

INVITATION TO BID

Bid Invitation Number: #33-2012

Date of Issue: 03/12/2012

Sealed bids will be received in the office of the Division of Central Purchasing, 200 East Main Street, Lexington, Kentucky, until 2:00 PM, prevailing local time on 03/26/2012. Bids must be received by the above-mentioned date and time. Mailed bids should be sent to:

**Division of Central Purchasing**  
200 East Main Street, Rm 338  
Lexington, KY 40507, (859) 258-3320

The Lexington-Fayette Urban County Government assumes no responsibility for bids that are not addressed and delivered as indicated above. Bids that are not delivered to the Division of Central Purchasing by the stated time and date will be rejected.

All bids must have the company name and address, bid invitation number, and the commodity/service on the outside of the envelope.

Bids are to include all shipping costs to the point of delivery located at: See Specifications

Bid Security Required:  Yes  No Performance Bond Required:  Yes  No  
Cashier Check, Certified Check, Bid Bond (Personal checks and company checks will not be acceptable).

QTY	Commodity/Service
PCT	Hazardous Gas Detection Systems
	See specifications

<input checked="" type="checkbox"/> Bid Specifications Met <input type="checkbox"/> Exceptions to Bid Specifications. <i>Exceptions shall be itemized and attached to bid proposal submitted.</i>	<u>Check One:</u>	<u>Proposed Delivery:</u> 30-90 days after acceptance of bid.
<input checked="" type="checkbox"/> Yes The Lexington-Fayette Urban County Government will be using Procurement Cards to purchase goods and services and also to make payments. Will you accept Procurement Cards? <input type="checkbox"/> No	<u>Procurement Card Usage</u>	

Submitted by:

INDUSTRIAL PRODUCTS CORPORATION  
Firm

PO Box 246 / 3813 W. HWY. 146  
Address

BUCKNER, KY 40010  
City, State & Zip

**Bid must be signed:  
(original signature)**

David P. Lambert President

Signature of Authorized Company Representative - Title

DAVID P. LAMBERT  
Representative's Name (Typed or printed)

502.222.2401 2408  
Area Code - Phone - Extension Fax #

dlambert@ipcprotects.com  
E-Mail Address

The Affidavit in this bid must be completed before your firm can be considered for award of this contract.

**AFFIDAVIT**

Comes the Affiant, DAVID LAMBERT, and after being first duly sworn under penalty of perjury as follows:

1. His/her name is DAVID P. LAMBERT and he/she is the individual submitting the bid or is the authorized representative of

INDUSTRIAL PRODUCTS CORPORATION,

the entity submitting the bid (hereinafter referred to as "Bidder").

2. Bidder will pay all taxes and fees, which are owed to the Lexington-Fayette Urban County Government at the time the bid is submitted, prior to award of the contract and will maintain a "current" status in regard to those taxes and fees during the life of the contract.

3. Bidder will obtain a Lexington-Fayette Urban County Government business license, if applicable, prior to award of the contract.

4. Bidder has authorized the Division of Central Purchasing to verify the above-mentioned information with the Division of Revenue and to disclose to the Urban County Council that taxes and/or fees are delinquent or that a business license has not been obtained.

5. Bidder has not knowingly violated any provision of the campaign finance laws of the Commonwealth of Kentucky within the past five (5) years and the award of a contract to the Bidder will not violate any provision of the campaign finance laws of the Commonwealth.

6. Bidder has not knowingly violated any provision of Chapter 25 of the Lexington-Fayette Urban County Government Code of Ordinances, known as "Ethics Act."

7. Bidder acknowledges that "knowingly" for purposes of this Affidavit means, with respect to conduct or to circumstances described by a statute or ordinance defining an offense, that a person is aware or should have been aware that his conduct is of that nature or that the circumstance exists.

Further, Affiant sayeth naught.

David P. Lambert  
KYDL: L94646614

STATE OF Kentucky

COUNTY OF Jefferson

The foregoing instrument was subscribed, sworn to and acknowledged before me

by David P. Lambert on this the 23rd day of March, 2012.

My Commission expires: 07/22/2014

John L. Laffoon  
NOTARY PUBLIC, STATE AT LARGE

**Please refer to Section II. Bid Conditions, Item "U" prior to completing this form.**

## **I. GREEN PROCUREMENT**

### **A. ENERGY**

The Lexington-Fayette Urban County Government is committed to protecting our environment and being fiscally responsible to our citizens.

The Lexington-Fayette Urban County Government mandates the use of Energy Star compliant products if they are available in the marketplace (go to [www.Energystar.gov](http://www.Energystar.gov)). If these products are available, but not submitted in your pricing, your bid will be rejected as non-compliant.

ENERGY STAR is a government program that offers businesses and consumers energy-efficient solutions, making it easy to save money while protecting the environment for future generations.

#### Key Benefits

These products use 25 to 50% less energy  
Reduced energy costs without compromising quality or performance  
Reduced air pollution because fewer fossil fuels are burned  
Significant return on investment  
Extended product life and decreased maintenance

### **B. GREEN SEAL CERTIFIED PRODUCTS**

The Lexington-Fayette Urban County Government is also committed to using other environmentally friendly products that do not negatively impact our environment. Green Seal is a non-profit organization devoted to environmental standard setting, product certification, and public education.

Go to [www.Greenseal.org](http://www.Greenseal.org) to find available certified products. These products will have a reduced impact on the environment and on human health. The products to be used must be pre-approved by the LFUCG prior to commencement of any work in any LFUCG facility. If a Green Seal product is not available, the LFUCG must provide a signed waiver to use an alternate product. Please provide information on the Green Seal products being used with your bid response.

### **C. GREEN COMMUNITY**

The Lexington-Fayette Urban County Government (LFUCG) serves as a principal, along with the University of Kentucky and Fayette County Public Schools, in the Bluegrass Partnership for a Green Community. The Purchasing Team component of the Partnership collaborates on economy of scale purchasing that promotes and enhances environmental initiatives. Specifically, when applicable, each principal is interested in obtaining best value products and/or services which promote environment initiatives via solicitations and awards from the other principals.

If your company is the successful bidder on this Invitation For Bid, do you agree to extend the same product/service pricing to the other principals of the Bluegrass Partnership for a Green Community (i.e. University of Kentucky and Fayette County Schools) if requested?

Yes  No

## II. Bid Conditions

- A. No bid may be withdrawn for a period of sixty (60) days after the date and time set for opening.
- B. No bid may be altered after the date and time set for opening. In the case of obvious errors, the Division of Central Purchasing may permit the withdrawal of a bid. The decision as to whether a bid may be withdrawn shall be that of the Division of Central Purchasing.
- C. Acceptance of this proposal shall be enactment of an Ordinance by the Urban County Council.
- D. The bidder agrees that the Urban County Government reserves the right to reject any and all bids for either fiscal or technical reasons, and to award each part of the bid separately or all parts to one vendor.
- E. Minor exceptions may not eliminate the bidder. The decision as to whether any exception is minor shall be entirely that of the head of the requisitioning Department or Division and the Director of the Division of Central Purchasing. The Urban County Government may waive technicalities and informalities where such waiver would best serve the interests of the Urban County Government.
- F. Manufacturer's catalogue numbers, trade names, etc., where shown herein are for descriptive purposes and are to guide the bidder in interpreting the standard of quality, design, and performance desired, and shall not be construed to exclude proposals based on furnishing other types of materials and/or services. However, any substitution or departure proposed by the bidder must be clearly noted and described; otherwise, it will be assumed that the bidder intends to supply items specifically mentioned in this Invitation for Bids.
- G. The Urban County Government may require demonstrations of the materials proposed herein prior to acceptance of this proposal.
- H. Bids must be submitted on this form and must be signed by the bidder or his authorized representative. Unsigned bids will not be considered.
- I. Bids must be submitted prior to the date and time indicated for opening. Bids submitted after this time will not be considered.
- J. All bids mailed must be marked on the face of the envelope:

**"Bid on #33-2012 Hazardous Gas Detection Systems"**

and addressed to:     Division of Central Purchasing  
                                  200 East Main Street, Room 338  
                                  Lexington, Kentucky 40507

**The Lexington-Fayette Urban County Government assumes no responsibility for bids that are not addressed and delivered as indicated above. Bids that are not delivered to the Division of Central Purchasing by the stated time and date will be rejected.**

- K. Bidder is requested to show both unit prices and lot prices. In the event of error, the unit price shall prevail.
- L. A certified check or Bid Bond in the amount of XX percent of the bid price must be attached hereto. This check must be made payable to the Lexington-Fayette Urban County Government, and will be returned when the material and/or services specified herein have been delivered in accordance with specifications. In the event of failure to perform within the time period set forth

in this bid, it is agreed the certified check may be cashed and the funds retained by the Lexington-Fayette Urban County Government as liquidated damages. Checks of unsuccessful bidders will be returned when the bid has been awarded.

- M. The delivery dates specified by bidder may be a factor in the determination of the successful bidder.
- N. Tabulations of bids received may be mailed to bidders. Bidders requesting tabulations must enclose a stamped, self-addressed envelope with the bid.
- O. The Lexington-Fayette Urban County Government is exempt from Kentucky Sales Tax and Federal Excise Tax on materials purchased from this bid invitation. Materials purchased by the bidder for construction projects are not tax exempt and are the sole responsibility of the bidder.
- P. All material furnished hereunder must be in full compliance with OSHA regulations.
- Q. If more than one bid is offered by one party, or by any person or persons representing a party, all such bids shall be rejected.
- R. Signature on the face of this bid by the Bidder or his authorized representative shall be construed as acceptance of and compliance with all terms and conditions contained herein.
- S. The Entity (regardless of whether construction contractor, non-construction contractor or supplier) agrees to provide equal opportunity in employment for all qualified persons, to prohibit discrimination in employment because of race, color, creed, national origin, sex or age, and to promote equal employment through a positive, continuing program from itself and each of its sub-contracting agents. This program of equal employment opportunity shall apply to every aspect of its employment policies and practices.
- T. The Kentucky Equal Employment Opportunity Act of 1978 (KRS 45.560-45.640) requires that any county, city, town, school district, water district, hospital district, or other political subdivision of the state shall include in directly or indirectly publicly funded contracts for supplies, materials, services, or equipment hereinafter entered into the following provisions:

During the performance of this contract, the contractor agrees as follows:

- (1) *The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, age or national origin;*
- (2) *The contractor will state in all solicitations or advertisements for employees placed by or on behalf of the contractors that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, age or national origin;*
- (3) *The contractor will post notices in conspicuous places, available to employees and applicants for employment, setting forth the provisions of the non-discrimination clauses required by this section; and*
- (4) *The contractor will send a notice to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding advising the labor union or workers' representative of the contractor's commitments under the nondiscrimination clauses.*

The Act further provides:

KRS 45.610. Hiring minorities - Information required

- (1) *For the length of the contract, each contractor shall hire minorities from other sources*

*within the drawing area, should the union with which he has collective bargaining agreements be unwilling to supply sufficient minorities to satisfy the agreed upon goals and timetable.*

- (2) *Each contractor shall, for the length of the contract, furnish such information as required by KRS 45.560 to KRS 45.640 and by such rules, regulations and orders issued pursuant thereto and will permit access to all books and records pertaining to his employment practices and work sites by the contracting agency and the department for purposes of investigation to ascertain compliance with KRS 45.560 to 45.640 and such rules, regulations and orders issued pursuant thereto.*

**KRS 45.620. Action against contractor - Hiring of minority contractor or subcontractor**

- (1) *If any contractor is found by the department to have engaged in an unlawful practice under this chapter during the course of performing under a contract or subcontract covered under KRS 45.560 to 45.640, the department shall so certify to the contracting agency and such certification shall be binding upon the contracting agency unless it is reversed in the course of judicial review.*
- (2) *If the contractor is found to have committed an unlawful practice under KRS 45.560 to 45.640, the contracting agency may cancel or terminate the contract, conditioned upon a program for future compliance approved by the contracting agency and the department. The contracting agency may declare such a contractor ineligible to bid on further contracts with that agency until such time as the contractor complies in full with the requirements of KRS 45.560 to 45.640.*
- (3) *The equal employment provisions of KRS 45.560 to 45.640 may be met in part by a contractor by subcontracting to a minority contractor or subcontractor. For the provisions of KRS 45.560 to 45.640, a minority contractor or subcontractor shall mean a business that is owned and controlled by one or more persons disadvantaged by racial or ethnic circumstances.*

**KRS 45.630 Termination of existing employee not required, when**

*Any provision of KRS 45.560 to 45.640 notwithstanding, no contractor shall be required to terminate an existing employee upon proof that that employee was employed prior to the date of the contract.*

**KRS 45.640 Minimum skills**

*Nothing in KRS 45.560 to 45.640 shall require a contractor to hire anyone who fails to demonstrate the minimum skills required to perform a particular job.*

It is recommended that all of the provisions above quoted to be included as special conditions in each contract. In the case of a contract exceeding \$250,000, the contractor is required to furnish evidence that his work-force in Kentucky is representative of the available work-force in the area from which he draws employees, or to supply an Affirmative Action plan which will achieve such representation during the life of the contract.

- U. Any party, firm or individual submitting a proposal pursuant to this invitation must be in compliance with the requirements of the Lexington-Fayette Urban County Government regarding taxes and fees before they can be considered for award of this invitation and must maintain a "current" status with regard to those taxes and fees throughout the term of the contract. The contractor must be in compliance with Chapter 13 from the Code of Ordinances

of the Lexington-Fayette Urban County Government. The contractor must be in compliance with Ordinance 35-2000 pursuant to contractor registration with the Division of Building Inspection. If applicable, said business must have a Fayette County business license.

Pursuant to KRS 45A.343 and KRS 45A.345, the contractor shall

- (1) *Reveal any final determination of a violation by the contractor within the previous five year period pursuant to KRS Chapters 136 (corporation and utility taxes), 139 (sales and use taxes), 141 (income taxes), 337 (wages and hours), 338 (occupational safety and health of employees), 341 (unemployment and compensation) and 342 (labor and human rights) that apply to the contractor; and*
- (2) *Be in continuous compliance with the above-mentioned KRS provisions that apply to the contractor for the duration of the contract.*

A contractor's failure to reveal the above or to comply with such provisions for the duration of the contract shall be grounds for cancellation of the contract and disqualification of the contractor from eligibility for future contracts for a period of two (2) years.

- V. Vendors who respond to this invitation have the right to file a notice of contention associated with the bid process or to file a notice of appeal of the recommendation made by the Director of Central Purchasing resulting from this invitation.

Notice of contention with the bid process must be filed within 3 business days of the bid/proposal opening by (1) sending a written notice, including sufficient documentation to support contention, to the Director of the Division of Central Purchasing or (2) submitting a written request for a meeting with the Director of Central Purchasing to explain his/her contention with the bid process. After consulting with the Commissioner of Finance the Chief Administrative Officer and reviewing the documentation and/or hearing the vendor, the Director of Central Purchasing shall promptly respond in writing findings as to the compliance with bid processes. If, based on this review, a bid process irregularity is deemed to have occurred the Director of Central Purchasing will consult with the Commissioner of Finance, the Chief Administrative Officer and the Department of Law as to the appropriate remedy.

Notice of appeal of a bid recommendation must be filed within 3 business days of the bid recommendation by (1) sending a written notice, including sufficient documentation to support appeal, to the Director, Division of Central Purchasing or (2) submitting a written request for a meeting with the Director of Central Purchasing to explain his appeal. After reviewing the documentation and/or hearing the vendor and consulting with the Commissioner of Finance and the Chief Administrative Officer, the Director of Central Purchasing shall in writing, affirm or withdraw the recommendation.

### III. Procurement Contract Bid Conditions

- A. The terms of this agreement shall be for 2 years from the date of acceptance of this contract by the Lexington-Fayette Urban County Government. This agreement may be extended for an additional 2-(1) year renewals upon the written agreement of the bidder and the Lexington-Fayette Urban County Government. Said agreement must be in writing and must be executed prior to the expiration of the current agreement.
- B. Price Changes (Space Checked Applies)
- (XXX) 1. Prices quoted in response to the Invitation shall be firm prices for the first 90 days of the Procurement Contract. After 90 days, prices may be subject to revision and such changes shall be based on general industry changes. Revision may be either increases or decreases and may be requested by either party. There will be no more than one (1) price adjustment per quarter. Requests for price changes shall be received in writing at least twenty (20) days prior to the effective date and are subject to written acceptance before becoming effective. Proof of the validity of a request for revision shall be responsibility of the requesting party. The Lexington-Fayette Urban County Government shall receive the benefit of any decline that the seller shall offer his other accounts.
2. No provision for price change is made herein. Prices are to be firm for the term of this contract.
3. Procurement Level Contract
- C. If any contract item is not available from the vendor, the Lexington-Fayette Urban County Government, at its option, may permit the item to be back-ordered or may procure the item on the open market.
- D. All invoices must bear reference to the Lexington-Fayette Urban County Government Purchasing document numbers which are being billed.
- E. This contract may be canceled by either party thirty (30) days after delivery by canceling party of written notice of intent to cancel to the other contracting party.
- F. This contract may be canceled by the Lexington-Fayette Urban County Government if it is determined that the Bidder has failed to perform under the terms of this agreement, such cancellation to be effective upon receipt of written notice of cancellation by the Bidder.
- G. No substitutions for articles specified herein may be made without prior approval of the Division of Central Purchasing.



UNIT PRICE CONTRACT  
FOR  
HAZARDOUS GAS DETECTION SYSTEMS

GENERAL

- ✓ 1. The successful bidder will be supplying the following specified equipment only on a unit price basis.
- ✓ 2. There is no guarantee on the quantity that will be purchased during the duration of the Unit Price Contract. However, at Town Branch WWTP there are four (4) separate buildings with a total of fifty-nine (59) various hazardous gas detection sensors and associated controllers, at the West Hickman WWTP there are six (6) separate locations with a total of sixty-eight (68) various hazardous gas detection sensors and associated controllers, and for the Pump Stations Section there are four (4) individual pump stations with a total of seventeen (17) various hazardous gas detection sensors with an associated controller at each individual site.
- ✓ 3. Installation shall be by Division of Water Quality (DWQ) personnel.
- ✓ 4. A copy of this specification with each paragraph check marked to show specification compliance or marked to show deviations. All exceptions must be clearly noted and detailed. The LFUCG reserves the right to disallow any bid due to exception.
- ✓ 5. ***The terms of this contract shall be for two (2) years from the date of acceptance by the Lexington-Fayette Urban County Government. This contract may be extended for two (2) additional one (1) year term(s) based upon the written agreement of the bidder and the LFUCG.***

SCOPE OF SUPPLY

- ✓ 1. Furnish new hazardous gas detection system(s) that will be fully supported by manufacturer for a minimum of twenty (20) years.
- ✓ 2. Equipment will be used to replace existing MSA hazardous gas monitoring system(s) that will no longer be supported by manufacturer in the near future.
- ✓ 3. The hazardous gas monitoring system(s) shall measure and display gas concentration and provide local and/or remote alarms when preset limits are exceeded in an area. It shall consist of: gas controllers and FM-approved gas modules including, combustible gas modules (sensors and transmitters) to detect methane and/or other combustible gas(es), toxic gas modules (sensors and transmitters) to detect hydrogen sulfide (H<sub>2</sub>S), oxygen depletion (O<sub>2</sub>), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), chlorine (Cl<sub>2</sub>), ammonia (NH<sub>3</sub>), and sensor extension kits (as necessary).
- ✓ 4. Accessory items include a communication link to PLC's, SCADA's, and/or human-machine interfaces, remote calibration capabilities and battery backup capabilities.

**GENERAL REQUIREMENTS**

1. The equipment furnished shall be built by an established manufacturer of hazardous gas detection equipment with at least twenty (20) years of successful experience building high quality hazardous gas detection equipment with at least seventy-five hundred (7500) installations which may be inspected by the Owner (DWQ).

Specification Compliant	
Yes	No
✓	

2. The hazardous gas detection equipment specified shall be the **Sentry IT Controller Model # 5000-XX-IT-2-XXXX-AXX-3** and **Sentry IT Gas Sensor Module(s)** as manufactured by **Sierra Monitor Corporation** or equal.

Specification Compliant	
Yes	No
✓	

3. System shall be capable of accepting universal inputs from gas detectors such as MODBUS RTU, Sentry Bus (PSG), and/or analog inputs.

Specification Compliant	
Yes	No
✓	

4. An Ethernet based MODBUS TCP/IP interface shall be provided with the gas monitoring system to provide a communication link to PLC's, SCADA system, and/or human-machine interfaces. An optional embedded web server interface available, if required.

Specification Compliant	
Yes	No
✓	

5. All gas modules shall be provided with a permanent direct mounted calibration fitting, whether by rain shield or calibration fitting, and have tubing connected to them. The other end of the tubing shall be a fitting located approximately 4 feet above the floor for connection to the appropriate calibration gas. Opening of tubing at calibration gas delivery end shall face the floor or grating. *TUBING NOT PROVIDED*

Specification Compliant	
Yes	No
	✓

6. The Equipment Manufacturer shall warrant that the products and parts manufactured will be free from defects in material and workmanship for a period of two (2) years from shipment to jobsite.

Specification Compliant	
Yes	No
✓	

**DETAILED REQUIREMENTS**

**1. HAZARDOUS GAS MONITORING SYSTEM - GAS DETECTION SYSTEM CONTROLLER**

**A. Functional Requirements:**

1. Display: 7" backlit color touch screen mounted in rated NEMA 4X enclosure.

Specification Compliant	
Yes	No
✓	

2. Screens: Configurable to configuration screens, bar graphs, text data

Specification Compliant	
Yes	No
✓	

3. Indicator: Display of channel number and corresponding gas concentration.

Specification Compliant	
Yes	No
✓	

4. Indicator Lights: High intensity LED lights for Safe, Warning, Alarm.

Specification Compliant	
Yes	No
✓	

5. Trouble LED for controller with diagnostics.

Specification Compliant	
Yes	No
✓	

6. Must be a multi-channel controller capable of up to 32 channels.

Specification Compliant	
Yes	No
✓	

7. Two-way communication from controller to gas measurement modules.

Specification Compliant	
Yes	No
✓	

8. Inputs:

- a. Analog 4-20 mA DC: 3-wire or 4-wire per ISA specifications.
- b. MODBUS: RS-485 (adjustable 2400 – 38400 baud rate).
- c. Sentry Bus: Power, Signal, Ground (PSG).
- d. Dry Contact: Supervised or Non-supervised.

Specification Compliant	
Yes	No
✓	

9. Outputs:

- a. 4-20 mA DC retransmission
- b. Discrete outputs:

Programmable SPDT relay contacts (NO and NC) rated minimum 6 amps (optional 10 amp) at 120 VAC for common warning, common alarm, and common fault.

- c. Controller to Ethernet: MODBUS TCP (other protocols available).
- d. External Monitoring: PC interface with Web browser interface.
- e. Remote Management: SentryView to view logs and editing of variables and changes.
- f. Mass Storage: USB (Universal Serial Bus) port for Upload/Download and mass storage.

Specification Compliant	
Yes	No
✓	

10. FM Approved for use with the gas sensor modules

Specification Compliant	
Yes	No
✓	

11. Calibration: There shall be two modes of calibration:

- a. Calibration at the controller
- b. Calibration at each sensor/transmitter with specified cal gas

Specification Compliant	
Yes	No
✓	

B. Enclosure: NEMA 4X wall mount

Specification Compliant	
Yes	No
✓	

C. Power:

1. Accept 120 VAC +/- 10%, 50/60 Hz
2. Power consumption: 50W. Typical max. system: 200W
3. Channel power: 24 VDC
4. Monitor Power: Provides loop power to gas measurement instruments monitored by the controller.

Specification Compliant	
Yes	No
✓	

D. Battery Backup Capability: If required, it shall be capable of seamless power transfer and up to 24 hour duration.

Specification Compliant	
Yes	No
✓	

E. Sierra Monitor Corp: Model 5000-IT or engineer approved substitution.

Specification Compliant	
Yes	No
✓	

### Hazardous Gas Monitoring System – Detection Modules

1. Methane Gas Module:

- a. Sensor Type: Catalytic Bead.
- b. Sensor Mounting: Remote from transmitter up to 50 feet.
- c. Module Enclosure: Epoxy coated aluminum, NEMA 7/4X or stainless steel as required.
- d. Range: 0-100 percent lower explosive limit (LEL).
- e. Repeatability: Plus or minus 1 percent full scale.

Specification Compliant	
Yes	No
✓	

- f. Temperature Range: Minus 40 to 176 degrees F.
- g. Response Time: Less than 12 seconds to read 60 percent of step change.
- h. Drift: Plus or minus 5 percent of full scale per year.
- i. Integral Display: Fixed and scrolling LED with gas reading in %LEL.
- j. Standard Analog/Digital Outputs: 4-20 mA DC, Serial MODBUS RTU RS-485, and Sentry digital bus.
- k. Non-intrusive Calibration: Module shall be capable of being calibrated without the need to open the enclosure.
- l. Power: 24 VDC nominal. 10 – 30 VDC.
- m. Power Consumption: Maximum 2 W.
- n. Connection type: 3-wire.
- o. FM Standard 3600: Class 1, Div. 1, Groups B, C, & D.
- p. FM Approvals:
  - Standard 3600: Class 1, Div. 1, Groups B, C, & D.
  - Standard 3615: Explosion proof Electrical Equipment.
  - Standard 3810: Electrical & Electronic Test, Measuring & Process Control Equipment.
  - Standard 6320: Combustible Gas Sensors.
- q. Calibration: Must be calibrated every 180 days.
- r. Sensor Life: Typically greater than 2 years.
- s. Rain Shield/Dust Shield: to protect sensor from splashing liquids and hose down and debris.
- t. Sierra Monitor Corp: Model 5100-02-IT-A1-00-0-1 or engineer approved substitution.

**2. Hydrogen Sulfide (H2S) Gas Module:**

- a. Sensor Type: Electrochemical.
- b. Sensor Mounting: Remote from transmitter up to 15 feet.
- c. Module Enclosure: Epoxy coated aluminum, NEMA 7/4X or stainless steel as required.
- d. Range: 0-100 ppm.
- e. Repeatability: Plus or minus 2 percent full scale.
- f. Temperature Range: Minus 4 to 122 degrees F.
- g. Response Time: Less than 100 seconds to read 90 percent of step change.
- h. Drift: Less than 2 percent of full scale per month.
- i. Integral Display: Fixed and scrolling LED with gas reading in engineering units
- j. Standard Analog/Digital Outputs: 4-20 mA DC, Serial MODBUS RTU RS-485, and Sentry digital bus.
- k. Non-intrusive Calibration: Module shall be capable of being calibrated without the need to open the enclosure.
- l. Power: 24 VDC nominal. 10 – 30 VDC.
- m. Power Consumption: Maximum 2 W.
- n. Connection type: 3-wire.
- o. FM Standard 3600: Class 1, Div. 1, Groups B, C, & D.
- p. FM Approvals:
  - Standard 3600: Class 1, Div. 1, Groups B, C, & D.
  - Standard 3615: Explosion proof Electrical Equipment.
  - Standard 3810: Electrical & Electronic Test, Measuring & Process Control Equipment.
- q. Calibration: Must be calibrated every 180 days.
- r. Sensor Life: Typically greater than 2 years.
- s. Rain Shield/Dust Shield: to protect sensor from splashing liquids and hose down and debris.

Specification Compliant	
Yes	No
✓	

- t. Sierra Monitor Corp: Model 5100-05-IT-A1-00-0-1 or engineer approved substitution.

**3. Oxygen Depletion (O2) Gas Module:**

Specification Compliant	
Yes	No
✓	

- a. Sensor Type: Electrochemical.
- b. Sensor Mounting: Integral.
- c. Module Enclosure: Epoxy coated aluminum, NEMA 7/4X or stainless steel as required.
- d. Range: 5 – 25 percent by volume.
- e. Repeatability: Plus or minus 2 percent full scale.
- f. Temperature Range: Minus 4 to 122 degrees F.
- g. Response Time: Less than 100 seconds to read 90 percent of step change.
- h. Drift: Less than 2 percent of full scale per month.
- i. Integral Display: Fixed and scrolling LED with gas reading in engineering units
- j. Standard Analog/Digital Outputs: 4-20 mA DC, Serial MODBUS RTU RS-485, and Sentry digital bus.
- k. Auxiliary Connections: To allow daisy-chaining modules.
- l. Non-intrusive Calibration: Module shall be capable of being calibrated without the need to open the enclosure.
- m. Power: 24 VDC nominal. 10 – 30 VDC.
- n. Power Consumption: Maximum 2 W.
- o. Connection type: 3-wire.
- p. FM Approvals:
  - Standard 3600: Class 1, Div. 1, Groups B, C, & D.
  - Standard 3615: Explosion proof Electrical Equipment.
  - Standard 3810: Electrical & Electronic Test, Measuring & Process Control Equipment.
- q. Calibration: Must be calibrated every 180 days.
- r. Sensor Life: Typically greater than 2 years.



- s. Warranty: 2 years
- t. Rain Shield/Dust Shield: to protect sensor from splashing liquids and hose down and debris.
- u. Sierra Monitor Corp: Model 5100-03-IT-A1-00-0-0 or engineer approved substitution.

**4. Carbon Monoxide (CO) Gas Module:**

Specification Compliant	
Yes	No
✓	

- a. Sensor Type: Electrochemical.
- b. Sensor Mounting: Integral.
- c. Module Enclosure: Epoxy coated aluminum, NEMA 7/4X or stainless steel as required.
- d. Range: 0 – 500 ppm.
- e. Repeatability: Plus or minus 2 percent full scale.
- f. Temperature Range: Minus 4 to 122 degrees F.
- g. Response Time: Less than 100 seconds to read 90 percent of step change.
- h. Drift: Less than 2 percent of full scale per month.
- i. Integral Display: Fixed and scrolling LED with gas reading in engineering units
- j. Standard Analog/Digital Outputs: 4-20 mA DC, Serial MODBUS RTU RS-485, and Sentry digital bus.
- k. Auxiliary Connections: To allow daisy-chaining modules.
- l. *Non-intrusive Calibration: Module shall be capable of being calibrated without the need to open the enclosure.*
- m. Power: 24 VDC nominal. 10 – 30 VDC.
- n. Power Consumption: Maximum 2 W.
- o. Connection type: 3-wire.
- p. FM Approvals:
  - Standard 3600: Class 1, Div. 1, Groups B, C, & D.
  - Standard 3615: Explosion proof Electrical Equipment.
  - Standard 3810: Electrical & Electronic Test, Measuring & Process Control Equipment.
- q. Calibration: Must be calibrated every 180 days.

- r. Sensor Life: Typically greater than 2 years.
- s. Warranty: 2 years
- t. Rain Shield/Dust Shield: to protect sensor from splashing liquids and hose down and debris.
- u. Sierra Monitor Corp: Model 5100-04-IT-A1-00-0-0 or engineer approved substitution.

**5. Sulfur Dioxide (SO<sub>2</sub>) Gas Module:**

Specification Compliant	
Yes	No
✓	

- a. Sensor Type: Electrochemical.
- b. Sensor Mounting: Remote from transmitter up to 15 feet.
- c. Module Enclosure: Epoxy coated aluminum, NEMA 7/4X or stainless steel as required.
- d. Range: 0 – 100 ppm.
- e. Repeatability: Plus or minus 2 percent full scale.
- f. Temperature Range: Minus 4 to 122 degrees F.
- g. Response Time: Less than 100 seconds to read 90 percent of step change.
- h. Drift: Less than 2 percent of full scale per month.
- i. Integral Display: Fixed and scrolling LED with gas reading in engineering units
- j. Standard Analog/Digital Outputs: 4-20 mA DC, Serial MODBUS RTU RS-485, and Sentry digital bus.
- k. Auxiliary Connections: To allow daisy-chaining modules.
- l. Non-intrusive Calibration: Module shall be capable of being calibrated without the need to open the enclosure.
- m. Power: 24 VDC nominal. 10 – 30 VDC.
- n. Power Consumption: Maximum 2 W.
- o. Connection type: 3-wire.
- p. FM Approvals:

Standard 3600: Class 1, Div. 1, Groups B, C, & D.

Standard 3615: Explosion proof Electrical Equipment.

Standard 3810: Electrical & Electronic Test, Measuring & Process Control Equipment.

- q. Calibration: Must be calibrated every 180 days.
- r. Sensor Life: Typically greater than 2 years.
- s. Warranty: 2 years
- t. Rain Shield/Dust Shield: to protect sensor from splashing liquids and hose down and debris.
- u. Sierra Monitor Corp: Model 5100-10-IT-A1-00-0-1 or engineer approved substitution.

**6. Chlorine (Cl<sub>2</sub>) Gas Module:**

- a. Sensor Type: Electrochemical.
- b. Sensor Mounting: Remote from transmitter up to 10 feet.
- c. Module Enclosure: Epoxy coated aluminum, NEMA 7/4X or stainless steel as required
- d. Range: 0 – 10 ppm.
- e. Repeatability: Plus or minus 2 percent full scale.
- f. Temperature Range: Minus 4 to 122 degrees F.
- g. Response Time: Less than 100 seconds to read 90 percent of step change.
- h. Drift: Less than 2 percent of full scale per month.
- i. Integral Display: Fixed and scrolling LED with gas reading in engineering units
- j. Standard Analog/Digital Outputs: 4-20 mA DC, Serial MODBUS RTU RS-485, and Sentry digital bus.
- k. Auxiliary Connections: To allow daisy-chaining modules.
- l. Non-intrusive Calibration: Module shall be capable of being calibrated without the need to open the enclosure.
- m. Power: 24 VDC nominal. 10 – 30 VDC.
- n. Power Consumption: Maximum 2 W.

Specification Compliant	
Yes	No
✓	

- o. Connection type: 3-wire.
- p. FM Approvals:
  - Standard 3600: Class 1, Div. 1, Groups B, C, & D.
  - Standard 3615: Explosion proof Electrical Equipment.
  - Standard 3810: Electrical & Electronic Test, Measuring & Process Control Equipment.
- q. Calibration: Must be calibrated every 180 days.
- r. Sensor Life: Typically greater than 2 years.
- s. Warranty: 2 years
- t. Rain Shield/Dust Shield: to protect sensor from splashing liquids and hose down and debris.
- u. Sierra Monitor Corp: Model 5100-06-IT-A1-00-0-1 or engineer approved substitution.

**7. Ammonia (NH3) Gas Module:**

- a. Sensor Type: Electrochemical, refillable and re-buildable.
- b. Sensor Mounting: Integral.
- c. Module Enclosure: Epoxy coated aluminum, NEMA 7/4X or stainless steel as required.
- d. Range: 0 – 100 ppm.
- e. Repeatability: Plus or minus 2 percent full scale.
- f. Temperature Range: Plus 14 to 113 degrees F.
- g. Response Time: Less than 100 seconds to read 90 percent of step change.
- h. Drift: Less than 2 percent of full scale per month.
- i. Integral Display: Fixed and scrolling LED with gas reading in engineering units
- j. Standard Analog/Digital Outputs: 4-20 mA DC, Serial MODBUS RTU RS-485, and Sentry digital bus.
- k. Auxiliary Connections: To allow daisy-chaining modules.

Specification Compliant	
Yes	No
✓	

- l. Non-intrusive Calibration: Module shall be capable of being calibrated without the need to open the enclosure.
- m. Power: 24 VDC nominal. 10 – 30 VDC.
- n. Power Consumption: Maximum 2 W.
- o. Connection type: 3-wire.
- p. FM Approvals:
  - Standard 3600: Class 1, Div. 1, Groups B, C, & D.
  - Standard 3615: Explosion proof Electrical Equipment.
  - Standard 3810: Electrical & Electronic Test, Measuring & Process Control Equipment.
- q. Calibration: Must be calibrated every 180 days.
- r. Sensor Life: Typically greater than 2 years.
- s. Rain Shield/Dust Shield: to protect sensor from splashing liquids and hose down and debris.
- t. Sierra Monitor Corp: Model 5100-25-IT-A1-00-0-0 or engineer approved substitution.

**8. Calibration Equipment:**

- a. Calibrator: The calibrator shall provide a quick and convenient method of checking the response of the gas monitoring system. The calibrator shall be a non-intrusive hand held unit. When local calibration cannot be achieved due to inaccessibility of a sensor, remote calibration equipment (1/4" tubing running down from the module display to the sensor, remote adapter, etc.) shall be furnished and installed.

Specification Compliant	
Yes	No
✓	

- b. Sierra Monitor Corp: Model 1250 series or engineer approved substitution.
- c. Sierra Monitor Corp: Model 9210 permeation style calibrator for ammonia

**MANUFACTURER'S SERVICES**

1. Technical Representative: The Manufacturer shall furnish the services of trained technical representatives as needed, a minimum of one (1) full day per WWTP or Pump Station, to provide for a satisfactorily operating system.

Specification Compliant	
Yes	No
✓	

**SUBMITTALS**

1. Copy of the manufacturer's equipment warranty detailing the duration of the warranty and all limitations of the warranty.

Specification Compliant	
Yes	No
✓	

2. A copy of this specification with each paragraph check marked to show specification compliance or marked to show deviations. All exceptions must be clearly noted and detailed. The LFUCG reserves the right to disallow any bid due to exception

Specification Compliant	
Yes	No
✓	

3. All equipment and materials shall be new and shall be specially designed or selected for the function and service specified.

Specification Compliant	
Yes	No
✓	

4. Operation and Maintenance Manuals: Prior to delivery of equipment and up-dated as required during the installation of the equipment, the Manufacturer shall furnish complete and detailed installation, operation, and maintenance manuals, minimum of one (1) hard copy and one(1) digital format version per unit, which shall include the following information as a minimum requirement:

Specification Compliant	
Yes	No
✓	

- a. Name, address, and phone number of nearest competent service organization who can supply parts and service. If this is not the Manufacturer's own service department, then furnish the letters confirming that the named organization has been factory authorized to represent the manufacturer of the equipment furnished.
- b. Installation, operation, and maintenance brochures.
- c. All required operating instructions.
- d. All required maintenance instructions including schedules of routine maintenance.

Please write in the unit price per item below.

\*Note: Bidder's submitting "or equal" equipment please submit required information in "Blank Table"

Sierra Monitor Corporation Part Number(s)	Description	Unit Price
5000-16-IT-2-1400-A16-3	Sentry IT Controller: 16 point analog system NEMA 4X Stainless Steel Enclosure 120 VAC input power source MODBUS TCP Gateway	7,480.00
5100-02-IT-SI-A1-00-0-1	Sensor Module IT Series: Combustible – Catalytic Bead % LEL Aluminum Enclosure, ¾" NPT, Sentry, RS-485, 4-20 mA, & Digital Input, Standard Protection, Remote Sensor Kit with:	1,084.00
5311 – 02	Rainshield With Calibrator Part	38.40
5100-03-IT-SI-A1-00-0-1	Sensor Module IT Series: Oxygen – % Volume Aluminum Enclosure, ¾" NPT, Sentry, RS-485, 4-20 mA, & Digital Input, Standard Protection, Integral Sensor with:	1,216.00
5311 – 02	Rainshield With Calibrator Part	38.40
5100-05-IT-SI-A1-00-0-1	Sensor Module IT Series: Hydrogen Sulfide – PPM Aluminum Enclosure, ¾" NPT, Sentry, RS-485, 4-20 mA, & Digital Input, Standard Protection, Remote Sensor Kit with:	1,256.00
5311 – 02	Rainshield With Calibrator Part	38.40
5100-04-IT-SI-A1-00-0-1	Sensor Module IT Series: Carbon Monoxide – PPM Aluminum Enclosure, ¾" NPT, Sentry, RS-485, 4-20 mA, & Digital Input, Standard Protection, Remote Sensor Kit with:	1,256.00
5311 – 02	Rainshield With Calibrator Part	38.40

Sierra Monitor Corporation Part Number(s)	Description	Unit Price
5100-10-IT-SI-A1-00-0-1	Sensor Module IT Series: Sulfur Dioxide – PPM Aluminum Enclosure, 3/4" NPT, Sentry, RS-485, 4-20 mA, & Digital Input, Standard Protection, Remote Sensor Kit with:	1,256.00
5311 – 02	Rainshield With Calibrator Part	38.40
5100-06-IT-SI-A1-00-0-1	Sensor Module IT Series: Chlorine – PPM Aluminum Enclosure, 3/4" NPT, Sentry, RS-485, 4-20 mA, & Digital Input, Standard Protection, Remote Sensor Kit with:	1,256.00
5311 – 02	Rainshield With Calibrator Part	38.40
5100-25-IT-SI-A1-00-0-1	Sensor Module IT Series: Ammonia – PPM Aluminum Enclosure, 3/4" NPT, Sentry, RS-485, 4-20 mA, & Digital Input, Standard Protection, Remote Sensor* Kit with:	1,192.00
5311 – 02	Rainshield With Calibrator Part	38.40
FSB3510-01	Sentry Gateway to Convert Modbus TCP to Ethernet IP	1,450.00
D08 (Input Power Source)	24 VDC with 8 hour BBU	2,500.00
Model 1250 series Calibrator	Calibrator, a non-intrusive hand held unit	340.00
Model 9210 calibrator for ammonia	Permeation style calibrator for ammonia WITH PERMEATION TUBE	2,243.00

\* CANNOT REMOTE MOUNT AMMONIA SENSOR