SECTION 28 42 15

GAS DETECTION AND ALARM

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\*\* NOTE TO SPECIFIER \*\* Brasch Environmental Technologies; gas detection systems.  
This section is based on the products of Brasch Environmental Technologies, which is located at:  
140 Long Rd. Suite 101  
Chesterfield, MO 63005  
Tel: 314-291-0440  
Fax: 314-291-0646  
Email: [request info (customerservice@braschenvtech.com)](https://admin.arcat.com/users.pl?action=UserEmail&company=Brasch+Environmental+Technologies&coid=52580&rep=&fax=314-291-0646&message=RE:%20Spec%20Question%20(13850bch):%20%20&mf=)  
Web: <https://braschenvtech.com>   
 [ [Click Here](https://www.arcat.com/arcatcos/cos52/arc52580.html) ] for additional information.  
Brasch Environmental Technologies, formerly Brasch Manufacturing, has been a leading designer and manufacturer of quality gas detection systems for over 25 years. Brasch gas detectors are trusted by industry professionals and can be found installed in a variety of buildings from firehouses to parking garages all across the United States and beyond. Our mission is to help make the environment a safer and more comfortable place by protecting people from harmful gases. When customers install Brasch Environmental Technologies equipment, they have confidence they have the best products available, products that will far outlast their expectations.  
Brasch Environmental Technologies is committed to providing products and services that exceed customer requirements and applicable standards. Every product we make goes through extensive calibration and testing to ensure we deliver the highest quality products on the market. We guarantee our products free from material and workmanship defect for two years and will continue to provide support for the life of the product. It is important for us to produce gas detection systems that are reliable, durable, and long-lasting. We want your next Brasch gas detector to be the only gas detector you will ever need to purchase.

1. GENERAL
   1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Gas Detection and Alarm components of the following types:
       1. Standalone Detectors.
       2. Multi-Zone Control Panels.
       3. Remote Transmitters.
    2. Accessories.
  1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Division 16 - Electrical.
  1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. American National Standards Institute (ANSI):
       1. ANSI/ISA 92.00.01-2010 (R2015) - Performance Requirements For Toxic Gas Detectors.
    2. European National Standards (EN):
       1. EN 50270 - Electromagnetic compatibility. Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen.
       2. EN 60204-1 - Safety of machinery - Electrical equipment of machines - Part 1: General requirements.
       3. EN 60825-1, identical to IEC 825 and DIN-VDE 0837 - Safety of laser products - Part 1: Equipment classification and requirements.
    3. Federal Communications Commission (FCC):
       1. FCC Part 15 Subpart B - Electromagnetic compatibility. Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen.
    4. German institute for Standardization (DIN):
       1. DIN EN 54 - Fire detection and fire alarm systems.
       2. DIN EN 842 - Safety of machinery - Visual danger signals - General requirements, design and testing.
       3. DIN EN 981 - Safety of machinery - System of auditory and visual danger and information signals.
       4. DIN 54113-2 - Non-destructive testing - Radiation protection rules for the technical application of X-ray equipment up to 1 MV - Part 2: General technical safety requirements and testing for the manufacture, installation and operation.
       5. DIN EN ISO 7731 - Ergonomics - Danger signals for public and work areas - Auditory danger signals.
    5. International Electrotechnical Commission (IEC):
       1. IEC 73 / DIN EN 60073 / VDE 0199 - Coding of indicating devices and actuators by colours and supplementary means.
    6. Intertek ETL (ETL).
    7. National Electrical Manufacturers Association (NEMA):
       1. NEMA 1 - Enclosures constructed for indoor use.
       2. NEMA 3R - Rainproof enclosures constructed for indoor or outdoor use.
       3. NEMA 4X - Watertight and corrosion resistant enclosures constructed for indoor or outdoor use.
    8. Restriction of Hazardous Substances Directive (RoHS):
    9. Underwriters Laboratory (UL):
       1. UL 248 - Low Voltage Fuses.
       2. UL 5085-3 - Low Voltage Transformers.
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
     2. Product Data:
        1. Manufacturer's data sheets on each product to be used.
        2. Preparation instructions and recommendations.
        3. Storage and handling requirements and recommendations.
        4. Typical installation methods.
     3. Shop Drawings: Include details of materials, construction, and finish. Include relationship with adjacent construction.
  2. QUALITY ASSURANCE
     1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience.
     2. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and complexity.
     3. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.
  3. PRE-INSTALLATION CONFERENCE
     1. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.
  4. DELIVERY, STORAGE, AND HANDLING
     1. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
     2. Protect from damage due to weather, excessive temperature, and construction operations.
  5. PROJECT CONDITIONS
     1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
  6. WARRANTY
     1. Manufacturer's Warranty: Provide manufacturer's standard limited warranty.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: Brasch Environmental Technologies, which is located at: 140 Long Rd. Suite 101; Chesterfield, MO 63005; Tel: 314-291-0440; Fax: 314-291-0646; Email: [request info (customerservice@braschenvtech.com)](https://admin.arcat.com/users.pl?action=UserEmail&company=Brasch+Environmental+Technologies&coid=52580&rep=&fax=314-291-0646&message=RE:%20Spec%20Question%20(13850bch):%20%20&mf=); Web: <https://braschenvtech.com>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

\*\* NOTE TO SPECIFIER \*\* Delete Article if not required.

* 1. STANDALONE DETECTORS (GSE GEN 2)
     1. Performance Requirements:
        1. Standards Compliance:
           1. Performance: ANSI/ISA 92.00.01-2010 (R2015)
           2. Electromagnetic Interference: EN 50270, FCC Part 15 Subpart B.
           3. Environmental: RoHS compliant.
     2. General Features: Unless specified otherwise.
        1. User-Adjustable Setpoints, Delays, Outputs, and Relays.
        2. Preconfigured Wiring
        3. Factory Calibration
        4. Customized Programming
        5. Works with New and Existing Building Controls Systems
        6. Fully Backwards Compatible with GSE Generation 1

\*\* NOTE TO SPECIFIER \*\* Delete power requirements option not required.

* + - 1. Power Requirements: 24 VAC, 1.0 A, 50/60 Hz.
      2. Power Requirements: 120 VAC, 0.2 A, 50/60 Hz.
      3. Power Consumption: 24 VA.
      4. Control Relays: 6 relays, 5A at 125 VAC / 250 VA.
      5. Analog Outputs:
         1. User-Selectable: 4 to 20 mA, 0.2 to 1 VDC, 1 to 5 VDC, or 2 to 10 VDC.
      6. Storage Temperature: Minus 58 to 248 degrees F (Minus 50 to 120 degrees C).
      7. Operating Temperature: Minus 4 to 122 degrees F (Minus 20 to 50 degrees C).
      8. Humidity: 10 to 90 percent, non-condensing.
      9. Display: 4 digits, numeric. Color: Red.
      10. Front Panel Indicators: 10 LEDs.
          1. Power: Quantity: 1 Color: Green.
          2. Sensors: Quantity: 4. Color: Yellow.
          3. Zones: Quantity: 2. Color: Yellow.
          4. Alert: Quantity: 2. Color: Red.
          5. Alarm: Quantity: 1. Color: Red.
      11. Alarm: 106 dB at 100 mm, 3.8 kHz piezoelectric element.
      12. Sensor Lifespan: Up to 10 years (varies by gas type).
      13. Sensor Capacity: Up to 4 sensors. A maximum of 2 locally mounted sensors.
          1. Coverage: Up to 36,000 sq ft (3344.5 sq m)
      14. Dimensions (WxHxD): 8.72 x 10.50 x 2.90 inch (221 x 267 x 74 mm).
      15. Weight: 4.5 lbs (2.04 kg).
      16. Housing: Gray, NEMA 3R, polycarbonate plastic.

\*\* NOTE TO SPECIFIER \*\* Delete basis of design options not required.

* + 1. Basis of Design: Carbon Monoxide Detector; GSE2-CM; as manufactured by Brasch Environmental Technologies.

\*\* NOTE TO SPECIFIER \*\* Delete sensors options not required.

* + - 1. Sensors: 1 local sensor.
    1. Basis of Design: Nitrogen Dioxide Detector; GSE2-ND; as manufactured by Brasch Environmental Technologies.

\*\* NOTE TO SPECIFIER \*\* Delete sensors options not required.

* + - 1. Sensors: 1 local sensor.
    1. Basis of Design: Oxygen Detector; GSE2-OX; as manufactured by Brasch Environmental Technologies.

\*\* NOTE TO SPECIFIER \*\* Delete sensors options not required.

* + - 1. Sensors: 1 local sensor.
    1. Basis of Design: Combination Detector, Nitrogen Dioxide and Carbon Monoxide; GSE2-NCM; as manufactured by Brasch Environmental Technologies.

\*\* NOTE TO SPECIFIER \*\* Delete sensors options not required.

* + - 1. Sensors: 2 local sensors.

\*\* NOTE TO SPECIFIER \*\* Delete Article if not required.

* 1. MULTI-ZONE CONTROL PANELS
     1. Basis of Design: Multi-Zone Gas Detector Control Panel; GDCP-Touch; as manufactured by Brasch Environmental Technologies.
        1. Fully configurable zones, relays, setpoints, delays, and outputs.
        2. On-demand ventilation control by gas concentration, timer schedule, or user input.
        3. Customized factory programming and configuration.
        4. Remote Transmitters:

\*\* NOTE TO SPECIFIER \*\* Delete remote transmitters not required.

* + - 1. Model GEN2-CM-Remote: Carbon Monoxide Detector.
      2. Model GEN2-ND-Remote: Nitrogen Dioxide Detector.
      3. Model GEN2-NCM-Remote: Carbon Monoxide and Nitrogen Dioxide Detector.
      4. Model GEN2-ME-Remote: Methane Detector
      5. Model GEN2-PR-Remote: Propane Detector
      6. Model GEN2-HY-Remote: Hydrogen Detector
      7. Model GEN2-OX-Remote: Oxygen Detector
      8. Performance Requirements:
         1. Performance: ANSI/ISA 92.00.01-2010 (R2015)
         2. Electromagnetic Interference: EN 50270, FCC Part 15 Subpart B.
         3. Environmental: RoHS compliant

\*\* NOTE TO SPECIFIER \*\* Delete input power option not required.

* + - 1. Input Power: 24 VAC, 50/60 Hz, 0.75 A.
      2. Input Power: 120 VAC, 50/60 Hz, 0.2 A via GDCP-PowerPack.
      3. Power Consumption: 18 VA.
      4. Control Relays: 4 relays, 5A at 125 VAC / 250 VA.
      5. Control Relays: Up to 32 relays via GDCP-ExpansionPack.
      6. Analog Outputs:
         1. User-Selectable: 4 to 20 mA, 0.2 to 1 VDC, 1 to 5 VDC, or 2 to 10 VDC.
      7. Digital Outputs: BACnet IP, Modbus RTU.
      8. Storage Temperature: Minus 8 to 248 degrees F (Minus 50 to 120 degrees C).
      9. Operating Temperature: Minus 4 to 158 degree F (Minus 20 to 70 degrees C).
      10. Humidity: 10 to 90 percent non-condensing.
      11. Display: 7.0 inch (178 mm) LCD, 1024 x 600, 5 point capacitive touch.
      12. Alarm: 70 dB at 100 mm, 2.9 kHz piezoelectric element.
      13. Sensor Capacity: Up to 128 remote sensors.
      14. Dimensions (WxHxD): 8.15 x 9.93 x 2.70 inch (210 x 250 x 70 mm).
      15. Weight: 5.0 lbs (2.27 kg).
      16. Housing: Gray, NEMA 4X, fiberglass/polycarbonate.

\*\* NOTE TO SPECIFIER \*\* Delete Article if not required.

* 1. REMOTE TRANSMITTERS
     1. Performance Requirements:
        1. Performance: ANSI/ISA 92.00.01-2010 (R2015)
        2. Electromagnetic Interference: EN 50270, FCC Part 15 Subpart B
        3. Environmental: RoHS.

\*\* NOTE TO SPECIFIER \*\* Delete basis of design options not required.

* + 1. Basis of Design: Remote Transmitter, Toxic Gases, as manufactured by Brasch Environmental Technologies.

\*\* NOTE TO SPECIFIER \*\* Delete model options not required.

* + - 1. Model GEN2-CM-Remote: Carbon Monoxide.
      2. Model GEN2-ND-Remote: Nitrogen Dioxide.
      3. Input Power: 24 VAC, 50/60 Hz, 0.2 A.
      4. Power Consumption: 4.8 VA.
      5. Analog Output:
         1. User Selectable: 4 to 20 mA, 0.2 to 1 VDC, 1 to 5 VDC, or 2 to 10 VDC.
      6. Storage Temperature: Minus 58 to 248 degrees F (Minus 50 to 120 degrees C).
      7. Operating Temperature: Minus 4 to 122 degrees F (Minus 20 to 50 degrees C).
      8. Humidity: 10 to 90 percent; non-condensing.
      9. Front Panel Indicators; 2 LEDs: Power - Green. Fault - Yellow.
      10. Sensor Lifespan: Up to 10 years (varies by gas type).
      11. Sensor Coverage: Up to 9,000 sq ft (836 sq m).
      12. Dimensions (WxHxD): 4.98 x 4.98 x 2.18 inch (126 x 126 x 55 mm)
      13. Weight: 1 lbs (0.5 kg).
      14. Housing: Gray, NEMA 3R, polycarbonate plastic.
    1. Basis of Design: Remote Transmitter, Combustible Gases; as manufactured by Brasch Environmental Technologies

\*\* NOTE TO SPECIFIER \*\* Delete model options not required.

* + - 1. Model GEN2-ME-Remote: Methane.
      2. Model GEN2-PR-Remote: Propane.
      3. Model GEN2-HY-Remote: Hydrogen.
      4. Input Power: 24 VAC, 50/60 Hz, 0.28 A
      5. Power Consumption: 6.8 VA.
      6. Analog Output:
         1. User Selectable: 4 to 20 mA, 0.2 to 1 VDC, 1 to 5 VDC, or 2 to 10 VDC.
      7. Storage Temperature: Minus 58 to 248 degrees F (Minus 50 to 120 degrees C).
      8. Operating Temperature: Minus 4 to 158 degrees F (Minus 20 to 70 degrees C).
      9. Humidity: 0 to 100 percent; non-condensing.
      10. Front Panel Indicators; 2 LEDs: Power - Green. Fault - Yellow.
      11. Sensor Lifespan: 2 years.
      12. Sensor Coverage: 5,000 sq ft (465 sq m).
      13. Dimensions (WxHxD): 4.98 x 4.98 x 2.18 inch (126 x 126 x 55 mm)
      14. Weight: 1 lbs (0.5 kg).
      15. Housing: Gray, NEMA 3R, polycarbonate plastic.
    1. Basis of Design: Remote Transmitter, Oxygen, as manufactured by Brasch Environmental Technologies.
       1. Model GEN2-OX-Remote: Oxygen.
       2. Input Power: 24 VAC, 50/60 Hz, 0.2 A.
       3. Power Consumption: 4.8 VA.
       4. Analog Output:
          1. User Selectable: 4 to 20 mA, 0.2 to 1 VDC, 1 to 5 VDC, or 2 to 10 VDC.
       5. Storage Temperature: Minus 58 to 248 degrees F (Minus 50 to 120 degrees C).
       6. Operating Temperature: Minus 4 to 122 degrees F (Minus 20 to 50 degrees C).
       7. Humidity: 10 to 90 percent; non-condensing.
       8. Front Panel Indicators; 2 LEDs: Power - Green. Fault - Yellow.
       9. Sensor Lifespan: Up to 10 years.
       10. Sensor Coverage: Up to 3,000 sq ft (279 sq m).
       11. Dimensions (WxHxD): 4.98 x 4.98 x 2.18 inch (126 x 126 x 55 mm)
       12. Weight: 1 lbs (0.5 kg).
       13. Housing: Gray, NEMA 3R, polycarbonate plastic.
    2. Basis of Design: Remote Transmitter, Carbon Monoxide and Nitrogen Dioxide; GEN2-NCM-Remote; as manufactured by Brasch Environmental Technologies
       1. Input Power: 24 VAC, 50/60 Hz, 0.35 A
       2. Power Consumption: 8.5 VA.
       3. Analog Output:
          1. User Selectable: 4 to 20 mA, 0.2 to 1 VDC, 1 to 5 VDC, or 2 to 10 VDC.
       4. Storage Temperature: Minus 58 to 248 degrees F (Minus 50 to 120 degrees C).
       5. Operating Temperature: Minus 4 to 122 degrees F (Minus 20 to 50 degrees C).
       6. Humidity: 10 to 90 percent; non-condensing.
       7. Front Panel Indicators; 2 LEDs: Power - Green. Fault - Yellow.
       8. Sensor Lifespan: Up to 10 years.
       9. Sensor Coverage: Up to 9,000 sq ft (836 sq m).
       10. Dimensions (WxHxD): 4.98 x 4.98 x 2.18 inch (126 x 126 x 55 mm)
       11. Weight: 1 lbs (0.5 kg).
       12. Housing: Gray, NEMA 3R, polycarbonate plastic.

\*\* NOTE TO SPECIFIER \*\* Delete Article if not required.

* 1. ACCESSORlES

\*\* NOTE TO SPECIFIER \*\* Delete products not required.

* + 1. Streamline Modular Multifunctional LED Combination Audible / Visual Signals.
       1. Basis of Design: Model SLM500 as manufactured by Federal Signal. Multifunctional LED beacon and sounder combination with multiple input technology.
          1. Three Separate Alarm Levels: Controllable via wiring selection offering multiple combinations. Three Flash Patterns and the option of no visual effect.
          2. Unique Tones: To select from across two switches (32 tones per switch).

Tone Volume: Selected tone is adjustable between 86 to 105 dBa at 1m at three output levels (high, medium, low) through an integrated button.

* + - 1. Standards Compliance:
         1. CE Certified.
         2. UL and cUL Listed.
      2. Enclosure: Self-extinguishing polycarbonate material with high impact and UV resistance. Type 3R, IP65.
      3. Operating Temperature: -40 to 131 degrees F (-40 to 55 degrees C).

\*\* NOTE TO SPECIFIER \*\* Delete power options not required.

* + - 1. Power: 12 VDC, 315 mA.
      2. Power: 24 VDC, 280 mA.
      3. Power: 12 VAC, 375 mA.
      4. Power: 24 VAC, 325 mA.
      5. Power: 120 VAC, 205 mA.
      6. Power: 240 VAC, 115 mA.
      7. Mounting: Deep base.
      8. PLC Compatible with PNP or NPN connections (Except Dock Base, only NPN).
      9. Three Channels:

\*\* NOTE TO SPECIFIER \*\* Delete channel options not required.

* + - * 1. Channel 1: Visual signal only.
        2. Channel 2: Visual signal and Audio tone 1.
        3. Channel 2: Audio tone 1.
        4. Channel 3: Visual signal and Audio tone 2.
        5. Channel 3: Audio tone 2.
      1. LED Hours: 100,000.
      2. LED lamp/lens:
         1. Color: Red.
      3. Flash Rate per Minute: 85 (+/- 10).

\*\* NOTE TO SPECIFIER \*\* Delete flash pattern options not required.

* + - 1. Flash Pattern: 3x Strobe. (default)
      2. Flash Pattern: Fade.
      3. Flash Pattern: Steady.
      4. Tone Options: 64 at three adjustable levels.
         1. Decibels at 10 ft; 76 to 95 (1 m; 86 to 105).
    1. Fuse:
       1. Basis of Design: Radial Lead Fuse, 374 Series, TR5 Fuse, Time Lag; as manufactured by Littelfuse.
       2. Compliance: UL 248.
       3. Halogen free and lead-free.
       4. Reduced PCB space requirements.
       5. Low internal resistance.
    2. Functional Devices Transformer 96 VA, 120 to 24 VAC
       1. Basis of Design: Model TR100VA002 as manufactured by Function Devices. Transformer 96 VA, 120 to 24 Vac, Circuit Breaker, Foot and Dual Threaded Hub Mount.
       2. Standards Compliance:
          1. CE Certified.
          2. Class 2 UL5085-3 Listed.
          3. RoHS.
       3. VA Rating: 96 VA.
       4. Frequency: 50/60 Hz.
       5. Mounting: Foot and Dual Threaded Hubs.
       6. Dimensions (WxHxD): 4.077 x 2.504 x 3.023 inch (104 x 64 x 77 mm).
          1. 0.500 inch NPT Hubs.
          2. 8 inch wire length with 0.5 inch strip.
       7. Over Current Protection: Circuit Breaker.
       8. Operating Temperature: -30 to 140 degrees F (-34 to 60 degrees C).
       9. Construction: Split Bobbin.

1. EXECUTION
   1. EXAMINATION
      1. Do not begin installation until substrates have been properly constructed and prepared.
      2. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.
   2. PREPARATION
      1. Clean surfaces thoroughly prior to installation.
      2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
   3. INSTALLATION
      1. Install in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.
   4. FIELD QUALITY CONTROL
      1. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

\*\* NOTE TO SPECIFIER \*\* Include if manufacturer provides field quality control with onsite personnel for instruction or supervision of product installation, application, erection or construction. Delete if not required.

* + 1. Manufacturer's Services: Coordinate manufacturer's services in accordance with appropriate sections in Division 01.
  1. CLEANING AND PROTECTION
     1. Clean products in accordance with the manufacturer's recommendations.
     2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION