Technical Data Sheet

M2A Series by RKI Instruments

Brand / manufacturer	RKI Instruments
Product category	Transmitter
Product codes	LEL - H2 Specific — SKU: 65-2641RK Hydrogen Sulfide (H2S) — SKU: 65-2645RK-05 Hydrocarbons (HC) — SKU: 65-2649RK-HC LEL — SKU: 65-2640RK Oxygen (O2) — SKU: 65-2643RK-05 Carbon Monoxide (CO) — SKU: 65-2646RK-05 CH4 (0-100% Vol.) — SKU: 65-2658RK-CH4-4 CH4 (0-100% LEL) — SKU: 65-2649RK-CH4-4 CO2 (0-5.0% Vol.) — SKU: 65-2660RK-03 CO2 (0-50% Vol.) — SKU: 65-2660RK-05 CO2 (0-100% Vol.) — SKU: 65-2660RK-10 CO2 (0-5000 ppm) — SKU: 65-2660RK-02

Product description

RKI Instruments M2A series stand-alone explosion-proof transmitter: operates as an independent monitor or as part of an integrated system, connecting by analog or digital signal to virtually any controller, PLC or DCS.

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

Key benefits

- Operates with or without a controller; direct digital readout on OLED cold-temperature display
- Gases: LEL, O2, H2S, CO, CO2 and 100% Vol CH4; toxics NH3, AsH3, Cl2, ClO2, HCN, PH3 and SO2; infrared sensor for combustibles and CO2
- 4-20 mA and digital Modbus outputs standard
- 2 fully programmable alarm relays plus fail relay
- Non-intrusive calibration via magnetic wand; housing need not be opened, so no need to declassify the area; one-person field calibration
- Automatic zero drift correction for more stable readings
- Explosion-proof construction; patented water-repellent sensor cover
- User-friendly push buttons and OLED menus
- Long-life sensors (2+ years typical)
- Sensor construction rated Class I, Div. 1, Groups B, C, D for flammables, CO, H2S, O2 and CO2; Class I, Div. 2 for other toxics

Specifications

Prepared by Russmill Safety from publicly available manufacturer information and our product listing. This is not the manufacturer's original publication. For legally required safety data, use the manufacturer's official Safety Data Sheet.

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		Combustibles	LEL H2 Specific	O2 Oxygen	H2S Hydrogen Sulfide	CO Carbon Monoxide	CH4 Methane	HC Hydrocarbons	CO2 Carbon Dioxide	
LEL	PPM									
Part#	UL	65-2640 RK	65-2647 RK	65-2641 RK	65-2643 RK-05	65-2645 RK-05	65-2646 RK-05	65-2649 RK-CH4 65-2658 RK-CH4	65-2649 RK-HC	65-2660 RK-02 65-2660RK-03 65-2660RK-05 65-2660RK-10
CSA	65-2640 RK-05	65-2647 RK-05	65-2641 RK-05							
Sensors	Catalytic	Galvanic cell	Electrochemical	Infrared						
Measuring Ranges	0 – 100% LEL	0 – 9000 ppmCH4	0 – 100% LEL	0 – 25.0% Vol.	0 – 100 ppm	0 – 300 ppm	0 – 100% LEL 0 – 100% Vol.	0 – 100% LEL	-02	0 – 5000 ppm
-03 -05	0 – 5% Vol. 0 – 50% Vol.									
-10	0 – 100% Vol.									
Resolution	1% LEL	20 ppm	1% LEL	0.1% Vol.	1 ppm	1% LEL / 1% Vol.	20 ppm / 0.01% Vol / 0.1% Vol. / 1% Vol.			
Lower Detectable Limit (LDL)	2% of full scale	0.1% Vol.	2% of full scale							
Max Current Draw (24VDC)	160 mA with alarm 1 and alarm 2 active and all relays energized	125 mA with alarm 1 and alarm 2 active and all relays energized	160 mA with alarm 1 and alarm 2 active and all relays energized							
Response Time (T-90)	35 Seconds or less	90 Seconds or less	60 Seconds or less	90 Seconds or less	30 Seconds or less					

Life Expectancy	2 to 3 years with normal service	3 to 5 years with normal service	2 to 3 years with normal service	5 years plus with normal service						
Accuracy (which ever is greater)	± 5% of reading or ± 2% of full scale	± 0.5% Vol. O2	± 5% of reading or ± 2 ppm H2S	± 5% of reading or ± 5 ppm CO	± 5% of reading or ± 2 % of full scale					
Weather Resistant	Patented water repellent sensor coating									
Alarms										
Alarm Settings	Two fully programmable alarm set points, increasing / decreasing, latching / self-resetting, on delays, off delays, normally energized or de-energized									
Alarm Indication	Visual LEDs. Alarm 1, Amber; Alarm 2, Red; Fail, Red									
Relays	5 amp form ‘C’ contacts for alarm 1, alarm 2, and fail									

Physical										
Dimensions	Height: 8.5” (215 mm), Width: 5.2” (132 mm), Depth: 4.5” (114 mm)									
Display	Alphanumeric OLED display. 8 characters per line; 2 lines for gas concentration readout, plus user-friendly calibration and setup									
Enclosure	Explosion proof for Class I, Div 1, Groups B, C, D.									
Enclosure Rating	NEMA 4X, explosion proof, watertight, cast aluminum with o-ring seal and epoxy powder coating									

Controls	Magnet used for calibration functions. Calibrates without opening the housing. Internal push-button controls also available for calibration and setup									
Operating Environment										
Operating Temperature	-40°F to 167°F -40°C to 75°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					
Relative Humidity	5 – 95% RH non-condensing									
Location	Indoor or outdoor. Explosion proof for Class I, Div. 1, Groups B, C, D.									
Operating Voltage	10 VDC – 30 VDC									
Outputs										

Analog	Linear 4-20 mA signal, into 1000 ohms impedance max (24DC), 0 – 500 ohms max (12VDC) corresponding to 0 – full scale									
Digital	Modbus RTU output standard, fully configurable, 2-wire RS-485, 1200 to 19.2k baud									
Approvals	65-2640 RK UL	65-2641 RK UL	C CSA US	C UL US						
65-2640 RK-05 C CSA US	65-2641 RK-05 C CSA US									
Controllers	Beacon 110, Beacon 200, Beacon 410A, Beacon 800 as well as most DCS / PLC systems									

Warranty	One year material and workmanship									
	O2 Oxygen	H2S Hydrogen Sulfide	CO Carbon Monoxide	Toxics See Chart Below	CO2 Carbon Dioxide					
Part#	65-2666RK *65-2644RK	65-2662RK	65-2663RK	See Chart Below	65-2661RK-02 65-2661RK-03 65-2661RK-05 65-2661RK-10					
Sensors	Galvanic cell	Electrochemical	Infrared							
Measuring Ranges	0-25% Vol.	0-100 ppm	0-300 ppm	See Chart Below	-02	0 – 5000 ppm				
-03 -05	0 – 5% Vol. 0 – 50% Vol.									
-10	0 – 100% Vol.									
Resolution	0.1% Vol.	1 ppm	See Chart Below	20 ppm / 0.01% Vol. / 0.1% Vol. / 1%Vol.						
Lower Detectable Limit (LDL)	0.1% Vol.	2% of full scale								
Response Time (T-90)	35 Seconds or less	60 Seconds or less	30 Seconds or less							
Max Current Draw (24VDC)	125 mA with alarm 1 and alarm 2 active and all relays energized	160 mA with alarm 1 and alarm 2 active and all relays energized								

Life Expectancy	2 to 3 years with normal service	5 years plus								
Accuracy (which ever is greater)	± 0.5% Vol. O2	± 5% of reading or ± 2 ppm H2S	± 5% of reading or ± 5 ppm CO	± 10% of reading or ± 5% of full scale	± 5% of reading or ± 2% of full scale					
Alarms										
Alarm Settings	Two fully programmable alarm set points, increasing / decreasing, latching / self-resetting, on delays, off delays, normally energized or de-energized,									
Alarm Indication	Visual LEDs. Alarm 1 =Amber; Alarm 2=Red; Fail=Red									
Relays	5 Amp form 'C' contacts for alarm 1, alarm 2, and fail									
Physical										

Dimensions	Height: 8.5” (215 mm), Width: 5.2” (132 mm), Depth: 4.5” (114 mm)									
Display	Alphanumeric OLED display. 8 characters per line; 2 lines for gas concentration readout, plus user-friendly calibration and setup									
Sensor Rating	Non explosion proof construction, designed for Class I, Div. 2, Groups B, C, D (no certification)									

Housing J-Box	NEMA 4X, explosion proof, watertight, cast aluminum with o-ring seal and epoxy powder coating									
Controls	Magnet used for calibration functions. Calibrates without opening the housing. Internal push-button controls also available for calibration and setup									
Sensor	Aluminum / Plastic (non explosion proof)									
Operating Environment										
Operating Temperature	-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	14°F to 104°F -10°C to 40°C	-40°F to 122°F -40°C to 50°C					
Relative Humidity	5 – 95% RH non-condensing									

Location	Indoor or outdoor									
Operating Voltage	10 VDC – 30 VDC									
Outputs										
Analog	Linear 4-20 mA signal, into 1000 ohms impedance max (24DC), 0 – 500 ohms max (12VDC) corresponding to 0 – full scale									
Digital	Modbus RTU output standard, fully configurable, 2-wire RS-485, 1200 to 19.2k baud									
Controllers	Beacon 110, Beacon 200, Beacon 410A, Beacon 800 as well as most DCS / PLC systems									

Warranty	Oneyear materials and workmanship									
	Part Number With J-Box	Gas	Range	Resolution	Sensor Type					
65-2670 RK-NH3-75	Ammonia (NH3)	0 – 75.0 ppm	0.1 ppm	CT-7						
65-2670-NH3-1	Ammonia (NH3)	0 – 100 ppm	1 ppm	CT-7						
65-2670-NH3-2	Ammonia (NH3)	0 – 200 ppm	1 ppm	CT-7						
65-2670-NH3-5	Ammonia (NH3)	0 – 500 ppm	1 ppm	CT-7						
65-2648 RK-AsH3	Arsine (AsH3)	0 – 1.50 ppm	0.1 ppm	ESM -01						
65-2670 RK-CL2-3	Chlorine (Cl2)	0 – 3.00 ppm	0.01 ppm	CT-7						
65-2670 RK-CL2-10	Chlorine (Cl2)	0 – 10.0 ppm	0.1 ppm	CT-7						
65-2670 RK-CLO2	Chlorine Dioxide (ClO2)	0 – 1.00 ppm	0.01 ppm	CT-7						
65-2648 RK-HCN	Hydrogen Cyanide (HCN)	0 – 15.0 ppm	0.1 ppm	ESM -01						
65-2648 RK-PH3	Phosphine (PH3)	0 – 1.00 ppm	0.01 ppm	ESM -01						
65-2648 RK-SO2	Sulfur Dioxide (SO2)	0 – 6.00 ppm	0.01 ppm	ESM -01						

*Partial pressure sensor for helium (He) applications: consult factory for details.

Information source

Russmill Safety product listing — https://www.russmillsafety.com/products/m2a-series-by-rki-instruments (listing notes product information supplied by the manufacturer, RKI Instruments)

Supplier / distributor contact

Supplier / distributor	Russmill Safety
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