TWO CHANNEL WALL MOUNT CONTROLLER

Gas Detection For Life

Beacon™ 200 Model

Affordable 2 Point Monitor

Features

- **Simultaneous readout on 2 channels**
- **Two alarm levels per channel**
- **Discrete and common relays**
- **Built in audible alarm**
- **NEMA 4X enclosure**
- **4-20 mA outputs**
- **Proven, long-life sensors for a wide variety of gases**
- **Accepts any 4-20 mA transmitter input (24 VDC)**
- **Easy to install, operate and expand**
- **CSA, C/US classified**

Industry Applications

- **Petrochemical plants**
- **Refineries**
- **Water & wastewater treatment plants**
- **Pulp & paper mills**
- **Gas, telephone, & electric utilities**
- **Parking garages**
- **Manufacturing facilities**
- **Steel**
- **Automotive**
- **HVAC**

The Beacon 200 is a powerful, low cost fixed system controller for two points of gas detection. It is microprocessor controlled, versatile, simple to install and operate, and priced to be the industry's most economical two point controller. It is capable of connecting directly to RKI sensors for LEL level combustibles, Oxygen, and toxic gas sensors. The Beacon 200 can also accept any 4-20 mA transmitter (2 or 3 wire, 24 VDC). Sensors can be mounted directly at the Beacon 200 housing, or can be wired remotely from the controller.

The 10 amp rated relays are strong enough to actuate most external alarms and horns without using slave relays. The digital display has backlighting and simultaneous readout of the gas type and concentration.

The Beacon 200's housing is rated NEMA 4X for corrosion resistance and a weather tight seal, and complies with lock out / tag out standards. An external reset switch allows the alarm to be silenced from outside of the controller housing. The Beacon 200 comes complete with a wall mounting kit for easy installation.

RKI offers the industry's widest selection of standard and toxic gas detection sensors, which can be utilized with the Beacon 200, providing gas monitoring protection for almost any application.

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

World Leader In Gas Detection & Sensor Technology
www.rkiinstruments.com

Beacon™ 200 Model

Physical	
Dimensions	Height: 10.5” (267 mm) x Width: 8.5” (216 mm) x Depth: 6.3” (158 mm)
Enclosure	Wall mounting grey polycarbonate with hinged cover
Conduit Connection	3/4” NPT conduit hubs, 3 provided. 2 for sensor wiring and 1 for power & relay wiring
Wiring Termination	Screw type terminal block, 14 gauge max
Power	115 VAC or 24 VDC standard, Optional 230 VAC. Battery backup option available
Controls	4 internal push buttons for setup, programming, and calibration. 1 external push button for alarm reset
Operating Environment	
Operating Temperature	-4°F to 122°F (-10°C to 50°C)
Storage Temperature	-4°F to 158°F (-20°C to 70°C)
Relative Humidity	5 - 95% RH (non-condensing) 80% max for CSA
Enclosure Rating	NEMA-4X enclosure, waterproof, chemical, and weather resistant
Inputs	
Direct Wired Sensors	LEL, Oxygen, and toxic gas sensors. Remote amp required for greater than 500 feet
4-20 mA Sensors	Accepts any 4-20 mA transmitter (24 VDC, 2 or 3 wire). A wide variety of RKI/Riken sensors are available with 4-20 mA signals; (See list of detectable gases.) Wiring distances up to 5,000 feet
Sampling Methods	Accepts diffusion or sample draw heads
Outputs	
Relays	7 relays - 10 amp rating (at 115 VAC), SPDT isolated contacts. 2 relays for gas alarm levels per channel, plus 2 relays for common gas alarm and 1 common relay 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 1,000 ohms impedance maximum), per channel
24 VDC	24 VDC (350 mA max) output provided to operate sample drawing adapters
Display	Alphanumeric display with backlighting. 20 characters per line; 4 lines each
Audible	Built-in audible alarm, 94 dB, mounted on enclosure Coded output: pulsing = gas alarm, steady = fail
Visual	4 LED’s on the front cover for alarm status indication, pilot, and malfunction
Approvals	CSA Certified to CSA C22.2 No. 1010 and ANSI/ISA S82.01
Warranty	One year material and workmanship

Specifications subject to change without notice.

Made in the USA

RKI INSTRUMENTS

10000363 UL REGISTERED FIRM ISO 9001

Toll Free: (800) 754-5165 • Phone: (510) 441-5656
Fax: (510) 441-5650 • www.rkiinstruments.com

Authorized Distributor:

Beacon 200

2 Channel Wall Mount
Gas Detection Controller

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Beacon 200 Components

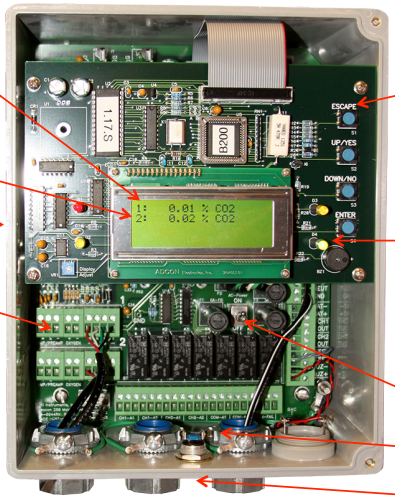
Backlit LCD Display

2 Channels Displayed Simultaneously

NEMA-4X weather resistant enclosure

Accepts any 4-20 mA transmitter

2 programmable alarm levels per channel



PCB Control Switches
- **ESCAPE**
- **UP/YES**
- **DOWN/NO**
- **ENTER**

Alarm LEDs
- **Alarm 1, yellow**
- **Alarm 2, orange**
- **Alarm 3, red**
- **Fail, yellow**

On/Off toggle switch

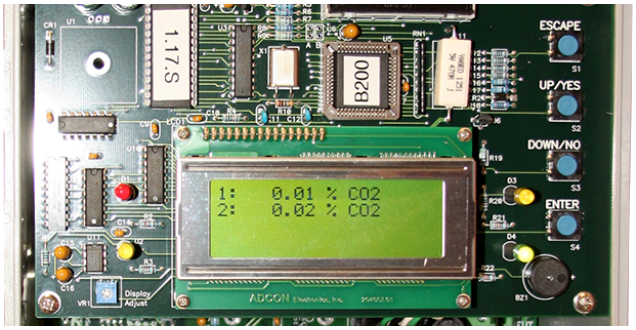
94 dB Buzzer Alarm

Alarm Reset Switch

Alarm Indications

Condition	Cause	Visual Indications	Audible Indications
Alarm 1	▪Increasing (decreasing for O2) gas reading at or above the alarm 1 set point	▪Alarm 1 LED on ▪Gas reading alternates with Alarm-1 message ▪Strobe (if installed) activates	▪Pulsing tone
Alarm 2	▪Increasing gas reading at or above the alarm 2 set point	▪Alarm 2 LED is on ▪Gas readings alternates with ALARM-2 message ▪Strobe (if installed) activates	▪Pulsing tone
Fail	▪Disconnected or misconnected detector head wiring ▪Display reading at -10% of full scale or lower ▪Defective component	▪Fail LED is on ▪Fail message replaces gas reading ▪Strobe (if installed) activates	▪Steady tone
Low Power	▪No AC power and DC power source (primary or backup) less than 21.5 volts.	▪Fail LED is on ▪SUPPLY VOLTAGE IS TOO LOW LOW POWER STANDBY message and actual ▪voltage of incoming DC power	▪None

Beacon 200

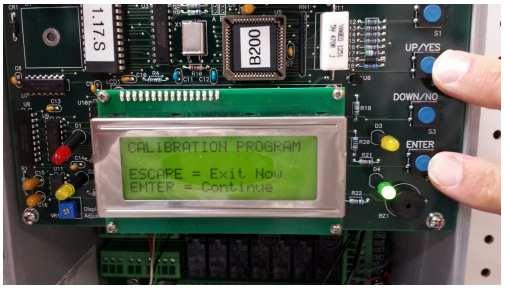


Fresh Air and Calibration

www.rkiinstruments.com

Entering Cal Program

- Press and hold the UP/YES and ENTER buttons to enter into the Calibration Program



Beacon 200 Calibration

Simultaneously press and hold the **UP/YES** and **ENTER** buttons for approximately 5 seconds to enter the **CALIBRATION MENU**. The display will prompt you as follows: **ESCAPE = EXIT NOW ENTER = CONTINUE**, press the **ENTER** button to continue.

- **SET CAL TIMEOUT**

  Use the UP or DOWN buttons to set the calibration time out. The adjustment range is from 5 min. to 240 min., press the ENTER button to continue.

Beacon 200 Calibration

Calibrating a 4-20 mA detector head

1. Verify that the detector head is in a fresh-air environment. (If necessary, use a zero-emission air cylinder, also known as zero air, to introduce a fresh-air sample when adjusting the zero reading below.)
2. Adjust the detector head's zero (fresh air reading for oxygen) reading. See the detector head's instruction manual for instructions on how to adjust the zero reading (fresh air reading for oxygen).
3. Apply calibration gas to the detector head's detector and adjust the detector head's span reading (zero reading for oxygen). See the detector head's instruction manual for instructions on how to adjust the span (zero reading for oxygen) reading.
4. Press the ENTER button to indicate that you are done calibrating.

Beacon 200 Calibration

Calibrating a Direct Connect Detector

1. If you pressed the UP/YES button, the unit will display the following message for a few seconds before continuing: Expose Detector(s) To Fresh Air. . . When Done Press ENTER. Then the display will alternate between the gas reading and the message FRESH AIR ENTER to ACCEPT ESCAPE to ABORT.
2. Press the ENTER button at the Beacon 200. The unit will adjust the zero reading and display the message Fresh Air Adjust Passed.
3. The display asks if you want to perform a span. Press the UP/YES button to continue with adjusting the span.
4. If you pressed the UP/YES button, the display will prompt you for the span gas concentration that will be used. Adjust the displayed concentration up or down as needed using the UP/YES and DOWN/NO buttons so that it matches the concentration in the calibration cylinder.

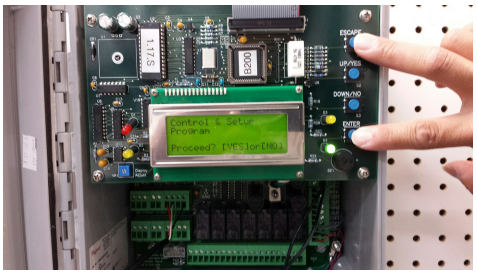
Beacon 200 Calibration

Calibrating a Direct Connect Detector

5. Press the ENTER button to accept the calibration gas concentration and continue. The unit will display the message Expose Detector(s) To Gas. . . when done press ENTER.
6. It will then alternate between the gas reading and the message APPLYING GAS… ENTER to ACCEPT or ESCAPE to ABORT.
7. When the calibration gas is applied, the Beacon 200 will freeze the display gas reading at the highest level reached while the gas was applied (lowest for an oxygen channel).
8. Press the ENTER button at the Beacon 200 to proceed with the calibration adjustment.

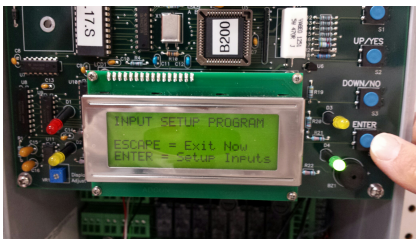
Control & Setup Mode

- Press and hold the ESCAPE and ENTER buttons to enter the Control & Setup Mode
- This mode is used to set up all channel parameters



Select Input Mode

- With the Beacon 200 off, press and hold the ENTER button, then while pressing the ENTER button, turn the Beacon 200 on.
- This allows selection of the proper input type such as:
  - O2 DIR
  - TOX DIR
  - LEL DIR
  - 4-20 mA transmitter



INSTRUMENTS
Gas Detection For Life

Quick Reference Guide
Beacon 200 Programming

TOOLS REQUIRED:

None.

CONTROL AND SETUP MODE

Press and hold the **ESCAPE** and **ENTER** buttons for approximately 5 seconds to enter the **CONTROL AND SETUP MENU**. The display will prompt you to Proceed? **YES / NO**, press the **YES** button to proceed. The selections are as follows:

- **ENABLE / DISABLE CHANNELS**
  - This allows you to set channels as enabled, disables or not used
- **CONFIGURE CHANNEL SETTINGS**
  - Allows you to configure alarm settings, noise filter setting, and zero suppression for each channel
- **VIEW SYSTEM INFORMATION**
  - Displays the firmware version number and the instrument operating voltage. No adjustment in this screen.

To **EXIT**, press the **ESCAPE** button then press the **DOWN/NO** button to return to normal operation

CALIBRATION PROGRAM

Press and hold the **UP/YES** and **ENTER** buttons for approximately 5 seconds to enter the **CALIBRATION MENU**. The display will prompt you as follows: **ESCAPE = EXIT NOW ENTER = CONTINUE**, press the **ENTER** button to continue.

- **SET CAL TIMEOUT**
  - Use the UP or DOWN buttons to set the calibration time out. The adjustment range is from 5 min. to 240 min., press the ENTER button to continue.
- **CALIBRATING A 4-20 mA DETECTOR HEAD**
  - **DO YOU WANT TO CALIBRATE CHANNEL 1 NOW?, Press YES to continue with calibrating Channel 1. Using the DOWN button will move you to Channel 2.**
    - Reminder. Calibration Must Be Done at the Detector Head
    - Set the amplifier to 100 mV in fresh air (zero emissions air)
    - Apply calibration gas to sensor, adjust span as required.
    - Press the ENTER button when completed.

- **CALIBRATING A DIRECT CONNECT DETECTOR**
  - **DO YOU WANT TO CALIBRATE CHANNEL 2 NOW? (Example as direct connect)** Press the UP/YES button to continue.
    - **Expose Detectors To Fresh Air… When Done Press ENTER** (display will alternate between gas reading and **FRESH AIR ENTER to ACCEPT ESCAPE** to **ABORT**, press **ENTER**
    - **FRESH AIR PASSED for: Channel 2**
    - When display asks to perform **SPAN** adjustment, press **YES.**
    - Set the displayed concentration up or down as necessary at to match the concentration in the cylinder. Press the **ENTER** button to continue.\
    - **Expose Detectors to Gas… When Done Press ENTER**
    - **APPLYING GAS ENTER to ACCEPT, ESCAPE to ABORT,** press **ENTER**
    - **Cal Passed for: Channel 2** will be displayed
    - Press **ESCAPE** to return to normal operation.

SETTING GAS TYPE AND UNITS OF MEASURE

- With the instrument **OFF**, press and hold the **ENTER** button, then turn the Beacon 200 on while still holding the ENTER button. This will allow you to change the gas type and units of measure for both channels.

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Training Notes

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