The Art of Gas Detection

Represented by:
C A Briggs Company
622 Mary Street; Suite 101
Warminster, PA 18974
Phone: 267-673-8117 - 800-352-6265
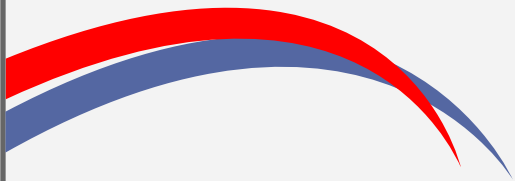**Fax: 267-673-8118**
Sales@cabriggs.com - www.cabriggs.com

Flammable and Toxic Gas Detectors

Smart Alarm Controllers

Fire & Gas System Engineering

Technical Service & Support

RC
SYSTEMS

R.C. Systems has manufactured electronic and gas detection products since 1979. As critical alarm monitoring experts, we specialize in interfacing various gas sensor and analyzer devices to alarm and display products. Our products are known for their reliability, performance, and ease of use for applications where maintenance and safety are crucial. Our wired and wireless products continue to provide solutions for customers worldwide.

Our Mission

With our commitment to R&D in all market conditions, we strive to develop state-of-the-art, feature rich safety products and integrate them into innovative system solutions to protect lives and property! We work to build and maintain integrity, trust and responsibility in relationships with our employees, customers and suppliers!

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Detectable Gases

Ammonia
Arsine
Benzene
Carbon Dioxide
Carbon Monoxide
Chlorine
Chlorine Dioxide
Ethylene Oxide
Fluorine
Hydrogen
Hydrogen Chloride
Hydrogen Cyanide
Hydrogen Fluoride
Hydrogen Sulfide
Methane
Nitric Oxide
Nitrogen Dioxide
Oxygen
Ozone
Pentane
Sulfur Dioxide
......and more

Application Fields

Leak Detection
Personnel Protection
Hazard Prevention
Near Process Measurement
Emission Monitoring
Fire and Flame Detection

Industries

Oil & Gas Industries
Petrochemical Industries
Heavy and Metal Industry
Producing and Processing Industries
General Industry
Mining and Tunneling
Shipping
Pharmaceutical Industry
Electronic Industry
Food & Beverage Industry
Utilities and Supplies
Power Generation & Supply
Gas Supply
Water Treatment
Disposal Enterprises
Facility & Maintenance Management
Science & Research
......and more

OVERVIEW

Gas and Flame Detectors

SenSmart 1000	2-wire EC sensor 4-20mA transmitter
SenSmart 2000	2-wire EC sensor with graphic display
SenSmart 3000	Universal 3-wire detector (dual sensor support)
SenSmart 6000	Universal 3-wire detector with embedded Ethernet (dual sensor support)
SenSmart 7000	Universal wireless detector (dual sensor support)
SenSmart 1300M/3300M/6300M	Infrared combustible gas detector
Quasar 900	Open path gas detector
SharpEye 40/40I	IR3 flame detector

Controllers

ST-90	Quad controller
ST-71	16-channel controller
ST-72	64-channel controller

Wireless System

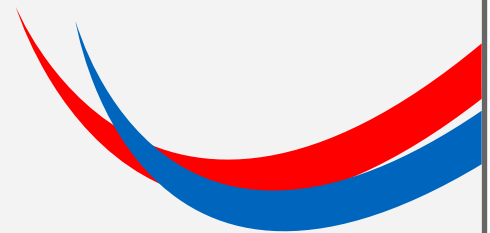|	
SenSmart 7000	Universal wireless detector (dual sensor support)
WLR	32-channel wireless receiver
WNR	Wireless relays and alarm status display / wireless repeater
ST-97R/ST-97M	Wireless repeater and wireless modem
SST	Site survey tool kit
ST-90W/ST-71W/ST-72W	Wireless control panels

Engineered Products and Solutions

Rig Protector	Transportable perimeter monitoring
Alarm Bars/Stations	
Sampling Systems	
Customized Systems	

SenSmart 1000

2-wire EC sensor 4-20mA transmitter

2-wire 4-20mA sensor transmitter. Accepts low power Toxic or Oxygen Electrochemical sensor modules and functions in a 2-wire 4-20mA "sink" mode to transmit gas values to an appropriate receiver device

Features:

- Field replaceable toxic/oxygen sensor module

- Range and target gas configured on sensor module

- System noise immunity

- Industry standard 4-20mA signal on 2-wires

- Class 1, division 1 and 2 hazardous areas

SenSmart 2000

2-wire EC sensor 4-20mA transmitter

2-Wire 4-20mA loop powered gas detector monitors oxygen and toxic gases by offering a wide variety of Electrochemical gas sensors

Features:

- Certified for explosion proof and intrinsically safe installations

- Graphic display shows values, units, trend graph, alarm levels

- Non-polarized loop powered interface eliminates wiring errors

- Three flashing alarm LEDs with programmable alarm levels

- Real time clock tags alarm and calibration events

- Non-intrusive one-man calibration

- Power-up and post-calibration delays eliminate false alarms

- Security settings to lock critical parameters

- Temperature compensation

- Sensor life indication

SenSmart 3000

3-wire universal transmitter for EC, IR, Catalytic bead, PID sensor

Built with reliable ST-48 smart transmitter, which provides cutting-edge technology in toxic and combustible gas detection. It's a universal, easy to use detector that supports dual smart sensor with different types, including Electrochemical, Catalytic Bead, Infrared and Photoionization sensors

Features:

- CSA C22.2 NO. 152 for combustible detection

- Graphic LCD display shows values, units, trend graph, alarm levels, sensor life indication

- Backlit display for better visibility in low light conditions

- LED indication of alarm status

- Dual smart sensor capable

- Local and remote sensors

- Non-intrusive one-man calibration

- 4-20mA and Modbus

- Heated enclosure and sensor elements available

SenSmart 6000

Universal transmitter with Ethernet

Built with the proven ST-44 transmitter. This versatile unit has a bright, vivid color display and embedded Ethernet with web server and Modbus TCP. The high performance, universal gas detector supports dual smart sensors with different type including Electrochemical, Catalytic Bead, Infrared and Photoionization sensors

Features:

- CSA certified for class 1, division 1 locations

- Vivid QVGA backlit color TFT display

- Standard Ethernet port with web server and Modbus TCP

- Dual smart sensor capable

- Sensor life indication

- Remote sensor mount up to 4000'

- Non-intrusive one-man calibration

- Temperature compensation

- Two RS-485 ports for Modbus

- Heated sensor elements available for low temperature

SenSmart 1300M/3300M/6300M

Intelligent infrared 4-20mA combustible gas detector

The microprocessor based intelligent **SenSmart 1300M** infrared gas detector is ideally suited for use in harsh environments and where conventional catalytic detectors are prohibitive. These infrared gas detectors perform reliably in the presence of silicone and other catalyst poisoning agents, and operate in oxygen free environments or where high background gas levels are present

Features:

- CSA C22.2 NO. 152 for combustible detection

- Virtually maintenance free infrared sensing technology

- Low cost of ownership with over five years operation life

- Rugged stainless steel construction with fast response time

- Requires no routine calibration

- Patented self-compensating optics

- No moving parts

- Heated optical chamber prevents condensation

- A multi-layered filtering system protects optics from dirt and water ingress

- Straight optical path eliminates need for reflective surfaces

The **SenSmart 1300M** can directly connect to **SenSmart 3000**, **SenSmart 6000** and **SenSmart 7000** transmitters to have local display and other advanced functions from those transmitters

SenSmart 6300M

SenSmart 7300M

SenSmart 3300M

GAS & FLAME DETECTORS

QUASAR 900

Open path IR detector for hydrocarbon gases

The SafEye Quasar 900 series is the very latest open path IR technology and detects a wide range of hydrocarbon gases – including alkanes (methane to hexane) and ethylene. Path lengths can be up to 660ft (200m). Reliability and performance is assured with SIL2 approval and 3rd party FM performance/function testing to FM and EN standards

Features:

- Wider area coverage

- Most likely method to pick up any leak

- Very high speed of response

- No unrevealed failure modes

- Beam block warning

- Detector location is less critical

- Size of gas hazard indicated

SHARPEYE 40/40I

Triple IR (IR3) flame detector

The new 40/40I can detect a 1 ft^2 (0.1m^2) gasoline pan fire at 215 ft (65m) in less than 5 seconds. The 40/40I is the most durable and weather resistant flame detector currently on the market. Its new features include a heated window, to eliminate condensation and icing; HART capabilities for digital communications; lower power requirements; and a compact, lighter design. Due to increased reliability, the 40/40I Series warranty period has been extended to 5 years and is SIL2 (TUV) approved to IEC 61508

Features:

- Multi spectrum design - for long distance detection and high false alarm immunity

- Sensitivity selection - to ensure no zone crossover detection

- Automatic and manual Built-In-Test (BIT) - to assure continued reliable operation

- Heated window - for operation in harsh weather conditions (snow, ice, condensation)

- Multiple output options: relays (3) for alarm, fault and auxiliary, 4-20mA (stepped), HART, RS-485, Modbus compatible

- FM/FMC/CSA class I division 1, groups B, C & D

ALARM CONTROLLERS

ST-90 DUAL

Two channel controller with serial interface

The ST-90 Dual channel controller provides simultaneous display and alarm functions for two 4-20mA or bridge sensors. Easy to configure and user friendly, the ST-90 Dual functions as a critical alarm controller for gas detection system

Features:

- Certified to CSA C22.2 NO. 152 for combustible detection

- Class I, division 2, groups A,B,C,D, CE mark

- Two SPDT common alarm relays configurable for HIGH and WARN or FAULT. Six optional discrete channel alarm relays available

- Graphic LCD displays and alarm LEDs

- Modbus slave RS-485 port

- Available with non–metallic, epoxy coated steel, 316 SS, NEMA 4X (division 2 certified) and NEMA 7 explosion-proof

ST-90 QUAD

Four channel controller with serial interface

The ST-90 Quad channel controller provides simultaneous display and alarm functions for four 4-20mA or bridge sensors. Easy to configure and user friendly, the ST-90 Quad function as a critical alarm controller for gas detection system

Features:

- CSA C22.2 NO. 152 for combustible detection

- Class I, division 2, groups A,B,C,D, CE mark

- Graphic LCD displays and alarm LEDs

- Two programmable SPDT alarm relays configurable for HORN, HIGH, WARN or FAULT alarm conditions

- Modbus master/slave RS-485 serial port

- Wireless available

- Six additional 5 amp SPDT discrete programmable relays available

- 4-20mA outputs, event log, strobe lights and audible annunciators also available

ALARM CONTROLLERS

ST-71

16 channel alarm controller with Modbus master/slave ports

The ST-71 16 channel Modbus master/slave controller provides display and alarm functions for up to 16 monitored variables. Easy to configure and user friendly, the ST-71 function as a critical alarm controller for gas detection system

Features:

- Certified to CSA C22.2 NO. 152 for combustible detection

- Class I, division 2, groups A,B,C,D, CE mark

- SPDT common alarm relays for HORN, HIGH, WARN and FAULT. Optional alarm relays available

- Graphic LCD displays and alarm LEDs

- Modbus master and slave RS-485 ports

- Available with non– metallic, 316 SS, NEMA 4X (division 2 certified) and NEMA 7 explosion-proof , rack/panel mount

ST-72

64 channel controller with Ethernet web server

The ST-72 controller provides simultaneous display and alarm functions for up to 64 input variables.16-32-48-64 channel display modes, and I/O modules arranged in groups of 16 channels, allow economical configuration of systems. This easy-to-configure, user friendly controller is ideal for centralizing display and alarm functions in critical multipoint monitoring applications

Features:

- Certified to CSA C22.2 NO. 152 for combustible detection

- Class I, division 2, groups A,B,C,D, CE mark

- 16-32-48-64 channel display modes

- Ethernet with web server Modbus TCP master/slave

- Two standard Modbus RS485 ports and two optional

- QVGA color LCD displays

- Five standard SPDT 5-amp alarm relays for HORN and FAULT, plus three programmable alarm relays

- Data logger onto SD card

- Available with NEMA 4X , non-metallic, 316 SS, NEMA 7 and rack/panel mount

SenSmart 7000

3-wire universal transmitter for EC, low power IR

The battery-powered **SenSmart 7000** wireless gas detector, with ultra-low power design and easy to use features, provides the most advanced, economical and reliable true wireless toxic and combustible gas detection solution. Compatible with all R.C. System's toxic sensors and also supports the new low-power infrared sensor for hydrocarbon combustibles or carbon dioxide

Features:

- CSA certified for class 1, division 2 hazardous locations

- D-cell lithium battery powered for up to 9 months toxic/oxygen and 6 months LEL operation

- Available for both 900Mhz and 2.4Ghz

- Frequency-hopping spread spectrum (FHSS) technology

- Typical > 1 mile range with local dipole antenna (900Mhz)

- Detected gas data transmits on six second intervals

WLR

32 channel wireless Wavelink receiver

A WLR receives up to 32 **SenSmart 7000** wireless gas detectors. An option module adds data logging, second wired and wireless Modbus port, plus a Wi-Fi or Ethernet port with web-server. The Wi-Fi and Ethernet features allow remote HMI functionality via any web enabled device

Features:

- Displays readings and alarms from 1 to 32 **SenSmart 7000**

- Includes 8 programmable 5-amp relays

- Graphic LCD displays

- Event Log (power-up, alarms, calibration and com errors etc)

- 10-30 VDC or 100-240 VAC standard power, solar power optional

- Offers both 900 MHz and 2.4 GHz FHSS models

- Touch and magnetic keypads are standard for non-intrusive operation

- Password protected with security levels

WNR

Wireless WaveNet relayer

A WNR receives alarm status from up to 32 **SenSmart 7000** wireless transmitters, to activate 5 programmable relays . It can also repeat the wireless signal from wireless gas detector to wireless control panel

Features:

- Display alarm status

- 5 programmable 5A SPDT relays (one for horn)

- Backlit graphic LCD and LED displays

- Wireless packet re-transmit

- 10-30 VDC power supply

ST-97R/ST-97M

Wireless network gateway/wireless data modem

ST-97R is a bridge to link two sub-wireless networks and commonly used to increase the distance and overcome obstacles/obstructions in wireless applications. ST-97M is a RS485 to wireless bi-directional converter

Features:

- Supports both 900MHz and 2.4GHz FHSS client/server wireless networks

- 10-30VDC power input

- Wireless network parameters configured via non-intrusive magnetic operator interface

- Configurable as the wireless network's client or server

- Standard models suitable for division 2 hazardous areas

WIRELESS SYSTEM

SST

Wireless Site Survey Tool

The hand-held WaveNet Site Survey Tool (SST) is designed for simulating R.C. Systems WaveNet products including **SenSmart 7000** wireless gas detector, WaveLink receivers (WLRs) and WaveNet relayers (WNRs). SSTs are supplied with either a 900MHz or 2.4GHz integrated radio module

Features:

- Backlit graphic LCD readout

- Scans airwaves for wireless networks

- RSSI values are trended over time and indicated in dBm for each reception

- Rx Client mode allows network observation without affecting installed wireless devices

- Rx/Tx counters allow calculation of missed data packets over time

- Rx mode timer indicates elapsed time between received messages for each channel

ST-90W/ST-71W/ST-72W

4 /16/32 channel wireless controller

By adding certain wireless modules, ST-90 Quad, ST-71 and ST-72 controllers can work as wireless receivers for **SenSmart 7000** transmitters, and for wired detectors simultaneously

Features:

- Keep all the features of the controllers

- Seamlessly combine the wireless network and wired solutions

- Class1 division 2 hazardous areas

Rig Protector

Transportable multipoint critical perimeter gas monitoring

The Rig Protector package is a wireless monitoring system that warns of hazardous gas levels. The compact, easy-to-install package critically monitors up to four points. It is ideally suited for detecting gases to include hydrogen sulfide, carbon monoxide, sulfur dioxide, ammonia and certain combustibles. Flexible mounting and power supply options make it suitable for monitoring perimeters, mobile work sites including HAZMAT facilities, rigs, disaster responses, and many more. The ST-90 Quad site controller activates relays for strobes, horns, fans, shut down and other alarm events

Features:

- Class1 division 2 hazardous areas

- Typical > 1 mile range with local dipole antenna (900Mhz)

- LCD readout with backlight. Displays bar graphs and engineering units

- Power input accepts 100-240VAC or 10-30VDC from battery and solar sources

Alarm Bars/Stations

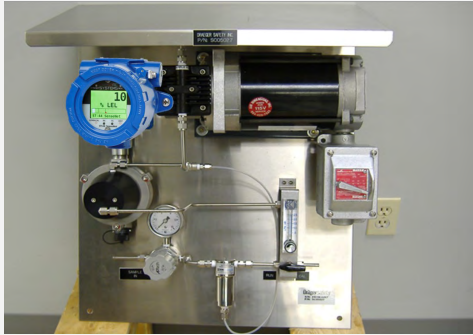Various cost-effective alarm bars and alarm stations are available for general purpose and hazardous locations

Four Light 10-30VDC Alarm Bar

Two Light 10-30VDC Alarm Bar

ENGINEERED PRODUCTS & SOLUTIONS
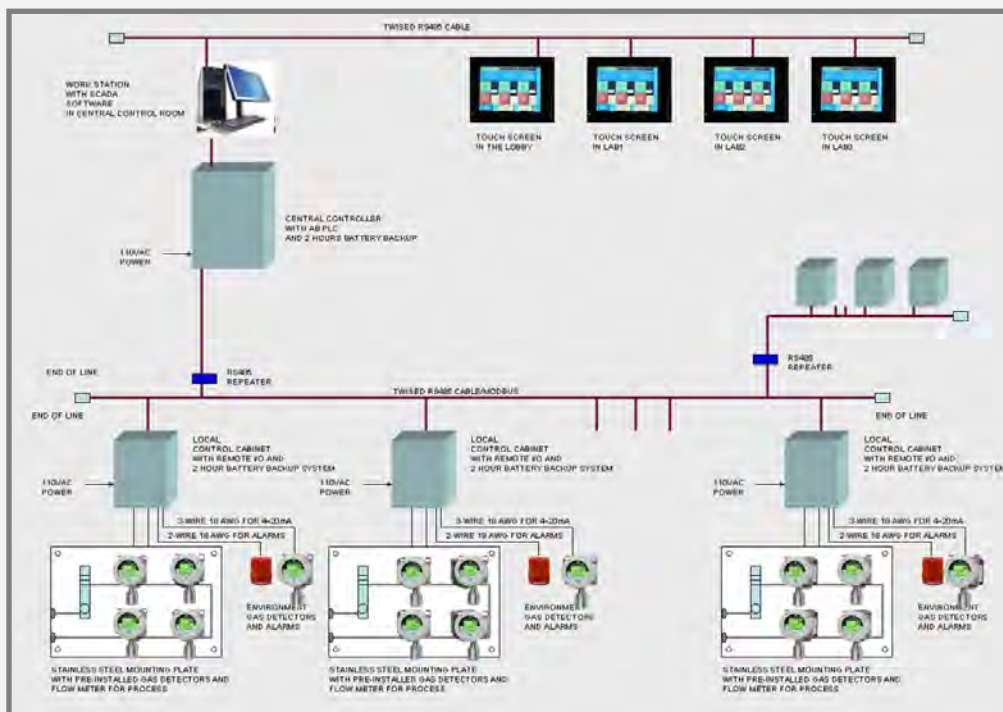
Sampling Systems

The field tested and proven sampling system provides accurate and continuous measurement of target gas concentrations in harsh industrial environments, such as natural gas treating plants, gas production wells and at custody transfer points along gas transmission pipelines. It can be customized for different industrial applications.

Custom System Solutions

R.C. Systems has a professional engineering team that can provide solutions for fire & gas detection system engineering, from system design with detailed wiring diagram to site startup and commissioning service. We offer not only the standard R.C. Systems' detectors and controllers, but also any other systems required by the customer, such as PLC, HMI, or SCADA system.

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