



तेजपुर विश्वविद्यालय / TEZPUR UNIVERSITY

(संसद के अधिनियम द्वारा स्थापित केंद्रीय विश्वविद्यालय)

(A Central University established by an Act of Parliament)

कुल सचिव का कार्यालय/ OFFICE OF THE REGISTRAR

नपाम :: तेजपुर - 784028 :: असम

NAPAAM :: TEZPUR - 784028 :: ASSAM

SHORT QUOTATION NOTICE

TU/11-24/Pur/Qtn/2015/4036 dated:-14.01.2016

Sealed quotations are invited from reputed manufacturers/authorized dealers/vendors for supply, installation & commissioning etc. of **400 MHz NMR Instrument** required for the Central Facility of Tezpur University.

Minimum Technical Specification of 400 MHz FT NMR Spectrophotometer

Latest version 400 MHz spectrophotometer for advanced level multinuclei (high frequency and low frequency nuclei, e.g. vanadium and tungsten) and multidimensional for solution state experiments.

1. MAGNET SYSTEM

- High performance highly shielded or superscreened superconducting latest technology magnet system with approximately 5 cm room temperature bore
- Operating frequency 400 MHz (approximately for ^1H)
- Field stability: 15ppb/hour (8 Hz/hour) or less
- Actively shielded with Radial stray field at 0.60 m from magnetic centre: 0.5 mT or less and 0.05mT or less at 1.30 m from magnetic centre.
- Axial stray field at 1.2 m from centre of magnetic field: 0.5T or less and 0.05 mT or less at 2.1 m from magnetic centre.
- Helium hold time >300 days or more
- Liquid nitrogen holding time should be at least two weeks
- All support equipment for cryostat (e.g. Helium transfer line for helium refilling and nitrogen transfer line for liquid nitrogen refilling).
- Helium and Nitrogen sensors with alarm facility
- LN₂ refilling kit
- Vibration proof (Anti vibration leg with damping above 3 Hz) stand and pad
- Autosimming and manual shiming facility (Cryogen cooled shim system in addition to the room temperature shims)
- digital lock frequency
- variable frequency for operation at selectable fixed field,
- digital quadrature lock receiver, fast field adjustments with sample-and-hold circuit

2. CONSOLE

- Equipped with two independent RF channels (please specify the frequency range of operation with best frequency and phase resolution) in addition to lock channel with provisions for deuterium decoupling and observation. Please specify the configuration and bandwidth of all the channels.
- Highest possible precision pulse generating system (please specify the timing resolution, phase resolution and frequency resolution)
- Quadrature-artifact-free phase sensitive detection
- Pulse decoupling generator for synchronous and asynchronous operation.
- Buffer memory ensuring flexible real-time data management.
- Digital Receiver Unit for NMR signal accumulation with real-time digital filtering in combination with oversampling technology including digital quadrature detection for artifact free data at large sweep widths.



तेजपुर विश्वविद्यालय / TEZPUR UNIVERSITY

(संसद के अधिनियम द्वारा स्थापित केंद्रीय विश्वविद्यालय)

(A Central University established by an Act of Parliament)

कुल सचिव का कार्यालय/ OFFICE OF THE REGISTRAR

नपाम :: तेजपुर - 784028 :: असम

NAPAAM :: TEZPUR - 784028 :: ASSAM

-
- Fast Ethernet based communication system for all the channels
 - Low noise NMR signal preamplifiers for ^1H , ^2H , ^{19}F and X nuclei, and state-of-the-art receiver with digital quadrature detection, high dynamic range and bandwidth, incorporating digital signal processing capability including high oversampling rates, signal decimation and digital filtering
 - High performance linear amplifier for ^1H , ^{19}F and multinuclear range and ^2H for solution state NMR
 - ^1H and Broadband pre-amplifier with standard filter set.
 - ^2H preamplifier for lock and observation
 - The system shall include routing capabilities for frequency / amplifier selection under full computer control with ^2H amplifier, lock switch and grad shim
 - Built-in tuning and matching display with automatic tuning and matching
3. Gradient Spectroscopy and Z-gradient
- Gradient accelerated spectroscopy of at least 50Gauss /cm or better
 - z-gradient unit, with adjustable gradient amplitude (please specify the value) and provision for rapid automated gradient shimming
4. Digital temperature Controller for temperature control during NMR experiments
- VT controller range: -200°C to $+200^\circ\text{C}$ (approx.) with gas flow and pressure monitoring (Please specify the temperature accuracy, stability etc.)
5. PROBE (please quote separately):
- One Broadband (^1H and multinuclear) probe
 - One ^1H - ^{13}C - ^{15}N triple resonance inverse probe
 - Above probe should have automated Tuning and Matching, ^2H -Lock; Z-Gradient coil
6. WORKSTATION AND SOFTWARE-USER INTERFACE
- Suitable Intel based latest high performance network server processor (Please specify RAM, HDD, DVD RW, latest technology monitor, latest Windows based OS etc.)
 - Appropriate software for all NMR data acquisition and processing for all possible NMR experiments and data analysis. Software should have high level of automation to setup and execution of a complete range of NMR experiments.
 - One additional PC for data analysis must be quoted
 - Suitable Laser Jet Printer with high DPI
 - Multiuser NMR data processing software for students to work up on raw NMR data
7. Liquid helium (LHe) and liquid nitrogen (LN2) needed for installation and for quench if occurred during installation and afterwards must be supplied by the vendor. LHe refilling needed for continuous stability of cryomagnet and the system is the responsibility of the vendor.
8. Spectroscopy kit: Sample tubes: 5 mm - 500 pcs; Caps, 5 mm: 600 pcs; Spinner standard, 5 mm: 3 pieces; Sample Solvent height measuring device; Sufficient standard samples for shimming, pulse width measurements, line shape measurement, S/N measurement, etc.
9. Suitable oil free scroll air-compressor, dryer and air filter.



तेजपुर विश्वविद्यालय / TEZPUR UNIVERSITY

(संसद के अधिनियम द्वारा स्थापित केंद्रीय विश्वविद्यालय)

(A Central University established by an Act of Parliament)

कुल सचिव का कार्यालय/ OFFICE OF THE REGISTRAR

नपाम :: तेजपुर - 784028 :: असम

NAPAAM :: TEZPUR - 784028 :: ASSAM

11. Suitable True sine wave Online UPS for uninterrupted power supply to the system with 2 hour backup and with spike buster and tripping bypass.
12. Sufficient number of spares for routine maintenance.
 - Complete set of Instruction Manuals
 - 4 no of liquid nitrogen cans of 55 lit cap and Liquid nitrogen transfer lines.
 - Liquid nitrogen transfer tubes: 2 set
13. Training: Supplier should arrange for the application training free of cost by their application expert after the installation of the system.
14. After sale service: Supplier should mention their details of service setup and manpower at nearest location who are responsible for after sales support. Response time should be within 48 hrs. Supplier is expected to provide probe backup in case of probe breakdown at customer's site so that users are not affected.

Optional Items (please quote separately):

- Automatic sample changer
- Low temperature accessory: Low temperature accessory with 26 liter LN2 dewar, evaporator and transfer line for operation with LN2 low temperature
- Option for cryo-probe (1H-broadband with z-gradient and 2H lock) with higher sensitivity.
- Spares and accessories should be available for at least 15 years from the date of installation.
- Warranty: Full spectrometer including magnet, probes, UPS, and all accessories should be given warranty for at least 5 years from the date of acceptance of the installation including liquid helium refilling for 5 years.
- Comprehensive maintenance warranty which shall include magnet, probes, UPS and all accessories for 5 years after the expiry of warranty period for another 5 years and should be quoted.
- Original brochure should be provided with quotations
- Training: On-site operational level training for at least two weeks shall be provided. Advanced training in factory for two persons in both operation and maintenance level shall be included.
- Important spares for trouble free operation shall be quoted separately.

GENERAL TERMS & CONDITIONS:

1. No separate tender paper will be issued from the office; one should only download the specifications/List from the website.
2. **The rates should be preferably quoted in Indian Rupee and FOR Tezpur University, Napaam basis. Charges for clearing and transportation should be incurred by the supplier.**
3. *Quotations should be accompanied by i) An EMD (in the form of Demand Draft/Call Deposit/TDR) of ` 5000/- (Rupees Five Thousand) only drawn/pledged in favor of Registrar, Tezpur University, payable at Tezpur. **No request for consideration of earlier deposited EMD will be considered.** ii) A non refundable application (quotation) fee of `5000.00 (Rupees Five Thousand) only have to be paid only by Demand Draft drawn in favour of Registrar, Tezpur University payable at Tezpur.*
4. The rates should be exclusive of taxes and applicable tax % should be clearly indicated.
5. Quoted rates should be valid at least for a period of 01 year.



तेजपुर विश्वविद्यालय / TEZPUR UNIVERSITY

(संसद के अधिनियम द्वारा स्थापित केंद्रीय विश्वविद्यालय)

(A Central University established by an Act of Parliament)

कुल सचिव का कार्यालय/ OFFICE OF THE REGISTRAR

नपाम :: तेजपुर - 784028 :: असम

NAPAAM :: TEZPUR - 784028 :: ASSAM

6. The rates should be quoted along with supporting documents of specifications and technical features and list of users.
7. The system must be installed at the laboratory, and after installation a basic training must also be provided by the supplier or their Indian counterpart without any additional costs.
8. An additional site requirement materials, accessories etc. has to clearly mentioned.
9. All the quotations must be accompanied with supporting documents and / or literature.
10. Demonstration may be sought from the vendors for authentication of quoted specification.
11. Details of availability of after sales support will have to be furnished. After sales support directly from manufacturer and from Assam (Guwahati / Tezpur) will be preferred.
12. The University is exempted from paying Custom and Excise duty.
13. Proprietary items should be quoted with sole Manufacturer/Distributorship certificate.
14. Warranty/Gurantee period should be specifically mentioned in the quotation.
15. No Advance payment will be made. However, for foreign supplier, advance payment will be made either by FDD/Wire Transfer/LC. In such cases 10% Performance Bank Guarantee should be submitted before issuing FDD/Wire Transfer/LC, covering the warranty period.
16. Performance Bank Guarantee also has to be submitted for Major equipments of Indian origin, covering the warranty period.
17. Items of Foreign origin should have Insurance up to installation on site.
18. The University reserves the right to accept or reject any or all the quotations without assigning any reason.
19. Quoted price should be inclusive of essential accessories and should be CIF Tezpur University, Tezpur
20. Applications for release of EMD should be submitted to the Registrar/ Deputy Registrar.
21. Apart from the above terms and conditions the University has the right to include any other terms and conditions as and when felt necessary.
22. **Quotation should be submitted in the DROP BOX placed in the reception of the Administrative Building of the University within 21 days from the issue of the notice.If posted/couriered, should reached within 21 days from the issue of this notice addressed to "The Deputy Registrar (GA), Tezpur University". The Quotation Notice No. and date should be clearly superscribed in the the envelope/packet containing the quotation.**

Sd/- Deputy Registrar (GA)
Tezpur University