



**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 pixel resolution, OLED screen simultaneously 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 2Rate

# 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

#### CONTACT

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Electrical Characteristics

- Voltage** +24VDC Nominal (+18 to 32 VDC)
- Power** 4.3 W standby, <5.3 W during alarm  
12.0W with heater on (temp≤30°C)
- Outputs** 1) Analog signal: 2x +4-20mA  
2) Digital RS-485, Modbus RTU  
3) HART communication port  
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 316L Stainless Steel
- Conduit Connection** 2 Conduit Entries 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 US**  
APPROVED  
Class I, Division 1  
Groups B, C & D  
T4 Ta = -58°F to +167°F  
(-50°C to +75°C)  
IP66

**Ex** **CE**  
Ex d IIC T4  
-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

**SIL 2 CAPABLE**  
SIL 2 Rated

**CSA**  
Class I, Division 1  
Groups B, C & D  
T4 Ta = -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  PGU-IR	Methane	CH4	(0-100) % LEL	± 2% full scale	T20 <5 seconds 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	CO2	(0-2) % vol. (0-5) % vol. (0-3000) ppm	± 2% full scale	T50 <3 seconds T90 <5 seconds	
Plug-in universal gas sensors photoionized  PGU-P	Isobutylene	C4H8	(0-20) ppm (0-200) ppm (0-2000) ppm	± 2% full scale	T20 <5 seconds T90 <25 seconds
	Benzene	C6H6	(0-100) ppm (0-1000) ppm (0-10000) ppm	± 2% full scale	T50 <9 seconds T90 <25 seconds
	Ethylene	C2H4	(0-20) ppm (0-2000) ppm	± 2% full scale	T90 <25 seconds
	Methyl mercaptan	CH3SH	(0-100) ppm Other ranges per request	± 2% full scale	T90 <25 seconds
All gases with ionization potential <10.6 eV					
Plug-in universal gas sensors electrochemical  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 T90 <25 seconds
	Hydrogen sulfide	H2S	(0-20) ppm (0-50) ppm (0-100) ppm	± 2% full scale	T20 <10 seconds T50 <12 seconds T90 <25 seconds
	Nitrogen dioxide	NO2	(0-20) ppm	± 2% full scale	T50 <12 seconds T90 <25 seconds
	Sulfur dioxide	SO2	(0-20) ppm (0-100) ppm	± 2% full scale	T50 <12 seconds T90 <25 seconds
	Ammonia	NH3	(0-100) ppm	± 2% full scale	T90 <60 seconds
	Chlorine	C12	(0-20) ppm	± 2% full scale	T90 <25 seconds
	Hydrogen chloride	HCl	(0-30) ppm	± 2% full scale	T50 <30 seconds T90 <90 seconds
	Hydrogen fluoride	HF	(0-10) ppm	± 2% full scale	T50 <30 seconds 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  PGU-C	Hydrogen	H2	(0-4) % vol. (100% LEL) (0-100) ppm (0-1) %	± 2% full scale	T50 <7 seconds T90 <15 seconds

