SPECIFICATION SHEET







ESP SAFETY INC

Technology of the Future
Protection for Today

ESP Safety's Vector model field control unit performs as an integrated control terminal and display for ESP Safety's gas detector product line. The Vector can operate as a stand-alone display for a variety of our gas detectors which can be remotely located up to 500 feet away. A sensor head can also be attached directly to the display housing to produce a unified detector/display unit.

## Key Features

- Vivid 2.7" (diagonal) 128x64 pixal resolution, OLED screen simutaneously display a wide range of data including gas concentrations, alarm levels, faults and operational modes
- Analog 4-20 current loop with HART, Digital RS- 485 Modbus RTU, and 4 relays are standard data communication channels of the Vector
- Non-intrusive, onsite detector calibration via HART Field Communicator or Magnetic Wand
- Operating Temp Range of -58°F to +167°F (-50°C to +75°C)
- Configurable to control & monitor up to two detectors
- SIL-2 certification by independent 3rd party agency NRTL
- 316 Stainless Steel construction, Explosion-Proof Housing, Class1, Division 1




SIL 2Rated

# VECTOR
# GAS DETECTOR

## Applications

- Offshore platforms
- Shipping tankers, freighters, and other vessels
- LNG/LPG processing & storage facilities
- Oil & gas refineries
- Petrochemical plants
- Gas & electric utilities

## Features and benefits

- Tri-color status LED indicates operational mode, fault, and gas presence.
- 4 indicators: 3 warning & alarm level LEDs, and 1 calibration LED
- 128 x 64 pixel OLED display providing continuous graphical indication of trending data for Peak Reading and Time-Weighted Average (TWA) of gas concentration
- Remote sensor option allows the user to either connect the Vector up to 500 feet away or install the unit at the site of the potential hazard
- Robust construction and heated optics withstand harsh environments
- Plug-in, pre-calibrated (field replaceable) gas sensors
- Enhanced temperature range
- 5 year warranty

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## Electrical Characteristics

| | |
|---|---|
| Voltage | +24VDC Nominal (+18 to 32VDC) |
| Power | 4.3W, standby <5.3 W, during alarm |
| | 12.0W with heater on (temp≤30°C) |
| Outputs | 1) Analog signal: 2x +4-20mA<br>2) Digital RS-485, Modbus RTU<br>3) HART communication port<br>4) Three User Programmed Alarm Relays, One Fault Relay |

## Technical Specifications

| | |
|---|---|
| Humidity | 0 to 100% relative humidity, non condensing |
| Operating Temperature | --58°F to +167°F (-50°C to +75°C) |
| Storage temperature | -76°F to +185°F (-60°C to+85°C) |
| Ingress Protection | IP 66 |
| SIL Rating | SIL 2 |

## Mechanical Characteristics

| | |
|---|---|
| Material | Aluminum and 316 Stainless Steel |
| Conduit Connection | 2 Conduit Entrances 3/4" NPT |
| Dimensions | 10.7" x 5.9" x 4.8" **(Vector + PGU) |
| Weight | 14 lbs (6.4 kg) |
| Housing Warranty | 5 years |

## Certifications

FM APPROVED C US
Class I, Division 1
Groups B, C & D
T4 Ta= -58°F to +167°F
(-50°C to +75°C)
IP66

SIL 2 Rated

Ex IIC CE
ExdIICT4
-58°F to +167°F
(-50°C to +75°C)
IP66

Class I, Division 1
Groups B, C & D
T4 Ta= -58°F to +167°F
(-50°C to +75°C)
IP66

IEC IECEx
Ex d IIC T4
-58°F to +167°F
(-50°C to +75°C)
IP66

| Sensor's Type | Gas | Gas Formula | Detected Component Measuring Range | Accuracy | Response Time |
|---|---|---|---|---|---|
| Plug-in universal gas sensors optic infrared<br>PGU-IR | Methane | CH4 | (0-100) % LEL | ± 2% full scale | T20<5 seconds<br>T90<25 seconds |
| | Propane | C3H8 | | | |
| | Ethylene | C2H8 | | | |
| | Hexane | C6H14 | | | |
| | Butane | C4H10 | | | |
| | Isobutane | I-C4P10 | | | |
| | Ethanol | C2H5OH | | | |
| | Cyclopentane | C5H10 | | | |
| | Propylene | C3H6 | | | |
| | Methanol | CH3OH | | | |
| | Gasoline Vapor | * | | | |
| | Diesel Vapor | * | | | |
| | JP4 Vapor | * | | | |
| | Carbon Dioxide | C02 | (0-2) % vol. (0-5) % vol. (0-3000) ppm | ± 2% full scale | T50<3 seconds<br>T90<5 seconds |
| Plug-in universal gas sensors photoionized<br>PGU-P | Isobutylene | C4H8 | (0-20) ppm (0-200) ppm (0-2000) ppm | ± 2% full scale | T20<5 seconds<br>T90<25 seconds |
| | Benzene | C6H6 | (0-100) ppm (0-1000) ppm (0-10000) ppm | ± 2% full scale | T50<9 seconds<br>T90<25 seconds |
| | Ethylene | C2H4 | (0-20) ppm (0-2000) ppm | | |
| | Methyl mercaptan | CH3SH | (0-100) ppm<br>Other ranges per request | ± 2% full scale | T90 <25 seconds |
| | All gases with ionization potential <10.6 eV | | | | |
| **Plug-in universal gas sensors electrochemical**<br>**PGU-E** | Hydrogen Sulfide (MOS) | H2S | (0-100) ppm | ± 2% full scale | T90 <20 seconds |
| | Oxygen | O2 | (0-30) % vol. | ± 2% full scale | T90 <11 seconds |
| | Carbon monoxide | CO | (0-100) ppm (0-500) ppm (0-1000) ppm | ± 2% full scale | T20<10 seconds<br>T90<25 seconds |
| | Hydrogen sulfide | H2S | (0-20) ppm (0-50) ppm (0-100) ppm | ± 2% full scale | T20 <10 seconds<br>T50 <12 seconds T90 <25 seconds |
| | Nitrogen dioxide | NO2 | (0-20) ppm | ± 2% full scale | T50<12 seconds<br>T90<25 seconds |
| | Sulfur dioxide | SO2 | (0-20) ppm (0-100) ppm | ± 2% full scale | T50<12 seconds<br>T90<25 seconds |
| | Ammonia | NH3 | (0-100) ppm | ± 2% full scale | T90 <90 seconds |
| | Chlorine | C12 | (0-20) ppm | ± 2% full scale | T90 <25 seconds |
| | Hydrogen chloride | HCI | (0-30) ppm | ± 2% full scale | T50<30 seconds<br>T90<90 seconds |
| | Hydrogen fluoride | HF | (0-10) ppm | ± 2% full scale | T50<30 seconds<br>T90<90 seconds |
| | Formaldehyde | CH2O | (0-10) ppm | ± 2% full scale | T50 <20 seconds |
| | Vinyl acetate | C4H6O2 | (0-100) ppm | ± 2% full scale | T90 <90 seconds |
| | Methanol | CH3OH | (0-100) ppm | ± 2% full scale | T90 <90 seconds |
| **Plug-in gas universal gas sensors catalytic**<br>**PGU-C** | Hydrogen | H2 | (0-4) % vol. (100% LEL)<br>(0-100) ppm (0-1) % | ± 2% full scale | T50 <7 seconds<br>T90<15 seconds |

VECTOR GAS DETECTOR