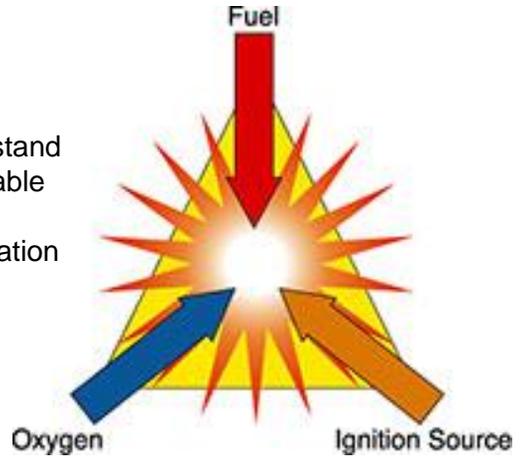


Accurate Measurement of Flammable Gases

Overview :

When selecting a flammable gas monitor, it is important to understand the different sensor types and how they measure different flammable conditions. Many gases such as natural gas, methane, propane, hydrogen and alcohols, are flammable within a range of concentration known as the explosive or flammable range.



This range is defined by the lower explosive limit (LEL) and upper explosive limit (UEL) and differs for each flammable gas. At concentrations below the LEL, the mixture is too lean (insufficient fuel with respect to oxygen) to sustain combustion, and at concentrations above the UEL, the mixture is too rich (too much fuel with respect to oxygen) to sustain combustion.

Catalytic Bead (CB) :

Safety instruments using CB type sensors are intended for use below the LEL, and typically scaled from 0-100 % LEL. This means that the full-scale indication on the monitor is the minimum concentration that could sustain combustion.

Thermal Conductivity (TC) :

TC sensors can be used for a variety of gases, and does not require oxygen to operate. The most notable advantage of the TC type sensor is it's ability to detect concentrations of flammable gases up to 100 % by volume, well above LEL and UEL ranges.

Sensor Type	Measuring Range	Advantages	Disadvantages
Catalytic Bead CB	0-100 % LEL	Low cost, wide range of flammable gases	Requires oxygen, degrades as it's used, limited measuring range
Thermal Conductivity TC	0-100 % Volume	Wide dynamic range, doesn't need oxygen to operate, immune to catalyst poisoning	Doesn't detect all flammable gases

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The Solution : GX-2012 Five Sensor Gas Detector :

The Riken Keiki GX-2012 from Weatherall Equipment and Instruments Ltd includes both catalytic bead and thermal conductivity sensors, and will automatically switch from a % LEL to a % Volume range.

Most instruments with dual range combustible capability do not have the ability to automatically select the appropriate sensor to use based on the gas concentration being encountered. If the instrument does not auto-range like **the GX-2012**, then the user must manually select the range to be monitored, which may result in inaccurate readings or damage to the catalytic bead sensor.

When the **GX-2012** detects high levels of methane, for example, the display will dynamically change from the % LEL to the % Volume range. At the same time the catalytic sensor is protected from being exposed to a concentrated sample that is well over scale. This auto-ranging combustible capability provides users with the flexibility to do general-purpose safety monitoring as well as detection of very high levels of flammable gases without any extra precautions or procedures.

GX-2012 Key Features :

