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 2 Rated

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

Electrical Characteristics

Voltage	+24VDC Nominal (+18 to 32VDC)
Power	4.3W, standby <5.3W, 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	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
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 d IIC T4
-58°F to +167°F
(-50°C to +75°C)
IP66

CE

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

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 PGU-IR	Methane	CH_4	(0-100) % LEL	± 2% full scale	T20<5 seconds T90<25 seconds
	Propane	C_3H_8			
	Ethylene	C_2H_8			
	Hexane	C_6H_{14}			
	Butane	C_4H_{10}			
	Isobutane	$I\text{-}C_4P_{10}$			
	Ethanol	C_2H_5OH			
	Cyclopentane	C_5H_{10}			
	Propylene	C_3H_6			
	Methanol	CH_3OH			
	Gasoline Vapor	*			
	Diesel Vapor	*			
	JP4 Vapor	*			
	Carbon Dioxide	CO_2	(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	C_4H_8	(0-20) ppm (0-200) ppm (0-2000) ppm	± 2% full scale	T20<5 seconds T90<25 seconds
	Benzene	C_6H_6	(0-100) ppm (0-1000) ppm (0-10000) ppm	± 2% full scale	T50<9 seconds T90<25 seconds
	Ethylene	C_2H_4	(0-20) ppm (0-2000) ppm		
	Methyl mercaptan	CH_3SH	(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**	Oxygen	O_2	(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	H_2S	(0-20) ppm (0-50) ppm (0-100) ppm	± 2% full scale	T20 <10 seconds T50 <12 seconds T90 <25 seconds
	Nitrogen dioxide	NO_2	(0-20) ppm	± 2% full scale	T50<12 seconds T90<25 seconds
	Sulfur dioxide	SO_2	(0-20) ppm (0-100) ppm	± 2% full scale	T50<12 seconds T90<25 seconds
	Ammonia	NH_3	(0-100) ppm	± 2% full scale	T90 <90 seconds
	Chlorine	C_{12}	(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	CH_2O	(0-10) ppm	± 2% full scale	T50 <20 seconds
	Vinyl acetate	$C_4H_6O_2$	(0-100) ppm	± 2% full scale	T90 <90 seconds
	Methanol	CH_3OH	(0-100) ppm	± 2% full scale	T90 <90 seconds
Plug-in gas universal gas sensors catalytic **PGU-C**	Hydrogen	H_2	(0-4) % vol. (100% LEL) (0-100) ppm (0-1) %	± 2% full scale	T50 <7 seconds T90<15 seconds

VECTOR GAS DETECTOR