Visitron Spinning Disk 1

Installed 2012. Inverse spinning disk microscope unit for fast pseudo-confocal imaging, preferably for live applications at ambient temperature. Equipped with laser lines for blue, green and red dyes. Standard sCMOS and high-sensitivity EM-CCD camera. CFP imaging as a widefield option through the disc. 405 nm point scanner option for FRAP/photoactivation. Multi-positioning and stage-based environmental control possible, including a fast heater/cooler for temperature shift experiments.

(Last updated: August 2020)

Stand
Zeiss Axio Observer, inverse, fully motorized, with hardware autofocus (Zeiss Definite Focus) and Optovar (1.0x, 1.25x, 1.6x).

Objectives
- LD Achroplan 20x/0.4 Corr (long-distance, cover glass thickness correction collar)
- Plan-Apochromat 63x/1.4 Oil DIC III

Lasers
- 405 nm laser diode (120 mW, 50/50 power split for imaging FRAP module)
- 488 nm diode laser (100 mW)
- 561 nm DPSS laser (100 mW, AOTF-controlled)

Widefield Illumination
- HXP short-arc lamp
- White LED

Filters

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Reflector turret</th>
<th>Emission filter wheels</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DIC Analyzer</td>
<td>DIC Analyzer</td>
</tr>
<tr>
<td>2</td>
<td>DAPI (AT350/50x, T400lp, ET460/50m)</td>
<td>DAPI (450/50)</td>
</tr>
<tr>
<td>3</td>
<td>CFP (ET436/20x, T455lp, ET480/40m)</td>
<td>Empty</td>
</tr>
<tr>
<td>4</td>
<td>GFP (ET470/40x, T495lp, ET525/50m)</td>
<td>GFP (525/50)</td>
</tr>
<tr>
<td>5</td>
<td>mCherry (ET560/40x, T585lp, ET630/75m)</td>
<td>mCherry BP (605/70)</td>
</tr>
<tr>
<td>6</td>
<td>FRAP (Chroma T400lp)</td>
<td>mCherry LP (570lp)</td>
</tr>
</tbody>
</table>

1Chroma 49000 ET, 2Chroma 49001 ET, 3Chroma 49002 ET, 4Chroma 49008 ET

Spinning disk unit
- Yokogawa CSU-X1 Nipkow spinning disk unit (pinhole diameter 50 µm, spacing 253 µm)
- Main dichroic: Semrock Di01-T405/488/561
Cameras

- Photometrics Prime sCMOS camera (2048 x 2048 pixel, 6.5 µm pixel size, 16 bit, up to 31 fps)
- Hamamatsu ImagEM X2 EM-CCD (512 x 512 pixel, 16 µm pixel size, 16 bit, up to 70 fps)

Stage/Inserts

- ASI PZ scanning stage (xy travel range 120 x 110 mm), z-piezo top plate (Mad City Labs Nano-Drive controller, closed loop, travel range 200 µm)
- Inserts for all kind of slides and 35 mm dishes

Software

- VisiView 4.5.0.4 (Visitron Systems) running on Windows 10 (64-bit)

Environmental Control

- CherryTemp heater/cooler (Cherry Biotech) for fast temperature shifts (seconds), 5-45°C
- On request: PeCon P-set system for heating and cooling, including a T-controlled water bath. Exchangeable baseplates for environmental stage insert for slides, 35 mm and 60 mm dishes, ibidi slides and chambered coverglass slides.

Additional Devices

- On request: objective heater for Zeiss Plan-Apochromat 63x oil objective (only in combination with 37-2 T-control unit from PeCon)