

Interdisciplinary Centre of Energy Research (ICER)

Indian Institute of Science (IISc), Bangalore, INDIA

Local Tender Notice

Tender Notification Ref No.: ICER/ENQ/TNDR/PK/22-23/02 Date: 06 April 2022

The *Interdisciplinary Centre of Energy Research (ICER)*, Indian Institute of Science Bangalore, invites tenders for supply of “**Mass Flow Meters, Temperature Transmitters, Pressure and Differential Pressure Transmitters**”. This Invitation for Bids is open to only domestic (India based) manufacturers, Indian OEM, or its authorized Indian distributors.

The tender includes **Design, Fabrication, Testing and Supply of Mass Flow Meters, Temperature Transmitters, Pressure and Differential Pressure Transmitters.**

This is a **Request for quote (RFQ)** from **Indian Agencies** for supply of “**HART output type Pressure and Differential Pressure Transmitters, Temperature Transmitters and Mass Flow Meters**” at the “**Interdisciplinary Centre of Energy Research (ICER), Indian Institute of Science, Bangalore.**

This Invitation for Bids is open to only domestic (India based) manufacturers, Indian OEM, or its authorized Indian distributors. All interested vendors shall submit a response demonstrating their capabilities to produce the requested equipment to the primary point of contact listed below.

With respect to this tender, the rules laid out by the Government of India in order No. P45021/2/2017-pp-BE-II issued by the Public Procurement Section, Department or Promotion of Industry and Internal Trade, Ministry of Commerce, and Industry, dated 4th June 2020 will be followed. As per the order the government has defined a ‘Class-I local supplier’ as “a supplier or service provider whose goods, services or work offered for procurement, has local content equal to or more than 50%”. A ‘Class-II local supplier’ is “a supplier or service provider, whose goods, services or works offered for procurement, has local content more than 20% but less than 50%”. Only Class-I and Class-II local suppliers are eligible to participate in this open domestic tender. Any “Non-local supplier” i.e., “a supplier or service provider, whose goods, services or works offered for procurement, has local content less than 20%” is ineligible to participate in this tender.

The deadline for submission of proposals is on or before **16th May 2022 by 5 pm**. Proposals should arrive at the office of The Chair, Interdisciplinary Centre of Energy Research (ICER), Indian Institute of Science, Bangalore, Karnataka 560012, India.

Direct all questions concerning the acquisition to addresses to Dr. Pramod Kumar at: pramod@iisc.ac.in

All the bidders are requested to follow below mentioned **Detailed Technical Requirements**,

Terms and Conditions for submission of bids.

Technical Specifications:

Description	Specification
1 Pressure and Differential Pressure Transmitter	
1.1 General	
1.1.a Function	Transmission and Indication
1.1.b Mounting	2" pipe mounted
1.1.c Enclosure protection	WP to IP-66 or better as per IEC-60529
1.1.d Quantity	4 numbers
1.2 Process Conditions	
1.2.a Fluid	Oxygen gas
1.2.b Design Pressure	250 Bar
1.2.c Operating Pressure	1 to 4 Bar
1.2.d Design Temperature	200 °C
1.2.e Operating Temperature	10 to 50 °C
1.3 Transmitter	
1.3.a Type	Inline Transmitter with Integral Manifold
1.3.b Accuracy	±0.025% of Span
1.3.c Response time	Below 100 milli seconds
1.3.d Output type	HART
1.3.e Rangeability	200:1 or better
1.3.f Stability	Installed stability of ±0.15% of URL for 15 years.

1.3.g	Power supply	24 VDC Loop powered
1.3.h	Sensor Type	Diaphragm
1.3.i	Sensor Material	SS 316L
1.3.j	Body Material	SS 316
1.3.k	Electrical Connection	1/2" NPT (F), 2 Nos. (Note-1)
1.3.l	Over Range Protection	130% of full scale
1.3.m	Communication type	HART
1.4 Other Requirements		
1.4.a	Mounting Brackets for 2" NB Pipe	Universal Mounting Bracket of SS with SS U bolts & Nuts
1.4.b	Configuration from	Universal HART Configurator
1.4.c	Hydrostatic Testing up to design pressure	
1.4.d	Lightning/Surge Protection	
2 Temperature Transmitter		
2.1 Process Conditions		
2.1.a	Fluid	Oxygen gas
2.1.b	Design Pressure	250 Bar
2.1.c	Operating Pressure	1 to 4 Bar
2.1.d	Design Temperature	200 °C
2.1.e	Operating Temperature	10 to 50 °C
2.2 Transmitter		
2.2.a	Output Signal Type	4-20mA - Smart
2.2.b	Protocol/Version	HART-7 / Latest
2.2.c	Conduit Connection	1/2" NPTF
2.2.d	Power supply	24V DC, Loop Powered, 2-wire
2.2.e	Enclosure Protection Type	Ex 'ia' / IP 65 / Zone-1, Gas Group IIA & IIB, T3
2.2.f	SIL Requirement	SIL - 2
2.2.g	EMC requirements (Radiofrequency)	IEC 61000 or EN61326 and NAMUR NE-21
2.2.h	Accuracy	±0.1% OF FS or ±0.1 °C
2.2.i	Extension Nipple/Union	1/2" NPTF
2.2.j	Quantity	4 numbers

2.3 Other Requirements	
2.3.a Display	LCD
2.3.b Testing Material Specification	
2.3.c Sour Service Specification	
2.3.d Lightning Protection	
2.3.e IP 65 Ingress Protection Rating	
3 Mass Flow Meter	
3.1 General	
3.1.a Function	Transmission, Indication and Data Storage
3.1.b Enclosure protection	WP to IP-66 or better as per IEC-60529
3.1.c Quantity	4 numbers
3.2 Process Conditions	
3.2.a Fluid	Oxygen gas
3.2.b Design Pressure	250 Bar
3.2.c Operating Pressure	1 to 4 Bar
3.2.d Design Temperature	200 °C
3.2.e Operating Temperature	10 to 50 °C
3.3 Sensor Transmitter	
3.3.a Type	Remote Flameproof Transmitter
3.3.b Accuracy	±0.25% of Rate
3.3.c Response time	Better than 0.6% at 0.3 kg/hr
3.3.d Output	4-20mA HART & RS485 Modbus with one or more Discrete output
3.3.e Power supply	AC & DC powered
3.3.f Process Connection	#8VCO Swagelok fittings with 1/2in 316 female adapters
3.3.g Sensor Wetted part	SS 316L
3.3.h Sensor Body/Housing Material	SS304
3.3.i Transmitter Housing Material	Low Copper Aluminum
3.3.j Electrical Connection	1/2" NPT (F)
3.3.k Calibration certificate	Required at minimum 4 points or more.
3.3.l Mounting	2" pipe mounted

3.3.m Transmitter should have USD port for downloading data logging in pen drive
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2) Vendor's scope of supply, for the Pressure and Differential Pressure Transmitters:

- a) Temperature sensor and transmitter
- b) Pressure sensor and transmitter
- c) Mass Flow Meter and transmitter
- d) Mounting Brackets and fasteners.
- e) Transmitter cables and attachments

3) Mandatory non-technical requirements:

- a) The bidders must enclose a client list, contact details, relevant brochures and Compliance Certificate as per Annexure I provided with the tender.
- b) The bidders should be well established firm preferably leaders in the application stated above and must have a proven track record.
- c) Authorization from the OEM/ Principals as a separate Annexure II
- d) The order should be completed within 16 weeks from the date of release of the Purchase Order.

4) Optional requirements:

- a) Warranty: 3 years warranty to be provided from the date of delivery at IISc, Bangalore.

TERMS AND CONDITIONS FOR SUBMISSION OF BIDS

Both the Technical and Commercial bid should be put in separate sealed envelopes and both the envelopes should be put in another cover subscribing

“Mass Flow Meters, Temperature Transmitters and Pressure and Differential Pressure Transmitters”

Kind Attention of: Dr. Pramod Kumar

and should reach

“The Chairman, Interdisciplinary Centre for Energy Research (ICER), IISc, Bangalore-560012, on or before **Monday, 16th May 2022**.”

The Technical bid must include all the details of technical specifications of the equipment, compliance certificate along with commercial terms and conditions, **however, without the price component**. The bill of materials printed technical brochure and any other documents to help the technical evaluation of the bid may be enclosed.

1. The commercial bid must include the price of the item(s) in Indian/Foreign currency indicating the breakup of
 - a) For Goods manufactured within India
 - (i) The price of the goods quoted Ex-works including taxes already paid.
 - (ii) GST and other taxes like excise duty, entry tax and other applicable taxes which will be payable on the goods if the contract is awarded.
 - (iii) The charges for inland transportation, insurance and other local services required for delivering the goods to IISc, Bangalore.
 - (iv) The installation, commissioning and training charges including any incidental services, if any with applicable service taxes.
2. The invoice to be billed at 5% GST for which concessional GST certificate will be provided to the vendor.
3. Please indicate the import code of the items.
4. If the goods are found to be defective, they have to be replaced / rectified at the cost of the supplier within 15 days from the date of receipt of written communication from us. If there is any delay in replacement / rectification, the warranty period should be correspondingly extended.
5. The quotation should be on FOR-IISc Bangalore basis in INR only.

6. Conditional tenders shall not be accepted.
7. Bids shall remain valid for minimum of 90 days after the date of bid opening prescribed by the Purchaser.
8. The Purchaser reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to award of Contract, without thereby incurring any liability to the affected Bidder or Bidders.
9. The bidder should have established track record of supply, installation, and configuration of Rack Mountable 192 Cores Server System.
10. Technical support for 5 years must be provided.

Annexure-I

Note: Compliance Certificate must be enclosed with the Technical bid. Non submission of Compliance Certificate will lead to disqualification of the bidder.

Description	Comply	Non-comply	Deviation	Remarks
1 Pressure and Differential Pressure Transmitter				
1.1 General				
1.1.a Function				
1.1.b Mounting				
1.1.c Enclosure protection				
1.1.d Quantity				
1.2 Process Conditions				
1.2.a Fluid				
1.2.b Design Pressure				
1.2.c Operating Pressure				
1.2.d Design Temperature				
1.2.e Operating Temperature				
1.3 Transmitter				
1.3.a Type				
1.3.b Accuracy				
1.3.c Response time				
1.3.d Output type				
1.3.e Rangeability				

1.3.f	Stability				
1.3.g	Power supply				
1.3.h	Sensor Type				
1.3.i	Sensor Material				
1.3.j	Body Material				
1.3.k	Electrical Connection				
1.3.l	Over Range Protection				
1.3.m	Communication type				
1.4 Other Requirements					
1.4.a	Mounting Brackets for 2" NB Pipe				
1.4.b	Configuration from				
1.4.c	Hydrostatic Testing up to design pressure				
1.4.d	Lightning/Surge Protection				
2 Temperature Transmitter					
2.1 Process Conditions					
2.1.a	Fluid				
2.1.b	Design Pressure				
2.1.c	Operating Pressure				
2.1.d	Design Temperature				
2.1.e	Operating Temperature				
2.2 Transmitter					
2.2.a	Output Signal Type				
2.2.b	Protocol/Version				
2.2.c	Conduit Connection				
2.2.d	Power supply				

2.2.e	Enclosure Protection Type				
2.2.f	SIL Requirement				
2.2.g	EMC requirements (Radiofrequency)				
2.2.h	Accuracy				
2.2.i	Extension Nipple/Union				
2.2.j	Quantity				
2.3 Other Requirements					
2.3.a	Display				
2.3.b	Testing Material Specification				
2.3.c	Sour Service Specification				
3 Mass Flow Meter					
3.1 General					
3.1.a	Function				
3.1.b	Enclosure protection				
3.1.c	Quantity				
3.2 Process Conditions					
3.2.a	Fluid				
3.2.b	Design Pressure				
3.2.c	Operating Pressure				
3.2.d	Design Temperature				
3.2.e	Operating Temperature				
3.3 Sensor Transmitter					
3.3.a	Type				
3.3.b	Accuracy				
3.3.c	Response time				
3.3.d	Output				
3.3.e	Power supply				

3.3.f Process Connection				
3.3.g Sensor Wetted part				
3.3.h Sensor Body/Housing Material				
3.3.i Transmitter Housing Material				
3.3.j Electrical Connection				
3.3.k Calibration certificate				
3.3.l Mounting				
3.3.m Transmitter should have USD port for downloading data logging in pen drive				

Annexure-II

MANUFACTURERS' AUTHORIZATION FORM

[The bidder shall require the manufacturer to fill in this form in accordance with the instructions indicated. This letter of authorization should be on the letterhead of the Manufacturer and should be signed by the person with the proper authority to sign documents that are binding on the Manufacturer.]

Date: [insert date (as day, month and year) of Bid Submission]

Tender No.: [insert number from Invitation for Bids]

To: **The Chairman, Interdisciplinary Centre for Energy Research (ICER), IISc, Bangalore-560012**

WHEREAS

We [insert complete name of Manufacturer], who are official manufacturers of [insert full address of Manufacture's factories], do hereby authorize [insert complete name of Bidder] to submit a bid the purpose of which is to provide the following Goods, manufactured by us [insert name and or brief description of the Goods], and to subsequently negotiate and sign the Contract.

We hereby extend our full guarantee and warranty with respect to the Goods offered by the above firm.

Signed: [insert signature(s) of authorized representative(s) of the Manufacturer]

Name: [insert complete name(s) of authorized representative(s) of the Manufacturer]

Title: [insert title]

Duly authorized to sign this authorization on behalf of: [insert complete name of Bidder]