Technical Data Sheet

S2 Series – Gas Sensor/Transmitter by RKI Instruments

Brand / manufacturer	RKI Instruments
Product category	Transmitter
Product codes	Methane (CH4) — SKU: 65-2394RK-CH4 LEL - H2 Specific — SKU: 65-2451RK Hydrogen Sulfide (H2S) — SKU: 65-2331RK Hydrocarbons (HC) — SKU: 65-2394RK-HC H2 (0-1000 ppm) — SKU: 65-2442RK-1000 H2 (0-2000 ppm) — SKU: 65-2442RK-2000 LEL — SKU: 65-2405RK Oxygen (O2) — SKU: 65-2322RK Carbon Monoxide (CO) — SKU: 65-2336RK CO2 (0-100% Vol.) — SKU: 65-2396RK-10 CO2 (0-5.0% Vol.) — SKU: 65-2396RK-03 CO2 (0-50% Vol.) — SKU: 65-2396RK-05 CO2 (0-5000 ppm) — SKU: 65-2396RK-02

Product description

RKI Instruments S2 series diffusion gas sensor/transmitters for fixed systems: highly reliable, very cost-effective detection of common gas hazards, with 4-20 mA output.

Gas options: Methane (CH4), LEL - H2 Specific, Hydrogen Sulfide (H2S), Hydrocarbons (HC), H2 (0-1000 ppm), H2 (0-2000 ppm), LEL, Oxygen (O2), Carbon Monoxide (CO), CO2 (0-100% Vol.), CO2 (0-5.0% Vol.), CO2 (0-50% Vol.), CO2 (0-5000 ppm).

Key benefits

- Available for LEL, H2-specific (LEL and ppm), oxygen, H2S, CO, CO2 and a variety of toxic gases; LEL by catalytic bead or infrared
- LEL, H2-specific, oxygen, H2S, CO2 and CO transmitters are explosion-proof with flame arrestors, approved for Class I, Div. 1, Groups B, C, D; optional non-explosion-proof version for oxygen, H2S, CO and CO2 (Class 1, Div. 2)
- Toxic sensors (NH3, AsH3, Cl2, ClO2, HCN, PH3, SO2) are electrochemical plug-in types with high specificity, fast response and long life; tool-free field replacement; for Class I, Div. 2
- Indoor or outdoor use; patented water-repellent flame arrestor coating; splash guards for very wet environments
- Optional stainless steel junction box for corrosive environments
- Interfaces with RKI controllers or PLC/DCS systems
- Made in the USA

Specifications

	LEL General Purpose	LEL H2 Specific	H2 PPM Hydrogen	O2 Oxygen	H2S Hydrogen Sulfide	CO Carbon Monoxide	CH4 Methane IR	HC Hydrocarbons IR	CO2 Carbon Dioxide IR

Part #	65-2405RK	65-2451RK	65-2443-500 65-2443-1000 65-2443-2000	65-2322RK	65-2331RK	65-2336RK	65-2394RK-CH4	65-2394RK-HC	65-2396RK-02 65-2396RK-03 65-2396RK-05 65-2396RK-10
65-2405RK-05	65-2451RK-05								
Sensor	Catalytic	Metal oxide semiconductor	Galvanic cell	Electrochemical	Infrared				
Measuring Range	0-100% LEL	0-100% LEL (H2 Specific)	0-500 ppm 0-1000 ppm 0-2000 ppm	0-25% Vol.	0-100 ppm	0-300 ppm	0-100% LEL	0 – 5000 ppm 0 – 5% Vol. 0 – 50% Vol. 0 – 100% Vol.	
Lower Detectable Limit (LDL)	2% of full scale	0.1% Vol.	2% of full scale						
Accuracy (whichever is greater)	± 5% of reading or ± 2% LEL	± 10% of full scale	±0.5% O2	± 5% of reading ± 2 ppm H2S	± 5% of reading ± 5 ppm CO	± 5% of reading or ± 2% of full scale			
Response Time (T-90)	30 Seconds	20 Seconds	45 Seconds	90 Seconds	60 Seconds	90 Seconds	30 Seconds		
Max Current Draw (24VDC)	70 mA (power wires) 25 mA (signal wires) 3 wires	25 mA max, 2 wires	60 mA (power wires) 25 mA (signal wires) 3 wires						
Life Expectancy	2 to 3 years with normal exposure to flammable gas	3-5 years with normal service	5 years plus with normal service	2-3 years with normal service	5 years plus with normal service				
Operating Environment									

Location	Indoor or outdoor. Explosion proof for Class I, Div. 1, Groups B, C, and D.								
Temperature	-40°F to 167°F -40°C to 75°C	-4°F to 104°F -20°C to 40°C	-4°F to 113°F -20°C to 45°C	-40°F to 104°F -40°C to 40°C	23°F to 104°F -5°C to 40°C	-40°F to 122°F -40°C to 50°C			
Humidity	0 – 99% RH, non condensing								
Housing									
Housing J Box	Cast aluminum explosion proof, optional stainless steel J-box available								
Sensor	Stainless steel explosion proof								
Controls									
Zero	Sets transmitter output to 4 mA with zero output from sensor								
Span	Sets transmitter output to proper level when span gas is applied								
Output	4 – 20 mA signal								

Operating Voltage	11 VDC to 30 VDC	19 VDC to 30 VDC	19-30VDC (250 OHMS im pedance max)	11 VDC to 30 VDC					
Approvals	65-2405RK UL	65-2451RK UL	65-2443-500 65-2443-1000 65-2443-2000 UL	CSA NRTL	C UL US				
65-2405RK-05 CSA	65-2451RK-05 CSA	65-2443-500-05 65-2443-1000-05 65-2443-2000-05 CSA							
Controllers	Compatible with the following controllers: Beacon 110, Beacon 200, Beacon 410A, and 800, also PLC and DCS systems								
Warranty	One year materials and work manship								

	O2 Oxygen	H2S Hydrogen Sulfide	CO Carbon Monoxide	Toxics See chart below	CO2 Carbon Dioxide
Part #	65-2320RK	65-2330RK	65-2335RK	See chart below	65-2397RK-02 65-2397RK-03 65-2397RK-05 65-2397RK-10
Sensor	Galvanic cell	Electrochemical	Infrared		
Measuring Range	0-25% Vol.	0-100 ppm	0-300 ppm	See chart below	0 – 5000 ppm 0 – 5% Vol. 0 – 50% Vol. 0 – 100% Vol.
Lower Detectable Limit (LDL)	0.1% Vol.	2% of full scale			

Accuracy (whichever is greater)	± 0.5% O2	± 5% of reading ± 2 ppm H2S	± 5% of reading ± 5 ppm CO	± 10% of reading or ± 5% of full scale	± 5% of reading or ± 2% of full scale
Response Time (T-90)	20 Seconds	45 Seconds	30 Seconds	60 Seconds	30 Seconds
Max Current Draw (24VDC)	25 mA max, 2 wires	60 mA (power wires) 25 mA (signal wires) 3 wires			
Life Expectancy	2 years normal service	2 to 3 years with normal service	5 years plus with normal service		
Operating Environment					
Location	Indoor Class I, Div. 2				
Temperature	-4°F to 122°F -20°C to 50°C	14°F to 104°F -10°C to 40°C	-40°F to 122°F -40°C to 50°C		
Humidity	0 – 99% RH non condensing	5-95% RH	0 – 99% RH non condensing		
Housing					
Housing J-Box	Cast aluminum, explosion-proof				
Sensor	Plastic or aluminum				
Controls					
Zero	Sets transmitter output to 4 mA with zero output from sensor				
Span	Sets transmitter output to 20 mA with full scale output from sensor				
Operating Voltage	19 VDC to 30 VDC				
Output	4-20 mA signal				
Controllers	Compatible with the following controllers: Beacon 110, Beacon 200, Beacon 410A, and 800, also PLC and DCS systems				

Warranty	One year materials and workmanship				

S2 Non Explosion Proof Toxic Assemblies				
Part Number With J-Box	Gas	Range	Resolution	Sensor Type
65-2340RK-NH3	Ammonia (NH3)*	0 – 75.0 ppm	0.1 ppm	ESM -01
65-2341-NH3-75	Ammonia (NH3)	0 – 75.0 ppm	0.1 ppm	CT-7
65-2341-NH3-1	Ammonia (NH3)	0 – 100 ppm	1 ppm	CT-7
65-2341-NH3-2	Ammonia (NH3)	0 – 200 ppm	1 ppm	CT-7
65-2341-NH3-5	Ammonia (NH3)	0 – 500 ppm	1 ppm	CT-7
65-2340RK-AsH3	Arsine (AsH3)	0 – 1.50 ppm	0.01 ppm	ESM -01
65-2341-CL2-3	Chlorine (Cl2)	0 – 3.00 ppm	0.01 ppm	CT-7
65-2341-CL2-05	Chlorine (Cl2)	0 – 5.00 ppm	0.02 ppm	CT-7
65-2341-CL2-10	Chlorine (Cl2)	0 – 10.0 ppm	0.1 ppm	CT-7
65-2341-CLO2-1	Chlorine Dioxide (ClO2)	0 – 1.00 ppm	0.01 ppm	CT-7
65-2340RK-HCN	Hydrogen Cyanide (HCN)	0 – 15.0 ppm	0.1 ppm	ESM -01
65-2340RK-PH3	Phosphine (PH3)	0 – 1.00 ppm	0.01 ppm	ESM -01
65-2340RK-SO2	Sulfur Dioxide (SO2)	0 – 6.00 ppm	0.01 ppm	ESM -01

S2 Wiring Matrix				
S2 Transmitter	Number of Wires to Controller	Maximum Distance to Controller		
18 AWG wire	16 AWG wire	14 AWG wire		
LEL / IR / CO2	3	2500 ft.	5,000 ft.	8,000 ft.
Oxygen	2	2500 ft.	5,000 ft.	8,000 ft.
H2S	2	2500 ft.	5,000 ft.	8,000 ft.
CO	2	2500 ft.	5,000 ft.	8,000 ft.
Toxics	2	2500 ft.	5,000 ft.	8,000 ft.

Specifications subject to change without notice.

Information source

Russmill Safety product listing — https://www.russmillsafety.com/products/s2-series-gas-sensor-transmitter-by-rki-instruments (listing notes product information supplied by the manufacturer, RKI Instruments)

Supplier / distributor contact

Supplier / distributor	Russmill Safety
Store	A1 Queen’s Highway, Suite 2–3, Freeport, Grand Bahama F42190, The Bahamas
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