

# FOUR CHANNEL WALL MOUNT CONTROLLER

**INSTRUMENTS** 

### **Gas Detection For Life**

# Beacon<sup>™</sup> 410 Model



The Beacon 410 is a highly configurable, microprocessor-based, flexible and easy to use 4 channel gas monitor. It simultaneously displays the gas type, readings, and status for 4 channels of gas detection. It can monitor any combination of direct connect sensors (LEL combustibles, oxygen, CO2, and toxic gas sensors, as well as any 4-20mA transmitters.

Each channel has 3 fully configurable alarm points. A built-in silenceable audible alarm alerts vou to alarm conditions. Each channel also has 2 dedicated fully configurable relays and there is a bank of common relays as well. The common relays can optionally be configured as additional channel relays allowing up to 3 alarm relays per channel.

Each channel provides a 4-20mA output signal. A digital Modbus interface for remote logging of data via a Modbus network is standard. A Min-Max feature retains high & low peak readings for review at any time.

Field calibration is made simple by the easy to use Calibration Mode. A fully configurable high visibility strobe is available as an option. The unit can be powered from 115/220 VAC, an external 24 VDC source, or a 24 VDC backup battery. A trickle charging battery backup feature is also available as an option.

All features and functions of the Beacon 410 are controlled by easy to use menus on the backlit LCD display. The form-C (SPDT) relay contacts are rated at 10A, 250V, reducing or eliminating the need for additional slave relays. All features of the Beacon 410 are built into the unit so you never need to purchase or maintain any "add-on" cards or components.

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# Physical

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Dimensions	Height: 12.5" (318 mm) x Width: 11" (279 mm) x Depth: 6.4" (136 mm)		
Enclosure	NEMA 4X non-metallic for indoor and outdoor locations		
Conduit Connection	3/4" NPT conduit hubs, 4 provided, for sensor, power, & relay wiring		
Wiring Termination	Screw type terminal block, 14 gauge max		
Power	115 VAC & 220 VAC, or 24 VDC nominal, battery backup option available		
Controls	Display PCB Control Switches:• UP/YES push button switch• ESCAPE push button switch• External reset switch• External reset switch		
Environmental			
Operating Temperature	-4°F to 122°F (-20°C to 50°C)		
Storage Temperature	-4°F to 158°F (-20°C to 70°C)		
Enclosure Rating	NEMA-4X enclosure, chemical and weather resistant. Suitable for indoor and outdoor installations.		
Inputs			
Direct Wired Sensors	LEL, Oxygen, Carbon Dioxide, and toxic gas sensors. Remote amp not required for less 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. Wiring distances up to 8,000 feet		
Sampling Methods	Diffusion and sample draw heads available		
Outputs			
Relays	Two flexible, programmable Form-C (C, NO, NC) relays per channel, plus five common relays (Fail, Alarm-1, Alarm-2, Alarm-3, Alarm-Any). Common relays may optionally be assigned to function as additional channel alarm relays, providing for up to three alarm relays per channel. 10A contact rating.		
4-20 mA	Signal output, 4-20 mA (maximum load impedance 500 ohms), per channel		
RS-485	Modbus format RS-485 serial output of all channel data, including gas reading and alarm status.		
Display	4 x 20 backlit LCD display		
Audible	Built-in audible alarm, 94 dB, mounted on enclosure Coded output: pulsing = gas alarm, steady = fail		
Visual	<ol> <li>Alarm LED's (on Display PCB)         <ul> <li>Alarm 1, yellow</li> <li>Alarm 2, orange</li> <li>Alarm 3, red</li> <li>Fail, yellow</li> </ul> </li> <li>Green Pilot LED to indicate AC power connected (on Display PCB)</li> <li>An optional 24 VDC NEMA 4X strobe mounted to top of case.</li> </ol>		
Approvals	CSA Certified to CSA C22.2 No. 1010 and UL 61010-1		
Warranty	One year materials and workmanship		

Specifications subject to change without notice.



10000363 ISO 9001

### **Authorized Distributor:**

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Condition	Cause	Visual Indications	Audible Indications
Alarm 1	<ul> <li>Increasing (decreasing for O2) gas reading at or above the alarm 1 set point</li> </ul>	Alarm 1 LED on     Gas reading alternates with Alarm-1 message     Strobe (if installed) activates	•Pulsing Tone (410)
Alarm 2	<ul> <li>Increasing gas reading at or above the alarm 2 set point</li> </ul>	Alarm 2 LED is on     Gas readings alternates with ALARM 1     and ALARM-2 messages     Strobe (if installed) activates	•Pulsing Tone (410)
Fail	Disconnected or misconnected detector head wiring     Display reading at -10% of full scale or lower     Defective component	<ul> <li>Fail LED is on</li> <li>Fail message replaces gas reading</li> <li>Strobe (if installed) activates</li> </ul>	•Pulsing Tone (410)
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



























# Quick Reference Guide Beacon 410 Series Programming

#### TOOLS REQUIRED:

None.

#### **Configuration Menu**

- Press and HOLD the ESCAPE and ENTER buttons.
  - Select Channel 1-4.
    - Press the UP or DN button to select the channel that you want to configure, then press the ENTER button.
  - Channel (x) Active.
    - Press the UP or DN button to select Not Used or Stand By then Press the ENTER button.
  - Channel (x) Alarm-1 Level.
    - Press the UP or DN button to change, then press the ENTER button.
  - Channel (x) Alarm-1 INC/DEC.
    - Press the UP or DN button to select INC or DEC then press the ENTER button.
  - Channel (x) Alarm-1 Latching.
    - Press the UP or DN button to select Latching or Self Resetting then press ENTER.
  - Channel (x) Alarm-1 On Delay. 1 Seconds
    - Press the UP or DN button to select from 0 seconds to 60 Seconds then press the ENTER button.
  - Channel (x) Alarm-2 Level.
    - Press UP or DN button to select then press the ENTER button
  - Channel (x) Alarm-2 INC/DEC
    - Press the UP or DN button to select INC or DEC then press the ENTER button.
  - Channel (x) Alarm-2 LATCHING.
    - Press the UP or DN button to select Latching or Self Resetting then press the ENTER button.
  - Channel (x) Alarm-2 On Delay.
    - Press the UP or DN button to select from 0 to 60 seconds then press the ENTER button.
  - Channel (x) Alarm-3 Level.
    - Press the UP or DN button to set then press ENTER button.
  - Channel (x) Alarm-3 INC/DEC

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- Press the UP or DN button to select INC or DEC then press the ENTER button.
- Channel (x) Alarm Latching.
  - Press the UP or DN button to select Latching or Self Resetting then press the ENTER button.
- Channel (x) Alarm-3 On Delay.
  - Press the UP or DN button to set On Delay from 0 to 60 seconds.
     Press the ENTER button.
- Channel (x) Relay -1 Assignment, Alarm-1
  - Press UP or DN button to select Alarm-1, Alarm-2, Alarm-3, Alarms 1 or 2, Alarms 1 or 3, Alarms 2 or 3, Alarms 1, 2, or 3 or Use As Channel Fail, then press ENTER button.
- Channel (x) Relay-2 Assignment, Alarm-2
  - Press the UP or DN button to select Alarm-2, Alarm-3, Alarms 1 or 2, Alarms 1 or 3, Alarms 2 or 3, Alarms 1, 2 or 3, or Use As Channel Fail, then press ENTER button.
- Channel (x) Relay-A Assignment, Alarm-3
  - Press the UP or DN button to select Alarms 1 or 2, Alarms 1 or 3, Alarms 2 or 3, Alarms 1, 2 or 3 or Use As Channel Fail for Alarm-1, Alarm-2 or Alarm-3 then press ENTER button.
- Channel (x) Noise Filter, 2 Seconds.
  - Press the UP or DN button to select from 1 Second to 10 second then press Enter button.
- Channel (x) Deadband
  - Press the UP or DN button to select from 0 to ??? then press the ENTER button.
- Save Settings?
  - Y/N
  - Press the Y button
  - Settings Saved
  - Do you want more channels?
  - Press Y or N

#### Global Menu

- Press and hold the ESCAPE and UP/YES buttons to enter into the Global Menu
  - Continue Y/N, press the YES button
  - Strobe Installation
    - No Strobe Installed (displayed)
    - Press the UP or DN button to select No Strobe Installed or Strobe is Installed then press ENTER button.
  - Normal Relay States
    - Norm De-Energized (displayed)
    - Press the UP or DN button to select Norm Energized or Norm De-Energized, then press the ENTER button.

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- Relays ABCD Used As:
  - Channel Alarm Relays (displayed)
  - Press the UP or DN button to select Channel Alarm Relays or Common Alarm Relays, then press the ENTER button.
- o Buzzer Silence
  - Can Silence Buzzer (displayed)
  - Press UP or DN button to select Can't Silence Buzer or Can Silence Buzzer, then press the ENTER button.
- Save Settings?
  - Y/N
  - Press the YES button to save the settings

#### Mod Bus Menu

- Press the DN/NO and ENTER buttons simultaneously to enter ModBus Menu
- Continue Y/N?, press the YES button to continue.
  - ModBus Feature is Disabled (displayed)
    - Press the UP or DN button to select Inabled or Disabled, then press the ENTER button.
  - Slave ID: 1 (displayed)
    - Press the UP or DN button to select between 1 and 247 then press the ENTER button.
  - Baud Rate: 9600 (displayed)
    - Press the UP or DN button to select 14,400, 19,200, 4,800, 2,400 or 1,200, then press the ENTER button.
  - Parity: Even
    - Press the UP or DN button to select NONE, ODD or EVEN, then press the ENTER button.
  - Response Delay: 0 mS (displayed)
    - Press the UP or DN button to select from 0 to 20 mS then press the ENTER button.
  - Save Settings? Y/N
    - Press the YES button to save settings.
    - Settings Saved

#### **Calibration Mode**

- Press the hold the UP/YES and ENTER buttons to enter Calibration Mode
   Continue Y/N?
  - Press YES button to continue
  - Select Operation
    - Set Cal Time Out (displayed)

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#### Gas Detection For Life

- Press the UP or DN button to select Air Adjust, Perform Gas Adjust, View Max Spans, Exit Cal Menu.
- Press the ENTER buttin to enter the menue you require.
- Set Cal Time Out
  - Press ENTER button
  - Press the UP or DN button to select from 5 minutes to 240 minutes.
  - Press the ENTER button when completed.
  - Settings Saved will be displayed.
- Perform Air Adjust
  - Press ENTER button
  - Select the channel you want to Air Adjust
  - Press the UP button to select 2, 3, 4, 1 and 2, 1 and 3, 1 and 4, 2 and 3, 2 and 4, 3 and 4, 1, 2 and 3, 1, 2 and 4, 1, 3 and 4, 2, 3 and 4, 1, 2, 3 and 4.
  - Note: Air adjust will be used with Direct Connect sensors only.
  - Press the ENTER button
- Perform Gas Adjust
  - Press ENTER button
  - Press the UP or DN button to select the same channels as above.
  - Note: Gas Adjust to be used on Direct Connect sensors only.
  - Press the ENTER button
- View Max Spans



# **Training Notes**


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