



**BRASCH**  
ENVIRONMENTAL TECHNOLOGIES

# Submittal Form

## GSE Generation 2

### Standalone Gas Detector and Remote Transmitters



#### Comprehensive Monitoring

- Detects CO, NO<sub>2</sub>, CH<sub>4</sub>, C<sub>3</sub>H<sub>8</sub>, H<sub>2</sub>, and O<sub>2</sub>

#### 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

## 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	15% 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	8.72" W x 10.50" H x 2.90" D (22 cm W x 27 cm H x 7 cm D)
Weight	4.5 lbs (2.04 kg)
Housing	Gray, NEMA 3R, polycarbonate plastic
Compliance	ANSI/ISA 92.00.01-2010 (R2015) [CO/NO <sub>2</sub> Only] EN 50270 FCC Part 15 Subpart B RoHS

## Technical Specifications

### GEN2-XX-Remote

Input Power	24 VAC, 50/60 Hz, 0.2 to 0.35 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	15% to 90% (non-condensing)
Ventilation Control Relays	None
Internal Alarm	None
Analog Outputs	4-20 mA, 0.2-1 VDC, 1-5 VDC, or 2-10 VDC with zero offset enable/disable
Digital Output	Modbus RTU
Front Panel Indicators	Power (green LED) Fault (yellow LED)
Dimensions	4.98" W x 4.98" H x 2.18" D (12.6 cm W x 12.6 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) [CO/NO <sub>2</sub> Only] EN 50270 FCC Part 15 Subpart B RoHS

### Model Designation

XX=	CM	ND	NCM	ME	PR	HY	OX
Formula	CO	NO <sub>2</sub>	CO + NO <sub>2</sub>	CH <sub>4</sub>	C <sub>3</sub> H <sub>8</sub>	H <sub>2</sub>	O <sub>2</sub>
Name	Carbon Monoxide	Nitrogen Dioxide	Carbon Monoxide & Nitrogen Dioxide	Methane	Propane	Hydrogen	Oxygen

## Target Gas Specifications

Performance	CO	NO <sub>2</sub>	CH <sub>4</sub>	C <sub>3</sub> H <sub>8</sub>	H <sub>2</sub>	O <sub>2</sub>
Range	0-200 PPM	0-10.0 PPM	0-100% LEL	0-100% LEL	0-100% LEL	0-25% V/V
Resolution	1 PPM	0.1 PPM	1% LEL	1% LEL	1% LEL	0.1% V/V
Calibration Point	100 PPM	5.0 PPM	50% LEL	50% LEL	50% LEL	20.9% V/V
Max Overload	2,000 PPM	200 PPM	N/A	N/A	N/A	30% V/V
T90 Response Time	< 30 seconds	< 50 seconds	< 20 seconds	< 20 seconds	< 20 seconds	< 10 seconds
Coverage Radius	50 ft.	50 ft.	40 ft.	40 ft.	40 ft.	30 ft.
Coverage Area	7,500 sq. ft.	7,500 sq. ft.	5,000 sq. ft.	5,000 sq. ft.	5,000 sq. ft.	3,000 sq. ft.
Technology	Electrochemical	Electrochemical	Catalytic Bead	Catalytic Bead	Catalytic Bead	Electrochemical
<b>Lifespan</b>						
Long Term Output Drift	< 5% per year	< 2% per month	< 5% per month	< 5% per month	< 5% per month	< 1% per year
Expected Sensor Life	> 7 Years	> 5 Years	2 Years	2 Years	2 Years	> 5 Years
Average Calibration Duration	2 Years	1 Year	N/A	N/A	N/A	2 Years
<b>Setpoints</b>						
Low Alert (Switch Position 0-7)	20, 25, 30, <b>35</b> , 40, 45, 50, 55 PPM	0.3, 0.5, 1.0, <b>1.5</b> , 2.0, 2.5, 3.0, 4.0 PPM	2.5, 5, 7.5, <b>10</b> , 20, 25, 30, 40% LEL	2.5, 5, 7.5, <b>10</b> , 20, 25, 30, 40% LEL	2.5, 5, 7.5, <b>10</b> , 20, 25, 30, 40% LEL	20, 19.5, 19, <b>18.5</b> , 18, 17.5, 17, 16.5% V/V
High Alert	100 PPM	5.0 PPM	50% LEL	50% LEL	50% LEL	16% V/V

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## 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 4000 feet from the control unit.
- The types of gases each unit is designed to monitor have varying densities. For CO, NO<sub>2</sub>, and O<sub>2</sub>, mount the unit at the average breathing height – approximately 5 to 7 feet from the floor. For CH<sub>4</sub> and H<sub>2</sub>, mount the unit at or near the ceiling. For C<sub>3</sub>H<sub>8</sub>, mount the unit 12 to 18 inches above 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

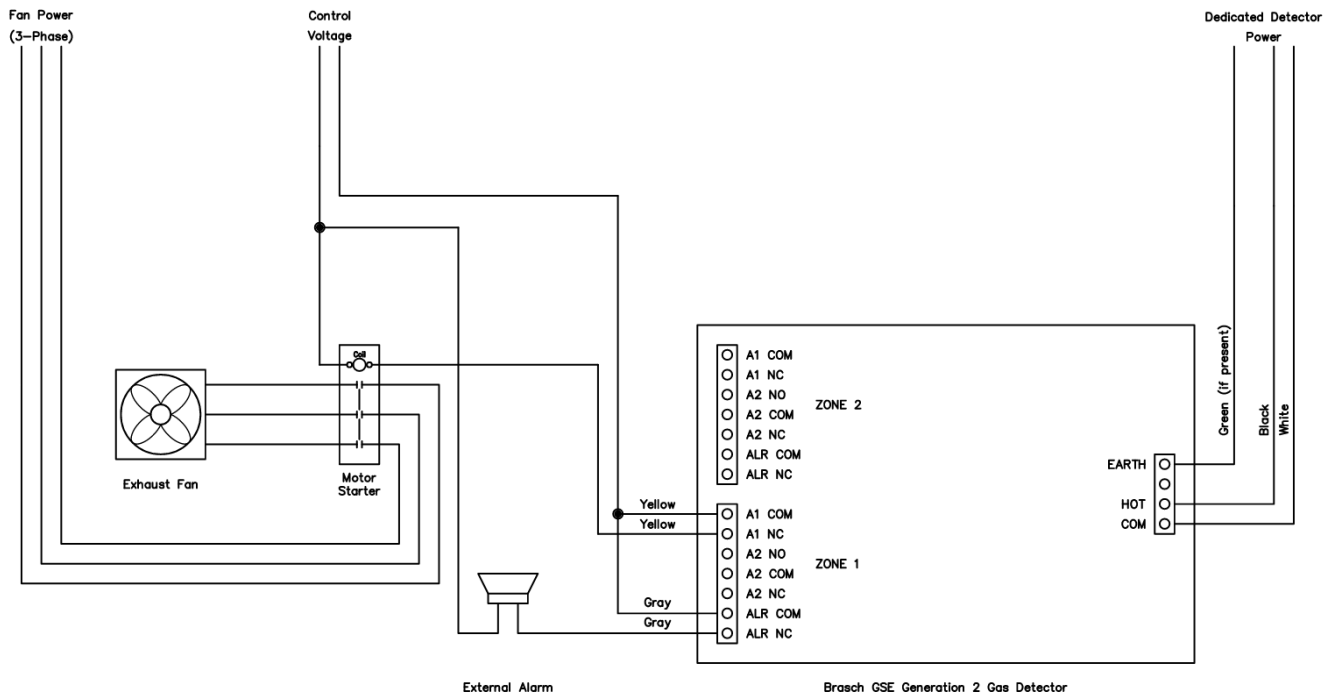


Figure 1: Wiring - Single Fan Ventilation System with One Zone

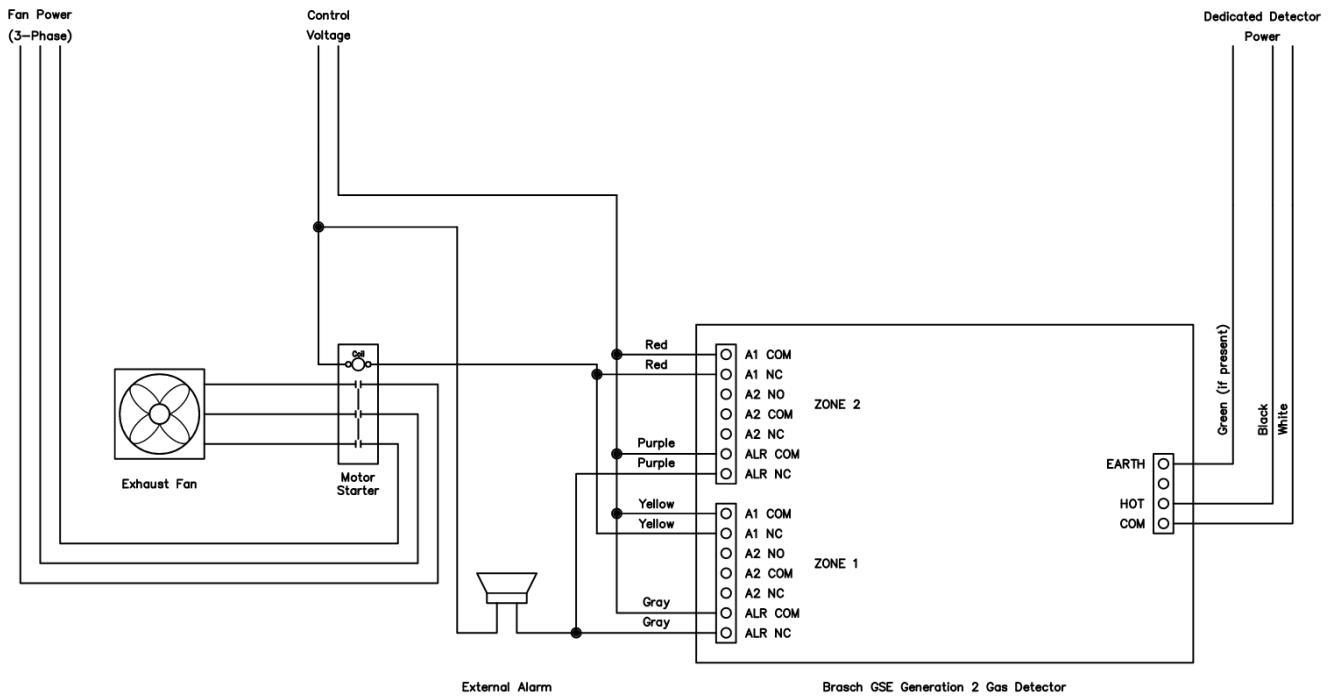


Figure 2: Wiring - Single Fan Ventilation System with Two Zones

# Typical Wiring Diagrams for Ventilation Systems

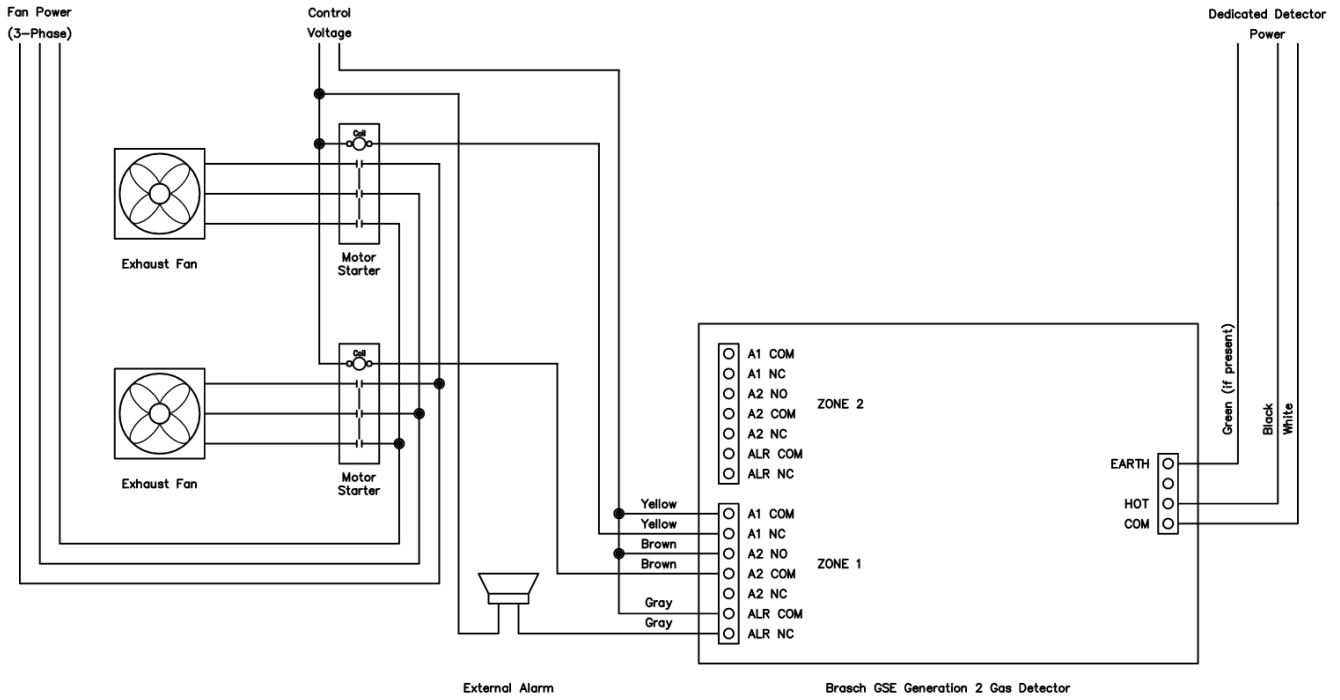


Figure 3: Wiring - Two Fan Ventilation System with One Zone

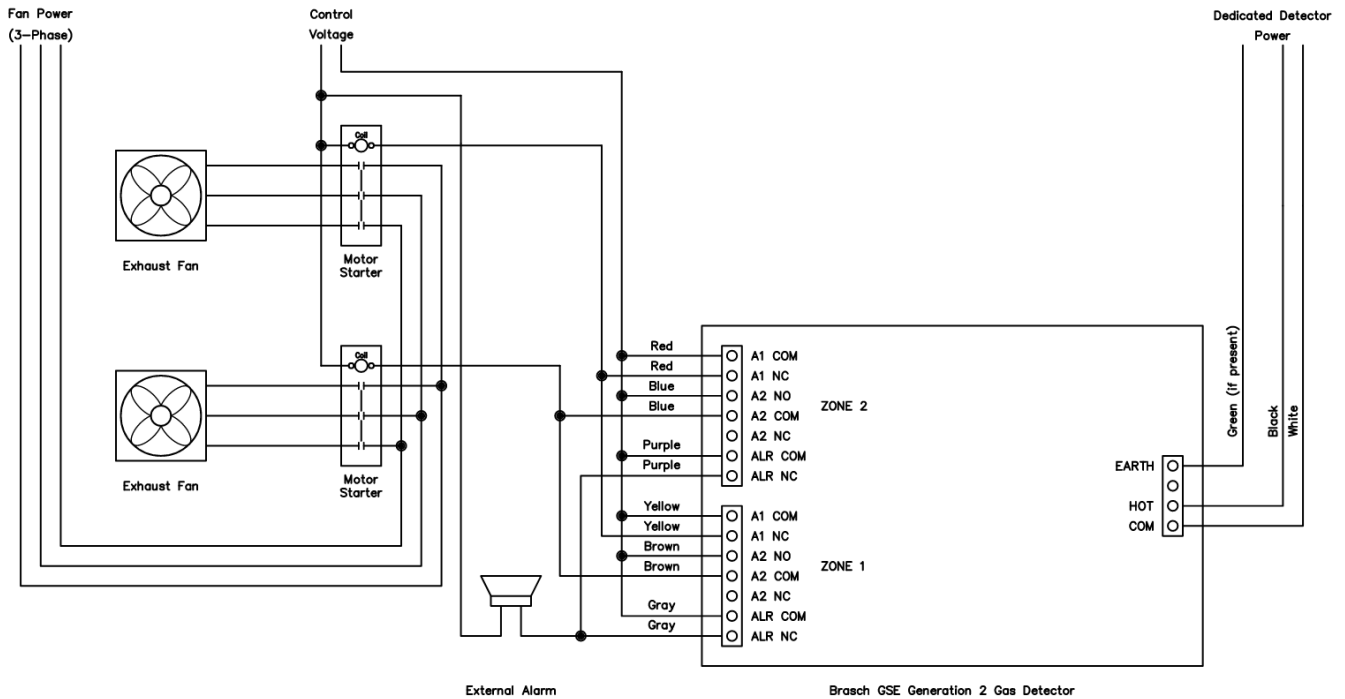


Figure 4: Wiring - Two Fan Ventilation System with Two Zones

# Typical Wiring Diagram for Remote Transmitters

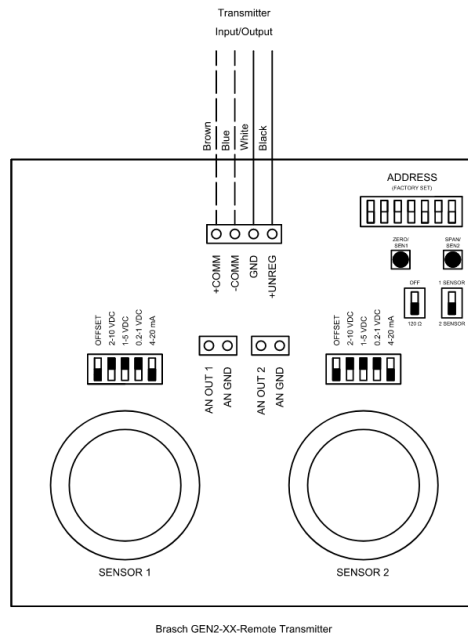


Figure 5: Wiring – GSE Generation 2 Standalone to GEN2-XX-Remote

## Warranty Statement

Brasch Environmental Technologies, LLC warrants gas transmitters, gas detectors, control panels, and accessories for a period of two years from the date of shipment against defects in material or workmanship. Should any evidence of defects in material or workmanship occur during the warranty period, Brasch Environmental Technologies will repair or replace the affected product, at its own discretion, without charge. The company shall not be held responsible for any charges incurred with removal or replacement of allegedly defective equipment, nor for incidental or consequential damages. If any equipment has not been installed per Brasch instructions, this warranty is void. The cost to repair, replace, or service any component is not the responsibility of Brasch. Any replacement parts or service necessary must be paid in full prior to shipment or performance.





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Revision: 2.0  
Issue Date: July 30, 2024  
Document Number: SF09  
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