Fast-Acquisition TCSPC FLIM System

Based on bh’s multi-dimensional TCSPC technique
Acquisition times down to 100 ms
Ultra-high time resolution
Peak count rates exceeding 20 MHz
IRF width < 25 picoseconds
Time-channel width down to 820 femtoseconds
Images size from 128 x128 pixels to 2048 x 2048 pixels
Number of time channels per pixel up to 4096

The bh Fast-Acquisition FLIM system uses four parallel TCSPC channels and a device that distributes the photon pulses of a single detector into the four recording channels. The system features an electrical IRF width of less than 7 ps (FWHM), and a time channel width down to 820 fs. The optical time resolution with an HPM-100-06 or -07 hybrid detector is shorter than 25 ps (FWHM). The system is virtually free of pile-up effects. FLIM data can be recorded at acquisition times down to the fastest frame times of the commonly used galvanometer scanners. The data are recorded with the TCSPC-typical number of time-channels of up to 4096, and with pixel numbers from 128 x 128 to 2048 x 2048 pixels. The system is therefore equally suitable for fast FLIM and precision FLIM applications.

## Fast-Acquisition FLIM

### Available FLIM data formats:

<table>
<thead>
<tr>
<th>Pixels</th>
<th>Time Channels, max</th>
<th>Time-Channel width, min.</th>
</tr>
</thead>
<tbody>
<tr>
<td>128 x 128</td>
<td>4096</td>
<td>813 fs</td>
</tr>
<tr>
<td>256 x 256</td>
<td>4096</td>
<td>813 fs</td>
</tr>
<tr>
<td>512 x 512</td>
<td>4096</td>
<td>813 fs</td>
</tr>
<tr>
<td>1024 x 1024</td>
<td>1024</td>
<td>3.26 ps</td>
</tr>
<tr>
<td>2048 x 2048</td>
<td>256</td>
<td>13 ps</td>
</tr>
</tbody>
</table>

### Instrument response width, FWHM, typical

<table>
<thead>
<tr>
<th>Detector</th>
<th>Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical</td>
<td>6.9 ps</td>
</tr>
<tr>
<td>HPM-100-06 detector</td>
<td>23 ps</td>
</tr>
<tr>
<td>HPM-100-07 detector</td>
<td>23 ps</td>
</tr>
<tr>
<td>HPM-100-40 detector</td>
<td>130 ps</td>
</tr>
</tbody>
</table>

### Software version required

- Data acquisition, SPCM: April 2018 or later
- Data analysis, SPCImage: April 2018 or later

### Related Products

- SPC-150, SPC-150N, SPC-160 TCSPC/FLIM Modules
- HPM-100-06, -07, -40 Hybrid Detectors
- DSC-120 Confocal and Multiphoton Laser Scanning systems
- DCS-120 Macro System

### Literature