M2A-XL 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, NO2 & 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-XL ™ 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-XL 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-XL 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-XL 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, NO2 and SO2.

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

World Leader In Gas Detection & Sensor Technology

RKI Instruments, Inc. | **33248 Central Ave. Union City, CA 94587** | **Phone (800) 754-5165** | **(510) 441-5656** | **Fax (510) 441-5650**

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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	65-2640XL	65-2647XL	65-2641XL	65-2643XL-05	65-2645XL-05	65-2646XL-05	65-2649XL-CH4 65-2658XL-CH4	65-2649XL-HC	65-2660XL-02 65-2660XL-03 65-2660XL-05 65-2660XL-10
Part # CSA	65-2640XL-05	65-2647XL-05	65-2641XL-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 0 - 5% Vol. -05 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% ŠÒŠ			± 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: 6.2" (158 mm), Width: 5.66" (144 mm), Depth: 4.86" (124 mm) (Height measurement does not include sensor)
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

	Combustibles / LEL	O2	H2S	CO	Infrared
Operating Temperature	-40°F to 167°F -40°C to 75°C	-4°F to 122°F -20°C to 50°C	-40°F to 122°F -40°C to 50°C	-4°F to 122°F -20°C to 50°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	65-2640XL UL 65-2640XL-05 C CSA US	65-2641XL UL 65-2641XL-05 C CSA US	C CSA US	C UL US

Controllers

Beacon 110, Beacon 200, Beacon 410A, Beacon 800, Beacon 3200 as well as most DCS / PLC systems

Warranty

One year material and workmanship

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

		O2 Oxygen	H2S Hydrogen Sulfide	CO Carbon Monoxide	Toxics See Chart Below	CO2 Carbon Dioxide		
	Part#	65-2666XL *65-2644XL	65-2662XL	65-2663XL	See Chart Below	65-2661XL-02 65-2661XL-03 65-2661XL-05 65-2661XL-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% / 0.1% / 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,						
	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: 6.2" (158 mm)*, Width: 5.66" (144 mm), Depth: 4.86" (124 mm) (Height measurement does not include sensor)						
	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, Beacon 3200 as well as most DCS / PLC systems						
Warranty		One year materials and workmanship						

Toxic Transmitter Sensor Ordering Information

ESM-01 Sensor

CT-7 Sensor

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

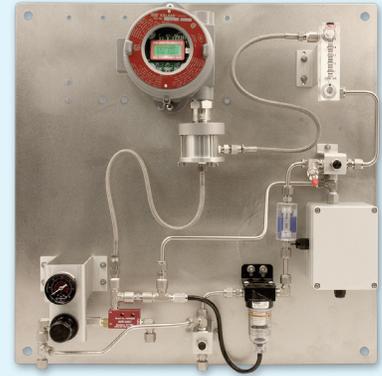| Part Number With J-Box	Gas	Range			Resolution		Sensor Type
65-2670XL-NH3-75	Ammonia (NH3)	0 - 75.0	ppm		0.1	ppm	CT-7
65-2670XL-NH3-1	Ammonia (NH3)	0 - 100	ppm		1	ppm	CT-7
65-2670XL-NH3-2	Ammonia (NH3)	0 - 200	ppm		1	ppm	CT-7
65-2670XL-NH3-5	Ammonia (NH3)	0 - 500	ppm		1	ppm	CT-7
65-2648XL-AsH3	Arsine (AsH3)	0 - 1.50	ppm		0.1	ppm	ESM -01
65-2670XL-CL2-3	Chlorine (Cl2)	0 - 3.00	ppm		0.01	ppm	CT-7
65-2670XL-CL2-5	Chlorine (Cl2)	0 - 5.00	ppm		0.01	ppm	CT-7
65-2670XL-CL2-10	Chlorine (Cl2)	0 - 10.0	ppm		0.1	ppm	CT-7
65-2670XL-CLO21	Chlorine Dioxide (ClO2)	0 - 1.00	ppm		0.01	ppm	CT-7
65-2670XL-CLO21	Chlorine Dioxide (ClO2)	0 - 1.00	ppm		0.01	ppm	CT-7
65-2670XL-CLO23	Chlorine Dioxide (ClO2)	0 - 3.00	ppm		0.01	ppm	CT-7
65-2670XL-CLO25	Chlorine Dioxide (ClO2)	0 - 5.00	ppm		0.01	ppm	CT-7
65-2670XL-HCN15	Hydrogen Cyanide (HCN)	0 - 15.0	ppm		0.1	ppm	CT-7
65-2670XL-NO2	Nitrogen Dioxide (NO2)	0 - 15.0	ppm		0.1	ppm	CT-7
65-2648XL-PH3	Phosphine (PH3)	0 - 1.00	ppm		0.01	ppm	ESM -01
65-2670XL-SO210	Sulfur Dioxide (SO2)	0 - 6.00	ppm		0.01	ppm	CT-7

AVAILABLE ACCESSORIES

Remote Mount Calibration Adaptor
(only recommended for LEL, O2, CO, H2S, and CO2 sensors)

Flow through adaptors

Air aspirator adaptors / panels

Remote horns & lights

Calibration adaptors

Calibration kits

Direct Interface with Beacon 110 / 200 / 410A / 800 / 3200 Controllers

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

Made in the USA

Authorized Distributor:

Gas Detection For Life