

gel imaging and documentation system with ccd camera

Gel imaging and documentation system is a set of modern experimental equipment integrating high sensitivity digital imaging and intelligent control technology, specially used for imaging analysis of nucleic acid and protein electrophoresis gel.

Equipped with imported low-light CCD camera and high-performance zoom lens, the gel imaging and documentation system is capable of capturing weak electrophoretic band signals and realizing real-time high-definition display and accurate recording. Through the intelligent dark box design and multi-layer filtering system, it can effectively inhibit the background interference and guarantee the experimental safety and imaging quality, and it is an important image acquisition and data processing platform in the field of molecular biology, genetics and biomedicine.



Features of Gel Imaging and Documentation System

1. Highly sensitive digital CCD camera: imported low-light CCD with high resolution and high signal-to-noise ratio, which can capture the faint bands that are hard to notice by naked eyes.

2. imported 6 times optical zoom lens: support non-destructive zoom, easy to observe the gel image in detail and local zoom.
3. Gel positioning assistance lamp: the center indicator ensures precise gel placement and improves imaging reproducibility.
4. Intelligent dark box control panel: integrated zoom, focus, aperture, UV lamp and white light lamp convenient adjustment function, intuitive operation.
5. Safety protection mechanism: equipped with automatic UV lamp cut-off when opening the door to prevent UV leakage, UV mandatory switch and automatic time-delayed shutdown to protect the user's health.
6. multi-interface communication: RS232 and USB interfaces support seamless connection with the computer to realize remote control and data transmission.
7. Drawer type movable gel table and special cut gel cover: easy to place, observe and cut gel operation.
8. Multi-layer coated filter set: effectively filter out stray light and background noise, improve image contrast and clarity.
9. modular design: each component is standardized and reliable, convenient for maintenance and upgrading, prolonging the service life of the equipment.
10. optional computer and printing equipment: to realize the whole process of digital image processing and experimental data organization.

11. Gel imaging analysis system is suitable for observing, photographing and analyzing the gel bands after electrophoresis. With the help of high-resolution CCD and zoom lens, it obtains the weak electrophoresis bands which are difficult to be recognized by naked eyes, adopts special filters to effectively filter out the background interference noise, and at the same time, it can effectively control the contamination of ethidium bromide (EB) and ultraviolet leakage, and realizes the simple and simple display of electrophoresis results in the screen enlargement, preservation, marking or editing, organizing the experimental report, printing, online transmission, etc., which can get rid of the complicated operation process of the experimenters and achieve the goal of common ultraviolet analyzer. It can get rid of the cumbersome operation process of experimenters and achieve the efficacy that is difficult to be compared with ordinary UV analyzer or film observation box.

Working Principle

Gel imaging and documentation system captures the light signals emitted by fluorescent dyes in the gel after UV or blue light excitation by a digital CCD camera. After the excitation light source activates the dye, the electrophoretically separated nucleic acid or protein bands in the gel emit fluorescence at specific wavelengths. The system's filters block the background of the excitation light, allowing only the target fluorescence to pass through, and the camera converts the light signal into a high-resolution digital image. Combined with intelligent focus and zoom, users can precisely locate and magnify the target bands in the dark box, realizing high-definition imaging and subsequent image processing and analysis.

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Model	E30
Effective Pixels	2560x1920
Pixel Depth	10 bit
Pixel Size	5.4x5.4um
Resolution	5 Megapixels
Signal-to-Noise Ratio	≥56dB
Sensitivity	Capable of detecting double-stranded DNA stained with less than 20 pg of EB
Camera	Imported low-light, high-resolution digital CCD
Zoom Lens	F=1:1.2, 2/3 inch imported 6xzoom lens
Filter	590nm
UV Transmittance Area	250x200mm

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Model	E30
Visible Light Transmittance Area	250x210mm
Transmitted UV Light Source Wavelength	302nm
Reflected UV Light Source Wavelength	254nm, 365nm
Transmitted UV Lamp Power	302nm, 8W
Reflected UV Lamp Power	254nm, 365nm, 11W
Dimensions	470x405x820mm
Weight	29kg