

**Indian Institute of Technology, Kanpur**  
**Department of Cognitive Science**

Enquiry No: IITK/CgS/2022-23/16

Date: 17/01/2023

We are interested in purchasing TMS system with Navigator Software.

Posting Date: 17<sup>th</sup> January, 2023

Closing Date: 27<sup>th</sup> January, 2023

**Specifications:**

Separate spec sheets for

***TMS machine:***

1. It should be an All-in-one stand-alone system housed in a single casing with a TMS manufacturer. System should have integrated user TFT Screen with press buttons and selection dials for menu selections, should have inbuilt power supply without separate units.
2. Should be able to deliver Biphasic waveform, Monophasic waveform, Theta Burst & Quadripulse stimulation through a single unit on one chassis.
3. System should be able to deliver Single, Paired, twin and dual pulses through the same unit. System should offer Selectable monophasic and biphasic features in Twin and dual pulse mode with following:
  1. monophasic IPI from 2- 2.1 - 10 - 10.5 - 11 - 100ms - 3s,
  2. biphasic IPI from 1 - 10 - 10.5 - 11 - 100ms - 3s,
  3. repetitive rate from 0.1 - 1 - 5 tpps.
  4. Pulse B/A Ratio - 0.20, 0.25, 0.30 ... 5.00,
  5. amplitude upto 100%.
4. Control the stimulator-intensity, pulse and train, its repetition related properties, using screen & buttons or COM port.
5. Should offer Theta Burst waveforms, with number of pulse in a burst from 2 to 5, selectable biphasic burst and theta burst - IPI from 0.5 to 100 ms, repetitive rate from 0.1 to 20 tpps, able to perform iTBS and cTBS protocols in 30 Hz or 50 Hz.
6. The same system should be upgradable to 80 Hz
7. Should have facility for protocol storage, protocol running, recall of protocols and MT measurement, should be accessed directly on the stimulator without connecting to an external computer. User defined protocols can be saved on system and used promptly.
8. The system should monitor coil temperature and identity
9. Stimulator should display the following parameters:
  1. rTMS frequency
  2. Theta burst
  3. number of burst pulse for Theta burst
  4. number of trains
  5. number of pulses in train
  6. inter train interval
10. Should have the facility of Ramp up and Ramp up trains at the starting of the protocol.

11. Stimulator should have the feature for trigger menu with feature of trigger output, polarity input, polarity output, delay in input trigger and delay in output trigger.
12. Should have options to block/unblock amplitude to prevent unintentional adjustment of protocol settings and amplitude output during running trains.
13. Should be compatible with various shapes of coils (circular, figure-of-8, butterfly, or double-cone coils) and should run both fluid filled coils with and without an attached cooler.
14. System should give a Prior train warning sound for preparing the patient for the next train sequence, which is 2 sec before each train starts. Attach the supporting document for this.
15. Manufacturer should have been granted separate US-FDA approval for Treatment resistant major depression, theta-burst based protocol for depression and OCD ( Obsessive compulsive disorder) for safe and effective usage on patients. Suppliers should include the certificate in submission of tender documents and for our regulatory approval.
16. Safety shut down in case of high temperature
17. Possible to operate through TTL triggers to sync with EEG/EMG via LSL, or MATLAB/ Python based computer software programs
18. Protocols and log files can be saved in USB drive
19. Trolley and flexible arm for accurately holding TMS coil on the localized position on the head during experiment

***Coil:***

20. Package should include light, fluid filled static cooled coil for that is figure-of-eight shaped, FDA and CE approved for Major Depression Disorder and Anxiety, with built-in timer/counter indicating the remaining pulses/days. Coil should allow upto 2000 continuous pulses with a coil diameter of 2x75 mm. Coils should be able to deliver maximum magnetic field gradient dB/dt of 32 kT/s or higher.
21. Cooled coils should be able to show the number of remaining stimuli within the coil to determine the lifespan of the coil.
22. Stimulator should display the actual surface temperature values of the TMS coil to avoid any first degree burns to patients.
23. Should be supplied with a flexible arm to hold the Magnetic Stimulation Coils and Trolley and suitable online UPS for powerback up upto 3 kva.
24. Manufacturers should have a coil for double blinded research studies using a single coil with Active and Passive stimulation surface. List the accessories with scientific back up to be submitted. Should quote for active and placebo coil for double blinded research, elliptical coils as a separate item so that institute can consider buying it.

***Neuro-navigation software:***

25. The system should be offered with Neuronavigation for TMS coil.
26. Capable of precise & reliable individual MRI/ fMRI based (Import of standard MRI data types (Nifti, Analyze, and DICOM) for 3D construction of scalp, brain and fMRI data), electromagnetic modeling based positioning of TMS coil or targeting of brain regions, mapping of functional motor areas.

27. Should allow 2D and 3D view of MRI data (anatomical and functional data)
28. Certified for medical use in USA, EU, Australia (FDA, CE, TGA approval)
29. Should have continuous tracking and not have any blocking of markers or line of sight issues
30. Tracking should be robust and not affected by any electromagnetic distortions during TMS stimulation.
31. Should be able to do MRI guided navigation with PACS import or from external drive.
32. Should offer Automatic brain segmentation and target placement based on MNI Atlas.
33. Should offer Automatic identification of facial landmarks and common treatment targets. Should support fMRI activation overlays and targeting.
34. Should have milli meter accuracy to ensure precise stimulation.
35. Should offer Electromagnetic tracking precision of at least 1mm.
36. Should be possible to precisely place TMS coil on designated target or to place the coil at a previously saved target location.
37. Should have a reproducible coil placement workflow when the individual MRI scan is not available.
38. Should have visualization of the saved coil position, with distance and angle indicators to guide the TMS coil placement
39. Should save the TMS coil position and orientation when a target is stimulated
40. Should be possible to generate motor map on the cortex for specific muscles

**Terms & Conditions:**

1. The vendor is liable to update all the necessary software's and firmware's any additional charges under warranty period.
2. The quotation must be valid for 30 days, in case of import this should be valid for 90 days.
3. All Warranty three year on site
4. Please provide official e-mail IDs for conversation post quotation opening.
5. Delivery period must be within 4 weeks from purchase order date.
6. The institute is exempted for payment of Excise duty under notification No. 10/97 & partially custom duty (@5.15%), under notification 51/96 and a road permit will be provided, if applicable. The Concessional Form ' CID' have been abolished w. e. f. Apr 01, 2007.
7. Our standard payment terms and conditions is 90% on installation and 10% after inspection and approval.
8. The Penalty @1% per week or part thereof subject to max 10% of the delivery price will be deducted from the balance payment, if supply is not completed within a aforesaid delivery period.
9. No Call Locking will be entertained (in/out stationed). If at all, it is required, then it will

- be performed by the local Maintenance Engineer.
10. Testing of the product onsite is mandatory.
  11. At any time prior to the deadline for submission of bid, the Institute may, for any reason, at its own initiative, modify the bid document by amendments. Such amendments shall be uploaded on the website through corrigendum and shall form an integral part of the bid document. The relevant clauses of the bid document shall be treated as amended accordingly. It shall be the sole responsibility of the prospective bidders to check the website from time to time for any amendment in the tender document. In case of failure to get the amendments, if any, the Institute shall not be responsible for it.
  12. A higher warranty may be given preference.
  13. The Institute reserves the right for accepting and rejecting any quotation without assigning any reason thereof. Also, The Institute reserves the right to reject or accept all or any of the offers made above.
  14. IIT Kanpur has the right to accept the whole or any part of the tender or portion of the quantity offered or reject it in full without assigning any reason.
  15. Vendors are requested to quote only in Indian currency (Rupees). If the vendor wants to quote in an alternate currency, the vendor should seek an explicit permission from the department before sending the bid.
  16. If all or any of the components of the equipment is/are to be imported, the vendor holds its full responsibility for its delivery at IIT Kanpur and that too in the stipulated time period. If for any reason the vendor does not want to deliver to IIT Kanpur, the vendor needs to seek an explicit permission from the department, before sending the bid.
  17. The maximum educational discount should be offered wherever applicable.
  18. Mention the country of origin and product should not belong to PRC.

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