



LATEST GENERATION  
**REVOLUTIONARY**  
**VERY EARLY**  
**FIRE & SMOKE**  
**ALARM**  
(VEFSA)

DATASHEET VER. 2.0, YEAR 2022



FOR GREEN HOUSE GAS SAVING  
CRITICAL LIFE SAFETY  
ASSET PROTECTION  
ENERGY SAVING  
GWP



**GasAlarm**

# ALVI Automation (India) Pvt. Ltd.

## VEFSA CO+ Enhanced Gas Radical Sensor Transmitter

### Background:

- > Revolutionary latest generation VEFSA (Very Early Fire and Smoke Alarm) is designed and engineered with German technology for very early fire & smoke detection in any industries where the conventional smoke sensor or VESDA Systems are installed.
- > However conventional smoke alarms be it optical or ionization types suffer from inherent false alarms causing falsified evacuations, fire brigade calls, etc.
- > VESDA System too suffers from expensive installations, prohibitive costs, complex engineering, flow rate calculations, etc.
- > Further, time delays in detection to sample volume of sampled air to much delayed, by many minutes maybe 10-15-20 minutes or more minutes by which time, the fire smoke has engulfed the assets and carbon monoxide toxic gas may have posed health hazard or fatalities.
- > Please remember by the time smoke is generated detected by either smoke sensor or VESDA the assets are already lost and may have caused a few health hazards/ fatalities.

**Summary:** Very revolutionary latest Generation VEFSA is designed, engineered for very early incipient stage of fire/smoke detection capabilities.

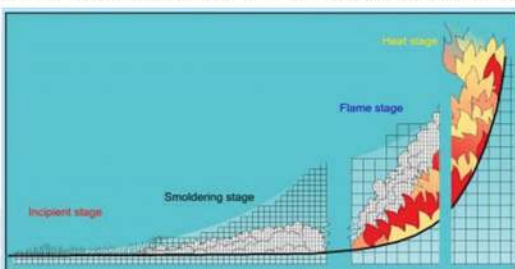
- > The exchangeable sensor transmitter cartridge is used for continuous monitoring of the ambient air to detect the presence of Carbon Monoxide (CO) concentrations in the range of 0- 300 ppm along with CO gas radicals for Very Early Fire and Smoke Detection, in accordance with the defined specifications.
- > The product's standard linear 4-20mA analogue output can be connected to the Gas Alarm range of standalone and multi- channel gas controllers, or to any PLC, SCADA or DCS system for live monitoring, alarm generation, HVAC control or process parameter control.

### Typical Industries and Applications:

- > Mining, materials handling and processing plants (e.g., spontaneous combustion and Very Early Fire and Smoke Detection monitoring in coal mines and related facilities).
- > Parking garages, tunnels, emergency shelters, loading docks and engine maintenance/test stations (e.g., CO monitoring for safety, ventilation fan control for energy and greenhouse emission savings).
- > Heavy industry e.g., power generation, petrochemical processing, production facilities, labs.
- > Many other applications where CO concentration must be monitored within strict limits.
- > Battery Room/ Server room/ Panel rooms of Industries.
- > Any industries / building where smoke sensors or VESDA are Installed

### Standards and Approval Compliance:

- > EMC Directives 2014/30/EU
- > CE
- > IP 65/66 (EN 60529/ DIN VDE – 0470-1)
- > Impact Resistant IK08 (DIN EN5012/VDE 0470 segment 100)
- > UL508 & CSA C22.2 No. 14-13 Certified Enclosure for Industrial Control Equipment
- > UL50 & CSA 22.2 No. 94.1-07 Certified Enclosure for Electrical Equipment



#### STAGES OF FIRE

- 1st stage: Generation of Gas Radicals Incipient Stage
- 2nd stage: non-Visible smoke Smouldering Stage I
- 3rd stage: Visible smoke Smouldering Stage II
- 4th stage: Flame Stage
- 5th stage: Heat Stage

# Technical Specifications:

## Electrical

Power supply: +16 - 29 VDC with reverse polarity diode protection  
 Power consumption: 22mA max. (0.5VA @ +24VDC)  
 Analog signal output: Linear proportional 4-20mA current loop  
 Output load:  $\leq 500 \Omega$  for current signal

## Sensor Performance

Sensor element type: Fully sealed sensor cell with gas-specific gel electrolyte with hydrophobic filter.  
 Detected gas: Non-visible smoke, shouldering fire, CO+ gas radicals  
 Measurement range: 0-300 ppm  
 Accuracy:  $\pm 3$  ppm  
 Resolution: 0.5 ppm  
 Repeatability:  $< \pm 5\%$  FS  
 t90 Time:  $\leq 50$  seconds (response time  $\leq 30$  seconds)  
 Zero-point variation:  $\pm 4$  ppm  
 Zcalibration drift:  $< \pm 0.4\%$  FS signal per month  
 Sensor Life Time:  $> 6$  years (if calibrated every one year)  
 calibration interval: 12 months

## Physical Specifications:

Operating temperature range:  $-15^\circ\text{C}$  to  $+50^\circ\text{C}$   
 Humidity range: 10-95% RH (non-condensing)  
 Pressure range: Atmospheric  $\pm 20\%$   
 Wire Connection: Spring loaded terminals  
 Mounting: Wall mounting  
 Mounting Height: 1.5 m to 1.8 m  
 Sensor cartridge Dimensions : 38 mm (L) x M25 dia  
 Sensor cartridge Weight: 30 g  
 Sensor Cartridge Polycarbonate: IP65

## Optional Housings Specifications:

D: Fully gasketed Polycarbonate, IP65, UL 94: V2, weight: 0.15 Kg  
 K: D Housing with Duct Kit, weight: 0.1 Kg

Optional Specification: Relays, Modbus output, Display & Keypad



GAS-VEFSA-300-X



Multimeter Points  
 Gain Potentiometer  
 4-20mA Signal (Blue)  
 +24V DC (Red)  
 Zero Potentiometer



Duct Mounting Kit (optional)



Multichannel Standalone Controller



## Some of our Key clientele:



Detect very early enhance gas radicals which is the first sign to be measured even before smoke takes place.



## ALVI AUTOMATION (INDIA) PVT. LTD.

*one-stop solution for SMART Gas Detection monitoring, control automation instrumentations solutions. We are one of the fastest growing suppliers & integrators for products and solutions for enhanced gas detection, pressure, level, fire, temperature, flow and other parameters for industrial & commercial process monitoring and control. We cater to all industry segments like real estate, pharmaceuticals, chemicals, petrochemicals, automobile, mining, material handling, food processing, defence and others and most important of all keeping humans and plants safe!*

***We work with you to address your application engineering requirement and as a consulting engineer with our global expertise to address all above aspects.***



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