mounting Plate
5000-014	Ceiling Pendant Mount Bracket
1000-018	Wire Protective Cage for detector
1000-019	Wire Protective Cage for controller

23901 Replacement Prism

WP-2000 Enclosure

The WP-2000, Weatherproof Duct Detector Enclosure, is for use with an SL-2000 Series Conventional Duct Detector. The enclosure offers outdoor protection of a SL-2000 Conventional Duct Detector from rain, sleet, and snow or indoor protection from dripping water.



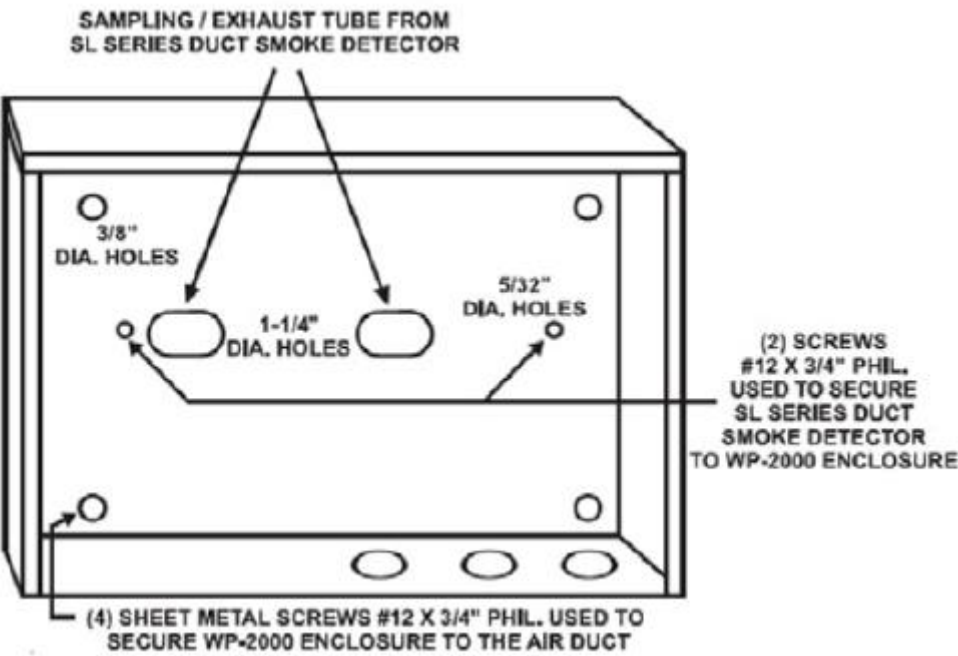
Features

- 16 Gauge Steel
- Drip Shield Top
- Slip-on Removable Cover
- Embossed Mounting Holes
- 3 Knockouts in Bottom of Enclosure
- UL 50 Type 3R / NEMA Type 3R Enclosure
- Egg Shell White Finish
- Foam Gaskets for Sampling/Exhaust Ports

Listings and Approvals

- UL, CUL Listed

Installation Diagram



Specification

Dimensions	11.06" H x 18.13" W x 4.38" D
Knockouts	3 bottom, convertible 0.75" to 1.75"
Metal	16 gauge CRS
Access	2 screws, removable cover
Protection Rating	3R - UL 50, NEMA and CSA
Temperature	See SL-2000 series data sheet

Order Codes and Options

WP-2000	Weatherproof Duct Detector Enclosure
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Xtralis OSID Smoke Detection

Open-area Smoke Imaging Detection (OSID) by Xtralis is a new innovation in projected beam smoke detection technology. By using advanced dual wavelength projected beams and optical imaging technology for early warning smoke detection, OSID provides a low-cost, reliable and easy-to-install solution that overcomes typical beam detection issues such as false alarm incidents and alignment difficulties.

The OSID system measures the level of smoke entering beams of light projected over an area of protection. A single OSID Imager can detect up to seven emitters to provide a wide coverage area. Two innovations in smoke detection technology have been developed for the revolutionary OSID smoke detector:

Dual Wavelength Particle Detection The beam projected from each emitter contains a unique sequence of ultraviolet (UV) and infrared (IR) pulses that are synchronized with the imager and enable the rejection of any unwanted light sources.

By using two wavelengths of light to detect particles, the system is able to distinguish between particle sizes. The shorter UV wavelength interacts strongly with both small and large particles while the longer IR wavelength is affected only by larger particles. Dual wavelength path loss measurements therefore enable the detector to provide repeatable smoke obscuration measurements, while rejecting the presence of dust particles or solid intruding objects.

Optical Imaging with a CMOS Imaging Chip. An optical imaging array in the OSID Imager provides the detector with a wide viewing angle to locate and track multiple emitters. Consequently, the system can tolerate a much less precise installation and can compensate for the drift caused by natural shifts in building structures. Optical filtering, high-speed image acquisition and intelligent software algorithms also enable the OSID system to provide new levels of stability and sensitivity with greater immunity to high level lighting variability.

Operation Status information (Fire Alarm, Trouble and Power) is communicated through the Imager via Status LEDs, dedicated Trouble and Alarm relays, and the Remote Indicator interface. Specific Trouble (Fault) conditions are identified through coded flashes of the Trouble LED. An internal heating option is also provided on the Imager to prevent condensation on the optical surface, and a reset input enables an external signal to reset the device.

Simple Installation and Maintenance The OSID system consists of up to seven Emitters, for the 45° and 90° Imager units, located along the perimeter of the protected area, and an Imager mounted opposite. Each component can be mounted directly to the surface or can be secured with the supplied mounting brackets. Battery powered Emitters with up to five years battery life are also available to reduce installation time and cost. On the Imager, a termination card provides all field wiring terminals, and DIP switches enable the user to configure the detector for particular applications.



Features

- Maximum Detection Range of 492 ft. (150 m) [OSI-10]
- Fire, Trouble and Power Status LEDs
- High False Alarm Immunity
- Dust & Intrusive Solid Object Rejection
- Three Selectable Alarm Thresholds
- Easy Alignment with Large Adjustment & Viewing Angles
- No Need for Precise Alignment
- Tolerant of Alignment Drift
- Automatic Commissioning in Under 10 minutes
- Simple DIP Switch Configuration
- Dual Wavelength LED-Based Smoke Detection
- Simple and Easy Maintenance Requirements
- Conventional Alarm Interface for Straightforward Fire System Integration

Listings and Approvals

- UL Listed
- ULC Listed

Alignment of the Emitter is simply achieved using a laser alignment tool to rotate the optical spheres until the laser beam projected from the alignment tool is close to the Imager. The Imager is aligned in a similar way so that its Field of View (FOV) encompasses all Emitters. A Trouble or Fault will be indicated if an Emitter is missing or outside the Imager field of view. The OSID system is highly tolerant to dust and dirt and requires little maintenance in practice. Preventative maintenance is limited to occasionally cleaning the optical faces of the detector components.

Configuration Options OSID systems may be configured to suit a range of detection spaces by selecting the number of Emitters and type of Imager. Each type of Imager differs by the lens used in the unit, which determines the field of view and range of the system.

Imager	Field of View		Detection Range				Max. Number of Emitters
	Horizontal	Vertical	Standard Power		High Power		
			Min	Max	Min	Max	
10°	7°	4°	98 ft (30 m)	492 ft (150 m)	--	--	1
45°	38°	19°	49 ft (15 m)	197 ft (60 m)	98 ft (30 m)	393 ft (120 m)	7
90°	80°	48°	20 ft (6 m)	** 111 ft (34 m)	39 ft (12 m)	** 223 ft (68 m)	7

** Maximum Distances measured for the Center Field of View of the Imager. For more details on distances for the Imager, see the OSID Product Guide.

Specification

Supply Voltage:	20 to 30 VDC (24 VDC nominal)
Imager Current Consumption: Nominal @ 24 VDC	8mA (1 emitter) 10mA (7 emitters)
Peak @ 24 VDC	31mA
Emitter Current Consumption: Wired Version @ 24 VDC Battery Version	350Ω standard power, 800Ω high power Built-in 5 year battery
Field Wiring, Cable Gauge:	26 - 12 AWG (0.2 - 4mm)
Alarm Threshold: Low - Highest Sensitivity / Earliest Alarm Medium - Medium Sensitivity High - Lowest Sensitivity / Maximum Immunity to Nuisance Smoke Conditions	20% (0.97 dB) 35% (1.87 dB) 50% (3.01 dB)
Adjustment Angle:	60° (Horizontal) 15° (Vertical)
Maximum Misalignment Angle:	2°
Dimensions (WHD), Emitter / Imager:	7.80 in x 5.12 in x 3.78 in (198 mm x 130 mm x 96 mm)
Operating Conditions*: Temperature Humidity	14°F to 131°F (-10°C to 55°C)* 10 to 95% RH (Non-condensing)
* Product UL Listed for use from 32°F to 103°F (0°C to 39°C)	
IP Rating: Electronics Optics Enclosure	IP 44 IP 66
Status LEDs: Fire Alarm Trouble / Power	Red Bi-color yellow/green

Order Codes and Options

OSI-10	Imager - 7° Coverage
OSI-45	Imager - 38° Coverage
OSI-90	Imager - 80° Coverage
OSE-SP	Emitter - Standard Power
OSE-SPW	Emitter - Standard Power, wired
OSE-HPW	Emitter - High Power, wired
OSID-INST	OSID Installation Kit
OSP-001	FTDI Cable 1.5m
OSP-002	Laser Alignment Tool

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