Countstar
Smart Cell Analysis

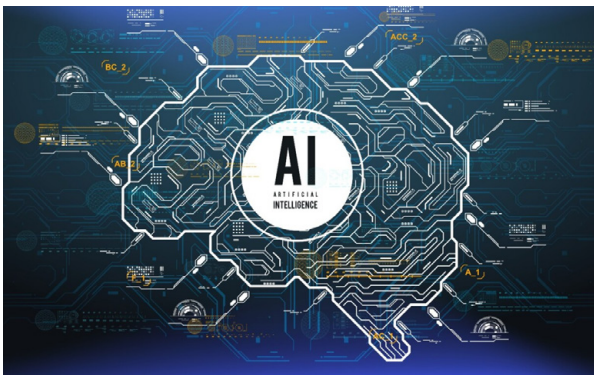
Countstar®
Mira HT

HIGH-THROUGHPUT FLUORESCENCE CELL COUNTER

Countstar® Mira HT
High-Throughput Fluorescence Cell Counter

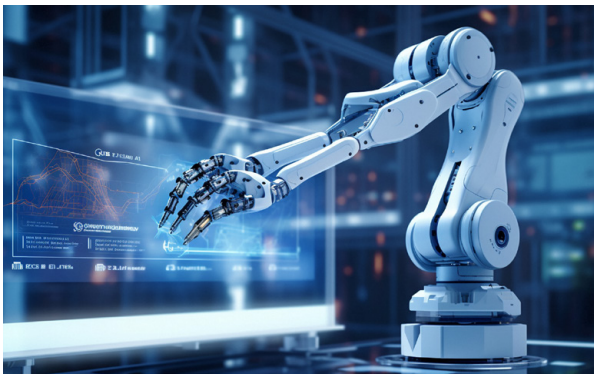
Countstar® Mira HT is a high-throughput fluorescence cell counter, equipped with both bright field and dual fluorescence (AO/PI) channels and powered by AI-trained image processing algorithms.
The Mira HT provides fast and accurate cell concentration and viability measurement via Trypan Blue or AO/PI staining, enables fast measurement of transfection rate using GFP/RFP. The Mira HT is also compatible with a variety of automation platforms and meets FDA 21 CFR Part 11 & GMP-related

Key Features



- **Accurate, reproducible** cell identification and characterization are ensured by the combination of **high-resolution, clear images and AI-trained image processing algorithms**

- **Rapid analysis meets the demand of any high-throughput cell counting applications**
  - 24 samples/batch, 30 sec/sample

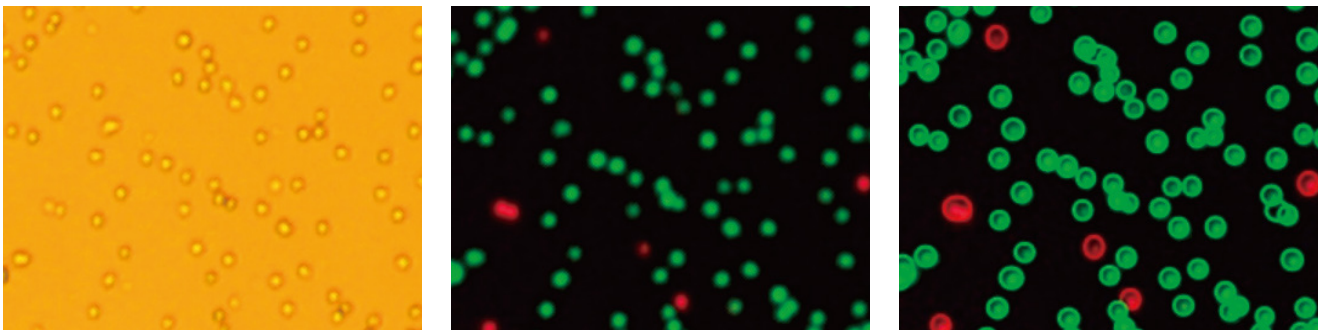


- **Integration with various automation platforms** simplifies sample preparation, enables automatic data acquisition and data transfer

- **Compliant ready with FDA 21 CFR Part 11 & GMP-related requirements**
- **Complete IQ/OQ/PQ service**

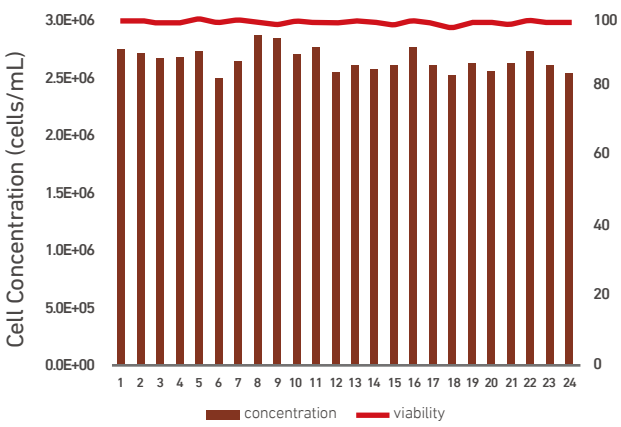
Accurate, Precise, and Reproducible Cell Counting

- **Consistent and clear image** via fixed-focusing technology, eliminating variations from autofocusing or manual focusing.
- **High-resolution images** with **excellent fluorescent sensitivity** capture more details for accurate cell identification.
- **AI-powered image analysis algorithms** ensures accurate and reproducible cell counting even in complex samples.
- **Large field of view**, with sampling area twice of a standard hemocytometer, captures more cells to provide **higher**

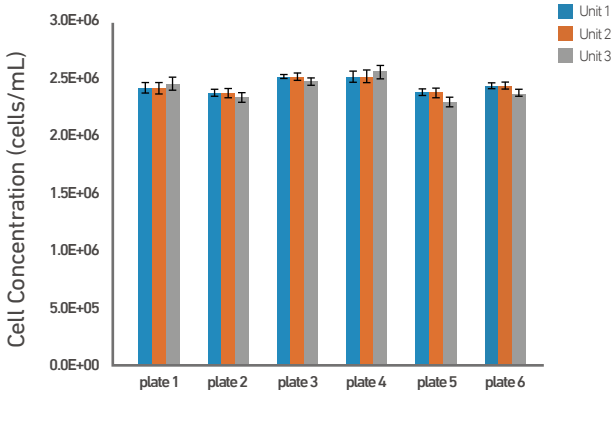


PBMCs stained with AO/PI. Bright field image (left), fluorescent image (middle) and assembled overlay labeling (right).

High reproducibility across technical replicates and multiple instruments (CHO cells stained with AOPI)



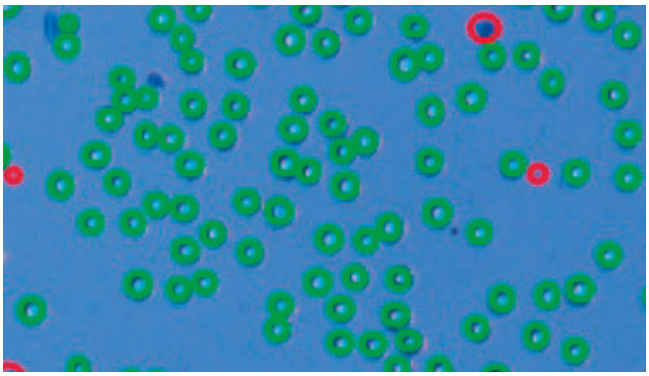
Technical aliquots on a Countstar® 24-chamber plate showed excellent reproducibility in cell concentration and cell viability.



Replicate analyses on three Mira HT instruments showed excellent reproducibility across units.

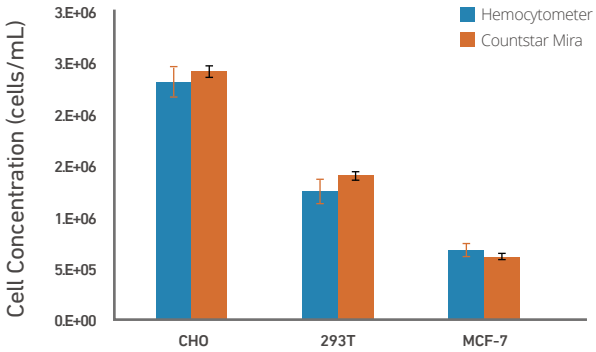
Accurate, Reproducible Cell Counting using Trypan Blue

Accurate identification of live and dead cells, even for aggregated cell samples



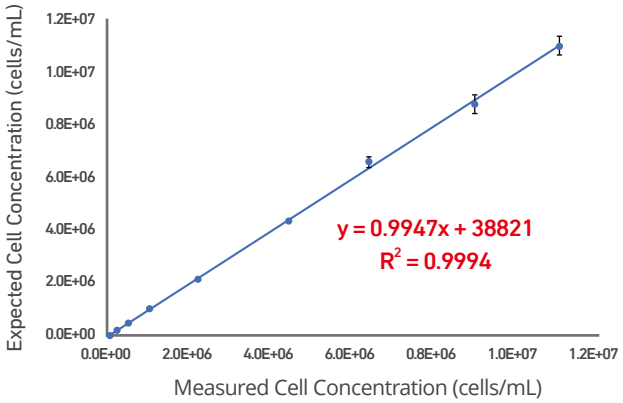
Bright field image of CHO cells with living cells marked with green circles, dead cells marked with red circles, aggregated cells marked in white circles.

Comparable result to a hemocytometer with higher reproducibility on Mira HT

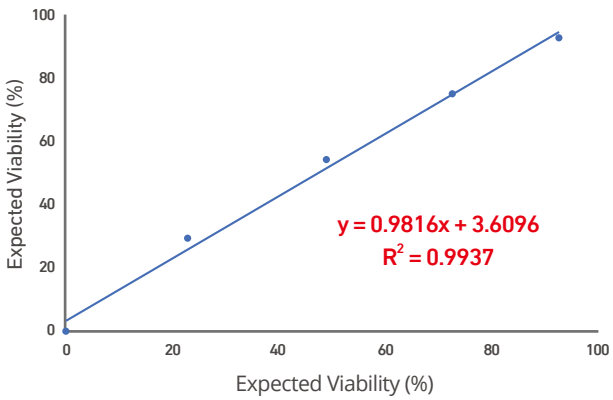


CHO, 293T, and MCF-7 (n=50) were analyzed using a Mira HT and a standard hemocytometer. The average cell concentration are within <10%. The CV is much smaller on the Mira HT.

Excellent linear dynamic range across broad concentration range



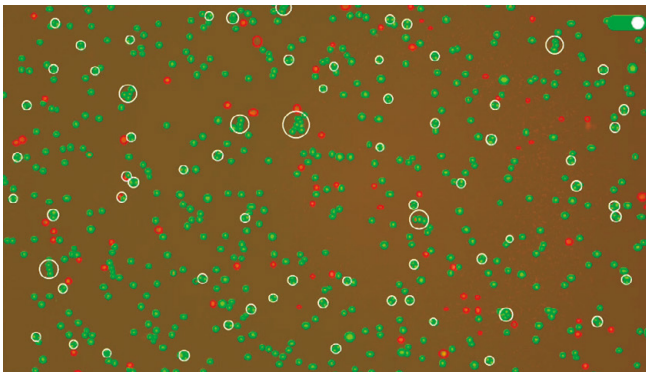
Serial dilution of CHO cells, covering a concentration range of 1E5-1E7 cells/mL were analyzed with 6 replicates for each sample. Excellent linearity was obtained across 2 orders of concentration range with a CV values below 5% for all samples in optimal range.

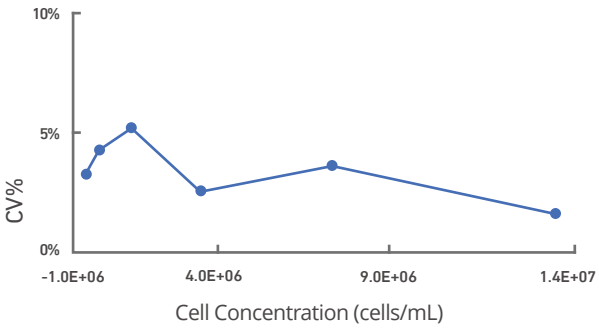


CHO samples at various viability, prepared by mixing dead CHO cells with healthy CHO cells, were analyzed with 3 replicates for each sample. Excellent linearity was obtained with an CV values below 5%.

Accurate, Reproducible Cell Counting using AO/PI

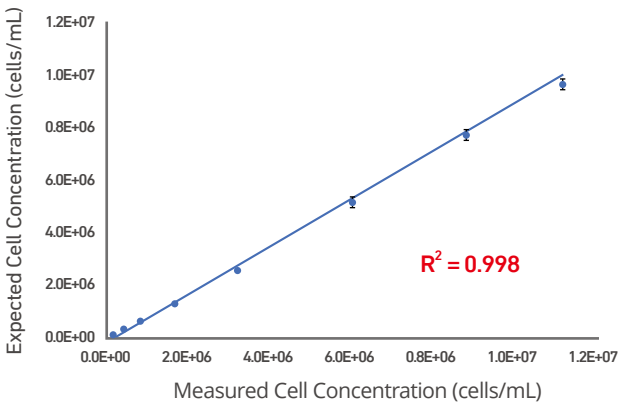
The dual fluorescence channels on the Mira HT enables more accurate measurement of cell concentration and viability using AO/PI fluorescence assay, which enables effective detection of viable and dead cells even under sub-optimum or complex conditions, such as in the presence of impurities or anucleate cells (red blood cells or platelets).



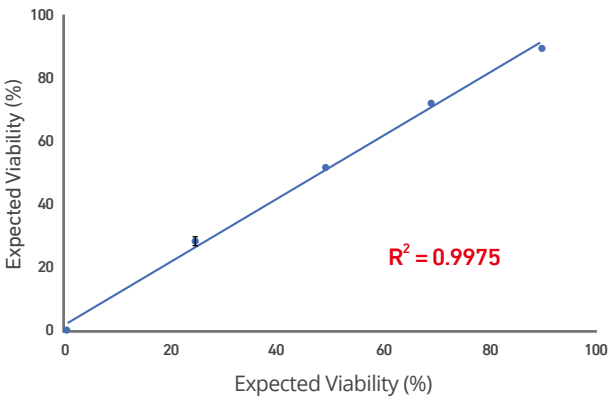


Fluorescent image of a PBMC sample with living cells marked with green circles, dead cells marked with red circles, aggregated cells marked in white circles. Repeated measurements provided CV values below 5%.

Excellent linear dynamic range, High reproducibility



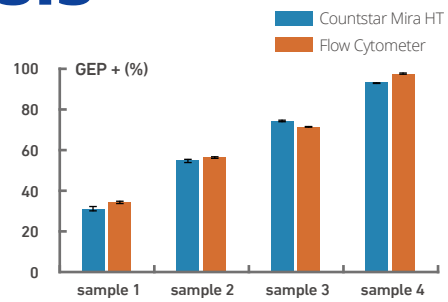
Serail dilution of 9 HEK293T samples, covering a concentration range of 1E5-1E7 cells/mL, were analyzed with 6 replicates for each sample. Excellent linearity was obtained across 2 orders of concentration range with a CV values below 6% for all samples in optimal range.



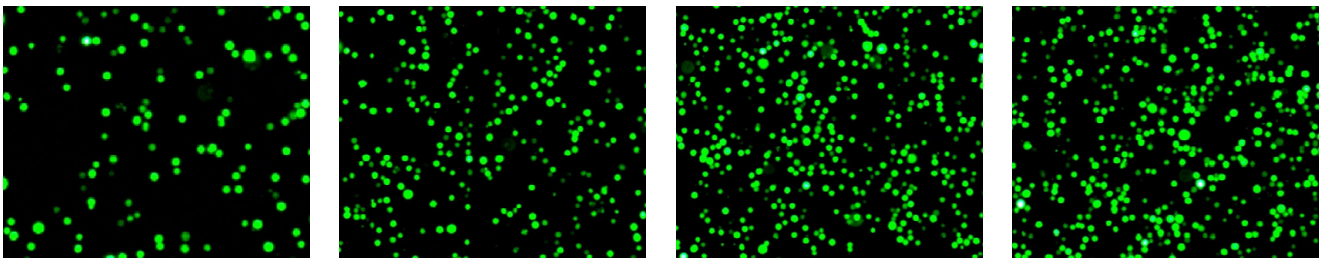
HEK293T samples at various viability, prepared by mixing dead cells with healthy cells, were analyzed with 3 replicates for each sample. Excellent linearity was obtained with an CV values below 5%.

Accurate and Fast GFP/ RFP Transfection Analysis

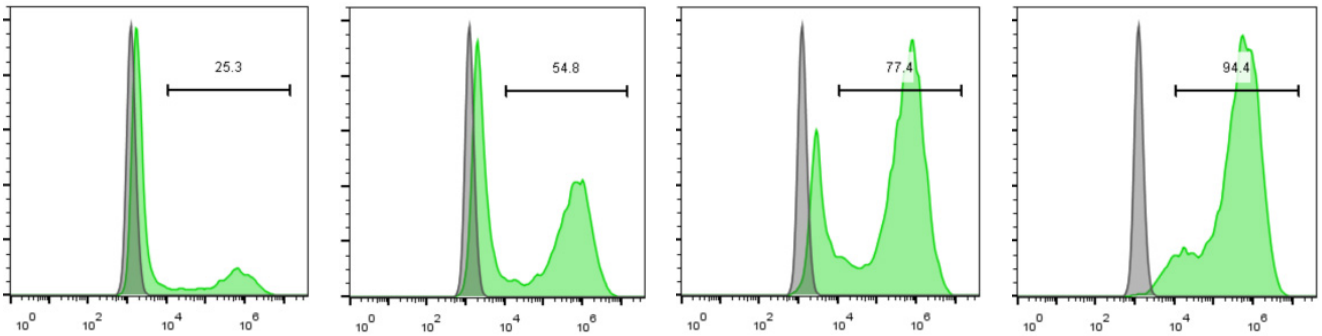
- Accurate and reproducible data, comparable to a flow cytometer.
- <30 seconds per sample without the need of sample preparation.
- Easy reanalysis with saved images.



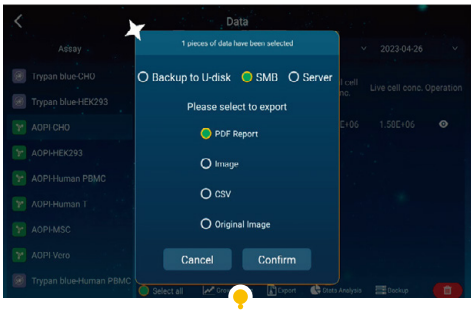
Fluorescent images acquired on Mira HT

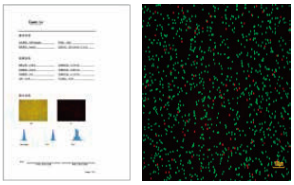


Contour plots generated from flow cytometry analysis using a CytoFLEX system

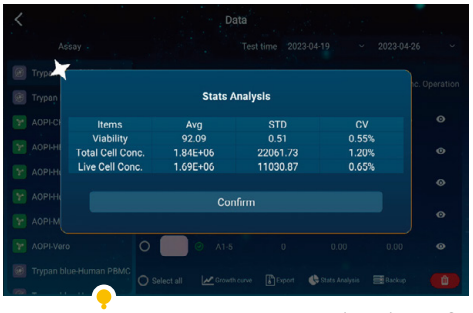


Comprehensive Data Analysis and Visualization

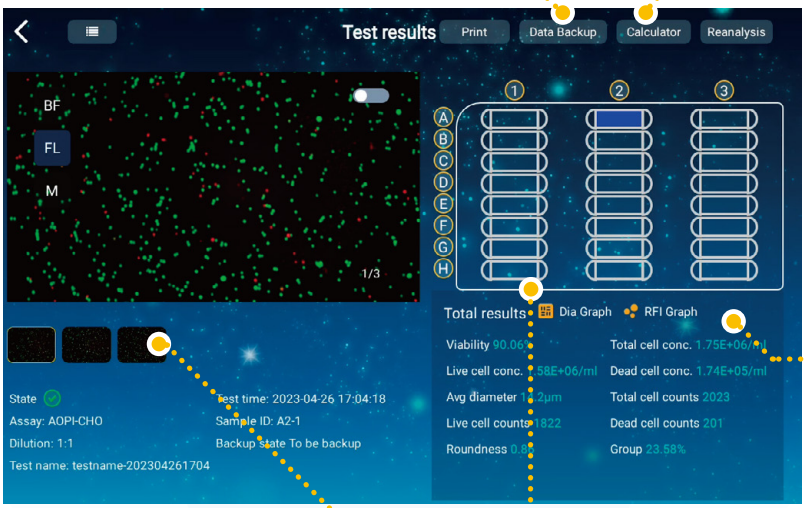




Output formats: images, customizable PDF reports, and .csv files

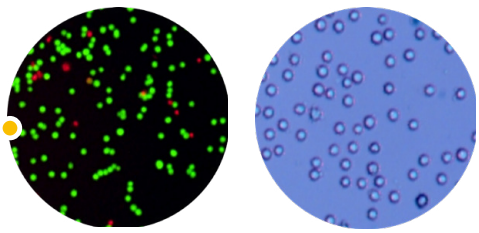


Automatic statistical analysis of measurement series



Histogram of diameter and relative fluorescent intensity

Comprehensive overview of images and results

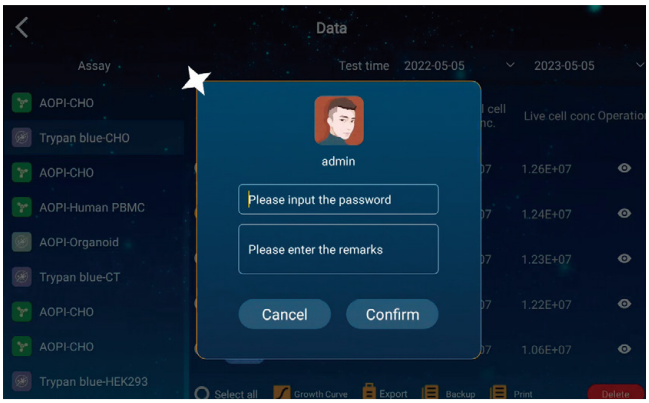


Acquired images will document additional evidence of early changes in the analyzed samples

Data Security

The Countstar® Mira HT provides comprehensive and secure data management to ensure easy data access and safe data storage.

Password protected access

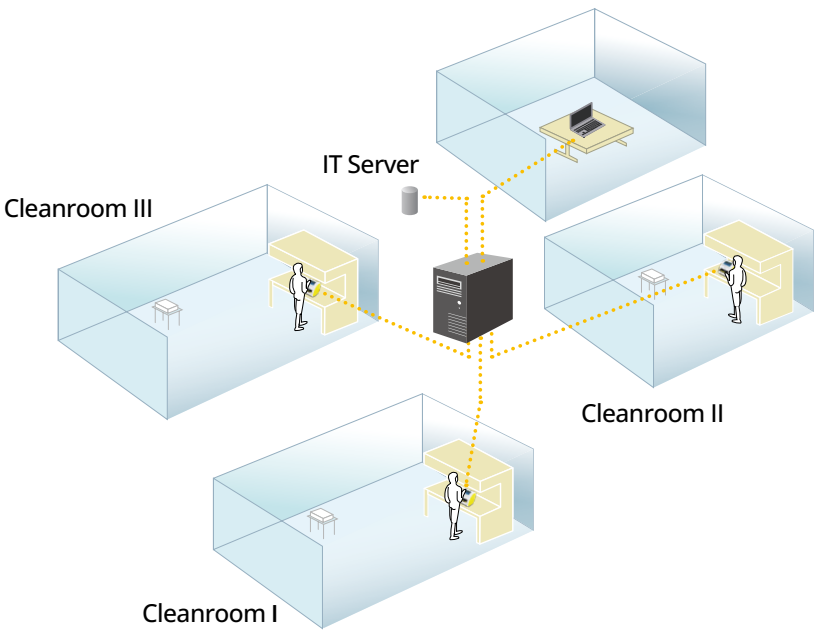


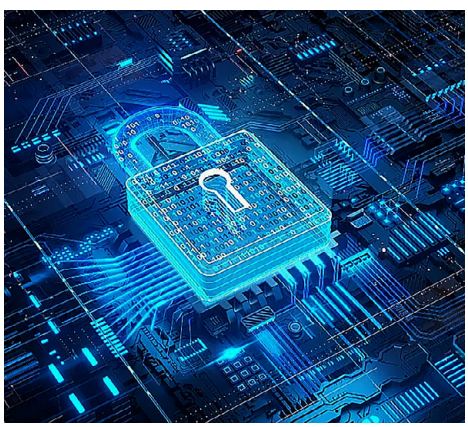
Unauthorized manipulation or deletion of data is blocked by data encryption, electronic signatures, and user privilege.

Result database by applications

Images and results are organized by applications and sorted by analysis time for easy retrieval.

Data Sharing and Backup Strategies

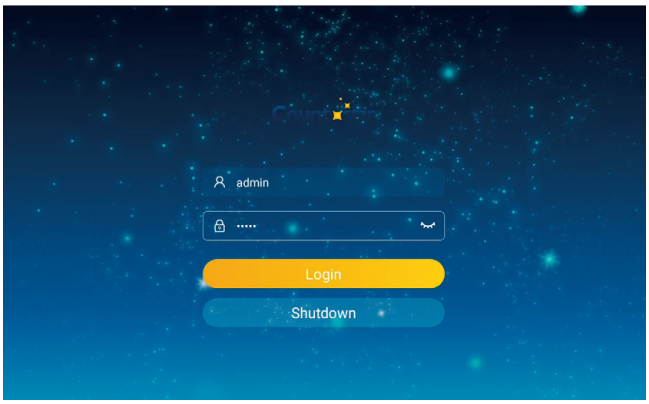




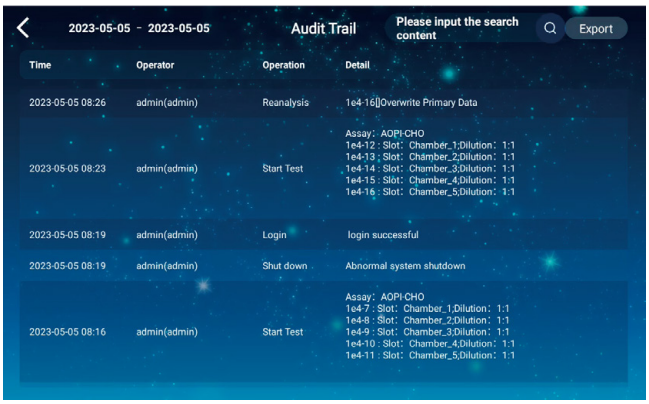
All experimental data is automatically saved on the instrument.
The data can also be transferred to a central server via LAN connection in real time.

21 CFR Part 11 Compliance Ready

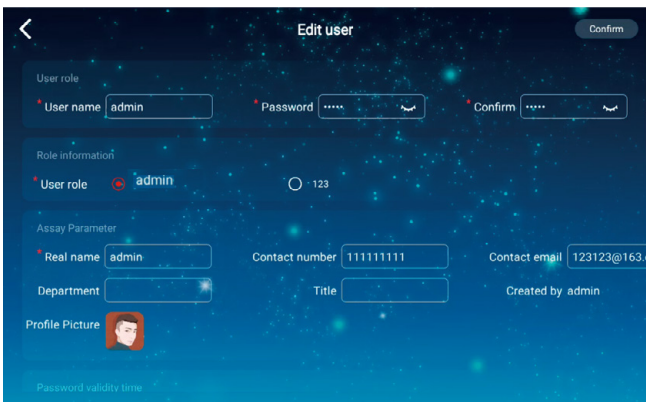
Compliant software architecture ensures
data security and data integrity



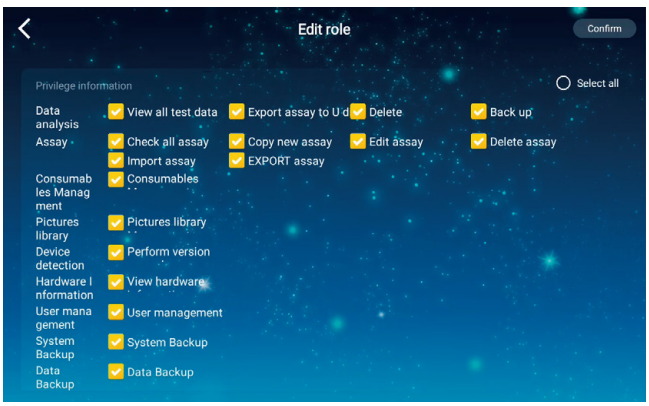
Password protected user login



Electronic signatures and audit log



Detailed user management



Comprehensive user role definition

Comprehensive IQ/OQ/PQ validation services and System Sustainability Test (SST) tools

- An extensive package of standard beads
- Customizable IQ/OQ/PQ documents
- Validation service experts

Product Specifications

Model Name	Countstar® Mira HT
Sample Throughput	24 samples per run
Consumables	Countstar® 24-chamber plates
Diameter Range	2-180 μm (optimal 8-60 μm)
Concentration Range	1×10^4 – 3×10^7 cells/mL
Optimum Concentration Range	5×10^5 – 1×10^7 cells/mL
Optical Magnification	5X
Camera Sensor	8.3-megapixel CMOS
Camera Field Of View	2.8mm^2
Image Resolution	1920 × 1080px
Fluorescence Channel	Ex: 465-485 nm Em: 535/40 nm, 600 LP
USB Interface	1 × USB 2.0, 1× USB 3.0
Storage Capacity	1 TB
Power Input	110-230 V/AC, 50/60 Hz
Screen Size	8.6 inch (HD res)
Product Weight	19.4 lbs
Product Dimensions	12.13 in × 13.19 in × 13.94 in

Product Ordering Information

	Product name/Model	Product number
Product	High-throughput Cell Analyzer	IN090101-A
Consumables	C24 Chamber plate (10 pieces/box) (50 pieces/box)	CO040201 CO040101
	AO/PI fluorescent staining solution 5mL/25mL	RE010212 RE010213
	0.2% Trypan Blue 20mL	RE010112

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