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SPECTREX INC.

SafEye AIR DUCT

SERIES 200 & 300 GAS DETECTION SYSTEMS

RELIABLE HIGH SPEED DETECTION

Composite

Main Features

High Sensitivity

- Alarm up to 0.5 LEL.m
- 5 times more sensitive than the normal Open Path equipment

Fast Response

- Fast response time of 2 seconds (300 series) and ultra fast response of 1 second (200 series).
- 5 to 10 times faster than the commonly used Open Path detector and 20-50 times faster than the Point Detector.

Low Maintenance

High reliability, simple installation, alignment and maintenance, equipment not subject to poisoning.

Proven Technology

Used in air ducts on FPSO's and offshore rigs for British Petroleum (BP), Shell and ABB Lummus for turbines, air intakes, etc.

Harsh Environment

Specially designed to perform under extreme conditions such as high-speed airflows, high temperatures (up to 158˚F (70˚C)), humidity and corrosive gases, where point detectors may not be effective.

Standard Interface Options

Standard 4-20 mA outputs or RS-485 output to allow networking (up to 64 detectors) to a central monitoring/PC system.

This feature also enables easy maintenance, local and remote diagnostic tools.

The Duct SafEye Open Path detector was specially designed and is widely used to monitor and alarm against ingress of hazardous gas concentrations into air intakes of turbine engines and HVAC air ducts. Formation and migration of gas clouds and their possible penetration into safe places, control rooms, turbine engines, etc. is a substantial risk that needs to be addressed.

Users, designers and safety and operational engineers are increasingly required to provide for adequate and fast detection and alarm to protect these hazards.

For duct applications, over a small path across an air inlet, the system is designed to respond with a very high sensitivity, full scale of 1 LEL.m for 2-6.6 ft. (0.6-2 m) wide inlet and full scale of 2.5 LEL.m for 6.6-23 ft. (2-7 m) wide inlet.

The Duct SafEye, due to its special optics design, provides for a misalignment tolerance of 2° in all directions and is protected against false gas reading and alarms which are caused by partial obscuration and blocking, misalignment, vibration, flexing or tilts.

Each SafEye unit is factory calibrated in a temperature cycle run at the entire operating temperature range. The temperature compensating mechanism allows correct operation in changing and extreme temperatures while maintaining the system's accuracy. Its internal microprocessor will automatically compensate for low signals with its internal Automatic Gain Control (AGC).

The Duct Safeye system can be factory calibrated to gas mixtures that are associated with offshore production and processing and onshore installations.

General Specifications

Detected Gases	Simultaneous detection of C1-C8 flammable gases
Detection Range and Response Time	Model 202FD 301FD 302FD Distance (ft) 6.6-23 2-11.5 9.9-49.5 Distance (m) 2-7 0.6-3.5 3-15 Response Time 1 sec. 2 sec. 2 sec.
Immunity to False Alarm	Not influenced by solar radiation, hydrocarbon flames, other external IR radiation sources, high airflows and high loaded streams
Spectral Response	3.0-4.0 µm
Sensitivity Range	0-2.5 LEL.m Standard 0-1 LEL.m by dip-switch setting
Displacement/Misalignment Tolerance	2°
Drift	Long-term ±5% of full scale
Temperature Range	-40°F (-40°C) to 131°F (55°C) for Series 200 -40°F (-40°C) to 158°F (70°C) for Series 300

Electrical Specifications

Power Supply	Standard - 24 VDC (18-32 VDC)
Power Consumption	Detector: 150mA @ 24 VDC (200 mA Peak) Source: 100mA @ 24 VDC (220 mA Peak)
Electrical Connection	2 x 3/4″ - 14NPT conduits or 2 x M25 x 1.5 mm ISO
Electrical Input Protection	Complete electrical interface protection against reversed polarity voltage, surges and spikes according to MIL-STD-1275
Electromagnetic Compatibility	EMI/RFI protected CE Marked

Outputs

4-20mA	The 4-20mA current output is source configuration Resistance Loop 100-600 Ω
RS-485	Serial communication for full control with maintenance and trouble shooting facility can be integrated for a network of max 64 detectors

Relays

	Type	Normal Position	Maximum Ratings
Alarm	SPDT	NO, NC	2A at 30 VDC or 0.5 at 250 VAC
Accessory	SPST	Open	5A at 30VDC or 250VAC
Fault	SPST	Closed	5A at 30VDC or 250 VAC

Mechanical Specifications

Dimensions		5.2" (132mm) x 5.2" (132mm) x max. 4.7" (120mm)
Weight	Al. Encl.	Detector: max 8.7 lb (3.7 kg) Source: max 8.58 lb (3.9 kg)
	St. Encl.	Detector: max 13.4 lb (6.1 kg) Source: max 13.84 lb (6.3 kg)
Mechanical Design		The standard detector housing is heavy-duty, copper-free (less than 1%) aluminum. The housing is finished in white epoxy enamel and is also available in 316 Stainless Steel* upon request. ** Carries an additional charge.*
Environmental Standards		Meets MIL-STD-810C for Humidity, Salt & Fog, Vibration, Mechanical shock, High Temp, Low Temp
Water and Dust Tight		IP66 and 67 per En60529 NEMA 250 6P

Hazardous Area Approvals

ATEX	SIRA 00ATEX 1161, EX II 2G EExd IIB + H2 T5 (70°C), T6 (55°C) SIRA 00ATEX 1165, EX II 2G EExde IIB + H2 T5 (70°C), T6 (55°C)
UL	UL No. - E209870, Class I Groups C and D Hazardous Location
FM (300 Series)	Class I, Division 1, Groups B, C and D, Dust Ignition proof for Class II, Division 1, Groups E, F and G

Specifications subject to changes

Accessories

The following optional accessories designed for the SafEye system are available.

Duct Mounting

The duct mount interfaces between the detector and the duct surface.

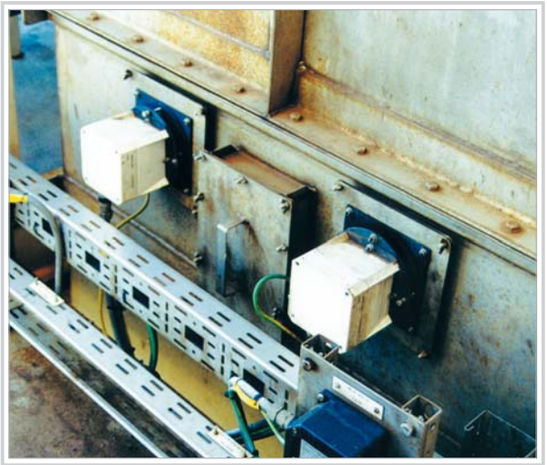
The duct mount enables the detector's alignment up to 3˚ in all directions (P/N 794716).

Function Check Filter

Used for on-site functional testing of the detector (P/N 794220).

Alignment Telescope is used for simple on-site alignment of the detector with the light source (P/N 794245).

Magnetic Switch The magnetic mode selector is used in the field to change the detector's mode for alignment and calibration procedures (P/N 790285).



Air Duct Installation on ETAP Platform in the North Sea

Typical Applications

Offshore Oil & Gas Exploration Oil Rigs and FPSOs; Onshore Oil & Gas Terminals; Storage Farms and Filling Stations; Petrochemical and Chemical Industries; Power Utilities and Turbines areas; Automotive, Painting, Printing, Pharmaceutical Industries and many more…

Specific applications include: • HVAC ducts (Heating Ventilation Air Conditioning) in accommodations areas • Air ducts in process areas • Stacks and exhaust towers • Compressors and generators enclosures• Curing ovens and drying equipment, printing equipment • Engine & Turbine air intake and exhaust • Air intake to safety enclosures • Paint-booths and paint production and drying processes • Air ventilation shafts

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Represented by:

SI ISO 9002

SPECTREX INC.

DS-G-AirDuct (200&300), July 2010