Technical Specifications

www.unitedsafety.net

Rig Rat III

Self-contained and intrinsically safe wireless stand-alone multi-point gas detector.

Introduction

United Safety applies the Rig Rat III detection system as a multi-point monitoring for toxic gases, combustibles and oxygen hazards. Self-powered and solar-capable, the Rig Rat III features unequaled versatility, with an extensive range of field configurations. With realtime, two-way data transmission and remote sensing capabilities, the Rig Rat III represents the new generation of stand-alone system technology.

Key Benefits

- Rig Rat III is completely modular in design, with plug-in ports for all system components and field interfaces.
- Microprocessor-based operation and advanced sensor technology ensure reliability and performance.
- Cost-effectiveness is a hallmark of the Rig Rat III. Trenching and cabling costs are eliminated through wireless, two-way digital RF data transmission. Maintenance-free combustible sensors reduce the need for costly upkeep requirements.
- The standard Rig Rat III controller allows the simultaneous display of readings and alarm state messages for up to eight remotely located sensors for optimal control.
- Two-way real-time communication with system elements located up to 1.8 miles (3 km) away.

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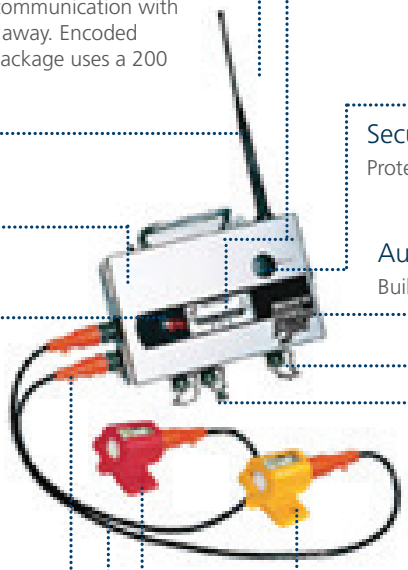
Key Features



Simple push-button interface for automatic calibration and setup choices.

Signal Transmission:

Digital, 2.4 GHz, license-free ISM band radio frequency (RF) transceiver provides two-way, real-time communication with the controller located up to 1.8 mi/3 km away. Encoded digital signal is RFI protected. Standard package uses a 200 mW radio. A 10 mW radio is available.

Alphanumeric Display:

Two continuous LCD gas readouts show local real-time concentrations present for ppm, % LEL and/or O_2% by volume.

Security Keylock:

Protects access to operations bay.

Rugged and Durable:

Stainless steel enclosure with mounting flanges and carrying handle.

Audible Alarm:

Built-in 85 dB alarm.

Power Port:

Battery powered, solar and line-capable.

Flashing Visual Alarms:

Bright alarm light advises alarm levels, type and sensors affected.

Two Sensor Ports:

Install one or two sensors as needed.

Two Option Ports:

Plug-in ports accept remote alarms, relays, etc.

Plug-in Sensor Cables:

Place sensor at the optimal location, up to 250 ft / 76 m away from the detector.

New Zero-maintenance Remote Sensors:

Gas specific color coding. No sensor replacement required, no downtime. Intrinsically safe, combustible (0-100% LEL), toxic gases and oxygen plug-in sensors.

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Rugged and Durable:
Rugged, stainless steel enclosure.

Optional:
Plug-in RS-485/MODBUS module.

Alphanumeric Display:
Real-time readings for all detectors and sensors.

Channel alarm LCD indicator flashes and latches to indicate alarm condition.

Each channel receives unique digitally coded alarm signals from the detector.

Channel Activation:
Individual enable/disable channel control switches.

Audible:
Built-in audible (85 dB) and visual alarms.

Security Locks:
Heavy duty stainless steel latches.

System Reset:
Alarm acknowledgement/ alarm reset switch.

Security ON/OFF Keylock:
Protects access to operations bay.

Two Option Ports:
Two plug-in option ports:
one for alarm bar and one for discrete relay option (future expansion).

Power Port:
Operate controller via line power, or connect to external emergency power supply. Battery backup with auto recharge.

Status LED:
Advises power status:
Green - A/C
Red - Battery.

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Specifications	Description
System	Modular Multi-Point Wireless Gas Detection System Signal Transmission: 2.4 GHz licence free, ISM band spread-spectrum RF transceiver. User-settable discrete codes. Distance: Up to 1.8 mi / 3 km, depending upon antenna configuration
Gas Detector	Independent Rig Rat III detector with radio transceiver Power: 12 V, 3.4 amp hr. rechargeable battery Battery Life: Up to 30 days, without active recharge (dependent on sensors) Recharge: Via solar power; line (24 VDC direct, 110/230 VAC) or bench chargers
Alarms	Clearly advises alarm levels both audibly and visually Visual Alarms: Large, red flashing light LCD: Alarm level present, sensor affected and alarm type Audible Alarm: Oscillating 85 dB at 3 ft / 1 m (typical) Gas Alarm Levels: Two per sensor (LOW, HIGH) with field-settable setpoints Other Alarms: Fault advises missing sensor, damaged cable and/or low battery alarm
LCD Displays	Two continuous, alphanumeric gas readouts and status displays (gas ppm or %). Simultaneously and continuously displays gas concentration(s) present, and status indicators advise (transmitter status, battery level, sensor fault, alarm level setpoints).
Controls	Power ON/OFF Transmitter (XMTR) DISABLE Transmission TEST
Ports	Two sensor ports; two option ports; charger port; TNC antenna port
Security	Keylock access to control panel
General Specifications	14 gauge stainless steel, NEMA 4, RFI/EMI shielded Humidity: 5% to 95% RH (non-condensing) Size: 8.46 x 11.26 x 4.53 in / 21.49 x 28.6 x 11.51 cm Weight: 11 lb 6 oz / 5.15 kg
Gas Sensors	Remote interchangeable plug-in units Type: combustibles, catalytic bead, toxics and oxygen, electrochemical Humidity: 5% to 95% RH (non-condensing) Temperature Range: combustibles -40 to +50°C / -40 to +122°F Hydrogen Sulphide: -40 to +50°C / -40 to +122°F NH_3, Cl_2, HCl, ClO_2, O_3: -20 to +40°C / -4 to +104°F other toxics and oxygen: -20 to +50°C / -4 to +122°F Physical: Toxic/O_2, stainless steel, NEMA 4 Combustible: maintenance-free, encapsulated, NEMA 4 Warranty: 2 years, including all sensors (except NH3 and PH3- 1 year) Gases Monitored: Change the gas monitored and/or the measuring range at any time. • Combustible gases/vapors • Oxygen • Toxics: Ammonia, Carbon Monoxide, Chlorine, Dioxide, Ethanol, Ethylene Oxide, Hydrogen, Hydrogen Chloride, Hydrogen Cyanide, Hydrogen Sulphide, Nitric Oxide, Nitrogen Dioxide, Ozone, Phosgene, Phosphine, Sulfur Dioxide

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Specifications	Description								
Gas Sensors	Gas Sensors	LCD Increments	Standard Measuring Ranges Available						
			Units	#1	#2	#3	#4	#5	#6
	Combustibles (encapsulated)	1% LEL	%	0-100					
	Hydrogen Sulfide	1 ppm	ppm	0-100	0-50	0-500	0-20		
	Sulfur Dioxide	1 ppm	ppm	0-100		0-20	0-10		
	Ammonia	1 ppm	ppm	0-50	0-100				
	Carbon Monoxide	1 ppm	ppm	0-500					
	Chlorine	1 ppm	ppm	0-5.0	0-10.0				
	Oxygen	0.1%	%v/v	0-25.0%	0-30.0%				
	Other Gases	Contact BW Technologies							
Controllers	Standard controller (RR-3C04) for up to 4 Rig Rat III detectors Signal Output: MODBUS (RS-485) -optional Signal Input: Discretely coded radio signals from each detector Power: 110 VAC; 230 VAC (selectable) Battery Backup: Two 12 VDC rechargeable batteries (normal operation: up to 4 hrs.)								
Alarms	Visual: LCD displays alarm level present, sensor affected and alarm type Audible: 85 dB at 3 ft / 1 m (typical)								
Alarm Relay Outputs	Four (4) SPDT relays; 10 amp at 110 VAC/24 VDC, 8 amp at 230 VAC								
Indicators	LEDs (four / channel): 2 alarm indicators, 1 fault, 1 channel enable								
Controls	One ON/OFF switch; one ENABLE/DISABLE switch per channel and one momentary reset/test switch								
Ports	Antenna port: TNC (reverse polarity) Alarm bar port: 12 VDC output per channel External relay port: Alarm specific relay option Common relay port: Low, high and fault (latching configurable) Humidity: 5% to 95% RH (non-condensing) Enclosure: Self-contained 14 gauge stainless steel with mounting flanges, NEMA/Type 4 Physical: 14.95 x 11.16 x 5.15 in/ 37.97 x 28.35 x 13.08 cm; weight 21 lb/ 9.53 kg								
Power Independence	The following sensor configuration lists the duration of the internal, rechargeable battery life (per charge): 2 toxic sensors: Up to 30 days 1 toxic, 1 LEL: Up to 5 days 2 LEL sensors: Up to 3 days Note: Battery life will vary depending on transmission interval and temperature.								