



BRASCH
ENVIRONMENTAL TECHNOLOGIES

Submittal Form

GSE Generation 2

Standalone Gas Detector and Remote Sensors



Comprehensive Monitoring

- Detects CO and/or NO₂

Greater Coverage

- Monitors up to 4 Sensors and 36,000 sq. ft.

More Control

- User-Adjustable Setpoints, Delays, Outputs, and Relays
- Built-in Manual Fan Activation

Enhanced Durability

- Rainproof Water Resistance
- Simple Service and Maintenance

Simplified Installation

- Preconfigured Wiring
- Factory Calibration
- Customized Programming

Effortless Upgrade

- Works with New and Existing Building Controls Systems
 - Fully Backwards Compatible with GSE Generation 1
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Technical Specifications

GSE Generation 2 Standalone

Input Power (selected at time of order)	120 VAC, 50/60 Hz, 0.2 A 24 VAC, 50/60 Hz, 1.0 A
Installation Category	II (local level, over-voltage transients less than 500V)
Storage Temperature	-50°C to 120°C (-58°F to 248°F)
Operating Temperature	-20°C to 50°C (-4°F to 122°F)
Humidity	10% to 90% (non-condensing)
Ventilation Control Relays	125 VAC, 50/60 Hz, 5 A resistive, 250 VA inductive
Internal Alarm	106 dB @ 10 cm, 3.8 kHz piezoelectric element
Front Panel Indicators	Power (green LED) Alert 1 (red LED) Alert 2 (red LED) Alarm (red LED) Sensor 1 (yellow LED) Sensor 2 (yellow LED) Sensor 3 (yellow LED) Sensor 4 (yellow LED) Zone 1 (yellow LED) Zone 2 (yellow LED)
Display	4-digit numeric
Selectable Fan Settings	2-speed motor fans 2 individual fans
Alert Levels	8 field selectable choices
Delay Times	0 to 7 minutes, both entrance and exit
Dimensions	8.15" W x 9.93" H x 2.70" D (21 cm W x 25 cm H x 7 cm D)
Weight	5.5 lbs (2.49 kg)
Housing	Gray, NEMA 3R, polycarbonate plastic
Compliance	ANSI/ISA 92.00.01-2010 (R2015) EN 50270 FCC Part 15 Subpart B RoHS

Technical Specifications

GSE2-XX-Remote

Input Power	24 VAC, 50/60 Hz, 0.2 A
Installation Category	II (local level, over-voltage transients less than 500V)
Storage Temperature	-50°C to 120°C (-58°F to 248°F)
Operating Temperature	-20°C to 50°C (-4°F to 122°F)
Humidity	10% to 90% (non-condensing)
Ventilation Control Relays	None
Internal Alarm	None
Front Panel Indicators	Power (green LED) Fault (yellow LED)
Display	None
Selectable Fan Settings	None
Alert Levels	None
Delay Times	None
Dimensions	4.8" W x 4.72" H x 2.16" D (12.2 cm W x 12 cm H x 5.5 cm D)
Weight	1 lbs (0.5 kg)
Housing	Gray, NEMA 3R, polycarbonate plastic
Compliance	ANSI/ISA 92.00.01-2010 (R2015) EN 50270 FCC Part 15 Subpart B RoHS

Target Gas Specifications

Carbon Monoxide

Full Scale Span:	200 PPM
Resolution:	1 PPM
Minimum Accuracy*:	± 10% or 6 PPM
Low Alert Settings:	Switch Position 0 1 2 3 4 5 6 7 PPM CO 20 25 30 35 40 45 50 55
High Alert Settings	100 PPM
Expected Lifespan	10 years
Recommended Recalibration Time	2 years

Nitrogen Dioxide

Full Scale Span:	10 PPM
Resolution:	0.1 PPM
Minimum Accuracy*:	± 15% or 0.8 PPM
Low Alert Settings:	Switch Position 0 1 2 3 4 5 6 7 PPM NO ₂ 0.3 0.5 1.0 1.5 2.0 2.5 3.0 4.0
High Alert Settings	5.0 PPM
Expected Lifespan	10 years
Recommended Recalibration Time	2 years

*Allowable tolerance for accuracy and repeatability criteria as defined in Annex A, Item 2 of ANSI/ISA 92.00.01-2010 (R2015)

Mounting Location

The ability of the detector to sense the target gas and efficiently control the ventilation system depends greatly upon proper selection of the mounting location. This detector monitors the area around it by sampling the air that passes by the sensor. Since the sensor is mounted inside a housing, air must diffuse through the intake vents and pass by the sensor on its way out the exhaust vents. Therefore, the detector should be positioned where it can sample air that contains a target gas concentration representative of the average value in that area.

When determining the mounting location, give special consideration to the following guidelines.

- Use one sensor per target gas for each area to be covered.
- Always prioritize locations with the highest occupation density.
- If using remote transmitters, do not locate any further than 1000 feet from the control unit.
- The types of gases each unit is designed to monitor have densities approximately equal to that of air. For maximum safety, mount the unit at the average breathing height – approximately 5 to 7 feet from the floor.
- Avoid mounting locations that would not be representative of the average gas value in that area. These include but are not limited to locations near doorways, fans, ventilation inlets and outlets, and areas with air velocities in excess of 3.3 ft/s (1 m/s).
- Avoid locations that would allow direct contact with water. Mounting the unit near outside garage doors may allow rain to hit the unit when the door is open.
- Avoid locations that are directly in the outlet air vents of heaters or air conditioners.
- Avoid mounting locations with normal ambient temperatures below -4°F (-20°C) or above 122°F (50°C).
- Do not allow exhaust from engines to flow directly on the unit. Each unit is designed to sense gas concentrations that are 300 to 1000 times less concentrated than the gas levels found in engine exhaust. Also, engine exhaust contains high levels of other components. These components can shorten the useful life of the sensor if they contact the sensor before being diluted by the room air volume.
- Avoid mounting locations where the unit may be hit by passing vehicles. If the unit must be mounted in these locations, provide a shielding cage around the unit for protection.
- Do not restrict the air flow to the unit housing.
- Do not mount the unit in a corner.
- Do not mount the unit near containers of chemicals such as gasoline, kerosene, alcohol, or other cleaning fluids. High level concentrations of these chemicals may be mistaken as the target gas by the sensor and cause false readings. Also, some welding gases may cause false readings.

Typical Wiring Diagrams for Ventilation Systems

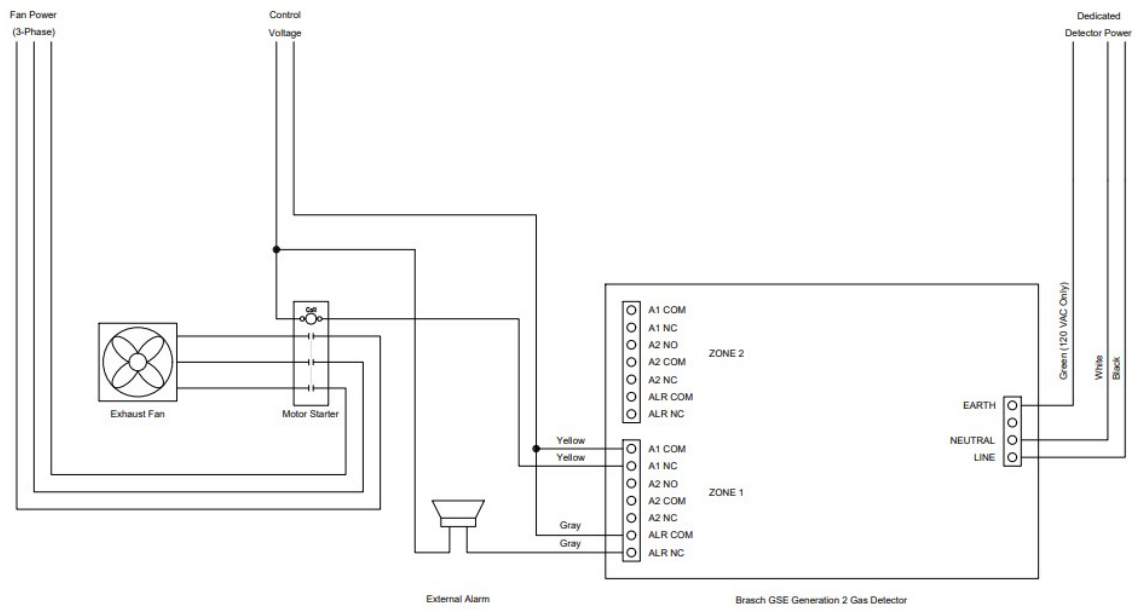


Figure 1: Wiring - Single Fan Ventilation System with One Zone

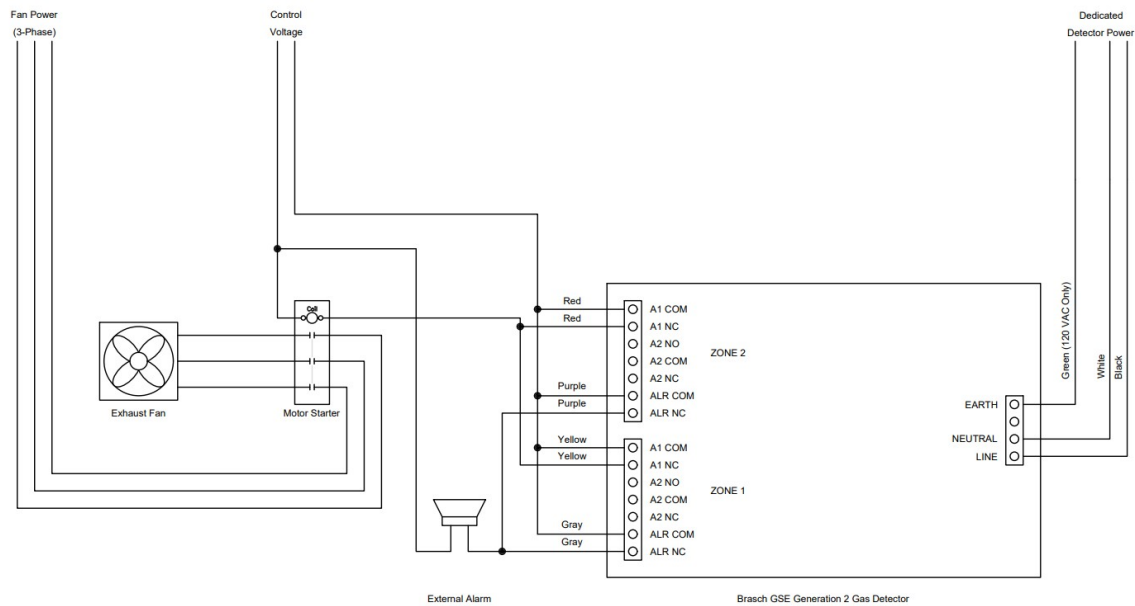


Figure 2: Wiring - Single Fan Ventilation System with Two Zones

Typical Wiring Diagrams for Ventilation Systems

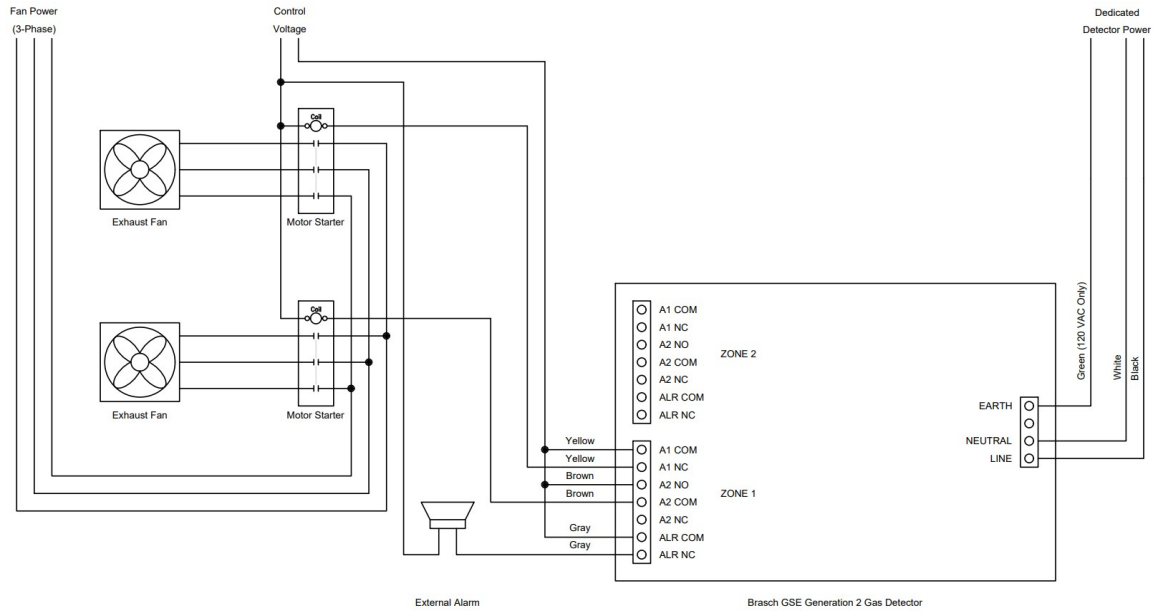


Figure 3: Wiring - Two Fan Ventilation System with One Zone

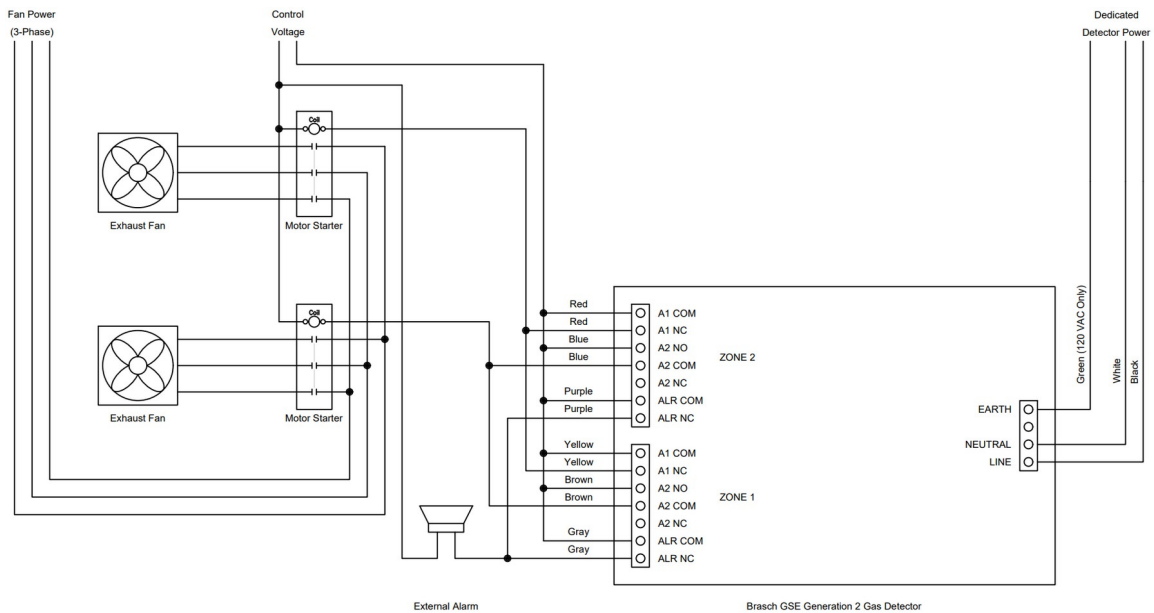


Figure 4: Wiring - Two Fan Ventilation System with Two Zones

Typical Wiring Diagram for Remote Sensors

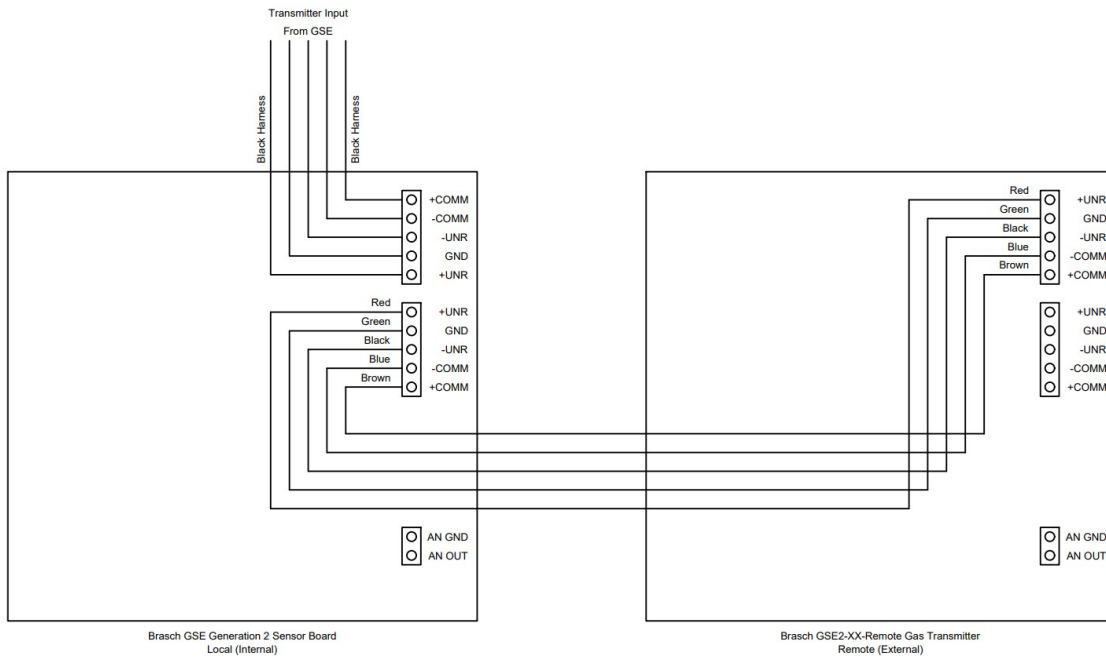


Figure 5: Wiring – GSE Generation 2 Standalone to GSE2-XX-Remote