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Specifier Notes: This product guide specification is written according to the Construction Specifications Institute (CSI) 3-Part Format, including *MasterFormat, SectionFormat,* and *PageFormat*

This section must be carefully reviewed and edited by the Architect or Engineer to meet the requirements of the project and local building code. Coordinate this section with other specification sections and the Drawings. Delete all “Specifier Notes” after editing this section.

Section numbers are from *MasterFormat 2020 Update.*

SECTION 28 42 00

GAS DETECTION AND ALARM

Specifier Notes: Delete any information below in Parts 1, 2 or 3 which is not required or relevant for the project.

1. GENERAL
	1. SECTION INCLUDES
		1. Fixed gas detection.
			1. AMC-1BZX Gas Monitor
			2. AMC-122X Multi Drop Gas Sensor Modules
		2. Remote Alarm Modules.
			1. AMC-RAM-3 Remote Audio/Visual Alarm.
	2. RELATED SECTIONS
		1. Division 16 - Electrical.
	3. REFERENCES
		1. CSA Group (CSA):
			1. CAN/CSA C22.2 No. 205-17 - Signal Equipment - Second Edition.
		2. Underwriters Laboratories (UL):
			1. ANSI / UL 1635: 2018 - Digital Alarm Communicator System Units - Fourth Edition.
		3. National Electrical Manufacturers Association (NEMA):
			1. NEMA 4X - Watertight and corrosion resistant enclosures constructed for indoor or outdoor use.
			2. NEMA 4 – Water resistant and corrosion resistant enclosures constructed for indoor or outdoor use.
	4. 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.
	5. 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.
	6. 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.
	7. 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.
	8. 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.
	9. WARRANTY
		1. Manufacturer's standard limited warranty unless indicated otherwise.
2. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: Armstrong Monitoring, which is located at: 215 Colonnade Road South.; Ottawa, Ontario, Canada K2E 7K3; Toll Free Tel: 1-800-465-5777; Fax: (613) 225-6965; Email: quotes@armstrongmonitoring.com Web: [https://armstrongmonitoring.com/](https://armstrongmonitoring.com/%20)
		2. Substitutions: Not permitted.
		3. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
	2. FIXED GAS DETECTION
		1. Basis of Design: Model AMC-1BZ Gas Monitors as manufactured by Armstrong Monitoring.
			1. Gas Monitor for use with AMC-1220 Series Gas Transmitters, supports 1 or 2 zones of up to 10 Transmitters each.
			2. Certifications
				1. CSA Listed for Canada and USA.
			3. Recommended Mounting Height: 4-5 ft. (1.2 – 1.5m) A.F.F
			4. Housing: UV Stabilized Polycarbonate (LxWxH): 11.75 x 9.98 x 5.46 inch (299 x 253 x 139 mm).
				1. Rating: UL 94V-0
				2. Lockable with hinged door.
			5. Power Supply:
				1. AMC-1BZ1/Z2: 120 VAC, 60 Hz. Rated 53VA.
				2. AMC-1BZ1-LV, AMC-1BZ2-LV: 24VDC, Rated 2A
			6. Analog Outputs:
				1. Two independent outputs, can be linked to either zone.
				2. User-Selectable: 4 to 20 mA, or 0 to 10 VDC
			7. Relays:
				1. AMC-1BZ1: Two DPDT 10A @ 250 VAC Res
				2. AMC-1BZ2: Four DPDT 10A @ 250 VAC Res
			8. Display: OLED Display (8 lines x 20 characters).
				1. Displays zone status, system configuration options and alarm levels.
				2. Three button user interfaces to view or change system configuration parameters
			9. Front Panel Indicators: 3 LEDs
				1. Sensor; indicates highest error level if multiple errors are reported.
				2. Network; Not applicable to the 1B Series. LED will display flashing Green.
			10. Alarm: Buzzer, 95 dBa at (100 mm), 3.5 kHz piezoelectric element.
			11. Temperature Range: -4 to 104 degrees F (-20 to 40 degrees C).
			12. Humidity Range: 15-90 percent RH Non-condensing.
			13. Atmospheric Pressure: 0.9 to 1.1 atm.
			14. Connecting Terminals
				1. Wire Range, Power and Signal: 22 AWG to 12 AWG (0.2-2.5 sq.mm.);
				2. Wire Range, Ground: 22 AWG to 10 AWG (0.2-4 sq.mm.
				3. Strip Length: 0.3 in. (8 mm)
				4. Torque: 7 lb-in. (0.4 Nm)
				5. Relay connections: Ring Terminal for #6 stud
			15. Weight: 5.7 lbs. (2.6 kg) max.
			16. Accessories
				1. AMC-RAM-1B-WH Wiring Interface for RAM-3 and 1B Monitor (order one for each RAM3 up to maximum of 2 per 1B Monitor)
				2. AMC-1B-SG Spashguard to achieve IP Rating of IPx5.
		2. Basis of Design: Model AMC-1220 Series Transmitter as manufactured by Armstrong Monitoring.
			1. Fixed Gas Detector for single or dual sensor applications compatible with AMC-1BZ Series Monitors.
			2. Recommended Mounting Height: 4-5 ft. (1.2 – 1.5m) A.F.F
			3. Coverage Area
				1. AMC-1222 and AMC-1228: up to 7500 sq. ft. (700 sq. m.); 50 ft (15m) radius
				2. AMC-1225: up to 2000 sq. ft. (175 sq. m.); 25 ft (7.5m) radius
			4. Gas Options:
				1. Carbon Monoxide (CO) and Nitrogen Dioxide (NO2).

AMC-1222-3; CO 0-100ppm, NO2 0-3ppm.

* + - * 1. Carbon Monoxide (CO)

AMC-1228-20s; 0-100ppm

* + - * 1. Nitrogen Dioxide (NO2)

AMC-1228-28s; 0-10ppm

* + - * 1. Combustible Gases

AMC-1225 0-50% LEL

* + - 1. Expected Sensor Life: Up to 6 years (CO) or up to 3 years (NO2).
			2. Sensor Calibration: Recommended recalibration every 6 months.
			3. Housing: Grey Polycarbonate Enclosure (LxWxH): 5.45 x 4.64 x 2.35 inch (138 x 118 x 60 mm)
			4. Power Supply: 6-30 VDC.
			5. Temperature Range:
				1. AMC-1222-3/1228-20s/1228-28s: -4 to 104 degrees F (-20 to 40 degrees C).
				2. AMC-1225: 32 to 104 degrees F (0 to 40 degrees C).
			6. Humidity Range: 15-90 percent RH Non-condensing.
			7. Atmospheric Pressure: 0.9 to 1.1 atm.
			8. Weight: 0.8 lbs. (0.36 kg) max.
			9. Front Panel Indicators: 3 LEDs
				1. AMC-1222; CO, NO2, Comfort Zone, Power
				2. AMC-1225; High, Low, Power/Fail.
				3. AMC-1228; High, Low, Power/Fail.
			10. Signal Interface
				1. Multidrop Voltage Output

Fail: 0 VDC

Normal: 1 VDC

Low Alarm: 2 VDC

High Alarm: 3 VDC

* + - 1. Connecting Terminals
				1. Wire Range: 18 AWG (0.82 sq.mm.);
				2. Strip Length: 0.35 in. (9 mm)
			2. Accessories
				1. AMC-WS00-SL Weathershield
				2. AMC-VG-XL Vandal Guard Universal fit
				3. 3473501-6 Pole Mounting Bracket (included with each transmitter)
				4. AMC-C1-FE1 Cal Kit for AMC-1222 and AMC-1228 Series
	1. REMOTE ALARM MODULES
		1. Basis of Design: Model AMC-RAM-3 Remote Alarm Monitor as manufactured by Armstrong Monitoring.
			1. Designed to offer remote audio/visual signaling of alarms, in conjunction with any of Armstrong Monitoring's monitor systems, the AMC-RAM-3 is perfect for mechanical rooms, confined spaces, or general remote alarming requirements.
			2. Recommended Mounting Height: 4-5 ft. (1.2 – 1.5m) A.F.F
			3. Housing: Polypropylene (LxWxH): 11.75 x 9.98 x 5.46 inch (299 x 253 x 139 mm).
				1. Degree of Protection: NEMA 4X
			4. Power Supply: 12-24 VDC, 275mA with strobe and buzzer operating.
			5. Indicators:
				1. Red Strobe Light, 90 strobes/minute
				2. Buzzer 85 dBa at (610 mm), 2.9 kHz piezoelectric element.
			6. Audio Alarm Acknowledge switch silences alarm, but visual alarm continues until gas clears
			7. Temperature Range:
				1. Operating: Minus 40 to 140 degrees F (Minus 40 to 50 degrees C).
				2. Storage: Minus 40 to 167 degrees F (Minus 40 to 70 degrees C).
			8. Humidity Range: 0-99 percent RH Non-condensing.
			9. Atmospheric Pressure: 0.9 to 1.1 atm.
			10. Connecting Terminals, Power
				1. Wire Range: 22 AWG to 16 AWG (0.2-1.5 sq.mm.);
				2. Ring Terminal for #6 stud.
				3. Torque: 7 lb-in. (0.4 Nm)
			11. Connecting Terminal, Ground:
				1. Wire Range, Ground: 14 AWG to 2 AWG (2.08-33.6 sq.mm.)
				2. Strip Length: 0.47 in. (11.9 mm)
				3. Torque: 12 lb-in. (1.3 Nm)
			12. Weight: 3.3 lbs. (1.7 kg).
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.
		2. Manufacturer's Services: Coordinate manufacturer's services in accordance with appropriate sections in Division 01.
	5. 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