

# GAS DETECTION SYSTEMS

## Fixed Installation Type –

## Beacon 110, Beacon 200, Beacon 410, and Beacon 800

### FEATURES

- Low cost versatile solution!!
- Compact, weatherproof, NEMA 4X enclosure.
- 115 VAC or 12 VDC operation.
- Long life sensors (2+ years typical).
- Accepts LEL/O<sub>2</sub> /H<sub>2</sub> S/CO direct wire sensors (Beacon 110, 200, and 410).
- Accepts any 4-20 mA transmitter.
- Audible alarm with reset button.
- Three programmable alarm levels.
- Built-in trouble alarm with relay.
- Relay rating 10 or 12 amps, form C.
- Provides 4-20 mA output.



### INDUSTRY APPLICATIONS

- Laboratories
- Semiconductor manufacturing facilities
- Petrochemical plants & refineries
- Water & wastewater treatment plants
- Pulp & paper mills
- Gas, telephone, & electric utilities
- Parking garages
- Manufacturing facilities

### DESCRIPTION

Gas detection should not be complicated. The Beacon™ Series is gas detection simplified. The Beacon™ Series are powerful, low cost fixed system controllers for one, two, or up to eight points of gas detection. They are microprocessor controlled, versatile, simple to install and operate, and priced to be the industry's best value single and multiple gas detection controllers.

The wide variety of sensor heads available for the Beacon Series can provide protection for many of the gases commonly used in industry or laboratories today. A comprehensive list of available detectors is provided below.

Sensors can be mounted directly at the Beacon™ housing, or can be wired remote from the controller. The digital displays have backlighting and simultaneous readout of the gas type(s) and concentration(s). The bottom mounted wiring hubs make wiring easy. An external reset switch allows alarms to be silenced from outside the controller housing.

With 10 or 12 amp rated relays, the Beacon Series can be wired directly to a variety of devices like horns, buzzers, or lights eliminating the need for costly external relays from the controller to devices.

The Beacon™ Series is housed in a NEMA 4X rated case for a weather tight seal. This case design complies with the new lock out / tag out standard and can be fully secured. An external reset switch allows the alarm to be silenced from outside of the controller housing. The Beacon™ units ship complete with a wall mounting kit for easy installation.

### ABOUT SENSORS

The sensor is the actual device that is sensing the gas. Three sensor types are available for use with the Beacon Series Controller: direct wire, gas diffusion, and sample draw. Sensors typically last 2 to 4 years, but can last for a longer or shorter time depending on the nature of the application.

### DIRECT WIRE DETECTORS

Direct wire detectors are hard wired diffusion sensors to the controller and do not require a transmitter. They are, therefore, more economical than detectors requiring a transmitter. Direct wire detectors can only be used with the Beacon 110, 200, and 410 controllers. While the choice of gases is limited for hard wire detectors they can be an economical choice when available. In general, the use of a transmitter is preferred for distances over 300' to 500' to simplify calibration.

## **GAS DETECTION SYSTEMS** CONTINUED

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#### **DIFFUSION DETECTORS**

Diffusion detectors rely on the natural flow of air to bring the sample to the detection head. These are an excellent choice for gas cabinets or other forced flow environments where the detector is situated in a constant air flow from the potential gas release to the detector. All diffusion type detectors used with the Beacon Series have transmitters.

#### **SAMPLE DRAW DETECTORS**

Sample draw detectors have an integral pump, which draws the surrounding air to the detector. They are the preferred choice when used in larger areas where there is no specific point at which one can expect a gas leak. All sample draw detectors used with the Beacon Series have transmitters.

#### **TRANSMITTERS,**

Most sensors require a transmitter to amplify the sensor signal, and to convert the gas sensor signals into a standardized output, such as 4-20 mA, for transmitting the signal to a controller. The transmitter is usually in close proximity to the sensor, and zero and span adjustments must be done at the transmitter. Note that some sensors and controllers do not require the use of a transmitter for LEL or Oxygen detection (Beacon 110, 200, and Beacon 410), and also one is not needed for short distance wiring of H<sub>2</sub>S or CO sensors for the Beacon 110, 200, and Beacon 410. All transmitters used with the Beacon Series are operated from 24 VDC, and utilize either 2 or 3 wires. In general, even if a sensor can be used with out a transmitter, the use of a transmitter is often preferred for distances over 300' to 500' to simplify calibration.

#### **HOW TO ORDER**

When ordering a Beacon system please specify the following components:

1. Controller part number
2. Detector assemblies required (select from list on page 95)

<b>Model</b>	<b>Description</b>
72-2110 RK	Beacon 110 single point controller
72-2102 RK	Beacon 200 two point controller
72-2104RK	Beacon 410 four point controller
72-2108 RK	Beacon 800 eight point controller



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## SPECIFICATIONS

### PHYSICAL

Enclosure:	Wall mounting gray polycarbonate with hinged cover			
Dimensions:	<b>Beacon 110</b>	<b>Beacon 200</b>	<b>Beacon 410</b>	<b>Beacon 800</b>
	Height: 8.5"	Height: 8.5"	Height: 12.5"	Height: 12.5"
	Width: 7.0"	Width: 7.0"	Width: 11.0"	Width: 11.0"
	Depth: 4.3"	Depth: 4.3"	Depth: 6.4"	Depth: 6.4"
Conduit Connection				
1/2" NPT conduit hubs:	2	3	4	4
Wiring Termination:	Screw type terminal block 14 gauge max.			
Environmental Operating Temp:	-4°F to 122°F (-20°C to 50°C)			
Storage Temp:	-4°F to 158°F (-20°C to 70°C)			
Relative Humidity:	0 - 95% RH			
Enclosure Rating:	NEMA-4X enclosure, chemical, and weather resistant.			

### INPUTS

Direct Wired Sensors (Beacon 110, 200, and 410 only) Note: Beacon 800 requires 4-20mA sensors.

LEL / PPM Hydrocarbon

Oxygen

Carbon Monoxide

Hydrogen Sulfide

Remote amp not required for less than 500 feet.

4-20 mA Sensors: Accepts any 4-20 mA transmitter (24VDC, 2 or 3 wire). A wide variety of sensors are available with 4-20 mA signals. (See list of detectable gases. Wiring distances up to 5000 feet.)

### OUTPUTS

#### Relays:

Beacon 110:	4 relays - 12 amp rating (at 115 VAC), SPDT isolated contacts. 3 relays for gas alarm levels 1 relay for malfunction
Beacon 200:	2 relays per channel – 10 amp rating (@115 VAC), SPDT isolated contacts. 1 set of common relays: 2 for gas alarm levels, 1 for malfunction
Beacon 410:	2 relays per channel – 10 amp rating (@115 VAC), SPDT isolated contacts. 1 set of common relays: 2 for gas alarm levels, 1 for malfunction
Beacon 800:	2 relays per channel - 10 amp rating (@115 VAC), SPDT isolated contacts. 1 set of common relays: 2 for gas alarm levels, 1 for malfunction

Relays fully programmable for: increasing or decreasing alarm, latching or self reset, normally energized or normally de-energized, time delay for alarm on and alarm off.

4-20 mA Signal output, 4-20 mA (into 500 ohms impedance maximum).

24 VDC 24 VDC output provided to operate sample drawing adapters or other accessories.

#### Display:

Alphanumeric display with back-lighting.

Beacon 110: 1 display, 16 characters per line; 2 lines.

Beacon 200: 1 display, 20 characters per line; 4 lines

Beacon 410: 1 display, 20 characters per line; 4 lines

Beacon 800: 2 displays, 16 characters per line; 4 lines each. All 8 channels continuously displayed.

#### Audible:

Built-in audible alarm, 94 dB, mounted on enclosure. Coded Output: pulsing = gas alarm steady = fail

#### Visual:

Beacon 110: 5 visual alarm LED's on the front cover for status indication, pilot, and malfunction.

Beacon 200: 4 visual alarm LED's on the front cover for status indication, pilot, and malfunction.

Beacon 410: 4 visual alarm LED's on the front cover for status indication, pilot, and malfunction.

Beacon 800: 4 visual LED alarms on front cover for alarm indications, pilot, and malfunction.

### POWER

115 VAC or 12 VDC standard

Optional: 230 VAC

Battery backup option available

### WARRANTY

Two years materials and workmanship