Roche Digital LightCycler® system

A technological guide to the powerful new addition to our PCR ecosystem

It’s time for a leap forward in digital PCR technology.

Experience sensitivity, precision, flexibility, and integration in one powerful clinical research tool. The Digital LightCycler® system from Roche is a digital PCR system that can help laboratories push forward the boundaries of clinical research and has the potential to advance global medical knowledge.

Partitioning Engine

Height 25cm **Width** 25cm **Depth** 30cm
Touch-screen operation
Stand-alone to accommodate multi-room configuration

Partitioning Fluid

Inert non-volatile silicone fluid increases reliability and replicability and minimizes the chance of amplicon contamination.

3 unique nanowell plates

Standard SBS/96 MWP format
Height 128mm **Width** 85mm
8 sample lanes per plate

20,000 partitions High Sensitivity

166x87x160µm, ~45µL

Cell-free DNA
Oncology
Rare Mutation Detection

28,000 partitions Universal

121x62x128µm, ~30µL

Gene Expression
Transplant Rejection

100,000 partitions High Resolution

54x27x75µm, ~15µL

Copy Number Variation
NIPT
Human Genetic Disease

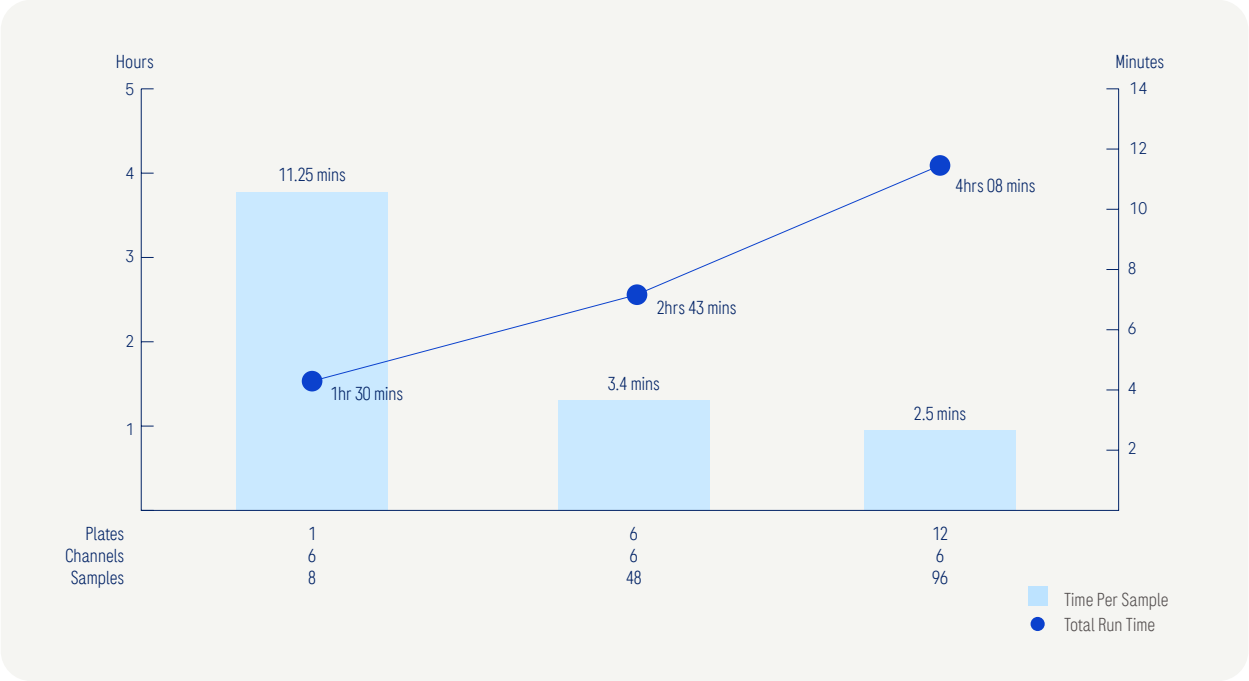
Analyzer

Height 90cm **Width** 100cm **Depth** 60cm
Fully integrated thermal cycling & partitioning imaging
Image capture within nanowell plate
6 optical channel detection for multiplexing capabilities
Flexible batch size (increments of 1 up to 96 samples per run)
12-plate capacity

Choose the Digital LightCycler® system and unleash the true power of digital PCR.

Run times*

Designed to use less overall time when there are fewer plates in the analyzer, the Digital LightCycler® system is also capable of processing large numbers of samples in an extremely fast average time per sample.



Volumes†

With average lost volumes of 10% on the 20,000 and 28,000 partition plates and just 5% on the 100,000 plate during research, the maximum waste volume is also extremely low.

20,000 partition plate
Total volume 45µL rxn
Max Nucleic Acid 27µL
Max waste volume 6.75µL (15%)

28,000 partition plate
Total Volume 30µL rxn
Max Nucleic Acid 18µL
Max waste volume 4.5µL (15%)

100,000 partition plate
Total volume 15µL rxn
Max Nucleic Acid 9µL
Max waste volume 1.5µL(10%)

Compatible optical dyes

Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6
Coumarin Cyan500 Atto425	FAM	HEX VIC	LC610 TexRed CFR610	CY5 JA270 LC640	CY5.5

Performance data

Quantification Precision‡ <=5% for optimal sample input and <=10% for low sample input
Quantification Accuracy +/-10% to the reference standard for optimal sample input and +/-20% for low sample input
Linearity and Dynamic Range At least 4-log of linear range with deviation from linear fit <0.2 on a log scale
CNV Assay Performance Discriminate 10% difference in CN on High Resolution Plate (100,000)
Rare Mutation Assay Performance LoD of 0.1% MAF on Universal Plate (28,000)
Indel Assay Performance LoD of 0.2% MAF on High Sensitivity Plate (20,000)

* Roche data on file: DH_02365.01_031B_Digital_LightCycler_Reagent_Feasibility_Report_v3, Document Number: 0000000000001200000501942
Roche data on file: DH-02365.01-500E_Digital LightCycler System Performance report
Roche data on file: DHF Digital_LightCycler_Reagent_Feasibility_Report
Roche data on file: DH-02365.01-008B_Digital_LightCycler_System_Feasibility_Report
† Assuming the Primer/Probe is at 5x (usually higher at 10x and 20x), master mix at 5x, restriction enzyme volume very small (neglected here)
‡ Quantified by the coefficients of variation (CV) of technical replicates

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