SECTION 28 42 15

GAS DETECTION AND ALARM

Display hidden notes to specifier. (Don't know how? [Click Here](https://www.arcat.com/sd/display_hidden_notes.shtml))

*Copyright 2020 - 2024 ARCAT, Inc. - All rights reserved*

\*\* 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 101Chesterfield, MO 63005Tel: 314-291-0440Fax: 314-291-0646Email: [request info (customerservice@braschenvtech.com)](https://arcat.com/rfi?action=email&company=Brasch%252BEnvironmental%252BTechnologies&message=RE%253A%2520Spec%2520Question%2520(13850bch)%253A%2520&coid=52580&spec=13850bch&rep=&fax=314-291-0646)
Web: <https://braschenvtech.com>
 [ [Click Here](https://arcat.com/company/brasch-environmental-technologies-52580) ] 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 one year and will continue to provide support for the life of the product. It is important to 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.
	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 101Chesterfield, MO 63005Tel: 314-291-0440Fax: 314-291-0646Email: [request info (customerservice@braschenvtech.com)](https://arcat.com/rfi?action=email&company=Brasch%252BEnvironmental%252BTechnologies&message=RE%253A%2520Spec%2520Question%2520(13850bch)%253A%2520&coid=52580&spec=13850bch&rep=&fax=314-291-0646);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, 0.500 A, 50/60 Hz.
			2. Power Requirements: 120 VAC, 0.125 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, end-of-life notification.
			13. Sensor Calibration: recalibration every 2 years.
			14. Sensor Capacity: Up to 4 sensors. A maximum of 2 locally mounted sensors.
				1. Coverage: 36,000 sq ft (3344.5 sq m)
			15. Dimensions (WxHxD): 8.15 x 9.93 x 2.70 inch (210 x 250 x 70 mm).
			16. Weight: 5.5 lbs (2.49 kg).
			17. 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: 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 Sensors:

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

* + - 1. Model GDCP-CM-Remote: Carbon Monoxide Detector.
			2. Model GDCP-ND-Remote: Nitrogen Dioxide Detector.
			3. Model GDCP-NCM-Remote: Carbon Monoxide and Nitrogen Dioxide Detector.
			4. 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: 24 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 0 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 (GSE GEN 2)
		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, GSE Generation 2; GSE2-XX-Remote; as manufactured by Brasch Environmental Technologies.

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

* + - 1. Model GSE2-CM-Remote: Carbon Monoxide.
			2. Model GSE2-ND-Remote: Nitrogen Dioxide.
			3. Model GSE2-NCM-Remote: Carbon Monoxide and Nitrogen Dioxide.
			4. Input Power: 24 VAC, 50/60 Hz, 0.25 A, provided by Base Station.
			5. Power Consumption: 6 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 122 degrees F (Minus 20 to 50 degrees C).
			9. Humidity: 10 to 90 percent; non-condensing.
			10. Front Panel Indicators; 2 LEDs: Power - Green. Fault - Yellow.
			11. Sensor Lifespan: Up to 10 years, end-of-life notification.
			12. Sensor Calibration: Recommended recalibration every 2 years.
			13. Sensor Coverage: 9,000 sq ft (836 sq m).
			14. Dimensions (WxHxD): 4.8 x 4.72 x 2.16 inch (122 x 120 x 55 mm)
			15. Weight: 1 lbs (0.5 kg).
			16. Housing: Gray, NEMA 3R, polycarbonate plastic.
		1. Basis of Design: Remote Transmitter, GDCP-Touch; GDCP-XX-Remote; as manufactured by Brasch Environmental Technologies

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

* + - 1. Model GSE2-CM-Remote: Carbon Monoxide.
			2. Model GSE2-ND-Remote: Nitrogen Dioxide.
			3. Model GSE2-NCM-Remote: Carbon Monoxide and Nitrogen Dioxide..
			4. Input Power: 24 VAC, 50/60 Hz, 0.25 A
			5. Power Consumption: 6 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 122 degrees F (Minus 20 to 50 degrees C).
			9. Humidity: 10 to 90 percent; non-condensing.
			10. Front Panel Indicators; 2 LEDs: Power - Green. Fault - Yellow.
			11. Sensor Lifespan: Up to 10 years, end-of-life notification.
			12. Sensor Calibration: Recommended recalibration every 2 years.
			13. Sensor Coverage: 9,000 sq ft (836 sq m).
			14. Dimensions (WxHxD): 4.8 x 4.72 x 2.16 inch (122 x 120 x 55 mm)
			15. Weight: 1 lbs (0.5 kg).
			16. Housing: Gray, NEMA 3R, polycarbonate plastic.
		1. Basis of Design: Remote Analog/Digital Transmitter, Carbon Monoxide as manufactured by Brasch Environmental Technologies.

\*\* NOTE TO SPECIFIER \*\* Delete analog or digital option below. Whichever is not required.

* + - 1. Analog: TRNS2-CM-Analog.
				1. User Selectable Output: 4 to 20 mA, 0.2 to 1 VDC, 1 to 5 VDC, or 2 to 10 VDC.
			2. Digital: TRNS2-CM-Digital.
				1. Digital Communication: Modbus RTU

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

* + - 1. Input Power: 24 VAC, 50/60 Hz, 0.25 A
			2. Power Consumption: 6 VA
			3. Storage Temperature: Minus 58 to 248 degrees F (Minus 50 to 120 degrees C).
			4. Operating Temperature: Minus 4 to 122 degrees F (Minus 20 to 50 degrees C).
			5. Humidity: 10 to 90 percent; non-condensing.
			6. Front Panel Indicators; 2 LEDs: Power - Green. Fault - Yellow.
			7. Sensor Lifespan: Up to 10 years, end-of-life notification.
			8. Sensor Calibration: Recalibration every 2 years
			9. Sensor Coverage: 9,000 sq ft (836 sq m).
			10. Dimensions (WxHxD): 4.8 x 4.72 x 2.16 inch (122 x 120 x 55 mm)
			11. Weight: 1 lbs (0.5 kg).
			12. Housing: Gray, NEMA 3R, polycarbonate plastic.
		1. Basis of Design: Remote Analog/Digital Transmitter, Nitrogen Dioxide as manufactured by Brasch Environmental Technologies.

\*\* NOTE TO SPECIFIER \*\* Delete analog or digital option below. Whichever is not required.

* + - 1. Analog: TRNS2-ND-Analog.
				1. User Selectable Output: 4 to 20 mA, 0.2 to 1 VDC, 1 to 5 VDC, or 2 to 10 VDC.
			2. Digital: TRNS2-ND-Digital.
				1. Digital Communication: Modbus RTU

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

* + - 1. Input Power: 24 VAC, 50/60 Hz, 0.25 A
			2. Power Consumption: 6 VA
			3. Storage Temperature: Minus 58 to 248 degrees F (Minus 50 to 120 degrees C).
			4. Operating Temperature: Minus 4 to 122 degrees F (Minus 20 to 50 degrees C).
			5. Humidity: 10 to 90 percent; non-condensing.
			6. Front Panel Indicators; 2 LEDs: Power - Green. Fault - Yellow.
			7. Sensor Lifespan: Up to 10 years, end-of-life notification.
			8. Sensor Calibration: Recalibration every 2 years
			9. Sensor Coverage: 9,000 sq ft (836 sq m).
			10. Dimensions (WxHxD): 4.8 x 4.72 x 2.16 inch (122 x 120 x 55 mm)
			11. Weight: 1 lbs (0.5 kg).
			12. Housing: Gray, NEMA 3R, polycarbonate plastic.
		1. Basis of Design: Remote Analog/Digital Transmitter, Carbon Monoxide and Nitrogen Dioxide as manufactured by Brasch Environmental Technologies.

\*\* NOTE TO SPECIFIER \*\* Delete analog or digital option below. Whichever is not required.

* + - 1. Analog: TRNS2-NCM-Analog.
				1. User Selectable Output: 4 to 20 mA, 0.2 to 1 VDC, 1 to 5 VDC, or 2 to 10 VDC.
			2. Digital: TRNS2-NCM-Digital.
				1. Digital Communication: Modbus RTU

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

* + - 1. Input Power: 24 VAC, 50/60 Hz, 0.25 A
			2. Power Consumption: 6 VA
			3. Storage Temperature: Minus 58 to 248 degrees F (Minus 50 to 120 degrees C).
			4. Operating Temperature: Minus 4 to 122 degrees F (Minus 20 to 50 degrees C).
			5. Humidity: 10 to 90 percent; non-condensing.
			6. Front Panel Indicators; 2 LEDs: Power - Green. Fault - Yellow.
			7. Sensor Lifespan: Up to 10 years, end-of-life notification.
			8. Sensor Calibration: Recalibration every 2 years
			9. Sensor Coverage: 9,000 sq ft (836 sq m).
			10. Dimensions (WxHxD): 4.8 x 4.72 x 2.16 inch (122 x 120 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. ACCESSORIES

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

* + 1. Combined External Audible Alarm and Strobe: Patrol LED Sounder Max. 105 dB(A) / 76 cd by Pfannenberg.
			1. Standards Compliance:
				1. DIN EN 54.
				2. DIN EN 842.
				3. DIN EN 981.
				4. DIN 54113-2.
				5. DIN EN ISO 7731.
				6. EN 60204-1.
				7. EN 60825-1.
				8. IEC 73 / DIN EN 60073 / VDE 0199.
			2. Model: PA L1.
				1. 3D-Visual Coverage:

Indicate: 115.16 x 48.88 x 46.59 ft (35.1 x 14.9 x 14.2 m).

Warn: 51.18 x 21.65 x 21 ft (15.6 x 6.6 x 6.4 m).

Alarm: 25.59 x 10.83 x 10.50 ft (7.8 x 3.3 x 3.2 m).

* + - * 1. 3D-Audible Coverage:

Indicate: 52.48 x 24.28 x 52.48 ft (16 x 13.8 x 16 m).

Warn: 29.53 x 25.59 x 29.53 ft (9 x 7.8 x 9 m).

Alarm: 16.73 x 14.44 x 16.73 ft (5.1 x 4.4 x 5.1 m).

* + - 1. Rated Voltage: 115 V. AC 50 / 60 Hz / DC.
				1. Operating Range: 195 - 127 V.
				2. Current Consumption Light: 51 mA at 115 VAC maximum.
				3. Current Consumption Sounder: 30 mA at 115 VAC maximum.
			2. Sound Level: 105 dB(A) at 3.28 ft (1 m) maximum.
			3. Volume Control: 12 dB maximum.
			4. Tones: 80.
			5. Operating Mode Internally Selectable: Continuous light / blinking light / flashing light.
			6. Light Source: One high output LED per single unit.
			7. Light Intensity per DIN 5037, clear lens: 1 76 cd per single unit. Reducible.
			8. Viewing Distance: 662.73 inches (202 m) maximum.
			9. Operating Temperature: Minus 40 to 131 degrees F (Minus 40 to 55 degrees C).
			10. Storage Temperature: Minus 40 to 158 degrees F (Minus 40 to 70 degrees C).
			11. Installation Position: Any.
			12. Degree of Protection.
				1. Per EN60529: IP 66.
				2. NEMA TYPE 4/4x.
				3. Per EN 50102: IK 08.
			13. Service Life of Light Source: Greater than or equal to 50,000 hrs.
			14. Material, Lens, RGB: Polycarbonate (PC).
			15. Material, Housing: PC / ABS blend.
			16. Cable Entry: 6x M20 pre-embossed.
			17. Connecting Terminal: 0.14 - 2.5 sq mm fine stranded.
			18. Weight: 1.48 lbs (670 grams) maximum.
		1. External Audible Alarm: Basis of Design: Patrol Sounders 100 dB(A) by Pfannenberg.
			1. Standards Compliance:
				1. DIN EN ISO 7731 -
				2. DIN-VDE 0837
				3. EN 60204-1 -
				4. EN 60825-1
				5. IEC 825
			2. Model: PA 1. Sound Pressure Level: 100 dB(A).
				1. Operating Range: 95- 127 V. AC 50-60 Hz. Current Consumption: 8-30 mA.

Weight: 0.89 lbs (405 grams).

* + - 1. General:
				1. Sound Level Reduction: 12 dB maximum, via potentiometer.
				2. Alarm Tones: 80 / 4 tones. Externally selectable.
				3. Operating Temperature: Minus 40 to 131 degrees F (Minus 40 to 55 degrees C).
				4. Storage Temperature: Minus 40 to 158 degrees F (Minus 40 to 70 degrees C).
				5. Relative Humidity: 90 percent.
				6. Protection system according to EN 6052: IP 66
				7. Protection Class: II.
				8. Duty Cycle: 100 percent.
				9. Material: PC / ABS blend.

Similar to RAL 3000: Flame Red.

Similar to RAL 7035: Light Grey.

Similar to RAL 9003: Signal White.

* + - * 1. Integrated Seal with Cable Entry: 0.25-0.50 inch (6-13 mm) feed-through grommet.
				2. Connecting Terminals: 2.5 sq mm fine wire with cable end sleeve, AWG 16
		1. External Strobe: Basis of Design: PYRA Compact Multifunctional LED Light by Pfannenberg. Brightness adjustable, 10 year warranty.
			1. Standards Compliance:
				1. DIN EN 842.
				2. DIN EN 981.
				3. IEC 73 / DIN EN 60073 / VDE 0199.
				4. EN 60825-1, identical to IEC 825 and DIN-VDE 0837.
				5. DIN EN 54.
				6. DIN 54113-2.
			2. Model PY L-S RGB: Multi color.
				1. 3D-Visual Coverage:

Indicate: 56.10 x 45.93 x 44.29 ft (17.1 x 14 x 13.5 m).

Warn: 24.93 x 20.34 x 10.68 ft (7.6 x 6.2 x 6 m).

Alarm: 12.46 x 10.17 x 9.84 ft (3.8 x 3.1 x 3 m).

* + - 1. Rated Voltage: 115/230 V. AC 50 / 60 Hz / DC.
				1. Operating Range: 95 - 253 V.
				2. Current Consumption at 1 Hz Flash: 36 mA at 230 VAC.
			2. Operating modes internally and externally selectable (DC):
				1. Continuous light / Blinking light / Flashing light.
			3. Light Alternation Frequency:
				1. Blinking light 1 or 2 Hz.
				2. Flashing light 0.1, 0.5, 0.75, 1, or 2 Hz.
			4. Light Source: One high output LED.
			5. Light Intensity per DIN 5037: 1-76 cd, reducible. (Clear lens).
			6. Maximum Viewing Distance: 662 ft 8-3/4 inches (202 m).
			7. Operating Temperature : (Minus 40 to 55 degrees C).
			8. Storage Temperature: (Minus 40 to 70 degrees C).
			9. Installation Position: Any.
			10. Degree of Protection:
				1. IP 66 per EN 60529.
				2. NEMA TYPE 4 and 4x.
				3. IK 08 per EN 50102. Impact proof.
			11. Service Life of Light Source: Greater than or equal to 50,000 hrs.
			12. Material:
				1. Lens: Polycarbonate (PC).
				2. Housing: PC / ABS blend.
			13. Cable entry 4 x M20 pre-embossed.
			14. Connecting Terminal: 0.14 to 2.5 sq mm fine stranded.
			15. Weight: 0.58 lbs (265 grams).
		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. Ventostat:
			1. Basis of Design: Ventostat Wall Mount CO2, Humidity, and Temperature Transmitters; as manufactured by Telaire.
			2. Non-dispersive infrared absorption sensing.
			3. Power Requirements: 18-30 VAC, 50/60 Hz.
			4. Operating Temperature: 32 to 122 degrees F (0 to 50 degrees C).

\*\* NOTE TO SPECIFIER \*\* Modbus is a messaging structure used to establish client-server communication between intelligent devices. It is an open standard and the most widely used network protocol in the industrial manufacturing environment. Modbus is used to monitor and program devices, communicate between sensors and instruments, and monitor field devices using PCs and HMIs.

* + 1. Modbus:
			1. Basis of Design: Modbus TRNS Gen 2 as manufactured by Brasch Environmental Technologies, LLC
				1. Communicates across a two-wire RS-485 bus using the Modbus RTU protocol.
				2. Addressable with up to 128 unique addresses
				3. Supports Function Code (FC) 04
				4. Provides gas sensor readings and error codes
				5. Data on This Bus: Readable by a remote device capable of interfacing with this protocol. The remote device is the client and the TRNS is the server.

Baud Rate: 9600

Data: 8 bits

Stop: 1 bit

Parity: None

Flow Control: None

* + - * 1. DIP Switch: 7-position. Used to set the device address.
				2. Programmed and configured at the factory; field adjustable.
				3. Address is assigned using a binary counting system.
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