ELEMENTALE ENTERPRISES INC
SUSTAINABLE PROCESS SOLUTIONS

GAS-SAFE MEASUREMENT
ASSET PROTECTION

WHY GAS-SAFE?

To properly safeguard the system asset and prevent any potential harmful or explosive situation due to mechanical/electrical failures, it is essential to install a **Gas-Safe Measurement System.** This will continuously measure and report any build-up of hazardous and/or combustible materials before an incident can occur.

Combustion explosions in burners involve several considerations…numerous conditions can arise to produce an explosive condition.

MOST COMMON CAUSES OF EXPLOSIVE SITUATIONS ARE:

- **An interruption of the fuel/air supply to create a loss of burner flame, followed by a restoration and delayed reignition of an accumulation.**
- **Fuel leakage into an idle combustion chamber and the ignition of the accumulation by a spark or other source of ignition.**
- **Repeated unsuccessful attempts to lights off without appropriate purging resulting in an explosive mixture.**
- **The accumulation of an explosive mixture of fuel/air as a result of loss of flame or incomplete combustion and reignition of the accumulation.**
- **Purging with an airflow that is too high, which stirs up moldering combustible.**

USING THE **GAS-SAFE SYSTEM** WILL SAFELY AND ECONOMICALLY MEASURE AND ALARM TO ENSURE UPTIME!

PROTECT YOUR ASSETS:

Eliminating shut-downs due to equipment failure is key to success. Not only will costs of replacement equipment be minimized, but more uptime will be realized – meaning better deliveries to customers.

PROTECT YOUR PRODUCT:

Encourage optimum production throughput! This ensures production runs are met, emergency work orders are minimized/eliminated, more product is produced with less effort, and higher production margins are realized. To lose a production run is costly in both product and time. It is therefore necessary to measure the process operations correctly to avoid failed batches, missed production, and costly re-do's.

PROTECT YOUR PEOPLE:

Human life is sacred and is to be protected at all costs. If there is an incident that could harm lives, this is a must to prevent.

EFFECTIVE IN PROCESSES SUCH AS:

Natural Gas Fired Systems
Hydrogen Fueled Systems
Burner Protection
Vaporizer Protection
Mining Processes
Confined Space Areas
Food Processing Systems
Fertilizer Processing Systems

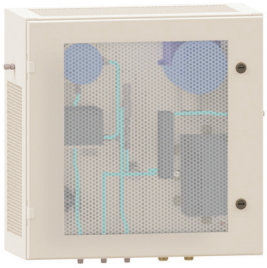
SYSTEM BENEFITS:

- Includes up to two (2) Different Measurement points in one assembly
- Drawn Sample Assembly; no pump needed
- Mechanical Indication of "Loss of Flow" diagnostics
- Digital display on the sensor head
- 4-20mA output
- RS-485 MODBUS Output
- Horn and Strobe included
- Timed drain-valve for removal of condensate
- Mesh Opening in cabinet for air flow
- Optional Remote Access to data for diagnostics

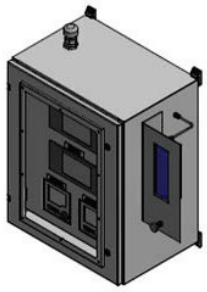
GAS-SAFE VISUALS

Mount Use: *can easily mount on the Process Ductwork*

Other Use: *as point detectors in the surrounding area along with remote/ central display*



General Purpose: *Includes proper filtration against dust and moisture for accurate measurements*



Hazardous Location: *Includes easy accessibility to sensors and controllers in Class I, Div I Hazardous Location*

System Specifications

GAS SENSOR + FULL ASSEMBLY

SENSOR PURPOSE
to monitor the concentration of gases in an airstream so that an alarm may be triggered if concentration gets too high or too low.

EXPECTED GAS COMPOSITION
see gas ranges below

ENVIRONMENTAL CONDITIONS
85% RH at 135°F

REQUIRED SENSOR ACCURACY
±0.02% by volume

AREA CLASSIFICATION
General Purpose (GP)
Class I Div I Group B, C, D *(optional)*

T90 RESPONSE TIME
<25 seconds

SENSOR OUTPUT
4 - 20 mA

EXPECTED DUCT SIZE
~10ft diameter or 9x9 ft square (*exact dimensions TBD)*

MOUNTING TYPE
Duct Mount

+ ADDITIONAL SPECIFICATIONS +

Process pressure is at ambient

Process temperature not to exceed 130°F

└ *note: higher process temperatures can be achievable, please consult Elementale for quoting*

85% RH *(relative humidity)*

Analyzer system response time < 25 sec

Remote Analyzer HMI Data Collection *(optional)*

└ *allowing a centralized area for multiple points, as well as Wire Free/Tablet Connection*

Customer supplied clean, dry compressed air must be used

Wired system

+ OTHER OPTIONS INCLUDE +

Moisture, flame, humidity, temperature, flow and dust are optional

General purpose or hazardous locations

A dual-sensor configuration can include two (2) types of gas in the list below

>> GAS NAMES AND THEIR RANGE:

Formaldehyde | *0-10 PPM*
Chlorine | *0-20 PPM*
Chlorine Dioxide | *0-5 PPM*
Ethylene Oxide | *0-10 PPM*
Hydrogen | *0-4% Vol*
Hydrogen Bromide | *0-30 PPM*
Hydrogen Chloride | *0-200 PPM*
Hydrogen Chloride | *0-20 PPM*
Hydrogen Fluoride | *0-10 PPM*
Ozone | *0-100 PPM*

Ozone | *0-5 PPM*
Arsine | *0-1 PPM*
Arsine w/ H2S Filte | *0-1 PPM*
Chlorine | *0-10 PPM*
Chlorine Dioxide | *0-1 PPM*
Ethylene Oxide | *0-20 PPM*
Fluorine | *0-1 PPM*
Hydrogen | *0-4% Vol*
Hydrogen Sulphide | *0-100 PPM*
Hydrogen Fluoride | *0-10 PPM*

Oxygen | *0-25% Vol*
Phosphine | *0-5 PPM*
Sulphur Dioxide | *0-20 PPM*
Carbon Monoxide | *0-1000 PPM*
Hydrogen Sulphide | *0-100 PPM*
Ammonia | *0-100 PPM*
Ammonia | *0-1000 PPM*
Nitrogen Monoxide | *0-250 PPM*
Nitrogen Dioxide | *0-30 PPM*
Catalytic Bead Pair | *0-100% LEL*

Methane | *0-100% LEL*
Carbon Dioxide | *0-1.5% Vol*
Methane | *0-100% Vol*
R1234YF Refrigerant | *0-2000 PPM*
R1234ZE Refrigerant | *0-2000 PPM*
R32 Refrigerant | *0-2000 PPM*
R410A Refrigerant | *0-2000 PPM*
SF6 Refrigerant | *0-2000 PPM*
Methane | *0-100% Vol*
Carbon Dioxide | *0-5% Vol*

Carbon Dioxide | *0-5000 PPM*
Methane | *0-100% LEL*
Carbon Dioxide | *0-5% Vol*
Methane | *0-100% LEL*
Hydrogen Sulphide | *0-2000 PPM*
Hydrogen Cyanide | *0-100 PPM*
Sulphur Dioxide | *0-50 PPM*
VOC's | *0-50 PPM*
VOC's | *0-2000 PPM*

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