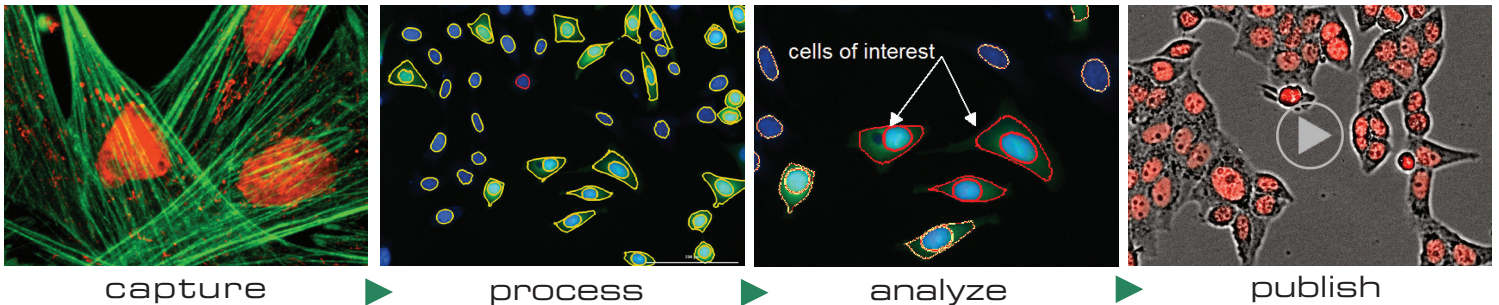


## Lionheart™ FX Automated Microscope

Lionheart™ FX Automated Microscope is a compact, inclusive microscopy system for a broad range of imaging workflows. It offers up to 100x air and oil immersion magnification, with fluorescence, brightfield, color brightfield, and phase contrast channels for maximum application reach. An optional environment control cover provides incubation to 40 °C and effective containment for CO<sub>2</sub>/O<sub>2</sub> control, a humidity chamber optimizes conditions for long-term live

cell imaging applications, while a dual reagent injector facilitates rapid kinetic assays.

Lionheart FX and Gen5 together comprise Augmented Microscopy™ - the automation of image capture, processing, analysis and development of publication-ready images and data.



## Features:

- Automated digital microscopy with up to 100x magnification for whole organism to sub-cellular imaging
- Brightfield, color brightfield, phase contrast and fluorescence with image and laser autofocus to meet a wide range of imaging applications
- Powerful Gen5 3.0 software with seamless image capture, annotation, analysis and movie making. Requires no extensive training.
- Automated kinetic live cell assays, with temperature and CO<sub>2</sub>/O<sub>2</sub> control, humidity and reagent injectors
- Patented laser autofocus provides speed and accuracy
- Auto Focus, Auto Exposure, Auto LED Intensity
- Fully integrated and compact design offers quick installation and setup, no extensive training required
- Label-free cell counting for cell proliferation assays



## Typical Applications:

- Live cell imaging
- Cell culture QC
- Cell proliferation
- Apoptosis
- 3D cell culture
- Tumor invasion
- Signal transduction
- Stem cell differentiation
- Phenotypic assays
- Cell migration and invasion
- Calcium flux
- Translocation
- Cytotoxicity
- Cell viability
- Wound healing
- Phagocytosis
- Slide scanning
- H & E imaging
- Label-free live cell assays
- Label-free cell counting

## Configurations:

**LFX:** Lionheart FX Automated Microscope. Fluorescence, brightfield, color brightfield and phase contrast imaging capability. Includes Gen5 3.0 Software and Imaging System Controller. Objectives, filter/LED cubes, accessories and software upgrades sold separately.

## Optional Accessories:

- Environment Control Cover. For temperature control to 40 °C, CO<sub>2</sub>/O<sub>2</sub> control module support and "darkroom" fluorescence
- Humidity Chamber with rapid gas re-charge
- Reagent Injector Module
- Gen5™ Secure for 21 CFR Part 11 compliance
- Gen5 Image+ and Image Prime Software for advanced image analysis
- Vessel adapters (T25, T75, 35 and 60 mm dishes, slides)
- High Contrast Brightfield kit for Label-free Cell Counting
- Scratch Assay Starter Kit
- Cell Count & Viability Starter Kit

See [www.biotek.com](http://www.biotek.com) for complete list of accessories.



Easy access to filter/LED cubes and objectives.

## Technical Details:

### General

**Labware type:** Imaging: 6- to 1536-well plates  
**Other labware:** Microscope slides, Petri and cell culture dishes, cell culture flasks (T25, T75), counting chambers, chamber slides  
**Support for labware up to 1.5" tall**  
**Temperature control:** 4-Zone™ incubation to 40 °C with Condensation Control™  
**With optional environmental control cover**  
**CO<sub>2</sub> and O<sub>2</sub> control:** 0 – 20% CO<sub>2</sub> control and 1 – 19% O<sub>2</sub> control with optional Gas Controller  
**Environment control cover:** Top cover for light tight imaging and incubation control (option)  
**Stage control:** High resolution lead screw driven stage with open access  
**Humidity control:** Humidity chamber with rapid gas recharge (option)  
**Software:** Gen5™ 3.0 Microplate Reader and Imager Software included; Gen5 Image+ and Image Prime software for advanced image analysis (option)

### Imaging

**Imaging modes:** Fluorescence, brightfield, phase contrast, color brightfield  
**Imaging methods:** Single color, multi-color, montage, time lapse, Z-stacking, burst mode  
**Light source:** High power LEDs (available wavelengths: 365 nm, 390 nm, 465 nm, 505 nm, 523 nm, 590 nm, 623 nm, 655 nm, 740 nm)  
**Camera:** 16-bit gray scale Sony CMOS  
**Camera binning:** Optional 2x2 binning for focus and/or image capture  
**Camera exposure range:** 5 milliseconds – 4 seconds  
**Image outputs available:** Raw Images: 16-bit TIFF  
 Saved Images: TIF, JPG, BMP, PNG, EMF, GIF  
 Movies: MP4, WMV  
**Filter cube capacity:** 4 user-replaceable fluorescence cubes plus brightfield channel  
**Colors available:** DAPI, CFP, GFP, YFP, RFP, Texas Red, CY5, CY7, Acridine Orange, CFP-YFP FRET, Chlorophyll, Phycoerythrin (PE), Propidium Iodide, CY5.5, TagBFP, GFP (Ex)-CY6 (Em), RFP (Ex)-CY5 (Em)  
**Objective capacity:** 6 onboard user-replaceable objectives  
**Available objectives:** **Fluorescence:**  
Air: 1.25x, 0.04 NA; 2.5x (2.25x eff), 0.07 NA; 2.5x (2.75x eff), 0.12 NA; 4x, 0.13 NA; 10x, 0.30 NA; 20x, 0.45 NA; 40x, 0.60 NA; 60x, 0.70 NA  
Oil: 60x, 1.42 NA; 100x, 1.40 NA  
**Phase contrast:** 4x, 0.13 NA; 10x, 0.30 NA; 20x, 0.45 NA; 40x, 0.60 NA  
**Image collection rate:** Single Well Fastest Frame Rate Capture:  
 \*Full Resolution: up to 10 frames per second for single color images  
 \*2x2 Binning: up to 20 frames per second for single color images  
**Automated functions:** Autofocus, user-trained autofocus, autoexposure, auto-LED intensity  
**Autofocus method:** Image-based autofocus  
 Patented laser autofocus option  
**Microscope stage control:** Gen5 Software Control  
 Optional joystick controller

### Reagent Injector Module (optional)

**Number:** 2 syringe pumps  
**Dispense volume:** 5 – 1000 µL in 1 µL increment  
**Dispense tip options:** Aligned tip – aligned with optical path for dispensing for fast kinetic assays  
 Offset tip – dispensing is offset from the optical path  
**Dead volume:** <1.65 mL with back flush  
**Labware supported:** 6- to 384-well microplates, Petri and cell culture dishes, chamber slides  
**Dispense precision:** <2% at 50 – 200 µL  
**Dispense accuracy:** ±1 µL or 2%

### Physical Characteristics

**Power:** 250 Watts max.  
**Dimensions:** With environment control cover closed or without cover: 18.3" D x 17.9" W x 14.1" H (46.5 cm x 45.5 cm x 35.8 cm)  
 With environment control cover fully open: 18.3" D x 17.9" W x 27.5" H (46.5 cm x 45.5 cm x 69.8 cm)  
**Weight:** Without environmental control cover: 51 lbs (23.1 kg)  
 With environmental control cover: 58 lbs (26.3 kg)

### Regulatory

CE and TUV marked. RoHS compliant. Configurations for *In Vitro* Diagnostic use are available.

Technical details are subject to change.



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