

CytoDirect Cell Counter

Reliable, Portable, and Easy to Use



Minimize Variability with Ensured Reliability

CytoDirect leverages an extra-large measurement area – 30 times bigger than a standard hemocytometer – maximizing statistical significance in every single measurement.



Say bye to trypan blue

CytoDirect's technology does not require cytotoxic cell staining for viability assessment, increasing sample integrity, and removing error-prone steps and inter-user variability.



Take it to your samples

CytoDirect has been designed for portability: a robust, battery-powered, and small instrument with a Wi-Fi connection for cable-free data transfer. Bring it wherever your sample is, even under the hood – it is sterilizable!



Keep it simple

Streamlined usability: It is easy to use and requires no training. Get your results with the on-screen instructions. Understand quickly if your sample preparation and workflow were correct, thanks to CytoDirect's built-in troubleshooting guidance.



CytoDirect

Automated stain-free cell counter

METTLER TOLEDO offers stain-free, automated cell counting in a portable device – that can even be used under the hood. CytoDirect leverages the most advanced technologies: digital holographic microscopy and machine learning algorithms.

CytoDirect's technology, together with an extra-large measurement area and the elimination of cell staining, ensures measurement reliability in a very short measurement time: 15 seconds. A high degree of automation decreases human error, improves process standardization, and eliminates inter-operator variability. The smart, robust design makes CytoDirect perfect to work anywhere in the lab. It can also be easily stowed away when not in use and shared between labs!

CytoDirect Cell Counter

Tested Cell Types

Type of cells	Cell count	Viability
HEK293	•	•
HeLa	•	•
CHO	•	•
Induced pluripotent stem cells (iPSC)	•	•
Mesenchymal stem cells (MSC)	•	•
Sf9	•	•
T-cells	•	•
B-cells	•	•
NK-cells	•	•
Monocytes	•	•
Human peripheral blood mononuclear cells (PBMCs)	•	•
Saccharomyces cerevisiae	•	–
Red blood cells	•	–
Granulocytes	•	–
Oval/round shaped plant cells	•	–

The up-to-date list is always available at: www.mt.com/CytoDirect-Cell-List

Technical Specifications and Functionalities

Attribute name	Value
Applications	Cell count, viability
Stain-free cell viability	Yes
Required sample volume	20 µL
Calibration to specific cell type	Not needed ⁽¹⁾
Sample concentration range	10 ⁴ –10 ⁷ cells/mL
Cell diameter range	2–80 µm
Accuracy	R ² ≥ 0.99 (ISO 20931 pt.2)
Coefficient of variability	≤5% ⁽²⁾
Sterilizable	Yes
Acquisition technology	Digital holographic microscopy
Auto-focus	Yes
Detection method	Machine learning
Processing time	<15 seconds
Number of sensors	2
Total measurement area value	31.28 mm ²
Battery	Rechargeable Li-Ion battery
Battery charger	USB-C, 5V/3A, 100-240 V, 47-63 Hz
Connectivity	Wi-fi, Ethernet
Data export	pdf, png, csv, raw
Languages	English, German, French, Chinese
Dimensions [depth × height × width]	260 × 60 × 128 mm
Weight	1.11 kg
Display size	7 inch
Display resolution	1280 × 800 px
Internal storage capacity	>100 measurements

⁽¹⁾ Automatic recognition of cell types.

⁽²⁾ Data refers to cell counting for small cells at concentrations above 5 × 10⁶ cell/mL.

