INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
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Technical Specifications –

Western blot transfer apparatus with Chemi-Doc (Chemiluminescence and Gel Imaging and Analysis System with Vertical Gel Electrophoresis Apparatus with Western Blotting Apparatus)

A. Scope:

A versatile system for gel imaging and documentation and fast detection for chemiluminescence, fluorescence and colorimetric imaging controlled by advanced software for analysis.

B. Technical specifications:

1. Should be able to support the following applications – Gel documentation, Fluorescence, Chemiluminescence, Western blotting, 1-D, Dot Blotting, Nucleic acid detection, Densitometry with both fluorescent and colorimetric stains.
2. Should have automation capabilities like – Application driven Workflow automated selection ,user selected or recalled protocols, application specific setup for image area, illumination source, filter, analysis and reporting.
3. Should have 100% workflow repeatability via recallable protocols, from image capture to quantitative analysis and reports.
4. Should have pre-calibrated autofocus for any zoom setting or sample height.
5. Should have dynamic image flat fielding which should be pre-calibrated and optimized for every application.
6. Should have minimum 2 user-defined modes for auto-exposure (intense or faint bands).
7. Should have Peltier based super cooled CCD camera (with cooling temperature of at least -15^{o}C) and image resolution of minimum 6 Mega Pixel.
8. Pixel size should be 4.5 X 4.5 um or better.
9. Should have Image acquisition with automatic focus and iris adjustments at all zoom levels for all compatible applications.
10. System should have Mechanical Zoom to maintain optical resolution over any field of view without compromising sensitivity.
11. Should have Dynamic range of not less than 4 orders of magnitude.
12. CCD camera with f number of not less than 0.7
13. System should be supplied with white light conversion screen, appropriate filter or screen for viewing different dyes like Sybr Green, Sybr Safe and other fluorescent gel stains.
14. System should also be supplied with Blotting apparatus with capacity to transfer 2 mini gels at a time.
15. Effective imaging area: not less than 20 cm (W) x 15 cm (H)

16. Illumination control should be provided with Trans-UV, epi-white, chemiluminescence and trans-white & appropriate filter or screen for viewing different dyes.
17. System should be supplied with a UV protection shield/goggles to protect end user from unintentional exposure to UV light during band excision.
18. Should have software for image acquisition and analysis with no license registration and capability to install in unlimited computers with full functionality.
19. The imaging system must be capable of imaging stain free protein gels & stain free blots allowing users to image protein gels and blots without the need of staining / destaining post running the gels.
20. System should have provision for onsite upgradation to support multiplex western blotting and fluorescence imaging.
21. Should come with software for 1 D analysis with following features:
    a) Automatic generation of customizable reports.
    b) Snapshot tool to copy images, lane profiles, and graphs.
    c) Complete flexibility with automatic and manual detection of lanes and bands, using several algorithms.
    d) User friendly software - Easy copy/paste functionality, crop, zoom, 3D viewer, and colors.
    e) Software should have automated normalization feature for normalizing western blot signals of target band with either a housekeeping protein band or total protein load of a sample.
    f) Publishing resolution (dpi) and publishing dimension can be specified with a one-click image export for publication. Provides functionality to produce image at user-defined dpi and dimension.
    g) No requirement for license registration of Software with possibility to be installed in unlimited number of computers with complete analysis features.
    h) Free life time upgrade for analysis software should be available.
    i) Mac and Windows compatible software.
    j) Software should be able to export images in multiple formats with minimum options of exporting in 16-bit and 8-bit tiff images., .png, .jpg and .bmp
22. System should have a touch screen interface with onboard computer for image acquisition
23. Should have EN-61010-1 and CE (US/European) Certification

C. Other conditions:

1. Comprehensive warranty for 24 months.
2. We need a well-tested and validated standard equipment and not custom made equipment.
3. The equipment should come with a certificate of analysis and conformity.
4. The vendor needs to provide the address of certified and authorized service center for the quoted equipment in Mumbai.
5. Printed brochure for the standard unit with specifications.

6. List of at least 25 Indian Installations and 50 global installations of the quoted instrument and description of the users with details.
7. OEM Authorization Certificate is required.