

Wall Mount Controllers

Beacon Series





The Beacon 110, 200 and 410A controllers can monitor any combination of direct connect sensors as well as any 4-20mA transmitter. The Beacon 800 works with 4-20mA transmitters only. Available in 1, 2, 4, and 8 channels, respectively, each channel has configurable alarm points. Audible and visual indications alert you to alarm conditions.

Each channel also has dedicated fully configurable relays and each controller has a bank of common relays. The common relays can be configured as additional relays on the Beacon 410A allowing for more alarm relays, optional on Beacon 800. Each channel provides a 4-20mA output signal. A digital Modbus interface for remote communication of data via a Modbus network is standard on the Beacon 410A.

A fully configurable, high visibility strobe is available as an option (except Beacon 800). The unit can be powered from 115/220 VAC, or an external 24 VDC source. A trickle charging battery backup feature with battery assembly is also available.

FEATURES

- Accepts direct wire sensors for: LEL, O<sub>2</sub>, H<sub>2</sub>S, CO, CO<sub>2</sub>, Toxic direct wire sensors
- Digital display of gas and concentration
- Accepts any 4-20 mA transmitter
- Provides 4-20 mA output
- Programmable alarm levels
- Configurable alarm relays per channel
- Programmable common relays — Beacon 410A
- Audible alarm with reset button
- Weatherproof, NEMA 4X enclosure
- 115/220 VAC or 24 VDC operation
- Built-in trouble alarm with relay
- RFI / EMI resistant

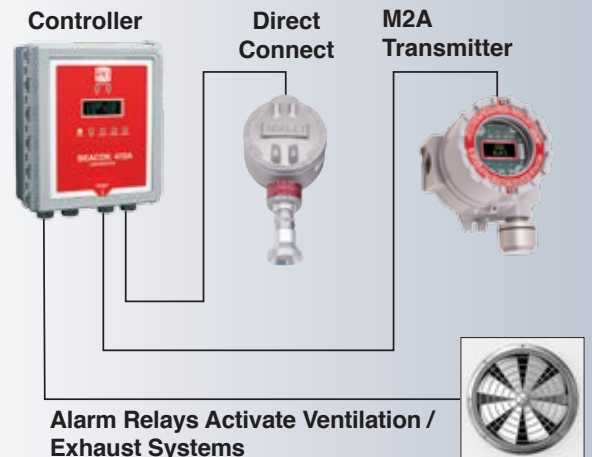
	Channels	Alarm levels per channel	Relays per channel	Common relays	Direct connect sensors
	1	2	3	N/A	Yes
	2	2	3	3	Yes
	4	3	3	5	Yes
	8	2	3	3	No

Beacon 110

Beacon 200

Beacon 410A

Beacon 800



LEL, H2, H2S, CO, O2, CO2, CH4, HC,  
NH3, ASH3, Cl2, ClO2, PH3, HCN, SO2

**Explosion / Non Explosion Proof  
Sensor Stand Alone Transmitter**

**M2A**

The M2A™ model is an explosion proof transmitter that can operate as a stand-alone system or as part of a system connected with an analog or digital signal to a controller, PLC, or DCS. A non explosion proof version is also available for certain gases.

The M2A utilizes a magnetic wand technique for performing non-intrusive calibration. The housing 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.

**FEATURES**

- Direct digital readout
- H2 Specific version available
- Explosion proof housing
- Operates independently or with any controller, PLC or DCS
- Non intrusive calibration via magnetic wand
- 2 programmable alarm relays, plus fail relay
- Auto zero drift correction
- Remotely mount sensor with calibration adapter
- IR sensors available for LEL & CO2, % vol. CH4 & HC



LEL, H2, H2S, CO, O2, CO2, CH4, HC,  
NH3, ASH3, Cl2, ClO2, PH3, HCN, SO2

**Explosion / Non Explosion Proof  
Sensor / Transmitter**

**S2**

The S2 Series transmitter electronics are encased inside a potted package to avoid damage from mechanical abuse or corrosion, and housed in an explosion-proof enclosure. Some sensors are available as explosion-proof with flame arrestors and approved for use in hazardous atmospheres. S2 transmitters are also available with stainless steel enclosures.

Field calibration can be performed easily and quickly by one person. The only tools required to calibrate the S2 Series are a voltmeter, screwdriver, and cal gas. The amplifier has test jacks for connecting to a voltmeter for calibration purposes.

**FEATURES**

- Explosion proof housing
- Stainless steel enclosures available
- Patented water repellent sensor coating
- IR sensors available for LEL & CO2, % vol. CH4 & HC
- H2 Specific LEL and ppm versions available
- Remotely mount sensor with calibration adapter



LEL, H2, H2S, CO, O2, CO2, CH4, HC,  
NH3, ASH3, Cl2, ClO2, PH3, HCN, SO2

**Explosion / Non Explosion Proof Sensor**

**Direct Connect**

The Direct Connect sensors can be used in two different ways. The sensors can be mounted directly to the controllers as a complete stand alone system, or they can be mounted to explosion proof junction boxes for remote detection.

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.

The Direct Connect sensors can be used either indoors or outdoors. The flame arrestors for the explosion-proof versions utilize a patented coating, which make them water repellent. Also, splash-guards are available for use in wet environments. An optional stainless steel junction box is available for corrosive environments.

**FEATURES**

- Connect directly to a Beacon controller
- Explosion proof housing
- Stainless steel enclosures available
- IR sensors available for LEL & CO2, % vol. CH4 & HC
- Patented water repellent sensor coating
- Remotely mount sensor with calibration adapter



# Smart Sample Draw Transmitter

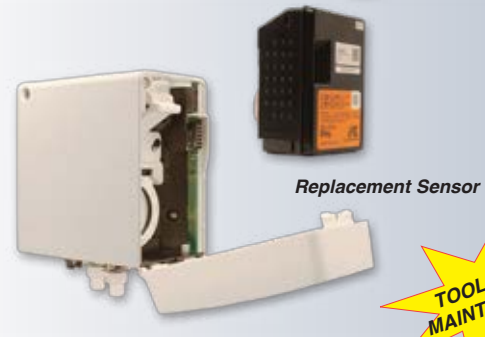
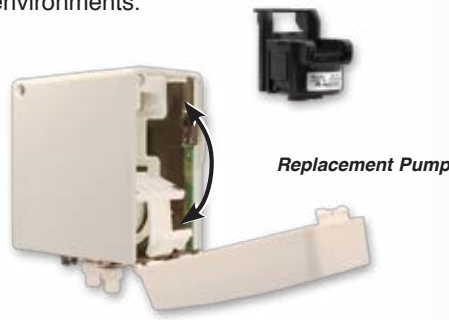
GD-70D

GD-70D Toxic Gases & Ranges	
Measurable Gases	Range
Ammonia	0 - 75 ppm
Arsine	0 - 0.2 or 1.5 ppm
Boron Trichloride	0 - 15 ppm
Boron Trifluoride	0 - 9 ppm
Bromine	0 - 1 ppm
Carbon Monoxide	0 - 75,150,300 ppm
Chlorine	0 - 3 ppm
Chlorine Trifluoride	0 - 0.6 ppm
Diborane	0 - 0.3 ppm
Dichlorosilane	0 - 15 ppm
Diethylamine	0 - 15 ppm
Dimethylamine	0 - 15 ppm
Disilane	0 - 15 ppm
Fluorine	0 - 3 ppm
Germane	0 - 0.8 ppm
Hydrogen Bromide	0 - 6 or 9 ppm
Hydrogen Chloride	0 - 6 or 15 ppm
Hydrogen Cyanide	0 - 15 ppm
Hydrogen Fluoride	0 - 3 or 9 ppm
Hydrogen Selenide	0 - 0.2 ppm
Hydrogen Sulfide	0 - 1 or 30 ppm
Nitric Oxide	0 - 100 ppm
Nitrogen Dioxide	0 - 9 or 15 ppm
Nitrogen Tetraoxide	0 - 15 PPM
Ozone	0 - 0.6 ppm
Phosphine	0 - 1 ppm
Silane	0 - 15 ppm
Silicon Tetrachloride	0 - 15 ppm
Silicon Tetrafluoride	0 - 9 ppm
Sulfur Dioxide	0 - 6 ppm
Sulfur Tetrafluoride	0 - 9 ppm
Tetraethyl Orthosilicate	0 - 15 ppm
Trichlorosilane	0 - 15 ppm
Trimethylamine	0 - 15 ppm
Tungsten Hexafluoride	0 - 9 ppm

The GD-70D smart sample-draw transmitter offers an array of plug and play intelligent sensor technologies, including electrochemical sensors for a wide range of toxic gases and oxygen; MOS for H<sub>2</sub>, IPA, and methanol; catalytic sensors for combustibles; and a pyrolyzer sensor for TEOS and NF<sub>3</sub>.

These smart sensors retain all calibration and sensor-specific data in non-volatile memory, so sensors can be hot-swapped in the field with no programming required. The sensors also retain calibration information, which means they can be conveniently calibrated separate from the transmitter, avoiding transport of calibration gases to field locations.

The long life high capacity pump and wide variety of sensing elements are replaceable in a few seconds, with no tools required! The GD-70D can be used as a stand-alone device, offering a number of communication protocols to existing PLC systems, or can be integrated with RKI's Beacon series of single and multi-channel controllers. An optional NEMA 4X enclosure is available for harsh environments.



SENSOR UNIT					
Model	ESU	SGU	SSU	OSU	NCU
Detection principle	Electrochemical cell	Semiconductor	Pyrolysis-particle	Galvanic cell	Catalytic combustion
Gas detected	Refer to table of toxic gases	H <sub>2</sub> , CH <sub>4</sub> , IPA, Methanol, R-32	0-15ppm TEOS in air	0-25% O <sub>2</sub> in air	0-100% LEL H <sub>2</sub> , CH <sub>4</sub> , and others
Self diagnosis function	Sensor trouble, system failure				
Date logging function	Event history, alarm history, calibration history, Alarm trend (60 sec. before / after 1st alarm)				

# Diffusion Sensor / Transmitter for Toxic Gases

Wide Range of Toxics

GD-K88Ai



- Diffusion Style head
- Digital readout of gas name and concentration
- External control buttons for easy maintenance
- Intrinsically safe design
- Quick response sensors
- Many toxic sensors available
- 3 to 5 year typical sensor life
- Low cost of ownership
- Weather proof enclosure available



Weather Proof housing for GD-K88-4X

Partial List Of Detectable Gases. Contact RKI for gases or ranges not listed					
Ammonia (NH <sub>3</sub> )	0 - 75.0 ppm	Fluorine (F <sub>2</sub> )	0 - 6.0 ppm	Nitrogen Dioxide (NO <sub>2</sub> )	0 - 15.0 ppm
Arsine (AsH <sub>3</sub> )	0 - 0.20 ppm	Hydrogen Chloride (HCl)	0 - 15.0 ppm	Ozone (O <sub>3</sub> )	0 - 1.0 ppm
Bromine (Br <sub>2</sub> )	0 - 1.00 ppm	Hydrogen Cyanide (HCN)	0 - 30 ppm	Phosphine (PH <sub>3</sub> )	0 - 1.0 ppm
Chlorine (Cl <sub>2</sub> )	0 - 3.0 ppm	Hydrogen Fluoride (HF)	0 - 9.0 ppm	Silane (SiH <sub>4</sub> )	0 - 15.0 ppm
Chlorine Dioxide (ClO <sub>2</sub> )	0 - 1.00 ppm	Hydrogen Sulfide (H <sub>2</sub> S)	0 - 30.0 ppm	Sulfur Dioxide (SO <sub>2</sub> )	0 - 6 ppm
Carbon Monoxide (CO)	0 - 150 ppm	Hydrogen Sulfide (H <sub>2</sub> S)	0 - 1.00 ppm	Optional	0 - 30 ppm
Diborane (B <sub>2</sub> H <sub>6</sub> )	0 - 0.30 ppm	Nitric Oxide (NO)	0 - 100.0 ppm		

O<sub>2</sub>, CO

Indoor Stand Alone

**OX-600 / EC 600**

The OX-600 and EC-600 models are indoor, standalone monitors that detect Oxygen (O<sub>2</sub>) and Carbon Monoxide (CO) respectively. It's sleek, low-profile design is equipped with a unique tri-color display, which changes color as each alarm level is reached.

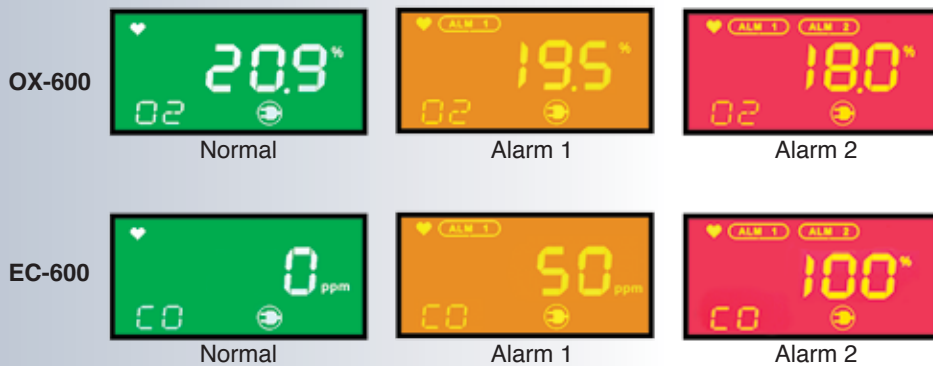
Each model has 2 preset alarms, and comes ready to operate with a simple wall mount bracket and 10 foot power cord (AC units). It is capable of operating with three different power options; 115 VAC, 24 VDC or alkaline batteries.

The sensor can also be mounted with an optional remote sensor cable. Extender cable with remote box available in different lengths (3, 5, 10, or 20 meters).

	OX-600	EC-600
Detection Range	0 - 25 vol%	0 - 150 ppm (1ppm / digit)

**FEATURES**

- Operates with or without a controller
- Tri-color visual alarm display: Green=Normal, Yellow=Alarm 1, Red=Alarm 2
- Large easy to read digital display
- Three power options: 115 VAC, 24 VDC, or 2 AA alkaline
- Operates up to 1 year on one set of AA alkaline batteries
- Pressure compensation eliminates false alarms caused by pressure change
- Remote mount sensor cable available



H<sub>2</sub>

H<sub>2</sub> Specific Sensor / Transmitter

**H<sub>2</sub> Specific**

Gas monitoring that is specific to hydrogen without any false alarms is now available from RKI Instruments. A low range version is available which is highly sensitive with a range of 0-2,000 ppm. This is 20 times more sensitive than standard LEL detectors. The technology is based on a proprietary hydrogen specific solid state sensor. The second hydrogen specific sensor is for LEL range. A molecular sieve filter is used to make the sensors respond only to hydrogen molecules. False alarms from interfering gases are eliminated. Ideal for semiconductor fab monitoring and fuel cell applications. Production interruptions are minimized by eliminating false alarms from isopropyl alcohol (IPA) or other compounds. LEL is available with Direct Connect, S2 and M2A, 0-2000 ppm available in S2 Series.

IPA historically has caused problems with conventional hydrogen sensors when they mistakenly indicate the presence of hydrogen.

**FEATURES**

- Explosion proof housing
- H<sub>2</sub> specific solid state sensor (0-2000 PPM)
- Catalytic H<sub>2</sub> specific sensor (0-100 % LEL)
- Eliminates false alarms from IPA and other compounds
- Molecular sieve filter
- 4-20 mA transmitter, 24VDC, or direct connect
- Poison resistant
- Optional stainless steel enclosure



**Sample Draw Sensor / Transmitter****35-3001**

The 35-3001 series is a compact sample draw detector assembly with a built-in pump that accepts a 24VDC input. This unit features a NEMA 4X enclosure making it dust, water and corrosion resistant. It also features a flowmeter with adjustable flow and a low flow alarm which warns of any obstructions or restrictions in the flow system. The 35-3001 is also available in some dual sensor configurations.

The 35-3001 is capable of single person calibrations and remote sampling at up to 5,000 ft. from a controller, and interfacing to any RKI or third party control system (utilizing a 4-20 mA feedback signal).

**FEATURES**

- NEMA 4X enclosure
- Long life pump
- Low flow indication
- Flowmeter and LED's for operational status
- Operates on 24VDC input
- Multi gas versions available with sensors in one enclosure

*High Range H<sub>2</sub>S,  
CH<sub>4</sub> Vol, O<sub>2</sub>, CO<sub>2</sub>***Digester Process Gas Monitoring****Digester Gas Monitor**

Gas from waste digesters contains high levels of methane, CO<sub>2</sub>, and H<sub>2</sub>S, with little to no oxygen present. The Digester gas monitor checks for all these gases on a cyclic basis. A powerful air aspirator draws a sample from up to 100 feet away. Since digester gas contains high humidity and high H<sub>2</sub>S, both of which can cause damage to sampling systems, the RKI Digester Gas Monitor is designed to handle these with no damage to the sampling system or sensors. The sample is passed through a series of particles, dust, and moisture stopping filters, and these filters are automatically purged with fresh air at the end of each cycle.

**FEATURES**

- Corrosion resistant design
  - Housing designed for extreme environments
  - Internal construction for extreme samples
  - Flow system designed to handle corrosive wet samples
- Sample system designed to handle high humidity
- Accurately measures gases with high levels of H<sub>2</sub>S present
- 100 ft. sample range
- Up to 4 sensors:
  - CH<sub>4</sub> 0-100% volume
  - CO<sub>2</sub> 0-50% volume
  - O<sub>2</sub> 0-25% volume
  - H<sub>2</sub>S 0-1000 PPM (0-3000 or 0-5000 optional)
- Suitable for indoor / outdoor installations
- NEMA 4X enclosure

**Harsh Environment Aspirator Panel***H<sub>2</sub>S, CO, O<sub>2</sub>, CO<sub>2</sub>, H<sub>2</sub>, LEL***Aspirator Panel**

Single or dual sensor system is designed to monitor gas atmospheres from extreme conditions with either temperature or pressure challenges. A powerful air aspirator can pull a sample from up to 100 feet away. The filtered and conditioned sample gas is then passed across one or two different detectors. Each detector shares a common calibration and compressed air inlet for aspirated flow. This system is fault tolerant removing the need for expensive downtimes and maintenance. The sample is diluted with air after the gas sensor then returned to a common exhaust reducing the danger of potential hazardous gases entering a safe work space.

System integrity is maintained at all times using a flow fail monitoring device which provides a normally open contact that activates if the sample line becomes blocked or damaged or if the air supply is removed or interrupted.

**FEATURES**

- Long life air aspirator (no moving parts)
- Extreme sample temperatures
- indoor / outdoor location options
- Corrosion resistant construction for extreme environments / samples
- Uses proven RKI technology
- Modular design easy to maintain
- Self draining moisture trap
- Back flush for sample line
- NEMA 4X enclosure options

CH<sub>4</sub>, HC, O<sub>2</sub>, H<sub>2</sub>S, CO,  
CO<sub>2</sub>, NH<sub>3</sub>, SO<sub>2</sub>

## Explosion Proof Multi Sensor Head

### Waste Water Gas Monitoring

This unique tri-sensor head can be used either indoors or outdoors. The flame arrestors for the explosion-proof versions utilize a patented coating which make them water repellent. Also, splash guards are available for use in very wet environments. The tri and quad sensor head is designed to specifically interface with the RKI Beacon 410A controller.

The direct connect series sensors are available for LEL (IR or catalytic), toxics, O<sub>2</sub>, H<sub>2</sub>S, CO, or CO<sub>2</sub>. All sensors are explosion-proof with flame arrestors, and suitable for use in hazardous locations. The enclosure is corrosion resistant NEMA 4X stainless steel.

Recommended for water and wastewater applications including wet wells, dry wells, bar screens, lift stations, digesters, thickeners, pump stations, and confined spaces.

#### FEATURES

- 2-4 Sensors, 1 explosion proof housing
- Infrared sensors available for combustible or CO<sub>2</sub>
- Interfaces with Beacon 410A controller
- Available for combinations of LEL (CH<sub>4</sub> or HC), O<sub>2</sub>, CO, H<sub>2</sub>S, CO<sub>2</sub>, and toxics
- Water repellent patented sensor coating
- Long life sensors (2 + years typical)
- CSA approved NEMA 4X stainless steel enclosure



### Semiconductor Gases

#### FP-300, 301, and 330



RKI's paper tape monitors utilize highly sensitive colorimetric tapes to achieve interference free detection at low PPB and PPM levels of a wide variety of gases. Each model is equipped with easily replaceable tapes that are specific to the gas being monitored. Each model has a digital display showing the type of gas and concentration in either PPM or PPB, and also displays remaining tape time as well as an end of tape alarm.

#### FEATURES

- PPB detection for many gases
- PPB or PPM digital display
- Easily transportable
- 115 VAC powered

### Paper Tape Toxic Gas Detector

Gas Name	Gas Formula	Range	FP-300	FP-330	FP-301
Ammonia	NH <sub>3</sub>	0 - 4ppm	•		
Arsine	AsH <sub>3</sub>	0 - 150ppb	•		•
		0 - 15ppb			
Boron Trifluoride	BF <sub>3</sub>	0 - 3ppm	•		
Chlorine	Cl <sub>2</sub>	0 - 1.5ppm	•		
		0 - 0.8ppm			
Diborane	B <sub>2</sub> H <sub>6</sub>	0 - 300ppb	•		
Hydrogen Bromide	HBr	0 - 2ppm	•		
Hydrogen Chloride	HCl	0 - 1ppm	•		
		0 - 8ppm			
Hydrogen Fluoride	HF	0 - 3ppm	•		
Hydrogen Selenide	H <sub>2</sub> Se	0 - 200ppb			•
Hydrogen Sulfide	H <sub>2</sub> S	0 - 100ppb	•		
		0 - 10ppm			
Octafluorocyclopentene	C <sub>5</sub> F <sub>8</sub>	0 - 5ppm	•		
Perfluorobutadiene	C <sub>4</sub> F <sub>6</sub>	0 - 5ppm	•		
Phosgene	COCl <sub>2</sub>	0 - 300ppb	•		
Phosphine	PH <sub>3</sub>	0 - 500ppb	•		
		0 - 900ppb			
Silane	SiH <sub>4</sub>	0 - 15ppm	•		
Formaldehyde	HCHO	0 - 0.5ppm			
		0 - 1ppm		•	
		0 - 5ppm			

## Single Point Stand Alone Monitor

PS 2

A perfect solution for hydrogen detection in battery rooms, methane detection in basements, or in buildings near landfills. The PS 2 also detects a variety of solvent vapors in general industry and is a multipurpose gas monitor utilizing a metal oxide sensor (MOS) for long lasting and low maintenance detection at low LEL level of many gases or vapors. The PS 2 has two alarm levels for increasing gas or vapor levels. This stand alone unit is housed in a durable plastic enclosure with flanges provided for wall mounting and is designed with easy access wiring hubs on the bottom of the unit. The front of the PS 2 contains three lights; Pilot, Alarm 1, and Alarm 2. An internal audible alarm (85 db) signals a gas alarm condition. The sensor is provided on the end of a 30' extension cable as standard and the 115 VAC version is equipped with a power cord, for easy installation.

### FEATURES

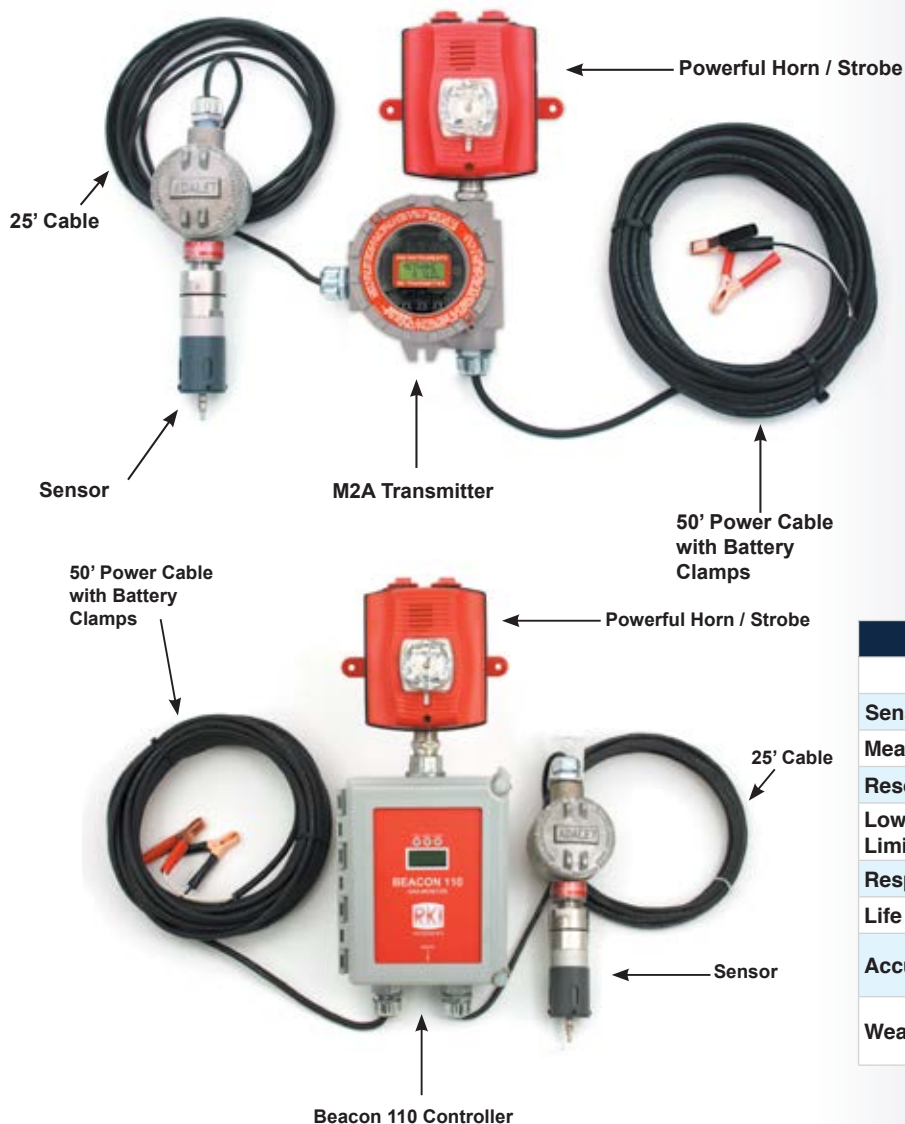
- LEL detection ranges available for many gases
- 2 alarm levels (typically 10% LEL and 30% LEL)
- Stand alone system
- Input voltages: 115 VAC standard, 24 VDC or 48 VDC (optional)
- Audible and visual alarms
- Compact design
- Simple installation
- AC version equipped with power cord
- Relay contacts rated 12A @ 115 VAC
- Low maintenance



## LEL / H2S Detection for Drill Rigs

LEL or H2S

### Rig Monitor







Rig monitors are specifically designed for detection of LEL / H2S around drilling rigs. All units include our long-life plug in electrochemical H2S sensor, range 0 - 100 ppm or our catalytic sensor range 0 - 100% LEL. All cable connections are protected by rugged strain relief cord grips, and sensors are mounted in an explosion proof enclosure that includes a convenient mounting bracket. Also included is a powerful horn / strobe mounted directly to the M2A or Beacon controller. The unit is powered by 12 VDC and comes with battery clamps on a 50' Cable.

### FEATURES

- Pre-wired for easy installation
- 12 VDC powered with battery clamps
- Sensors wired on 25' cables
- Powerful horn / strobe
- Ideal for use at oil and gas drilling sites
- LEL versions available
- 2-4 channel versions available

Sensor Specification		
	H2S	LEL
Sensor	Electrochemical	Catalytic
Measuring Ranges	0 - 100 ppm H2S	100% LEL.
Resolution	1 ppm	1 LEL
Lower Detectable Limit (LDL)	2% of full scale	
Response Time (T-90)	35 Seconds or less	
Life Expectancy	2 to 3 years with normal service	
Accuracy	± 5% of reading or ± 2 ppm H2S, ± 2% LEL (whichever is greater)	
Weather Resistant	Patented water repellent sensor coating	

	Diffusion Instruments	Sample Draw Instruments
<b>Small Kit</b>	<p>Fixed flow regulators      2 Cylinder Case</p>  <p>34AL      34L      Tubing      GX-2009 Cal Cup      81-1117RK Cal Cup</p>	<p>Demand flow regulators      2 Cylinder Case</p>  <p>34AL      34L      Tubing</p>
	<p>Fixed flow regulator      3 cylinder case      2 cylinder case</p>  <p>58AL      103L      Tubing      GX-2009 Cal Cup      81-1117RK Cal Cup</p>	<p>Demand flow regulator      3 cylinder case      2 cylinder case</p>  <p>58AL      103L      Tubing</p>
<b>Portable Models</b>	GX-2009, 03 Series, SC-01	GX-6000, GX-2012, Gas Tracer, Eagle 2, Eagle, RX-8000, RX-516, RX-517
<b>Fixed System Models</b>	Direct Connect Sensors, S2, M2A, GD-A80/GD-A80V, GD-K88Ai, PS2, M Series, OX-600, CO-600	GD-70D, 35-3001 Series