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Combustible gas detector by Compur: Statox 501 IR

Statox 501 IR detects gases in the LEL and ppm range.

Protecting people and assets from hydrocarbons

The infrared absorption method of detection is ideal for the detection of larger hydrocarbon molecules such as fuels. It features enough sensitivity to expand the range of application into the ppm range. For instance fuels such as gasoline, diesel or kerosene are mixtures of hydrocarbons.

Infrared gas detection theory of operation

Some gases absorb light at a certain wavelength (colour). This absorption band is specific to the gas. The rate of the absorption depends not only on the substance to be detected but also on the number of gas molecules (i.e. the concentration of the gas). This premise is used to detect gases. For example, the C - H bond in hydrocarbon molecules will oscillate and absorb light at 3, 4 mm. This fact makes it so easy to detect fuels. Hexane, for instance has 14 C - H bonds compared to Methane that has only 4!

A light beam is directed through a cuvette filled with the gas to be detected. The more hydrocarbons present, the more light will be absorbed. A photo detector at the other end of the cuvette measures the remaining light intensity. The difference between the original and remaining light intensity corresponds to the gas concentration.

A reference beam with a different wavelength compensates for potential interferences of dust, humidity or variations of intensity from the light source.

Fail-safe technology

Failure of important components such as the light source or photo detector will trigger a "system fail" alarm. Most local authorities will accept this as a self-diagnostic feature. Systems including a self-check require less maintenance and calibration, saving time and money.

Simple maintenance: Easy to read display and non-Vintrusive calibration

The bright LED display of the Statox 501 IR shows the gas concentration in percent L.E.L. (Lower Explosion Limit). An important accessory is the calibration adapter, featuring control buttons operating Hall-sensors inside the Ex d housing.
The service menu is password protected preventing unauthorised access. All parameters can be checked and changed, or a calibration can be done all without opening the transmitter. The adapter is also equipped with a gas outlet so that it can be used for flow-through applications.

Impervious compact design

The dimensions of the Statox 501 IR are small and compact. The sensor compartment is completely sealed, not allowing dust or insects to enter. It is located in the center of the sensor head. This allows heat radiation from the electronics and the infrared lamp to keep the unit a few degrees above the ambient temperature thus avoiding condensation. This innovative design makes any additional heating unnecessary, allowing the sensor head to be very energy efficient. This saves additional money by eliminating more expensive wiring and a bigger power supply that would otherwise be necessary.

The sensor head is rated protection class IP 67 (6 = protection even against fine dust, 7 = submerged 1 m deep in water for 30 minutes). You can have confidence that this system will safely operate even in the harshest environment.

Detectable gases	combustible gases and vapors
Measuring range	0 – 100 % L.E.L. 0 - 5% or 0 - 2% CO_2
Measuring principle	Infrared absoption, NDIR 2-channel
Detection limit	3 % L.E.L. Methane 200 ppm CO_2
Response time	t_{50} < 10 s, t_{90} < 25 s
Accuracy (Full Scale)	± 2% L.E.L. at room temperature
Warm up time	20 s, full specifications after 30 min
Operating temperature	-20 °C to + 60°C (- 4°F to + 112°F)
Storage temperature	-20 °C to + 60°C (- 4°F to + 140°F)

Manuals:

Statox 501 Controller
Statox 501 Sensor Head
Statox 501 Common alarm
Statox 501 IR Hydrocarbons
Statox 501 IR Carbon Dioxide

Statox 501 IR Ehylene

Approvals:

501 Sensor Heads
Statox 501

The new Statox 501 generation makes other gas warning systems look outdated.

Heat shield - protects your instrumentation

Humidity	0 – 99 % r. H.
Pressure	800 – 1100 hPa, < ± 0,1 %L.E.L. / hPa
Power supply	24 V DC (18 – 29 V DC) / 1 W
Current	24 V DC (18 – 29 V DC) / 1 W
Connection	4 Wire
Output	4 – 20 mA, electrically isolated, max. load 220 O in the service mode 2 or 4 mA programmable, system fail 0 mA
Display	LED three digits
Dimensions	Height: 150 mm Width: 120 mm Depth: 120 mm
Weight	app. 3,1 kg 6,8 pounds
Material	stainless steel, fiber reinforced polyamide
Protection class	IP 67 (NEMA 4 and 6)
Ex-Approval ATEX Standard	II 2 G EEx de IIC T5
Approval #	BVS 04 ATEX E 006 X