

Standard Diffusion Transmitter

Single-point gas detection sensor used as part of a complete gas detection system.

Key Features

- ◆ Housed in a rugged, copper-free aluminum weatherproof enclosure
- ◆ Connects to Thermo controllers, PLC (Programmable Logic Controllers) or DCS (Distributive Control Systems)
- ◆ Easy plug-in electrochemical sensors
- ◆ Easy one-person calibration
- ◆ Economical remote transmitter
- ◆ Combustible gas version, UL Classified for Class I, Division 1, Groups B, C & D, hazardous locations



Overview

The Standard Diffusion Transmitter is a gas sensor that is used in conjunction with a controller to create a complete gas detection system. Each Transmitter acts as a single-point gas detector. Thermo Gas Detection Systems can use multiple Transmitters to create custom multi-point systems.

The Standard Diffusion Transmitter can be configured for the detection of: hydrocarbon gases, ammonia, arsine, carbon monoxide, carbon dioxide, chlorine, chlorine dioxide, diborane, fluorine, hydrogen chloride, hydrogen cyanide, hydrogen fluoride, hydrogen sulfide, nitric oxide, nitrogen dioxide, oxygen, ozone, phosphine, silane and sulfur dioxide.

Most common applications include: automotive manufacturing, semiconductor manufacturing, chemical and petrochemical refineries, as well as water treatment facilities.

However, with all of the possible detection configurations the application possibilities are endless.

Sensor Principle

The transmitter's toxic and oxygen sensors work on the electrochemical principle. Gas diffuses into the sensor through a fluorocarbon membrane. A chemical reaction creates a current flow between the electrodes proportional to the concentration of gas present in the atmosphere.

The combustible sensor works on the Wheatstone bridge circuit. A constant DC voltage is applied to a catalytic bead, increasing the temperature to 550°C. Combustible gas oxidizes on the active element, increasing its resistance. The increase in resistance is proportional to the concentration.

Comprehensive Service Solutions

To maintain optimal product performance, you need immediate access to experts worldwide, as well as priority status when your air quality equipment needs repair or replacement. Thermo Electron offers comprehensive, flexible support solutions for all phases of the product lifecycle. Through predictable, fixed-cost pricing, Thermo services help protect the return on investment (ROI) and total cost of ownership of your Thermo Electron air quality products.

Standard Diffusion Transmitter Specifications

Sensor

Analog Output	4-20 mA
Accuracy	+/- 10% of reading
Repeatability	+/- 5% of reading

Environmental

Operating Temperature	-4 F to 113 F (-20 C to 45 C)
Humidity	0 to 95% RH, non-condensing

Power

Input Power	+/- 10 to 30 VDC, loop-powered for oxygen and toxic gases
Power Consumption	4 Watts at 24 VDC; hydrocarbon only: 3 wires 480 mW maximum at 24 VDC: toxic/O ₂ : 2 wires

Construction

Dimensions	6.2" (L) x 10" (W) x 4" (H) 158mm (L) x 254mm (W) x 102mm (H)
Weight	4 lbs. (1.81 kg)
Case Materials	High impact, chemical, EMI and RFI resistant, copper-free aluminum

Approvals

UL Classified for Class I, Division 1, Groups B, C & D (combustible gas only)

Warranty

One year (materials and workmanship)

Gas	Sensor Type	Formula	Standard Range
Ammonia	Electrochemical	NH ₃	0 to 100 ppm
Arsine	Electrochemical	AsH ₃	0 to 1.00 ppm
Carbon Monoxide	Electrochemical	CO	0 to 500 ppm
Chlorine	Electrochemical	Cl ₂	0 to 10.0 ppm
Chlorine Dioxide	Electrochemical	ClO ₂	0 to 2.00 ppm
Diborane	Electrochemical	B ₂ H ₆	0 to 1.00 ppm
Fluorine	Electrochemical	F ₂	0 to 10.0 ppm
Hydrocarbon	Catalytic	HC ₂	0 to 100% LEL
Hydrocarbon	Catalytic	HC ₂	0 to 5000 ppm
Hydrogen Chloride	Electrochemical	HCl	0 to 30.0 ppm
Hydrogen Cyanide	Electrochemical	HCN	0 to 50.0 ppm
Hydrogen Fluoride	Electrochemical	HF	0 to 10.0 ppm
Hydrogen Sulfide	Electrochemical	H ₂ S	0 to 100 ppm
Nitric Oxide	Electrochemical	NO	0 to 100 ppm
Nitrogen Dioxide	Electrochemical	NO ₂	0 to 20.0 ppm
Oxygen	Electrochemical	O ₂	0 to 30.0% Vol.
Ozone	Electrochemical	O ₃	0 to 1.0 ppm
Phosphine	Electrochemical	PH ₃	0 to 1.0 ppm
Silane	Electrochemical	SiH ₄	0 to 20.0 ppm
Sulfur Dioxide	Electrochemical	SO ₂	0 to 20.0 ppm



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