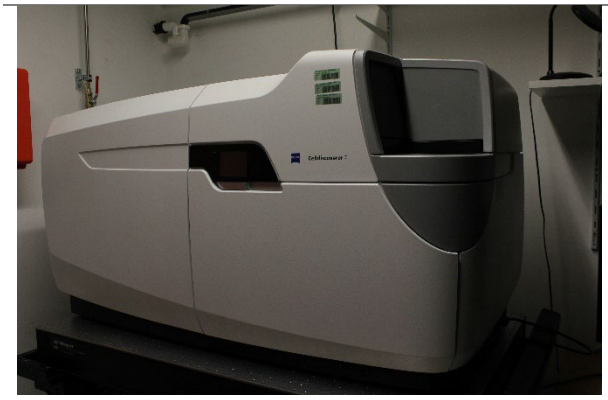
Technical Specifications

Zeiss Celldiscoverer 7



Installed 2018. Platform for high-throughput live imaging. Accomodates multiwell plates, dishes and chamber slides (glass or plastic). Equipped with hardware autofocus, autocorr objectives (50x with water immersion), magnification changer (up to 2x), CCD and sCMOS cameras (6/4 Megapixel). Illumination: 7-color LED for fluorescence, IR-LED for transmitted light and phase gradient contrast. Temperature/CO2 control, dispensing port for manual reagent addition, and UV disinfection. Python interface for real-time image analysis and custom workflows

(Last updated: January 2026)

Frame

Boxed platform, inverse configuration, motorized, auxiliary magnification changer (0.5x, 1.0x, 2.0x), dispensing unit for manual addition of reagents, UV disinfection module.

Objectives

- Plan-Apochromat 5x/0.35 (2.5x/0.12, 5x/0.25, 10x/0.35)
- WD1 5.1 mm, glass or plastic bottom
- Plan-Apochromat 20x/0.7 autocorr (10x/0.35, 20x/0.7, 40x/0.7)
- WD 2.2 mm, glass or plastic bottom
- Plan-Apochromat 50x/1.2 W2 autocorr
- WD 0.84 mm, glass or plastic bottom

Widefield Illumination

- Fluorescence: 7-color LED 385/420/470/520/567/590/625 nm (1 ms switching time)
- Transmitted light/phase gradient contrast: IR-LED 725 nm

Filters

Beam splitter (5 pos.) and emission filter wheel (7 pos., switching times < 80 ms).

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Zeiss multiband sets:

- 90HE (DAPI/GFP/Cy3/Cy5/IR3) RQBS 405/493/575/653, QBP 425/30+514/30+592/25+709/100
- 91HE (CFP/YFP/mCherry/IR) RTBS 450/538/610
- 92HE (DAPI/GFP/mCherry/IR) RTBS 405/493/610, TBP 425/30+524/50+688/145

Additional single-band emission filters:

- Chroma ET470/24m (CFP)
- Semrock FF02-510/10 (GFP)
- Semrock FF01-549/15 (YFP)
- Semrock FF01-595/31 (Cy3)

Dye	LED	Ex	Multi-band Em		Single-band Em
			90HE	92HE	
DAPI	385	385/30	425/30	425/30	
CFP	420	423/44			470/24
GFP	470	469/38	514/30	524/50	510/10
YFP	520	511/44			549/15
Cy3	567	555/30	592/25		595/31
mCh	590	591/27		688/145	
Cy5	625	631/33	709/100		

Camera

- Internal camera port: Zeiss Axiocam 506 mono CCD, 2752 × 2208 pixel, 4.54 µm pixel size, 14 bit/pixel, 20 fps (full frame), peak QE 74%
- External: Hamamatsu ORCA Flash4.0 V2 sCMOS, 2048 x 2048 pixel, 6.5 µm pixel size, 16 bit/pixel, 100 fps (full frame), peak QE 82%

XYZ stage and stage inserts

- Motorized Z-drive (reproducibility 25 nm, absolute precision 140 nm, resolution 10 nm), allows hard- and software-based autofocus and focus maps
- XY-stage 300 x 140 mm (reproducibility 1 µm, absolute precision 5 µm, resolution 0.1 µm)
- Stage inserts for 1 multiwell pate, 1 dish 35 or 60 mm, 6 dishes 35 mm, 2 slides 76 x 26 mm and 2 Lab-Tek chambers 57 x 26 mm

Environmental control

- Temperature (28-45°C ± 0.6°C) and CO2 (1-8% ± 0.1%) control, humidifier
- Automatic detection of the sample bottom (glass/plastic), thickness and skirt, barcode reader
- Dispensing unit for manual addition of reagents to individual wells
- UV disinfection module (254 nm, 18 min per full disinfection cycle)

Software

— Zeiss ZEN 3.1 on Windows 10 (64-bit). Modules: Tiles & Positions, Autofocus, Experiment Designer, Macro Environment/Python Scripting