



INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
MATERIALS MANAGEMENT DIVISION
Powai, Mumbai 400076

PR No. 1000014791 (Rfx No. 6100000382)

Detailed Technical Specifications for Multimode Microplate Reader (UV Vis and Fluorescence)

Instrument General Specifications

- Dual-mode plate reader with monochromator-based optics for absorbance and sensitive fluorescence applications.
- The instrument should be a spectral scanning multimode microplate reader capable of doing photometry, Fluorometric Intensity and upgradable to Luminescence with three measurements mode – Normal, Filter and Monochromator mode with excellent sensitivity
- The system should be upgradable in future for the dual injector for the flash luminescence measurement.
- Instrument should have double monochromators for photometric (UV and Vis) measurement.
- The instrument should have a single lamp source and separate detectors for Photometry, Fluorometry and optional module for Luminescence.
- The instrument should have Quadruple Monochromator based which has double excitation and double emission monochromators.
- The system should have capability to perform plate format from 6 well to 384 well and cuvettes.
- The system should have a facility for plate shaking.
- PC should be provided by the Vendor.
- Bidder should provide all the spare parts required for smooth functioning of the equipment at least for three years.

Measurement modes

End-point, kinetic, spectra, multipoint and kinetic spectra

Absorbance / Photometry module specification

- Detector: UV Silicon photodiode
- Light Source : Xenon flash lamp
- Measurement range in Photometry: 235-1000nm
- **Linear measurement range in photometry:**
0-4Abs at 450 nm, $\pm 2\%$ (96-well plate) (or better) and
0-2 Abs at 450 nm, $\pm 2\%$ (384-well plate). (or better)
- Instrument should have on-board path length correction for direct quantification
- **Wavelength accuracy:** ± 1 nm or better
- System should have compatibility with plate type : 6 well to 384 well format , also low volume (2 μ l to 10 μ l)

Fluorescence/Fluorometry specification:

- Detector: UV and Red Sensitive PMT (photomultiplier tube)
- Light Source: Xenon flash lamp
- Fluorometry wavelength selection: Excitation range: 235-800 nm, Emission: 280-840nm.
- Plate Type : 6 well to 384 well format
- Dynamic range
 - Top reading > 6 decades
 - Bottom reading >6 decades

Shaker System Specifications

Instrument should have in built shaker with variable speeds

Incubating System

From ambient + 5°C to 42 °C (should be able to incubate at temperature 37°C mandatory)

Cuvette system

- Instrument should have cuvette port
- Bidder should provide two sets of cuvettes (glass and quartz both) along with the instrument

Data Analysis Software:

- Database based software to run backups of all data, restore back up data (in case of hardware failure of original computer.
- Must support background correction of spectra.
- Software should have option for area selection i. e. different protocols at different area of the same plate.
- Spectral scanning of all 96 samples or 384 samples should be able to view in single graph plot.
- Single software program should allow any number of measurement steps / different detection method within the same program.

Warranty

- Bidder should mention warranty for consumables and instrument separately.
- Bidder should provide minimum 1 year warranty on complete instrument.
- Bidder should quote for 2 and 3 year AMC as separate line item.

Other Terms

- The system shall be complete in all respect and ready for operation as per specification.
- Bidder should provide (include in the quotation) the 96 well plates both UV transparent usable at lower wavelength (265 nm) (preferably quartz) and normal plates 20 nos. (usable at 400 and above wavelength nm)
- Bidder should demonstrate the quoted system for the user's samples within stipulated time frame (during technical evaluation).
- Bidder should provide complete set of technical and operational manual during bid submission.

- Bidder should clearly specify pre-requisites for installation and operation.
- Bidder should provide at no additional cost, operational training for minimum 2 personnel at the user's lab, after installation.
- The system and their components shall be new and of latest model.
- Software which will be installed in the PC should also be provided in CD/DVD/USB.
- Instrument must have electrical compatibility with the Indian power outlet in terms of voltage, phase and current.
- If UPS is required to run machine smoothly without electrical disturbance, vendors should specify the UPS specifications in terms of power, load and backup time etc.
- Vender must provide the two letters of satisfaction from the reputed government/ national institutes or research organization where quoted machine is installed and running smoothly or provide two peer-reviewed research articles in that research work quoted machine has been used.