

Technical specifications for Real Time PCR System

1. The system should be automated for both real-time PCR and post-PCR (end point) analysis using in-built Peltier based PCR machine.
2. System should support applications including absolute quantitation, simultaneous analysis data for relative quantitation of Unlimited plates of 96 wells each, (4-6 color multiplexing), allelic discrimination (SNP), dissociation curve analysis as well as pathogen detection and plus/minus assay using internal positive control.
3. Instrument should have 96-well sample block of 0.1ml **capacity, able to run fast and standard run on the same block.** It can also have 6 separate Peltier-controlled blocks with a fixed gradient with a 25 degree range.
4. System should complete **Fast 40 cycle protocol in less than 40 minutes** and standard protocol in under 2 hours.
5. The vendor should offer a complete solution for Fast real-time PCR:
Fast instruments, Fast reagents, Fast protocols and Fast assays.
Sample Ramp Rate: fast Mode: $\pm 3.5^{\circ}\text{C}/\text{sec}$
Standard Mode: $\pm 1.6^{\circ}\text{C}/\text{sec}$
9600 Emulation Mode: $+0.8$ and $-1.6^{\circ}\text{C}/\text{sec}$ $^{\circ}\text{C}/\text{sec}$
Pear Block Ramp Rate: $5.5^{\circ}\text{C}/\text{sec}$
Temperature range: 4°C - 100°C
Temperature Accuracy: $\pm 0.25^{\circ}\text{C}$ (35°C - 95°C) of set point/ display temperature measured at 3 minutes after clock start
Temperature Uniformity: $\pm 0.50^{\circ}\text{C}$, 30 seconds after clock start
6. Excitation source should be single blue LED light source or Tungsten Halogen or high intensity Xenon lamp and emission detection by photodiodes or cooled CCD camera. There should be enough excitation and emission filters to cover majority of dyes.
7. System should be flexible to support 96 well plates, individual tubes and 8 strip tubes.
8. System software should provide simultaneous analysis data for relative quantitation of **Unlimited** plates of 96 wells each.
9. Normalization of reaction due to non-PCR related fluctuations such as pipetting variations, should be possible **by using ROX™ or any other calibrated dye.**

10. System should support reaction volume **5-30 μ L**.
11. All assays should run using **Universal Thermal Cycling** conditions to eliminate optimization of PCR conditions.
12. The instrument software must be capable of detecting and **analyzing a different gene, SNP or pathogen target in every well of the 96-well plate**. The instrument software should not restrict the number of assays or targets that can be run on a single 96-well plate.
13. The system should have **easy door design** for loading and unloading 96-well plates or individual 0.2 ml PCR tubes.
14. System **should collect data for all filters for all wells regardless of plate setup**. The **software should allow reanalysis of data so that data is never lost**.
15. The instrument should be **pre-calibrated for at least seven dyes** including the following during installation at the customer site: FAMTM/SYBR[®] Green I, VIC[®]/JOETM, NEDTM/TAMRATM/ and ROXTM. The user should be able to use any of these dyes in an experiment without needing to recalibrate the instrument. Addition of new dyes should be possible without hardware change.
16. A **dedicated licensed full version software for primer and probe design** with comprehensive assay design and development guidelines for quantitative and qualitative real-time assays, should be provided to enable designing of custom oligo assays.
17. System should be standardized for at least two homogeneous reaction chemistries including SYBR Green I and dual color TaqMan or four color hybridization probes (FRET).
18. The vendor should be able to offer pre-validated and functionally tested Gene Expression Assays as well as SNP Genotyping Assays and the flexibility to design specific assays for new templates of interest.
19. The instrument software should utilize a multi-componenting algorithm designed to provide precise deconvolution of multiple dye signals to enable the simultaneous detection of multiple fluorophores.
20. The instrument may have display with an **LCD touchscreen** that is a 6.5inch, full VGA (640 x 480).

21. Analysis work station should be of latest branded Pentium IV with licenced windows XP, operating system and colored laser printer.
22. The vendor should clearly indicate compliance or deviation vis –a vis the tender specifications and should be highlighted in the literature or manuals.
23. The instrument should be UL approved and manufactured according to ISO 9001 standards.
24. The vendor supplying the instrument should have own application support laboratory in India, preferable in Delhi/NCR for local and efficient after sales service support.
25. Three years warranty with one year spare replacement, if required.
26. Reagents for 500- 1000 reaction should be provided with the instrument.
27. Suitable on - line UPS (about 2 KVA) is required to support the instrument.