MicroPoint Laser Illumination & Ablation.

MicroPoint provides a flexible and field-proven tool for photo-stimulation. Supplied with a patented compact, pulsed nitrogen pumped tuneable dye laser, it is capable of ablation, bleaching and uncaging over a wavelength range of 365 to 656 nm. Broad wavelength range and energy control allow MicroPoint to be optimized for a wide range of scenarios. More than 20 wavelengths can be utilized with available dye resonator cells, while appropriate dichroic filter sets enable simultaneous imaging and photo-stimulation of the specimen.

Features and Benefits

- Simultaneous laser delivery, viewing and acquisition
- Low maintenance fibre optic delivery maintains alignment
- Quick set-up with manual beam positioning or automatic pattern generation
- User control of ablation and illumination plane provided by z-axis telescope
- Precise control of energy provided by motorized variable attenuator slide

Specifications Summary

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength</td>
<td>365 nm to 656 nm</td>
</tr>
<tr>
<td>Pulse energy control</td>
<td>0.1% - 100%</td>
</tr>
<tr>
<td>Resolvable spot size</td>
<td>Near diffraction limited</td>
</tr>
<tr>
<td>Average power</td>
<td>750 μW, 15 Hz / 50 μJ</td>
</tr>
<tr>
<td>Pulse width</td>
<td>3 to 5 ns</td>
</tr>
<tr>
<td>Certification</td>
<td>CDRH IIIb</td>
</tr>
</tbody>
</table>

MicroPoint Laser ablation of muscle precursor cells in C. elegans
Hardware Specifications

Control Interface Type

<table>
<thead>
<tr>
<th></th>
<th>Manual</th>
<th>Galvo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connectivity</td>
<td>Foot pedal trigger option</td>
<td>USB</td>
</tr>
<tr>
<td>Field of view range switching</td>
<td>100%, 80%, 60%, 40%, 30% (selectable)</td>
<td></td>
</tr>
</tbody>
</table>

Optical

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Wavelengths</td>
<td>365 nm to 656 nm</td>
<td></td>
</tr>
<tr>
<td>Spectral bandwidth</td>
<td>4 nm FWHM</td>
<td></td>
</tr>
<tr>
<td>Attenuation options</td>
<td>Computer-controlled, 90 steps, 0.1%-100% transmission</td>
<td></td>
</tr>
<tr>
<td>Resolvable spot size</td>
<td>Near diffraction limited</td>
<td></td>
</tr>
<tr>
<td>Fields of view</td>
<td>Fixed beam (User-adjustable)</td>
<td>MP-2204-EBD* = 5.84 x 5.84 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MP-2204-EBD** = 5.0 x 5.0 mm</td>
</tr>
</tbody>
</table>

* = MicroPoint combined with large field of illumination Mosaic3 model
** = MicroPoint combined with small field of illumination Mosaic3 model

Tunable, Fiber Optic Pumped Dye Laser Source

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<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Average power</td>
<td>750 μW</td>
<td></td>
</tr>
<tr>
<td>Peak power</td>
<td>12 kW</td>
<td></td>
</tr>
<tr>
<td>Pulse energy</td>
<td>50 μJ</td>
<td></td>
</tr>
<tr>
<td>Stability</td>
<td>± 3%</td>
<td></td>
</tr>
<tr>
<td>Pulselength</td>
<td>3 to 5 nsec</td>
<td></td>
</tr>
<tr>
<td>Pulse repetition rate</td>
<td>0 to 15Hz</td>
<td></td>
</tr>
<tr>
<td>CDRH</td>
<td>IIIb</td>
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</table>

Widefield Illumination Port Options

<p>| | | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Dichroic beamsplitter</td>
<td>Single pass, specify wavelength; Multi-pass, specify wavelength</td>
<td></td>
</tr>
<tr>
<td>Beamsplitter</td>
<td>450 nm to 750 nm, R = 100, 70, 50 or 30%</td>
<td></td>
</tr>
<tr>
<td>Excitation filter</td>
<td>360 nm / 40 nm (DAPPI); 480 nm / 20mn (GFP); 470 nm / 40 nm (FITC); 535 nm / 40 nm (Rhodamine)</td>
<td></td>
</tr>
</tbody>
</table>

Additional illumination port options available on request

Mechanical / Electrical

<p>| | | |</p>
<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Illumination port clear aperture</td>
<td>Ø 34 mm</td>
<td></td>
</tr>
<tr>
<td>Illumination port filter size</td>
<td>Ø 25 mm or Ø 38 mm</td>
<td></td>
</tr>
<tr>
<td>Lifetime</td>
<td>20,000,000 laser pulses; 30,000 laser pulses per refillable dye cell</td>
<td></td>
</tr>
</tbody>
</table>

Interoperability

Compatible with microscopes platforms - point & slit scan confocal, spinning disk confocal & widefield.
Custom OEM systems available for High Content Screening and other fluorescence based imaging instrumentation.
Compatible with control and acquisition software from market leading microscope manufacturers including Carl Zeiss, Leica and Olympus.
Lowest cost to add wavelengths in the field - change a dye cell and tune system within the visible spectrum.
Components
The main components of MicroPoint are shown below:
**Ordering your MicroPoint system**

Prior to commencing the order process please advise your customer representative of your application requirements. Please also refer to the flow chart on the next page.

### Step 1. Confirm Microscope make and model
- **Microscope model**
  - Make: e.g. Leica, Nikon, Olympus, w Zeiss and model.

### Step 2. Choose your control Interface
- **Control Interface**
  - Select either Manual or Galvo

### Step 3. Select the required laser option
- **Laser option**
  - The following laser option is available:
    - Pulse Generator / Counter with foot pedal (Manual Control Interface Only)

### Step 4. Select the required pre-mixed laser dye cells
- **Laser Dye Cells (premixed)**
  - The following pre-mixed laser dye cells are available in 50 ml quantities:
    - High power 365 nm dye cell + 50 ml dye; High power 435 nm dye cell + 50 ml dye; Multiline 388 - 656 nm dye cell + 50 ml dye (please refer to table below for part numbers and available wavelengths).

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Part Number</th>
<th>Part Number</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP-27-365-DYE</td>
<td>365</td>
<td>MP-27-481-DYE</td>
<td>481</td>
</tr>
<tr>
<td>MP-27-388-DYE</td>
<td>388</td>
<td>MP-27-543-DYE</td>
<td>543</td>
</tr>
<tr>
<td>MP-27-404-DYE</td>
<td>404</td>
<td>MP-27-551-DYE</td>
<td>551</td>
</tr>
<tr>
<td>MP-27-422-DYE</td>
<td>422</td>
<td>MP-27-576-DYE</td>
<td>576</td>
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<tr>
<td>MP-27-435-DYE</td>
<td>435</td>
<td>MP-27-590-DYE</td>
<td>590</td>
</tr>
<tr>
<td>MP-27-471-DYE</td>
<td>471</td>
<td>MP-27-613-DYE</td>
<td>613</td>
</tr>
<tr>
<td>MP-27-488-DYE</td>
<td>488</td>
<td>MP-27-622-DYE</td>
<td>622</td>
</tr>
<tr>
<td>MP-27-515-DYE</td>
<td>515</td>
<td>MP-27-625-DYE</td>
<td>625</td>
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<tr>
<td>MP-27-516-DYE</td>
<td>516</td>
<td>MP-27-635-DYE</td>
<td>635</td>
</tr>
<tr>
<td>MP-27-576-DYE</td>
<td>576</td>
<td>MP-27-651-DYE</td>
<td>651</td>
</tr>
<tr>
<td>MP-27-590-DYE</td>
<td>590</td>
<td>MP-27-656-DYE</td>
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<tr>
<td>MP-27-591-DYE</td>
<td>591</td>
<td>MP-27-657-DYE</td>
<td>657</td>
</tr>
<tr>
<td>MP-27-613-DYE</td>
<td>613</td>
<td>MP-27-662-DYE</td>
<td>662</td>
</tr>
</tbody>
</table>

### Step 5. Select the required beamsplitters
- **Beam splitters**
  - The following beam splitters are available:
    - 30 Epi / 70 Epi: Short reflect / long reflect Laser Notch / 100% Epi Plug
    - 50 Epi: Shortpass Laser 435 nm Beamsplitter Plug / 435 nm Beamsplitter Plug / 0% Epi (Blank) Plug

### Step 6. Select the required EPI Excitation filters
- **EPI Excitation Filter options**
  - The following EPI Excitation filter options are available:
    - GFP exciter filter / Blank filter holder / Any 25 mm filter with 38 mm holder

### Step 7. Select the required EPI Illumination Lamp option
- **EPI Illumination Lamps**
  - The following EPI illumination lamp options are available:
    - Microscope Specific Hg Lamp / DG4 / Andor AMH / Other

### Step 8. Select required options
- **Optional Accessories**
  - EPI cubes: Microscope specific
  - Spares: Laser Dye Bottle (50 ml), Dye Cell Cleaning Kit, First Surface Mirror microscope slide
Configuring MicroPoint

MicroPoint is a highly versatile illumination source, compatible with all leading microscopes and most legacy systems. There are a selection of control interfaces, filter and laser/lamp attachment options. This product tree shows the potential configurations of MicroPoint:

1. **Microscope**
   - Olympus
   - Nikon
   - Zeiss
   - Leica
   - Other

2. **Control Interface**
   - Galvo
   - Manual

3. **Laser**
   - Pulsed Nitrogen laser system
     - Includes 2M delivery fibre, Microscope specific Interlock & Microscope Epi cube with Eyesafe 532 nm longpass laser filter & alignment tools. Pulsed Nitrogen Laser w/interlock & safety kit

4. **Dye Cells & Laser Dye**
   - (Choose one or more)
   - UV - 365 nm Dye Cell
   - Multiline Dye Cell
   - High Power 435 nm Dye Cell
   - (supplied with)
   - (supplied with)
   - 365 nm Dye 50 ml
   - 388 - 665 nm Dye 50 ml
   - 435 nm Dye 50 ml

5. **Beamsplitters**
   - (Choose one or more)
   - 30 Epi :70 Laser Beamsplitter Plug
   - 50 Epi :50 Laser Beamsplitter Plug
   - 70 Epi :30 Laser Beamsplitter Plug
   - Shortpass Laser 435 nm Beamsplitter Plug
   - Short reflect / long reflect Laser Notch
   - 435 nm Beamsplitter Plug
   - 100% Epi Plug
   - 0% Epi (Blank) Plug

6. **Optional Epi Excitation Filters**
   - (Choose one or more)
   - FITC exciter filter
   - GFP exciter filter
   - Rhodamine exciter filter
   - Blank filter holder

7. **Epi illumination Lamp**
   - Microscope Specific Hg Lamp
   - LED Light Source
   - Other
   - N.B. By default lamp house flange will be that of the microscope specified in Step 1.

8. **Optional Accessories**
   - Microscope Accessories
   - Analyzer for Zeiss Axioskop
   - Analyzer & Barrier 25 mm
   - Laser delivery filter set for 365/405/435/confocal

   - Microscope Specific Epi Cubes

   - Spares
     - Laser Dye Bottle (50 ml)
     - Dye Cell Cleaning Kit
     - First Surface Mirror microscope slide
Product Drawings
Dimensions in mm [inches]

Shutter Moves 25.4 [1.0]

Weight of Head = 1.5 kg [3.0 lb]

Software Compatibility - Life Science Applications

MicroPoint Computer Controlled systems are compatible with a wide range of life science imaging software as indicated in the table below.

<table>
<thead>
<tr>
<th>Software</th>
<th>Compatibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andor iQ Version 2.0 and above</td>
<td>Live cell multi-dimensional imaging with flexible control of MicroPoint</td>
</tr>
<tr>
<td>Micro-Manager</td>
<td>Image-based targeting, control and calibration</td>
</tr>
<tr>
<td>MDC MetaMorph Ver 6.3 and above (32-bit only)</td>
<td>Fully integrated MicroPoint support with powerful imaging capabilities</td>
</tr>
<tr>
<td>Nikon NIS Elements 3.0 SP8 Build 548</td>
<td>Multi-dimensional imaging with simple/fast control of MicroPoint</td>
</tr>
<tr>
<td>Software Development Kits (SDK)</td>
<td>SDKs are available for OEM to develop software to control integrated MicroPoint systems</td>
</tr>
</tbody>
</table>
Order Today

Need more information? At Andor we are committed to finding the correct solution for you. With a dedicated team of technical advisors, we are able to offer you one-to-one guidance and technical support on all Andor products. For a full listing of our regional sales offices, please see: [www.andor.com/contact](http://www.andor.com/contact)

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  - Fax +44 (28) 9031 0792

**Japan**
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  - Phone +81 (3) 6732 8968
  - Fax +81 (3) 6732 8939

**North America**
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  - Phone +1 (860) 290 9211
  - Fax +1 (860) 290 9566

**China**
- Beijing
  - Phone +86 (10) 5884 7900
  - Fax +86 (10) 5884 7901

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**Items shipped with your MicroPoint:**

- 1x First surface mirror
- 1x Allen key (0.05")
- 1x TPES24-T120MM power supply with 1x 3m mains cable for TPES24-T120MM (EBD systems)
- 1x USB cable (EBD systems)
- 1x 2m BNC - BNC cable (EBD systems)
- 1x User guide

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**Footnotes:** Specifications are subject to change without notice

1. MicroPoint is supplied with a UV-Vis imaging quality Epi-illumination adapter for both current and previous generation microscopes from Leica, Nikon, Olympus and Zeiss.

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**Minimum Computer Requirements:**

- The computer controlled system requires a personal computer with a PCI slot and a USB port.

**Operating & Storage Conditions**

- Operating Temperature: -12°C to 43°C ambient
- Relative Humidity: < 70% (non-condensing)
- Storage Temperature: -25°C to 50°C

**Power Requirements**

- 120-240 VAC, 50-60 Hz, 1.0 A

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Note

Within the EU MicroPoint is only available for research purposes and not for commercial use.

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Windows is a registered trademark of Microsoft Corporation.