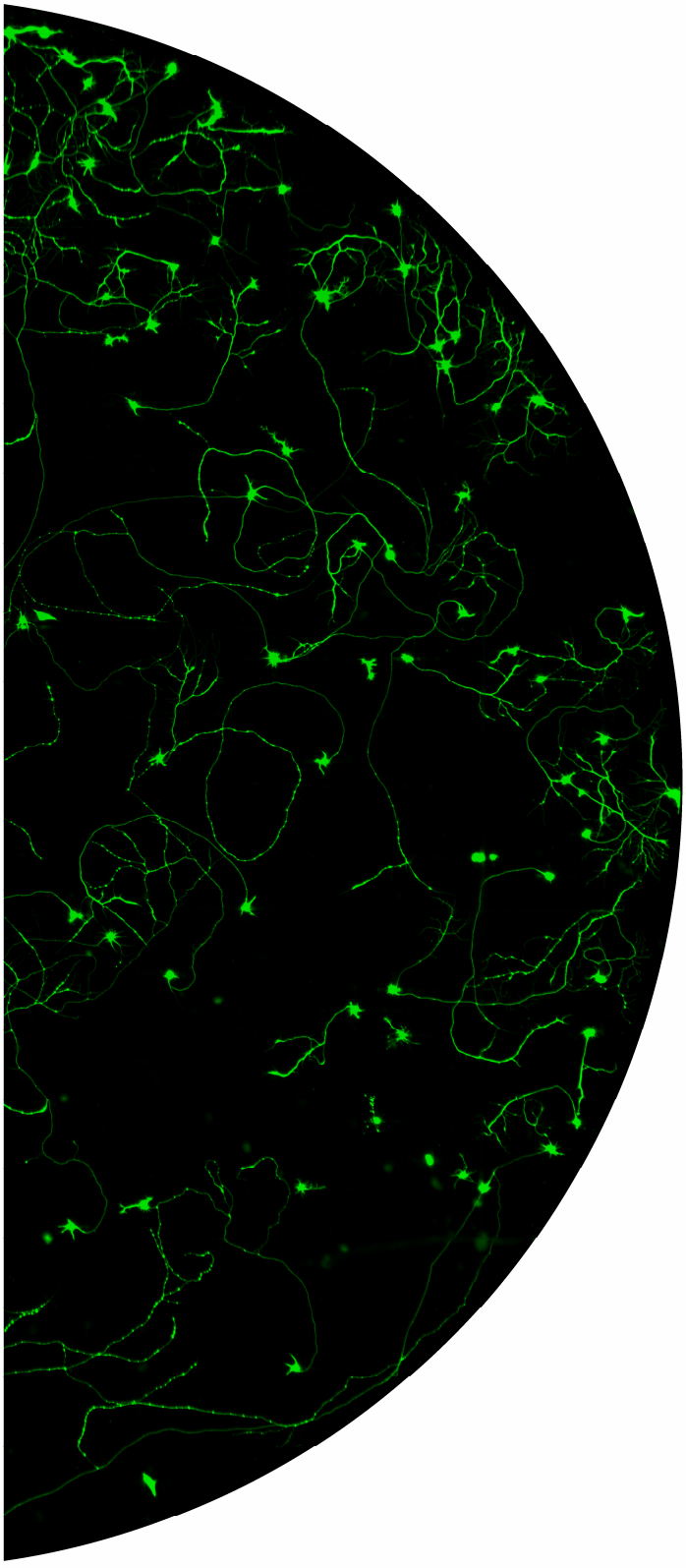
Plate RUNNER HD®

by TROPHOS

Rapid High Resolution Cell Fluorescence Imaging made easy



Rat Motor Neurons, zoom in this true 8192x8192 image to believe it…

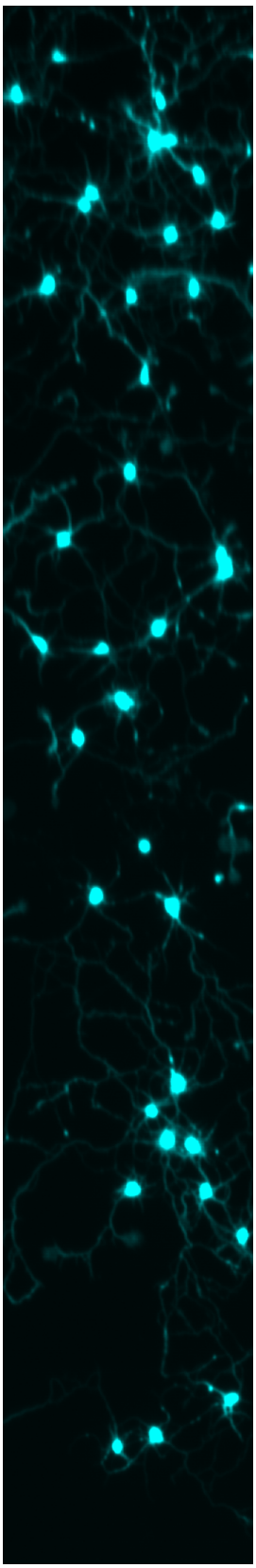
TROPHOS

www.trophos.com

Parc Scientifique de Luminy – Case 931
Luminy Biotech Entreprises
13288 Marseille Cedex 9 – France
Tel : +33 (0)4 91 82 82 82
Fax : +33 (0)4 91 82 82 89
info@trophos.com

June 2009, Ed. 4g

the TROPHOS Plate RUNNER HD® at a glance



Rat Cortex Neurons
8192x8192 image

The TROPHOS Plate RUNNER HD® is a lightweight compact HTS tool

- Optimized for phenotypic HTS or research assays on fluorescent adherent cells and small organisms, in 96 or 384 well plate format
- Accurately and quickly measures cell fluorescence intensity and localization,
- Enables in-depth study of cell morphology and motility in various tests (cell viability, cytotoxicity, cell cycle, membrane potential, neurite outgrowth, angiogenesis...).
- Uniquely large field of view (8mm) covering the complete well of a 96 plate
- Single shot for the full well whatever the resolution - avoiding time consuming and error prone mosaïc image reconstruction,
- Excellent resolution - from standard 1024x1024 up to 8192x8192 pixel matrix giving a 1µ/pixel resolution
- Impressive scanning speed - 2mn40 for 96x1 Megapixels images up to 25mn for 96x64 Megapixels High Resolution images
- Flexible and low cost operation
    - low power consumption (10W);
    - long life LED light source (100 000h) at three commonly used wavelength (UV 365, blue 475, green 530);
    - small footprint and light weight;
    - robust - reducing dramatically the MTBF and maintenance needs,
- Standard interfaces (driven by a standard Home Laptop PC) and open data formats (full standard tiff images and csv tabular data) – no locked in, expensive software
- Full and simple automation

The TROPHOS Plate RUNNER HD® in Competition

See the difference over other plate imaging systems based on traditional microscopy design with their small field, small CCD of only 1 Megapixels leading to mosaïc images, low speed, complex and fragile architecture, over sophisticated software and closed proprietary data formats. Our simple system is now patented in USA (# 7,372,626), Europe (App.# 01934077), France (# 2,808,888) and patent is pending in Canada (App.# 2,408,731) and Japan (App.# 2004-516495). The price is also attractive (please apply to info@trophos.com for a quotation).

The TROPHOS Plate RUNNER HD® - Why

For TCO reduction (including people training costs), ease of use, speed, fully automated/full plate/full well high resolution images, interoperability with any imaging software and custom data processing, unlimited offline re-analysis, and statistically significant exhaustive quantitative results.

INSIDE THE TROPHOS Plate RUNNER HD®

Fig. 1 Front View

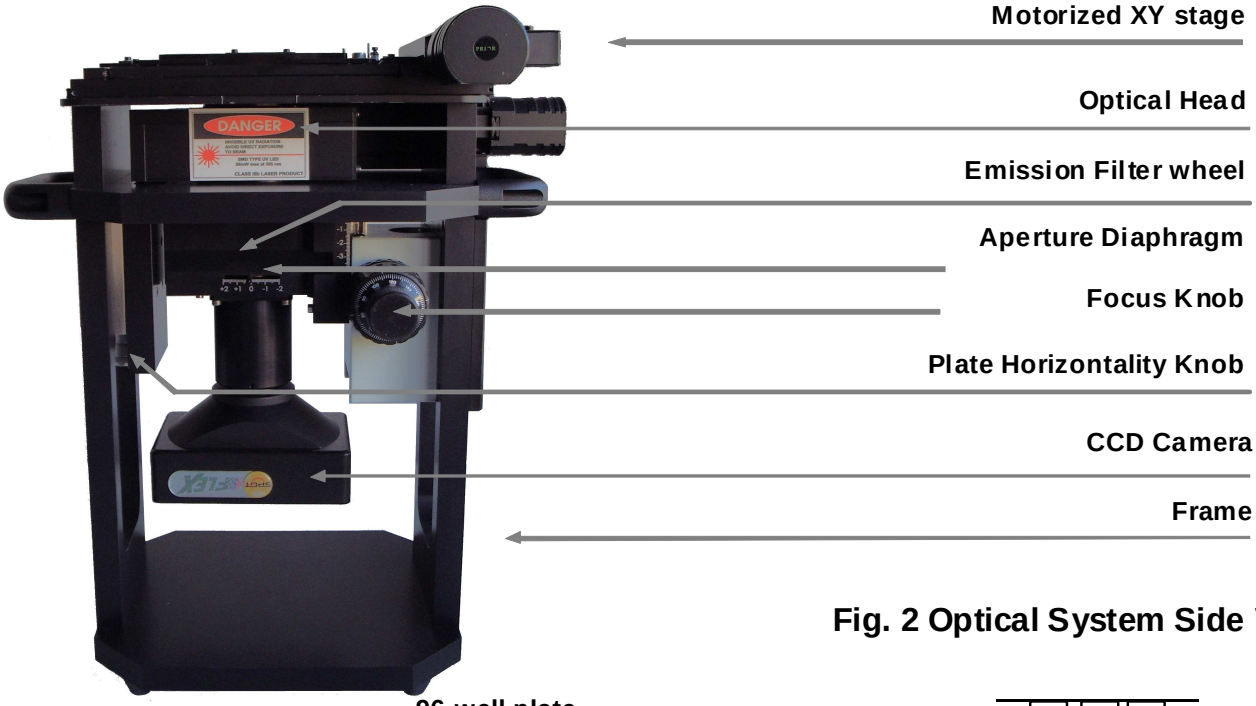


Fig. 2 Optical System Side View

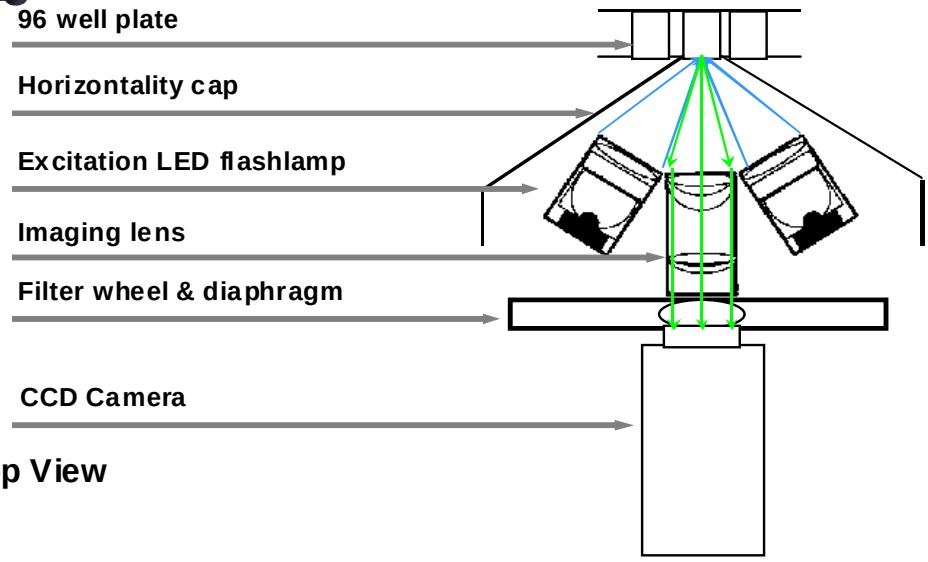
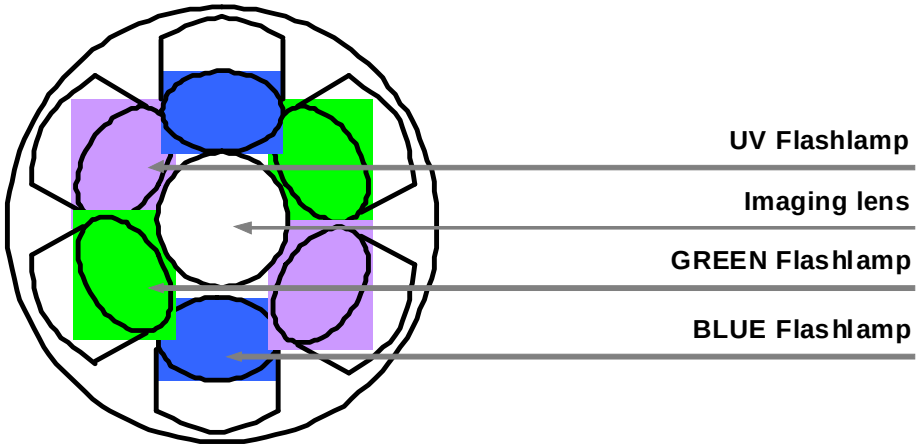


Fig. 3 Optical System Top View



TROPHOS Plate RUNNER HD® SPECIFICATIONS

Sample support	96, 384 well plates
Spectral Ranges and Rated Powers (*)	Excitation : • UV – 360 / 370 nm (50 mW) • Blue – 455 / 490 nm (100 mW) • Green – 505 / 555 nm (50 mW)
	Emission : — Typically suited for dyes (non exhaustive list): • UV o High Pass filter : > 455 nm — DAPI, Hoechst, Propidium Iodide • Blue o Band Pass Filter : 495 / 540 nm — Calcein, Alexa Fluor 488, FITC, CFP, GFP, o High Pass Filter : > 510 nm — Rhodamine 110, Rhodamine123, fluo-4 • Green o Band Pass Filter : 570 / 620 nm — DsRed, YFP, Cy3 o High Pass Filter : > 570 nm — PE, PE-Cy5, PerCP • One open position
Sensitivity	30 000 FITC equivalent
Optical Properties	Field : Φ 8 mm Numerical Aperture : 0.2 Depth of field : about 8.5 µm at maximum resolution of 1µ, about 20µ at 2µ resolution, about 40µ at resolution of 7.4µ. Optical resolution : around 1 micron CCD resolution : 7.4µ (1 MegaPixels), 3.7µ (4 Mpx), 1.85µ (16 Mpx), 0,925µ (64 Mpx)
Timing Performances	For 200 ms exposure, on a Pentium dual core / 2GB RAM / WXP SP2 PC At minimum resolution of 7.4µ (1 Megapixels image size) : Acquisition : 2mn40s for 96 images, 5mn30 for 2x96, 6mn50s for 3x96 images (Triple color) Particles analysis : 7s for 96 images (2mn38s with background substraction) At high resolution of 2µ (16 Megapixels image size) : Acquisition : 8mn for 96 images, 16mn for 2x96, 23mn for 3x96 images (Triple color) Particles analysis : 2mn10s for 96 images (39mn with background substraction) At maximum resolution of 1µ (64 Megapixels image size) : Acquisition : 25 mn for 96 images, 51 mn for 2x96, 75 mn for 3x96 images (Triple color) Particles analysis : 7mn30s for 96 images (2h25mn with background substraction)
Hardware	Light Source : Powerful light emitting diodes (LumiLEDs™) Image sensor : Diagnostic Instruments DXF1500 Monochrome cooled 14bits CCD camera, 2048x2048 "µ-scanning" CCD (i.e. CCD moved by internal piezo) allowing up to 8192x8182 resolution. Motorized XY stage : Prior H107, Proscan controller (repeatability ± 1µm , resolution 0.1µm) Motorized filter wheel : Thorlabs FW102B – 6 positions
Software	3 dedicated tools compatible with Windows 9x/Me/2k/XP/Vista operating systems : • Alignment setting : Align • Acquisition : Goelan • Analysis : Tina Provided on demand, a free of charge unsupported SDK to allow control and command from any other vendor software supporting dll (such as Universal Imaging MetaMorph® : ask directly to Universal Imaging® if you are interested in their customized add-on). Images are in full standard gray tiff format with no proprietary extension, allowing analysis with any other vendor software. Data files are in ascii csv format, compatible with any spreadsheet processor or database engine and easily readable by any custom software.
PC requirements	Windows 98/Me/2k/XPsp2/Vista system, with these interfaces: 2xRS 232, 1xUSB, 1xIEEE 1394 (firewire)
Power supply	AC 230 V and 110 V ; Standard DC 32 V + TROPHOS ICAL LED switching & regulation unit
Power consumption	< 250W, when used with a laptop PC
Dimensions	45x40x30 cm (HxWxD)
Weight	~ 21 Kg

* Contact us for any other configuration required.