Environmental Remediation Equipment inc.
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M2 STAND ALONE TRANSMITTER

- Operates with or without a controller
- Direct digital readout on backlit LCD
- Available gases include
- LEL, H_2S, CO, PPM HC, and CO_2
- Toxic gases include Cl_2, NH_3, SO_2, HCN, and more
- Infrared sensor for combustibles and CO_2
- 4-20 mA & digital Modbus outputs standard
- 2 fully programmable alarm relays & fail relay
- Non-intrusive calibration via magnetic wand
- Explosion proof construction
- Patented water repellent sensor cover
- User friendly setup, push buttons & LCD menus
- Long-life sensors (2 + years typical)

The RKI M2™ is a state-of-the-art transmitter that can operate as an independent, stand-alone system or as part of an integrated system. The M2 connects with an analog or digital signal to virtually any controller, PLC, or DCS. Setup procedures are simplified with user friendly push buttons and LCD menus. It utilizes a magnetic wand technique for performing non-intrusive calibration. The M2 provides an automatic zero drift correction feature, which results in more stable readings and reduces the need for adjustments due to sensor aging.

The housing of the M2 does not need to be opened for zeroing or calibration, making it unnecessary to declassify the area for routine maintenance. It is designed so that a complete field calibration can be performed by one person. Sensor construction is rated Class I, Div. 1 groups B, C, D for flammables, CO, H_2S, O_2, and CO_2, and Class I, Div. 2 for all other toxics.

The transmitter provides a 4-20 mA output in addition to a Modbus digital output. It also has two levels of alarms with relays, plus a fail alarm with relay. A digital display of the gas concentration, as well as alarm and status lights, can be viewed through the front window.

The toxic sensors are electrochemical type plug-in sensors, which provide high specificity, fast response, and long life. The plug-in design allows quick replacement in the field with no tools required. Toxic sensors are designed for use in Class I, Div. 2 hazardous locations. Sensors available for Cl_2, NH3, SO_2, PH_3, ASH_3, and HCN.

The M2 represents the latest leading edge technology in sensor / transmitters today.

Explosion Proof

Sensor

Accuracy: +/- 5% of full scale (0.5% Volume for oxygen)

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 display with backlighting. 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: -4°F to 122°F, -20°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

19 VDC - 30 VDC, 12 VOC versions available

Outputs

Analog: 4-20 mA signal, into 500 ohms impedance max, corresponding to 0 - full scale

Digital: Modbus RTU output standard, fully configurable, 2-wire RS-485, 1200 to 19.2k baud

Controllers

Compatible with all RKI Beacon controllers, as well as most DCS / PLC systems: Beacon 110, Beacon 200, Beacon 410, Beacon 800, and Pioneer 4W and Pioneer 16R

Warranty

One year material and workmanship

Gas Part number	Approvals	
LEL General Purpose **RK-65-2610RK** **RK-2610RK-05**	RK-65-2610RK-05 UL	RK-65-2610RK-05 C CSA US
LEL H_2 Specific **RK-65-2611RK** **RK-65-2611RK-05**	RK-65-2611RK UL	RK-65-2611RK-05 C CSA US
O_2 Oxygen **RK-65-2613RK-05**	CSA NRTL	
H_2S Hydrogen Sulfide **RK-65-2615RK-05**	CSA NRTL	
CO Carbon Monoxide **RK-65-2616RK-05**	CSA NRTL	
CO_2 Carbon Dioxide **RK-65-2630RK-02** **RK-65-2630RK-03** **RK-65-2630RK-05** **RK-65-2630RK-10**	C UL US	
CH_4 Methane **RK-65-2619RK-CH4** **RK-65-2628RK-CH4**	C UL US	
HC Hydrocarbons **RK-65-2619RK-HC**	C UL US	

Gas Part number	Sensor	Measuring Range	Resolution	Lower Detectable Limit (LDL)	Response Time(T-90)	Life Expectancy
LEL General Purpose **RK-65-2610RK** **RK-2610RK-05**	Catalytic	0-100% LEL	1% LEL	2% of full scale	30 Seconds or less	2 to 3 years with normal service
LEL H_2 Specific **RK-65-2611RK** **RK-65-2611RK-05**	Catalytic	0-100% LEL	1% LEL	2% of full scale	30 Seconds or less	3 to 5 years with normal service
O_2 Oxygen **RK-65-2613RK-05**	Galvanic cell	0 - 25.0% Vol.	0.1% Vol.	0.1% Vol.	35 Seconds or less	2 to 3 years with normal service
H_2S Hydrogen Sulfide **RK-65-2615RK-05**	Electrochemical	0 - 100 ppm	1 ppm	2% of full scale	35 Seconds or less	2 to 3 years with normal service
CO Carbon Monoxide **RK-65-2616RK-05**	Electrochemical	0 - 300 ppm	1 ppm	2% of full scale	35 Seconds or less	2 to 3 years with normal service
CO_2 Carbon Dioxide **RK-65-2630RK-02** **RK-65-2630RK-03** **RK-65-2630RK-05** **RK-65-2630RK-10**	Infrared	-02 | 0 - 5000 ppm -03 | 0 - 5% Vol. -05 | 0 - 50% Vol. -10 | 0 - 100% Vol.	20 ppm / 0.1% Vol.	2% of full scale	30 Seconds or less	5 years plus with normal service
CH_4 Methane **RK-65-2619RK-CH4** **RK-65-2628RK-CH4**	Infrared	0 - 100% LEL 0 - 100% Vol.	1% LEL	2% of full scale	30 Seconds or less	5 years plus with normal service
HC Hydrocarbons **RK-65-2619RK-HC**	Infrared	0 - 100% LEL	1% LEL	2% of full scale	30 Seconds or less	5 years plus with normal service

Non Explosion Proof

Sensor

Accuracy: +/- 5% of full scale (0.5% Volume for oxygen)

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 display with backlighting. 8 characters per line; 2 lines for gas concentration readout, plus user-friendly calibration and setup

Sensor Rating: Non explosion proof construction, Class I, Div. 2, Groups B, C, D

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:
O_2, H_2S, CO: -4°F to 122°F, -20°C to 50°C
Toxics: 14°F to 104°F, -10°C to 40°C
CO_2: -4°F to 122°F, -20°C to 50°C

Relative Humidity: 5 - 95% RH non-condensing

Location: Indoor or outdoor.

Operating Voltage

19 VDC - 30 VDC, 12 VOC versions available

Outputs

Analog: Linear 4-20 mA signal, into 500 ohms impedance max, corresponding to 0 - full scale

Digital: Modbus RTU output standard, fully configurable, 2-wire RS-485, 1200 to 19.2k baud

Controllers

Compatible with all RKI Beacon controllers, as well as most DCS / PLC systems: Beacon 110, Beacon 200, Beacon 410, Beacon 800, and Pioneer 4W and Pioneer 16R

Warranty

One year materials and workmanship

Gas Part number	Sensor	Measuring Range	Resolution	Lower Detectable Limit (LDL)	Response Time(T-90)	Life Expectancy
O_2 Oxygen **RK-65-2613RK** ***RK-65-2614RK**	Galvanic cell	0-25% Vol.	0.1% Vol.	0.1% Vol.	35 Seconds or less	2 to 3 years with normal service
H_2S Hydrogen Sulfide **RK-65-2632RK**	Electro-chemical	0-100 ppm	1 ppm	2% of full scale	35 Seconds or less	2 to 3 years with normal service
CO Carbon Monoxide **RK-65-2633RK**	Electro-chemical	0-300 ppm	1 ppm	2% of full scale	35 Seconds or less	2 to 3 years with normal service
Toxics See chart below **See chart below**	Electro-chemical	See chart below	See Chart Below	2% of full scale	60 Seconds or less	2 to 3 years with normal service
CO_2 Carbon Dioxide **RK-65-2631RK-02** **RK-65-2631RK-03** **RK-65-2631RK-05** **RK-65-2631RK-10**	Infrared	-02 | 0 - 5000 ppm -03 | 0 - 5% Vol. -05 | 0 - 50% Vol. -10 | 0 - 100% Vol.	20 ppm / 0.1% Vol. / 1% Vol.	2% of full scale	30 Seconds or less	5 years plus

Part Number With J-Box	Gas	Range	Resolution
RK-65-2618RK-ASH3	Arsine (AsH_3)	0 - 1.5 ppm	0.01 ppm
RK-65-2618RK-NH3	Ammonia (NH_3)	0 - 75 ppm	0.1 ppm
RK-65-2618RK-CI2	Chlorine (Cl_2)	0 - 3.00 ppm	0.01 ppm
RK-65-2618RK-PH3	Phosphine (PH_3)	0 - 1.00 ppm	0.01 ppm
RK-65-2618RK-HCN	Hydrogen Cyanide (HCN)	0 - 15.0 ppm	0.1 ppm
RK-65-2618RK-SO2	Sulfur Dioxide (SO_2)	0 - 6.00 ppm	0.01 ppm

Available Accessories

- Calibration adaptors
- Flow through adaptors
- Remote horns & lights
- Calibration kits
- Battery backups
- Splash guards
- Air aspirator adaptors / panels
- Dataloggers

Calibration kits

Remote horns & lights

Calibration adaptors

Flow through adaptors

Direct Interface with Beacon 110 / 200 / 410 / 800 Controllers

M2 Wiring Matrix

		Maximum Distance to Controller		
	# of Wires to Controller	18 AWG wire	16 AWG wire	14 AWG wire
M2 Transmitter	3	2500 ft.	5,000 ft.	8,000 ft.