Indian Institute of Technology Madras
Chennai-600 036
Department of Civil Engineering

Ref No: CIE/EWRE/2014/Flow Meter/SPL dated 17.07.2014

To

DUE DATE: **30.07.2014**

Sir/Madam,

1. Quotations are invited **in duplicate (Two bidding covers)** for the **item/s shown as per enclosed Specifications**.

2. The quotations duly sealed and superscribed on the envelope with the enquiry reference No. & due date should be addressed to the **Head of the Department, and contain in 2 bid system i.e. Technical bid and Commercial bid in two separate envelopes and these two envelopes should be enclosed in a Single envelope so as to reach on or before the due date.**

3. The quotation should be valid for **(60) Sixty days from the due date and period of delivery time** required.

4. Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the quotations, **wherever applicable**. Samples if called for, submitted free of charge and collected back at the suppliers expenses.

5. Firms outside Chennai: Quotations should be for F.O.R. Chennai. If F.O.R. consignor station, freight charges by passenger train/lorry transport must be indicated. If Ex-godown, packing Forwarding and Freight charges must be indicated.

6. Local Firms: Quotations should be for free delivery to this Institute. If quotations are for Ex-godown, delivery charges should be indicated separately.

7. Goods should be **supplied** by **carriage paid and insured**.

8. Goods shall not be supplied **without an official supply order**.

9. PAYMENT: The mode of payment should be mentioned.

10. Rate of Sales/General Taxes and percent of such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Wherever this is not done, no claim for any taxes will be admitted at any stage and any ground whatsoever. The taxes leviable should take into consideration that we are entitled to have Concessional Sales Tax applicable to Non-Government Educational Institutions run with no profit motive for which a concession. Sales Tax Certificates will be issued at the time of final settlement of the bill.

11. Warranty period: Explicitly Warranty period is to be given by the firms.

Yours sincerely,

For Head of the Department

Technical Specifications of Instruments

Sl. No.	Description of Instrument	Technical Specification	Qty.
	A. Flow Control System		
1	**Electromagnetic water flow meter with measurement display**	Media: Liquids (Conductive) Basic Application: Water Recommended flow rate: Min./max. Full scale velocity (v ~ 0.3 or 10 m/s) Excitation: Pulsed DC coil Type of Output: 4 to 20 mA DC, Isolated Display: 16 x 2 LCD - 4 digits for Flow Rate & 8 digit for Totalised Flow Calibration Range: 0-35 LPS, Line Size: 3 " Accuracy: +/- 0.5% F. S Process Temperature: 85°C (Max) Process Pressure: 10 Kg/cm (max) Material of construction: Lining - Rubber Flange - MS Electrode - SS 316L Coil Housing - MS Power Supply: 90 - 250 V AC, 50 Hz Transmitter Enclosure: As per IP-65 Process Connections: ASA 150 flanged, as per table B 16.5 Mounting: In-Line (Horizontal OR Vertical)	1
2	**Control Valves**	Type: pneumatic similar to pleucon Mounting: In-line horizontal Flow Range: 0 to 35 LPS Line Size: 3" diameter	1
3	**RS 485 to 232 Converter**	Power Supply: 230V AC / 24 V DC Conversion of RS 485 signal to 232 Signal User MODBUS Protocol Baud rate up to 115.2K baud	1
4	**PID Controller setup** to control the above said valve as mentioned in item No. (2) above.	Input: 4-20 mA, Output: 4-20 mA Auxiliary Power Supply: 24 V DC	1
5	**Microcontroller Based Flow Indicator and totalizer**	Model: FL-700 Input: Current (4-20 mA) Display: 8 x 2 LED consists of 4 digit for Flow Rate Indication & 8 digit for Totalised Flow Range: Programmable (0 to 9999) Accuracy: Better than +/- 0.25% of F. S. Power Supply: 90 - 250 V AC, 50 Hz Auxiliary Power Supply: 24 V DC @30mA Retransmission Output: 4-20mA DC Isolated Communication Port: RS 485 supporting MODBUS RTU protocol Enclosure: DIN Std Dimensions: 96 (H) x 96 (W) X 160 (D) in mm Mounting: Flush of the Panel	1

B. Measurement System			
6	**Guided Wave Radar Technology** for physical model level measurement along with local display and PC connectivity	Model: ELGWR Service: Water Type of Probe: Coaxial Range: 1.5 m Type of Output: 4 - 20 mA DC Local Indication: Through LCD (4 digit for Level) Power Supply: 24 V DC MOC: SS 316 Accuracy: +/- 1 mm MOC of Probe: SS Transmitter Enclosure: IP- 65 Process Connection: 1" BSP (M) Threaded Mounting: Vertical	2
7	**Microcontroller Based Level Indicator**	Model: DPC 808 No of input: 1 no Input: 4 – 20 mA DC Display: 4 x 1 Digits 0.5", 7 seg. LED Range: Programmable Power Supply: 230V AC +/- 10%, 50Hz Transmitter Power Supply: 24 V DC @100mA Communication Port: RS 485 supporting to MODBUS RTU Protocol Dimension: 96 x 96 x 160 in mm Mounting: Flush of the Panel Output: Data transfer with LED display including the provision of hardcopy	2
C. Terms and Conditions for the instrumentations			
i	**<u>For the items (1-5)</u>** Providing and fixing the control module including control cabinet and required fixtures and fittings as required at site for the complete flow control system. Data logging Software for online data visualization on main screen, online trends, historical graph and data export in MS Excel format.		
ii	**<u>For the items (1-7)</u>** Required control cabling and commissioning of the total system should be mentioned.		
ii	**<u>For the items (1-7)</u>** Programming Training Expenses should be mentioned.		