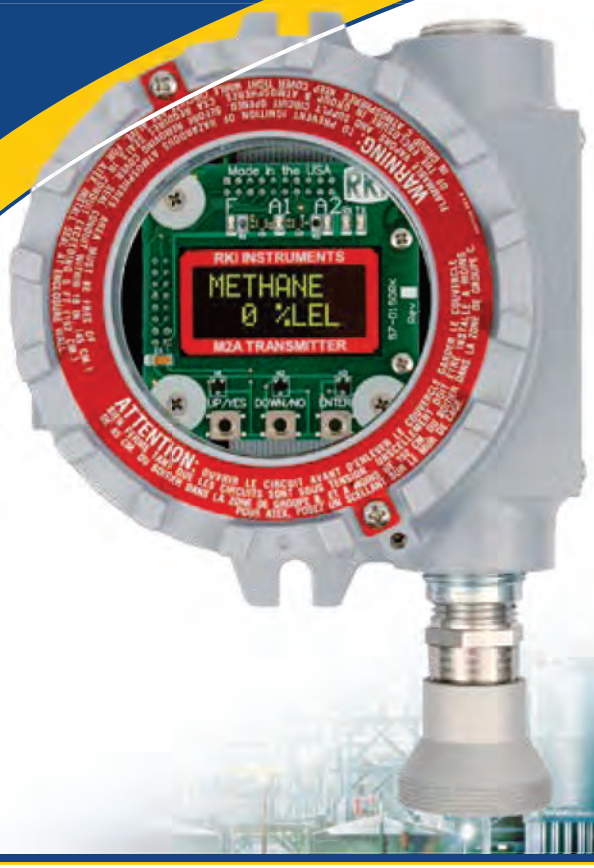
M2A STAND ALONE TRANSMITTER

RKI INSTRUMENTS



- Operates with or without a controller
- Direct digital readout with OLED cold temperature display
- Available gases include
  - LEL, O2, H2S, CO, CO2, and 100% Vol CH4
  - Toxic gases include NH3, AsH3, Cl2, ClO2, HCN, & SO2
- Infrared sensor for combustibles and CO2
- 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 & OLED menus
- Long-life sensors (2 + years typical)

The RKI M2A™ is a state-of-the-art transmitter that can operate as an independent, stand-alone monitor or as part of an integrated system. The M2A connects with an analog or digital signal to virtually any controller, PLC, or DCS. Setup procedures are simplified with user friendly push buttons and OLED menus. It utilizes a magnetic wand technique for performing non-intrusive calibration. The M2A 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 M2A 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, H2S, O2, and CO2, 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 NH3, AsH3, Cl2, ClO2, HCN, PH3, and SO2

The M2A represents the latest leading edge technology in sensor / transmitters today.

World Leader In Gas Detection & Sensor Technology

Explosion Proof

Class I, Div. 1 , Groups B, C, D

		Combustibles		LEL	O2	H2S	CO	CH4	HC	CO2
		LEL	PPM	H2 Specific	Oxygen	Hydrogen Sulfide	Carbon Monoxide	Methane	Hydrocarbons	Carbon Dioxide
Part #	UL	65-2640RK	65-2647RK	65-2641RK	65-2643RK-05	65-2645RK-05	65-2646RK-05	65-2649RK-CH4 65-2658RK-CH4	65-2649RK-HC	65-2660RK-02 65-2660RK-03 65-2660RK-05 65-2660RK-10
	CSA	65-2640RK-05	65-2647RK-05	65-2641RK-05						

Sensors	Catalytic			Galvanic cell	Electrochemical		Infrared				
Measuring Ranges	0 - 100% LEL	0 - 9000 ppm CH4	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	65-2640RK UL	65-2641RK UL	C CSA US	C UL US
	65-2640RK-05 C CSA US	65-2641RK-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			

Toxic Gas Transmitters

Class I, Div. 2

	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 0 - 5% Vol. -05 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	One year materials and workmanship				

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

ESM-01

*** Sensor being phased out, use CT-7 type when possible.**

CT-7

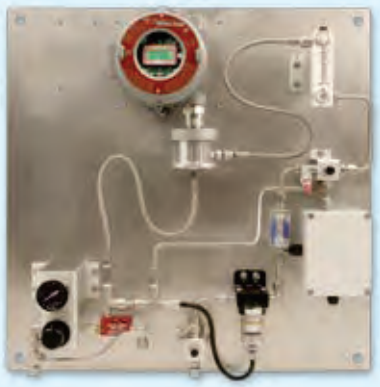
M2A Toxic Transmitter Sensor Ordering Information

Part Number With J-Box	Gas	Range	Resolution	Sensor Type
65-2670RK-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
65-2648RK-AsH3	Arsine (AsH3)	0 - 1.50 ppm	0.1 ppm	ESM -01
65-2670RK-CL2-3	Chlorine (Cl2)	0 - 3.00 ppm	0.01 ppm	CT-7
65-2670RK-CL2-10	Chlorine (Cl2)	0 - 10.0 ppm	0.1 ppm	CT-7
65-2670RK-CLO2	Chlorine Dioxide (ClO2)	0 - 1.00 ppm	0.01 ppm	CT-7
65-2648RK-HCN	Hydrogen Cyanide (HCN)	0 - 15.0 ppm	0.1 ppm	ESM -01
65-2648RK-PH3	Phosphine (PH3)	0 - 1.00 ppm	0.01 ppm	ESM -01
65-2648RK-SO2	Sulfur Dioxide (SO2)	0 - 6.00 ppm	0.01 ppm	ESM -01

AVAILABLE ACCESSORIES

Remote Mount Calibration Adaptor

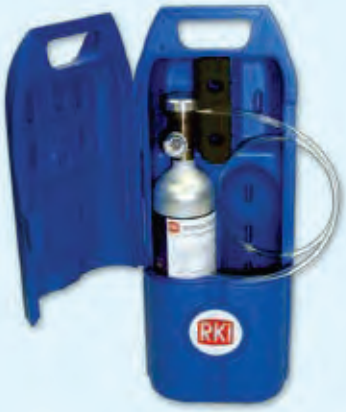
Flow through adaptors



Air aspirator adaptors / panels

Remote horns & lights

Calibration adaptors



Calibration kits

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

M2A Wiring Matrix				
	Number of Wires to Controller	Maximum Distance to Controller		
		18 AWG wire	16 AWG wire	14 AWG wire
M2A Transmitter	3	2500 ft.	5,000 ft.	8,000 ft.