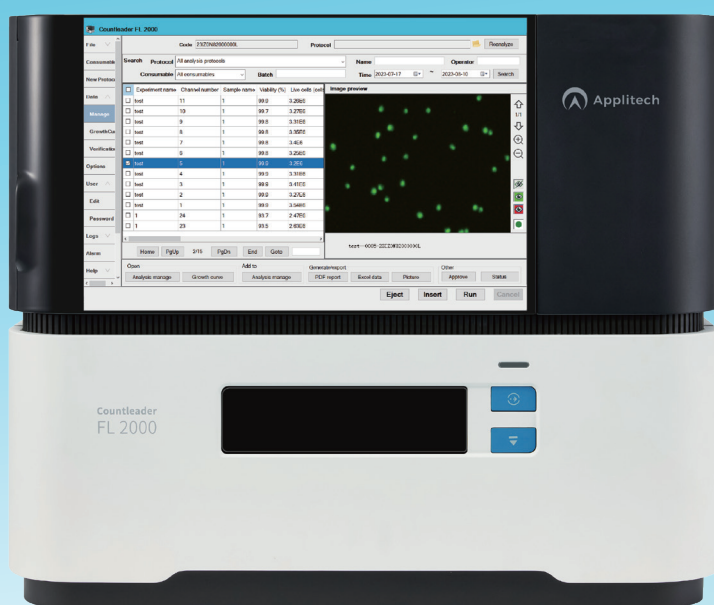


Countleader FL 2000

High-throughput Automated Cell Counter



- ◆ AO/PI Fluorescence and Trypan Blue Analysis Modes
- ◆ Fast Analysis: 24 samples in as little as 12 minutes
- ◆ Low Sample Volume: As little as 20 μ L
- ◆ Patented Microfluidic Automatic Staining Technology
- ◆ No cleaning or maintenance required
- ◆ Compliant with 21 CFR Part 11

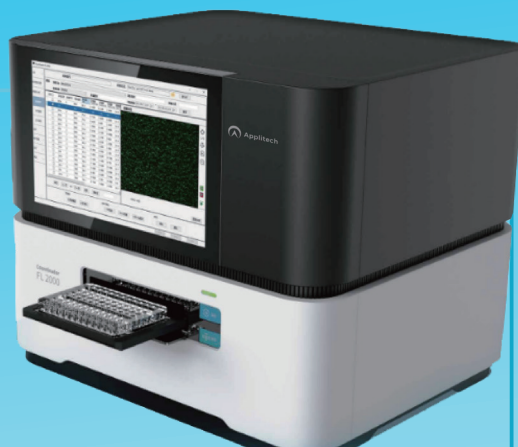
The Countleader FL 2000 is a fully automated, high-throughput cell counter that utilizes the patented FL24-plate with microfluidic channel design. It features automatic staining and supports AO/PI dual fluorescence staining mode, allowing analysis of 24 samples in just 17 minutes, or Trypan Blue staining mode in 12 minutes

Principle

The Countleader FL 2000 is an image-based detection system equipped with two fluorescence channels, integrating an advanced optical system and image recognition technology.

It supports both classic brightfield (Trypan Blue staining) and fluorescence (Acridine Orange (AO) / Propidium Iodide (PI)) analysis modes, enabling simultaneous and accurate analysis of up to 24 samples.

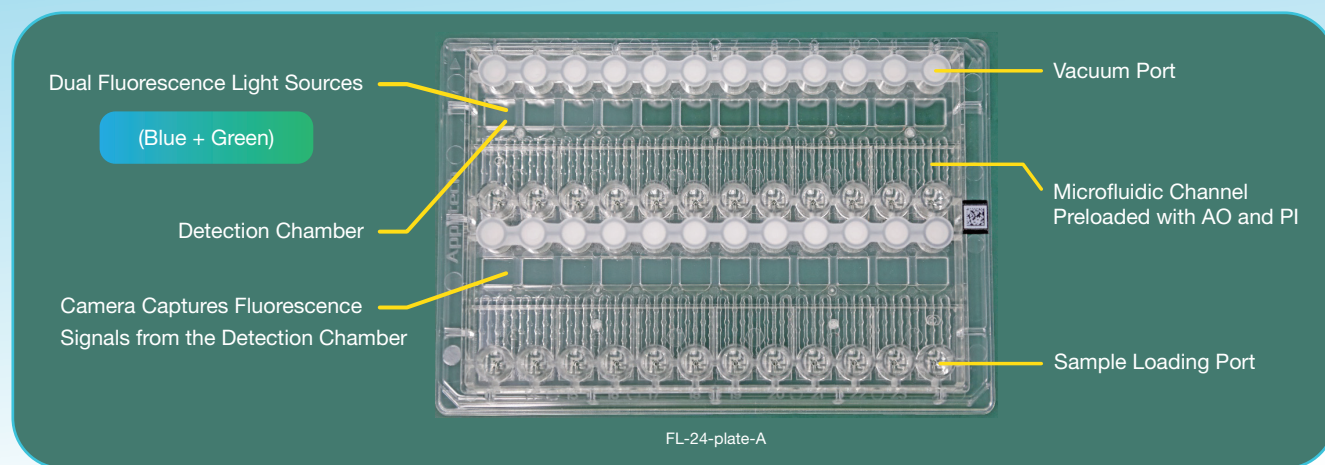
By combining statistical analysis with fluorescence imaging, it delivers precise information on cell concentration, cell viability, and cell morphology.



Automatic Staining Technology

FL24-Plate-A features a unique design with pre-embedded dyes. The AO/PI dyes are pre-loaded in the microfluidic channels. Simply add 40 μL of cell sample per well, and as the cells flow through the microfluidic channels, staining and analysis are performed automatically. This is ideal for high-precision counting of a large number of samples that need to be measured daily.

The FL24-plate-B is an empty 24-channel consumable plate. Only 20 μL of cell sample and 20 μL of Trypan Blue dye are needed per well. As the sample flows through the microfluidic channels, automatic mixing and staining are completed simultaneously. It is ideal for cell counting during the daily high-volume sampling stages of process development and optimization



FL24-Plate Microfluidic Automatic Mixing and Staining System

Utilizing advanced microfluidic channel technology and an automated mixing design, this patented system effectively eliminates manual mixing errors, significantly improving sample counting efficiency and result accuracy!

Single-Use Design: Each sample remains isolated within the FL24-plate to prevent cross-contamination and ensure reliable experimental results.

No Cleaning or Maintenance Required: With no internal fluid pathways, the system requires no cleaning after use, greatly reducing operation time and maintenance costs.

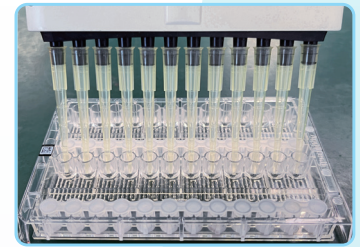
Unique QR Code: Each FL24-plate is equipped with an individual QR code that automatically records and calibrates the analysis volume for each well, ensuring accuracy and consistency of results.

Simple Workflow, Automatic Analysis

Load the Sample

AO/PI Mode: Only 40 μL of cell sample per well is required. Compatible with multichannel pipettes, no pre-staining needed.

Trypan Blue Mode: Only 20 μL of cell sample and 20 μL of trypan blue dye per well, with no manual staining required.



Insert the Plate

Place the FL24-Plate into the designated slot of the Countleader FL 2000, select the wells to be counted, and start the analysis.



Automatic Staining and Analysis

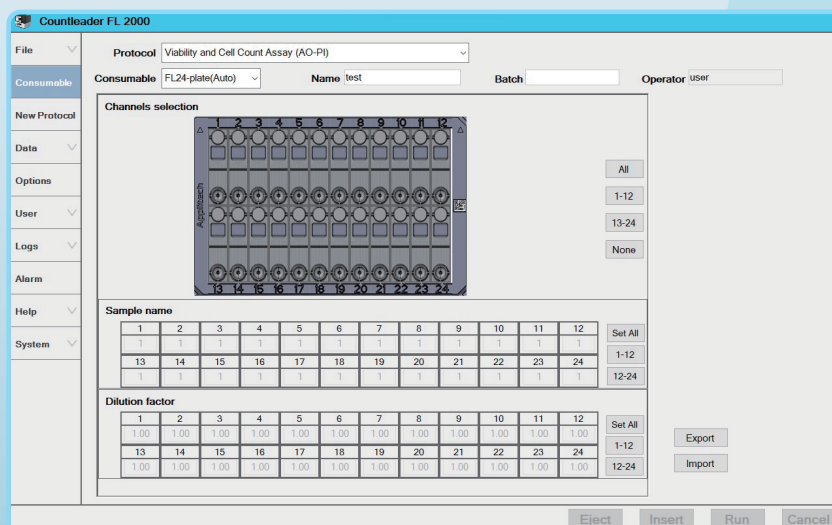
As cells flow through the microfluidic channels, staining and analysis are performed automatically.

- ☒ Viable Cell Concentration
- ☒ Cell Aggregation Ratio
- ☒ Dead Cell Concentration
- ☒ Cell Fluorescence Images
- ☒ Total Cell Concentration
- ☒ Cell Fluorescence Intensity Distribution Charts
- ☒ Cell Diameter
- ☒ Cell Diameter Distribution Charts

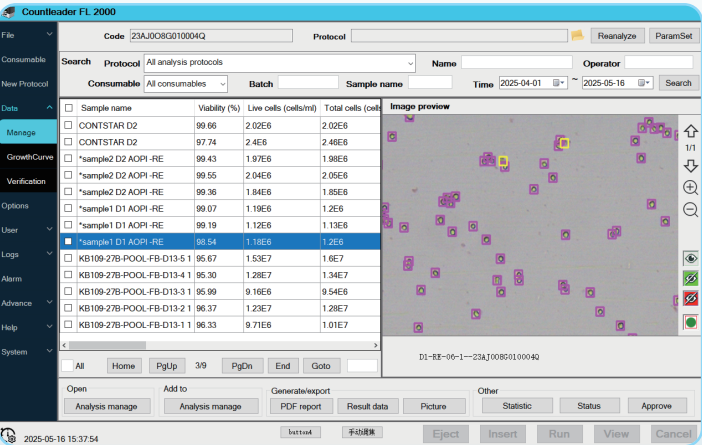
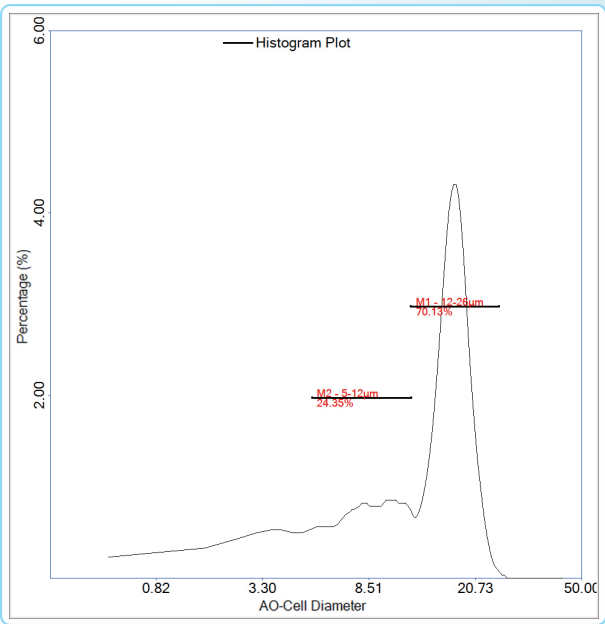


Powerful and Flexible Software

- ✔ Supports both AO/PI and Trypan Blue analysis modes; capable of analyzing aggregated cells
- ✔ All analysis data are automatically and continuously saved, with customizable programs and re-analysis functions based on cell status
- ✔ 1.5 \times magnification, providing an analysis area 12 times larger than that of a traditional hemocytometer, resulting in higher sample volume and reduced statistical error
- ✔ Data can be searched by experiment name, channel number, time, or sample ID
- ✔ Individual sample IDs enable easy browsing and result searching
- ✔ Automatic compensation for dilution factors
- ✔ Generate cell growth curves to monitor and understand cell growth trends



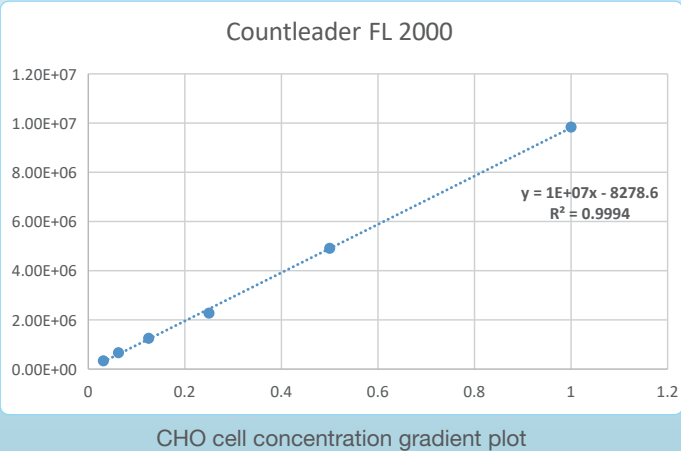
Supports proportional analysis across different cell size ranges, revealing patterns within heterogeneous populations — ideal for monitoring iPSC differentiation and virus-infected 293 cells.



The software is powerful, user-friendly, and highly flexible, allowing you to select detection channels based on the number of your samples. It offers default analysis modes for both AO/PI and Trypan Blue staining and also allows users to create customized analysis methods tailored to their specific samples with one-click re-analysis of previously collected data.

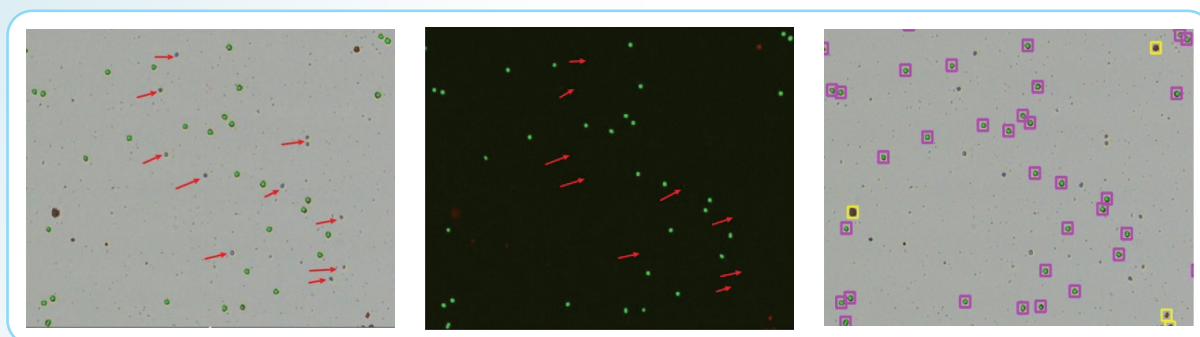
Accurate Data with Excellent Reproducibility

Each sample is imaged at 1.5× magnification with automatic focusing, covering an analysis area of approximately $4.7 \times 3.1 \text{ mm}^2$ — about 12 times larger than a traditional hemocytometer. This enables detection of tens of thousands of cells per sample. Combined with fully automated staining and analysis, it eliminates errors from manual operations.



AO/PI staining targets nuclear DNA, ensuring that the results are not affected by anucleated DNA sources such as red blood cells, platelets, debris, air bubbles, or magnetic beads.

This guarantees highly accurate and reliable results — ideal for counting CAR-T cells, PBMCs, low-purity cell populations, and irregular or compromised cells. No need to adjust parameters based on cell morphology or size, minimizing user-induced errors.

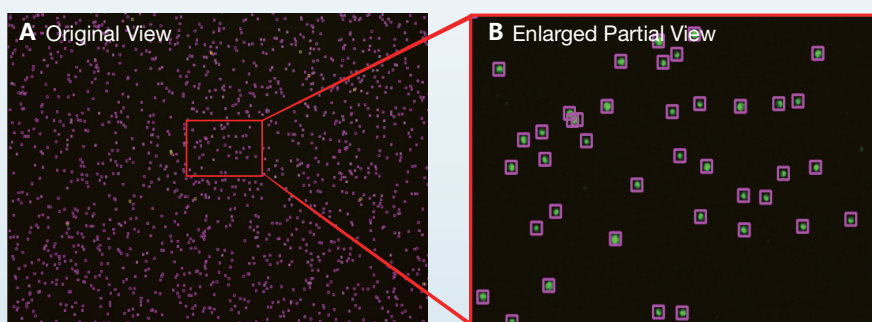


PBMC Analysis in Brightfield and AO/PI Fluorescence Modes: Red blood cells and debris (indicated by red arrows in the left image) are not stained or counted in the AO/PI fluorescence images (middle and right images). Only cells containing nuclear DNA are stained and included in the counting and analysis.

Intuitive and Versatile Data Visualization

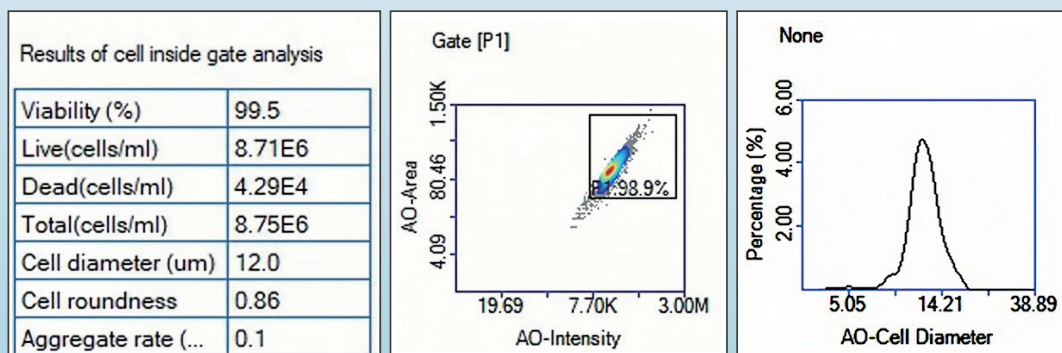
Fluorescence images provide a clear, visual display of cell counting and identification.

The framed results indicate whether cells have been correctly recognized — AO (green) and PI (red).

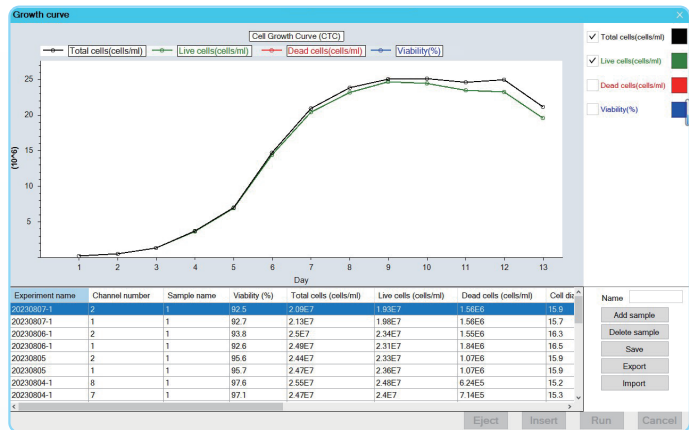


AO/PI Dual Fluorescence Images

Fluorescence scatter plots reveal the intensity and distribution patterns of your cell samples. Simply select a region on the plot to instantly locate and review the original fluorescence images — for deeper insights into individual cell characteristics.



Easily generate growth curves from continuous culture data to monitor cell proliferation and refine your cell culture strategies.



Data Management

Data Management

Obtain cell fluorescence images, flow cytometry-like scatter plots, and histograms.

Flexible Data Export Options

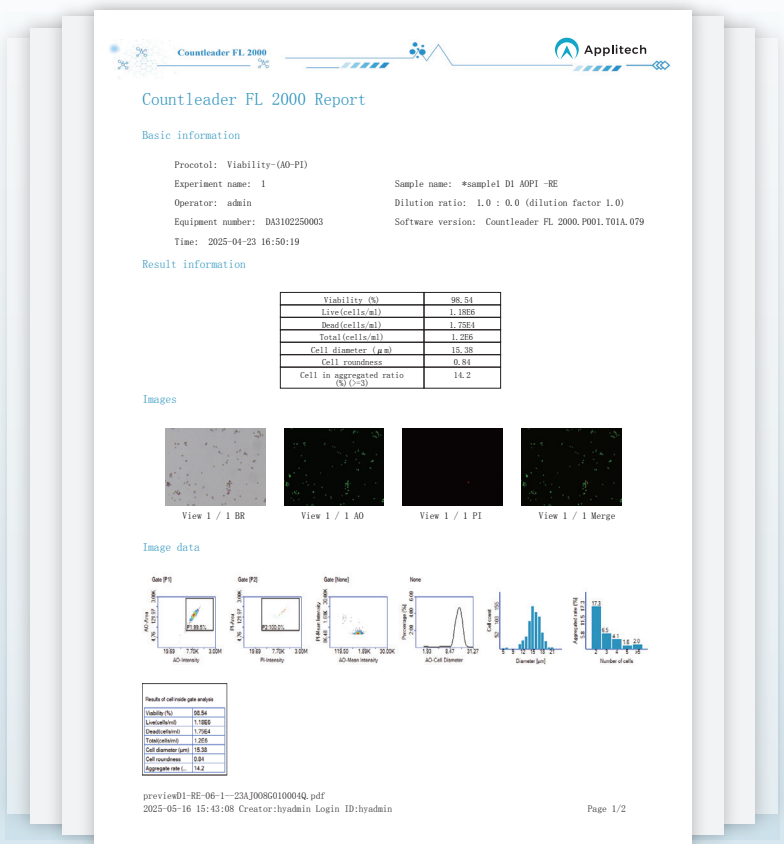
PDF, TIFF, Excel.

USB 3.0 Output

Supports export via USB drive, server, or printer. Equipped with at least one USB port and additional USB expansion ports.

Large Built-in Storage

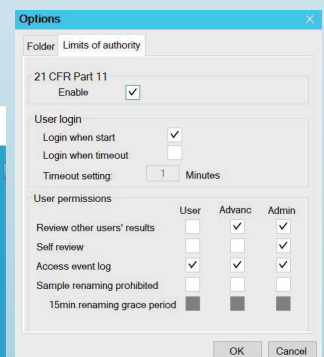
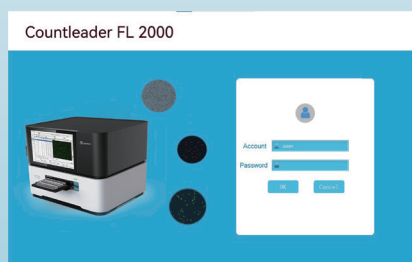
2 TB internal storage, capable of saving over 25,000 data entries.



21 CFR Part 11 Compliance

The Countleader FL 2000 features strict three-level user management and access control, fully compliant with 21 CFR Part 11 requirements.

- ✓ Password-protected user login
- ✓ User-specific access control
- ✓ Audit trail
- ✓ Log files
- ✓ Electronic records and signatures



IQ/OQ/PQ Services

The Countleader FL 2000 offers full IQ/OQ/PQ validation services, including a range of cell-simulating beads at various concentrations and comprehensive 3Q documentation. Designed to meet the rigorous demands of pharmaceutical manufacturing, and streamlines future regulatory submissions.



Countleader FL2000 offers three different types of consumables to meet various application needs

Plate Type	Staining Method	Throughput	Multichannel Pipette Compatible
FL24-plate-A	Pre-embedded AO/PI Dyes	24 wells	Yes
FL24-plate-B	Empty Plate + AO/PI or Trypan Blue	24 wells	Yes
FL 8-slides	Empty Plate + AO/PI or Trypan Blue	8 wells	Yes

Applications

During cell line development and process development, there is a high volume of daily samples. Countleader FL2000 offers a high-throughput solution with low sample consumption, fast analysis, and fully automated staining — dramatically improving counting efficiency!

- ✔ Process Development (PD) and Cell Line Development (CLD) in CGT, antibody, and vaccine research
- ✔ PBMC and CAR-T cell therapy
- ✔ Stem cells
- ✔ Tumor cells
- ✔ ...



Technical Specifications

Detection Modes	Technical Specifications
Fluorescence Channel	Ex/Em: 475 nm/525 nm; Ex/Em:560 nm/610 nm
Cell Viability	0-100%
Cell Diameter Range	2-80 μ m
Optimal Cell Concentration Range	Brightfield (Trypan Blue) Fluorescence (AO/PI))
Cell Concentration Range	5E4-3E7 cells/mL
Throughput	24
Loading Volume	40 μ L
Analysis Time	12 min/24 holes (trypan blue); 17 min/24 holes (AO/PI)
Accuracy	CV<5% (Within the optimal cell concentration range)
Data Output Format	PDF、Excel、TIFF
Analysis Results	Total/Viable/Dead Cell Concentration, Cell Viability, Cell Diameter, Cell Roundness, Cell Aggregation Ratio, Cell Fluorescence Intensity, Fluorescence Scatter Plot
Camera Resolution	3072*2084 (600w pixels), CMOS
Dimensions	47.8*40.6*39.1 cm (WxD×H)
Weight	28 kg
Temperature	15°C-35°C
Relative Humidity	10%-80%
Touchscreen	12.1 "Touch Screen, Can Hover in Mid-air
Focus	Auto Focus
Service	IQ/OQ/PQ Documents and Verification Services
Authority Management	3-Level of Authority, Audit trail
Supply Voltage	AC220 V, 50~60 Hz
Power, Current	80 W, 2 A
Storage Capacity	2T, all-in-one design to save laboratory space
Device Identification	A nameplate that is accurate, clear, and securely affixed.



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