



## INVITATION FOR SEALED BID

**BID 00-736**

**Description: Streaming Current Monitor  
Department: PUBLIC WORKS**

**NIGP Commodity Code(s): 493-96-00-000-0**

**Total pages including this page is 16**

**Note: FAXING OF BID WILL NOT BE ACCEPTED**

**Important Instruction – Read Carefully:**

**If you have obtained these bid specifications from either of:  
City of Tulsa's Fax-on-Demand (918-596-1171) or  
City of Tulsa's Website : <http://www.cityoftulsapurchasing.org/>**

**you must notify the buyer Patricia Cummings of your intent to bid by e-mail at [pcummings@ci.tulsa.ok.us](mailto:pcummings@ci.tulsa.ok.us) in order to receive addenda. The buyer will always acknowledge your e-mail for your records. All addenda will be posted on fax-on-demand and the website.**

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**Pay special attention to those pages with a reference to the following notes:**

**Note #1: Signature of authorized agent required**

**Note #2: Signature of an authorized agent and notarized required**

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**Your bid response should follow the same format listed above plus any additional format requested in the body of the bid invitation.**

**INVITATION FOR SEALED BIDS  
TO  
City of Tulsa**

200 CIVIC CENTER, ROOM 109, TULSA, OKLAHOMA 74103

Bid number and date of bid opening must appear on the lower  
left outside corner of bid envelopes and all related containers.

**DATE OF OPENING:** May 24, 2001

**BID NUMBER:** **BID 00-736**

**BID MUST BE IN THE CITY CLERK'S OFFICE AT THE ABOVE ADDRESS BY 5:00 P.M. THE DAY PRECEDING THE "DATE OF OPENING" SHOWN ABOVE.**

**BIDS WILL BE OPENED AT 8:30 A.M. IN THE CITY COUNCIL ROOM ON THE DAY SPECIFIED UNDER "DATE OF OPENING."**

PUBLISHED IN THE TULSA DAILY COMMERCE AND LEGAL NEWS: May 15, 16, 17, 18, 21, 2001

Bid must be accompanied by bidder's bond, cashier's check or certified check in the amount of: None

PLEASE READ TERMS AND CONDITIONS ON THE NEXT PAGE BEFORE COMPLETING BID DOCUMENTS

\*\*\*\*\* **THE FOLLOWING SECTION MUST BE COMPLETED BY BIDDER** \*\*\*\*\*

Delivery will be made in not more than \_\_\_\_\_ days after receipt of order.

Payment terms \_\_\_\_\_ % \_\_\_\_\_ days.

City of Tulsa may increase quantity of order at the unit price bid for \_\_\_\_\_ days. (Bidder to Specify Days)  
I have examined the terms and specifications and the instructions to bidders herein and agree, provided I am awarded a contract, to provide the above described items for the sum shown in accordance with the terms and specifications stated herein. All deviations are in writing and attached hereto.

Enclosed is a [  ] **BID BOND** ; [  ] **CASHIER'S CHECK**; [  ] Certified Check in the amount of \$ None \_\_\_\_\_, which I agree the City of Tulsa may retain as liquidated damages in the event of my failure to comply with the terms of this bid.

**MUST BE SIGNED BY AUTHORIZED AGENT TO BE VALID**

FIRM NAME \_\_\_\_\_ by \_\_\_\_\_

SIGNATURE OF AUTHORIZED AGENT

STREET \_\_\_\_\_ TITLE \_\_\_\_\_

CITY STATE \_\_\_\_\_ ZIP CODE \_\_\_\_\_ PHONE NUMBER \_\_\_\_\_ DATE \_\_\_\_\_

## GENERAL TERMS AND CONDITIONS OF SEALED BIDS

THESE ITEMS APPLY TO AND BECOME A PART OF THE BID.

**NO EXCEPTIONS TO THESE TERMS & CONDITIONS WILL BE CONSIDERED.**

1. **BIDS MUST BE SUBMITTED ON THIS FORM ONLY INCLUDING A SIGNATURE OF AN AUTHORIZED AGENT.** Each bid shall be placed in a separate envelope. Be sure envelope is completely and properly identified and sealed, showing the bid number and date in the lower left hand corner. Bids must be time stamped in the office of the City Clerk by 5:00 P.M. on the day before date of opening.
2. No bidder may withdraw his proposal for a period of thirty (30) days after the date and hour set for the opening of bids.
3. All prices shall be quoted F.O.B. Tulsa, Oklahoma, and delivery to City of Tulsa location shall be without additional charge.
4. The bidder shall attach the manufacturer's name of the equipment or material to be furnished, type, model numbers, manufacturer's descriptive bulletins and specifications. All guarantees and warranties should be clearly stated. This data shall be in sufficient detail to describe accurately the equipment or material to be furnished. Manufacturer's specifications, in respect to the successful bidder, shall be considered as part of his contract with the City of Tulsa.
5. The bidder shall show in the proposal both the unit prices and total amount, where required, of each item listed. In the event of error or discrepancy in the mathematics, the unit prices shall prevail.
6. Any exceptions or deviations from written specifications shall be shown in writing and attached to the bid form.
7. Each bidder agrees to comply with the terms of Title 5, Chapter 1, of Tulsa, Oklahoma Charter and revised ordinances relating to equal employment opportunity.
8. **THE ENCLOSED FORMS REGARDING NON-COLLUSION AND FINANCIAL INTEREST MUST BE SIGNED, NOTARIZED, AND RETURNED WITH THE BID.**
9. The City of Tulsa reserves the right to reject any and all bids, to waive any technicalities in the bidding, and to award each item to different bidders or all items to a single bidder.
10. All bids must be accompanied by bidders bond, cash, certified or cashier's check in the amount shown on the face of the bid form. This amount shall be retained by the City of Tulsa as liquidated damages in the event the successful bidder (or bidders) fails to execute a contract, if required. The bidder agrees that said amount is presumed to be the damages sustained by the City due to the impracticability and extreme difficulty in fixing the actual damages. The office of the City Clerk will return the bid deposits to the unsuccessful bidders, after a contract has been awarded or all bids have been rejected.
11. In the event cash discounts are offered by the bidder, the discount date shall begin with the date of invoice, the date of receipt of all material covered by the purchase order, or the date of receipt by the City of Tulsa of the original copy of the purchase order with properly executed Affidavit of Claimant, whichever is the later date.
12. Direct purchase of certain items of equipment or material by the City of Tulsa are exempt from Federal Excise Tax and Oklahoma Sales Tax. In such cases the bidder shall quote prices which do not include Federal Excise Tax and Oklahoma Sales Tax. The City of Tulsa will furnish executed exemption certificates upon presentation by the bidder at the time of purchase.
13. Bid must show number of days required for delivery under normal conditions. Failure to state delivery time obligates bidder to complete delivery in fourteen (14) calendar days. Unrealistically short or long delivery promises may cause bid to be disregarded. Contractor must keep Purchasing Department advised at all times of status of order. Default in promised delivery or failure to meet specifications authorizes the Purchasing Agent to purchase supplies elsewhere and charge full increase of cost and handling to defaulting contractor. Consistent failure to meet delivery promises without valid reason may cause removal from bid list.
14. Bidder agrees to defend and save City of Tulsa from and against all demands, claims, suits, costs, expenses, damages and judgments based upon infringement of any patent relating to goods specified in this order or the ordinary use or operation of such goods by City or use or operation of such goods in accordance with bidders direction.
15. If the bid requires a written contract, the successful bidder shall execute a written contract with the City of Tulsa and return the required bonds and insurance certificates within ten (10) days after submission of contracts to said bidder by the City.



# BIDDER AFFIDAVIT - TITLE 74 O.S. (1974 SUPP.) 85.22-85.25

STATE OF \_\_\_\_\_ COUNTY OF \_\_\_\_\_

\_\_\_\_\_, of lawful age, being first duly sworn on oath says  
**Authorized Agent**

1. (s)he is the duly authorized agent of \_\_\_\_\_, the bidder submitting the competitive bid which is attached to this statement, for the purpose of certifying the facts pertaining to the existence of collusion among bidders and between bidders and municipal officials or employees, as well as facts pertaining to the giving or offering of things of value to government personnel in return for special consideration in the letting of any contract pursuant to the bid to which this statement is attached.
2. (s)he is fully aware of the facts and circumstances surrounding the making of the bid to which this statement is attached and has been personally and directly involved in the proceedings leading to the submission of such bid; and
3. neither the bidder nor anyone subject to the bidder's direction or control has been a party;
  - a. to any collusion among bidders in restraint of freedom of competition by agreement to bid at a fixed price or to refrain from bidding,
  - b. to any collusion with any municipal official or employee as to quantity, quality or price in the prospective contract, or as to any other terms of such prospective contract, nor
  - c. in any discussions between bidders and any municipal official concerning exchange of money or other thing of value for special consideration in the letting of a contract.

\_\_\_\_\_  
SIGNATURE OF AUTHORIZED AGENT

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

\_\_\_\_\_  
Signature of Notary Public

\_\_\_\_\_  
MY COMMISSION EXPIRES

**The Bidder Affidavit must be completed, signed by an authorized agent, and notarized.**

# CONTRACTOR/BIDDER INFORMATION SHEET

To be completed by all Bidders  
For Contracts with the City of Tulsa  
(Please print or type)

Project No. or Description \_\_\_\_\_  
\_\_\_\_\_

Full Name of Bidder \_\_\_\_\_

Legal Identity  
(Corporation, Partnership,  
Individual, etc.) \_\_\_\_\_

Address \_\_\_\_\_  
\_\_\_\_\_

Telephone No. \_\_\_\_\_

FAX No. \_\_\_\_\_

Taxpayer Identification Number \_\_\_\_\_

Contact Person \_\_\_\_\_

Phone No. \_\_\_\_\_

Fax No. \_\_\_\_\_

E-mail address \_\_\_\_\_

Webpage Address \_\_\_\_\_

# Price Sheet Summary

---

Vendor Name: \_\_\_\_\_ Date: \_\_\_\_\_

Signature: \_\_\_\_\_

**You will be able to obtain a copy of the Bid Summary on the City of Tulsa's Purchase-Net Fax-on-Demand and Website shortly after bid opening.**

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## **BID 00-736 Streaming Current Monitor Public Works Department**

<b>Item</b>	<b>Qty.</b>	<b><u>Description</u></b>	<b><u>Price Each</u></b>
(1)	3	or more	Model 2000 XR Streaming Current Monitor with Dura-Trac Sensor (or Acceptable Equivalent)
			\$ _____

Specify brand and model bidding: \_\_\_\_\_

**TOTAL BID:** \$ \_\_\_\_\_

Please attach any descriptive literature available

**BID 00-736**  
**Streaming Current Monitor**  
**PUBLIC WORKS DEPARTMENT**

**INTENT:**

THE INTENT OF THESE SPECIFICATIONS IS TO SECURE, ON A COMPETITIVE BASIS, A SOURCE TO **SUPPLY STREAMING CURRENT MONITOR(S)** FOR THE CITY OF TULSA'S PUBLIC WORKS DEPARTMENT.

**PRICING:**

PRICES BID SHALL BE FIRM AND INCLUDE ANY APPLICABLE FREIGHT CHARGES.

**BIDDER'S AFFIDAVIT:**

EACH BIDDER SHALL ACCOMPANY THEIR BID WITH A FULLY EXECUTED AND NOTARIZED COPY OF THE ATTACHED **NON-COLLUSION AFFIDAVIT** AND THE **INTEREST AFFIDAVIT**. FAILURE TO DO SO MAY BE CAUSE FOR REJECTION OF THE BID.

**METHODS OF SAMPLING, INSPECTIONS & TESTS:**

1. AFTER BID RESULTS ARE TABULATED, THE CITY OF TULSA PURCHASING DIVISION RESERVES THE RIGHT TO REQUIRE SAMPLES OF SELECTED EQUIPMENT AND/OR PRODUCTS FOR INSPECTION AND EVALUATION.
2. UNLESS OTHERWISE SPECIFIED IN THE CONTRACT OR PURCHASE ORDER, THE SUPPLIER SHALL BE RESPONSIBLE FOR THE PERFORMANCE OF ALL INSPECTION AND TEST REQUIREMENTS NECESSARY TO INSURE COMPLIANCE WITH REQUIREMENTS FOR THIS SPECIFICATION. THIS DOES NOT PRECLUDE SUBSEQUENT INSPECTION AND TESTIMONY BY THE CITY OF TULSA TO FURTHER DETERMINE CONFORMANCE WITH SPECIFICATION REQUIREMENTS OF QUALITY STANDARDS OF WORKMANSHIP, MATERIAL AND CONSTRUCTION TECHNIQUES.

**ADDENDA AND INTERPRETATIONS:**

IF IT BECOMES NECESSARY TO REVISE ANY PART OF THIS BID, A WRITTEN ADDENDUM WILL BE PROVIDED TO ALL THE BIDDERS. THE CITY OF TULSA IS NOT BOUND BY ANY ORAL REPRESENTATION, CLARIFICATIONS OR CHANGES MADE IN THE WRITTEN SPECIFICATIONS BY CITY OF TULSA EMPLOYEES UNLESS SUCH CLARIFICATION OR CHANGE IS PROVIDED TO BIDDERS IN WRITTEN ADDENDUM FORM FROM THE PURCHASING DIVISION.

### **ALTERING BIDS:**

BIDS CANNOT BE ALTERED OR AMENDED AFTER SUBMISSION DEADLINE. ANY INTERLINEATION, ALTERATION, OR ERASURE MADE BEFORE OPENING TIME AND DATE MUST BE INITIALED BY THE SIGNER OF THE BID, GUARANTEEING AUTHENTICITY. BIDS MUST BE SUBMITTED IN INK OR TYPEWRITTEN, PENCILING WILL NOT BE ACCEPTED.

### **TESTS:**

THE CITY RESERVES THE RIGHT TO SUBJECT ALL PRODUCTS OFFERED, PRIOR TO AWARD OF BID, TO WHATEVER PHYSICAL AND OR CHEMICAL TESTS ARE DEEMED NECESSARY TO SATISFY THE PURPOSE FOR WHICH THEY ARE REQUIRED. IF ADDITIONAL SAMPLES ARE REQUIRED TO COMPLETE SUCH TESTS, THEY SHALL BE SUPPLIED BY THE BIDDER AT NO ADDITIONAL COST.

### **DESCRIPTIVE LITERATURE:**

EACH BIDDER IS REQUIRED TO FURNISH WITH THEIR BID, CATALOG CUTS AND/OR DESCRIPTIVE LITERATURE, PROPERLY LABELED WITH THE BID NUMBER AND BIDDER'S NAME, WITH FULL ILLUSTRATIONS AND DETAILED SPECIFICATIONS FOR EACH ITEM OFFERED AS EQUAL TO THE BRAND NAME SPECIFIED. IN ADDITION, **ALL DIFFERENCES IN SPECIFICATIONS FROM THE SPECIFICATIONS STATED HEREIN MUST BE SO MARKED.** DESCRIPTIVE LITERATURE IS REQUIRED TO ESTABLISH, FOR THE PURPOSE OF BID EVALUATION AND AWARD, DETAILS OF THE PRODUCT(S) THE BIDDER PROPOSES TO FURNISH AS TO DESIGN, MATERIALS, METHOD OF MANUFACTURE, CONSTRUCTION, ASSEMBLY OR OPERATION, AS APPROPRIATE. **FAILURE TO SUBMIT THE DESCRIPTIVE LITERATURE MAY BE CAUSE FOR REJECTION OF YOUR BID.**

### **AMERICANS WITH DISABILITIES ACT:**

THE CONTRACTOR SHALL TAKE THE NECESSARY ACTIONS TO ENSURE ITS FACILITIES AND EQUIPMENT ARE IN COMPLIANCE WITH THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT. IT IS UNDERSTOOD THAT THE PROGRAM OF THE CONTRACTOR IS NOT A PROGRAM OR ACTIVITY OF THE CITY OF TULSA. THE CONTRACTOR AGREES THAT ITS PROGRAM OR ACTIVITY WILL COMPLY WITH THE REQUIREMENTS OF THE ADA. ANY COSTS OF SUCH COMPLIANCE WILL BE THE RESPONSIBILITY OF CONTRACTOR. UNDER NO CIRCUMSTANCES WILL CONTRACTOR CONDUCT ANY ACTIVITY WHICH IT DEEMS TO NOT BE IN COMPLIANCE WITH THE ADA.

### **AWARD OF BID:**

THE BID SHALL BE AWARDED TO THE FIRM WHOSE PROPOSAL IS RESPONSIVE TO THE BID AND IS MOST ADVANTAGEOUS TO THE CITY,

CONSIDERING THE FACTORS IDENTIFIED IN THE BID AND SECTION 406E OF TITLE 6, THE PURCHASING ORDINANCE SET FORTH BELOW:

E. AWARD OF CONTRACT.

1. AUTHORITY OF MAYOR. THE MAYOR SHALL HAVE THE AUTHORITY TO AWARD CONTRACTS WITHIN THE PURVIEW OF THIS CHAPTER.

2. LOWEST SECURE BIDDER. CONTRACTS SHALL BE AWARDED TO THE LOWEST SECURE BIDDER MEETING SPECIFICATIONS. IN DETERMINING "LOWEST SECURE BIDDER", IN ADDITION TO PRICE, THE FOLLOWING FACTORS SHALL BE CONSIDERED:

A. THE ABILITY, CAPACITY AND SKILL OF THE BIDDER TO PERFORM THE CONTRACT OR PROVIDE THE SERVICE REQUIRED;

B. WHETHER THE BIDDER CAN PERFORM THE CONTRACT OR PROVIDE THE SERVICE PROMPTLY OR WITHIN THE TIME SPECIFIED, WITHOUT DELAY OR INTERFERENCE;

C. THE CHARACTER, INTEGRITY, REPUTATION, JUDGMENT, EXPERIENCE AND EFFICIENCY OF THE BIDDER;

D. THE QUALITY OF PERFORMANCE OF PREVIOUS CONTRACTS OR SERVICES;

E. THE PREVIOUS AND EXISTING COMPLIANCE BY THE BIDDER WITH LAWS AND ORDINANCES RELATING TO THE CONTRACT OR SERVICE;

F. THE SUFFICIENCY OF THE FINANCIAL RESOURCES AND ABILITY OF THE BIDDER TO PERFORM THE CONTRACT OR PROVIDE THE SERVICE;

G. THE QUALITY, AVAILABILITY AND ADAPTABILITY OF THE SUPPLIES OR CONTRACTUAL SERVICES TO THE PARTICULAR USE REQUIRED;

H. THE ABILITY OF THE BIDDER TO PROVIDE FUTURE MAINTENANCE AND SERVICE FOR THE USE OF THE SUBJECT OF THE CONTRACT, AND;

I. WHERE AN EARLIER DELIVERY DATE WOULD BE OF GREAT BENEFIT TO THE REQUISITIONING AGENCY, THE DATE AND TERMS OF DELIVERY MAY BE CONSIDERED IN THE BID AWARD, AND;

J. THE NUMBER AND SCOPE OF CONDITIONS ATTACHED TO THE BID.

K. IF A POINT SYSTEM HAS BEEN UTILIZED IN THE BID SPECIFICATIONS, THE NUMBER OF POINTS EARNED BY THE BIDDER.

**BID DOCUMENTS:**

BIDDER SHALL RETURN ALL BID DOCUMENTS INTACT EXACTLY AS FURNISHED IN ITS ORIGINAL FORM. ALL BID DOCUMENTS REQUIRING SIGNATURE MUST BE SIGNED BY AN AUTHORIZED AGENT OF THE COMPANY BIDDING. PRINTING YOUR NAME IN LIEU OF SIGNATURE WILL NOT BE ALLOWED. **FAILURE TO COMPLY WILL RESULT IN REJECTION OF YOUR BID.**

**Minimum Specification  
Streaming Current Monitor  
April 2001**

**Intent:**

To supply three new streaming current monitors and up-grade three existing monitors at the Mohawk and A.B. Jewell Water Treatment Plants. The monitors will be placed before the rapid mix at the existing sampling locations.

**Engineering Specifications:**

The instrument shall be a streaming current monitor that continuously measures electrical charge in a water sample after the water has been dosed with coagulants, which destabilize suspended colloids. The instrument shall be capable of indicating on a digital meter the numerical charge value that corresponds to optimum coagulant dose. For ease of integration, the system shall transmit three analog output signals (0 to 10 Vdc, -10 to 10 Vdc, and 4 to 20mA) that are proportional to the Streaming Current Value. The system shall be calibrated at the factory for a +/-0.25% accuracy of reference readings. The system shall be two modules (sensor and monitor) capable of 5000 feet separation. Both modules require 110 VAC.

**Module I – Sensor:**

The sensor shall receive a sample at the rate of 5 gallons per minute to ensure sample line cleanliness and sensor cell reliability. The sensor shall have sample exit orifice larger than entrance orifice to avoid pressurizing the cell. The sensor response time shall not be greater than 2 seconds at recommended sample flow rate. Sample must enter cell from the side and exit at a 45 degrees downward angle to prevent accumulation of grit, sludge, sand, etc. The probe assembly shall be a quick disconnect type for ease of maintenance. The unit shall come standard with one spare replacement probe cartridge. Stainless steel electrodes located in the top and bottom of electrode module shall transmit the generated signal through shielded coaxial cable to the monitor. A timing signal from an optoelectric device in the sensor module shall be transmitted through a shielded twisted pair to the monitor.

**Module II – Monitor:**

The control module shall contain all circuitry and signal processing cards to provide outputs of 4-20mA, 0 to 10 VDC, -10 to +10 VDC, reference outputs and HIGH/LOW alarm contacts. The monitor shall have control and self-diagnostic functions as follows:

- (1) Adjustable High and Low alarm settings and relay contacts for both.
- (2) Meter zero adjustment, full scale on all ranges.
- (3) Signal gain switch adjustable 1X, 2X, 5X, 10X, 20X.
- (4) Internal, continuous adjustment for higher gain.
- (5) Digital LED display with -10.00 to +10.00 span.
- (6) Flashing LED sensor operation light. Monitor shall be wall mounted.

**Training:**

The bidder shall provide two days (16 hours) of training to provide instruction for start-up, operation, and maintenance of the streaming current monitors for City of Tulsa personnel.

### General Specifications:

#### Remote Sensor:

1. Power	115 VAC, 60 Hz (standard) 230 VAC, 50 Hz (optional)
2. Sample Flow Rate	5.0 Gal/Min
3. Sample Cell Type	External Receiver, High Flow
4. Probe Type	Quick Replacement Cartridge
5. Water Sample Connections	Inlet-3/4" O.D. Barb Type, Outlet – 1" O.D.
6. Materials Contacting Sample	Delrin, Nylon, Neoprene Viton, PVC, Stainless Steel
7. Output Wiring	1 ea. Coaxial RG-59/U, 22 AWG 1 ea. Shielded, Twisted Pair, 22 AWG
8. Enclosure Type	NEMA 4X, Polycarbonate
9. Operating Temperature	32 degrees F to 120 degrees F

#### Monitor:

1. Power	115 VAC, 60 Hz (standard) 230 VAC, 50 Hz (optional)
2. Meter Readout	Digital LED (-10 to +10)
3. Output Signals	4-20mA (600 ohm Load) Standard 0-10 VDC, Standard -10/+ VDC, Standard
4. Self-Diagnostics	Sensor Operation LED
5. High & Low Alarms	5A, 110/250 VAC, SPDT Relays
6. Gain Adjustment	External, 5 Pos. Switch (1X, 2X, 5X, 10X, 20X) Internal, Continuous Adjustment for Higher Gain
7. Alarm Adjustments	Full Scale All Ranges
8. Zero Adjustment	Full Scale All Ranges
9. Enclosure Type	Panel Mount – NEMA 1, ABS Wall Mount – NEMA 4X, Polycarbonate

<b>Item</b>	<b>Qty.</b>	<b>Specifications (Minimum)</b>	<b>Bidder's Proposal</b>
1.	3	Streaming Current Monitor SCM 2000 XRW with Duratrac Sensor or equivalent model.	
	3	Spare probe cartridge	
	3	Spare pistons	
	3	Manuals	
	3	25 ft coax cable	
2.	3	Chemtrac standard sensors to Duratrac sensors Upgrade 3 existing	
	3	Spare probe cartridges	
	3	Spare pistons	
	3	Manuals	

## ENGINEERING SPECIFICATIONS SCM 2000XR

The instrument shall be a streaming current monitor that continuously measures electrical charge in a water sample after the water has been dosed with coagulants which destabilize suspended colloids. The instrument shall be capable of indicating on a digital meter the numerical charge value that corresponds to optimum coagulant dose.

The system shall be two modules (sensor and monitor) capable of 5000 feet separation. Both modules require 110 VAC.

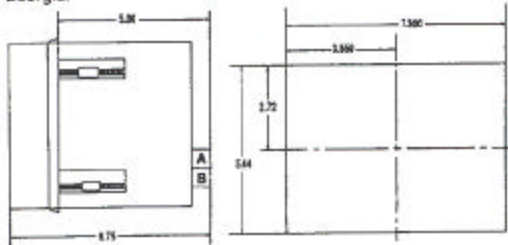
### MODULE I - SENSOR

The sensor shall receive a sample at the rate of 5 gallons per minute to ensure sample line cleanliness and sensor cell reliability. The sensor shall have sample exit orifice larger than entrance orifice to avoid pressurizing the cell. The sensor shall not contain any signal processing circuitry or electronic circuit cards. The sensor response time shall not be greater than 2 seconds at recommended sample flow rate. The sensor shall have a high flow, self cleaning cell that does not require any extra cleaning devices. Sample must enter cell from the side and exit at a 45 degree downward angle to prevent accumulation of grit, sludge, sand, etc. The probe assembly shall be a quick disconnect type for ease of maintenance. The unit shall come standard with one spare replacement probe cartridge. Stainless steel electrodes located in the top and bottom of electrode module shall transmit the generated signal through shielded coaxial cable to the monitor. A timing signal from an optoelectric device in the sensor module shall be transmitted through a shielded twisted pair, wire to the monitor.

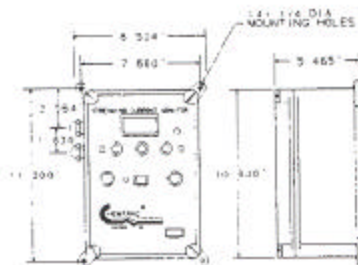
### MODULE II - MONITOR

The monitor shall contain all circuitry and signal processing cards to provide outputs of 4-20 mA DC, 0-10 VDC, +/- 10 VDC, and HIGH/LOW alarm contacts. All outputs and alarm contacts shall be integral in the monitor circuitry, and not require any external devices. The monitor shall have control functions as follows: (1) High and Low alarm adjustments and LED indicators for both. (2) Meter zero adjustment, full scale on all ranges. (3) Signal gain switch adjustable 1X, 2X, 5X, 10X, 20X. (4) Internal, continuous adjustment for higher gain. (5) LED digital meter with +/- 10 span. (6) Flashing LED sensor operation light. Monitor shall have wall mount or panel flush mount option.

The instrument shall be a Streaming Current Monitor Model 2000XR as manufactured by Chemtrac Systems, Inc. Norcross, Georgia.



PANEL MOUNT MONITOR



WALL MOUNT MONITOR

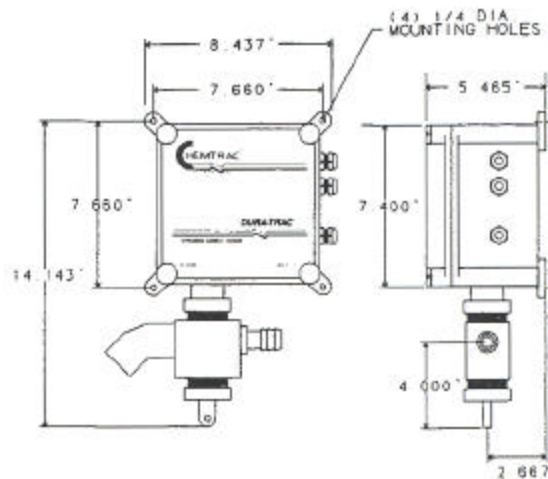
## GENERAL SPECIFICATIONS

### I. REMOTE SENSOR

Power .....	115 VAC, 60 Hz (standard) 230 VAC, 50 Hz (optional)
Sample Flow Rate .....	5.0 Gall/Min.
Sample Cell Type .....	External Receiver, High Flow
Probe Type .....	Quick Replacement Cartridge
Water Sample Connections .....	Inlet - 3/4" O.D., Barb Type Outlet - 1" O.D.
Materials Contacting Sample .....	Delrin, Nylon, Neoprene Viton, PVC, Stainless Steel
Output Wiring .....	1 ea. Coaxial RG-59U, 22 AWG 1 ea. Shielded, Twisted Par, 22 AWG
Enclosure Type .....	Nema 4X, Polycarbonate
Module Size .....	7.40" W, 14.14" H, 5.47" D
Weight .....	10 Pounds
Mounting Holes .....	7.66" x 7.66"
Operating Temperature .....	32 degrees F to 120 degrees F

### II. MONITOR

Power .....	115 VAC, 60 Hz (standard) 230 VAC, 50 Hz (optional)
Meter Readout .....	Digital LED (-10 to +10)
Output Signal .....	4-20 mA (600 ohm Load) Standard 0-10 VDC, Standard -10/+10 VDC, Standard
Self Diagnostics .....	Sensor Operation LED
High & Low Alarms .....	5A, 110/250 VAC, SPDT Relays
Gain Adjustment .....	External, 5 Pos. Switch (1X, 2X, 5X, 10X, 20X) Internal, Continuous Adjustment for Higher Gain
Alarm Adjustments .....	Full Scale All Ranges
Zero Adjustment .....	Full Scale All Ranges
Enclosure Type .....	Panel Mount - NEMA I, ABS Wall Mount - NEMA 4X, Polycarbonate
Dimensions .....	Panel Mount - 7 1/2" W, 5 1/2" H, 6 1/2" D Wall Mount - 8 1/2" W, 11" H, 5 1/2" D (optional) (Cutout Dimensions for Panel Mount - 7.30" W x 5.44" H) (Mounting Holes for opt. Wall Mount - 7.66" W x 11.20" H)



DURA-TRAC™ SENSOR  
SCM 2000XR MOUNTING & OUTLINE