

CR-4000

"The Independent"

BW Technologies
by Honeywell

Four Channel Gas Detection Controller



Loop Powered
Provides 24 VDC
power to the gas
sensing transmitter

Now
Class I, Division 2
Approved!

X n

Fixed Gas Monitoring Systems

FEATURES:

For continuous monitoring and control of toxic gases, combustible gases and oxygen hazards, the CR-4000 is designed for installation and operational simplicity.

- d Individual, continuous, alphanumeric "status" LCD for each channel
- d Slim profile: depth only 2.5 inches / 6.35 cm
- d Wall mount installation
- d Local 85 dB audible alarm
- d Field programmable alarm levels on each channel
- d Simple operation
- d Mix, match or change the gases monitored
- d Three standard common, 10 amp SPDT relays. Low, High and Fault general Alarms
- d Up to eight additional discrete relays optionally available - two per channel for LOW and HIGH alarms. Each channel is programmable for energized/de-energized, latching/non-latching and audible ON/OFF
- d Multi-functional external RESET. Can be used to reset or cancel all latched alarms; displays Peak (maximum) gas detected on each channel and tests all audible/visual alarms
- d Accepts 4-20 mA signal input from any 4-20 mA gas transmitter

Ordering Information

CR-4000 4-20 mA AC/DC Controller with common relays (fault, low and high alarm)

Accessories and Options

CR4-R1000 4-20 mA AC/DC Controller with common relays plus discrete relays, low and high, on Channel 1

CR4-R1200 4-20 mA AC/DC Controller with common relays plus discrete relays, low and high, on Channels 1 & 2

CR4-R1230 4-20 mA AC/DC Controller with common relays plus discrete relays, low and high, on Channels 1, 2 & 3

CR4-R1234 4-20 mA AC/DC Controller with common relays plus discrete relays, low and high, on Channels 1, 2, 3 & 4

Note: Discrete relays 10 amp SPDT discrete low and high alarm relays

CR4-BAT1 Battery Back-up (110/220 VAC or 24 VDC)

CR-ALH05 External Audible/Visual Alarm

Compatible with BW 4-20 mA Gas Transmitters

GasPoint
GasPoint IR
RRJ Series

ISO
ISO9001:2000
Registered

www.gasmonitors.com

e-mail: info@gasmonitors.com

CR-4000

Four Channel Gas

Detection Controller

Simply select the pre-programmed channel switch for:

- f Gas type
- f Sensor range
- f Alarm level

Standard Common Relays (included)
High alarm, Low alarm and Fault

Special Features

Records and Displays Peak (Max) gas detected by each channel on demand.

Auto Fuses protect all circuits.

Fuses reset automatically when the circuit power returns to normal. No fuse replacement required.

Accessories and Options

Relays (up to eight)

Two (2) factory installed 10 amp SPDT relays per channel. The Low Alarm/High Alarm independent discrete relays are user adjustable for power and assignment, including normally energized/de-energized, latching/non-latching and audible alarm activation.

Battery Backup

The two (2) 1.2 amp hr., 12 volt batteries can be installed at any time in the field.

Select from either of BW's 4-20 mA gas transmitters:

- GasPoint
- RRJ

Gas Detection Measuring Ranges

Combustibles: 0-100% LEL

O₂: 0-25% v/v

H₂S: 0-20, 0-50, 0-100, 0-500 ppm

CO: 0-50, 0-100, 0-200, 0-500, 0-1000 ppm

SO₂: 0-10, 0-20, 0-50, 0-100 ppm

NH₃: 0-50, 0-100 ppm

Cl₂: 0-5.0, 0-10.0, 0-100 ppm

HCN: 0-20.0, 0-50.0, 0-100 ppm

NO: 0-50, 0-100 ppm

NO₂: 0-10.0 ppm



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SPECIFICATIONS

POWER: Field selectable for AC (115 and 230 VAC) or DC (24 VDC)
AC Input: 110 VAC 50-60 Hz standard; 220 VAC 50-60 Hz
DC Input: 24 VDC (18 to 28 VDC)
Backup: Optional battery backup 24 VDC supply. Approx. 3 hours in normal operation

ENVIRONMENTAL

Operating Temperature: -4 to +122°F/-20 to +50°C
Relative Humidity: 5 to 99% non-condensing
Enclosure Rating: Nema 12

PHYSICAL

Dimension (dwxh): 2.4 x 13 x 9.5 inches/6 x 33 x 24 cm
Weight: 4.85 lb./2.2 kg
Enclosure: Enameled steel RFI/EMI protected
Wire Terminations: Screw type terminal blocks
Wiring Ports: Seven (7) each 3/4 inch/22 mm NPT ports
Mounting: Wall mounted—equipped with hanging slots and hinged door

ALARMS:

Two set points per channel (user programmable)
Audible: 85 dB buzzer

OUTPUTS:

SPDT relays; 10 amp @ 110 VAC/24 VDC, 8 amp @ 230 VAC
Standard: One (1) common low gas alarm, de-energized, non-latching
One (1) common high gas alarm, de-energized, latching
One (1) common fault alarm, normally energized, non-latching
Optional: Two (2) per channel; one (1) low gas and one (1) high gas alarm
Field selectable: energized/de-energized; latching/non-latching and audible alarm ON/OFF

DISPLAY PANEL

Backlit LCDs: Four (4) independent 3 digit alphanumeric status displays
Field selectable readouts for: %LEL, ppm and/or O₂ % v/v.

LED Indicators:

Alarms: Three (3) - "LOW" (red), "HIGH" (red), "FAULT" (amber)
Power: Two (2) "ON" AC icon (green), DC icon (green)
Gas: Concentration icons-ppm, %LEL, %O₂,

CONTROLS:

Two (2) large pushbuttons: Alarm Reset/Acknowledge, Peak Exposures,
Lamp Test (audible/visual alarm test)
Alarm setpoints: simple up/down buttons

WARRANTY:

Two (2) years non-prorated

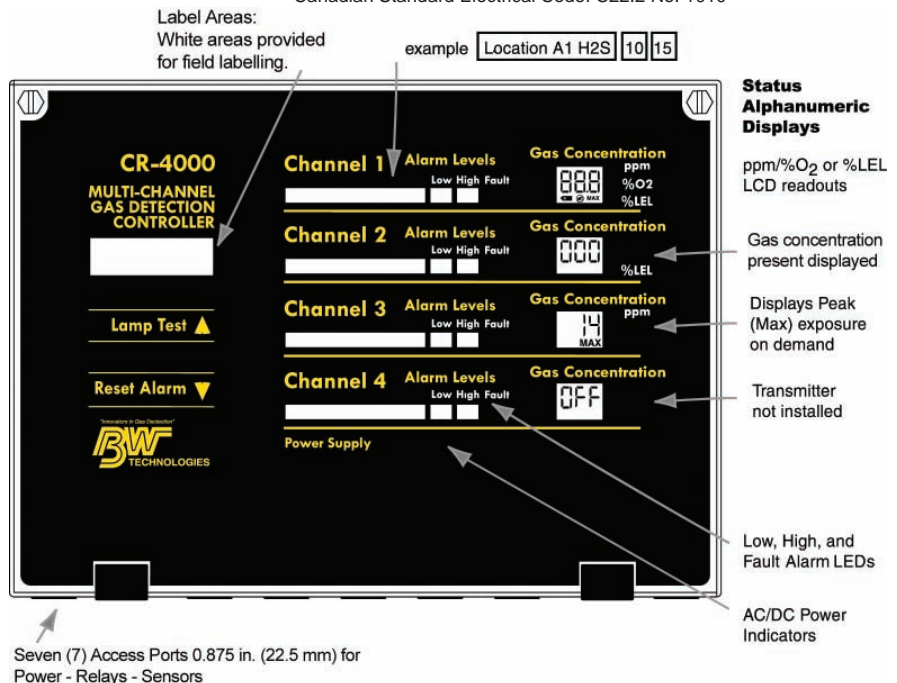
DUE TO ONGOING RESEARCH AND PRODUCT IMPROVEMENT, SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

RATINGS AND CERTIFICATIONS:

(INTRINSICALLY SAFE W/ BARRIER)

Ordinary location approved
Class I, Div 2, Groups A,B,C,D approved
model available
International Electrical Code: IEC No. 61010
U.S. Standard: ANSI/ISA S82.01
Canadian Standard Electrical Code: C22.2 No. 1010

CE - conforms to European
Union directives



Locally distributed by:



GasPoint

H₂S, CO, NH₃, HCN, NO₂, SO₂, O₂, Cl₂
Combustibles (Catalytic 0-100% LEL) or
Combustibles (IR 0-100% LEL)

BW
Technologies
by Honeywell

Gas Transmitter with Internal Alarm Relays



**One Transmitter
with interchangeable
electrochemical, infrared
and catalytic plug-in sensors**

FEATURES:

The GasPoint transmitter provides a 4-20 mA output signal that can be connected to any control system (DCS, PLC, etc.). With advanced sensor technology and microcontroller based operation, the GasPoint provides continuous monitoring of hazardous gases.

- △ The GasPoint transmitter can accept any GasPoint sensor type: electrochemical, catalytic or IR (infrared). All plug-in sensor assemblies are field-interchangeable.
- △ Full function sensor integrity test (auto) continuously advises gas sensing ability and life ended
- △ Non-intrusive, one-person calibration with auto zero and auto span
- △ Equipped with three 5-amp relay contacts—two gas alarm relays (low/high) and fault alarm. Field-selectable normally energized/de-energized and latching/non-latching alarm relay functions.
- △ Two backlit alphanumeric LCDs advise all environmental and gas hazard conditions as well as instrument and sensor status
- △ Remote toxic/oxygen sensors can be installed over 3,900 ft./ 1,100 m away; combustible sensors over 1,550 ft./475 m. Kit can be installed at any time.
- △ Alarm setpoints displayed on demand—simply press the external button
- △ Field programmable alarm levels
- △ Backlight (auto) in low light conditions and alarm
- △ Extensive fault diagnostics
- △ 2-way digital communication using MODBUS module

Fixed Gas Monitoring Systems

Ordering Information

GP-WD	Gas Transmitter with Combustible Catalytic Sensor
GP-IR-WD	Gas Transmitter with Combustible Infrared Sensor
GP-HD	Gas Transmitter with H ₂ S Sensor
GP-MD	Gas Transmitter with CO Sensor
GP-AD	Gas Transmitter with NH ₃ Sensor
GP-ZD	Gas Transmitter with HCN Sensor
GP-DD	Gas Transmitter with NO ₂ Sensor
GP-SD	Gas Transmitter with SO ₂ Sensor
GP-XD	Gas Transmitter with O ₂ Sensor
GP-CD	Gas Transmitter with Cl ₂ Sensor

Accessories and Spares

GP-POWER1	120-240 VAC Power Supply
GP-MBUS4	2-wire/4-wire MODBUS Communication Expansion Module
GP-SEP	Sensor Separation Kit
GP-1	Gas Transmitter
GP-SSPB	Stainless Steel Process Baffle
GP-SSCAL4	Stainless Steel GasPoint Splash Guard
GP-DUC-K1	Duct Mount Adaptor

Replacement Sensor Assemblies

SS-RH02.....H ₂ S	SS-RM02.....CO	SS-RA02.....NH ₃
SS-RZ02.....HCN	SS-RD02.....NO ₂	SS-RC02.....Cl ₂
SS-RS02.....SO ₂	SS-RX02.....O ₂	
SS-RW02.....Combustible Catalytic Sensor Assembly		
IR-RW03.....Combustible IR Sensor Assembly		

ISO
ISO9001:2000
Registered

www.gasmonitors.com

e-mail: info@gasmonitors.com

GasPoint

LEL, H₂S, CO, NH₃, HCN,
NO₂, SO₂, Cl₂ or O₂

4-20 mA Gas Transmitter

Display advises:

- f Gas type monitored
- f Continuous (%LEL, %v/v or ppm) readout of gas concentration
- f Alarm level and type encountered - LOW/HIGH or FAULT
- f When sensor has failed its automatic daily self-test
- f "Sensor Replacement" and "Sensor Expired" indications
- f When to apply gas during calibration

Special Features

Change gases monitored in the field at any time. The GasPoint Transmitter will recognize the sensor installed and test and reset itself to that sensor type.

No junction box connection required.

Daily sensor integrity test (auto) monitors sensor operation, length of time sensor has been in service and advises when sensor requires replacement.

GasPoint allows you to set or change calibration time and gas alarm setpoints in the field.

Select or modify the measuring range using a simple dipswitch.

The optional plug-in MODBUS expansion module provides an addressable communications interface (1-247).



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SPECIFICATIONS

MONITOR:	3-wire, 4-20 mA gas transmitter with advanced microcontroller-based circuitry
Power Input:	12 to 32 volts DC
Output Current:	Normal Operation: Isolated linear 4-20 mA output Calibration Mode: Steady 3 mA (auto reset to normal operation) Fault Mode: 2 mA signal (and less)
Power Consumption:	Toxic Versions: 40 mA at 24 VDC Combustible Version: 100 mA at 24 VDC Relays: 50 mA per relay at 24 VDC
SENSORS:	Plug-in, smart sensors
Detection Type:	Combustible gases: catalytic or IR; Toxic gases and Oxygen: electrochemical
Self-Test:	Automatic daily self-test of sensor integrity and sensor life
Relative Humidity:	5 to 95% RH non-condensing
Drift:	Zero: <5% per year; Span: <10% per year

Gas Monitoring Specifications	Detectable Accuracy	LCD Increment	Temperature Range	Units	Programmed Measuring Ranges
Combustibles - Catalytic	1%	1	-40 to +90°C / -40 to +194°F	%LEL	0-100*
Combustibles - Infrared	1%	1	-40 to +70°C / -40 to +150°F	%LEL	0-100*
H ₂ S	0.25 ppm	1	-40 to +50°C / -40 to +122°F	ppm	0-20, 0-50, 0-100*, 0-500
CO	1 ppm	1	-20 to +50°C / -4 to +122°F	ppm	0-50, 0-100, 0-500*, 0-1,000
NH ₃	1 ppm	1	-10 to +50°C / +14 to +122°F	ppm	0-50*, 0-100, 0-500, 0-1,000
HCN	0.1 ppm	0.1	-20 to +50°C / -4 to +122°F	ppm	0-20.0*, 0-50.0, 0-100
NO ₂	0.1 ppm	0.1	-20 to +50°C / -4 to +122°F	ppm	0-50.0*, 0-10.0, 0-20.0, 0-99.9
SO ₂	1 ppm	1	-20 to +50°C / -4 to +122°F	ppm	0-100*, 0-50, 0-20, 0-10
O ₂	0.1%	0.1	-20 to +50°C / -4 to +122°F	%v/v	0-30.0%*
Cl ₂ **	0.1 ppm	0.1	-20 to +50°C / -4 to +122°F	ppm	0-5.0*, 0-10.0, 0-100.0

*Factory default setting

**Note: Cl₂ not rated for Class I, Div. 1

CALIBRATION: Non-intrusive, via pushbutton
Auto zero and auto span

DISPLAYS: Two backlit liquid crystal displays

LCD 1 3-digit continuous readout of the gas present (ppm, % LEL or %v/v)

LCD 2 Alphanumeric diagnostic status display

Alarm Setpoints: Two setpoints: user-selectable

RELAY CONTACTS: Three SPDT relays; 5 amps at 250 VAC

LOW/HIGH: Field selectable for normally energized/de-energized and latching/non-latching

FAULT: Normally energized and non-latching

Relay contacts not considered. (For ranges with relays see manual.)

TRANSMISSION RANGES:

Conductor Size		Toxic / Oxygen Sensors		Combustible Sensors	
22 AWG	0.64 mm	6,712 ft.	2,045 m	3,356 ft.	1,022 m
20 AWG	0.75 mm	10,953 ft.	3,253 m	5,336 ft.	1,626 m
18 AWG	1.0 mm	16,953 ft.	5,167 m	8,476 ft.	2,583 m

CONTROLS: Calibration: Non-intrusive via external pushbutton

Alarm Setpoints: Simple up/down pushbuttons with LCD readout of setpoints

PHYSICAL: Size: 6.8 x 7 x 4.3 inches / 17 x 17.8 x 10.8 cm (approx.)

Weight: 4.85 lb. / 2.2 kg (approx.)

Transmitter: Nema 4, explosion-proof, anodized aluminum enclosure with mounting flanges

Sensor: Stainless steel enclosure

WARRANTY: Instrument: 2 years non-prorated; Sensor: 2 years full replacement warranty

DUE TO ONGOING RESEARCH AND PRODUCT IMPROVEMENT, SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

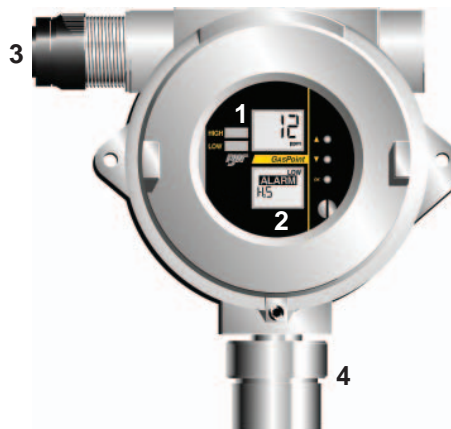
RATINGS AND CERTIFICATIONS:

∩ Class I, Div. 1, Groups B, C, D (LEL and IR models)

Class I, Div. 1, Groups B, C, D; Class II, Div. 1, Groups E, F, G (toxic models only)

Explosion-proof: ANSI/ISA: UL 1203; CSA: C22.2 No 30

Combustible Performance Standards: ANSI/ISA: ISA-S12.13; CSA: C22.2 No 152



- 1 Large, backlit LCD readout of gas concentration
- 2 Alphanumeric LCD showing transmitter STATUS and diagnostics
- 3 Non-intrusive calibration via simple pushbutton
- 4 Interchangeable sensor types: LEL (catalytic or IR), toxic gas or oxygen with common transmitter assembly
- 5 Three relays: two gas alarm relays, one fault relay

Locally distributed by:

RRJ Transmitters with Sensor

H₂S, CO, O₂, SO₂, NH₃ or Combustible Gases (LEL)

BW Technologies introduces the first zero-maintenance, 4-20 mA transmitters on the market. BW Technologies has applied cutting-edge science developed for the world's most advanced disposable gas detector—the GasAlertClip—to the RRJ Series of transmitters.

Daily Automatic Self-Test

The full function self-test is a unique safety advantage. The sensor integrity is tested as well as the circuitry integrity. The full function sensor integrity test not only advises if the sensor is present, but additionally tests the sensor's response and advises if the sensor is defective.

Operational Life

The operational life is two years in normal use. The life counter is activated when power is applied and runs continuously while the transmitter is operating. If power is interrupted, the counter stops and will resume counting when power is restored.

Life-Ended Warning and Alarm

One month prior to the end of the transmitter's operational life, the LED will begin a slow flash warning. When the 2 year operational life is over, the monitor will send a 2 mA signal to the controller advising that the monitor is now disabled and requires replacement.



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SPECIFICATIONS

Transmitter with Sensor: 4-20 mA gas transmitter with advanced microprocessor-based circuitry
 Supply Voltage: 10 VDC (min.) to 28 VDC (max.)
 Power Supply: H₂S: 50 mA; Combustibles: 100 mA;
 Power Consumption: H₂S version: 4mA @ 12 VDC; 35mA @ 24 VDC nominal
 (Normal Operation) Combustible version: 50mA @ 12 VDC; 35mA @ 24 VDC nominal
 EMI/RFI: Complies with EMC Directive 89/336/EEC

TRANSMISSION RANGE: 1,000 feet / 305 m with 22 AWG / 0.64 mm cable

SENSORS:

Gases Monitored	Sensor Type	Measuring Range	Temperature Range	Cable
Combustibles	Catalytic	0-100% LEL	-40 to +140°F; -40 to +60°C	3-wire
H ₂ S	Electrochemical	0-100 ppm 0-50 ppm 0-20 ppm	-40 to +122°F; -40 to +50°C	2-wire
O ₂	Electrochemical	0-25%v/v 0-30%v/v	-4 to +122°F; -20 to +50°C	2-wire
CO	Electrochemical	0-500 ppm	-4 to +95°F; -20 to +50°C	2-wire
NH ₃	Electrochemical	0-100 ppm	-4 to +104°F; -20 to +40°C	2-wire
SO ₂	Electrochemical	0-100 ppm 0-20 ppm 0-10 ppm	-4 to +122°F; -20 to +50°C	3-wire

Humidity: 5 to 90% non-condensing
 Calibration: Factory calibrated. Not required for operational life
 Enclosure: IP 65

FULL FUNCTION SELF-TEST: Daily (auto) and each time power is applied (auto)

Verifies:
VISUAL ALARM:
STATUS ADVISE:

Advise Signals	LED Indicator	Current Output*
Normal Operation	ON	4-20 mA
Over Range Alarm	ON	21 mA
Fault: Self-Test Fail	Fast flashes (1 per 0.5 seconds)	2 mA
Life Ending Warning	Slow flashes (1 per 2 seconds)	4-20 mA
Operational Life Ended	OFF	2 mA
Power OFF	OFF	0 mA

*Current Output: Signal to control system (DDC, PLC, etc.)

PHYSICAL: Rugged polyurethane encapsulated enclosure
 Size: 2.65 x 2.3 x 3.25 in. / 6.73 x 5.84 x 8.25 cm
 Weight: approx. 6.2 oz. / 175 g
 Connector: Plug-in, military-style, 6-pin connector
 Accepts field wiring kit, pigtail assembly or optional BW plug-in remote RRJ sensor cables

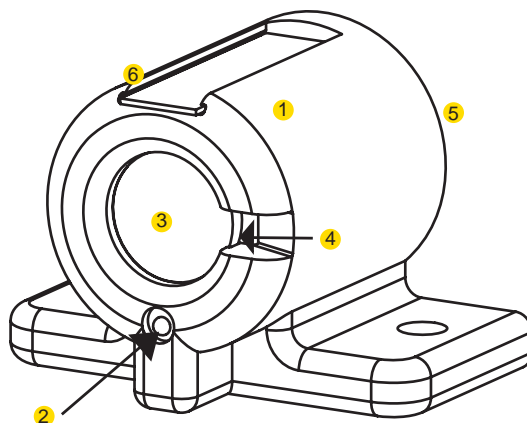
OPERATING LIFE: 2 years
 Warranty: 2 years including sensors

DUE TO ONGOING RESEARCH AND PRODUCT IMPROVEMENT, SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

RATINGS AND CERTIFICATIONS:

Approval	Toxics	LEL
\cap	Class I, Div. 1, Gr. A, B, C, D*	Class I, Div. 1, Gr. A, B, C, D
ATEX	⊗ g II 1 G EEx ia IIC T6	⊗ g II 2 G EEx ia d IIC T6
IECEx	Ex ia IIC T6	Ex ia d IIC T6

* intrinsically safe with barrier



- 1 Rugged, encapsulated enclosure with predrilled mounting flanges—only the sensor is exposed
- 2 LED alarm indicator
- 3 Sensor (behind sensor screen)
- 4 Washable, replaceable second sensor screen
- 5 Plug-in field wiring connector
- 6 Magnetic read switch for activating calibration mode

Locally distributed by:

