

# M2 STAND ALONE TRANSMITTER



INSTRUMENTS



- Operates with or without a controller
- Direct digital readout on backlit LCD
- Available gases include
  - LEL, OXY, H<sub>2</sub>S, CO, H<sub>2</sub>, CO<sub>2</sub>, and 100% Vol CH<sub>4</sub>
  - Toxic gases include NH<sub>3</sub>, SO<sub>2</sub>, HCN, and more
- Infrared sensor for combustibles and CO<sub>2</sub>
- 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 monitor 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<sub>2</sub>S, O<sub>2</sub>, and CO<sub>2</sub>, 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 NH<sub>3</sub>, SO<sub>2</sub>, PH<sub>3</sub>, ASH<sub>3</sub>, and HCN.


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

World Leader In Gas Detection & Sensor Technology


# Explosion Proof

|   | LEL<br>General Purpose  | LEL<br>H2 Specific               | O2<br>Oxygen                     | H2S<br>Hydrogen Sulfide        | CO<br>Carbon Monoxide          | CH4<br>Methane                         | HC<br>Hydrocarbons | CO2<br>Carbon Dioxide  |
|---|---|----------------------------------|----------------------------------|--------------------------------|--------------------------------|--|--------------------|--|
|  <b>Part#</b> | 65-2610RK<br>65-2610RK-05   | 65-2611RK<br>65-2611RK-05        | 65-2613RK-05                     | 65-2615RK-05                   | 65-2616RK-05                   | 65-2619RK-CH4<br>65-2628RK-CH4         | 65-2619RK-HC       | 65-2630RK-02<br>65-2630RK-03<br>65-2630RK-05<br>65-2630RK-10                 |
| <b>Sensors</b>  | Catalytic   |                                  | Galvanic cell                    | Electrochemical                |                                | Infrared                               |                    |  |
| <b>Measuring Ranges</b>   | 0 - 100 % LEL   |                                  | 0 - 25.0% Vol.                   | 0 - 100 ppm                    | 0 - 300 ppm                    | 0 - 100% LEL<br>0 - 100% Vol.          | 0 - 100% LEL       | -02 0 - 5000 ppm<br>-03 0 - 5% Vol.<br>-05 0 - 50% Vol.<br>-10 0 - 100% Vol. |
| <b>Resolution</b>   | 1% LEL  |                                  | 0.1% Vol.                        | 1 ppm                          |                                | 1% LEL / 1% Vol.                       |                    | 20 ppm / 0.1% Vol.   |
| <b>Lower Detectable Limit (LDL)</b>   | 2% of full scale  |                                  | 0.1% Vol.                        | 2% of full scale               |                                |  |                    |  |
| <b>Response Time (T-90)</b>   | 35 Seconds or less  |                                  |                                  |                                |                                | 30 Seconds or less                     |                    |  |
| <b>Life Expectancy</b>  | 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       |                    |  |
| <b>Accuracy</b><br>(which ever is greater)  | ± 5% of reading or ± 2 % LEL  |                                  | ± 0.5% O2                        | ± 5% of reading or ± 2 ppm H2S | ± 5% of reading or ± 5 ppm CO  | ± 5% of reading or ± 2 % of full scale |                    |  |
| <b>Weather Resistant</b>  | Patented water repellent sensor coating   |                                  |                                  |                                |                                |  |                    |  |
| <b>Alarms</b>   |   |                                  |                                  |                                |                                |  |                    |  |
| <b>Alarm Settings</b>   | Two fully programmable alarm set points, increasing / decreasing, latching / self-resetting, on delays, off delays, normally energized or de-energized        |                                  |                                  |                                |                                |  |                    |  |
| <b>Alarm Indication</b>   | Visual LEDs. Alarm 1, Amber; Alarm 2, Red; Fail, Red  |                                  |                                  |                                |                                |  |                    |  |
| <b>Relays</b>   | 5 amp form 'C' contacts for alarm 1, alarm 2, and fail  |                                  |                                  |                                |                                |  |                    |  |
| <b>Physical</b>   |   |                                  |                                  |                                |                                |  |                    |  |
| <b>Dimensions</b>   | Height: 8.5" (215 mm), Width: 5.2" (132 mm), Depth: 4.5" (114 mm)   |                                  |                                  |                                |                                |  |                    |  |
| <b>Display</b>  | Alphanumeric display with backlighting. 8 characters per line; 2 lines for gas concentration readout, plus user-friendly calibration and setup                |                                  |                                  |                                |                                |  |                    |  |
| <b>Enclosure</b>  | Explosion proof for Class I, Div 1, Groups B, C, D.   |                                  |                                  |                                |                                |  |                    |  |
| <b>Enclosure Rating</b>   | NEMA 4X, explosion proof, watertight, cast aluminum with o-ring seal and epoxy powder coating   |                                  |                                  |                                |                                |  |                    |  |
| <b>Controls</b>   | Magnet used for calibration functions. Calibrates without opening the housing. Internal push-button controls also available for calibration and setup         |                                  |                                  |                                |                                |  |                    |  |
| <b>Operating Environment</b>  |   |                                  |                                  |                                |                                |  |                    |  |
| <b>Operating Temperature</b>  | -40°F to 167°F<br>40°C to 75°C  | -4°F to 113°F<br>-20°C to 45°C   | -40°F to 104°F<br>-40°C to 40°C  | 23°F to 104°F<br>-5°C to 40°C  | -4°F to 122°F<br>-20°C to 50°C |  |                    |  |
| <b>Relative Humidity</b>  | 5 - 95% RH non-condensing   |                                  |                                  |                                |                                |  |                    |  |
| <b>Location</b>   | Indoor or outdoor. Explosion proof for Class I, Div. 1, Groups B, C, D.   |                                  |                                  |                                |                                |  |                    |  |
| <b>Operating Voltage</b>  | 19 VDC - 30 VDC, 12 VDC versions available  |                                  |                                  |                                |                                |  |                    |  |
| <b>Outputs</b>  |   |                                  |                                  |                                |                                |  |                    |  |
| <b>Analog</b>   | 4-20 mA signal, into 500 ohms impedance max, corresponding to 0 - full scale  |                                  |                                  |                                |                                |  |                    |  |
| <b>Digital</b>  | Modbus RTU output standard, fully configurable, 2-wire RS-485, 1200 to 19.2k baud   |                                  |                                  |                                |                                |  |                    |  |
| <b>Approvals</b>  | 65-2610RK-05<br>UL  | 65-2611RK<br>UL                  | CSA NRTL                         |                                |                                | c UL US                                |                    |  |
|   | 65-2610RK-05<br>c CSA US  | 65-2611RK-05<br>c CSA US         |                                  |                                |                                |  |                    |  |
| <b>Controllers</b>  | 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 |                                  |                                  |                                |                                |  |                    |  |
| <b>Warranty</b>   | One year material and workmanship   |                                  |                                  |                                |                                |  |                    |  |

# Non Explosion Proof

|  | <b>O2</b><br>Oxygen  | <b>H2S</b><br>Hydrogen Sulfide    | <b>CO</b><br>Carbon Monoxide     | <b>Toxics</b><br>See Chart Below          | <b>CO2</b><br>Carbon Dioxide   |
|--|--|-----------------------------------|----------------------------------|---|--|
|  <b>Part#</b> | 65-2613RK<br>*65-2614RK  | 65-2632RK                         | 65-2633RK                        | See Chart Below                           | 65-2631RK-02<br>65-2631RK-03<br>65-2631RK-05<br>65-2631RK-10                 |
| <b>Sensors</b>   | Galvanic cell  | Electrochemical                   |                                  |   | Infrared   |
| <b>Measuring Ranges</b>  | 0-25% Vol.   | 0-100 ppm                         | 0-300 ppm                        | See Chart Below                           | -02 0 - 5000 ppm<br>-03 0 - 5% Vol.<br>-05 0 - 50% Vol.<br>-10 0 - 100% Vol. |
| <b>Resolution</b>  | 0.1% Vol.  | 1 ppm                             |                                  | See Chart Below                           | 20 ppm / 0.1% Vol. / 1% Vol.   |
| <b>Lower Detectable Limit (LDL)</b>  | 0.1% Vol.  | 2% of full scale                  |                                  |   |  |
| <b>Response Time (T-90)</b>  | 35 Seconds or less   |                                   |                                  | 60 Seconds or less                        | 30 Seconds or less   |
| <b>Life Expectancy</b>   | 2 to 3 years with normal service   |                                   |                                  |   | 5 years plus   |
| <b>Accuracy</b><br>(which ever is greater)   | ± 0.5% O2  | ± 5% of reading or<br>± 2 ppm H2S | ± 5% of reading or<br>± 5 ppm CO | ± 10% of reading or<br>± 5% of full scale | ± 5% of reading or<br>± 2% of full scale                                     |
| <b>Alarms</b>  |  |                                   |                                  |   |  |
| <b>Alarm Settings</b>  | Two fully programmable alarm set points, increasing / decreasing, latching / self-resetting, on delays, off delays, normally energized or de-energized,          |                                   |                                  |   |  |
| <b>Alarm Indication</b>  | Visual LEDs. Alarm 1=Amber; Alarm 2=Red; Fail=Red  |                                   |                                  |   |  |
| <b>Relays</b>  | 5 Amp form 'C' contacts for alarm 1, alarm 2, and fail   |                                   |                                  |   |  |
| <b>Physical</b>  |  |                                   |                                  |   |  |
| <b>Dimensions</b>  | Height: 8.5" (215 mm), Width: 5.2" (132 mm), Depth: 4.5" (114 mm)  |                                   |                                  |   |  |
| <b>Display</b>   | Alphanumeric display with backlighting. 8 characters per line;<br>2 lines for gas concentration readout, plus user-friendly calibration and setup                |                                   |                                  |   |  |
| <b>Sensor Rating</b>   | Non explosion proof construction, designed for Class I, Div. 2, Groups B, C, D (no certification)  |                                   |                                  |   |  |
| <b>Housing J-Box</b>   | NEMA 4X, explosion proof, watertight, cast aluminum with o-ring seal and epoxy powder coating  |                                   |                                  |   |  |
| <b>Controls</b>  | Magnet used for calibration functions. Calibrates without opening the housing.<br>Internal push-button controls also available for calibration and setup         |                                   |                                  |   |  |
| <b>Sensor</b>  | Aluminum / Plastic (non explosion proof)   |                                   |                                  |   |  |
| <b>Operating Environment</b>   |  |                                   |                                  |   |  |
| <b>Operating Temperature</b>   | -4°F to 122°F<br>-20°C to 50°C   |                                   | 14°F to 104°F<br>-10°C to 40°C   |   | -4°F to 122°F<br>-20°C to 50°C   |
| <b>Relative Humidity</b>   | 5 - 95% RH non-condensing  |                                   |                                  |   |  |
| <b>Location</b>  | Indoor or outdoor.   |                                   |                                  |   |  |
| <b>Operating Voltage</b>   | 19 VDC - 30 VDC, 12 VDC versions available   |                                   |                                  |   |  |
| <b>Outputs</b>   |  |                                   |                                  |   |  |
| <b>Analog</b>  | Linear 4-20 mA signal, into 500 ohms impedance max, corresponding to 0 - full scale  |                                   |                                  |   |  |
| <b>Digital</b>   | Modbus RTU output standard, fully configurable, 2-wire RS-485, 1200 to 19.2k baud  |                                   |                                  |   |  |
| <b>Controllers</b>   | Compatible with all RKI Beacon controllers, as well as most DCS / PLC systems:<br>Beacon 110, Beacon 200, Beacon 410, Beacon 800, and Pioneer 4W and Pioneer 16R |                                   |                                  |   |  |
| <b>Warranty</b>  | One year materials and workmanship   |                                   |                                  |   |  |

\* Partial pressure sensor for helium applications. Consult factory for details.

|  | <b>M2 Toxic Transmitter Sensor Ordering Information</b> |                        |              |                   |
|---|---|------------------------|--------------|-------------------|
|   | <b>Part Number With J-Box</b>                           | <b>Gas</b>             | <b>Range</b> | <b>Resolution</b> |
|   | 65-2618RK-AsH3  | Arsine (AsH3)          | 0 - 1.5 ppm  | 0.01 ppm          |
|   | 65-2618RK-NH3   | Ammonia (NH3)          | 0 - 75.0 ppm | 0.1 ppm           |
|   | 65-2618RK-PH3   | Phosphine (PH3)        | 0 - 1.00 ppm | 0.01 ppm          |
|   | 65-2618RK-HCN   | Hydrogen Cyanide (HCN) | 0 - 15.0 ppm | 0.1 ppm           |
|   | 65-2618RK-SO2   | Sulfur Dioxide (SO2)   | 0 - 6.00 ppm | 0.01 ppm          |

# M2 STAND ALONE TRANSMITTER



## Available Accessories

A. Calibration adaptors

E. Battery backups

B. Flow through adaptors

F. Splash guards

C. Remote horns & lights

G. Air aspirator adaptors / panels

D. Calibration kits

H. Dataloggers

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

| M2 Wiring Matrix |                               |                                |             |             |
|------------------|-------------------------------|--------------------------------|-------------|-------------|
|                  | Number of Wires to Controller | Maximum Distance to Controller |             |             |
|                  |                               | 18 AWG wire                    | 16 AWG wire | 14 AWG wire |
| M2 Transmitter   | 3                             | 2500 ft.                       | 5,000 ft.   | 8,000 ft.   |



Made in the USA

Authorized Distributor:



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